



CONTRIBUTIONS
TO MANAGEMENT SCIENCE

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Editors

**Strategy
and Governance**

Strategy and Governance of Networks



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(Editors)

Strategy and Governance of Networks

Cooperatives, Franchising,
and Strategic Alliances

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Contents

Contributors ix

Introducing “Strategy and Governance of Networks” 1
George Hendrikse and Josef Windsperger

Part I Cooperatives

On the Nature of a Cooperative: A System of Attributes Perspective 13
Li Feng and George Hendrikse

**Determinants of Successful Cooperation in Agricultural Markets:
Evidence from Producer Groups in Poland** 27
Ilona Banaszak

**Innovation Processes in Cooperative Organizations: Results of a Case
Study Research** 47
Daniel Brunner and Tim Voigt

**Structure and Governance of Networks: Cases of Franchising
and Co-operative Chains** 63
Akira Kurimoto

Part II Franchising

Plural Form and Ownership 85

**Stable Plural Forms in Franchise Systems: An Examination
of the Evolution of Ownership Redirection Research** 87
Brent L. Baker and Rajiv P. Dant

**A Comparison of Company Owned and Franchised Fast Food Outlet
Performance: Insights from Health Inspection Scores** 113
Roy L. Beheler, Seth W. Norton, and Kabir C. Sen

New Challenges for Store Location in a Plural Form Network: An Exploratory Study	127
G�rard Cliquet	
Plural Form and the Internationalization of Franchising Networks: Exploring the Potential Relationship	147
Rozenn Perrigot	
Knowledge Management, Trust and Strategic Management Issues	165
The Knowledge Transfer Strategy of Franchising Firms: Evidence from the Austrian Franchise Sector	167
Josef Windsperger and Nina Gorovaia	
Trust and Fairness in Franchise Relationships	183
Evelien Croonen	
Concept Uniformity: Control Versus Freedom in Business Format Franchising	205
Odile Streed and G�rard Cliquet	
Entrepreneurship and Franchising	221
Franchisee Discontinuance and Failure Empirical Findings from Finland	223
Mika Tuunanen and Jenni Torikka	
Part III Strategic Alliances	
Governance Structure Issues	247
A Model to Analyse Governance Structures in Technological Networks ..	249
Nieves Arranz and J. Carlos Fdez de Arroyabe	
Inter-Firm Relations and Innovative Activity: A Cluster Analysis Based on Subcontracting Firms in the French Sillon Alpin	269
Rachel Bocquet	
Conflict Resolution Mechanisms in Alliance Networks	293
Elodie Gardet	
Intermediary Institutions and Embeddedness in Technology Networks ...	311
R�gis Coeurderoy and Val�rie Duplat	
Performance and Strategy of Networks	325
Governing for Success: The Host Country Uncertainty and the Design of Foreign Parent Control in International Joint Ventures	327
Huu Le Nguyen and Jorma Larimo	

Performance Implications of Network Structure, Resource Investment, and Competition in the German Motion Picture Industry	347
Brinja Meiseberg and Thomas Ehrmann	
Syndication Strategies in Venture Capital Networks	373
David Mas, Annick Vignes, and Gérard Weisbuch	

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Introducing “Strategy and Governance of Networks”

George Hendrikse and Josef Windsperger

There are many types of enterprises, like investor owned enterprises, consumer retail cooperatives, mutual insurance companies, mutual banking institutions, wholesale and supply cooperatives, public utility cooperatives, worker-owned firms, agricultural processing and marketing cooperatives, family owned enterprises, and nonprofit firms (Hansmann 1996). This raises the issue of the relative efficiency of the strategy and governance of an enterprise. Most research attention has been dedicated to enterprises collectively owned by investors of capital. The third international conference on economics and management of networks (*EMNet*) was dedicated to developments in organizational economics and management of networks, especially cooperatives, franchises, and strategic alliances. It took place at the Rotterdam School of Management, Erasmus University Rotterdam, from June 28 to June 30, 2007.

The strategy and governance of enterprises has to address problems of conflicting interests between its stakeholders, problems of joint interests, as well as problems of bounded cognition. Situations with conflicting interests require alignment of incentives (by allocating ownership, control, and income rights) to a certain extent. Situations with a joint interest problem require coordination by some mechanism, while the organization of the stakeholders has the potential to handle bounded cognition in ways to produce results impossible to achieve for one person. Successful strategy and governance of enterprises will contribute to accomplishing the three goals of limiting activities outside the interest of the network, coordinating the optimal combination of productive resources across parties, and to deal with the cognitive

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limitations of individual network parties. The large majority of enterprise studies address the first problem, with a focus on mitigating the risks of opportunistic behavior.

A special feature of networks is that multiple independent entrepreneurs have a sizeable stake in the development and outcome of the network. The multiplicity of independent entrepreneurs in a network results in incentive, coordination, and cognition problems that deserve special attention. The emphasis in the articles of this book is in line with this focus on situations with conflicting interests, but coordination and cognitive aspects of the strategy and governance of networks are addressed as well. The authors apply different theoretical views on networks, such as transaction cost theory, property rights theory, agency theory, resource- and knowledge-based theory, evolutionary theory, information richness theory and social exchange theory (Williamson 2002; Ménard 2005; Hendrikse 2003; Blair and Lafontaine 2005; Nelson and Winter 2002; Mahoney 2005; Daft and Lengel 1986; Kogut and Zander 1993; Cropanzano and Mitchell 2005; Provan et al. 2007; Gulati 2007). The articles are structured in three parts:

Cooperatives

- Governance structure issues

Franchising networks

- Plural form and ownership
- Knowledge management, trust and strategic management issues
- Franchising and entrepreneurship

Strategic alliances

- Governance structure issues
- Performance and strategies of networks.

1 Cooperatives

A cooperative is an enterprise with the defining feature that the owners/members are also suppliers or customers of the organization.

1.1 Governance Structure Issues

Feng and Hendrikse address the nature of a cooperative. It addresses the question: Is a cooperative an extension of the enterprises of the members, a vertically integrated firm across two stages of production, or is the cooperative a firm at one stage of production? Two concepts from the theory of the firm are employed: the enterprise as a system of attributes and the delineation of a governance structure in terms of ownership rights, control rights and income rights. It is argued that a cooperative

is a firm in itself. The choice regarding the attribute ownership is ownership by the members (not outside financiers, employees, or others), while control can be either with members or manager–employees, and income rights are negotiated between the members and the employees. Cooperatives are compared with investor owned enterprises and franchises in order to provide contrast between the various governance structures.

Banaszak investigates farmer cooperative organizations called “producer groups” in the Polish province Wielkopolska. They were formed by farmers in the mid-1990s. The main aim of those organizations was to organize joint sales of output produced individually by their members. Farmers entering producer groups kept their distinct property rights, and they coordinated only on some transactions such as searching for buyers, negotiating contracts and transportation. The groups adopted different legal forms ranging from informal oral agreements, through associations, unions, limited liability companies and cooperatives. The question raised is why some cooperative arrangements in agricultural markets survive and succeed while others fail. Data were collected from 62 producer groups. Variables such as the leader’s strength, previous business acquaintances, initial selection of members, and number of members have a significant positive impact on the likelihood of success.

Brunner and Voigt study a cooperative of bakers in Germany. The 550 member bakeries buy from the cooperative ingredients (flour, fruits, vegetables, fat, dairy products), machinery, financial and consulting services. Product development in a cooperative is challenging due to the involvement of multiple levels, i.e., the cooperative enterprise as well as the member enterprises. Impulses for the creation of new products and the dissemination of knowledge can originate from the cooperative as well as the members. The authors address the question how the formulation and dissemination of innovations in a cooperative enterprise works. Results are formulated regarding a product innovation (snack), process innovation (coffee), and a systemic innovation (organic). It turns out that the identity of the promoter of the innovation as well as the communication and decision making process is influenced by the nature of the innovation.

Kurimoto addresses the governance of loosely connected networks. It is observed that many industries and supply chains are characterized by inter-organizational network variety, i.e., hierarchical corporate chains coexist with successful franchise chains and cooperatives. Cases are presented regarding Swedish consumer and retail cooperatives, the Seven–Eleven franchise system in Japan, and Japanese consumer cooperatives. There is a tendency towards more hierarchical structures due to more intense competition, irrespective of organizational forms and chain store types. Other organizational forms prove to be competitive due to offering innovative services and creating effective alliances of various forms with suppliers. However, each governance structure is facing specific governance problems, like the growing discontent among franchisees that are neither owners nor employees of the chain organization, or the cumbersome decision making process due to the dual board structure in cooperatives.

2 Franchising

Franchising is an organizational form that enables the firm to realize competitive advantage due to efficient coordination (knowledge exploitation) and efficient knowledge exploration (March 1991). It is examined here through plural form, ownership, knowledge management, trust as informal governance, strategic and entrepreneurship issues.

2.1 *Plural Form and Ownership*

Baker and Dant provide a comprehensive review of the evolution of the ownership redirection research in the last decades. The ownership redirection thesis within franchising governance research stream argued that successful, resource-flush franchise systems will ultimately tend toward becoming wholly company-owned systems due to opportunistic reacquisition activity by the powerful franchisors. For nearly 40 years this dark prophecy has precipitated an intense research dialog between the supporters and detractors of this thesis. More recently, the plural forms thesis has been advanced, which argues that since each type of ownership structure provides its own unique governance benefits, franchise systems are likely to continue to simultaneously invest in both, company-owned and franchised outlets. In addition to the detailed review of the ownership redirection literature, *Baker and Dant* discuss the transition from the ownership redirection thesis to the contemporary stable plural forms thesis.

Behler, Norton and Sen investigate the performance of franchised and company owned fast food outlets located within the same region in the USA. Analysis of the health inspection scores received by the fast food outlets over approximately two and a half years shows that franchised stores receive significantly better ratings. The inspection scores of franchised outlets also have a lower standard deviation than that of company owned stores. The results support the view that the incentives provided in the franchise contract as well as the additional layer of supervision by the franchisee are likely to lead to better and more consistent outlet performance. At the same time, there are a few chains where company owned stores get higher scores than their franchised counterparts. This suggests that there are inter chain differences in the operational efficiencies of the two organizational formats.

Cliquet argues that the development of retail and service networks implies new location models that explicitly include store ownership issues. Traditional store location models do not take into account the ownership form choice as it emerges in a plural form network, considering either a strictly franchised or a strictly company-owned chain. In a modeling process of store location involving the ownership choice, two main research questions should be solved: Is this modeling process identical for any kind of network? How can ownership issues be integrated in a location model, and in what kind of model? *Cliquet* tries to answer the first question by means of an exploratory survey of 18 network development managers. Moreover,

he proposes a typology of the location processes and makes some suggestions relating to the choice of a location model, depending on the location decision process and the strategy of the chain.

The purpose of *Perrigot's* study is to explore the link between plural form and franchising network internationalization and to determine whether the influence of plural form on network internationalization is positive or negative. An empirical study involving 493 French networks, of which 28.2% are international, reveals the existence of major differences between international networks and purely-domestic networks in terms of the plural form: the average plural form rate for networks with operations abroad equals 34.6%, in comparison with 43.3% for purely-domestic networks. Moreover, logistic regression results underscore the significant and negative impact of the plural form on internationalization.

2.2 Knowledge Management, Trust and Strategic Management Issues

Windsperger and Gorovaia present a property rights view on the knowledge transfer strategy of franchise firms. Starting from the information richness theory, they argue that the degree of contractibility of system knowledge determines the information richness of the knowledge transfer mechanism of franchise firms. The lower the contractibility of knowledge, the more knowledge transfer mechanisms with a high degree of information richness are used. They examine the following hypotheses: If the franchisor's knowledge is contractible, knowledge transfer mechanisms with a lower degree of information richness (such as intra- and internet, fax, phone, postal mailings) are used, and if the franchisor's knowledge is noncontractible, knowledge transfer mechanisms with a higher degree of information richness (such as visits, conferences, councils, training) are used. The data from 83 franchise firms in Austria provide support for the hypotheses.

Croonen focuses on trust and fairness in franchise relationships. Trust and fairness become especially important when a drastic change in the context of a relationship occurs. Her study aims at generating theory about how franchisees' perceptions of trust and fairness influence their responses toward their franchisors during franchisor-led strategic change processes. On the basis of case studies regarding eight change processes in four Dutch drugstore franchise systems, Croonen distinguishes a new level of trust in a franchise context: “franchise system trust” and discusses five instruments that franchisors can “institutionalize” in their franchise systems to influence their franchisees' perceptions of franchise system trust. The results also demonstrate that franchisees' perceptions of distrust and unfairness result in destructive responses toward the franchisor.

According to *Streed and Cliquet*, business-format franchises experience growing individualization of demand, from franchisees and final customers. Franchisors may need to carefully evaluate trade-offs between standardization and adaptation of the business concept in order to satisfy their customers. The purpose of this study is

to identify potential guidelines for franchisors who are trying to conciliate brand uniformity and adaptation to customer demand. Streed and Cliquet examine the cases of McDonald's and Great Harvest using the Kaufmann and Eroglu's (1998) hierarchy of components framework and the categories of customization developed by Gilmore and Pine (1997).

2.3 Entrepreneurship and Franchising

Torikka and Tuunanen focus on franchisee discontinuances and failures during 1999–2001. Franchising is approached from an entrepreneurship viewpoint and taken as a form of starting and conducting entrepreneurship and business. The study was carried out in 2002 in Finland. The member franchisors of the *Finnish Franchising Association* (FFA) were surveyed. The results indicate that the average annual franchisee turnover rate was 11% in 1999–2001. In proportion to the average number of franchisee owned outlets (1,027) per year in 1999–2001 the figures show an average annual franchisee failure rate of 1.66%. The risk of bankruptcy for franchised businesses (0.78%) seem to be around half of the risk for stand-alone businesses (1.32%). Every fourth (24%) franchisor reported facing unexpected franchisee turnover where franchisee ceased operations before his/her franchise contract expired. Furthermore, every third (32%) franchisor saw unexpected franchisee turnover as detrimental to the franchise. It is worth mentioning that only part of the failure and turnover related disadvantages and problems cause evident and easily measurable expenses. If the whole extent of direct and indirect expenses and financial losses resulting from franchisee turnover and failures were known, franchisors might pay more attention to the issue. Franchisee discontinuances and failures can be and should be prevented, because they erode the earnings of both franchisees and franchisors.

3 Strategic Alliances

Innovation and technology networks, joint ventures, venture capital relations and networks in the motion picture industry are examined here through governance and strategic issues at the national and international level.

3.1 Governance Structure Issues

Arranz and Arroyabe present an analysis of governance structures in technological networks. The transaction cost theory provides the relevant variables which affect governance forms but it does not explain how they are affected and what variables

have a great influence. They propose a model for analysing the governance structure of a network which allows to study the variability of governance forms and their efficiency, and also provides an answer to three questions: How is the governance form structured in networks? What factors influence the variability of governance forms in networks? What is the most efficient governance form of networks? Arranz and Arroyabe used data collected from a large sample of technological networks developed under the V Framework Programmes (1998–2002) retrieved from the publicly available CORDIS (Community Research Development Information Service) projects database.

Bocquet investigates the relationship between the different types of firms in the subcontracting industry and their innovative activities. The main objective of her study is to explain how the ability to innovate is related to the nature of the inter-firm relationships. She draws on the two conceptual approaches to the firm (contractual and competence perspectives) to differentiate three types of subcontracting firms and to indicate how these approaches can be linked with their ability to innovate. In addition, she extends the framework by introducing firm-specific determinants derived from the neo-Schumpeterian approach to innovation. The empirical analysis shows that the nature of inter-firm relationships is a main source of inter-firm differences in their ability to innovate. It also provides evidence that, apart from their inter-firm relationships, the most innovative firms are able to develop an autonomous capacity to innovate.

Gardet explores the conflict resolution mechanisms in alliance networks developing an innovation project. She analyses the moderating role of the advancement phase of innovation projects (from invention to development; from development to production; from production to diffusion) with regard to conflict resolution mechanisms. This research is of an exploratory nature as the existing literature has not yet developed hypotheses on the relationship between conflict resolution mechanisms, project advancement phase and the type of organisation (partner/supplier; financial/technical/industrial/commercial).

Coerderoy and Duplat examine the role of intermediary institutions, such as industry federations, chamber of commerce, incubators and technology brokers, in technology networks. They argue that services offered by intermediary institutions increase the firms’ embeddedness within the network. By backing up firms’ alliance activities, intermediary institutions deepen the relational, structural and cognitive embeddedness of the firm within its network. In turn, reinforced embeddedness helps go beyond the conflict between “trying to learn” and “trying to protect”, typical of technology networks, and so enhances the viability of the network as a whole.

3.2 Performance and Strategies of Networks

Nguyen and Larimo develop and test a model of the international joint venture control which deals with different forms of host country uncertainty and the impact of control on joint venture performance. The host country uncertainty is characterized

by cultural, environmental, and competitive uncertainty. They conceptualize foreign parent control across three dimensions including mechanism, focus, and extent. The empirical study is based on the survey of Finnish firms that established international joint ventures with local firms in the 1990s. The results show that foreign parent firms tend to exercise more formal, broad, and tight control over their international joint ventures when they perceived high cultural uncertainty and high competitive uncertainty in the host countries. On the other hand, they prefer formal, narrow, and loose control over their joint ventures in cases of high environmental uncertainty. In addition, the firms that exercise broad, formal, and tight control in high uncertainty countries and narrow, social, and loose control in low uncertainty countries are more satisfied with the joint venture performance.

Meiseberg and Ehrmann present a new framework for organizing a motion picture in such a way that chances for box-office success are enhanced. They combine and expand two strands of research for the moviemaking industry: the economic approach and the social network perspective. They test the hypotheses on a sample of each year's top ten German movies as to box-office admissions for the period 1990–2004. In particular, they find that extensive care and industry knowledge are required when organizing the economic and social framework in which a film project is undertaken, since movie success does not depend on individual star power; on the contrary, the real star is the team.

Mas, Vignes and Weisbuch investigate the syndication strategies in venture capital networks. Empirical evidence shows that venture capitalists syndicate to finance start-ups. Mas, Vignes and Weisbuch focus on the role of the social network generated by these syndication operations. They demonstrate that the syndication network is not random. In addition, they show that the different assortativities (degree, spatial, industrial) are positive, suggesting that venture capitalists tend to co-invest with their peers. Furthermore, they examine the influence of different proximities (spatial, national and industrial) on the collaborations between the different players and show that national and industrial proximity have a strong impact on the determination of links. Finally, they provide evidence that past partners are preferred for future syndication, even if new links do appear regularly.

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Part I

Cooperatives

On the Nature of a Cooperative: A System of Attributes Perspective

Li Feng and George Hendrikse

Abstract In the 1950s and 1960s there was a debate about the nature of an agricultural cooperative: the cooperative as extension of the farm, the cooperative as vertical integration or the cooperative as a firm. We revisit this debate with various concepts from the theory of the firm that have been formulated since 1990. Two concepts shed light on this debate: the enterprise as a system of attributes and the delineation of a governance structure in terms of ownership rights, control rights and income rights. We argue that viewing the cooperative as a system of attributes integrates these three views. It emphasizes that a cooperative is a firm in itself, with many input suppliers as owners. The feature of many input suppliers as owners implies that the behavioral differences between a cooperative and an investor owned firm have to be addressed by highlighting the unique aspects of the stakeholder owning the enterprise.

Keywords: Cooperative · Vertical integration · Extension of the farm · Governance

1 Introduction

A widespread and important governance structure in many agricultural markets is the cooperative. For example, the European Union has 132,000 cooperatives with 83.5 million members and 2.3 million employees in 2001 (Commission of the European Communities 2001), the United States of America has 47,000 cooperatives with 100 million members in 2001 (USDA 2002), and China has 94,771 cooperatives with 1,193 million members in 2002 (Hu 2007). In the EU, cooperative

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firms are responsible for over 60% of the harvest, handling and marketing of agricultural products, with a turnover of approximately 210,000 million euros (Galdeano et al. 2005).

An agricultural producer cooperative is an association of independent members who jointly own a downstream processor (Sexton 1984). When a group of farmers form a cooperative, they agree mutually to set up a downstream enterprise and operate it jointly as an integral part of their individual firms. An essential feature of the cooperative is the ownership by the members over the downstream assets. Farmers not only hold formal authority and take responsibilities over the downstream enterprise, but also share the costs and revenues as residual claimants. They are, meanwhile, independent, in the sense that they do not necessarily collaborate or coordinate with each other on other aspects of their individual farm enterprises.

The alliance among all parties involved in a producer cooperative can be split into two parts. One is the horizontal relationship among the members who grow produce and then deliver them to the downstream stage. A cooperative in this aspect resembles an output association. An agricultural output association either grades, packages, handles, and stores the products of many farm enterprises together; or bargains, negotiates and contracts as a big unit with processors or retailers with respect to the processing, shipping or marketing of the output. By forming an association, part of members' assets and activities are combined together: they coordinate in some dimension, and meanwhile maximize independently the profits of their own farm enterprises. What distinguishes a cooperative from an output association is the second element of the alliance, the vertical relationship between growers and processor. On the one hand, the members possess residual rights over the processor. Collectively, they own the cooperative and make vital decisions upon important issues regarding it; they incur also the costs and share the residual rights over its capital and profits. On the other hand, the growers act also as the patrons of the processor by providing inputs. Members of cooperative are entitled to priority access so that the processor is not allowed to reject their produce.

The nature of an agricultural cooperative has been debated ever since the 1950s and 1960s. There is substantial literature on the issue and significant contributions have been published about the cooperative being an extension of the farm, vertical integration, or an enterprise (Robotka 1947; Phillips 1953; Savage 1954; Trifon 1961; Helmberger and Hoos 1962, among others). The extension of the farm view maintains that the cooperative is just an association of firms, not a new firm per se; it has no entrepreneurial unit (Phillips 1953). With this conception of the cooperative, all of the attention is centered on (the entrepreneurs of) the member firms. The interdependencies between the various activities in the portfolio of a farm enterprise are thus highlighted. The firm view advocates that a cooperative is itself a business enterprise and an economic entity, and a new decision-making body is created by the formation of a cooperative (Robotka 1947: 103; Helmberger and Hoos 1962: 290). It looks upon a cooperative as a special type of firm capable of making entrepreneurial decisions just as any private corporation (Savage 1954). The characteristics of an economic unit set up by cooperative members (for example, a processor) as an enterprise are stressed. The vertical integration view advocates the view that member

firms are integrated in the sense that several stages in the production process are brought under one entrepreneurial control (Phillips 1953: 79; Sexton 1986). Therefore the interaction and vertical relationship between two stages of production (e.g., upstream farm and downstream processor) becomes the focus of analysis, usually with one upstream and one downstream party.

The emergence in the late 1980s and the 1990s of new concepts in the theory of the firm may provide an opportunity to reconsider the nature of cooperative. This may be valuable for the standard reasons. Applying new concepts to cooperatives may result in new propositions about cooperatives. These propositions can be used descriptively, i.e., confront them with data, or they can be used prescriptively, i.e., formulate advice for either cooperatives or public policies. Cooperatives may benefit because these concepts may be helpful in addressing a variety of issues, like member commitment, transfer prices, sourcing, restructuring, and diversification. It may assist in formulating public policies, particularly competition policies that may either grant cooperatives a special status, or classify them as anti-competitive in terms of a cartel or a vertical restraint. Recent discussions on the legal status of cooperatives in the European Union are an illustration (Menard 2007). Therefore, we revisit this debate with concepts that have been formulated since 1990.

Two concepts are highlighted: the enterprise as a system of attributes and the delineation of a governance structure in terms of ownership rights, control rights and income rights. The system of attributes view proposes that organizations are composed of attributes. Each attribute represents a certain aspect of the organization. The systemic effects are stressed because the payoff associated with the level of one attribute depends on the level of all the other attributes. Attributes are therefore interdependent. By characterizing the cooperative as a system of attributes we integrate the three positions taken in the debate. It emphasizes that a cooperative is an enterprise in itself with a specific group of stakeholders as owners. It is a governing body of its own. That is, the processing stage of production of a producer cooperative should be at the center of the analysis in our view, with a special role assigned to the unique aspects characterizing the members, i.e., highlighting the transaction relationship as well as the investor relationship of the farmers with the cooperative.

In what follows, we confront the debate regarding the nature of the cooperative with the conceptual developments in the theory of the firm of the last 20 years. Section 2 briefly reviews the debate of 50 years ago. Section 3 formulates two conceptual developments in the theory of the firm. Section 4 readdresses the debate using these concepts. Section 5 concludes with formulating directions for further research regarding cooperatives.

2 The Debate on the Nature of an Agricultural Cooperative

Three positions of contention can be distinguished in the literature on the nature of an agricultural cooperative: the cooperative as extension of the farm (Trifon 1961; Staatz 1983; Menard 2007), vertical integration between two parties (Sexton 1986),

or the cooperative as a firm (Robotka 1947; Savage 1954; Helmberger and Hoos 1962). The core of the contention on this issue is the analytical emphasis, should it be on farms, on the processor, or on (the interaction) of both? Though some of the articles have actually aspects of various positions to a different extent, we classify them according to their main positions.

Referring to a cooperative both as “an extension of their entrepreneurial functioning” (p. 113) and as “*concerted* integration” (p. 102), Robotka (1947) does not intentionally make a clear distinction between the cooperative’s nature as “vertical integration” or “extension of the farm”. The non-profit feature of the cooperative provides support for the “extension of farm” perspective, while the collective ownership of upstream farmers over downstream assets characterized in the article can be seen as an argument for the position that the cooperative is viewed as vertical integration. What is more important is, however, his observation that “a new economic entity emerges when a cooperative association is formed, because participants must agree to submit to group decisions questions relating to the activity being coordinated” (p. 113). This crucial last point leads us to classify this paper in support of the cooperative as a firm position.

Phillips (1953) is also equivocal on the distinction among the three positions. On the one hand, it mentions both “concerted integration” (p. 85) and the analogy of a cooperative as a plant of a multi-plant firm (p. 75): “The participating firms are ordinarily vertically integrated in the sense that the output of the joint plant is the raw product input of the individual plants of the participating firms – or alternatively, the output of the individual plants of the participating firms is the raw product input of the joint plant (p. 79).”; “Such participating firms are integrated in the sense that several stages in the production process are brought under one entrepreneurial control (p. 79).” On the other hand, the article states that the cooperative is not a new firm (p. 75) based on the argument that a firm is not a firm unless it seeks profits for itself, which is an *ex parte* statement *per se*. Nevertheless, the arguments that “The cooperative...has no entrepreneurial unit; its member units each have their entrepreneur” and “the cooperative association consists of the sum of the multi-lateral agreements among the firms participating in the joint activity (p. 76)” emphasizes that the focus of analysis has to be on the farm enterprises according to Phillips. This is the extension of the farm position.

Phillips’ focus on the farms was soon challenged by Savage (1954), a comment on Phillips’ work, which considers a cooperative as a firm capable of making entrepreneurial decisions just as any other private corporations. “Though farmers own their cooperatives and control them in the broad sense of the word, they do not make all or most of the entrepreneurial decisions” (p. 531). “The delegation of decision rights is the common practice of cooperative. The individual farmers pool certain of their entrepreneurial functions and in doing so they authorized a collective body to perform these functions for them. In the process the farmers create an agency and defer to it some of their individual prerogatives” (p. 532). Therefore the article concludes that the cooperative should be seen as a “going concern performing entrepreneurial functions delegated to them” (p. 532).

Helmberger and Hoos (1962) denies Phillips' analogy between a cooperative and a vertically integrated firm based on the argument that "when agricultural producers jointly undertake the creation of a cooperative association, they seek goods and services provided at cost" (p. 280), rather than a high return on their investments like investors in the usual type of business enterprise. Furthermore, the paper holds that the cooperative, in spite of its different intended objectives from an investor owned firm (IOF), is a firm, a decision-making entity, given that the "theory of the firm can be adapted to reflect the cooperative's peculiar economic nature" (p. 281).

While acknowledging that the cooperatives resemble to a certain extent the characteristics of a vertical integration, namely, their "subjugation to external economic control" (p. 216) and the absence of a profit-seeking purpose, Trifon (1961) stresses that the plurality of interests of the members distinguishes the cooperatives from vertical integration, one with a single locus of profit maximization. It points out that the cooperative, as an aggregate of economic units, is "functioning only as a branch or part of the associated economic units" (p. 215–216), which is clearly the extension of the farm view.

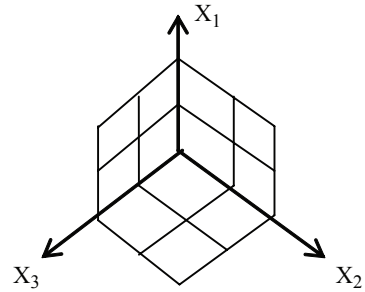
Staatz (1983) highlights also the members by addressing the issue of "group choice in a cooperative when members have at least partially divergent goals and engage in strategic behavior" (p. 1084). Cooperative decision making in the context of heterogeneous membership is conceptualized as n-person cooperative game. This is again the extension of the farm view.

Sexton (1986), however, considers a cooperative as vertical integration in the marketing chain in light of their functional similarities. In his focus on the income rights aspects of cooperatives, he characterizes a cooperative as "a horizontal club organized to accomplish vertical integration" (p. 215). The similarity with Staatz is that he adopts also the method of cooperative game theory.

The nature of a cooperative continues to receive attention nowadays. A recent article by Menard (2007) categorizes the cooperative as a hybrid. According to this paper, what distinguishes a hybrid from an integrated firm is that "they maintain distinct and autonomous property and decision rights regarding most assets" (p. 5). Yet "they simultaneously share some strategic resources, which require a tight coordination going far beyond what the price system can provide and thus makes them different from a pure market arrangement" (p. 5). Focusing all attention on the transactions and interactions between the cooperative firm and its members, the article can be viewed as supporting the position that the cooperative is an extension of the farm.

3 Conceptual Developments Regarding the Nature of the Firm

This section formulates two conceptual developments regarding the nature of the enterprise since the late 1980s. Section 3.1 addresses the enterprise as a system of attributes, while the delineation of a governance structure in terms of ownership rights, control rights and income rights is addressed in Sect. 3.2.

Fig. 1 A system of attributes

3.1 System of Attributes

The enterprise as a system of attributes is introduced by Milgrom and Roberts (1990). It proposes that an organization is composed of interdependent and interactive attributes and can therefore be perceived as a system. An organization consists of many attributes. An attribute represents a certain aspect of an organization, like an organizational department, an activity undertaken or a policy carried out by the organization. Examples of attributes are production technology, marketing, sourcing, logistics, communication, personnel, accounting, financing, authority and reward scheme. An attribute has multiple values such as “big” and “small”, “weak” and “strong,” or “rigid” and “flexible”. Figure 1 provides an illustration of a system with three attributes. It can represent, for instance, a dairy cooperative characterized by three attributes, x_1 as the production technology (geared towards “bulk” or “specialty” products), x_2 as sourcing (“make” or “buy”), and x_3 as financing (“retained earnings” or “certificates”).

The attributes are related to each other and have therefore to be aligned. They form a system because the payoff associated with the level of one attribute depends on the level of all the other attributes. If the value of any attribute is changed, then the marginal return to increase in any or all of the remaining activities changes. The complementarity among group of activities is thus at the center of this perspective. Exploiting these complementarities requires coordinated action between the separate attributes.

3.2 Governance

Governance concerns the organization of transactions, whereas a governance structure consists of a collection of rules structuring the transactions between the various stakeholders. A standard way of delineating a governance structure is to distinguish income and decision rights (Hansmann 1996).¹ Income rights address the question “How are benefits and costs allocated?”. Income rights specify the rights to receive

¹ McAfee (2002) uses the terms incentives and authority.

the benefits, and obligations to pay the costs, that are associated with the use of an asset, thereby creating the incentive system faced by decision makers. They will be reflected in the composition of costs and payment schemes. Important themes regarding income rights are payment schemes, cost allocation schemes, the compensation package for the CEO and the other members of the board of directors, and the effects of horizontal as well as vertical competition.

The analysis of income rights/incentives is the realm of complete contracting theory in the form of agency relationships (Hendrikse 2003). The working hypothesis is that everything that is known, can and will be incorporated in the design of optimal remuneration schemes/contracts without costs (Holmström 1979, 1982).

Decision rights in the form of authority and responsibility address the question “Who has authority or control (regarding the use of assets)?”. The organizational chart describes roughly the formal structure, and can be represented by decision rights. Decision rights concern all rights and rules regarding the deployment and use of assets. They specify who directs the firm’s activities, i.e., the allocation of authority. Important themes regarding authority are its allocation (“make-or-buy” decision), formal vs. real authority, relational contracts, access, decision control (ratification, monitoring), decision management (initiation, implementation), task design, conflict resolution, and enforcement mechanisms. A recent development is that decision rights are distinguished into ownership and control rights (Baker et al. 2006).

Decision rights matter because contracts are in general incomplete, due to the complexity of the transaction or the vagueness of language. The incompleteness of contracts is completed by allocating authority to somebody to decide in circumstances not covered by the contract. Incomplete contracting theory addresses decision rights/authority (Grossman and Hart 1986; Hart and Moore 1990). The starting point is that the design of contracts is costly, which results in incomplete contracts. Incomplete contracts allocate decision power in situations left open by formal (incentive) contracts. The focus is on non-contractible actions. Authority has no meaning in a complete contracting setting because everything is covered in the contract.

4 Revisiting the Debate

This section readdresses the debate about the nature of the cooperative by using the concepts of Sect. 3. The articles in Sect. 2 can be easily disqualified when the focus is entirely on the formal models presented. They are neo-classical, production function models. These models are valuable in a market context in order to determine demand and supply relationships, while the models by Staatz (1983) and Sexton (1986) are geared towards cost allocation issues.² The models in the papers

² We like to express our appreciation for two models represented in the articles highlighted in Sect. 2. First, the way Trifon solves his model is nowadays characterized as Nash equilibrium. In 1961 he states already that ‘... “equilibrium” ... is marked by the fact that no individual would independently attempt further adjustments once the state has been reached.’ (p. 222) and solves his

reviewed in Sect. 2, except for Menard (2007), are nowadays considered to be models about income rights.³ It is hard to distinguish the three perspectives regarding cooperatives (vertical integration, extension of the member farms, enterprise) when only an income rights perspective is taken. The focus will therefore be on the ideas and insights expressed in these papers.

The strong point of the view that a cooperative is an extension of the farm is that it gears attention towards the portfolio of farm activities and assets. The investment decisions by farmers will be guided by bringing the farm to value and will therefore have an impact on the decisions of the cooperative. However, the downstream stage of production is neglected. This view does not survive the Savage critique/requirement that a cooperative is much more than a formalization of cooperation. Rather, it is a special governance structure regarding “a going concern”.

The vertical integration view is also not without problems. The main problem is that it considers solely the (attribute covering the) exchange between the upstream farms and the downstream processor. It may therefore neglect the impact of the multiplicity of the attributes of the upstream parties on the exchange relationship with the cooperative. Member firms transfer only the decision rights regarding a subset of their attributes to the cooperative. Meanwhile they are autonomous economic units that maintain distinct property rights and their associated decision rights on other attributes. Robotka (1947: 105–106) recognizes this important feature of cooperatives when he writes “Members form a cooperative by reaching mutual agreements involving certain activities that participants had previously performed individually. On those jointly activities members of a cooperative have to function cooperatively by voluntarily choosing their individual values of the related attributes in accordance with others. Instead of making their entrepreneurial decisions on their own, the members of a cooperative pool together part of their decision rights and surrender part of their sovereignties to group decisions regarding to the joint activities.”

Moreover, vertical integration is characterized in the literature generally by the concepts such as common governance and leadership, joint planning, centralized decision making, and transfer of decisions to a distinct entity in charge of coordinating their actions. The extent to which a cooperative is vertically integrated depends on closeness between the allocation of ownership rights and the allocation of control

model according to this recipe. Second, the well known model by Sexton uses, like the seminal model of Hart and Moore (1990) in the incomplete contracting literature, cooperative game theory in order to address vertical integration. However, there are at least three differences. First, the model of Sexton does not specify a downstream party. Second, Sexton uses one cooperative game to analyse various governance structures, while Hart and Moore specify a different cooperative game for each governance structure. Finally, the focus of Sexton is on different revenue and cost allocation schemes, i.e., income rights, while Hart and Moore use cooperative game theory to determine the bargaining strength of each party in each governance structure in a consistent way, i.e., decision rights.

³ There are three main economic approaches towards modelling cooperatives (Hendrikse 2003; Menard 2007): the production function approach, the complete contracting/principal-agent approach and the incomplete contracting/transaction costs economics approach. The first two approaches address income rights, while the third approach deals with issues regarding the allocation of ownership and control rights.

rights (Menard 2007). As a matter of fact, the intensity of members' control over the activities of the cooperative is not as high as vertical integration would entail, because the decision rights are to a large extent delegated to the downstream processor whereas property rights are still in hands of members.

The separation of ownership and control in cooperative practice is in line with Hansmann's observation (1988: 269) that "often the persons who have the formal right to control the firm – which typically takes the form of the right to elect the firm's board of directors – in fact exercise little effective authority by this mean over the firm's management". He argues (p. 275) that, where ownership of the firm is shared among a large class of patrons, like in the cooperative, "highly participatory forms of decision making will not be efficient. Rather, in such situations, it is often more efficient, to assign only the formal right of control to persons who are not in a position to exercise that right very effectively." and "A firm of any substantial size and complexity needs a hierarchical form of organization for decision making, which means that the firm must have a single locus of executive power with substantial discretion and authority." This implies that letting members control and manage the cooperative is not efficient. In cooperative situations, control will generally be exercised by the firm's owners indirectly through voting for members of the board of directors, who then select their own presiding officers and hire a manager of CEO to manage the cooperative. Direct participation of members in decision making will be confined to approval of major structural changes, such as merger and dissolution. The hired management of the cooperative is in charge of the daily affairs most of the time (Hendrikse 2005).

Notice that these ideas are also in line with Barton (1989) and Baker et al. (2006). Barton (1989) distinguishes a cooperative from other businesses by three principles: user-owner principle, user-control principle, and user-benefits principle.⁴ He views as fundamental to the governance of a cooperative that these rights are possessed simultaneously by the same party, i.e., the users (or patrons) of a cooperative. Members vote only on proposed policies regarding key issues, "even though they delegate most management decisions to the board." (Barton 1989, p. 15). Baker et al. argue that firms can and do transfer control across fixed firm boundaries without changing asset ownership.

Our position is that the firm from a system of attributes perspective is able to integrate the three views discussed in the above debate by considering the cooperative as a system of attributes. Looking upon a cooperative as a system, as proposed by the firm view, allows to represent the features of the plurality of interests of the extension of the farm view and the transaction relationship between the member and the cooperative of the vertical integration view. A graphic illustration of a cooperative consisting of two members and one processor is provided in Fig. 2. The essence of the agreement members enter into involves a commitment on the part of each of them to submit certain issues to group decisions (Robotka 1947). Each of these member firms is an independent and autonomous organization in itself. A farmer is

⁴ These principles seem to have been formulated independently from the incomplete contracting literature, while they are very similar to the distinction in terms of ownership rights, control rights, and income rights by Baker et al. (2006).

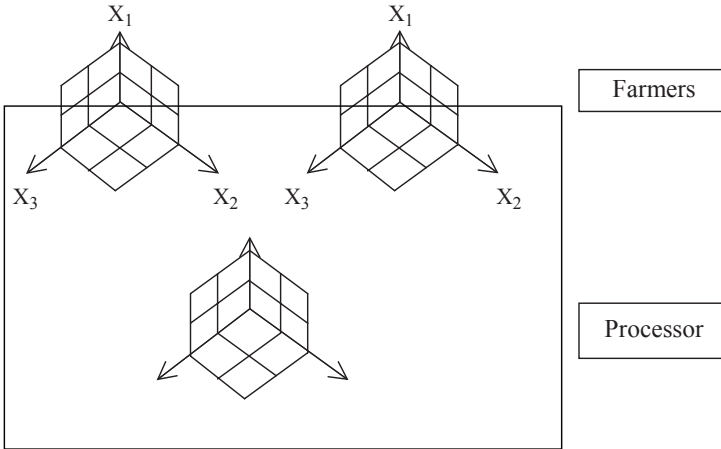


Fig. 2 A cooperative

represented in Fig. 2 by a system of three attributes. For example, a dairy farmer may be characterized by the attributes x_1 as his wheat production (“yes” or “no”), x_2 as his dairy transaction relationship with the dairy cooperative (“delivery requirement” or “no delivery requirement”), and x_3 as ownership of the dairy cooperative (“member” or “no member”). The boundary of the cooperative is visualized by the rectangle. Within it lie the processor with all its attributes and two attributes of both farmers, i.e., the transaction and ownership attributes.

The separation of ownership rights and decision rights, formal and real authority, which is prominent in a cooperative actually also prevails in the conventional firm. The standard business corporation, which is normally owned by investors, persons who lend capital to the firm, is in a sense nothing more than a special type of producer cooperative – a lenders’ cooperative, or capital cooperative (Hansmann 1988). The conventional IOFs assign their formal rights of control to their owners, capital providers, while the real authority is usually exerted by the hired management of the firm. The income rights allocation in cooperatives and IOFs are also essentially the same. Benefits or losses of the cooperative are distributed to its users on the basis of their use (Barton 1989). At regular intervals, profits or losses made in the cooperative are distributed pro rata among the members according to the amount of their patronages. Similarly, an IOF’s net earnings and losses are distributed as well pro rata among the investors according to the amount they have lent. From the perspective of decision rights and income rights allocation, a cooperative is comparable to a conventional firm, which is always analyzed as an autonomous entity, rather than the extension of the investors or investing firms.

In order to highlight the difference between a cooperative and an IOF, we present in Fig. 3 an investor owned dairy enterprise. The difference with Fig. 2 is that the investors have only one attribute involved with the dairy enterprise. The delivery of milk is not a relevant attribute in the portfolio of activities or assets of the investor, i.e., x_2 has to represent another aspect of the portfolio of activities or assets of the investor.

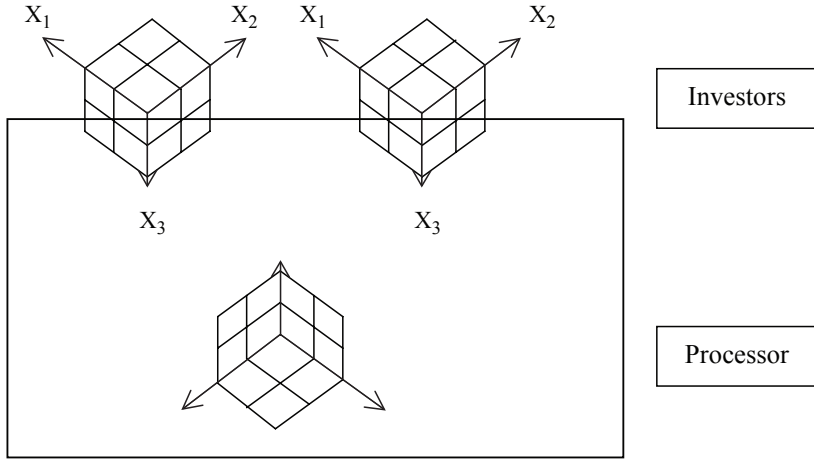


Fig. 3 Investor owned firm

Another way to clarify our position on the nature of a cooperative is to follow Bonus (1986) in comparing a franchise with a cooperative. The two dominating features of a franchise are its brand and business format. This determines the activities of the franchisees. The relationship between members and the cooperative is much looser than the relationship between franchisees and the franchise. A farmer is usually a member of various cooperatives due to the various crops grown at the farm, while a franchisee does not operate in multiple franchise systems.⁵ In Fig. 2 we have therefore presented the core of the farm as a system of attributes outside the box demarcating the cooperative, i.e., a farm is a sovereign economic unit.⁶ Applying the terminology of Williamson (1991), our position can be characterized as a cooperative being a hierarchy.⁷

Summarizing, we integrate the three positions in the debate by considering a cooperative as a system of attributes. The main feature is that a cooperative is a firm, conceptualized as a system. The system consists of attributes capturing on the one hand the processor as a system and on the other hand that many farmers collectively own the cooperative enterprise, i.e., the vertical integration aspect, and that usually multiple attributes of a farm enterprise are involved, i.e., the ownership of assets of the cooperative and the transaction relationship with it.

⁵ One of the terms included in many franchise contracts is “passive ownership” (Brickley 1999). This contract provision restricts the franchisee from allocating effort to outside activities.

⁶ The same applies of course to the investors owning an investor owned firm.

⁷ Williamson distinguishes the governance structures market, hybrid and hierarchy. Bonus (1986: 335) summarizes his position as ‘The cooperative association is a hybrid organizational mode ...’, although he states later on the same page that ‘... a firm jointly owned by the holders of transaction-specific resources ...’. Hendrikse and Veerman (2001) classify a cooperative as a hierarchy.

5 Conclusions and Further Research

We reviewed a debate about the nature of a cooperative originating more than 50 years ago. The literature is classified in terms of three views regarding a cooperative: a cooperative as an extension of the farm, as vertical integration, or as a firm. This article readdresses this debate by using modern concepts of the theory of the firm, like the firm as a system of attributes and the delineation of a governance structure in terms of ownership rights, control rights, and income rights. We emphasize that a cooperative is to be viewed as a firm, where its owners as input suppliers have unique characteristics.

The core of an agricultural cooperative is member control over the infrastructure at the downstream stage of production. It provides members with market power and access to input/output markets. Furthermore, a cooperative has a member, rather than value added, orientation. It mainly serves member interests, rather than just Return on Investment at the downstream stage of production. Our view entails some preferences about future research regarding cooperatives. Three of these preferences are formulated. First, future research may pay more explicit attention to what are the unique aspects of the members owning the cooperative, compared with investors as owners of an IOF. A cooperative is supposed to serve member interests and to generate maximum value in processing. Nearly always being user oriented (Barton 1989), a cooperative is designed for the former task, and because the organizational structure required for the two tasks is different, it is expected to have an impact on the latter task.⁸ An example of a unique aspect of members as owners of a cooperative having an impact on generating maximum value in processing is the single origin constraint, i.e., a cooperative will never abandon the inputs of its members. This may result in a different product portfolio of cooperatives compared to IOFs (Hendrikse and Smit 2007).

Second, other attributes of the upstream farms may have influences on the decisions of a cooperative. Farmers are usually a member of various cooperatives. These cooperatives may be one-product cooperatives, or multiple-product cooperatives. For example, sugar cooperative Royal Cosun processes sugar beets, but also other vegetables. Some of their members have a transaction and investor relationship with Royal Cosun regarding the sugar beets, while they only have a transaction relation with Royal Cosun, i.e., themselves, regarding the other vegetables. The desirability of this arrangement is not clear (Dixit 1997, 2002). Another illustration is a feature of cooperatives known as the portfolio problem. An important consideration of members in the diversification decision of a cooperative may be spreading of risks of their individual farm portfolio, which may result in members "... will pressure cooperative decision makers to rearrange the cooperative's investment portfolio, even if the reduced risk portfolio means lower expected returns." (Cook 1995: 1157).

⁸ We agree with Sexton (1984: 429) when he writes 'Labor-managed firms are closely analogous to agricultural marketing cooperatives. Cooperatively processing and marketing the raw labor input is conceptually very similar to processing and marketing a raw agricultural commodity such as milk or grain.' However, identifying important similarities may neglect important differences. Pencavel (2001) is an eloquent overview about the unique aspects of labor compared to other inputs.

It implies that a cooperative diversifies most likely in a different way than an investor owned enterprise. More information about the relationship between the farm portfolio of members and the product portfolio of a cooperative seems therefore desirable. Census data may shed light on this relationship.

Third, collective ownership among many growers requires a method for collective decision-making. Most commonly a democratic decision-making procedure of some sort is employed. Votes in cooperatives and associations are usually weighted by volume of patronage, although some cooperatives adhere to a one-member-one-vote scheme. A problem with these collective decision-making procedures is that they may yield decisions that are (collectively) inefficient in the sense that they do not maximize aggregate grower surplus (Hart and Moore 1996). It entails that decision power is to a certain extent allocated independently of quantity and/or quality. Collective ownership of the downstream cooperative by many upstream growers seems to require therefore that a model specifying at least two members and a downstream/upstream party. This is a necessity to investigate the plurality of interests prevailing in cooperative decision making.

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Determinants of Successful Cooperation in Agricultural Markets: Evidence from Producer Groups in Poland

Ilona Banaszak

Abstract The main question posed in the paper is why some cooperative arrangements in agricultural markets survive and succeed while others fail. Data were collected from 62 Polish farmer cooperative organizations called *producer groups*. The main aim of those organizations was to organize joint sales of output produced individually by their members. Some of the groups were functioning effectively while others had disbanded or were no longer performing their essential functions. Variables such as the leader's strength, previous business acquaintances, initial selection of members, and number of members have a significant positive impact on the likelihood of success of the researched organizations.

Keywords: Cooperation · Agricultural markets · Producer groups · Poland

1 Introduction

In the mid-1990s organizations called producer groups first appeared in Poland. Producer groups were formed by farmers, and their main purpose was to jointly sell agricultural output produced individually by members. Farmers entering producer groups kept their distinct property rights, and they coordinated only on some transactions such as searching for buyers, negotiating contracts and transportation. The groups adopted different legal forms ranging from informal oral agreements, through associations, unions, limited liability companies and cooperatives.

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Data from an empirical survey carried out with leaders of producer groups located in Wielkopolska Province show a substantial variety in the performance of producer groups. First of all, at the time the research was carried out 20% of the groups were disbanded. Second, only 80% of functioning groups performed the main task of organizing joint sales of the output produced individually by member-farmers; others were engaged only in organizing such activities as joint transportation, joint purchase of the means of production, organizing trainings for members and other social events. Third, some of the functioning groups that performed joint sales were not able to negotiate any price premium for their members' output and were selling their products at the same price as non-members farmers; others were able to negotiate as much as a 39% higher price premium for their members (Banaszak, 2006).

The central question posed in this article is why such big differences among the producer groups exist. Why do some of the cooperative organizations fail over time, why do some continue to exist without performing their main functions, and why do others expand and build up their market power?

The success and failure of cooperative enterprises in agricultural markets has been subjected to empirical research; however, the literature merely focuses on organizations that were operating and performing their main tasks at the time the research was carried out. What also emerges from the literature review is that the authors define success of cooperative organizations in very different terms. Bruynis et al. (1997), for instance, executed an empirical survey with 52 American marketing cooperatives and distinguished eight keys to success, understood in terms of longevity, business growth, profitability, and member satisfaction. Such factors as implementation of a management training process, employing an experienced full-time general manager, regularly distributing accurate financial statements among the management team, using marketing agreements to secure business volume commitments from the members, and utilizing human resources appeared to be significant for the researched organizations achieving success (Bruynis et al., 1997: 54). Sexton and Iskow (1988), who built their study around vertical integration theory, distinguished three groups of organizational, financial, and operational keys to success of agricultural cooperatives. The authors surveyed 61 U.S. agricultural cooperatives and asked the respondents to rank their cooperatives on a four-level success scale. Such factors as open membership, accepting nonmember business, and employing full-time management were correlated with self-understood success.

Among research including disbanded organizations, we find Ziegenhorn (1999), who based his research on economic anthropology and New Institutional Economics and carried out a few case studies of farmer production networks in the swine industry. The author also investigated cases of actors failing to cooperate. The greatest responsibility for a network's success or failure in terms of its survival was attributed to a network organizer whose knowledge and selection of participating farmers influenced compatibility (Ziegenhorn, 1999: 66).

Producer groups are only one possible way of organizing transactions between farmers and purchasers of their products. Another way is a direct exchange or an exchange through a middleman. We discuss the comparative advantage of one form of

organization versus others and review both internal and external factors that might either facilitate or hinder cooperation. We divide the producer groups subjected to research into four categories of success: (a) disbanded groups, (b) groups functioning but not performing their main function of organizing joint sales of members' output, (c) functioning groups performing joint sales, but having problems with members shirking the group agreements and selling their output outside the group without group permission, and (d) groups performing joint sales and having no problems with members deceiving group rules. Factors related to group governance appear to have the most significant impact on the likelihood of achieving such understood success.

The paper is organized as follows: Sect. 2 provides a theoretical framework for investigating the success and failure of cooperative organizations such as producer groups, and identifies hypotheses to be tested further. Section 3 presents the methodology of the research, and Sect. 4 presents the empirical evidence. Finally, Section 5 concludes and discusses the results.

2 Literature Review and Hypotheses

2.1 Governance of the Relationship Between Farmers and Purchasers

Regarding the implementation of their main task – that is, organizing joint sales of the output produced by individual member farmers – producer groups act as intermediary market organizations that coordinate the exchange of goods and services between farmers and purchasers of their produce. Intermediaries are firms that seek out suppliers, find and encourage purchasers, select buy and sell prices, organize the transactions, keep the records, and hold inventories to supply liquidity or availability of goods and services (Spulber, 1999: 3). Intermediaries appear on the market if the net gains from trade exceed those obtained through direct exchange. The profit of intermediaries is raised by identifying innovative transactions that either increase gains from trade or reduce transaction costs associated with search, negotiation, communication, computation, contracting, and monitoring the transaction and its partners (Spulber, 1999: 259, 260). Producer groups take the role traditionally fulfilled on the market by middlemen and other traders. Nonetheless, the advantage to producer groups, which puts them in competition with middlemen and traders, is eliminating double marginalization and the potential savings on transaction costs offered to the farmers associated in producer groups due to horizontal and vertical integration. Horizontal integration occurs between different businesses located on the same level of the channel (Caputo and Mininno, 1996: 64) and, in producer groups, takes place due to the association of farmers into one organization. Vertical integration occurs between businesses located at different stages of the channel (Caputo and Mininno, 1996: 64) and, in producer groups, takes place whenever the groups move down in the market channel while organizing joint transportation

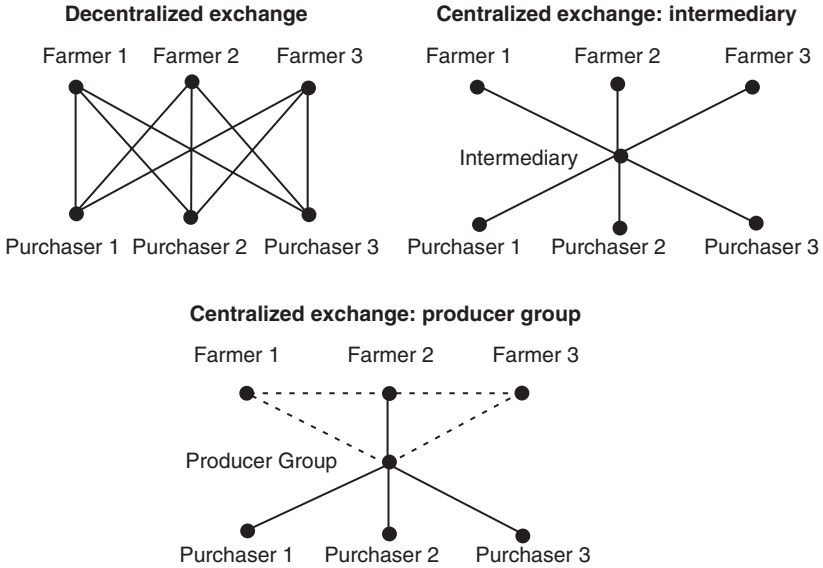


Fig. 1 Exchange with and without an intermediary and a producer group between farmers and purchasers of their output. *Source:* Adapted from Spulber (1999: 264)

or processing the produce. The main intermediary function of producer groups is therefore coordinating an exchange of goods and services between individual member farmers and purchasers of the farmers’ agricultural output (Fig. 1). Producer groups also undertake the intermediary function in organizing such activities as joint purchases of the means of production or joint transportation.

Nonetheless, producer groups are not classic firms. Firms integrate property rights, thus subsuming all transaction costs related to the production of goods and/or services (Ménard, 2005: 294). Farmers associated in producer groups do not integrate property rights and do not merge their farms into one organization. Each of them individually makes the final decision on how to produce the good and when and to whom to sell it. Producer groups of informal character cannot even sign any official agreement with purchasers on behalf of farmers, since they do not have a legal form recognized by law. Such hybrid arrangements, in between market and firm modes of governance, cover only a subset of the transactions in which participating firms are involved (Ménard, 2005: 294). In hybrid organizations functioning in agriculture, the advantage of keeping separate ownership rights and not merging farmers into one farming enterprise is that due to idiosyncratic knowledge specific for farming it would be impossible for a company to accurately judge the quality of farmers’ inputs (Bonus, 1986: 331–331).

Based on the comparison of different modes of governance of the transactions, we may propose that successful producer groups will be those that manage to coordinate the exchange between farmers and purchasers and that additionally operate at per unit costs not exceeding the per unit costs of organizing the transaction through alternative ways, such as decentralized exchange or intermediation by other agents.

2.2 *Factors Affecting the Likelihood of Success of Producer Groups*

Several authors discuss factors that may contribute to the formation of successful cooperative arrangements. One such factor is group size. The level of transaction costs can be decreased by increasing the frequency of transactions. The more frequently the transaction takes place, the lower the fixed costs per unit (Ménard, 2006: 28). In a producer group situation, frequency of transactions can be raised through increasing the number of members. Additionally, enlarging the number of organization members might decrease the danger of opportunistic behavior and internal rent seeking by members since it implies a lower share in the organization's profits for each individual and discourages internal rent seeking. Those organizations that survive are not the most profitable but are most successful at solving problems of internal rent seeking (Kräkel, 2006: 2, 21). The parameter is closely related to influence costs participants spend to influence activities in an attempt to affect the distribution of quasi rents (Milgrom, 1988: 43, Schaefer, 1998: 238–239). Influence costs tend to be higher when the group members have larger stakes in the decision to be made (Milgrom, 1988: 43). Nonetheless, decreasing transaction and influence costs by enlarging the number of group members increases internal coordination and bureaucracy costs. Producer groups should therefore have to bear the costs of coordinating farmer actions and organizing production, marketing, and administration. As pointed out by Olson (1965: 59–60), larger groups find it harder to communicate and coordinate their actions. Kollock (1998: 201) points out that too many parameters change in tandem with group size and thus assessing the impact of this parameter might be problematic.

Hypothesis 1. *The number of members in producer groups has an indeterminate impact on the likelihood of achieving success by producer groups.*

Internal coordination costs might be decreased by leadership. A strong central coordinator enables the group to save on both total transaction information transmission and decision-making costs (Williamson, 1983: 41, 45). Several authors point out that irrespectively of game setting leadership is a factor that facilitates cooperation. In coordination games, leadership as a form of hierarchy helps to coordinate member actions on one of multiple equilibria, and therefore lowers bargaining costs that players would have to spend to agree on and implement one of the strategies (Miller, 1992: 50). Some social arrangements arise as inefficient equilibria of repeated games and endure because no one would benefit from a unilateral change (Binger and Hoffman, 1989: 68). A leader could facilitate coordination of the players through a simultaneous move to a more efficient equilibrium. Leadership might also provide additional utility from reciprocating cooperation (Foss, 1999: 13, 22; Shamir et al., 1993: 577). Due to additional utility from reciprocating cooperation, the payoff structure in a prisoners' dilemma game might be transformed into a coordination game. Strong leaders might also make the threat of punishing shirking players more feasible. Banaszak and Beckmann (2006: 17) show that leaders' decision-making power was significantly correlated with exercising sanctions

in producer groups in Poland. Given effective threats and an appropriate reputation, a leader with enhanced capabilities can employ a trigger strategy to initiate and sustain cooperative behavior of followers in repeated prisoner's dilemma plays (Bianco and Bates, 1990: 144). Leadership could also improve observability of members' decisions and actions. Under the above circumstances cheating on implicit agreements becomes less attractive (Hendrikse, 2007: 142). However, developing an adequate information system among partners also matters. An overly-strong, dominant leader who can capture information is a threat to the continuity of the relationship in hybrid forms of governance (Ménard, 2004: 351).

Hypothesis 2. *A stronger leader contributes to saving on internal transaction and coordination costs and thus is expected to have a positive impact on the likelihood of the formation of successful producer groups up to a point; however, an overly-strong, dominant leader reduces the likelihood of success.*

As pointed out by Ménard (2004: 351), sharing rents in hybrids involves the danger of opportunistic behavior that can potentially provoke conflicts. Therefore, the identity of partners is important and their selection is a key element. In most cases, the selection of partners is based on previous experience in market relationships, on previous hybrid arrangements, and/or on reputation (Ménard, 2004: 361). Hence, we may expect that both the selection of alliance partners and previous business relationships will have an impact on the formation of successful producer groups. A similar argument is put forward by Whipple and Frankel (2000), who discuss strategic alliances. Firms implementing alliances have problems with the transition from an adversarial to a cooperative relationship; the changes in mind-set, culture, and behavior can be overwhelming. The largest barrier to alliance success is organizational culture. It is the greatest cost for alliances, and it takes a long time to modify partners' traditional habits and beliefs while adopting new ways of conducting business (Whipple and Frankel, 2000: 22). Ahn et al. (2001: 137) show that in a one-shot prisoner's dilemma experiment, success in coordinating on the payoff dominant equilibrium in previous plays of coordination games has a positive impact on the probability of cooperating in the prisoner's dilemma game. Groups in which players interact more durably or frequently increase identifiably, and information about individuals' past actions are expected to cause higher cooperation (Axelrod, 1984: 62–63).

Hypothesis 3. *Selection of members having a previous business relationship between them is expected to have a positive impact on the likelihood of the formation of successful producer groups.*

In a similar way, communication structures may encourage better exchange of information about the individuals involved in the interaction. Kollock (1998) mentions a number of studies that point out that communication promotes cooperation. Communication allows group members to make explicit commitments and promises about their future moves and to appeal to the "right" or "proper" thing to do, thus exerting moral pressure. Similarly to leadership, communication could also increase the observability of others' actions and decrease the attractiveness of

cheating. Brosig and Weimann (2003) examine communication effects in public goods experiments that only differ with respect to pre-play communication. The results indicate that successful cooperation might be attributed to the opportunity to coordinate behavior in the communication phase. However, the success of communication depends strongly on the communication medium. The results show that the most efficient is face-to-face communication. Interestingly, it did not make a difference whether people were sitting at the same table or watching each other on a video screen (Brosig and Weimann, 2003: 217, 231).

Hypothesis 4. *Communication among members is expected to have a positive impact on the likelihood of producer groups achieving success.*

Furthermore, authors also discuss the role of group composition. Hansmann (1996: 125–130) argues that member homogeneity of any kind implies that members will have more interest in common and is an essential factor for successful cooperation. Opposing interests between members and engaging in internal lobbying to promote selfish interests increase influence costs in a cooperative organization (Borgen, 2004: 387). Kleindorfer et al. (1993: 247–251) point out that homogeneous groups with similarities in the partners' potential power and interests are more likely to achieve a higher cooperation rate. Haag and Lagunoff (2003: 21) examine characteristics of cooperative behavior in a repeated prisoner's dilemma game and provide arguments that homogenous groups in respect to time preferences of their members are more cooperative. The larger the differences in players' time preferences, the less cooperative is the group (Haag and Lagunoff, 2003: 7).

Hypothesis 5. *Members' homogeneity is expected to have a positive impact on the likelihood of achieving success by producer groups.*

Banaszak and Beckmann (2006) point out that some variables related to the environment in which cooperation takes place and to group structure might either facilitate or hinder cooperation. One of the factors which might decrease the likelihood of achieving successful cooperation is competition. Competition with other intermediaries might increase the likelihood of deviation from group rules expressed through sales outside, and thus decreases the likelihood of achieving success by producer groups. A volatile environment may raise the attractiveness of a short-run gain of defection in relation to the obedience to the long-run implicit contract (Hendrikse, 2007: 142). In such conditions defection of one group member might also result in a cascade of defection by others, since everyone else sees less value in the initial choice. This effect will be stronger in small organizations and if returns to scale in coordination more rapidly decrease (Kreps, 1996: 585). Competition may destabilize hybrid forms, since the partners might be tempted to switch among arrangements, particularly if investments in the cooperation are only moderately specific (Ménard, 2005: 295–296). Hybrids, however, tend to develop in highly competitive markets in which pooling resources is a way to survive and to decrease uncertainty (Ménard, 2005: 295). Competition is beginning to shift from firm versus firm to supply chain versus supply chain, which creates the need for integration strategies

(Bowersox et al., 1999). The problem that hybrids face is therefore which mechanism to adopt in order to delineate joint decisions, discipline partners, and solve conflicts while preventing free riding (Ménard, 2005: 295–296). On the one hand, competition might increase the likelihood of producer group formation; on the other, the resultant instability of the arrangements may affect the likelihood of success.

Hypothesis 6. *Competition may destabilize cooperative arrangements and thus is expected to have a negative impact on the likelihood of achieving success by producer groups.*

3 Research Methods

3.1 Sample and Data Collection

In order to test the hypotheses we collected data on producer groups functioning in the Wielkopolska Province. The chosen province of Wielkopolska is one of 16 provinces in Poland and is located in the western part of the country. The cross-sectional research design was selected as a research method for this investigation. This design employed the technique of social survey, which uses a structured interview with producer group leaders as the data collection strategy. Fifty functioning groups and 12 disbanded groups were subjected to the research. The 50 functioning groups associated 4,056 farmers; the 12 inactive ones associated 394 farmers. The interviews were carried out in early 2005.

The structured interview with producer group leaders was organized into a questionnaire composed of six sections which addressed: (a) general information about the group such as the group's address, legal status, number of members, and activities performed, (b) the process of group formation, (c) group functioning (divided into three sections: management and decision-making, production and marketing, and membership), (d) costs and benefits of cooperation, (e) the role of the institutional environment, and (f) leadership. These six sections comprised 132 questions in total. Two types of questions were asked: the first was related to facts such as numbers or descriptions of processes, the second to the subjective evaluation of these facts.

3.2 Measuring "Success"

As reviewed in Sect. 1, different definitions have been applied to measure success and failure of cooperative enterprises. Bruynis et al. (1997) define success in terms of longevity, business growth, profitability, and members' satisfaction. Sexton and Iskow (1988) measure success based on self-evaluation. Ziegenhorn (1999) understands success of networks in terms of their survival. In Sect. 2.1 we proposed

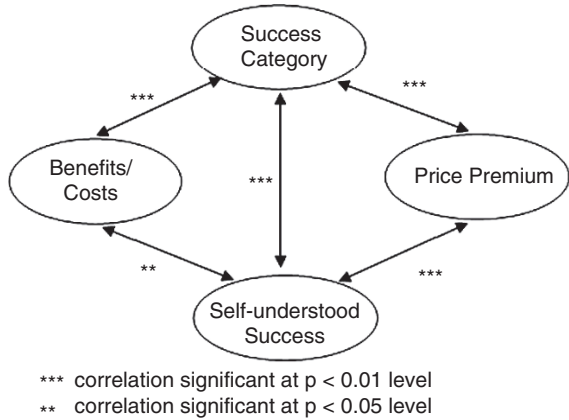
measuring the success of producer groups in terms of being able to coordinate the exchange between farmers and purchasers and additionally to operate at per unit costs, which do not exceed per the unit costs of organizing the transaction through alternative ways. Such an understanding of success could be measured by either investigating the price premium that the groups negotiate for the members' output, or by investigating whether the benefits of the groups' functioning are higher than its costs. Price premium was measured by questioning percent difference between the price obtained by group members for their products and that obtained by non-member farmers on the market. On average, producer group members were selling their products at a 6.2% higher price premium. Twenty-seven groups were either not selling jointly at all or were selling their products at a 0 price premium. Two groups were able to negotiate a price premium as high as 39.3% ($SD = 10.32$). Regarding whether producer groups were obtaining higher benefits than operation costs, the question was coded as a dummy variable, in which 1 stood for having higher benefits than operation costs. Fifty-one percent of the interviewed producer group leaders classified their groups as obtaining higher benefits from operation than costs.

However, the above measurements do not differentiate between groups which were no longer functioning and those that did not organize joint sales of the output produced by member-farmers. We may thus also propose grouping the researched organizations according to their performance. The first category which can be distinguished by such an approach is disbanded groups which are clear examples of failure. Twelve groups that disbanded were identified in the research process. Some producer groups continued functioning, despite failing to coordinate their members on joint sales. Such groups were only engaged in organizing such activities as joint purchases of the means of production or training and educational activities. Coordination on these activities is more likely to be achieved, and the group actions are less vulnerable to market conditions; however, benefits from organizing such activities are expected to be lower than from organizing joint sales. We therefore propose including these groups into the second category of partial failure. The groups failed to coordinate farmers on the activity which could potentially bring higher profits but still provided their members some collective action benefits. Within the research process we have identified ten such groups.

The remaining 40 groups performed joint sales but what is interesting is that most of the groups had problems with members deviating from group rules and selling their products outside the group without group permission. Such actions suggest that these groups were not able to convince their members that they had the best possible market arrangements, and outside options were more attractive to the members. Within this category of partial success we identified 33 groups. The last category of full success consisted of seven groups which were performing joint sales and did not have problems with members shirking from the group agreements.

Below we present how the identified measurements of producer group success correspond to each other. For comparison of the distinguished based on the theory categories with self-perception of the actors involved in cooperation, we also include a self-evaluated measure of success suggested by Sexton and Iskow (1988). The interviewed producer group leaders could rank their groups as a major success,

Fig. 2 Correlations between the variables indicating different measures of producer group success



a minor success, “too early to say,” or unsuccessful. Forty percent of the interviewees classified their groups as unsuccessful (ranked as 0), 8% as “too early to say” (ranked as 1), 27.4% as having achieved minor success (ranked as 2), and 24.2% as having achieved major success (ranked as 3). Most of the leaders (40.3%) understood self-evaluated success or failure of their groups in terms of the ability to profitably market member output. For 24.2% success or failure of their groups was understood in terms of the ability to function, and 17.7% in terms of the ability to get farmers together. Other groups evaluated their success or failure in terms of achieving initial goals (6.4%), obtaining subsidies (4.8%), acquiring investments (3.2%), and achieving good product quality (3.2%).

Since the variable indicating four categories of success was the only one correlated at the most significant level with the remaining variables, we decided to use this variable in the subsequent empirical analysis (Fig. 2).

3.3 Analysis

An ordinal probit model was employed in the research. The ordinal regression model is a nonlinear model in which the magnitude of change in the outcome probability for a given change in one of the independent variables depends on the levels of all of the independent variables (Long and Freese, 2001: 137). The distinguished four categories of the success of producer groups are treated in the model as an ordinal dependent variable (S). The hypothesis formulated in Sect. 2.2 pointed out that such variables as the number of group members (NM), leadership strength (Lead), selection of members (Sel), business acquaintance (Buis), communication among members (Com), member homogeneity (Hom), and competition (Comp) will impact the likelihood of the formation of successful cooperative arrangements. The

variables are expected to influence the likelihood of achieving success by producer groups according to the model:

$$S_i = \beta_0 + \beta_1 NM + \beta_2 Lead + \beta_3 Sel + \beta_4 Buis + \beta_5 Com + \beta_6 Hom + \beta_7 Comp + \varepsilon_i$$

where $i = 1, \dots, n$ producer groups in the sample.

Section 4.2 operationalizes and presents summary statistics for the distinguished independent variables. Additionally, in order to compare differences in the mean values of variables characterizing the categories of success, we have used one-way analysis of variance (ANOVA). ANOVA involves one independent variable (referred to as a factor), which has a number of different levels. These levels correspond to the distinguished different groups. ANOVA compares the variance (variability in scores) between the different groups (believed to be due to the independent variable) with the variability within each of the groups (believed to be due to chance). A significant F test indicates that we can reject the null hypothesis, which states that means across the groups are equal (Pallant 2001: 186).

4 Empirical Results

4.1 Characteristic of the Dependent Variable

We treat the distinguished categories of success as the dependent variable. In Sect. 4.2 we are going to test the impact of the hypothesis suggested in Sect. 2 on the likelihood of achieving success. However, before we do so, in this section we would like to provide a description of the dependent variable and explore the differences between the four distinguished categories in respect to basic characteristics of producer groups such as the year of establishment, number of members, impetus for formation, level of initial level of invested capita, legal form, type of members' production, and activities performed. We use the ANOVA technique in order to compare whether the differences in the basic characteristics across the distinguished categories are statistically significant.

The mean establishment year for the groups was 1999. The majority of the groups which did not operate at the time the interview was carried, stopped their activity in 2001. On average each disbanded group was functioning for 2.8 years. Regarding the factors which resulted in splitting up, the interviewed producer groups leaders most frequently pointed to the so-called "mentality of the people" problem. It had to do with commitment, loyalty and trust in the leader and other members. Two groups did not want to change their purchasers to those appointed by the leader, and in three cases the members did not want to compensate the leader for his work or to hire a manager. Regarding other cases, two groups reported having problems with finding purchasers; one group was destroyed by a middleman who offered members a higher price if they sold their output outside the group; in one case the group was embedded in a conflict between two neighboring villages, and inhabitants of one village spread false information about the leader in order to destroy the group; and

in the last case the leader pocketed the groups' money and members did not want to continue cooperation afterwards.

On average each of the interviewed groups had 72 farmers associated with it. Most of the groups had been initiated by one of the farmers (58%); the other 42% had been initiated by an outside organization, 24% by the extension service and 18% by outside businessmen such as processing companies, local agricultural cooperatives or middlemen. Regarding the legal form adopted by the producer groups, the groups can be informal or take any legal form of economic or social entrepreneurship defined by Polish law. The biggest share of the producer groups were functioning as associations (29%). Associations are voluntary and self-governing organizations established to fulfill noneconomic goals. Associations can represent their members in relations with institutions cooperating with farmers and negotiate prices or contracts with purchasers or sellers on behalf of the farmers. This form can be established very easily and has a simple structure. Its biggest disadvantage, however, is its inability to cumulate profits and share capital among members; members are not owners of the accumulated capital (Lemanowicz, 2005: 103).

Twenty-three percent of the groups adopted the legal form of a union and the same portion chose a Limited Liability Company (LLC). Unions are voluntary, self-governing, and independent social and vocational organizations, established to represent and protect farmers' interests. Similarly to associations, the establishment of a union is simple and fast and requires no start-up capital (Lemanowicz, 2005: 103). Changes in the group constitution can be introduced quite cheaply. Unions can run economic activity, but all profits must be divided equally among the members (Ejsmont and Milewski, 2005: 66). A LLC can be established for any purpose. Its members purchase shares, the amount of which defines their decision-making power and their liability. Shareholders are owners of the company, and the accumulated capital can be divided among them according to the number of shares purchased. The process of an LLC's establishment and operation is more complicated and costly. Its establishment and any changes must be officially registered in a notary office (Lemanowicz, 2005: 104).

The least popular forms were informal groups and cooperatives. Eight percent of the groups were informal and 3% were functioning as cooperatives. The main purpose of a cooperative is to run an economic activity. Similarly to an LLC, members purchase shares in the cooperative. The property of the cooperative is the private property of its members, and members can withdraw the value of their shares at any time. Each member has equal decision-making power, which limits the decision-making impact of major shareholders. Both LLCs and cooperatives must maintain full bookkeeping.

On average each group collected 6,461 EUR as start-up capital (365 EUR per member). The most frequent type of output produced by members was pork (56%), vegetables (21%), and fruits (6%). The task of organizing joint sales of the output produced by member-farmers was carried out by 65% of the groups. Fifty-five percent of the groups also organized joint supplies of the means of production, and 29% organized joint transportation of the goods. Other tasks performed by producer groups included arranging training and educational activities for members

(performed by 65% of the groups), integration events (45%), and arranging subsidies offered from the government and EU budget (27%).

Table 1 presents a summary of characteristics of the identified producer group categories. A series of one-way analyses of variance ANOVA was run in order to identify whether there were any significant differences in the mean scores of the variables presented in Table 1 for the distinguished categories of success. A significant difference in mean scores indicated the variable representing whether the group was formed from the initiative of the extension service ($F(3, 58) = 2.4, p = 0.077$). The effect size was 0.11. The significant difference was between Category 1 and Category 4. It suggests that considerably more groups that failed were initiated by the extension service than groups that achieved success. The mean scores for choosing the legal form of association were also significantly different at $p < 0.05$ level ($F(3, 58) = 3.7, p = 0.16$). The effect size was 0.10. The significant differences were between Category 1, Category 3, and Category 4, which suggest that the governance form of association is more frequent among groups that failed than among those that achieved either partial or full success.

Regarding the question of why the form of association was chosen, again we see a large impact of the extension service. Thirty percent of groups functioning as associations chose this form due to advice of the extension service. Others chose it because it was considered a “loose” form, which did not require capital investments (17%), because it was a cheap form (13%), because it was considered to provide a sufficient level of security (8%), or because farmers were not aware that there are other forms available (8%).

We find a slightly significant but negative correlation between the choice of the legal form of association and the level of invested capital ($p < 0.1$). This suggests that maybe the level of capital invested in associations was too small to enable the group to survive in the market. One such investment could be paying a salary to the leader for organizing the task of joint sales. A very significant negative correlation is found between choosing the legal form of association and paying a salary to the leader ($p < 0.01$). Additionally, as discussed by Banaszak and Beckmann (2007: 186), leaders of producer groups who did not receive a salary were less likely to negotiate a high price premium.

Regarding the type of production of the member farmers, the mean scores for only one variable – that is, producing vegetables – differed significantly at $p < 0.1$ level ($F(3, 58) = 2.28, p = 0.089$). The effect size was medium and equalled to 0.10. The difference was between Category 2 and Category 4. Vegetables are a more frequent type of production among successful groups than among those that suffered a partial failure.

4.2 Characteristic of the Independent Variables

In this section we present how we operationalize the independent variables derived from theory in Sect. 2. Regarding group size, each group associated an average of 71 members. Group sizes, however, were greatly disproportionate, which is indicated

Table 1 Main characteristics of the distinguished categories of producer groups

Factor	Coding	Cat. 1: failure groups $N = 12$							Cat. 2: partial failure $N = 10$			Cat. 3: partial success $N = 33$		Cat. 4: success groups $N = 7$		Total $N = 62$	
		Year	Mean	SD	Mean	SD	Mean	SD	1998	1999	1999	1999	2001	2001			
Start-up year	Year	1,70						2,97	2,97	2,19	2,19	3,86	3,86	1999	1999	2,51	
Number of members	No.	32,83						29,30	29,30	97,97	97,97	75,71	75,71	71,77	71,77		
		12,20						19,26	19,26	141,23	141,23	106,74	106,74	112,41	112,41		
Formation factor (dummy)	Farmers themselves	0,33						0,70	0,70	0,64	0,64	0,57	0,57	0,58	0,58		
	Extension service	0,50						0,20	0,20	0,21	0,21	0	0	0,24**	0,24**		
	Outside business	0,17						0,10	0,10	0,15	0,15	0,43	0,43	0,18	0,18		
Legal form (dummy)	Informal	0						0	0	0,15	0,15	0	0	0,08	0,08		
	Association	0,67						0,50	0,50	0,30	0,30	0	0	0,29**	0,29**		
	Union	0,08						0,30	0,30	0,33	0,33	0,43	0,43	0,23	0,23		
	Cooperative	0						0	0	0,03	0,03	0,14	0,14	0,03	0,03		
	LLC	0,25						0,20	0,20	0,18	0,18	0,43	0,43	0,23	0,23		
Start-up capital (EUR)	Total	1,104						5,013	5,013	8,051	8,051	10,221	10,221	6,461	6,461		
		1,474						6,838	6,838	21,894	21,894	12,274	12,274	16,809	16,809		
	Per member	32						471	471	282	282	1,174	1,174	365	365		
Type of good (dummy)	Pork	0,58						0,40	0,40	0,67	0,67	0,29	0,29	0,56	0,56		
	Vegetables	0,17						0,10	0,10	0,18	0,18	0,57	0,57	0,21*	0,21*		
	Fruits	0,08						0,10	0,10	0,06	0,06	0	0	0,06	0,06		
	Other	0,17						0,40	0,40	0,09	0,09	0,14	0,14	0,16	0,16		
	Joint sales	–						–	–	1,00	1,00	1,00	1,00	0,65	0,65		
Actions performed by the group (dummy)	Joint supplies	–						0,70	0,70	0,73	0,73	0,43	0,43	0,55	0,55		
	Trainings, educ. trips	–						0,70	0,70	0,85	0,85	0,57	0,57	0,65	0,65		
	Joint transport	–						0,10	0,10	0,27	0,27	0,57	0,57	0,29	0,29		
	Integration events	–						0,40	0,40	0,64	0,64	0,43	0,43	0,45	0,45		
	Obtaining subsidies	–						0,10	0,10	0,33	0,33	0,71	0,71	0,27	0,27		

** $p < 0.05$; * $p < 0.10$

by the high standard deviation. The smallest group had only five members, the largest 700. The role of leadership in decision-making was measured by asking the interviewed producer group leaders whether they make most group decisions. The mean for the answers to the question reached 2.8 on a scale of 1–4, in which 1 stood for disagree and 4 for agree. Selection of partners for the alliance was measured by asking whether there was a selection process of members during the group's formation stage. This had happened in 31% of the groups. The existence of a previous business relationship was measured by asking the interviewed leaders whether one had existed with most of the group members. Fourteen percent of them fully agreed with this statement, 9.7% partially agreed, 14.5% partially disagreed, and 61.3% disagreed entirely.

Regarding communication among the members, we asked the interviewees whether all members were involved in the initial stage of planning and designing the group. In 30.6% of the groups, all members were involved in the discussion; in 64% of the groups only some members were involved; and in 4.8% of the groups the decisions were made exclusively by the initiative actor, and there was no discussion with other members. Group homogeneity was measured by asking the interviewees whether members of their groups had similar economic potential. Sixteen percent of groups were homogenous. To measure competition we investigated how the interviewees evaluated market relationships with the main competitors of producer groups – middlemen. Fourteen and a half percent of the groups reported experiencing harsh competition with middlemen, and 30.6% found them minor competitors. Table 2 presents summary statistics for the distinguished independent variables.

4.3 Regression Modeling Results

In order to measure the impact of the independent variables above on the distinguished categories of the success of producer groups, we ran an ordinal probit regression. A few pairs of independent variables were correlated with each other. The regression was thus run stepwise. The cut significance level was defined as $p < 0.1$. The regression results are presented in Table 3.

The strongest impact on the likelihood of producer group success was achieved by the variables indicating whether the members had had a previous business relationship and by the variable indicating whether there was a selection process in choosing the members at the group's formation stage. The variables were additionally correlated ($p < 0.01$). The finding supports Hypothesis 3 derived mainly from the theoretical prediction that the key element for the success of hybrid modes of governance is the selection of partners based on previous experience in market relationships. It might also explain the failure of the large proportion of producer groups that were established on the initiative of the extension service. We might suspect that, while the extension service officials aimed at forming a producer group and encouraged all farmers in the area to join the group, the groups formed in alternative ways were more selective and careful about choosing potential partners.

Table 2 Summary statistics for the independent variables

Variable	Measurement	Coding	<i>N</i>	Mean	SD	Min	Max
Group size	Number of members	Number	62	71.77	112.41	5	700
Leader's decision-making strength	Does the leader make most of decisions in the group?	1–disagree, 2–rather disagree, 3–rather agree, 4–agree	62	2.81	1.01	1	4
Selection of members	Was there any selection process for the members?	Yes–1, no–0	62	0.31		0	1
Business acquaintance	Did the members have business relationships before establishing the group?	4–all had, 3–majority, 2–some, 1–none	62	1.77	1.12	1	4
Communication among members	Were all the members involved in the initial discussion about the group?	1–none, 2–some, 3–all	62	2.26	0.54	1	3
Homogeneity	Do members have similar economic potential?	1–yes, no–0	62	0.16		0	1
Competition	How would you evaluate the competition with the middlemen on the market?	3–major competition, 2–minor competition, 1–no competition	62	1.60	0.73	1	3

Table 3 Stepwise ordinal probit regression results

<i>Independent variables</i>	<i>Dependent variable</i> Category of success: 1–4
No. of members	0.003** 0.001
Leader's strength	0.270* 0.150
Selection of members	1.037*** 0.376
Business acquaintance	0.526*** 0.166
Pseudo R ²	0.209
No. of observation	62

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.10$

A significant negative correlation was found between the variable indicating whether the group was formed due to an initiative of the extension service and the variable indicating whether there was a process of member selection ($p < 0.1$).

Additionally, in comparison with the findings of Banaszak and Beckmann (2006: 18), we might stipulate that the quality of the previous relationships also matters. Ordinary earlier acquaintance among producer group members based on neighborhood, friendship and family relationships had a negative impact on the deviation rate in the group (Banaszak and Beckmann, 2006: 18).

The variable that had the second strongest significant positive impact on the likelihood of producer group success was the group size. The larger the group, the more likely it was to be successful. This supports this part of the theory formulated in Hypothesis 1, which proposed that larger organizations are more likely to decrease per unit transaction costs, and that in addition, larger groups are less vulnerable to the danger of internal rent seeking and opportunistic behavior.

Our finding that success is positively related to group size is somewhat in opposition to the discussion on the provision of collective benefits. Olson (1965) argued that larger groups find it harder to communicate and coordinate their actions, which was expected to hinder cooperation. We might stipulate that leadership is the factor that counteracts the negative impact of enlarging group size on communication and coordination costs. This corresponds to the finding that the variable indicating leadership decision-making strength was also significant. The stronger the leader, the more likely the group was to be successful. This confirms Hypothesis 2 which stated that leadership contributes to saving on internal transaction costs, facilitates coordination, makes monitoring and punishing more feasible, and thus has a positive impact on forming successful producer groups. Additionally, since producer groups operate in market settings, increasing the number of members and decreasing transaction costs might also increase the group's bargaining power and thus provide higher benefits to members.

The second part of Hypothesis 2 suggested that a strong and dominant leader who captures information is a threat to the continuity of relationships in hybrids and therefore decreases the chances of having a successful hybrid arrangement. The findings from Banaszak and Beckmann (2007: 186) suggest that this might also be the case. Leaders' decision-making power had a significant positive impact on the likelihood of the group entering a long-term contract. Nonetheless, as suggested in Banaszak and Beckmann (2006: 18), selling group products through a long-term contract increases the likelihood of playing a prisoner's dilemma game and thus might potentially increase deviation rates.

5 Conclusions

The main question posed in the article investigated determinants of success of cooperative arrangements functioning in agricultural markets. The question was investigated using empirical data collected on agricultural producer groups functioning in Poland. The literature review resulted in six hypotheses. The hypotheses were operationalized into seven independent variables. We measured the impact of the variables on four categories of success using the technique of ordinal probit regression.

The findings correspond to the results obtained by Ziegenhorn (1999: 66), who pointed out that leadership, knowledge, and selection of network participants influence compatibility. We show, however, that the quality of the knowledge of the participants is also important and should be based on previous business acquaintance.

The most significant impact on the likelihood of group success was achieved by the variables indicating whether the members had had a business relationship before establishing the group, as well as the variable indicating whether there was a member selection process during the group's formation. Both variables were strongly correlated as well. In accordance with the theoretical predictions, we found out that the key to the success of hybrid modes of governance, such as producer groups, is the selection of partners based on previous experience in market relationships. This finding might provide another explanation for the failure of such a large proportion of producer groups established on the initiative of the extension service. We might suspect that extension service officials just wanted to form producer groups and encouraged all farmers in an area to join a group, while groups formed in alternative ways were more selective and careful about choosing the potential partners. A significant negative correlation was found between the variable indicating whether the group was formed by an initiative of the extension service and the variable indicating whether there was a member selection process.

The third variable with a significant positive impact on the likelihood of producer group success was group size. The larger the group, the more likely it was to be successful. This is in line with the hypothesis that suggested that large organizations on the one hand might decrease transaction costs, and on the other hand lower the danger of internal rent seeking and opportunistic behavior.

The last variable with a positive impact on the likelihood of success was leadership strength. As suggested by the reviewed theories, leadership might decrease internal transaction costs and thus make the organization more competitive, and leadership increases the chances of coordinating members on efficient equilibria and facilitates cooperation.

The analysis of the differences between the distinguished categories of success of producer groups shows the significant impact of a formal institutional environment. Both the role of the extension service and the choice of the legal form of cooperation seem to considerably affect the groups' functioning. There is a need for future research to explore this problem further. Additionally, our interpretation of success corresponds to the interviewed group leaders' understanding of success. We did not, however, interview group members. An area for further research could be to collect data at the member level and investigate how our findings are related to their understanding of successful cooperation.

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Innovation Processes in Cooperative Organizations: Results of a Case Study Research

Daniel Brunner and Tim Voigt

Abstract One of the main problems of cooperative decision-making, when it comes to the implementation of innovations, is the involvement of multiple levels – the cooperative’s and member’s level. From an evolutionary economic viewpoint this raises the question of how the creation of novelty and the dissemination of knowledge within a cooperative enterprise works. This study investigates a cooperative of bakers. The idealised innovation process together with the findings of our study allows us to differentiate four forms of knowledge communication (promoter, source, recipient, feedback process). Our three cases show that, depending on the type of innovation (product, process or systemic), the different stages of the model process deviate from one another. Lastly, we will identify the different types of knowledge communication that we found in our three cases.

Keywords: Innovation processes · Cooperative organization · Knowledge communication · Case study research

1 Introduction

Developing new products and implementing them in the internal structure of a cooperative requires knowledge communication and decision-making on different levels of the cooperative network. In the context of cooperative organisations, we

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want to emphasise two aspects of decision-making: first, the aspect of creating and transferring knowledge while taking into consideration entrepreneurial activities and second, the implementation of these measures within the cooperative network. Both processes take place within the cooperative enterprise (board of directors and supervisory board) but also at the member level. The scope of entrepreneurial decisions is therefore no longer limited to a single firm but spreads into all parts of the cooperative network. The divided entrepreneurship can cause friction and create additional conflicts within the innovation process.

To analyze and decipher the resulting problems of this form of entrepreneurship is the aim of our study, while at the same time we try to elucidate how decision processes take place in practice. In our paper we address the question of how the required knowledge about the market can be sifted out and incorporated in the complex structures of cooperatives. Furthermore, we intend to illustrate the consequences of the underlying decision process by using the method of case study research. We also intend to analyse various innovation processes within a cooperative of bakers.

This paper is based on the findings of the evolutionary economic literature (for an overview see Nelson (1995); Nelson and Winter (2002); Witt (2007)). From the extensive range of evolutionary economic literature we, in particular, refer to the papers which focus upon undetermined results of competition processes. In an uncertain economic environment the importance of entrepreneurship grows, as each entrepreneur strives to gain an advantage over his or her competitors by distinguishing themselves through individual commercial efforts. The entrepreneur who is capable to create novelty will win the competition. After an innovation has been introduced to the public it disseminates in the market system through imitation. Competition can, therefore, be characterised by the first mover advantage and the following imitation activities (Fehl et al. 2007; Fehl 2005). Evolutionary economics can be seen as the process of endogenous development of novelty and its subsequent dissemination. Besides evolutionary economics literature, this paper is based on another strand of literature: the management of innovation processes (see e.g. Kline and Rosenberg (1986)).

Recent researches in the field of entrepreneurship and cooperatives upon which we base our study (Fehl et al. 2007; Brunner 2006) emphasise the importance of systematic communication between the cooperative and its members to avoid frictions in the process of decision-making. The processes of knowledge transfer and in particular the participation of the members within the process of decision-making plays a central role for entrepreneurial impulses.

This paper is organized as follows: In Sect. 2 we introduce the cooperative. In Sect. 3 we propose a modified process of innovation, which is followed by two sections on our methods and data. In Sect. 6 we present the results of our case study. The last section contains some conclusions and theoretical implications.

2 The BÄKO

In our case study we looked into the workings of a cooperative of bakers, the so called “Bäckerei- und Konditorenengenossenschaft”, in short BÄKO. The market for bakeries in Germany is characterized by a low level of technical innovation and strong competition due to large food retail companies, which offer bakery products, and discount bakeries. Industrial bakeries play a prominent role, as well. Some of them sell their products through a franchise system. The BÄKO has about 550 members and is located in Southern Germany. Their annual revenues amount to approximately 70 million Euro. The cooperative serves as a supply cooperative for their members (Barton 1989, p. 5). All members own their own bakeries and use the cooperative mainly as a supplier for preliminary products like flour, fruits, vegetables, fat, dairy products, convenience goods, machinery, trading goods, beverages, packaging materials, as well as financial and consulting services. As a whole, the BÄKO offers 12,000 different articles. Consequently, it is each baker’s own responsibility to decide on his or her range of products, type of production and marketing activities.

Our aim was to find out how the process of communication and decision-making works within a cooperative. For the present analysis we took a closer look at the formal and informal institutions of the cooperative: The BÄKO is a member of a regional BÄKO centre of operations (“BÄKO Zentrale”) which is responsible for the brand management and serves as a central warehouse. Staff members from the individual BÄKOs meet in working committees, organised by the centre, to discuss current issues and to initiate innovative actions. These working committees are structured according to topics and product fields.

The cooperative’s managing board consists of an executive chairman (managing director) and two honorary members. Another formal body of the cooperative, the supervisory board, is made up of thirteen member bakers. In addition to their seat in the supervisory board, the bakers also hold the position of the chairman of their local crafts union. Their dual position helps to disseminate knowledge among the members. In contrast to the supervisory board, the general assembly is open to all the cooperative’s members. Primarily, the assembly has the function of informing the members of the annual financial accounting and the auditor’s report as well as deciding about the appropriation of the profit.

Besides the formal institutions the BÄKO’s sales representatives play an important role in the communication between the cooperative and its members. During their nearly weekly visits to the bakeries, they help to communicate the cooperative’s strategy. An informal institution, which has to be mentioned and that substantially contributes to the communication between the staff and the bakers, is the friendly get-together after the regular formal meetings. The BÄKO kindly provides the local crafts union with a room for their weekly meetings and allows them to use it, after the formal part is over, for the informal gathering.

3 The Idealised Innovation Process

The majority of phase-oriented explanations for innovation processes focus on product innovation and can be found in the literature of new product development. Brown and Eisenhardt (1995) gave a detailed and elaborated overview over this topic by differentiating three strands of product developments: product development as a rational plan, product development as a communication web and product development as disciplined problem solving (Brown and Eisenhardt 1995). Most of the studies in this field of research deal with empirical analysis of factors of success and statements on the best practices (Cooper and Kleinschmidt 1987, 1995; Hughes and Chafin 1996), whereas recent studies focus on emerging markets in Eastern Asia.

Most of the mainstream-oriented models for innovation processes can be divided into three parts: formulation, acceptance and realisation of ideas, (Thom 1992). In these models innovation processes are often seen as linear-sequential processes. In contrast to this traditional view, we would like to point out that regular innovation processes do not follow a strict linear pattern. Quite often feedback processes take place as the Kline and Rosenberg's classical chain-linked model illustrates (Kline and Rosenberg 1986).

We used these thoughts as a starting point for our analytical framework which tries to incorporate the fact that not only one enterprise is involved in the innovation process, but also a number of member enterprises, beside the cooperative. On the one hand, the members serve as source of innovation (due to feedback and impulses they give). On the other hand, they can be seen as the recipients of the innovation as they have to implement the innovations in their local market. Due to the fact that within cooperative networks innovations do not represent a one-shot-game, the members are able to feed back their experiences into the cooperative institutions. Thus, a circulation of (new) knowledge emerges. Therefore, we state: the popular view of innovation processes should be modified in order to emphasise the cooperatives' environment as source *and* recipient of innovation.

Due to the divided entrepreneurship and the uncertainty of the economic environment, the communication between the cooperative and the members plays a more important role than in the case of a centralised entrepreneurship in a stable business environment. Therefore, we decided to highlight the communication processes between cooperative and members.

Following the above mentioned argument we want to introduce a modified version of the standard innovation process featuring six idealised phases:

1. *Market Observation.* During this phase, either the cooperative or the member enterprises themselves perform an extensive market research or hire specialized research companies to collect the necessary information. In addition, internal controlling instruments are also used to detect trends.
2. *Identification.* An extensive observation of the enterprise's environment characterises the second phase and leads to the discovery of new knowledge about the market. The above mentioned internal controlling instruments may be used for this as well. During this phase the cooperative primarily develops most of the ideas.

3. *Idea*. The decision process begins in the third phase. It is initiated by either the cooperative or the members. Now, both sides work on the development of a new product and a limited exchange of ideas takes place.
4. *Product Design*. Together, cooperative and pilot members often create the product design. During this phase the knowledge exchange between the two groups is the most intense.
5. *Concept Design*. When the product design is completed, the cooperative, alone, usually develops the concept design, which consists of marketing instruments, prices, and financial plan etc.
6. *Market Launch*. During the last phase the innovation process is completed with the market launch, which means that the innovation is realised by the member bakeries in their local market.

Figure 1 is a schematic representation of the above described process. The phases 1–3 correspond to the development of ideas, phases 4 and 5 to the acceptance of ideas and phase 6 to the realisation of ideas. The above presented process does not separate the development and design phase (only at the enterprise level) from the diffusion process (only at market level). Instead, the process is geared towards an interdependent relation between business environment and cooperative.

The two criteria for our analysis (impulses for the creation of novelty and the dissemination of knowledge) on which the idealised innovation process is based underpin our contemplations when dealing with the processes in Fig. 1. We assume that these impulses can come from the cooperative as well as the members. Furthermore, the impulses for the dissemination of knowledge can be driven forward

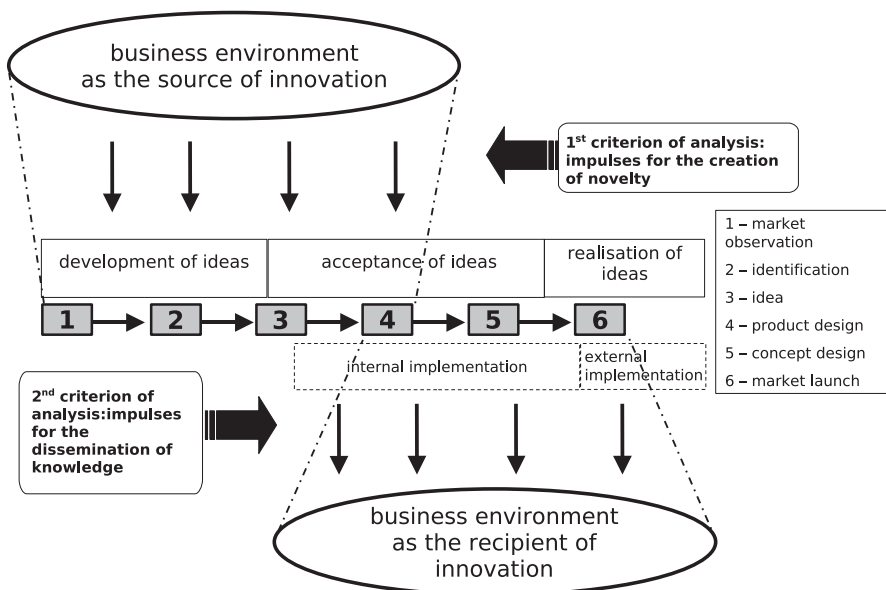


Fig. 1 Idealised innovation process

Impulses for creation of novelty by the cooperative	Dissemination of knowledge	
	pushed by cooperative	pulled by members
members	promoter (1)	recipient (3)
	source (2)	feedback process (4)

Fig. 2 Four forms of communication of knowledge

by the cooperative (pushed) or demanded by the members (pulled). This premise entails four different forms of knowledge communication (cp. Fig. 2). We consider the members as the source of innovation (2), when the decisive innovation impulses originate in their midst and are taken up by the cooperative and are pushed. In this case of knowledge communication the active members assume a leading role. In contrast to that form of communication, the passive members can also contribute to the communication of knowledge within the cooperative network, if they act as the recipients of the innovation (3). In this case, the innovation receives its decisive impulse from the cooperation but these were demanded and stipulated by the members (pulled by the members). If the impulses for the creation of novelty as well as the dissemination of knowledge are emanated by the cooperative, we can say that the cooperative functions as a promoter of the innovation (1). We assume that the cooperative's efforts to convince its members of the innovation are the more successful the more homogenous the member composition is. When different members act, at the same time, as the source and recipient of the innovation the central feedback processes take place (4). This feedback process can only take place when the member composition features a certain degree of heterogeneity. The idealised innovation process as well as the four forms of the dissemination of knowledge constitute the analytical framework for the results of our case study.

4 Methods

The main objective of this study is to provide a revised and improved understanding of the conditions of knowledge formation and the meaning of knowledge communication in cooperative entrepreneurship. The methodical approach of the paper corresponds to the idea of developing theories through the means of case study research (Eisenhardt 1989; Yin 2003), which is supposed to capture the dynamic and the complexity of the object of investigation. Case study research allows explorative insights into a new field of research.

For these purposes we visited a cooperative of bakers as well as three member bakeries. In addition to these four interviews, we consulted another baker who is a member of a different cooperative. We interviewed the BÄKO's managing director and the member bakeries of the BÄKO. The interviews lasted between 1.5 and 4 h and took place in September 2006. A list of questions structured the interviews and covered aspects such as marketing and supply but also questions concerning the

cooperative's formal and informal institutions and their workings. As a result of our interview with the managing director we identified three examples of innovation which we analysed in more detail in our study. Furthermore, we asked each interviewed baker how far he is involved in the six phases of the idealized innovation process.

The member bakeries can be divided into two groups: the first group consists of active members who experiment with new products, keep an eye on the market developments and often serve as pilot bakers. The second group is made up of passive members who often have to take advice about which market trends to follow and what new products to include in their range. These two groups represent the classification which can be found within the evolutionary economics. In evolutionary economics two groups exist one featuring entrepreneurs who take the initiative and another group which imitates the first group's ideas, (Heuß 1965, p. 9).

5 Empirical Findings

In the following, we will connect the theoretical idea of innovation processes with some results of our case study research. We intend to illustrate the phased development of the process with three cases that illustrate three different types of innovation. We have chosen snack bakery products as an example for a product innovation as it features some typical characteristics of this type of innovation. The introduction of commercial coffee machines is associated with the innovation of the production process of the beverage, since the main product was not altered; only improved as "coffee to go" is of higher quality than the traditional filter coffee. Nevertheless, a new product has emerged. Both innovations are already in the phase of realisation. We understand that the shift towards organic bakery products has the character of a comprehensive systemic innovation.

5.1 Product Innovation: Snack

The category "snack" consists of half-finished bakery products. Besides those half-finished products, stuffed rolls, sandwiches and similar products are also included in the snack category. Those products can be finished or crisped up by the bakers themselves.

5.1.1 Market Observation

From the cooperative's perspective the area of frozen bakery food is considered an important addition, especially for small and medium-sized bakeries, since it gives them the opportunity to round off their range of products. The cooperative gathers

information about the market by conducting their own market surveys as well as through working committees of the BÄKO centre of operations. In this particular case the information was gathered through the extensive analysis of consumption studies which examined general consumer trends rather than one particular snack product. The subject of research was therefore consumer trends and also the preferences of the members' customers. In this early stage of the innovation process, the members were only informed about these trends and were advised to act accordingly; therefore, they did not play an active role in the market observation but were merely recipients.

5.1.2 Identification

Taking into consideration these general consumer trends, the members monitor their local markets while paying special attention to variations and alterations in the snack division. Whether the assortment of snack products is popular or successful strongly depends on the structure of the customer base. Therefore, the objective of every baker is to find their individual mixture of snack products from their range of products that is the most successful with their local customers. In the context of identifying market potentials we found a significant difference between active members (pilot bakers) and those benefiting from a new idea simply as recipients (passive members). The first category is obviously involved in the early stages of product development, whereas, the latter only profits from the innovation and subsequently tests its popularity in practice (i.e. when the cooperative includes the new product in their product range).

5.1.3 Idea

From the preceding phases (by means of direct observation, inquiry, information issued by the BÄKO centre of operations, gathering and analysing information) the members gain new insights and attain knowledge, while taking into account their technical restrictions and the applicability of the innovation for their own purposes.

5.1.4 Design

The fourth phase can be divided into two parts: product design and concept design. In our snack example the latter does not play an important role as its main characteristic is its novelty and therefore requires no particular financing or marketing strategy. The bakery's choice of products is a very individual matter and depends on two different production methods; first the home-made pastries that the bakers produce themselves and second, frozen products which are ordered from the cooperative and can only be slightly refined by the members themselves.

5.1.5 Market Launch

In the snack case the last stage is very simple. Normally, new products are produced in small quantities and offered as new creations to the customers. If successful, the new articles are added to the cooperative's product range.

5.1.6 Feedback Processes

Formal organisational institution, like the sales staff, but also informal institutions inform the cooperative about the performance of the snack innovation. If a snack is particularly successful, the members have the choice of either including the cooperatives' new article in their individual assortment or to learn the underlying production method from the cooperative. As part of a feedback process, the bakers' experiences will be reported back to the BÄKO centre of operations, where the individual baker's expertise will be discussed in different working committees. The further development and improvement of the snack division strongly depends on the continuous effort by the members to offer a great variety of products and keep a vigilant eye on the customer's wishes and demands.

5.2 Process Innovation: Coffee

The second subject of our case study is the relatively new phenomenon of bakeries selling coffee for consumption at the shop as well as "coffee to go". Innovative about the coffee offer is the fact that commercial coffee machines brew the coffee, instead of conventional coffee makers. This means a considerable investment for small and medium sized bakeries and is a characteristic feature of an innovative processing method.

5.2.1 Market Observation

As a first result of their market research the cooperative detected a general trend towards convenience and ready-to-go food and in particular towards "coffee to go". Simultaneously, we noticed that on the member level an active observation of the competition in the local vicinity took place, for example bakers noticed that nearby coffee roasters were becoming quite popular.

5.2.2 Identification

Both the cooperative and several pilot bakers identified high quality coffee products as an attractive extension to their range of products.

5.2.3 Idea

How to introduce high quality coffee into the member's bakeries (especially in rural areas) has been discussed through internal communication organs between the co-operation and the members. The members of the managing board as well as the sales representatives drove the debate about the introduction of coffee forward. The internal exchange about the issue mainly took place during the regular visits of the sales representatives in the local bakeries and through informal institutions.

5.2.4 Design

The design was basically limited to the concept rather dealing with the design of the product. In detail, the concept design consisted of the appropriate selection of coffee automats, financing, consulting, marketing and instruction classes.

5.2.5 Market Launch

The exchange of knowledge is mutually stimulated. A mutual enrichment of knowledge took place. The internal implementation was heavily promoted by the cooperative. For this purpose, sales representatives underwent great efforts in order to spread and popularize the idea among the members through product placements and sales-promotions. Additionally, members of the board used the informal institutional frame of the organization to convince the members of their idea. Today, the market launch stage of this process innovation is almost completed and a commercial coffee machine can be regarded as standard equipment of a modern bakery.

5.2.6 Feedback Processes

All participating members reported that they are very satisfied with the commercial coffee makers and earned extra profit.

5.3 Systemic Innovation: Organic

In contrast to the two aforementioned cases, the third case does not deal with an innovative restructuring process of a single product (product innovation) or the conversion to a different processing procedure (production method innovation), but rather with an innovation process of a more general character. The inclusion of pastries with organically certified ingredients into the range of products or even complete the conversion to organic products entails far-reaching changes in the production process (our understanding of the notion of systemic innovation). The changes are

so profound because each supplier in the value chain has to ensure and certify the organic origin of their product. Due to the fact that organic products must meet specific requirements in respect to their processing methods, this process is very elaborate and costly.

5.3.1 Market Observation

A general market observation and the identification of general and long-term trends mark the early phases of the innovation process. In contrast to the snack case, we found that no important innovation impulses came from the members. Instead, the impulses came from the higher levels of the cooperative who were keen to ponder the question of how to make the bakeries part of the organic food boom.

5.3.2 Identification

By the means of analysing the market potential and identifying market impulses, the cooperative and the working committees of the regional centres of operations identified organic products as an interesting addition to their bakers' product range. Despite the positive assessment of organic food, the cooperative and the committees concluded that organic food would only be a valuable gain for some of the bakers. They did not expect bakers to change their whole production from conventional to organic.

5.3.3 Idea

The introduction of organic products was discussed using internal communication channels. Formal institutions like the supervisory board played a major role in the debate.

5.3.4 Design

Members are only involved in the development process in so far as they are part of the official decision body of the cooperative (members of the executive and the supervisory board). In this example a couple of conflicts arose between the members and the cooperative, because several bakers feared that customers would regard the quality of their home-made products as inferior to the organic ones. The product design was created by the BÄKO and the working committees of the regional centres of operations, whereas the concept design was created by the BÄKO. Their strategy included several special services like classes, fairs, workshops.

5.3.5 Market Launch

The market launch stage just began. Therefore, only a few experiences were made when we conducted our case study.

5.3.6 Feedback Processes

Some bakers reported that they were planning to produce only a small number of products (mainly breads) with organically certified ingredients. The bakers' intended production scale for organic products concurs with the management's expectations.

6 Results and Discussion

The decisive advantage of an embedded cases study design (Yin 2003) lies in the ability to compare the results of the different cases of the study and to reach a broader level of explanatory power. In the previous sections, we illustrated three innovation projects with the idealised innovation process as the model. In addition we are going to discuss these projects with special attention to the four forms of knowledge communication presented in Sect. 3.

We will discuss our results with evolutionary economics as our analytical framework, while taking into consideration the composition of the members (homogeneity vs. heterogeneity; active members vs. passive members) and the knowledge communication processes. Neglecting the empirical findings temporarily, we can assume that form (2, source) is more likely to occur in the early stages of the process, whereas form (3, recipient) seems to be typical for the late phases. The degree of heterogeneity of the members as well as the proportion between active and passive members affects and determines the creation of knowledge and its dissemination and is therefore a crucial factor in the overall process. A clear temporal distinction is not possible in form (4, feedback process); during all the stages of the innovation process members can be the source of innovation as well as the recipient of innovation. In this form we observed the aforementioned feedback processes in terms of Kline and Rosenberg (1986). In some phases it can be assumed that the cooperative acts as a promoter for the innovation (1). If the members are the recipient of innovations, then the question arises of who will gain the upper-hand in the internal decision processes. In this case, the cooperative plays the part of the promoter and advertiser of a new idea. Sometimes, the cooperative even has to persuade the member of the idea.

However, when taking into account our empirical findings these general assumptions could only partially be confirmed. Figure 3 contains a summarized overview of all cases while paying special attention to the four forms of knowledge communication in the individual phases of our idealised innovation process.

type of innovation	Phase of the process					
	I observation of the	II identification by	III ideas via communication between	IV product design by	V concept design by	VI market launch
product innovation (<i>snack</i>)	customers **	local units **	customers + members **	cooperative + pilot members *****	-	tasting, communication with customers
process innovation (<i>coffee</i>)	competitors ***	cooperative + pilot members *****	members + cooperative (sales rep., informal inst.) *	-	cooperative ****	placement and sales-promotion
systemic innovation (<i>organic</i>)	general market *****	analysis of the market potential *****	cooperative + BÄKO centre of operations (formal inst.) *****	BÄKO centre of operations + working comm. ***	BÄKO services (classes, fairs) *	<i>not completed</i>

- * promoter
- ** source
- *** recipient
- **** feedback process

Fig. 3 Table of results

In the first three stages of our snack case the members function as the source of innovation, only in the third and fourth phase does the important knowledge exchange take place. Only in the fourth phase do feedback loops become discernible (member base = source = recipient), when the new snack products become available to the passive members through the cooperative's frozen food offers. Here the cooperative does not act as the promoter of the innovation, since the innovation process and the associated decision process is limited, to the greatest possible extent, to the member level.

In the case of the process innovation, the members were regarded, from the very beginning on, as the recipients of the innovation. The important communication between pilot members and the cooperative takes place in the second phase. In the fourth phase, the cooperative acts as the promoter of the innovation thus trying to convince the passive members, in particular, of the new process. From the fifth phase onwards the members are again only recipients of the innovation and play no active part.

When considering the case of the systemic innovation, no stage can be identified where the members function as the source of innovation. In the beginning and in the middle of the innovation process the members are perceived as the mere recipients of innovation. The important communication processes happen in the third phase and include members, only in so far, as they are a part of the official decision-making body and are thus used as a source of innovation. In the fifth phase, the cooperative again acts as a promoter of the innovation, in a similar way as in the coffee case, but by using different channels.

The presented cases illustrate that the idealised innovation process which we developed already exists in practice. It became evident that communication processes, through formal and informal channels, are crucial for the success of innovation processes.

The processes of knowledge communication are variable and institutionally flexible depending on the characteristics of the object of innovation (product, process or systemic). Furthermore, decision-making does not underlie a fixed hierarchical pattern within the cooperative but depends on the type of innovation and the distribution of entrepreneurial qualifications which was evident in our case study by the composition of the members' base (active vs. inactive members). Finally, the institutions responsible for resolving conflicts between the members and the management are well prepared when dealing with differences in the area of product and process innovations. Unfortunately, they are less prepared to defuse conflicts when it comes to systemic innovations. The complexity and scope of innovations can lead to frictions or conflicts as we have seen in the case of the introduction of organic products; this example demonstrates the complexity of systemic innovations.

7 Conclusion

We see our study as an attempt to critically consider theoretical knowledge in the light of practical experiences which we gained in our case study and the insights we attained through evolutionary economics literature. In this article, we focused on the question of how processes of knowledge communication (creation of novelty and dissemination of knowledge), which are necessary for innovation, work within cooperative organisations. Both, the literature and the case study helped us to gain a deeper insight into this interesting field.

From a theoretical viewpoint we think that further researches should include the following points: knowledge communication can take place through *three channels*: 1. the cooperative can attain the necessary knowledge about their member's market by *direct market observation*, 2. by monitoring the *exchange patterns* (i.e. monitoring which products the bakeries order), 3. by *directly communicating with the members*. Having established these three channels one could inquire on which factors the use of the three channels depends and what factors would be important for an efficient employment. Executive organs with adequate authority should settle arising conflicts. In our cases we observed a wide range of different utilisations of the channels e.g. more direct market observation in the organic case, intense direct communication in the coffee case. Based on these cases we state that the selection of the appropriate channel is primarily driven by the dynamics of the concerned markets. In other words, the dynamic of the involved markets is the driving force behind the usage of the three channels and determines how they are used.

Our main results are the following: the three cases of our embedded case study could prove the existence of the idealised innovation process as well as the four forms of knowledge communication in practice. Evolutionary economics form the basis, methodologically and conceptually, for both processes, thus its relevance, when discussing issues of innovation and knowledge management becomes evident. Our detailed analysis revealed that (1) the phases of the innovation process progress differently, depending on the object of innovation; (2) the sequence of the four forms of knowledge communication does not follow a predetermined or predictable pattern but is highly adaptable to the surrounding conditions. Ultimately, knowledge communication is inseparable from decision-making processes which take place through formal and informal institutions. Considering the different organs for decision-making, we noticed, during our study, that (3) conflicts which arise through the implementation of innovations are not solved along a hierarchical pattern but are settled according to the dimension of the object of innovation.

For cooperative entrepreneurs and practitioner we see a crucial challenge in developing measures and guidelines that will help to solve these conflicts. Also further research in innovation management should concentrate on conflict regulation in cooperative organizations, especially in the field of systemic innovations. In general, further case study researches are required to explore other low-tech sectors and gain new insights into the workings of innovation processes within cooperative organisations.

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Structure and Governance of Networks: Cases of Franchising and Co-operative Chains

Akira Kurimoto

Abstract A variety of inter-organizational networks have emerged between hierarchy and market. They are either internal networks in the same industries such as franchising and co-operatives, or external networks among organizations operating in the supply chain such as alliances. In the distribution industry, a strong tendency towards hierarchic corporate chains is observed as shown by the Swedish cases, but successful franchise chains and co-operative federations also exist. These networks are not necessarily regulated by top-down authority and require specific coordination mechanisms to solve inherent governance problems. This paper concludes the loosely connected networks are coordinated by specific collaboration mechanisms but have to solve the governance problems in the internal and external networks.

Keywords: Inter-organizational structure · Hierarchy · Alliance · Corporate chain · Franchise · Co-operative consortium · Governance

1 Introduction

Inter-organizational networks involve a variety of relations in terms of power, communication, structure, culture and so on. There is a tendency towards tighter inter-organizational structure from mutual adjustment and alliance, to hierarchy irrespective of organizational forms to cope with tougher competition. Yet there exist different structures such as franchises and voluntary chains, which have proved to be competitive through offering innovative services and creating effective alliances with suppliers. The question is how such loosely connected networks are coordinated and solve governance problems.

In the grocery distribution industry, economically weaker actors such as consumers and small retailers chose the organizational forms of co-operatives or fran-

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chises in order to accomplish economies of scale and compete with the market power of large-scale corporate chains and manufacturers. Consumer co-ops have formed national/regional federations in order to consolidate their buying power in many countries (see Brazda and Schediwy 1989; Birchall 2001; Kurimoto 1987, 1992, 1997, 2003, 2005). In Europe, the major form of pooling retailer's buying power has been retail co-operatives while in Japan the dominant form of networks adopted by small businesses has been franchised convenience stores or fast food chains (Larke 1994).

Organizational theory attempts to explain the governance problems associated with different organizational forms. In co-operatives, where property rights for both residual claims and control are vaguely defined (limited return to non-tradable shares, one member one vote), member-users have limited influence on management while the external control through the stock markets is non-existent (Chaddad and Cook 2004; Cook and Illiopoulos 2000). Such governance constraints within co-operatives could feasibly lead to management domination while members could exercise less influence on crucial decision-making. In federated systems, where primary organizations delegate some functions, there can be complications and problems with duplicated boards. In franchise systems where franchisees remain independent, their modes of operation are strictly controlled by the franchisors. These are, for example, the owners of convenience stores, who have little input with regard to contracts and royalty fees as dictated by the head office. Situations such as this have brought about growing discontent among franchisees and even serious lawsuits against franchisors.

The other aspects of governance problems within networks are associated with the alliances in the supply chain. Retailers have sought to develop private brand products or logistic systems in collaboration with suppliers in order to improve the productivity of all partners and establish win-win relationships. These alliances are not necessarily regulated by top-down authority and require specific coordination mechanisms to solve the governance problems of control in the supply chain.

This paper addresses how loosely connected networks are coordinated and solve governance problems. First it will present the analytical framework of inter-organizational networks and classify types of retail chains. The Swedish cases will be discussed to demonstrate the tendency toward more hierarchic structures. Then the evolution of networks and governance problems associated with them as illustrated by the franchise convenience store system of the Seven-Eleven Japan and the voluntary chains of the Japanese Consumer Co-operative Consortiums are to be presented. Finally, issues for further inquiries will be suggested.

2 Inter-Organizational Structure and Types of Retail Chain

2.1 Inter-Organizational Coordination and Structure

There exist vast arrays of inter-organizational relations which are neither regulated by market nor hierarchy. Here we are concerned how the autonomous interdepen-

dent organizations can coordinate actions without the invisible hand or top-down authority. Inter-organizational coordination mechanism deals not only with seller-buyer exchanges, but also collective actions among organizations. It aims at managing an organization's dependence on the other organizations in order to achieve its objectives and involves proactive manipulations of the environment so as to reduce uncertainty. Such mechanism can be classified according to what extent the organization absorbs its dependence on the other organizations or whether inter-organizational relations are coordinated through various types of collaborations directly between concerned organizations or indirectly through a third party (Pfeffer and Salancik 1978).

Inter-organizational structure means patterned and stable aspects of inter-organizational relations and involves a mechanism of division and combination among organizations. It is a concept that shows what roles each organization will play and how it is integrated into inter-organizational networks. It is formed and maintained by the power deriving from inter-organizational resource dependence and therefore influenced by the power distribution among organizations. In this process, the rules are generated as a code of conduct or structural constraints under which the exchange of resources and coordination takes place.

The coordination aspects of an inter-organizational structure can be classified as follows:

What is the rationale for coordination – mutual adjustment, mutual agreement or ownership-based authority?

Who does the coordination – participants themselves or specified intermediaries?

To what extent is the coordination formalized – written rules or just informal norms?

What is the scope of the coordination – rare coordination or complete coordination?

Based on such criteria, several types of inter-organizational structures are identified (Provan 1983; Yamakura 1993). The first one is *mutual adjustment*. In this type of inter-organizational structure, each organization is autonomous in the competitive market, but may undergo inter-organizational coordination on specific problems through informal contact (influence). Therefore rules are informal and created haphazardly among those who are concerned. The coordination is not made at the upper level but done at the lower level among concerned parties.

The second type is *alliance*, which is located in the middle ground. In this type of structure where no authorities exist, coordination is constantly made through making and maintaining formal rules based on negotiation among interdependent autonomous organizations. The negotiated agreements among organizations function as the coordination mechanism. Therefore, rules are more formal than in a mutual adjustment type and the extent of coordination is larger.

The alliance type can be further divided into *coalitions* and *federations* depending on whether the coordination is made by participating organizations or intermediaries. The former is a structure where rules are made through direct negotiation among organizations while the latter is a more formal structure where rules are made through central administrations. The former attaches importance




to each organization’s autonomy and limits coordination to the procedural aspects while the latter makes much of integration and extends coordination to settings of collective objectives.

The third one is *hierarchy*. In this type of inter-organizational structure, integration of organizations is sought on the basis of authority as the coordination mechanism, in which they act like the divisions of a single corporation. The ownership-based authority makes rules and the role of each organization is assigned in line with collective objectives under the central administration’s directives. Therefore, rules are more formal with a high degree of sanctions and coordination.

The characteristics of inter-organizational structure are summarized in Tables 1 and 2.

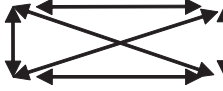
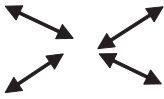
Which types of the inter-organizational structures are chosen depends on coordination strategies and the environmental factors. The Hierarchy type has strong affinity with the absorption strategy while the Alliance type is generally linked with

Table 1 Types of inter-organizational structure

Type of structure	Hierarchy	Alliance	Mutual adjustment
Network image			
Coordination mechanism	Authority	Negotiation	Influence
Who coordinate	Owner organization	Each/focal organization	Each organization
Formalization	Formal rules made by authority	Rules made by each organization	Informal expectation
Extent of coordination	Large	Medium	Small
Sanction	High	Some	Rare

Source: Yamakura (1993)

Table 2 Types of alliances

Types of alliances	Coalition	Federation
Network image		
Intermediary organization	Not exists	Exists
Basis of relations	Mutual benefits	Mutual benefits Reduced complexity in network
Who coordinates	Each organization	Focal organization
Involved organizations	Fewer	More
Network’s importance for legitimacy	Low	High

Source: Yamakura (1993)

the collaboration strategy based on the horizontal inter-organizational relations but may include more hierarchic relations such as the Japanese *keiretsu*. The environmental factors seem to affect the choice of the inter-organizational structure. Such factors include the degree of market concentration and the regulatory framework. The Hierarchy type is likely to be chosen in the market where consolidated actors exercise market powers while the Federation type is often chosen in the market where numerous actors are competing without dominant market powers. The types of structures are also decided by the specific legislation prohibiting M&A among organizations as shown in the case of Japanese consumer co-ops.

2.2 Types of Retail Chain

In the distribution trade, chain stores (multiples) represent the most popular type of inter-organizational structure. They involve a number of retail outlets which share a brand and central management, usually with standardized business methods and practices (Dawson and Burt 1998). They are classified as corporate chain, franchise chain and voluntary chain. These chains have common features such as centralized marketing and purchasing to lower overall costs and accomplish higher profits. But the modes of coordination and the degree of central control largely varies (see Table 3). And they are not mutually exclusive. There are many cases in which corporate or voluntary chains run franchise stores. For example, major corporate chains in Japan run franchise convenience stores while the voluntary chains such as the Eroski consumer co-operative in Spain and the Foodstuffs retailer co-operative in New Zealand run franchise stores.

The corporate chain is a group of stores owned by the same company. Stores are branches supplied and serviced by the head office and run by employees assigned as store managers. It belongs to the Hierarchy type structure where the head office dictates the overall operations of stores.

Table 3 Types of retail chains

	Corporate chain	Franchise chain	Voluntary chain
Org. structure	Hierarchy	Hierarchy/federation	Federation
Chain management	Head office	Head office	Head office
Store management	Employees	Proprietors	Proprietors/primaries
Decision on store opening	Head office	Head office	Proprietors/primaries
Scope of contract	None	All-round	Partial
Pricing of products	Head office	Head office	Proprietor/primaries
Central buying	Compulsory	Compulsory/voluntary	Voluntary
Training/education	Compulsory	Compulsory/voluntary	Voluntary
Management guide	Compulsory	Compulsory/voluntary	Voluntary
Sales promotion	Compulsory	Compulsory/voluntary	Voluntary
Central control	Complete	Strong	Weak

The franchise chain is a group of stores which are owned by local individuals or firms (franchisees) and operate under contracts with a head office (franchisor). It may belong to either the Hierarchy type or the Federation type depending on the ownership structure. It can be seen as a federation if it is collectively owned by franchisees.

The voluntary chain is a group of stores owned and operated by independent retailers (affiliates), while serviced and supplied by a central organization. It belongs to the Federation type where affiliates retain independence in buying and marketing but voluntarily use services offered by a federation. It involves both a wholesaler-driven chain and a retailer-driven chain (a retailer co-operative) but here it implies a co-operative federation (consortium) in more generic terminology which are owned and controlled by primary co-operatives.

3 Transformation from Alliance to Hierarchy: Case of Swedish Co-Operatives

3.1 Consolidation of Swedish Consumer Co-Operatives

In the last decades we have witnessed a strong tendency toward hierarchic corporate chains. In order to facilitate economies of scale to cope with the intensified competition spurred on by globalization, organizations have pursued consolidation at the regional/national levels through horizontal, vertical and lateral integration. Many of them have sought international expansion through M&A, strategic alliance and joint ventures.

There are ample examples of such evolution towards hierarchic corporate chains, but herewith I examine the cases in Sweden where three groups, i.e. ICA, KF and Axfood, dominate 89% of grocery retail market. The consumer and retailer co-operatives started as loosely connected voluntary chains around a century ago but eventually transformed into hierarchic corporate chains in the 1990s. They had different origins as consumer or retailer owned businesses and developed distinct identities until the 1970s, but made parallel evolution to hierarchic organizations with similar ownership structure, corporate strategies and store formats.

The KF (Swedish Co-operative Union) was created as a national federation of consumer co-ops in 1899. It had played the explicit role of “cartel busters” in a number of industries from margarine to light bulbs to protect consumer’s interests during the 1900s–1930s, creating its own industrial plants to supply alternative products to reduce its dependence on manufacturers who had often stopped supply due to pressure from small retailers (Hansmann 1996; Peder 2005). In the 1960s KF group became the largest retail chain in the country with ca. 600 affiliated co-ops and the conglomerate controlling a wide range of industrial and service subsidiaries.

However, since then it has been losing its competitive supremacy in the domestic grocery market. Sweden’s accession to the European Union meant even tougher

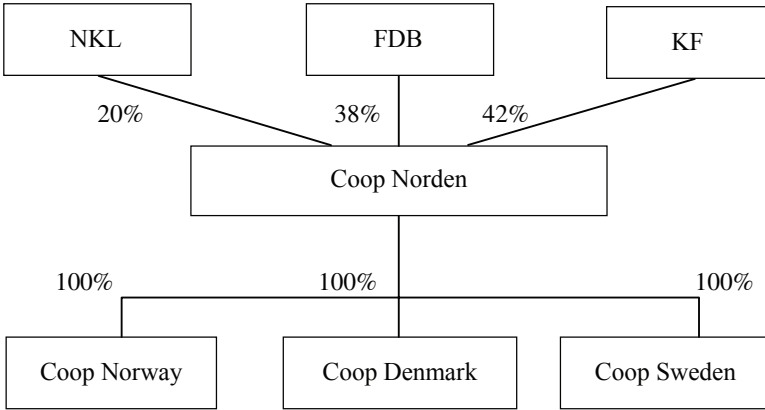


Fig. 1 Corporate structure of Coop Norden

borderless competition. Facing the offensive of much larger multinational chains, KF undertook a series of restructuring aiming at transforming to an integrated food retailer since 1992. It took over retail and related business operations of major regional co-ops and bought some retail chains (hypermarkets, specialty stores, etc.) while divesting from industrial and service businesses. As a result KF has evolved to a corporate chain integrating 62% of consumer co-ops’ turnover in 2000 while maintaining its status as a national federation supplying independent consumer co-ops. It is also the parent company controlling non-core businesses and real estate.

KF had entered into a cross-border alliance with FDB (Danish Co-operative Union) and NKL (Norwegian Co-operative Union) since the 1910s creating NAF for joint purchase from abroad and NAE for joint export of own-production goods. In the 1990s KF had strengthened partnership with Nordic counterparts in the development and operation of new store formats. In 2001 three national organizations created Coop Norden AB as the international Joint Venture company, which took over all the business functions including central buying and product development, running physical distribution and information networks, store operations and marketing (see Fig. 1). Under Coop Norden, fully owned subsidiary companies were created to undertake business operations in each country. In this sense it can be seen as the de facto merger of national organizations that was triggered by the creation of ICA Ahold.

3.2 Integration of Swedish Retailer Co-operatives

On the other hand, Hakonbolaget, the origin of today’s ICA (Swedish Retailer Co-operative group), was founded in 1917 by Hakon Swenson who aimed to achieve the same economies of scale as corporate chains by organizing retailers’ joint purchase, establishing stores and sharing marketing costs in order to compete with the

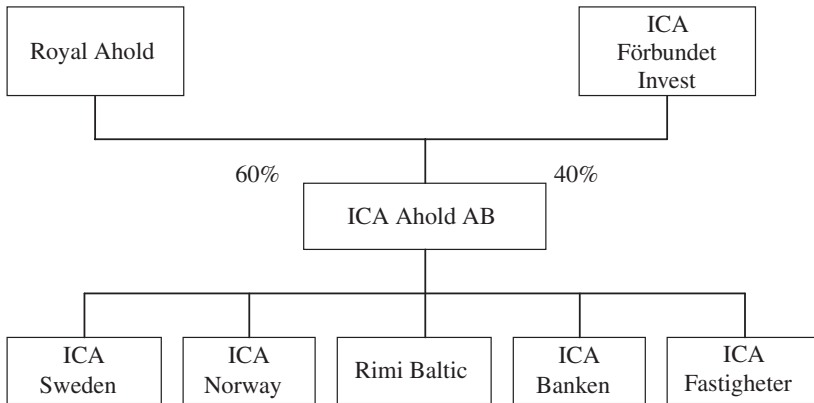


Fig. 2 Corporate structure of ICA ahold

strong market power of manufacturers/wholesalers and the competition from consumer co-ops. Purchasing centers founded in the 1920s and 1930s with the same idea, established a joint stock company ICA AB in 1938. The ICA Förbundet (ICA Federation) was formed as the membership organization for affiliated retailers and subsequently became the largest owner of ICA AB during 1972–2000. In the 1950s, the ICA group built regional distribution centers and in the 1960s started uniform marketing using the same logo. The ICA group became a market leader in 1966 with sales figures overtaking those of the KF group. The ICA AB was reorganized into a parent company ICA Handlarnas AB in 1995, which merged with Norway's Hakon Gruppen AS in 1998. In 2000, the ICA group underwent the most extensive change to its ownership structure when Royal Ahold, a leading Dutch-based global retailer, acquired 50% of its share and established a bridgehead in the grocery market of Scandinavia (Colla 2004). Now Royal Ahold and the ICA Fördundet Invest own ICA Ahold AB (see Fig. 2). It controls national operations in Sweden, Norway and the Baltic countries, as well as, a bank and a real estate company. In Sweden, the ICA is still operating under its brand name and there are no plans to fully integrate the independent storeowners into ICA Ahold. In Norway, the ICA consists of both wholly owned RIMI stores and independent storeowners that have franchising agreements with Hakon Group. In recent years, the ICA entered into lateral strategic partnerships with Statoil gas stations, Interflora flower supply and Ericsson (Lindblom and Rimstedt 2004).

3.3 Governance Problems in Corporate Chains

As illustrated above, the co-operative voluntary chains have been transformed into hierarchic corporate chains through mergers and acquisitions, joint ventures and strategic alliances. The corporate chain's head office has the commanding power in the overall operation of affiliated stores.

However, even if the organizations are integrated more today than a decade ago, a number of retail stores are not yet fully integrated into the large chains. It means that many storeowners or primaries are mobile and free to change suppliers, which happened from time to time (Lindblom and Rimstedt 2004). In particular, Coop Norden serves both its branch stores and independent stores that had different coordination mechanism with the chain's head office. To solve this problem they developed a complex decision-making structure that even knowledgeable persons cannot understand (Pestoff 2005). Such a situation makes governance more complicated than the fully integrated chains.

In addition, Coop Norden could not bring about an overall improvement in performance. In particular, Coop Sweden fell into deficit and could not sustain its market share while Co-op Denmark and Co-op Norway improved their market positions. Such mixed performances among subsidiary national companies have hampered further integration. Therefore Coop Norden decided to give back store operations and marketing to the national organizations in January 2007. It was further replaced by a joint venture named Coop Trading, which has the limited functions of development of common private labels and joint purchase of non-food products in January 2008.

As far as the external network is concerned, a partnership in the form of either a joint venture or a strategic alliance has been preferred to a complete integration in terms of ownership since it has been seen as less capital demanding and more flexible growth strategy. However, partnerships are fragile constructions and short-lived as demonstrated in Scandinavian grocery retailing (Lindblom and Rimstedt 2004).

4 Franchise System and the Supply Chain: Case of Seven–Eleven Japan

4.1 Evolution of the Japanese-Style Convenience Store

The first convenience store chain in the United States was opened in Dallas in 1927 by Southland Ice Co., which eventually became Seven–Eleven, Inc. Nowadays Seven–Eleven is the largest convenience retailer operating, franchising and licensing some 30,000 stores in 18 countries. Seven–Eleven Japan (SEJ) was started as a franchise store chain licensed by Southland in 1973. While struggling to localize its operation through the 1970s and 1980s, it evolved to be the most successful convenience store chain with a number of innovations including POS-based business operations, supply chain management and so on. SEJ invested in the ailing Seven–Eleven Inc. to give managerial/financial assistance in 1991.

On the convenience store platform, SEJ has constantly expanded its range of products and services. The average Seven–Eleven convenience store with selling area of 100m² carries ca. 3,000 items including food and beverage, tobacco and medicine, gifts and seasonal festive meals, sundries and office equipments,

magazines and newspaper, etc. It also provides services such as courier or postal service, photocopying or faxing, utility charges or tax payment, ticket office and so on. It is forecasted that the sales of services will surpass those of products in 2007.

In the course of such diversification, SEJ has developed various types of inter-organizational networks through joint ventures and direct investments. In 2000 it created 7dream.com, a joint venture for e-commerce, with NEC and other partners while it joined force with Yahoo Japan to create Seven & Y as a joint venture for online shopping for books, CDs, etc. that can be picked up at stores free of delivery charge. It also founded Seven Meal Service for cooked meals, which can be ordered by phone or on the Internet and delivered home or picked up at the stores. In 2001, SEJ established its own bank specialized in cash dispensing, which eventually became the Seven Bank, and installed ATM machines in all stores.

Now SEJ is the single largest retailer in Japan with 11,310 C-stores and annual sales of JPY 2,500 billion in 2005. It joined with Ito Yokado (its parent company) and Millennium Retailing Group (department store alliance) to form Seven & I Holdings Co., Ltd in 2005 and acquired its US-based subsidiary Seven-Eleven Inc. by a take over bid (Ishikawa and Nejo 2002; Seven Eleven Japan 2007).

4.2 Franchise System Equipped with IT

Franchising is a method of doing business wherein a franchisor licenses trademarks to a franchisee in exchange for recurring payment, and usually a percentage piece of gross sales or gross profit as well as an annual fee. Various tangible and intangible supports such as advertising, training and other services are commonly made available by the franchisor, which generally requires audited books, and may subject the franchisee to periodic and surprise spot checks. Failure of such tests typically involves non-renewal or cancellation of franchise rights.

SEJ has established its own franchise system based on such principles, but with a number of modifications in franchise contracts and the POS-based retail support system. SEJ offers two kinds of contracts depending on the ownership of store properties (see Table 4). The majority of affiliates that had been operating as independent retailers (liquor shops, rice sellers, grocers, etc.) chose type A in which proprietors use their own premises and higher income is guaranteed. In this case SEJ's field counselors make a feasibility study based on extensive market research regarding

Table 4 Types of franchise contracts

Type	Manager	Term of contract	Property own/lease	Deposit on contracting	Royalty charge	Guaranteed annual income
A	Proprietor	15 years	Owner	JPY3,075,000	GP × 43%	JPY19,000,000
C	Proprietor	15 years	Head office	JPY2,550,000	GP × sliding rates	JPY17,000,000

Source: SEJ: Profile 2006

location, population and competition before contracting and offering training at the directly managed stores after contracting. Based on store layouts, designed by the head office, store construction/remodeling is completed and new furniture/fittings are installed before each grand opening.

After each grand opening, the head office supports the franchisees in multiple ways: bearing advertising costs, 80% of utility costs and guarantying owner's minimum annual income. It provides regular management consultation, book-keeping and accounting services. But the most effective retail support network has been built on an "integrated information system" connecting the central host computer, suppliers, distribution centers, field counselors and affiliated stores. The store computers frequently send POS sales data of individual items to the head office, which feeds back analyzed sales data, the weather forecasts and other relevant information on local events and special promotions which may affect sales at stores. At the same time, stores conduct stock taking, temperature control and make orders using in-store terminals. As such, franchisees are fully dependent to SEJ for the supply of products, the information system, store design, furniture and fittings, marketing and so on. They can concentrate on store operations and personnel management while they are responsible for profitability as independent proprietors. The royalty charge is calculated as a percentage of gross profit (GP).

4.3 Managing Supply Chain

SEJ has sought to establish a so-called "Manufacturer-Retailer Alliance", which is an inter-organizational collaboration among actors in the supply chain aiming to offer added value to customers. This ranges from joint development of products or information systems to joint launching of new ventures. There are several reasons why such alliances were created. On the demand side, customer's diversified values and life styles have made it difficult for a single organization to meet all their requirements while on the supply side the advent of discount stores and increased cheap imports have squeezed the margins of manufacturers and retailers through "price destruction". To cope with this situation, an alliance was constructed to establish a lean production/supply system aiming to offer products with attractive quality and prices. Such alliances required a vast network of sales outlets and the capacity to collect customer information on the retail side, merchandising capacity to meet retailer's requirements on the manufacturers' side and the financial strength to make alliance-specific investments for logistic/information systems on both sides.

SEJ initiated "Team Merchandising" involving leading manufacturers and wholesalers in the process of product development to establish win-win relations. In order to reduce its dependence on national brands that had market power, it developed private brand products in the field of dry groceries. These products are sold at 20-30% lower prices than the comparable national brands and constitute a half of all sales in most categories. SEJ also helped establish the Nippon Delica Foods Co-operative (NDF) made-up of food manufacturers/processors to develop

Table 5 Types of distribution centers according to categories and temperature

Types	Product categories	Temperature	Frequency
Dry grocery	Beverage, snacks, noodles	Room temp.	7 times a week
Fast food	Rice balls, box lunches, bakeries	20 d.C	3 times a day
Frozen food	Frozen food, ice cream	Minus 20 d.C	3–7 times a week
Chilled food	Dairy goods, salad, delicatessen	5 d.C	3 times a day
Printed items	Books, magazines	Room temp.	6 times a week

Source: SEJ: Profile 2006

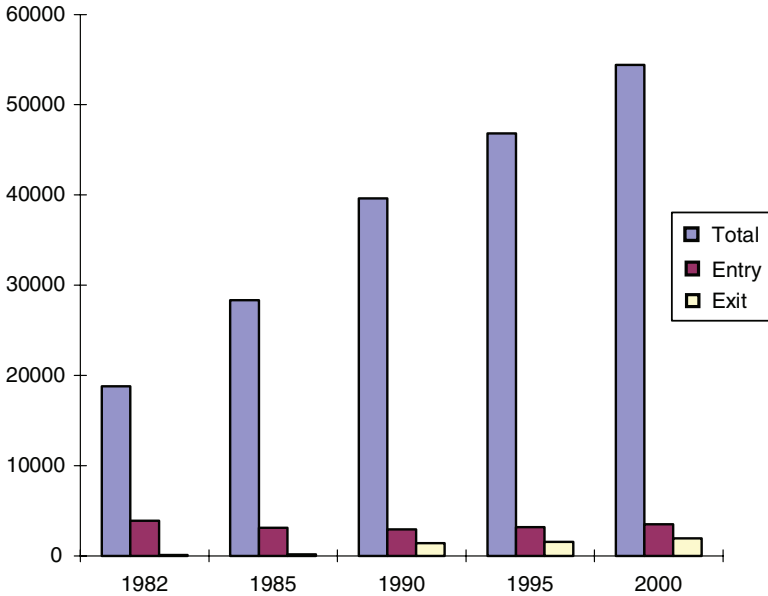
high quality ready-to-eat items (box lunches, rice balls, sandwiches, delicatessen, etc.), which became the major attractions of convenience stores. SEJ played a pivotal role as a focal organization in the coordination of inter-organizational networks without exercising ownership-based control. Currently 188 factories belong to NDF as specialized suppliers to SEJ.

SEJ's logistics system is characterized by the high frequency of multiple items in small quantity based on the *just-in-time* method so that inventories at stores can be minimized. This has facilitated quick replenishment at stores and contributed to the elimination of chance losses, but it has also invited some criticism associated with frequent deliveries causing higher delivery costs, traffic congestion and increased CO₂ emission. In an effort to offset this, SEJ asked major suppliers to carry other brands to improve delivery efficiency. This proposal was against the prevailing trade practices but was eventually accepted by partners as "Team Logistics". Thus SEJ established a joint distribution system based on category and temperature (see Table 5). As a result, the number of delivery trucks which each store receives a day was reduced from 70 to 9, while the logistics costs in sales was lower than the industrial average (6.3% as against 10.9%). SEJ had played a crucial role as the focal organizations in creating such alliances without direct investment in partners (Tanaka 2006).

4.4 Governance Problems Associated with Franchises and Alliances

Convenience stores have become an indispensable infrastructure for the daily life of the majority of Japanese. They have been accepted by a wide range of the population from teens to pensioners, families to singles. They had the fastest growth in the past 30 years and the highest sales per selling area among all retail formats. They accounted for 5% of total retailing in 2002. Although their growth has slowed down recently and the like-for-like store sales have been declining since 1995, they are penetrating into office buildings, hospitals and universities. Also their business hours have expanded; 78% of all stores are operating around the clock (National Commerce Census, 2002).

Convenience stores are characterized as "high inception, high mortality". The turnover of franchisees has been ever increasing; the exit/entry ratio was as low as 2.6% in 1982, but rose to 55% in 2000 (see Fig. 3). Too many stores are operating in



Source: “Bi-monthly Conveni”, April 2001

Fig. 3 Rapid proliferation of convenience stores and rising turnover

some areas in large cities. In the US it is said that the market is saturated if the population per store falls below 3,000, but in Japan it was 2,314 in 2000. This is partly attributable to the intensified competition with other chains and partly the ‘dominant area formation strategy by which franchisors seek to establish densely located stores in the targeted areas aiming at efficient logistics. Taking catchments area into considerations, they identify the location of new stores, which are sometimes close enough to affect existing stores (cannibalism). Thus there has emerged the “C-store hell” where more than ten stores operate within a 500-m radius. Under such circumstances, the owners had to work very hard to survive, often relying on their family’s labor to save on personnel costs. Some of them have ended in burnouts, as the labor protection legislations did not apply (Honma et al. 2001).

The overwhelming power of franchisors has resulted in extreme asymmetric relations. Franchise agreements are generally unilateral contracts or contracts of adhesion wherein the terms are advantageous to the franchisor when there is conflict in the relationship. There is no mechanism by which franchisees’ voices can be reflected in a chain’s corporate governance. Their discontent has been growing as demonstrated by the increasing conflict and lawsuits in terms of contracts. The Franchisees Association of Japan, founded in 1998, aiming to solve such problems and establish fairer relationship with franchisors, is lobbying the government to introduce adequate regulations for fairer franchising contracts.

SEJ has established the most successful business model for convenience stores, but it is not immune from problems as mentioned above although its performance is

still much better both at the head office and at the affiliate's level than other chains, while its franchisees turnover rate remains fewer.

As far as the alliances are concerned, SEJ sought to establish long-term relations with suppliers. Conflicting interests always exist between store brand retailers and national brand manufacturers. In addition, it is increasingly significant to establish traceability of products from the farm/factory to the table, since food scares are spreading among consumers with regard to BSE, SARS, etc. The retailers are responsible to secure food safety throughout the supply chain and have to bear the rising monitoring costs, since it is difficult to shift them in to prices considering the tough competition.

5 Consortium and Direct Transaction: Case of Japanese Consumer Co-Operatives

5.1 Evolution of Co-Operative Business Models

The Japanese consumer co-operatives are ranked as the third largest retail group with annual sales of JPY 3,400 billion, which accounts for 5.4% of the food retail market. Approximately 500 co-operative societies affiliated with the Japanese Consumers' Co-operatives Union (JCCU) are running supermarkets of various sizes and non-store operations. They have created innovative business models for home delivery; Joint Buying and Individual Home Delivery (Nomura 1993; Furlough and Strikwerda 1999; Kurimoto 2007).

Joint Buying is a unique system of consumers' collective buying of food and daily necessities based on Han groups in which co-op members place orders and receive a delivery of products a week later.¹ It was invented in the 1970s to serve consumers who were concerned about the excessive use of chemicals in food production/processing and the deteriorating environment. For example, housewives were dissatisfied with major dairy companies' milk products containing food additives and worked together to obtain "pure milk" at an affordable price. Such spontaneous buying clubs grew into consumer co-ops. In the 1980s co-ops introduced technological innovations that attracted a much wider segment of consumers; computer-read order sheets and automatic payment through consumer's bank accounts replaced the cumbersome chores of tallying individual orders and handling cash. Joint Buying proved to be the driving force behind rapid co-operative development during the 1970s and 1980s.

However Joint Buying faced the changing environment in the 1990s. The most visible change was that more and more women started working outside the home. Consumer's lifestyle was changing and diversifying, while a more individualistic attitude has prevailed, especially among the younger generation. To cope with the difficulty in maintaining Han groups and penetrating into a saturated market, an Individual Home Delivery System was initiated by smaller co-ops operating in the

¹ Han is a group of more than three members living in the same neighborhood.

Metropolitan areas. In 1990, they started an experiment of a new system, in which individual members could receive products for a JPY 500 surcharge per delivery. The response was far beyond expectation and in 1 year this system attracted 4,000 members, which was the break-even number. In the late 1990s this system has been adopted by major co-ops and grown rapidly offsetting the declining sales of Joint Buying. It has proved to be effective in catering to the needs of working couples, families rearing babies, singles, the elderly and the handicapped, whose needs had not necessarily been met by Joint Buying. In this regard it has supplemented Joint Buying by serving consumer's unmet needs. At the same time, the bulk of the members switched to Individual Home Delivery seeking convenience. The surcharge has not hampered the shift and has been reduced JPY200. In this regard it has replaced Joint Buying. Its sales exceeded that of Joint Buying in 2006. In the subscribed home delivery market except for pizza delivery, co-ops are estimated to account for two thirds.

5.2 Consolidation through Co-operative Consortium

The Consumer Co-operative Law of 1948 prohibits the merger of co-operatives across territorial borders (in all 47 prefectures). To accomplish economies of scale under such an institutional constraint, co-operatives have created regional consortiums (federations) since 1990 as a legitimate form of consolidation. It is up to the decisions of primary co-ops whether to join a consortium, which functions they delegate to it and how much they buy from it. Such a voluntary nature has resulted in slow and diversified integration in consortiums. Now thirteen co-operative consortiums are covering most parts of Japan. The second largest co-op, Co-op Sapporo, has achieved full-fledged concentration of all consumer co-ops on Hokkaido Island through mergers and the transfer of engagements, while the largest co-op, Co-op Kobe, has developed a strategic alliance with its sister co-op in Osaka by sharing merchandising and human resources (CCIJ News No. 47, 2005). Today, these major co-ops and consortiums account for 90% of consumer co-ops' business.

The most important function of a consortium is to buy products collectively from manufacturers and wholesalers at reduced prices. But the extent of integration of buying and related business functions varies from one consortium to another, largely depending on consensus on development strategies among affiliated co-ops. The concentration of buying ranges from 17% to 97%. The consortiums in the greater Tokyo area has concentrated purchasing and logistic functions and invested in distribution/food processing facilities on behalf of affiliated co-ops. In contrast, the consortiums in Tohoku and Kyushu regions have only limited functions where more than half of all commodities sold are being independently procured and distributed by primaries (Tashiro 2005).

Joint purchasing has lowered wholesale prices as well as other expenses. The third largest co-op, Co-op Tokyo, joined Co-opNet Federation in 1999, and successfully reduced their purchasing price by ca. 2 percent. These advantages are obtained

in mass-produced dry groceries, in which quantity matters. Especially, Co-op brands have been emphasized, but they are relatively costly as higher safety standards are often applied. Even though many primary co-ops and regional consortiums developed their own Co-op labels, they have not always succeeded in accomplishing competitive prices or differentiating quality. Co-opNet, therefore, decided to tie up with the JCCU in 2000 to integrate its Co-op brand products aiming at competitive prices.

5.3 Strategic Alliance with Producers and Suppliers

The strategic alliance with suppliers and producers facilitated the development of Co-op labels and the direct transaction of produce (Sanchoku), which constitutes the bulk of the assortment of the home delivery system, which ranges from 400 to 1,000 items. Consumers concerned about food additives, residual chemicals, excessive packaging, misleading labeling and environmental impacts wish to buy the alternative products. Accordingly Co-op label products have been developed by the JCCU since the 1960s to realize consumer's wishes for safer products that eliminate hazardous food additives or chemicals, simpler packaging but detailed information on ingredients or usage and lower prices than comparable brands. Outside of their own production lines (bread, noodles, bean curd, etc.), co-ops commission manufacturers to produce private brands according to their specifications. In this way, the Co-op label has been established as the most successful private brand accounting for 40% of grocery products sold by co-ops.

For farm products, the direct transaction between consumers and farmers has been pursued to ensure safety and reliability based on contracts, which precisely define the cultivating/feeding methods, the use of chemicals/drugs, and make record keeping obligatory. In this regard, Sanchoku can be seen as an endeavor to reinstate trust and mutual understanding between consumers and producers who have been separated through the course of industrialization. Consumers often visit farms to watch production sites and gain knowledge, while producers often join in Sanchoku Partner's Councils to promote mutual learning and consumer communication. In a sense, Sanchoku combines consumer's direct access to farms and producer's direct marketing to tables.

Another inter-organizational collaboration can be seen in the retailer-supplier coalition aimed at developing the best merchandising solution by sharing POS data generated at cashier's checkout counters. Co-op Sapporo started the 'Merchandising Coalition' with suppliers to listen to their proposals on new products in 1999 and decided to disclose all the POS data inviting them to a data-sharing scheme in 2003 from which they could draw on sales data of individual items at any time while they paid subscriptions to cover the cost of the system. Both sides obtained win-win results. Co-op Sapporo could get adequate proposals from suppliers and increase competitiveness while the latter could reduce marketing costs, make effective sales promotion and eventually increase sales. For example, the outputs of the experimental sales promotion could be obtained in a few hours and enabled suppliers

to measure the impacts and make prompt adjustments. Both parties could increase sales and profits by increasing accuracy in sales data analysis without resorting to exhausting special discounts.

5.4 Governance Problems in Co-operative Federations and Alliance

The Co-operative Consortiums, as secondary organizations, require specific arrangements in their governance structure. The general assembly, made up of delegates elected from primary co-ops, is the consortium's supreme decision-making organ that elects the board of directors who have the authority to run the organization. In primary co-ops, lay board members elected from the membership constitutes a majority of the board with a smaller number of executives, while in consortiums, the majority is composed of professional full-time executive directors, most of whom are seconded by primary co-operatives. It is expected that such interlocking directorates enable effective decision-making mitigating potential conflicts between consortiums and primaries. However, such dual structures of boards may complicate the decision-making process, increasing transaction cost and requiring more time. Some argue that this organizational structure alienates individual co-op members and does not allow for their opinions to be reflected in the decision-making of the consortium's board although there is a common problem of how to ensure member participation in large-scale organizations, no matter if they are single or federal organizations.

The functions of consortiums and primary co-ops often overlap. To avoid this, Co-opNet Federation, Co-op Tokyo and Saitama Co-op, have consolidated their buying and administrative functions aiming to reduce overall costs. They were heading for a de facto merger, while mergers of co-ops from different prefectures have not been permitted under the current law. However, the Diet amended the Consumer Co-operative Law in May 2007, which would permit co-ops in the adjacent prefectures to merge. It is expected that such merger will remove some governance problems of consortiums.

The governance problems associated with alliances were often caused by the long-term contracts concluded without effective monitoring and cost sharing procedures. Consumer co-ops have built one of the most extensive food laboratories for bacteriological and bio-chemical testing in the private sector, but could not prevent suppliers' fraudulent behaviors. In 2001, Zennoh's subsidiary company² supplied falsely labeled products, which were labeled as domestically bred chemical-free chicken, but it was disclosed that they were Chinese products raised with chemicals. Co-ops had to refund customers and review the contracts and monitoring process. In 2007, it was revealed the JCCU's Co-op branded deep-frozen beef croquettes

² Zennoh (National Federation of Agricultural Co-operatives) is the largest co-operative in the ICA's Global 300 with annual turnover of USD 54 billion.

contained other meats that were intentionally mixed-in by supplier's subcontractor. In both cases, suppliers were found legally guilty of frauds, but co-ops could not escape accountability as the sellers of these products and lost consumer's trust to a large extent. In the former case, co-ops realized that they transferred the responsibility for supply-demand adjustment to suppliers alone who made-do with imported chicken to cope with the shortage of products due to the sudden increase in orders. In the latter case, the question is being raised on how to monitor all the echelons of the food chains to prevent such frauds in food processing and who will pay the costs involved in such monitoring, including DNA testing.

6 Conclusion

There exists a strong tendency toward consolidation of functions and more hierarchic structures irrespective of organizational forms and chain store types. In many European countries, consumer and retailer co-ops started as voluntary chains, but later chose organizational patterns similar to corporate chains through M&A, joint ventures and holding companies with binding ownership structure. Yet loosely connected networks such as franchises and voluntary chains in Japan have proved to be competitive through offering innovative services and creating effective alliances of varied forms with suppliers. These alliances are not necessarily bound by property rights, but have worked well building win-win relations by sharing information/knowledge among those who took part in the supply chains.

At the same time, franchise chains and co-operative consortiums have to solve inherent governance problems. The franchise convenience store chain was introduced to modernize small independent retailers that were declining due to low productivity and bring about mutual prosperity among franchisors and franchisees. This intention was accomplished in that many franchisees could survive and thrive. But with the market saturation there is a growing discontent among franchisees that are neither owners nor employees of the chain organizations. They are crucial stakeholders for the success of the franchise system and there should be some mechanism whereby their voices can be heard. Apparently the head offices have the overwhelming power in deciding terms of contracts and modes of operations, while they need to maintain proper communication with affiliates.

Co-operative consortiums have been formed by primary co-ops to accomplish economies of scale bypassing the institutional constraints, but their performances have been mixed depending on the extent of the consolidation. Such an organizational form complicates the decision-making process because of the dual board structure. The new legislation may remove some of the constraints, but it will not alter the basic problem of democratic governance in a large-scale organization with millions of members. These are the subjects of further inquiries to understand working of networks and improve their governance.

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Part II

Franchising

Plural Form and Ownership

Stable Plural Forms in Franchise Systems: An Examination of the Evolution of Ownership Redirection Research

Brent L. Baker and Rajiv P. Dant

Abstract The ownership redirection thesis within franchising governance research stream, originally proposed by Oxenfeldt and Kelly (1968), argued that successful, resource-flush franchise systems will ultimately tend toward becoming wholly company-owned systems due to opportunistic reacquisition activity by the powerful franchisors. For nearly 40 years this dark prophecy has precipitated an intense research dialog between the supporters and detractors of this thesis. More recently, the plural forms thesis, nested in seminal work by Harrigan (1984) has been advanced, which argues that since each type of ownership structure provides its own unique governance benefits, franchise systems are likely to continue to simultaneously invest in both, company-owned and franchised outlets. This paper attempts to provide a detailed review of nearly four decades of related literature and its transition from the ownership redirection thesis to the contemporary stable plural forms thesis.

Keywords: Franchising · Ownership redirection · Plural forms · Dual distribution · Distribution strategy

1 Introduction

Franchising is big business in the U.S. today. There are over 1,500 franchise systems in the U.S., according to the World Franchise Council. This count represents 760,000 franchisees employing approximately 18 million people (i.e., one out of seven jobs in the U.S. or about 23 employees per franchise outlet). These employment figures represent nearly \$506 billion in payroll (or approximately 11%

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of the private sector payroll in the U.S.), in turn generating an economic output over \$1.53 trillion which equals about 10% of the U.S. private-sector economy (Reynolds). It is also an American invention that has been cited as one of the fastest growing U.S. exports to the world (House Committee on Small Business 1990); and it is arguably the fastest growing form of retailing in the world (Dant et al. 2008). Franchising is also somewhat unique from a public policy perspective in that it is a net foreign exchange earner and does not over time create future foreign competitors that come back to compete in the domestic economies per the international product life cycle phenomenon (Gillespie et al. 2007).

For over 40 years now, the debate over the ownership redirection thesis, introduced into literature by Oxenfeldt and Kelly (1968) in their seminal article entitled *Will Successful Franchise Systems Ultimately Become Wholly-Owned Chains?*, has preoccupied the attention of franchising researchers (e.g., Brickley and Dark 1987; Dant et al. 1996a,b; Hunt 1973; Hunt and Nevin 1976; Lafontaine 1992; Lafontaine and Kaufmann 1994; Rubin 1978). Oxenfeldt and Kelly's ownership redirection hypothesis contends that the successful, resource-flush franchise systems will ultimately become almost wholly-owned chains due to reacquisition activity by the powerful franchisors. As Dant et al. (2008, 429) note, this dark prediction raised serious concerns about potential opportunistic franchisor behavior and precipitated intense legislative scrutiny (House Committee on Small Business 1990; Dant et al. 1992, 1996a,b). Franchising researchers too, fascinated by Oxenfeldt and Kelly's provocative thesis about organizational growth, have mounted numerous investigations attempting to confirm or disconfirm their prediction.

At the heart of this debate lies the issue of identifying factors influencing the motivations underlying the franchise ownership forms. In addition to the resource constraints theory, the conceptual basis for the ownership redirection thesis, several other theoretical frameworks such as Agency Theory (Lafontaine 1992; Brickley and Dark 1987), Transaction Cost Analysis (Manolis et al. 1995; Lafontaine and Kaufmann 1994), Signaling Theory (Dant and Kaufmann 2003), and Property Rights Theory (Windsperger and Dant 2006) have been utilized by scholars to investigate the issue of ownership forms in franchising and to offer alternative theoretical explanations for the existence or absence of the ownership redirection phenomenon.

While the above literature continues to debate the occurrence or non-occurrence of ownership redirection, the contemporary phenomenological observable reality in the U.S. is that franchisors are *not* systematically reacquiring their franchisees' operations. A similar pattern is also manifest in countries like France (Cliquet 2000) and Germany (Ehrmann and Spranger 2004). In fact, most of the wealthiest franchise systems continue to open both company-owned and franchisee-owned outlets for growth, in an apparent support for the stable plural forms thesis of franchising (Bradach and Eccles 1989; Bradach 1997; Dant et al. 1992; Dant and Kaufmann 2003; Harrigan 1984). For instance, in 2001, McDonald's had 30,093 restaurants worldwide, of which 8,378 (almost 28%) were company-owned and operated and the remaining 21,715 (72%) were franchised out (Blair and Lafontaine 2005). Invoking the notion of tapered integration (cf. Harrigan 1984), and building upon the writings of Bradach and Eccles (1989) and Dant et al. (1992), Dant and

Kaufmann (2003, 66) argue that “the existence of both forms of system ownership, company-owned and franchisee-owned, is predicted to complement and benefit the management of the other form principally by providing alternate models for unit management and supplying informational insights only available within one of the two forms.”

Dant and Kaufmann (2003) also document empirical support for the ten specific strategic advantages associated with plural forms initially developed by Dant et al. (1992) drawing on a sample of U.S. fast-food franchisors. Given these trends in the literature, this paper will attempt to fulfil the following objectives.

First, we briefly review the diverse literature and their related theoretical frameworks utilized by franchising scholars in their investigations of the ownership redirection hypothesis over the past 40 years. A conclusion of this section is that even though some of the literature may imply a trend towards pure systems (i.e., fully company-owned or fully franchised systems), none of them really intended or became a *truly pure* system, and that certainly, empirical investigations instigated by these frameworks have never unearthed these pure systems. Second, we discuss the arguments of the plural forms thesis which we argue to be the successor to the ownership redirection thesis at least *in the U.S. context*. In doing so, we demonstrate that the ownership redirection phenomenon in the U.S. appears to be a thing of the past. The paper attempts to arrive at two tentative conclusions. First, we need to investigate this ownership redirection phenomenon from an emic rather than an etic perspective (Berry 1969; Jahoda 1970). In other words, it may have disappeared or dissipated in the domestic U.S. context, but may continue to occur in other countries, and that we need to understand the emic reasons for its continued occurrence. Second, we also speculatively argue that the primary reason for the demise of ownership redirection thesis in the U.S. context as compared to many other countries is the relatively extensive legal protection extended to U.S. franchisees from opportunistic franchisor behaviors.

2 Ownership Redirection and Theoretical Frameworks

As previously noted, the phenomenon of ownership redirection has been investigated from the perspectives of at least five theoretical frameworks: (1) resource constraints or resource acquisition theory (cf., Oxenfeldt and Kelly 1968) with its roots in the resource-based view of the firm (Penrose 1959; Wernerfelt 1984) and resource dependence theory (Pfeffer and Salancik 1978), (2) agency theory (cf., Fama and Jensen 1983a,b), (3) transaction cost analysis (cf., Williamson 1985), (4) signaling theory (cf., Beggs 1992; Gallini and Lutz 1992; Gallini and Wright 1990), and (5) property rights theory (cf., Demsetz 1966; Hart and Moore 1990; Hart 1995; Maness 1996). In Table 1 we show a comparison of these frameworks with exemplars of ownership redirection research based on these perspectives.

Table 1 Fundamentals of theoretical perspectives used in redirection literature^a

Attributes	Resource dependence theory	Agency theory	Transaction cost analysis	Signaling theory	Property rights perspective
<i>Intellectual foundations</i>	<i>Organizational behavior</i>	<i>Organizational economics</i>	<i>New institutional economics</i>	<i>Economic contract theory</i>	<i>Applied microeconomics</i>
	Oxenfeldt and Kelly 1968; Pfeffer and Salancik 1978; Wernerfelt 1984; Dant et al. 1992	Eisenhardt 1989; Jensen and Meckling 1976; Fama and Jensen 1983a,b	Coase 1937; Williamson 1985	Beggs 1992; Gallini and Wright 1990; Spence 1974	Demsetz 1966; Grossman and Hart 1986; Hart and Moore 1990; Hart 1995; Maness 1996
	Strategic organizational choices and inter-firm governance depicted as a coping response to the forces of environmental uncertainty and limited firm specific resources	Alignment of principal and agent incentives to avoid agent shirking and the expenditure of agent monitoring costs	If adaptation, performance evaluation, and safeguarding costs are absent or low, market governance will be favored. If these costs are high hierarchical governance will be preferred	Signals serve as tools that help alleviate the asymmetric information problem that exists between market participants that have information relevant to other market participants who require said information	Allocation of residual decision and residual income rights to motivate investments in non-contractible (intangible) assets

Concept of man	<i>Behavioral man:</i> A rational information processor who forms beliefs, attitudes, and intentions within the constraints of an organizational context that are causally determinant of his behavior	<i>Opportunistic man:</i> Self interested with independent goals. Principal and agent goals are aligned to avoid agent shirking and to lower organizational costs associated with agent monitoring	<i>Rationally bounded man:</i> rational decision making may be limited due to constraints on cognitive capabilities and rationality <i>Opportunistic man:</i> Seeks to serve self interest with guile when the opportunity is presented	<i>Behavioral man:</i> A rational information processor who forms beliefs, attitudes, and intentions based on possessed information garnered through the interpretation of market signals	<i>Economic man:</i> Seeks to maximize his utility subject to constraints of time, income, information, and institutional rules
<i>Appraisal Criteria</i>	Intuitive plausibility, validity and reliability of measurement instruments	Mathematical elegance, simplicity, internal consistency	Mathematical elegance, simplicity, internal consistency	Intuitive plausibility, validity and reliability of measurement instruments	Mathematical elegance, simplicity, internal consistency
<i>Research methods</i>	Predicted experimental effects; correlation in ex-post facto studies at the micro level	Mathematical models; correlation in ex-post facto studies at the macro level	Mathematical models; correlation in ex-post facto studies at the macro level	Mathematical models; correlation in ex-post facto studies at the micro level	Mathematical models; correlation in ex-post facto studies at the micro and macro level
<i>Exemplar ownership redirection studies</i>	Carney and Gedajlovic 1991	Brickley and Dark 1987; Lafontaine 1992; Rubin 1978	Manolis et al. 1995; Lafontaine and Kaufmann 1994	Dant and Kaufmann 2003	Windsperger and Dant 2006

^aThis table is modeled after Table 1 of Windsperger and Dant (2006)

2.1 Resource Constraints Perspective

The Oxenfeldt and Kelly ownership redirection hypothesis is most closely wedded to the rationale of the resources constraints theory which fundamentally asserts that since no firm is likely to be self-sufficient in all the resources it needs to effectively and efficiently operate in the marketplace, it must find alternative sources for these scarce resources. It therefore follows that franchising is likely to be most attractive to franchising firms when the growth-oriented firm is in its youth (Carney and Gedajlovic 1991) since the resources constraints are much more likely to be experienced by smaller and younger chains. For a chain trying to gain competitive advantage in the marketplace by growing rapidly and faster than its competition, waiting to accumulate sufficient internal resources for chain expansion would be a counterproductive growth strategy. Thus, franchising becomes an attractive option to these firms seeking rapid expansion as franchisees are able to provide the firm with the financial and managerial capital in addition to local marketplace informational capital, all bundled in one, not otherwise available to them. With age and system growth, however, the assumption is that these forms of capital will become more readily available to the franchisor chains internally, rendering the franchising option less attractive as the wholly owned system becomes more attainable (Caves and Murphy 1976; Oxenfeldt and Kelly 1968).

It is important to realize that with its company-owned and operated units, the franchisor gets to keep all of the profits (revenues less cost of operations) whereas with franchised units its chief source of ongoing revenue is its royalty rate computed as a percent of the gross revenues. Blair and Lafontaine (2005) show that between 1980 and 2001, this royalty rate on an average has barely moved from 4.5% in 1980 to 5.2% in 2001. In other words, the franchisors have a major financial incentive to open more company-owned units in lieu of franchised units as their systems mature and grow. Moreover, the franchisors, being far more powerful than the individual franchisees, can also opportunistically reacquire the erstwhile franchised units, especially if they happen to be performing well, hence the label of *ownership redirection*.

Oxenfeldt and Kelly (1968) describe four forces that drive franchisors toward reacquisition of franchisee units: *goals*, *resources*, *opportunities* and *frustrations*. The principal *goal* of increased profitability is cited as the primary reason for franchisor acquisition of franchised units. Company ownership also provides the flexibility for companies to take advantage of emergent *opportunities* when presented. As the company is able to adopt new technologies, the efficiencies produced should also improve company profitability. However, Oxenfeldt and Kelly (1968) describe the difficulty in getting franchisees to commit to the constant monetary investments required to stay current with advancements in technological. Company owned units have no such franchisee-induced obstacles getting in the way of taking advantage of such technological opportunities. Finally, closely related to the technology example described above is the resultant *frustration* when trying to get apprehensive franchisees to adapt to company policies and programs.

The discussion thus far has focused primarily on the incentives for franchisor companies to reacquire their franchised units. However, Oxenfeldt and Kelly also discuss why franchisees may want to surrender their franchised units back to the franchisor. Like the forces prompting franchisor incentive toward ownership redirection, the *franchisees goals, opportunities, resources* and *frustrations* provide incentives to sell back the franchised unit. Oxenfeldt and Kelly (1968) provide many examples of potential *frustrations* for the franchisee. For instance, the inability to make sufficient profit is assuredly frustrating to a franchisee heavily vested in a franchised unit. Many people enter into franchising agreements believing they are becoming true entrepreneurs; however, the reality is that franchise agreements dictate to a great extent how the franchisees are to operate and manage their franchised units. Such arrangements may disappoint and underwhelm the true entrepreneur who may wish to sell back their unit in order to pursue their *goal* of operating a completely independent business (Oxenfeldt and Kelly 1968). Finally, selling back the franchised unit may afford the franchisee the *resources* needed to pursue other *opportunities* more aligned with the franchisee goals (like running a completely independent operation or retiring with a nest-egg).

The empirical literature informed by the ownership redirection thesis for a number of years used age and size of the franchise systems as surrogate predictors of ownership redirection (see Table 2). It is only recently that the literature has reverted to measuring actual predictors of the purported ownership redirection.

Three areas have been identified in the literature where franchisors were accused of acting opportunistically at the expense of their franchisees (1) misrepresentations by franchisors to potential franchisees about the operation of the franchise or *the disclosure problem* especially in terms of the profit potential of different sites, (2) restrictions by franchisors on the source of supplies or services purchases by their franchisees (the *tying agreement* problem), and (3) onerous termination provisions in the franchise agreement or the *(capricious termination problem)* (Diamond 1969). Incidentally, opportunistic ownership redirection is described by the capricious termination problem.

Subsequent empirical investigations were conducted to examine some of these opportunistic behaviors on the part of the franchisor. However, investigations were more centrally focused on franchisor opportunism regarding tying agreements and disclosure. For example, Hunt and Nevin (1975) found many franchising arrangements to be buried in litigation. Of central importance to the Hunt and Nevin (1975) piece was the *tying agreement* problem. The authors found that approximately 70% of franchisees were required to buy, at least some of their supplies from the franchisor. These tying agreements are not by themselves evidence of opportunistic behavior. However, Hunt and Nevin (1975) found that the majority of franchisee respondents felt that the franchisors were charging them prices that were higher than competitive market prices for the same items. Hunt and Nevin (1975) found opportunistic franchisors acting at the expense of the franchisees but did not investigate and thus uncover opportunistic ownership redirection. The important thing about the Hunt and Nevin (1975) study is that it does reveal franchisors willing to act opportunistically at the expense of the franchisees.

Table 2 Empirical studies on ownership redirection^a

Study	Industry	Predictors of ownership redirection
<i>Primary data studies</i>		
1. Shelton (1967)	Restaurant & composite	NA (ownership pattern was the independent variable)
2. Hunt (1973)	Restaurant	Time, age and system size
3. Lillis et al. (1976)	Restaurant	Franchise Life Cycle Stage
4. Brickley and Dark (1987)	9 Business Sectors	Investment Requirements for Franchise
5. Lafontaine and Kaufmann (1994)	Assorted IFA member franchises	Age and subsidiary status
6. Dant et al. (1998)	Restaurant	Financial, human and informational capitals
7. Dant and Kaufmann (2003)	Restaurant	Conversion gains and unit shares
8. Windsperger and Dant (2006)	Assorted austrian franchise systems	Percentage of company owned outlets
<i>Secondary data studies</i>		
1. Caves and Murphy (1976)	20 business sectors (1973)	Sectoral share, extent of tying, and sales efficiency
2. Anderson (1984)	17 business sectors (1969–1980)	Time
3. Marquardt and Murdock (1986)	16 business sectors (1969–1983)	Time
4. O'Hara and Thomas (1986)	16 business sectors (1969–1984)	NA (ownership pattern was the independent variable)
5. Padmanabhan (1988)	12 business sectors (1977–1984)	Time
6. Martin (1988)	16 business sectors (1969–1986)	Time and credit market conditions
7. Padmanabhan (1989)	3 groups of business sectors (1977–1986)	Time
8. Carney and Gedajlovic (1991)	Assorted franchises in Quebec, Canada	Franchisor strategy and system size
9. Lafontaine (1992)	Assorted franchise systems	Capital needs
10. Manolis et al. (1995)	14 business sectors (1977–1986)	Terminations, business type, growth rate, and sales levels
11. Dant et al. (1996b)	12 business sectors (1977–1986)	NA (ownership redirection measures were evaluated)
12. Castrogiovanni et al. (2006)	6 business sectors (1999–2000)	Proportion of franchised outlets
13. Dant and Paswan (1998)	12 business sectors (1977–1986)	Unit share and net conversion gain
14. Alon (2001)	Assorted franchise systems (1990–1997)	Total number of franchised units

^aThis table is modeled after Table 1 of Dant and Paswan (1998)

In their 1976 piece entitled “*Full Disclosure Laws in Franchising: An Empirical Investigation*” Hunt and Nevin investigated what is described as the *disclosure problem*. More specifically, franchisors were found to deceive potential franchisees about the potential profitability of a franchise investment. Hunt and Nevin (1976) investigated the capability of full disclosure laws to reduce the misleading of franchisees about potential profitability of a franchised unit. The authors found that full disclosure laws do reduce the incidence of franchisor deception. However, these laws are said to come at a price. Hunt and Nevin (1976) describe the numerous costs associated with enforcing full disclosure laws.

Though there are costs levied on all the parties involved, the state, the franchisor and the franchisee, Hunt and Nevin (1976) are quick to point out that the benefits of such laws do outweigh the accompanying costs. Though neither of the Hunt and Nevin pieces discussed above (1975; 1976) examined the ownership redirection hypothesis directly, both have implications regarding ownership redirection. Specifically, both articles found and describe opportunistic franchisor behavior. Though both articles list several states that, at the time, were considering legislation designed to protect franchisees from opportunistic franchisors, the need for such laws imply that opportunism was not an isolated or rare occurrence between franchisors and franchisees.

Conventional wisdom might lead one to believe that even the hint of such deleterious actions on the part of franchisors may have inspired franchise researchers to investigate these opportunistic motives potentially driving ownership redirection. Interestingly, it was not until 1992 when Dant, Kaufmann and Paswan published “Ownership redirection in Franchised Channels” in the *Journal of Public Policy and Marketing* did the opportunistic implications of ownership redirection get a thorough discussion in the ownership redirection literature. The opportunistic implications of ownership redirection pose interesting questions that were remarkably understudied. However, more benign reasons for redirection were also suggested in the literature see (Dant et al. 1992; Manolis et al. 1995; Shelton 1967). For example, a franchisee may decide to retire, or the franchisor may repurchase the franchised unit in order to keep the unit open until a replacement can be found for the retiring franchisee. In this particular example, the repurchase of the franchised unit is a win-win situation for both the franchisor and franchisee and would hardly be deemed opportunistic. Therefore, a stream of research aimed at distinguishing between opportunistic and non-opportunistic motives for redirection should have been produced. Interestingly, only a few studies ever really addressed the opportunistic component of franchise redirection. In Table 3, we show the current state-of-the-art literature evidence on the ownership redirection thesis.

2.2 Agency Theory Perspective

It is important to recognize that the discussion of ownership redirection thesis inextricably entails a fundamental discussion of the “why” of franchising, i.e., why do growth-oriented businesses choose to grow via the franchising route as opposed

Table 3 Characteristics of empirical studies investigating ownership redirection^a

Study	Nature of data	Unit of analysis	Ownership redirection operationalization	Empirical conclusion
Shelton (1967)	Longitudinal disaggregated primary	Franchise outlets	Sales share	Ownership redirection not occurring
Hunt (1973)	Cross-sectional disaggregated primary	Franchise systems	Units share	Ownership redirection occurring
Caves and Murphy (1976)	Cross-sectional aggregated secondary	Franchise sectors	Units share, sales share	Ownership redirection occurring
Lillis et al. (1976)	Cross-sectional disaggregated primary	Franchise outlets	Units share	Ownership redirection occurring
Anderson (1984)	Longitudinal aggregated secondary	Franchise sectors	Units share	Measure & industry dependent
Marquardt and Murdock (1986)	Cross-sectional aggregated secondary	Franchise sectors	Units share	Measure & industry dependent
O'Hara and Thomas (1986)	Longitudinal aggregated secondary	Franchise sectors	Units share	Measure & industry dependent
Brickley and Dark (1987)	Composite disaggregated primary	Franchise systems	Units share	Ownership redirection occurring
Padmanabhan (1988)	Longitudinal aggregated secondary	Franchise sectors	Units share, sales share, long term contracts, net conversion gains, attrition by non-renewal, attrition by termination	Measure & industry dependent
Martin (1988)	Longitudinal aggregated secondary	Franchise sectors	Units share, sales share	Measure & industry dependent
Padmanabhan (1989)	Longitudinal aggregated secondary	Franchise sectors	Long term contracts, net conversion gains, attrition by non-renewal, attrition by termination	Measure & industry dependent

Carney and Gedajlovic (1991)	Cross-sectional aggregated secondary	Franchise sectors	Units share	Industry dependent
Lafontaine (1992)	Cross-sectional disaggregated secondary	Franchise systems	Units share	Ownership redirection not occurring
Lafontaine and Kaufmann (1994)	Cross-sectional disaggregated primary	Franchise systems	Units share	Industry dependent
Manolis et al. (1995)	Composite aggregated secondary	Franchise sectors	Net conversion gain	Ownership redirection occurring
Dant and Paswan (1996)	Longitudinal aggregated secondary	Franchise sectors	Units share, net conversion gain	Measure & industry dependent
Dant et al. (1996b)	Cross-sectional/longitudinal disaggregated secondary	Franchise sectors	Units share, sales share, long-term contracts, net conversion gains, attrition by non-renewal, attrition by termination	Measure & industry dependent
Dant et al. (1998)	Cross-sectional disaggregated primary	Franchise systems	Units share, sales share, net conversion gain	Measure dependent
Alon (2001)	Longitudinal disaggregated secondary	Franchise systems	Units share	Ownership redirection not occurring
Castrogiovanni et al. (2006)	Cross-sectional aggregated secondary	Franchise sectors	Units share	Ownership redirection not occurring
Dant and Kaufmann (2003)	Cross-sectional aggregated primary	Franchise units	Units share, net conversation gains	Ownership redirection occurring
Windsperger and Dant (2006)	Cross-sectional disaggregated primary	Franchise units	Units share	Contractibility of assets dependent

¹This table is modeled after Table 1 of Dant et al. (1996a)

to corporate ownership approach? Oxenfeldt and Kelly see resource constraints facing nascent systems as the fundamental rationale for seeking franchisee partners. Agency theory, while not explicitly contradicting this resource constraints argument for franchising, focuses on franchising as an effective and efficient vehicle for overcoming the problem of shirking on the part of the agents without costly monitoring expenses. As Dant et al. (1996a: 434) state:

The alternative perspective, nested in principal-agent literature, portrays franchising as an optimal organizational form representing an efficient alignment of franchisor's and franchisee's interests. By sharing claims to the revenues with the franchisees, and by requiring the payment of a bond in the form of a franchise fee, the franchisor hopes to elicit requisite levels of effort on the part of franchisee towards managing the outlet (i.e., eliminating the shirking and perquisite-taking problems associated with agency relationships; Caves and Murphy 1976; Martin 1988; Norton 1988). However, the simultaneous stipulation of contractually vested variable payments of royalties to the franchisor based on outlet sales assures the franchisee that its franchisor too remains motivated to properly manage the overall system (Rubin 1978). Presumably then, franchising delivers a more efficient operation than is possible through vertical integration and internal control (Lafontaine and Kaufmann 1994). Importantly, the latter perspective and related writings (e.g., Brickley and Dark 1987), suggest a move towards a fully franchised chain (Martin 1988).

In addition, growth-oriented businesses are also expected to prefer the franchising route because managers employed in company-operated units have an incentive to shirk their responsibilities given their compensation is fixed regardless of unit performance (Fama and Jensen 1983a,b), thereby necessitating costly monitoring. In certain situations these monitoring costs can become excessive. For instance, the further the geographic distance of the unit from the monitoring headquarters, the greater the monitoring costs for the company (Brickley and Dark 1987; Castrogiovanni et al. 2006; Combs and Ketchen 2003; Eisenhardt 1989; Fama and Jensen 1983a,b). A number of researchers have provided empirical support for an agency theory perspective regarding ownership trends (Brickley and Dark 1987; Dahlstrom and Nygaard 1994; Lafontaine 1992; Rubin 1978; also see Tables 1–3).

2.3 Transaction Costs Analysis

Transaction costs analysis (TCA) (cf., Coase 1937; Williamson 1985), the successor paradigm to traditional neoclassical economics based on “New Institutional Economics” (Rindfleisch and Heide 1997), arguably may be considered the more macro-oriented parent paradigm of agency theory. Both frameworks discuss principal-agent relationships and make predictions about the likely nature of the inter-firm governance arrangements. TCA, however, addresses the broader issue of whether or not a firm should integrate with its suppliers and/or its distributors as opposed to letting the market mechanism drive its inter-firm governance. Hence, the issue of ownership redirection may be conceived as a special case within TCA.

TCA rests on two basic behavioral assumptions about the managers involved in governance decisions: that of bounded rationality and opportunism. Bounded

rationality argues that managers are necessarily constrained by incomplete information, environmental uncertainty and/or information processing limitations (Simon 1957) from making completely rational decisions. Opportunism, defined by Williamson (1985: 47) as “self interest seeking with guile,” assumes that market actors will act opportunistically whenever the opportunity presents itself, especially in the presence of relationship-specific investments. Drawing from Williamson’s (1983) hostage model or what Klein (1980) refers to as the “hold up problem,” we can see that relationship specific investments provide extra incentive for the receiver of the investments to act opportunistically due to the non-deployability of these specific investments in other relationships, creating effectively a lock-in situation (Rokkan et al. 2003). In other words, the greater the investment in relationship specific investments the more bound is the investor to the receiver, thereby providing greater opportunity for the receiver to act opportunistically.

Transaction costs analysis (TCA) has received some attention within the ownership redirection literature (cf., Table 1; Dant et al. 1992; Lafontaine and Kaufmann 1994; Manolis et al. 1995). Manolis et al. (1995) used the TCA perspective to explain the relationship between ownership redirection and franchisee quality control violations. Their results suggest that in industries where repeat purchasing is low, franchisees have more incentive to shirk their responsibility regarding quality control. Rokkan et al. (2003) found that high specific investments do indeed promote opportunism on the part of the receiver of these investments, provided that the relationship is characterized as low on the relational norm of solidarity; however, the opposite was true in high solidarity contexts. Specific to the franchise ownership literature, Windsperger (2004) suggests that relationship specific investments serve to reduce the opportunistic risk on the part of the franchisor because these investments bond the franchisee to the franchisor. However, the author was unable to find empirical support for this hypothesis. Lafontaine and Kaufmann (1994) also used a TCA perspective to investigate redirection trends in franchising in conjunction with resource constraints predictions. They found mixed results partly supportive of the resource constraints perspective (i.e., a preference for company-owned units) and partly supportive of the incentives argument implicit in TCA and agency theory (i.e., a preference for relatively *low* proportion of company-owned units). This finding is consistent with the TCA perspective since franchisees are given residual claims to the profits of the franchised units, thus providing incentive for the franchisee to manage the unit appropriately. Also, the royalty paid to the franchisor by the franchisees assures the franchisees that the franchisor has adequate incentive to operate the entire franchise system appropriately. In other words, the TCA framework used in this study suggests that the alignment of both franchisor and franchisee incentives produces a more efficient operation than the resources scarcity notion of reacquiring franchised units.

2.4 Signaling Theory Framework

More recently, researchers have begun comparing alternative theoretical frameworks to their ownership redirection studies. Dant and Kaufmann (2003) empirically compared the results of two competing theoretical perspectives in the tradition of strong inferences program (Barnes 1977; Bloor 1976), namely, signaling theory, and the resource constraints arguments. As Dant and Kaufmann (2003: 63) state:

These two theories form a particularly interesting contrast in that they predict diametrically opposed dynamic effects as franchise systems mature. Stated simply, signaling theory would suggest an initial preference for company owned outlets with a subsequent tendency toward franchising whereas resource acquisition would suggest an initial preference for franchise ownership with a subsequent tendency toward company ownership. It should be noted that these shifts can both be expressed as general strategic tendencies rather than the specific unit level choices that are typically the subject of agency theory analysis (Brickley and Dark 1987; Bradach and Eccles 1989).

It is important to note that these two frameworks are focused on very distinct drivers for ownership patterns. As Dant and Kaufmann (2003: 65) observe signaling theory presents a very different account of franchising (cf. Beggs 1992; Gallini and Wright 1990; Gallini and Lutz 1992; Lafontaine 1993; Leland and Pyle 1977; Mishra et al. 1998; Tirole 1988). Signaling theory is focused on the externalities of market imperfections and knowledge asymmetries to explain organizational choice. Entrepreneurs desirous of attaining the incentive advantages of franchising are depicted as facing an asymmetric information problem: How do good franchisors signal the quality of their concept to prospective franchisees when bad franchisors have the incentive to misrepresent their quality in an attempt to sell franchises? Franchisors can powerfully and credibly signal their own confidence in the profit potential, the viability and the robustness of their systems, by the direct operation of a critical mass of outlets (i.e., company-owned units) (Tirole 1988; Gallini and Lutz 1992). This argument closely parallels Leland and Pyle's (1977) reasoning that entrepreneurs can more easily convince potential investors of their project's viability by making direct personal investments in their enterprise.

In other words, signaling theory predicts that franchise systems will start by opening up a critical mass of company owned units to establish the credibility of their franchise name. However, after the brand has been established, the firm will invest in developing franchised units. Signaling theory assumes that franchised units are preferred in the long run to company-owned units because franchisees presumably are motivated by the profit incentive (Dant and Kaufmann 2003). Therefore, franchisees are expected to manage their units in a way that is consistent with profit maximization. However, Dant and Kaufmann (2003) did not find support for the signaling theory account of franchise system dynamics.

2.5 Property Rights Theory

Windsperger and Dant (2006) offered a property rights framework (cf., Baker and Hubbard 2004; Hart and Moore 1990; Hart 1995; Maness 1996) based investigation of the ownership redirection phenomenon. Attempted as a strong inference comparison with TCA, agency theory and resource constraints perspective, the main contribution of the property rights framework is to qualify the core thrust of the resource constraints perspective. In the words of Windsperger and Dant (2006: 259–260):

We argue that the structure and dynamics of ownership patterns in franchising networks depends on the contractibility of the franchisor's system-specific assets and the contractibility of the franchisee's local market assets. Under the property rights view, ownership redirection will result from an increase in the contractibility of the franchisee's local market assets (local market information, financial resources and managerial capabilities) and the resultant increase of the franchisor's bargaining power during the contract period. . . . Our main contribution is to extend the extant franchising literature and the resource dependence interpretation of the ownership redirection (Combs and Castrogiovanni 1994; Combs and Ketchen 1999a,b; Lafontaine and Kaufmann 1994; Alon 2001; Dant and Kaufmann 2003) by arguing that informational, financial and managerial resources, the key resources sought by the resource-constrained franchisors from their prospective franchisees, are only relevant for the change of ownership structure if they are non-contractible. Hence, we provide a new theoretical foundation of the ownership redirection hypothesis by applying the property rights theory.

Though Windsperger and Dant (2006) found support for their property rights hypothesis and a corresponding refutation of the TCA and agency theoretic competing predictions, it should be noted that the property rights perspective was presented as a qualifier to the resource scarcity view of ownership redirection rather than a competing framework. Therefore, their support of the property rights perspective may be construed as further support for the resource scarcity perspective albeit with an important qualifier linked to the contractibility of the market assets.

3 Inconsistency in Evidence

As might be imagined, the use of multiple theoretical perspectives, the usage of multiple investigative methodologies, and contextual differences of empirical settings have all conspired to create a disparate body of empirical evidence best described as characterized by inconsistent and contradictory results. One well-intentioned outcome of this confusion has been the emergence of some newer studies that are utilizing multiple theoretical perspectives to determine the “most appropriate” framework for examining the ownership redirection thesis (e.g., Alon 2001; Castrogiovanni et al. 2006). The general conclusion of these empirical investigations has been that the relevance of competing theoretical frameworks is contextually dependent on factors like system age, size and franchise location. On the other hand, Lafontaine and Shaw (2005), based on longitudinal data analysis, demonstrate that ownership patterns tend to stabilize after about 8 years of chain's operation, further casting doubts on redirection thesis.

Other problems surrounding the disparate empirical findings involve (1) different operationalizations of the ownership redirection itself, (2) different sets of predictors depending on the framework employed, (3) usage of primary vs. secondary data, (4) usage of longitudinal vs. cross-sectional data, (5) usage of disaggregated vs. aggregated data, and (6) the contextual idiosyncrasies of different industry sectors sampled. In their meta-analysis of ownership-redirection phenomenon, Dant et al. (1996a) concluded that empirical resolution to the global question of *Is Ownership Redirection Occurring?* could not be directly answered even though the average mean effect was positive signifying support for the ownership redirection thesis (i.e., $r = 0.07$; combined $N = 4,429$; $p < 0.001$) due to heterogeneity in the data without examining the results through the lenses of a series of five moderators. It turned out that of the five moderators tested, the only moderator that seemed to matter was the *operationalization of ownership redirection* itself (i.e., four of the six operationalizations of *sales share*, *lack of long term contracts*, *net conversion gain*, and *attrition by non-renewal of contracts* supported the incidence of ownership redirection, whereas the remaining two operationalizations of *units share* and *attrition by termination* did not support the incidence of ownership redirection phenomenon.) One of the recommendations of these authors was to commend future researchers to focus on measures such as net conversion gain (cf., Dant and Kaufmann 2003) “that focus on the all-important *intent* behind ownership redirection since it is the presumption of opportunistic intent which has rendered ownership redirection sinister” and because “measures like units share, sales share, contract non-renewal, and contract terminations could *also* be driven by growth, management, strategic and/or other extraneous considerations” (Dant et al. 1996a: 440). In Sect. 4, we describe the rationale of stable plural forms approach to conceiving the whole issue of ownership redirection. As argued earlier, we believe this perspective more accurately captures the phenomenon of contemporary franchising in the economies like the U.S., France and Germany, and as such can lay claim to be dubbed the successor paradigm to the erstwhile ownership redirection debate.

4 Stable Plural Forms in Franchise Systems

While the above five frameworks have been utilized by franchising scholars largely to support or refute the provocative ownership redirection thesis of Oxenfeldt and Kelly (1968), a parallel undercurrent of thought focused on “stable plural forms” most ostensibly linked to Harrigan’s (1984) notions of tapered integration, can be discerned in the literature. In a nutshell, the notion of stable plural forms rejects the premise that franchise systems are headed in the direction of either pure company-owned or pure-franchised systems, and argues that a mixed system (i.e., composed of a strategic mix of company-owned and franchised units or “plural form”) is the likely ideal choice for efficiency minded systems seeking to reap the racheting advantages (Bradach and Eccles 1989) of both pure systems (cf., see earlier quote from Dant and Kaufmann 2003: 66).

At this point, it is important to demarcate between research on organizational choice into unit level arguments and strategic firm level arguments. The resource constraints theory, signaling theory and property rights framework are aimed at strategic firm-level explanations for choice of organizational form. Agency theory and TCA, on the other hand, are focused at unit-level selection of outlet ownership. As noted by Dant and Kaufmann (2003: 63), "Agency theory, for example, has been the primary tool of analysis regarding unit level choices based on the comparison of incentive alignment and monitoring costs (Brickley and Dark 1987). When agency theory is employed to explain combinations of company-owned and franchised outlets within a system, it is based on the assumption of heterogeneous outlets, i.e., differences among units on variables such as distance from headquarters, size and potential profitability (Lafontaine 1992)."

In other words, agency theory and TCA have always implied the possibility of plural forms. Similarly, signaling theory, too, definitionally accepts the existence of a mixed ownership strategy. Even resource constraints theory based writing of Oxenfeldt and Kelly (1968) accepts the simultaneous continued presence of marginal units being left to franchisees to operate. Hence, as noted earlier, the received literature slants notwithstanding, none of the frameworks *really predicted* the emergence of truly pure systems. Further, again as noted earlier, none of the empirical investigations have revealed the trend towards pure systems, and the phenomenological observable reality of contemporary franchising is that most franchise systems seem to subscribe to the plural forms philosophy of structuring the governance of their systems. The strategic advantages of plural forms are well documented in the literature (cf., Bradach and Eccles 1989; Bradach 1997; Dant et al. 1992; Dant and Kaufmann 2003; Harrigan 1984; Lafontaine and Kaufmann 1994). The framework of stable plural forms points to the subtlety and complexity of the social and economic control mechanisms that are implicit in the franchise governance structures. It also suggests that the pervasive practice of dual distribution within franchising may be a sophisticated and strategically motivated industry response aimed at instituting synergistic control mechanisms befitting the franchising context. Dant et al. (1992: 38) formally summarized these arguments in their proposition, P9:

Ownership redirection... may represent a strategic drive toward stable dual distribution in the anticipation that dual distribution will permit franchisors to

- (a) Maintain direct and current familiarity with their businesses;
- (b) Spot new ways of reducing costs and enhancing systemic efficiency;
- (c) Conceive innovative product and business ideas for future growth;
- (d) Have suitable outlets for experimenting with, perfecting, and evaluating the feasibility of new ideas and concepts before their rollout;
- (e) Preempt the potential for opportunistic bargaining on the part of the franchisees, which may occur if franchisors are perceived as lacking current and direct knowledge of their business;
- (f) Correct the balance of their dependence on their franchisees by having viable boundary-shifting capabilities;
- (g) Better negotiate with their franchisees from a position of knowledge;

- (h) Retain sufficient voting rights to control forums like the ad council; and
- (i) Use the “ratcheting strategy” of synergistically building from the alternative experiences gained in both types of outlets.

Two investigations have formally tried to assess the empirical validity of the above theoretically proposed advantages associated with the stable plural forms of governance. Lafontaine and Kaufmann (1994) asked their 130 mixed-sector franchisor survey respondents to provide answers to their open-ended questions about the perceived advantages and disadvantages of franchised vs. company owned units. Five advantages of company-owned units and two advantages of franchised units were volunteered by the franchisors (Lafontaine and Kaufmann 1994: 106), all of them substantively subsumed in the listing shown above. Finally, Dant and Kaufmann (2003) put the above set of benefits to direct test through a structured questionnaire using their sample of 152 fast-food franchisor respondents. All the benefits were strongly supported by the sample (Dant and Kaufmann 2003: 69). Hence, together the two studies demonstrated a remarkable convergence of findings and content validity associated with the proposed battery of benefits of stable plural form of franchise governance. We now turn to the subject of legal protection extended to U.S. franchisees from opportunistic franchisor behaviors, and its implications for the ownership redirection hypothesis.

5 The Evolution of Franchise Law in the United States

The evolution of franchise laws in the United States can be traced all the way back to the original anti-trust legislations (i.e., Sherman Act of 1890 and Clayton Act of 1914) which later led to the enactment of the first modern franchising statute in 1971 (i.e., The California Franchise Investment Law adopted in 1970 to be effective January 1, 1971). This was followed by the enactment of Federal Trade Commission (FTC) Franchise Rule 436 (promulgated in December 1978, effective October of 1979), formally labeled “Disclosure Requirements and Prohibitions Concerning Franchising and Business Opportunity Ventures.” The FTC Rule 436 attempts to control a franchisor’s conduct by requiring the franchisor to make specified disclosures to prospective franchisees in terms of extensive details about its system considered important for prospective franchisees to make an informed purchase decision. It is also aimed at the prevention of fraudulent misrepresentation of material facts on the part of franchisor. Operationally, a franchisor can use the FTC Rule 436 format or the alternative Uniform Franchise Offering Circular (UFOC) as developed by the North American Securities Administrators Association to make the requisite disclosures.

Throughout the 1970s and 1980s, many states began to adopt franchise fairness laws designed to prevent abuses on franchisees from franchisors. By the early 1980s 22 states introduced laws that had a direct impact on issues like franchise sales or relationships, including amendments to existing franchise disclosure statutes, fairness statutes, dealer relationship, and business opportunities laws. The flow of legislation

continued in the later part of the 1980's when in 1987, 49 franchise related statutes or amendments were enacted into law, and in 1989 43 franchise related statutes were enacted by 25 state legislatures (Herman 2004). Throughout the 1980s and 1990s the enactment of franchise related legislation became more pervasive and increasingly complex.

In terms of the usage of these laws, we see a change in the manner in which courts have transitioned from the once more onerous *per se rule* to the *rule of reason* most clearly exemplified in the *GTE Sylvania* case, itself a signal of the maturing of jurisprudence surrounding franchising. For example, in 1949 the Supreme Court, in *Standard Oil vs. United States*, ruled that tying agreements constituted a violation of the Clayton Act prohibiting tying or exclusive dealing (Herman 2004). Again, in 1951 in *United States vs. Richfield Oil Corp.*, the court ruled that Richfield's relationship with its franchisees constituted an unreasonable restraint of trade in violation of the Sherman Anti-Trust Act and that these relationships resulted in a lessening of competition which again violated the Clayton Act (Herman 2004).

However, in the mid-1960s the Federal Trade Commission and the Federal Court of Appeals ruled that Carvel could enforce tying agreements because the Carvel trademark licenses set a critical element in the franchise arrangement, and were not anti-competitive illegal ties, but rather, a necessary component in preserving the franchisor's good will (Herman 2004). Finally, in 1977 the Supreme Court heard the landmark *GTE Sylvania* case. In this case the court distinguished tying agreements that were designed to hinder competition from those set up to protect the quality and "goodwill" of the brand (Herman 2004). In other words, if the tying agreement was in place to ensure the quality and service provided by the franchised outlet, thus protecting the value of the brand name, then the agreement would be deemed legal. Franchisors viewed the decision as a mandate against excessive franchisor scrutiny and overbearing antitrust regulation (Herman 2004).

In another milestone, in response to a number of civil suits filed by franchisees against their franchisors in the state of New York, Representative John J. LaFalce, D (NY), then, the chairman of the House Committee on Small Business, commissioned a report detailing the state of franchising within the United States. The 79 page report, entitled "Franchising in the U.S. Economy: Prospects and Problems" was described as "the first comprehensive assessment of franchising in nearly two decades" (House Committee on Small Business, 1990). The committee focused its attention on the coercive power used by franchisors to terminate franchise relationship. The committee recognized that franchisors will, over time, begin to amass considerable leverage relative to their franchisees. The franchisee will have more invested than the franchisor, therefore much more to lose if the franchised contract were terminated. This leverage could translate into coercive power on the part of the franchisor. Though legislation was never enacted in response to this report, the very existence of the report served to highlight the need for government's oversight into franchise law and regulation.

Today the International Franchise Association (IFA), the purported apex body of franchisors in North America, has instituted self-policing mechanisms including a Code of Ethics for franchisors in an effort to address and preempt the issue of

abuse claims in franchising. Other organizations such as the American Association for Franchisees and Dealers (AAFG), and the American Franchise Association (AFA) see educating franchisors, franchisees and all parties involved, on “win-win” approaches to franchising as one of their primary goals. As the foregoing account underscores, franchising and franchising laws have evolved primarily in the United States. However, as franchising gains popularity in overseas markets, so is the need to enact franchise laws in these diverse countries. Though not yet to the complexity and level of detail of U.S. franchise laws, several countries have followed the U.S. model and enacted disclosure laws (Herman 2004) (e.g., Doubin Act 1989 of France). All these legal and voluntary regulatory devices underscore the theme of “coming of age” of franchising in the U.S. In Table 4, we contrast the U.S. franchising legal structure with selected countries from around the globe.

As can be seen from Table 4, much of the world lacks the elaborate, regulatory environment within which franchising flourishes within the United States. And we attribute the demise of the opportunistic ownership redirection threat within the

Table 4 Cross cultural comparative evaluation of franchise legislation^a

Country	Level	Specificity	Scope
USA	Federal & state	Directly regulates franchising	Offer & sale of franchise, franchisor–franchisee dealings, disclosure requirements, registration requirements, limitations, refusal to transfer, title & renewal, anti-trust laws applied to franchising (e.g., tying agreements)
Canada	National and provincial (Ontario & Alberta) The Canadian National Government or the other eight provinces have failed to legislate specific franchise law	Provincial legislation directly regulates Franchising. National and other Provincial legislation (all provinces except those previously mentioned) fall under general business legislation	(Specific to Alberta and Ontario Legislation); timely disclosure of necessary information (14 days prior to signing of franchise contract), civil remedies for breach of franchise contract & Relational Issues that dictate “fair dealing” between franchisee and franchisor are also covered
Mexico	National (<i>Industrial Property Law</i>)	Directly regulates franchising	Disclosure requirements, registration requirements

Brazil	National	Indirectly regulates franchising	Timely disclosure requirements (10 days prior to execution of franchise agreement), registration requirements, franchise agreement standardization
France	National (<i>Loi Doubin</i>)	Directly regulates franchising	Timely disclosure of information (20 days prior to execution of franchise agreement)
Spain	National (<i>Retail Trade Act</i>)	Directly regulates franchising	Timely disclosure of information (20 days prior to the execution of a franchise agreement), registration requirements
Italy	National (<i>Commercial Affiliation</i>)	Directly regulates franchising	Timely disclosure of information (30 days prior to execution of franchise agreement), civil remedies for breach of franchise contract, relational issues
Romania	National	Indirectly regulates franchising	Pre & post contractual relations, disclosure regulations, provincial specifications within agreement
Russia	National (Civil Code of Russia)	Indirectly regulates franchising	Registration requirements
Australia	National (Franchising Code of Conduct)	Directly regulates franchising	Timely disclosure of information (within 14 days prior to execution of franchise agreement), dispute resolution
Indonesia	National	Directly regulates franchising	Consumer protection, geographic placement of franchise units, government preference for entrepreneur size, disclosure, government monitoring
South Korea	National (<i>Unfair Trade Practices in Franchising, Unfair Trade Practices in international Contracts</i>)	Directly regulates franchising	Disclosure, unfair trade practices, relational issues, unfair trade practices
China	National	Indirectly regulates franchising	Timely disclosure of information (within 10 days prior to execution of franchise agreement)

^aThis table is based on Konigsberg (1999) and European Franchise Federation (2005)

United States to this elaborate web of laws and regulations governing the franchising industry. What is sorely needed is an introspective legal study which compares and juxtaposes the enactment of franchising laws and the demise of opportunistic ownership redirection not only in the U.S. but also in countries like France and Germany where the incidence of ownership redirection has seemingly receded (Cliquet 2000; Ehrmann and Spranger 2004). At the present time, we are also not aware of any systematic literature on ownership redirection investigations mounted in much of the rest of the world. Some anecdotal evidence suggests that ownership redirection may be occurring in some of the countries, but these anecdotes need rigorous scientific investigations, a task we commend to future scholars of franchising.

6 Conclusions

This paper was aimed as both a review of the 40 years of literature inspired by the ownership redirection hypothesis of Oxenfeldt and Kelly (1968) together with the theoretical frameworks employed by franchising scholars to support or refute their provocative hypothesis, as well as an introduction to its arguably successor paradigm of stable plural forms. We have demonstrated that literature slants notwithstanding, none of the theoretical frameworks truly envisioned pure company-owned or pure franchised systems; moreover, none of the empirical investigations inspired by this thesis has revealed the emergence of such pure systems. In effect, what seems to have captured the imagination of the past scholars is the premise of sinister opportunism implied in the ownership redirection thesis.

In the discussion of the brave new framework of stable plural forms, we have shown that it is possible to examine the issue of outlet ownership from a fundamentally different and strategic perspective, away from an “either/or” and “opportunism” mindset to the amicable simultaneous coexistence of both types of outlets. We have also shown that the elaborate web of franchise laws in the U.S., much of it enacted after the publication of the Oxenfeldt and Kelly’s (1968) seminal article probably played an invaluable role in taming these erstwhile opportunistic tendencies. In other words, we have argued that *normatively*, at least within the U.S. context, it is time to move on to this nascent, exciting strategy-oriented investigation of plural forms and abandon the fear-based erstwhile framework of ownership redirection thesis.

The cross-cultural implications of this review article are very different. Given that franchising is the fastest growing form of retailing around the world, and increasingly becoming popular as a foreign market entry strategy and a popular alternative for foreign nationals in developing countries wishing to embark on their own business venture (Gillespie et al. 2007; Terpstra and Russow 2000), the ownership redirection hypothesis may still lend valuable insight into countries that do not have a body of franchise law as evolved or sophisticated as that of the United States. Such cross-cultural investigations should provide valuable information about the evolution of franchise law and its impact on opportunistic franchisor behavior.

More specifically, the more researchers investigate ownership redirection in countries where franchise laws are just beginning to develop, the more insight we may gain into the connection between legislation and its ability to curb opportunistic franchisor behavior. Such data would provide invaluable insights regarding the nature of franchisor behavior and franchisor predilection to act opportunistically, simply because they are in a position to do so.

The new stable plural forms thesis opens up a whole new slate of research agenda for the future franchising scholars. As noted in the review earlier, there have been only limited empirical verifications of this thesis (cf., Dant and Kaufmann 2003; Lafontaine and Kaufmann 1994). The thesis needs to be empirically tested in alternative industries, alternative cultural and country settings; it also needs new theoretical conceptualization and articulation as befitting a new scientific paradigm, to evaluate contingency variables under which the thesis is more or less likely to hold. So, for example, the level of competition in the marketplace, the extent of environmental uncertainty, and the relative inter-dependence in the franchisor–franchisee relationships could all be significant moderator variables to the focal premise of the thesis. These still need to be conceptualized and the resultant hypotheses empirically investigated. Another significant characteristic of franchising, the existence of multi-unit franchisees (franchisees that own more than one outlet), needs to be brought into the articulation of this new paradigm. Finally, the connection between the plural forms strategy and system performance needs to be examined. In other words, is a system better off using a set of master-franchises and/or franchises functioning under area-development arrangements as compared to the straight plural forms strategy? Do these implications hold for franchise systems expanding overseas? We commend these topics to the future franchising scholars.

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A Comparison of Company Owned and Franchised Fast Food Outlet Performance: Insights from Health Inspection Scores

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Abstract The paper compares the performance of franchised and company owned fast food outlets located within the same region in the USA. These outlets are inspected by the same team of health inspectors who use a standardized 44 item scale derived from Federal Drug Administration guidelines. Analysis of the health inspection scores received by the fast food outlets over approximately two and a half years shows that franchised stores receive significantly better ratings. The inspection scores of franchised outlets also have a lower standard deviation than that of company owned stores. The results support the view that the incentives provided in the franchise contract as well as the additional layer of supervision by the franchisee are likely to lead to better and more consistent outlet performance. At the same time, there are a few chains where company owned stores get higher scores than their franchised counterparts. This suggests that there are inter chain differences in the operational efficiencies of the two organizational formats.

Keywords: Franchising · Ownership · Incentives · Performance

1 Introduction

An interesting phenomenon in retailing is the concurrent operations of two diverse economic systems, operating under the aegis of the same company brand name. This is particularly apparent in the fast food industry where some outlets within the chain

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are company owned, while others are operated by franchisees. In company owned stores, all operations are under the jurisdiction of a store manager who is a salaried employee of the firm. However, in franchised outlets, all workers are employed by the franchisee, who is an independent business entity. The firm (the franchisor) and the franchisee have a contractual relationship. In return for an initial fee and monthly royalties from the franchisee, the franchisor provides managerial advice and allows the franchisee to display the firm's brand name. Often, the franchisee oversees the operations at a single store. However, there are many incidences of the franchisee being responsible for multiple units which are often clustered within the same region.

There is significant research on the rationale behind the use of franchising (Mathewson and Winter 1985; Norton 1988; Rubin 1978). However, comparison of the performance at each type of outlet still remains a relatively under-explored area (Shelton 1967; Krueger 1991). In their review of the franchising literature, Elango and Fried (1997) call for an improvement in performance measurement as one of their suggestions for future researchers. The topic is important because it is central to the theme of whether the use of franchising as an organizational form detracts or adds to the performance of a store, which would otherwise have been operated by the salaried employees of a firm. The present paper attempts to fill this gap by using the judgment of independent health inspectors as a measure of performance. While these health inspection scores are not necessarily related to output measures such as sales or profits, they are nevertheless an impartial measure of a restaurant staff's efforts in running their outlet. We analyze the comparative intensity of these efforts as well as their overall consistency as reflected by health inspection scores. Our results show that at the aggregate level, franchised stores outperform company owned outlets. However, there are inter-chain differences in the comparative performance of the two types of organizational formats.

The rest of the paper is organized into four sections. In the next section, we briefly review the incentive based explanation for franchising. The third section shows how health inspection scores avoid some of the inherent problems in comparing performance between various outlets. We describe the data source; the methodologies used for the analysis and present the results in the fourth section. We conclude the paper with a summary of the findings and its implications for the use of franchising in the future.

2 The Rationale Behind the Franchise Decision

The use of franchising as an organizational form in different sectors has been justified from a resource scarcity perspective. An important resource is the financial capital that the franchisee invests in the outlet (Caves and Murphy 1976; Oxenfeldt and Thompson 1968–1969; Ozanne and Hunt 1971). This investment by the franchisee is preferred to the option of having a few venture capitalists holding large blocks of shares and thereby acquiring some control within the firm (Lafontaine and Kaufmann 1994). However, other researchers (Norton 1988; Rubin 1978), point to the need for human capital in managing outlets. This is particularly

applicable in the fast food industry where outlets are expected to serve food meeting stringent quality specifications under acute time pressure. Within a vertically integrated system, the firm operates its own outlets through its store managers, who are salaried employees. However, the cost of monitoring each outlet, particularly in remote locations, might be too high. Here, franchising is a suitable alternative as under the terms of the franchisee contract, the franchisee is allowed to keep a significant share of the outlets' revenues. This provides an incentive for the franchisee to put in his/her maximum effort in managing the store. In many cases, in master franchise systems, the franchisee also monitors his/her outlets on his own, through mystery shoppers, etc. This provides another level of supervision, in addition to the franchisor's own efforts, and is likely to improve worker performance.

In a related vein, Klein and Leffler (1981) argue that the ownership incentives in franchise contracts enhance incentives that, combined with termination threats by franchisors, generally lead to improved product/service quality. However, Michael (2000, 2002) argues to the contrary. He asserts that the franchise contracts can and do lead to quality degradation due to free riding incentives. Thus, there is a scholarly basis for alternative hypotheses regarding franchised ownership and quality provision.

The incentive based explanation for franchising is related to the principal agency theory and provides a justification for the use of franchising in particular locations. Previous researchers (Brickley and Dark 1987; Brickley et al. 1991; Lafontaine and Slade 1998; Minkler 1990; Norton 1988) provide some support for this through empirical studies. However, the question of whether the incentives in the franchise contract actually lead to improved performance at the outlet level has, with a few exceptions (Shelton 1967; Krueger 1991), been relatively under-researched in the academic literature.

Shelton (1967) uses data on twenty two restaurant outlets which changed their organizational structure from being company owned to being franchised, or vice versa. He evaluates possible differences in their sales and profits. His results show that while sales revenue increased when there was a change over to franchising, the increase in the profit margins was more significant. While the profit margins (profits/sales) for the company owned outlets averaged 1.8%, the similar statistic for franchised outlets was 9.5%. Shelton's (1967) results are consistent with the belief that franchisees manage their inputs better, thus contributing to an improvement in X-efficiency¹.

A later study by Krueger (1991) on workers in the fast food industry shows that a higher percentage of employees in franchised stores compared to company owned outlets felt that they were being more closely supervised by their managers. The results of the survey support the belief that franchisees supervise their employees more closely. This finding is significant in light of the fact that Krueger (1991) found that wages were higher and the earnings tenure graph steeper for employees in company owned stores.

¹ In economics, "x-efficiency" is the effectiveness with which a fixed set of inputs are used to produce a given output (Leibenstein 1966).

The relatively sparse list of research on comparative performance is perhaps linked to the difficulties of measuring the effectiveness of outlet operations. It should be noted that outlet performance can be based on two types of measures – one based on inputs and the other on outputs. Surveys of worker perceptions of their supervisor's performance are an example of an input based measure. Here, apparently franchised stores have closer supervision by their managers (Krueger 1991). However, it is not clear whether the greater supervision leads to better collective performance at the respective outlet. This can be measured through outputs such as revenues or profits. Unfortunately, sales revenues (and consequently profits) can be affected by circumstances beyond the control of an outlet's manager. Thus, regional differences in economic circumstances might lead to variances in revenues and profits that do not reflect actual outlet performance. Shelton (1967) avoids this problem by comparing revenues and profits at the same outlets when they changed their organizational format. While shifts in time periods could influence sales revenues, Shelton's (1967) results show that converting to franchised operations has a greater impact on profit margins than on sales. Thus, closer control on operations appears to be the key to the improved financial performance at franchised outlets.

3 Health Inspection Scores as Measures of Performance

The studies by Shelton (1967) and Krueger (1991) support the view that franchisees oversee downstream operations more closely. The question of whether this leads to both improved and more consistent outlet performance is addressed by this paper using health inspection scores as a surrogate for operational efficiency.

Fast food chains specialize in serving standardized menus to large volumes of customers, many of whom are pushed for time (Luxenberg 1985). One of the few outside bodies which monitor the quality of restaurant operations is the local health inspection board that ensures that each restaurant conforms to food safety standards. Jones et al. (2004) report that more than 54 billion meals are served at 844,000 commercial eating establishments in the USA. Because of the large number of customers who consume food in the USA, preventing the outbreak of food related diseases is an important task of the local health department. While each state has its own standardized form, most follow a Food and Drug Administration model that is based on a 44 item scale (Jones et al. 2004). These 44 items cover various operational areas some of which are deemed as critical because of their greater contribution to food safety. Each county in the state has its own inspectors who report on its restaurants. Many of these counties also post these scores on their websites, thus allowing customers to view a restaurant's previous scores. While visits by an external monitoring agency could be an imposition on a restaurant's staff, some franchisees reportedly use them as a motivational tool for their staff, rewarding them for achieving high health inspection scores (Ruggless 1998).

Appendix 1 displays a replica of the form used by the St. Louis Health Inspection Department during the time period of this study. As indicated in the form, each restaurant receives a score of hundred less the total weight of the items that the inspectors marked for code violation. The health inspection items are classified into different areas such as food, personnel, water, etc. The weights of critical items are higher than others, being in the range of four to five. Any violation of the thirteen critical items must be corrected immediately. A perfect score of hundred indicates that there were no deductions for any violations. Most counties have a set of inspectors who carry out unannounced visits to each restaurant under their jurisdiction. These visits are usually semi-annual, with restaurants having lower scores being inspected more frequently (Claridge 1997).

Improved health inspection scores do not necessarily mean that an outlet has higher revenues or profits. However, in all probability, higher scores indicate that an outlet's staff is exceptionally diligent on some important aspects of restaurant operations. Comparison of outlet scores could therefore prove a useful surrogate for outlet performance. Based on the incentive contracting explanation for franchising, our prediction is that franchised outlets should have higher scores on health inspection reports. We also expect franchised outlets to be more consistent than company owned outlets in the scores received from the health inspectors.

4 Results

4.1 *The Data*

In order to make a valid comparison between outlets, we restrict ourselves to scores from a single county thereby limiting the scores to the same set of inspectors. This is important because Jones et al. (2004) show that inspection scores vary by region and by persons performing the inspection. Thus, we chose scores from the health department in the St. Louis (USA) metropolitan area, collected between 1988 and 1991. This particular time period is appropriate for comparing health inspection scores between franchised and company owned stores as many chains used both organization structures in the region at that time. We selected the outlets of the national fast food chains operating in the area during that time. Some new stores opened during this period and therefore had only one recorded health inspection report. On the other hand, there were as many as six health inspection scores for some existing outlets. Table 1 contains descriptive statistics on key variables. These include the number of franchised and company owned outlets within each chain as well as the total number of scores received. One of the outlets changed its organizational format during the time period of the study. Following Shelton (1967), we do not disclose the names of the various chains. In sum, we have 839 observations (scores), from 153 outlets belonging to 12 chains.

Table 1 Descriptive statistics of key variables

Variable: health inspection scores				
Mean	Std. deviation	Minimum	Maximum	N
93.145	5.281	57.000	100.000	839
Distribution of health inspection scores by chain				
Chain	Number of company owned outlets	Number of franchised outlets	Total available scores	Frequency (%)
Chain 'A'	3	6	44	5.24
Chain 'B'	1	13	80	9.54
Chain 'C'	0	11	58	6.91
Chain 'D'	4	12	82	9.77
Chain 'E'	9	6	80	9.54
Chain 'F'	5	11	92	10.97
Chain 'G'	10	9	112	13.35
Chain 'H'	12	6	91	10.85
Chain 'I'	10	1	59	7.03
Chain 'J'	0	10	52	6.20
Chain 'K'	2	10	66	7.87
Chain 'L'	3	0	23	2.74
Total			839	100.00

4.2 Methodology and Findings

Our analysis consists of three parts. First, we compare the means of health inspection scores obtained from all company owned and franchised outlets. This procedure entails a T test, the results of which are presented in Table 2. As can be seen, the mean score of franchised outlets (93.829) is significantly higher than that of company owned stores (92.097). This result supports the view that franchised outlets surpass company owned stores in meeting operational standards, as judged by the local health inspection agency. Table 2 also contains a test for equality of variances. The standard deviation of the scores of franchised stores (4.924) is significantly lower than that of company owned outlets (5.635). This finding suggests the franchised outlets have scores within a narrower range and are therefore likely to be more consistent in meeting operational standards.

4.2.1 Means Tests and Wilcoxon Rank Sum Tests

One of the important conditions regarding the use of the T-Test in comparing group means is that the population of both groups should have a normal distribution (Mendenhall et al. 1989). However, an analysis of company owned and franchised outlets indicates that both groups have negative skewness. In this case, one alternative is to use a non-parametric test that analyzes the distribution of the ranks from the two groups rather than the actual scores. We use the Wilcoxon rank sum test (equivalent to the Mann–Whitney U Test) to ascertain whether the distribution of the

Table 2 T test results of comparison of health inspection scores

Variable: health inspection scores			
Type of outlet	N	Mean	Std. deviation
Company owned	331	92.097	5.635
Franchised	508	93.829	4.924

T Test (unequal variances assumed; Satterthwaite method):
T statistic: -4.57 (DF: 637) (Pr. > |t| = < 0.0001)

Test for equality of variances:
F value: 1.31 (DF: 330, 507) (Pr. > F = 0.0064)

Table 3 Distribution of health inspection scores

(a) Scores from company owned stores
N = 331; mean = 92.097; std. deviation = 5.635; skewness = -1.501
Shapiro-Wilk (W) statistic (test for normality) = 0.8972 (Pr < W = < 0.0001)

(b) scores from franchised stores
N = 508; mean = 93.829; std. deviation = 4.923; skewness = -1.940
Shapiro-Wilk (W) statistic (test for normality) = 0.8662 (Pr < W = < 0.0001)

(c) Wilcoxon rank sum test

Type of outlet	N	Sum of scores	Expected under H ₀
Company owned stores	331	122,728	139,020
Franchised stores	508	229,652	213,360

Z score for wilcoxon two sample test = -4.7613 (Pr > |Z| = < 0.0001)

scores is the same between company owned and franchised outlets. Table 3 contains test of the normal distribution of the scores of company owned and franchised outlets. It also shows the results of the Wilcoxon rank sum test. The results show that the scores of the franchised outlets are statistically higher than that of company owned stores ($Z = -4.7613$; $p < .0001$). These findings reinforce the view that franchised outlets outperform the company owned outlets on health inspection scores.

4.2.2 Chain and Organizational Form Effects

For the second part of our analysis, we attempt to evaluate whether chain sponsorship has an impact on the relative performance of company owned and franchised stores. Thus, we incorporate information about chain identity in addition to the type of organizational format into a predictive model. As there could be inter-chain variation in the relative performance of the two organizational formats, we also account for inter-chain differences in efficiencies by including the interaction between chain identity and organizational format. Thus, the predictive model is denoted as:

$$\text{Health inspection scores} = f(\text{chain identity, type of organizational structure, chain identity} \times \text{type of organizational format}).$$

We run a generalized linear model (ANOVA) and present the results in Table 4. We find that the complete model has a significant influence on health inspection

Table 4 Generalized linear model results

Dependent variable: health inspection scores					
Source	DF	Sum of squares	Mean square	F value	Pr > F
Model	20	2,476.552	123.828	4.85	<.0001
Error	818	20,891.708	25.540		
Corrected Total	838	23,368.260			

Source	DF	Type I sum of squares	Mean Square	F Value	Pr > F
Chain identity	11	1,382.675	125.698	4.92	< .001
Type of org. Structure	1	128.312	128.312	5.02	0.025
Interaction: chain ID × type of org. structure	8	965.565	120.696	4.73	< .0001

Table 5 Comparison of health inspection scores of individual chains

Chain	Mean score Company Outlets (n)	Means score Franchised Owned Stores (n)	T Stat.	Prob. > t	Wilcoxon test Z score/(Pr. > Z)
Chain “A”	95.667 (15)	92.138 (29)	2.82	0.0078	1.64 (0.1005)
Chain “B”	96.200 (5)	94.000 (75)	1.11	0.2721	1.15 (0.2513)
Chain “D”	93.550 (20)	95.274 (62)	-1.54	0.1366	-1.34 (0.1818)
Chain “E”	90.500 (54)	92.885 (26)	-2.30	0.0243	2.72 (0.0066)
Chain “F”	94.391 (23)	93.638 (69)	0.66	0.5113	0.72 (0.4720)
Chain “G”	90.292 (65)	95.404 (47)	-4.65	0.0001	4.53 (0.0001)
Chain “H”	91.403 (62)	91.448 (29)	-0.02	0.9804	1.17 (0.2420)
Chain “I”	93.685 (54)	94.200 (5)	-0.58	0.5703	-0.21 (0.8375)
Chain “K”	95.900 (10)	92.839 (56)	2.70	0.0089	2.62 (0.0087)

Note: (a) *n* denotes number of scores received from each type of outlet within the chain. (b) Chains “C”, “J” and “L” are not included as they use only one type of organizational format

scores. Moreover, each of the explanatory variables has a significant impact. Thus, even accounting for chain sponsorship, the type of organizational format plays a part in explaining health inspection scores. However, the significance of the interaction term suggests that there are inter-chain differences in the performance of both kinds of stores.

4.2.3 Organization Form within Chains

The impact of the interaction term in the generalized linear model prompts the third part of our analysis – a chain wise analysis of differences in health inspection scores for both types of outlets. Thus, we carry out a T-tests as well as the Wilcoxon rank sum tests for health inspection scores for each chain. The results are summarized in Table 5.

As can be seen from the table, for two chains, “E” and “G”, the scores of the franchised outlets are significantly higher than that of company owned stores. There were 80 and 112 health inspection scores, respectively. These chains had 15 and 19 outlets in the region. However, two chains, “A” and “K”, had the opposite effect. For these chains, which had 44 and 66 health inspection scores from 9 and 12 outlets, respectively, the company owned stores outperformed the franchised outlets. Five chains: “B”, “D”, “F”, “H” and “I”, did not have a significant difference in the health inspection scores between their company owned and franchised outlets.

Our findings suggest that while on aggregate, franchised outlets perform better, on an individual chain level this is not a uniform result. These results are similar to that of Shelton (1967), who found that three restaurants (out of twenty two) showed an increase in profit margins when their management structure changed from being franchised to being company owned. The reasons behind these inter-chain differences and its implications for the use of franchising as an organizational form are areas that should be probed further by future researchers. Moreover, we strongly affirm that the limited geographic nature of the sample and the focus on a single industry limit the generality of the results.

5 Conclusions

An analysis of health inspection scores of fast food outlets within the St. Louis metropolitan area indicates that franchised outlets have significantly higher scores than company owned stores. We also find that scores of franchised stores are more consistent than that of company owned stores. However, at the chain level, company stores outperform franchised stores on the inspection scores for two chains. The comparative performance of the different types of stores at the chain level suggests that chains excel differentially in the operationalization of the two types of organizational formats. Over time, chains could either change over to the type of organizational format that fits their competitive advantage and/or learn how to improve their use of a particular system. However, it should be noted that while on aggregate, franchised stores fare better than company owned outlets, both types of outlets have average scores that are in their nineties on a hundred point scale. Thus, on average, both types of stores do relatively well on the health inspection scale and might not be compelled to change their overall mix of outlets.

It should be noted scores on the 44 item health inspection scales reflect performance on various aspects of restaurant operations that are related to food safety and health issues. Here, some variations in the scores might exist because of inconsistencies in health inspector judgments. However, while these are a subset of all restaurant operations, we assume that overall performance on the 44 item health inspection scale is likely to be closely related to other restaurant operations that are not associated with food safety. On the other hand, this performance encompasses control of important inputs and is not necessarily correlated with other important details of running a restaurant, such as choice of the appropriate menu items, the

restaurant ambience, etc. This is in line with Shelton's (1967) view that his comparison between restaurants supports the importance of X-efficiency. Shelton's (1967) paper provides another explanation for the use of the plural form by many chains. X-efficiency is related to the effectiveness with which a given set of inputs are used to produce outputs. It is not related to whether the given set of inputs is the optimal selection or whether the outputs are the finest that can be produced. These questions are related to allocative efficiency. Thus, while franchised outlets may excel in X-efficiency, it is also imperative that a chain excel on allocative efficiency. This dimension can be improved through decisions made at the corporate level, that take into account the experiences at the company owned stores. These might include the choice of appropriate menu items, price points for various products, etc. The need for allocative efficiency could therefore be one of the reasons why the plural form system is used by many chains (Bradach 1997).

In short, our paper highlights the superior performance of franchised scores relative to company owned ones on the basis of health inspection stores within a particular region. These results are in line with the findings of Shelton (1967) and Krueger (1981) on relative outlet performance and they are consistent with the conjecture of Klein and Leffler (1981). However, our results also show that for some chains, company owned stores outperform franchised outlets on health inspection scores. The second set of results is consistent with the arguments and results of Michael (2000, 2002). The underlying reasons behind inter-chain differences in performance, including franchisor experience, salary compensation packages, contractual arrangements, and others, should be fruitful research topics for the future.

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Appendix 1

Inspection Report Food Service Establishment St. Louis Health Division-Food Control Service

Based on an inspection this day, the items marked below identify the violation in operation or facilities which must be corrected by the next routine inspection or such shorter period of time as may be specified in writing by the health authority. Failure to comply with this notice may result in immediate suspension of your permit (or downgrading of the establishment). An opportunity for an appeal will be provided if a written request for a hearing is filed with the health authority within the period of time established in this notice for the correction of violations.

X- Initial Violation

O- Consecutive Violation



- Abatement

No.	Description	Wt.
FOOD		
<u>01*</u>	Source: sound condition No Spoilage	5
<u>02</u>	Original container, properly labeled	1
FOOD PROTECTION		
<u>03*</u>	Potentially hazardous food meets temperature requirements during storage preparation display service transportation	5
<u>04*</u>	Facilities to maintain product temperature	4
<u>05</u>	Thermometers provided & Conspicuous	1
<u>06</u>	Potentially hazardous food properly thawed	2
<u>07*</u>	Unwrapped and potentially hazardous food not reserved	4
<u>08</u>	Food protection during storage preparation dietary service transportation	2
<u>09</u>	Handling of food (ice) minimized	2
<u>10</u>	In use food (ice) dispensing utensils properly stored	1
PERSONNEL		
<u>11*</u>	Personnel with infections restricted	5
<u>12*</u>	Hands washed and clean good hygienic practices	5
<u>13</u>	Clean clothes, hair restraints	1
FOOD EQUIPMENT AND UTENSILS		
<u>14</u>	Food (Ice) contact surfaces designed constructed maintained installed located	2
<u>15</u>	Non food contact surfaces designed constructed maintained installed located	1
<u>16</u>	Dishwashing facilities designed constructed maintained installed located operated	2
<u>17</u>	Accurate thermometers kits provided chemical test gauge cock (1 1/4" IPS Valve)	1
<u>18</u>	Pre-flushed, scraped, soaked	1
<u>19</u>	Wash/rinse water clean proper temperature	2
<u>20*</u>	Sanitization rinse: clean, temperature concentration exposure time equipment/utensils sanitized	4
<u>21</u>	Wiping cloths clean use restricted	1
<u>22</u>	Food-contact surfaces of equipment and utensils clean, free of abrasives detergents	2
<u>23</u>	Non food contact surfaces of equipment and utensils clean	1
<u>24</u>	Storage handling of clean equipment utensils	1
<u>25</u>	Single-service articles, storage, dispensing	1
<u>26</u>	No re-use of single service articles	2
WATER		
<u>27*</u>	Water source safe hot and cold under pressure	5
SEWAGE		
<u>28*</u>	Sewage and waste water disposal	4
PLUMBING		
<u>29</u>	Installed maintained	1
<u>30*</u>	Cross-connection, back siphonage Backflow	5
TOILET & HANDWASHING FACILITIES		
<u>31*</u>	Number, convenient, accessible, designed, installed	4
<u>32</u>	Toilet rooms: enclosed, self-closing doors. Fixtures: good repair, clean. hand cleanser and sanitary towels/hand drying devices provided proper waste receptacles	2

	GARBAGE & REFUSE DISPOSAL	
<u>33</u>	Containers or receptacles: covered, adequate number, insect/rodent proof frequency clean	2
<u>34</u>	Outside storage area (Enclosures) properly constructed clean controlled incineration	1
	INSECT, RODENT, ANIMAL CONTROL	
<u>35*</u>	Presence of insects, rodents, outer openings protected, no birds, turtles other animals	4
	FLOORS, WALLS & CEILINGS	
<u>36</u>	Floor: constructed, drained, clean, good repair, covering installation, dustless cleaning methods	1
<u>37</u>	Walls, ceilings: attached equipment, constructed, good repair, clean surfaces, dustless cleaning methods	1
	LIGHTING	
<u>38</u>	Lighting provided as required fixtures shielded.	1
	VENTILATION	
<u>39</u>	Rooms and equipment-vented as required	1
	DRESSING ROOMS	
<u>40</u>	Rooms clean lockers provided facilities clean	1
	OTHER OPERATIONS	
<u>41*</u>	Toxic items properly stored labeled used	5
<u>42</u>	Premises maintained free of litter, unnecessary articles cleaning maintenance equipment properly stored authorized personnel	1
<u>43</u>	Complete separation from living/sleeping quarters laundry	1
<u>44</u>	Clean/Soiled linen properly stored	1

*Critical items required immediate correction.

RATING SCORE:

***100 Less Weight of Items Violated**

New Challenges for Store Location in a Plural Form Network: An Exploratory Study

Gérard Cliquet

Abstract The development of retail and service networks implies new location models that explicitly include store ownership issues. The implementation of plural form networks has changed the dimensions of the store location problem. Traditional store location models do not take into account the ownership form choice as it emerges in a plural form network, considering either a strictly franchised or a strictly company-owned chain. Only one model has dealt with the problem of plurality or dual ownership in earlier research, nearly 20 years ago when knowledge of plural form networks was very limited. In a modeling process of store location involving the ownership choice, two main research questions should be solved, which indeed do constitute real challenges: (1) Is this modeling process identical for any kind of network? (2) How can ownership issues be integrated in a location model, and in what kind of model? This paper is an attempt to answer the first question by means of an exploratory survey of eighteen network development managers. Moreover, I investigate the store location decision process and emphasize the variables believed to influence it. I propose a typology of the location processes and make some suggestions relating to the choice of a location model, depending on the location decision process and the strategy of the chain.

Keywords: Company-owned systems · Franchising · Location model · Plural form · Retail and service network

1 Introduction

Networking is probably one of the major phenomena in retailing and service industries of the end of the last century, and the largest company in the world is now a retail company (Wal-Mart) with more than 6,000 stores. Several researchers have

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shown the importance of location decisions for retail and service networks. Service network consultants also stress location education. McKenna and Cohen (1999) define as basic principles: "A strategic overview, planning elements, the details of implementation, use of tools and techniques, problem solving, and management of the process to shorten the learning curve".

In franchised chains, the location decision is critical, and probably more difficult in its process due to the presence of a franchisor and a franchisee: two independent business people. Who is the person who makes the location decision? Is it the franchisor or the franchisee? Lafontaine (1992) highlighted the need of high speed store location in the chain expansion process. Shane (1996) insisted on cost minimization through quick and good locations, and Michael (2003) demonstrated the superiority of franchising in pioneering markets, which means locating.

The location decision process is thus complex, but the decision should be made as quickly as possible, especially in highly competitive markets. This necessity leads to at least two location problems: (1) How should one specific store be located? (2) How should stores in a same chain be located so as to avoid cannibalization? Since the law of retail gravitation was identified by Reilly in 1931, the first question has received a considerable number of answers in various forms: check lists (Applebaum, 1966; Kane, 1966; Nelson, 1958), the analog method (Applebaum, 1968), the proximal area method (Ghosh and McLafferty, 1987) using Thiessen or Dirichlet polygons (Dirichlet, 1850; Thiessen and Alter, 1911), gravity models (Converse, 1949; Huff, 1964), and interaction models (Nakanishi and Cooper, 1974). The second question implies a network approach that requires solving a multiple location problem. Several modeling processes have been proposed: Multiloc (Achabal et al., 1982), a p-median approach (Weber, 1909; Cooper, 1963), combined with an MCI (multiplicative competitive interaction) model (Nakanishi and Cooper, 1974), a qualitative approach based on managerial judgments (Durvasula et al., 1992), and a multi-objective approach (Current and Storbeck, 1994; Kolli and Evans, 1999; Pirkul et al., 1987).

These methods and models, however, do not take into account a very important issue in today's network management: the choice of store ownership form, whatever the business type (e.g. stores, hotels, restaurants...). A store can be franchised or company-owned, to consider the two most popular store ownership systems, and the key question is how to make the right choice for each unit (Michael, 1996). Furthermore, a network can be purely franchised, purely company-owned or managed through a plural form organization (Bradach, 1997). Because many store networks are now organized in plural form (Bradach, 1998), there is a demand from network managers for models that include an answer to the following question: which ownership structure is optimal for a new store in a plural form network? And the answer to this question may depend on the plurality rate, or percentage of company-owned (PCO) units within the network.

Most of the models evaluate either a strictly company-owned arrangement (Achabal et al., 1982; Lovell, 1970; Min, 1987) or a strictly franchised system (Ghosh and Craig, 1991; Kolli and Evans, 1999) with a possibility of master franchising (Zeller et al., 1980). Only three papers deal with both franchised and

company-owned units (Chaudhuri et al., 2001; Markland and Furst, 1974; Pirkul et al., 1987), but none gives consideration to what is called, in our day, plural form organizations.

In Sect. 2, I describe plural forms, highlighting their specificity regarding store location. In Sect. 3, I review the literature in which store location models deal with store ownership. Section 4 describes the methodology of a qualitative survey concerning the store location process related to store organizational considerations and implemented by decision makers. Finally, I present the results and discuss them in Sect. 5, proposing a modeling procedure to cope with the difficulty of integrating ownership issues in location models.

2 Plural Form and Store Location Problems

In a plural form system, both franchised and wholly-owned stores can be opened within the same chain. The specificity of plural form organization undermines several theories, especially the transaction cost theory (Bradach and Eccles, 1989). This kind of system is neither strictly a firm nor strictly a market, but something in-between, based on the tapered integration theory (Harrigan, 1983), which highlights a production mix from both inside and outside organizations. Bradach (1997) finds this specificity in fast food restaurants. Bradach (1998) suggests a specific management model of plural form organizations in this sector. I extend this model to three other retail and service sectors: bakeries, hotels and beauty shops, through exploratory research in Cliquet (2000). Bradach's model (1998) points out four challenges that a store network must meet: (1) addition of new units; (2) maintenance of concept uniformity; (3) local responsiveness; and (4) system-wide adaptation. This model also highlights the interaction between the first challenge, which concerns the unit growth process, and the three management challenges, which constitute the operating model. This specification clearly stresses that the store location decision process is related to the notion of concept uniformity – in other words, the protection of the brand –, to the ability to respond locally to competitors and to the necessity of adapting the concept in the long run.

The topic of plural form organization can be also treated either through ownership considerations (Lutz, 1995; Windsperger and Dant, 2006) or through an incomplete contracting approach (Hendrikse and Jiang, 2007). Gallini and Lutz (1992) distinguish two types of ownerships: the franchisor's ownership centered on the trademark, and the franchisee's ownership linked to local assets. When the trademark value is not sufficiently observable, the franchisor is advised to open company-owned units, in order to signal (signaling theory) the franchisor's commitment to the business and his ability to manage, and hence, to give value to the trademark. The problem is then to know where to locate company-owned units with respect to franchised stores. Lutz (1995) advocates the idea of a multiple unit model capable of "...determining whether locational differences are necessary for dual distribution...". The question then becomes: can these locational differences explain the necessity of a dual distribution system (plural form), which includes both

franchisor's and franchisee's ownership structures? Or is this plural form organization necessary because of its incentive approach, whatever the locational differences between units? Moreover, the franchisee and/or the franchisor, and hopefully both of them, theoretically find the best location for the franchisee to do business. Building a location model can be considered a way of addressing the question of the link between location and ownership.

Developing the network territorial coverage is a means to diffuse the brand, but also increases the risk of losing control over it and of seeing the quality of the service decrease (Manolis et al., 1995). Mixing locally company-owned and franchised units is often seen as a good way to manage concept and brand uniformity, and it has been recently proved that franchised chains with the strongest brands have the highest PCO rates (Lafontaine and Shaw, 2005). The presence of wholly-owned units enables greater brand management control over various franchisees' initiatives. To better assess the brand equity locally, Pitt et al. (2003) propose an adaptation of the Keller's brand report card (2000) to measure the franchised brand at the franchisee's level. Furthermore, some strategic locations that are most often too expensive for a franchisee are opened by the franchisors themselves, who can afford this kind of site for a flagship store to display the strength of the brand (Cliquet, 2000). Bradach (1998) also insists on the opportunity created by a plural form organization to observe franchisees, on the one hand imitating franchisor's units considered pilot stores (modeling effect), and on the other, competing with wholly-owned units (ratcheting effect), implementing a true benchmarking system between units. Responding locally to the actions of the competition requires improved knowledge of local markets (Minkler, 1990) in order to resist local market pressure (Bradach, 1998). Once again, when company-owned units are located in these local markets, information can feed back into the franchisor's strategic and tactical reflection (local learning process). This phenomenon is less feasible in a strictly franchised system in which no one can oblige franchisees to send information about local markets to the network operator. System-wide adaptation needs to succeed in both exploitation and exploration, and thus have an efficient mutual learning process (Sorenson and Sørensen, 2001) to facilitate the development of new ideas that fit new trends in the market. Company units, as pilot units, help in testing innovations, which is always more difficult to do with franchisees.

In a plural form network, company-owned units are not the only ones to bring advantages to the franchisor. Indeed, franchisees constitute the dynamic part of the chain because they own their business; whereas company-owned units entail a better control over the system (Brickley and Dark, 1987; Mathewson and Winter, 1985; Norton, 1988). There are also, however, idiosyncratic factors due to particular features of certain sectors. For instance, in the cosmetic retail market, and more specifically in nail stores (Cliquet and Croizean, 2002), but also in restaurant chains, training is a key factor in learning how to deal with new products, and company-owned units contribute to the dissemination of new practices.

Meeting Bradach's first challenge, that of unit growth related to the three other challenges, implies that the key problem to be solved is: where should company-owned units be located within a plural form network? Very few attempts in modeling that problem have been proposed so far.

3 Store Location Models and Store Ownership

Ghosh and Craig (1991) proposed a franchise network location model called Fransys. It is actually an application of MULTILOC (Achabal et al., 1982). The Fransys model was designed to attain two apparently contradictory objectives: maximizing sales and minimizing cannibalization of sales of existing stores in order to avoid conflicts among the franchisees. Other attempts had already been proposed to address this issue (Zeller et al., 1980; Kaufmann and Rangan, 1990), and encroachment currently seems to be a critical problem in an increasing number of franchised chains (Stassen and Mittelstaedt, 1994; Kalnins, 2004). The basic principle of the MULTILOC approach, and more generally speaking of the expansion of a store chain, can be summarized this way: the chain aiming at profit maximizing will continue to establish new stores until the sum of the marginal cost of a new establishment and the operating costs of the existing stores equals the amount of marginal sales. The location-allocation model, based on a *p*-median algorithm, makes it possible to determine in which market area one or more new stores should be located. Then, in each market area new establishments can be envisioned through the implementation of a MCI (multiplicative competitive interaction) model (Nakanishi and Cooper, 1974). Implementing the MCI can be difficult, and many improvements have been proposed concerning the use of ratio scale data (Gautschi, 1981; Cooper and Nakanishi, 1983), the resolution of the model (Nakanishi and Cooper, 1982), the geographical division of the market area (Ghosh, 1984), or the appropriateness of using either a MCI or a MNL model (Cooper and Nakanishi, 1988), the use of either objective or subjective data (Cliquet, 1995). One may wonder, can the Fransys model be adapted or not to the specific case of plural form networks? The difficulty resides in the fact that neither *p*-median nor MCI models can take into account store ownership issues a priori unless the objective function of location-allocation model is changed.

Markland and Furst (1974) propose a model based on a probabilistic capital budgeting approach to determine the optimal number of units to franchise. Pirkul et al. (1987) improve on this model by using budgetary restrictions, which enable the decision maker to choose between company-owned and franchised management. The goal of this model is to maximize the expected franchisor revenues from each type of units.

Current and Storbeck (1994) also present a similar model associated with site selection, which takes into consideration some contradictory objectives between franchisees and franchisor. None of these models, however, take into account the synergistic advantages of plural form organizations, as described by Bradach (1998).

The link between the location quality and the ownership structure choice has recently been studied (Chaudhuri et al., 2001), a study based on a Cobb–Douglas production function for each site. The model cannot be validated before the concept of store chain and its long-term viability have been firmly established. On the one hand, an asymmetry of information between franchisor and franchisee emerges since the former knows the distribution of locations according to their quality whereas the latter does not. On the other hand, while the franchisee must accept the sites offered

with no real negotiating power, the franchisor establishes his/her own stores in the sites presumed to be the most profitable. This is a direct application of the imperfect market theory. Particular situations arise when the franchisor gives financing to a franchisee, thus showing that he does not utilize the franchise as a simple financial substitute. This model is designed to demonstrate that the location quality is higher for company-owned units than for franchised units, but it provides decision-makers with no real help in locating units! The goal of the foregoing research is mostly theoretical and aims at developing a theory of franchising based on location, which is a quite acceptable objective but different from my purpose in the present article.

The evolution of store network management has returned to the matter of modeling the store location decision process. Even though some parts of the problem are beginning to be known, such a decision model is still difficult to design and implement because store network management is far too complex and because the store location process modeled up to now is too simple, even simplistic. Bradach and Eccles (1989) denounced the much too mechanistic character of the choice between franchised and company-owned units at the local level, choice which can be schematized this way:

1. For each site, there exists a superior organizational form.
2. Firms select a site, decide which control mechanism should be implemented (authority, market and/or trust, or a combination of these three elements) and rapidly recruit a qualified manager or owner.
3. The control mechanism is specific to the transaction.

Hence, the three traditional phases of store location in a process that is intended to take into account store ownership may be stated: (1) site selection; (2) choice of control mechanism (market or hierarchy); (3) rapid recruitment of a manager or of a franchisee, which constitutes a reduction of the real location decision process, due to, according to Bradach (1998), classical business theories (agency or transaction costs) and other approaches founded on the performance or the ownership structures. However, two critical questions should in fact be answered first (Bradach and Eccles, 1989):

- Who has the money (operator or franchisee)?
- What type of manager (salaried or franchisee) is available?

In other words, where are the financial and human resources?

Answering this question, and then solving the problem of integrating the ownership structure choice, must involve dealing with the store location decision-making process. A well-known retail location decision-making process (Ghosh and McLafferty, 1987) is chosen for application to both retail and service firms and can be diagrammed as in Fig. 1.

Actually, it seems that one or the other of the control mechanisms will function in many cases and that these mechanisms are chosen according to the vagaries of circumstances most of the time (Bradach, 1998): Who comes up with the idea of a new site? Who brings the money? Are qualified managers available? – etc. In addition, only a few papers deal with store ownership choice in a local, concrete context, with

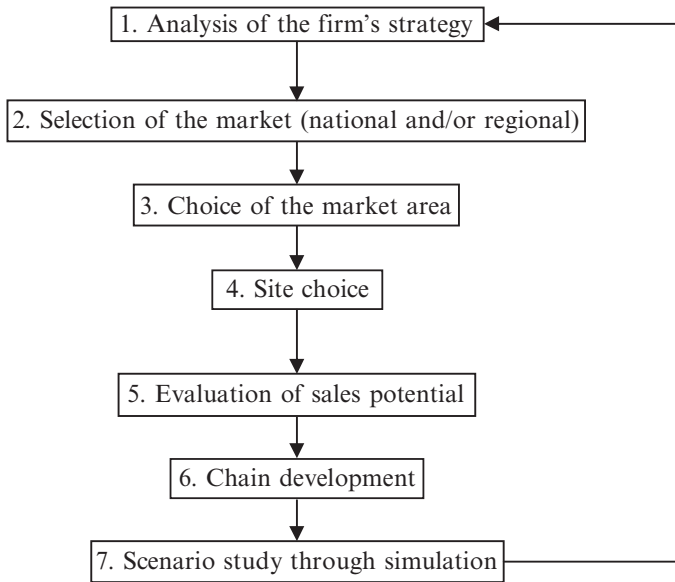


Fig. 1 Retail location decision-making process

the exception of publications with more professional aims (Cohen, 1999). Nevertheless, store location in a franchised network seems to be truly a critical decision: “While managerial capabilities are an important ingredient for success, the selection of a community within which to locate is probably more important” (Bush et al., 1974).

Below is a description of field research designed to verify from the decision-makers’ opinions whether models proposed in the literature fit interviewees’ opinion concerning store location (or any other unit: hotel, restaurant, bank branch, movie theater, etc. . .). Thus, four propositions are examined in this field research:

- *Proposition 1*: the initial years are more devoted to franchise (Martin and Justis, 1993).
- *Proposition 2*: the more remote units are generally franchised (Rubin, 1978).
- *Proposition 3*: the most profitable units are mainly company-owned (Hunt, 1973; Caves and Murphy, 1976), because of an a priori choice of company-owned in large cities (or more precisely “downtown”) and the rest in franchise.
- *Proposition 4*: the units requiring the largest investment are generally company-owned (Cliquet, 2000).

Either the determinant nature of individual circumstances or on the contrary control over the vagaries of circumstances (Bradach, 1998) can be concluded, as shown in the Forward and Fulop study (1993) for the United Kingdom.

Another element can affect the local franchise/company-owned choice. While established franchisors prefer buying the site in order to better control location and to maintain their development and performance control, more recent arrivals to the

market lean towards rapid development, suggesting that franchisees would rent their site and bear the responsibility for their generous fees. Franchisees with modest means want more than anything to reserve what little they have for the development of their business. However, allowing the franchisee to choose his/her site and to negotiate his/her lease or purchase agreement present long-term risks for the franchisor (Carlsson, 1994).

4 Methodology of an Exploratory Study

Thus, more knowledge is required to better understand the decision-making process related to the location of either franchised or company-owned units. For that purpose, an exploratory study was conducted among 18 French franchisors who recently opened new units. The purpose of this exploratory study was to understand the ownership structure choice process in a store location procedure within a retail or service network. The interviewees were either the president (founder), the top manager of the company, or the vice-president for network development. Data were collected through face-to-face interviews in the companies. Appointments were very difficult to obtain because of very confidential strategic aspects of location issues. These 18 chains belong to various sectors: retail cosmetics (Yves Rocher), lingerie (Descamps, Les Matins Bleus), travel agencies (Carlson Wagonlit of the Accor Group), hotel industry (Ibis, Etap Hotel and Mercure of the Accor Group, Campanile, Kyriad and Première Classe of the Envergure Group), car rental (Budget), fast food (Pizza del Arte of the Le Duff Group, Domino's Pizza, La Croissanterie), gift shops (Cadoon's, Soho).

Data were also collected on the PCO rate, the degree of concept formalization and the brand positioning. A list of criteria related to the location process (see Table 1) was displayed as well, and interviewees were asked to assess each of them. Figure 1 was shown to interviewees in order to collect their reactions according to various location decisions. These semi-directive interviews were carried out through an interview guide composed of several general questions with instructions to interviewers, who were all sufficiently experienced to conduct such interviews in order to facilitate:

- The development of the themes linked to the concepts and variables associated with the process studied;
- The collection of classifications for the implementation of the multi-criteria method;
- The choice of intervention periods in the location process.

The exploratory nature of the approach excludes testing the propositions suggested as hypotheses on a statistical level. Moreover, it should be said that the topic of this survey is very strategic and that several companies refused to answer, whereas others tended to describe location policies that were more desirable than real, and some of these interviews should be considered separately.

Table 1 Evaluation of choice criteria concerning the local store ownership structure (on a 9 position Likert scale)

Choice criteria concerning the local ownership structure (franchised vs. company-owned)		Criteria importance score	
		Mean	Standard deviation
1.	Market life cycle stage	6.4	3.9
2.	Operator's base profession	2.8	6.5
3.	Operator's preference for franchising (or not)	5.8	4.4
4.	Chain life cycle stage	3.3	6.1
5.	Total financial investment cost (company unit)	4.4	5.4
6.	Cost for the franchisee	3.8	5.8
7.	Transaction costs	2.3	6.8
8.	Economic situation	5.4	4.7
9.	Regulation	5.1	4.9
10.	Availability of human resource	2.5	6.7
11.	Global proportion of franchisees and company units (global PCO)	8.8	2.3
12.	Local proportion of franchisees and company units (local PCO)	5.3	4.8
13.	Strategic site	3.5	6.0
14.	Decision speed	2.8	6.5
15.	Local level of chain stimulation	3.8	5.8
16.	Responsiveness capacity facing competition	3.9	5.7
17.	Innovation implementation capacity	4.8	5.1
18.	quality and quantity of information stemming from stores	2.1	7.0
19.	Level of relationship with local franchisees	4.8	5.1
20.	Level of concept formalization	2.3	6.8
21.	Level of concept control	2.5	6.7
22.	Concept positioning	2.8	6.5

5 Results

All of the networks do not use the same approach to deal with the problem. Certain network directors consider the ownership structure choice as an essential strategic decision, while others see it as strictly tactical; still others envisage both the strategic and tactical aspects of this decision. This is the reason why a typology of the networks' ownership policies is presented first. Then, the results of the interviews

concerning the variables and the propositions are examined. They are followed by exposing a typology directly inspired by the completed interviews, then the modeling difficulties in relation to the surprising disparity in the situations encountered, concerning equally the choice of explanatory variables and the types of contracts signed with the franchisees. Finally, a local ownership structure choice model is developed before discussing the quantitative modeling opportunities, permitting the justification of the ownership structure choice between franchised and company-owned units at the local level, and taking into account the disparity encountered. Table 1 provides average evaluations of the variables or criteria of local site ownership structure choice.

From two earlier researches commissioned few years ago by the French Franchising Federation (FFF), 22 variables were retained (Cliquet, 1998, 2000; Cliquet and Pénard, 2002). These variables were the object of discussion with the franchisors belonging to the FFF who were already familiar with the variables because they had participated in the first study. Each variable was evaluated.

One variable is clearly considered the most important: the global proportion of franchises and company-owned units within a network (global PCO). The market life cycle stage is also of interest for decision makers, and this variable can entail a need for various modeling processes, depending on the stage. This consideration could also mean the introduction of temporal issues in a spatial model. The operator's preference for franchising (or not) cannot be considered in a modeling process and is related directly to the decision maker. Regulation seems to be a key criterion, but each chain is subjected to the same set of legal conditions: regulation could be a criterion in an international context. The importance of the local PCO must be related to the global PCO, which means that some chains have a "glocal" approach. The innovation-implementation capacity and the level of relationship with local franchisees are linked to the question of control within the network.

Concerning the four propositions to be studied in a "qualitative" way, given the small sample, very contrasting results were observed in Table 2.

Proposition 1 receives little support because the managerial philosophy governing a network launch can be diametrically opposed from one operator to another (Cliquet, 2000), even if this philosophy evolves over time according to constraints.

Table 2 Exploratory results of the four propositions

Propositions	Non-scientific validation (qualitative)
Proposition 1: First years are more likely to be dedicated to franchising	Not confirmed
Proposition 2: Most distant units are more likely to be franchised	Confirmed or non-relevant
Proposition 3: Most profitable units are more likely to be company-owned	Confirmed, but with differences
Proposition 4: Units demanding biggest investments are more likely to be company-owned	Confirmed

Proposition 2 is either confirmed in three-fourths of the cases, or non-pertinent in the networks in which the local franchise/company-owned structure and balance matters most. Proposition 3 is always confirmed in large units on expensive sites, whether they be in a downtown area or in a mall where the rent charges are often beyond the franchisees' reach. On the other hand, some operators are sensitive to the fact that systematically leaving the "poor" store sites to the franchisees is a dangerous policy that can generate conflicts in the long term. Proposition 4 is confirmed concerning the most profitable units. This confirmation is even stronger for the flagship stores which, without always being profitable, are sometimes indispensable to the trade-names of certain chains in order to raise or maintain their notoriety and their brand image on highly frequented sites or very targeted customer frequenting.

Table 2 provides a summary of the propositions as they were qualitatively tested on a small sample. These propositions must be tested on a much more substantial sample. The difficulty of obtaining information on a very strategic topic could be a real obstacle. Furthermore, location decision situations can be quite different in the reality, and interviewing managers could lead to collecting theoretical policies instead of real ones!

The interviews revealed three groups that stand out markedly with respect to the legal policies of network establishment. The typology developed in this chapter does not mean that each of the chains of these groups has the same strategy, much less the same franchise/company-owned unit proportion. In fact, this classification aims at separating strategic and/or tactical attitudes. They are founded primarily in the answer to the third question of the interview guide concerning the commercial location decision-making process generally followed by the chain. Therefore, a distinction is made between:

- Chains that develop an ownership-based location strategy with choice of a global objective in terms of PCO in the franchised chain, then eventually a local adaptation at the time of site choice within the local context, given the presence of other units of the chain and of competitor's units. These are the "*glocal*" *strategists* – "*glocal*" for global in the strategy definition with a local adaptation – mostly belonging to big French groups that run several networks each;
- Chains that choose the ownership structure at the moment of site selection are the *opportunists* and correspond to smaller companies, running only one chain;
- Chains that concentrate on global strategic analysis with little consideration for local conditions. These are particularly *large leading foreign groups* with strong international notoriety. This is thus a quasi-ambidextrous organization in which these groups are willing to change ownership structure, and therefore the PCO rapidly, often for purely financial and/or patrimonial considerations. The situation remains an element of local choice, but only to a more marginal degree. The company-owned units are more dedicated to monitoring the network, or even to implementing a patrimonial or pressuring strategy on the suppliers (the case of a large foreign rental car company, which needs to increase its store-owned perimeter in order to negotiate better with automakers).

In summary, the three groups identified by our study show that:

- Only two stages in the location decision-making process (see Fig. 1) are important in store ownership structure choice: strategy analysis and site choice.
- The opportunists do not consider the ownership issue at the time of site choice.
- The global strategists with a strong international notoriety apply in the field a policy decided upon during the analysis of company strategy.
- The “glocal” strategists question themselves during these two stages.

Each of these attitudes can be explained, according to the case, through considerations linked to:

- *The vision of the network’s future in terms of ownership structure* – even when the implementation conditions of a ownership structure policy have been gathered, certain networks are not willing to execute it for diverse reasons: passive competition, strong concept, less dynamic sector, . . . Those willing to do so have a precise vision, sometimes very precise, of the PCO that they can allow in their network.
- *The brand image* – a network that is widely recognized internationally has no need to maintain the control of its concept by imposing a high PCO. Such a network, especially if it is foreign, will therefore continue its development through franchises. Basic profession and control of the initial stages – among distribution franchises, if the franchisor is both retailer and wholesaler, he can allow himself to implement a veritable legal policy of his sites (see the first point). On the other hand, if s/he is only a retailer, s/he should content him/herself with a strong local responsiveness to the market, which will keep him/her from having a true ownership structure policy leading to a coherent PCO choice.
- *The situation* – development tends to take place through store-owned units when the entrepreneur has the means to do so; or in other words, during favorable periods. This factor does not, however, prevent the respect of a predetermined PCO over the long term.

It is surprising to find that the situation influences all of the decision, including those of the large leader groups. An initial trivial response hinges on the fact that the situation spares no one. However, one might add that the impact of the situation is not the same and does not affect the networks and their decisions in the same way. The situation forces the glocal strategists to momentarily rectify the local ownership structure, but the PCO will be adhered to for some time. The situation is of course at the heart of the opportunists’ choice. However, the leading international groups, taking into account the means at their disposal, will be more likely to attempt to take advantage of the situation, even if totally and abruptly changing ownership structure choice policy is necessary. One could opt for a strengthening of PCO for patrimonial reasons, followed by a return towards franchise by re-selling store-owned units (Baroncelli and Manaresi, 1997), thus implementing an ambidextrous organizational form (Duncan, 1976).

It is important to note that certain variables such as life cycle and transaction costs were not always well understood by the interviewees. A follow-up action will

hopefully work towards a semantic simplification of these concepts, even to the slight detriment of their theoretical impact. Models susceptible of implementation according to this typology are studied in the last section.

6 Towards the Conception of New Location Models

Each of the three categories of location attitudes requires at least one different type of models. Moreover, the problem can be tackled in different ways. Despite the grand complexity of the situations described above, it appears that at least two general forms of modeling can be attempted concerning understanding and predicting the ownership structure choice of a store unit:

- One type of model founded on the alternative taken directly from the decision dilemma: to open a franchise or a company-owned unit.
- One type of model based on taking into account the competition and/or the expected territorial network coverage.

In the first case, a modeling form could consist in comparing a simple binary variable to explicative variables. The binary variable may take on a value in the interval $\{1, 0\}$ where 1 = franchised unit and 0 = store-owned units. A logit model would thus be appropriate. The explanatory variables can be either continuous or categorical in the form of dummy variables (1 = the phenomenon occurs, 0 = it does not occur).

In the second case, two modeling forms would set out to reproduce the competitive climate locally and/or globally through an adapted MULTILOC model (Achabal et al., 1982). The grand difficulty, all too well known to specialists of this type of models, is called Independence of Irrelevant Alternatives (IIA). A sound geographical division of the market sector under consideration can provide a solution to this problem (Ghosh, 1984). Another problem is found in the choice of local solutions, which can be considerable when using the p-median algorithm. Diverse solutions have been proposed (Baray and Cliquet, 2004). Most of the technical difficulties inherent to the implementation of these models have been, or are, in the process of being overcome. Software based on these kinds of models, or others, and mapping techniques are now appearing in the market, enabling chain decision-makers to simulate the spatial consequences of their decisions and thus allowing them to better control the spatial marketing or geomarketing of their network (Cliquet, 2006).

Opportunists have no real spatial strategy for developing their network and prefer favoring a good deal first with no link with any local or global PCO. Traditional models and methods can be still adapted to such a methodology. On the other hand, glocal strategists and international groups seem to have more to gain through optimization models.

The most important difficulties will probably remain those related to data collection. Both the structure of these models and the variables to be integrated in them are

known, and most are easily operational. The local approach, however, needs local data that operators or certain franchisees may not want to divulge. This will prove to be a quasi-insurmountable problem without the confidence and trust of the operators and their network. The implementation of these models would therefore require strong cooperation by the companies (franchisor and franchisees). Given the introduction of ownership issues in the location modeling process, the three categories of strategies from three different categories of decision makers (franchisors) lead to three different model combinations forming LOCWOC models for LOCation With Ownership Choice:

- “Glocal” strategists, making their ownership structure decision on two levels in the process of Fig. 1, can be modeled on the basis of Pirkul et al. (1987) to get a global PCO rate, or with the introduction of a given PCO rate as an ownership structure choice at the global level. Then, a MULTILOC model can be used to obtain market areas in which units can be located; but instead of a MCI model, at the local level, a MultiNomial Logit MNL (McFadden, 1974) can be implemented in order to choose between a franchised or a company-owned unit. This model can be characterized as a “glocal” model, to use a currently fashionable word in retailing research (in other words, both local and global).
- Opportunists benefit from a MULTILOC model in which ownership structure choice should be integrated only at the local level through a MNL model, as long as the objective is to increase market share. One could call this a local establishment model.
- International groups are represented with the help of a location-allocation model (the global side of MULTILOC), which makes possible a global vision of a multi-establishment project, taking into account the requested sites, to which the ownership structure choice in relation to global considerations will be added. Recent techniques should also allow taking certain local aspects into account without the competition (Baray and Cliquet, 2007). This model can be qualified as a non-competitive global location model.

Pirkul et al. (1987) propose an optimization model for a franchised chain with company-owned units, but with only cost constraints considerations. Let us take the cases of “glocal” strategists and groups. Fixing a global PCO and a local PCO could lead to a new model definition as a combination. Pirkul et al. develop an objective function Z_p to be maximized:

$$Z_p = \text{Max}_{i \in I} \{ \sum (c_i x_i + c'_i y_i) \}, \tag{1}$$

$$\text{given that : } \sum_{i \in I} a''_i x_i \leq b'', \tag{2}$$

$$\sum_{i \in S_j} (a_i x_i + a'_i y_i) \leq b_j \quad \forall j \in J, \tag{3}$$

$$x_i + y_i \leq 1 \quad \forall i \in I, \tag{4}$$

$$x_i, y_i \in \{0, 1\}. \tag{5}$$

These authors take into account the possible existence of warehouses within the network. Because this model does not also apply specifically to the case of service networks, this option is not considered, and below is the notation for the above model, except for variables related to warehousing:

$$\begin{aligned}
 I &= \text{set of potential locations } i \text{ where a store can be opened} \\
 c_i &= \text{net expected return from company-owned unit at location } i \\
 c'_i &= \text{net expected return from franchised unit at location } i \\
 a_i &= \text{expected demand net of company-owned unit at location } i \\
 a'_i &= \text{expected demand of net franchised unit at location } i \\
 a''_i &= \text{capital outlay required for company-owned unit at location } i \\
 b'' &= \text{total capital outlay budget of the operator} \\
 x_i &= \begin{cases} 1 & \text{if a company-owned unit is located at } i \\ 0 & \text{otherwise} \end{cases} \\
 y_i &= \begin{cases} 1 & \text{if a franchised unit is located at } i \\ 0 & \text{otherwise} \end{cases}
 \end{aligned}$$

One constraint can be added in the case of “glocal” strategists related to a given global PCO, otherwise it is computed from the above model:

$$100 \left(\sum x_i \right) / N \leq q,$$

where:

$$\begin{aligned}
 \sum x_i &= \text{sum of all the company-owned units,} \\
 N &= \text{sum of all the units of the network,} \\
 q &= \text{global PCO.}
 \end{aligned}$$

A p-median algorithm in a MULTILOC model could give the selected market areas through heuristics (Achabal et al., 1982) or other new techniques (Baray and Cliquet, 2007). Responding to glocal strategists' requirements would consist in developing a logit model at the local level in each market area, including an explanatory variable related to a local PCO, depending on the size of the area, the importance of training, innovation tests, customer follow-up issues (Cliquet, 2000), but also including other variables dealing with local competition and environment, spatial considerations, . . . which does not prevent decision makers to implement a MCI model (Cooper and Nakanishi, 1988) to assess their local market share.

The goal of the propositions is to show that researchers are far from having definitively worked out the problem of plurality of organizational forms within networks. Its relationship with location only renders its conception much more complex but should provide the necessary validation for the results of future investigations.

7 Conclusion

The aim of this study is to answer two questions: one deals with the universality of location models, whatever the network type, and the other is the capacity to consider ownership issues in a location model. Because no location model gives an acceptable response thus far to these two questions, an exploratory study with 18 franchisors was carried out, leading to a typology of three clusters: “glocal” strategists, opportunists, and large leading foreign groups. Each group seems to have a very different location strategy that can be modeled in the same way, showing therefore that there is no universal response to modeling the location decision process. Through an assessment by franchisors of a list of 22 criteria and four propositions, eight variables can be pinpointed as truly determinant in the location decision process that includes the ownership structure choice of local stores. The principal location models most frequently used are examined in their ability to represent the location decision process by taking into account the ownership issues of local stores. MULTILOC is not able to do so. Pirkul et al. (1987) proposed a more adequate model with respect to the ownership issue, answering then the second question set above.

A first version of a “LOCWOC” model (LOCATION with Ownership Choice) is presented, introducing into a location model the most important variable in the ownership structure choice process drawn from the exploratory study exposed in this article: the global PCO. The local PCO was also taken into consideration because the study shows that this variable is important for “glocal” strategists at the local level.

Strategic and managerial implications can be drawn from this type of modeling process. An increasing number of companies are implementing plural form networks (Bradach, 1997; 1998; Cliquet, 2000; Dant and Kaufmann, 2003; Lafontaine and Shaw, 2005), and some of them are determining a threshold in terms of PCO, the percentage of company-owned units (Cliquet and Pénard, 2002). This is, however, just a global figure without any detail about the way to spread both franchised and company-owned units over a given territory. The model developed here, which now should be implemented in a real situation, can help franchisors in doing that.

The introduction of other variables, such those related to the innovation process or the life cycle stages, can also be envisaged but should be discussed according to the franchisor’s strategy and according to the increased complexity of models. Introducing variables related to the innovation process can lead to very complex heuristics in order to solve the trade-off between respecting the PCO threshold and the need for optimum control of the innovation diffusion process within the network. The use of a market life-cycle variable may require a different model for each stage of the life cycle, but it can be worthwhile.

This discussion about the usefulness of integrating new variables leads to further research and especially to the definition of more complete, even more complex, modeling processes. This study points to two principal limitations. Since it is an exploratory research, a more quantitative study based on a questionnaire and a larger sample should be used to confirm or complete the proposed typology, even though this information is considered particularly strategic and too few companies are ready to answer such a questionnaire. A second limitation resides in the

non-implementation of the model, which should be carried out in a next step of the research. Going beyond these two limits constitutes two more tracks for future research.

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Plural Form and the Internationalization of Franchising Networks: Exploring the Potential Relationship

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Abstract Two important topics often explored in the franchising literature are network internationalization and plural form. Yet up until now, these two research streams have not converged. The purpose of this paper therefore is to explore the potential significance in the link between plural form and franchising network internationalization and to determine whether the influence of plural form on network internationalization is positive or negative. An empirical study involving 493 French networks, of which 28.2% are international, reveals the existence of major differences between international networks and purely-domestic networks in terms of the plural form: the average plural form rate for networks with operations abroad equals 34.6%, in comparison with 43.3% for purely-domestic networks. Moreover, logistic regression results underscore the significant and negative impact of the plural form on internationalization. A number of explanatory elements inherent in these surprising findings will also be presented.

Keywords: Franchising · Plural form · Internationalization · France

1 Introduction

Two key topics often explored in the franchising literature are plural form and internationalization. On the one hand, a number of conceptual papers (Bradach and Eccles 1989; Dant et al. 1992) and empirical papers (Lafontaine and Kaufmann 1994; Bradach 1997; Lafontaine and Shaw 1999, 2005; Dant and Kaufmann 2003)

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have contributed to a better understanding of the plural form, which relates to the coexistence of franchised units and company-owned units within the same network. These contributions have often focused on the advantages of this form, in terms that include costs, growth, quality and risk management (Ehrmann and Spranger 2004).

On the other hand, according to Elango (2007), the literature on international franchising can be classified into three main streams. The first one (Welch 1989; Alon and McKee 1999; Hoffman and Preble 2001; Welsh et al. 2006) examines macro differences across countries in order to determine where franchising is spreading and gaining acceptance as an organizational form. The second stream of literature (Fladmoe-Lindquist and Jacque 1995; Contractor and Kundu 1998a, 1998b; Burton et al. 2000; Erramilli et al. 2002) concentrates on the choice of entry mode when seeking to penetrate international markets. The last stream (Walker and Etzel 1973; Hackett 1976; Aydin and Kacker 1990; Huszagh et al. 1992; Kedia et al. 1994, 1995; Julian and Castrogiovanni 1995; Shane 1996) investigates the factors driving franchisors to international markets as well as factors that distinguish franchisors seeking to operate internationally from those remaining focused on their domestic market.

Nevertheless, these two research subfields, i.e. plural form and franchising network internationalization, have still not converged. The purpose of this paper then is to explore the potential for a significant link between the plural form and the internationalization of franchising networks. The literature review and synergies provided by combining franchising and company arrangements within the same network contribute to formulating the two following propositions: *(P1) Plural form exerts a significant influence on network internationalization*; and *(P2) The influence of plural form on network internationalization is positive*.

These two propositions will be tested using the French franchising industry as a context. France has been selected because of its pivotal position in Europe regarding the number of networks. In 2006, 1,037 networks were operating with a total of 43,680 franchised stores generating some 45 billion euros within the French territory (French Federation of Franchising 2007). This sample includes 493 French networks, of which 139 (28.2%) are international.

As far as methodology is concerned, descriptive statistics and more specifically t-test and Levene statistics will first highlight the significant differences existing between purely-domestic networks and international networks with respect to the plural form. Other differences in terms of network age, network size, financial conditions of the franchising contract, etc. will also be studied. In addition, the use of logistic regression models will enable analyzing the influence of plural form on network internationalization.

Findings from the empirical study reveal that international networks display a much smaller plural form rate (34.6%) than the purely-domestic networks (43.3%). In other words, international networks contain fewer company-owned units than their domestic counterparts within the domestic market. Moreover, logistic regression results indicate a significant influence of the plural form rate on network internationalization. Yet surprisingly, this influence is negative. Some explanatory elements will be subsequently discussed.

This paper has been organized as follows. In Sect. 2, the literature on franchising network internationalization and plural form will be reviewed. This exercise yields a better understanding of franchising network internationalization and showcases the advantages provided by the coexistence of franchised units and company-owned units within the same network. The research design will be presented in Sect. 3, and results from the t-tests, Levene statistics and logistic regression models will be displayed and discussed respectively in Sects. 4 and 5.

2 Literature Review

2.1 Franchising Network Internationalization

From a general perspective, internationalization is a process in which firms or industries gradually increase their international involvement (Eroglu 1992). From the early 1970s to the mid-1980s, a specific mode of internationalization spread dramatically: international franchising (Aydin and Kacker 1990), by being considered a safe and speedy means of obtaining foreign currency while minimizing financial outlays. From a business perspective, international franchising involves less risk than other means of internationalization, e.g. direct investment, because local franchisees are contributing to success of the concept. This mode also offers an opportunity for market expansion to industries whose products cannot be exported, e.g. services (Aydin and Kacker 1990).

The literature on international franchising was initiated by Walker and Etzel (1973) and Hackett (1976, 1977). Walker and Etzel (1973) examined the international expansion of U.S. franchisors and their subsequent plans. They included examples of networks that were already international by the mid-1970s: *Kentucky Fried Chicken*, *Burger King*, *McDonald's*, *Ramada Inn*, and *Holiday Inn*. They explained that U.S. franchisors had begun to seek growth opportunities outside the U.S. because of the strong level of domestic competition. Walker and Cross (1989) also studied the international activities of U.S. franchisors through a wide range of information published annually by various organizations.

A number of researchers (Huszagh et al. 1992; McIntyre 1990) then analyzed franchising internationalization using the theory of the firm framework. Aydin and Kacker (1990) examined the reasons why some U.S. franchisors had not yet expanded internationally and analyzed their capacities for future international involvement. Even though the American sample was small, it was still able to expose some aspects of the internationalization process. Huszagh et al. (1992) first used competitive strategy theory to examine the differences existing between networks with activities just in the domestic market and networks whose scope extends abroad and then applied the theory of the firm to assess the mediating effects of market conditions. Their first premise was that the surge of international activity by U.S. franchisors could be explained by internal characteristics, such as the franchisor's

operating life span, network size, the particular sector of activity, startup costs for franchisees and franchisor headquarters location.

Two other research studies can be cited as well. They proposed models tied to franchising internationalization. First, according to the paper of Eroglu (1992) based on existing descriptive literature on international franchising combined with export literature, a franchisor's intention to internationalize stems from two sets of perceptual variables: perceived risks and perceived benefits. These two constructs are actually determined by a series of organizational and environmental factors. This model's basic premise is that all franchisors strive to survive through profit maximization while minimizing risks. Franchisors are involved in a continuous cost/benefit assessment. Second, McIntyre and Huszagh (1995) segmented the franchise system internationalization process into four stages: domestic franchising, experimental involvement, active involvement, and committed involvement. This model is relevant to the extent that franchising networks with activities outside their domestic market must be evaluated according to their stage in the process.

What then can be said about the potential factors driving franchisors into international markets? This query would correspond to the third stream of research, as categorized in a recent paper by Elango (2007) and recalled in the introduction.

In sum, resource-based theory suggests that franchisors should generate a significant amount of monetary and human resources in their domestic operations before expanding their network overseas (Walker 1989; Aydin and Kacker 1990; Welch 1990). Through this theoretical approach, three main factors have been pointed out in previous papers, dealing, respectively, with network size, network age and network growth rate.

To begin with, network size has been considered a factor influencing network internationalization. Franchising networks with a large number of outlets can take advantage of economies of scale (Huszagh et al. 1992). Synergies are created through common purchasing, promotion, research and development, monitoring and quality control. As a consequence, the levels of financial capital, brand name recognition (Aydin and Kacker 1990) and market power (Huszagh et al. 1992) all increase. As a franchising network expands, it becomes more likely that new franchisees will be attracted into the network due to brand name recognition (Aydin and Kacker 1990). Franchising network expansion in terms of number of outlets implies an increase in network resources, a statement that complies with resource-based theory, which recommends first attaining a sufficient level of tangible and intangible assets within the domestic market before venturing abroad. As outlets become more widespread domestically, market saturation will be reached quickly and the network will then consider expansion into foreign markets as a means of enhancing profitability (Shane 1996).

Secondly, franchising experience has also been seen as a determinant of network internationalization strategies. The age of the franchising network implies a cumulative franchisor experience (Huszagh et al. 1992). As a network becomes more mature, it is more likely to seek internationalization as a growth strategy since franchisor skills in the areas of site selection, store layout, procurement and operating policy in foreign markets will be improved through experience gained in domestic

market operations (Huszagh et al. 1992). According to this framework, the franchisor becomes more confident and perceives less risk associated with entering foreign markets (Eroglu 1992).

Lastly, franchising growth has been correlated with network internationalization. The growth rate of a franchising network depends on the effects of both size and age. A high growth rate means that new franchisees are being included in the network at a comparatively quick pace, which leads to an increase in income from entry fees and royalties, brand name recognition due to geographical dispersion and overall firm marketability. For the franchisor, a high growth rate suggests to new franchisees that the business concept is popular and easy to replicate. In addition, investors are more likely to provide capital to a firm experiencing a high rate of growth, which along with size and age is positively correlated to internationalization.

In conclusion, franchising network internationalization is a major topic in franchising literature. Some of the factors favoring the internationalization process have been discussed, and the intent of this paper is to determine whether the plural form also constitutes an internationalization factor.

2.2 Franchising and the Plural Form

As mentioned in the introduction, plural form refers to the simultaneous operations of franchised units and company-owned units within the same network for the purpose of performing similar tasks (Bradach and Eccles 1989). This specific network organization has attracted the attention of many researchers.

For a long time, a number of authors (Oxenfeldt and Kelly 1968–1969; Caves and Murphy 1976; Norton 1988; Gallini and Lutz 1992; Scott 1995) were asserting that plural form was a transitory phenomenon. They predicted that, over a long-term perspective, either full franchising or full company ownership would prevail and dominate. Some of them (Oxenfeldt and Kelly 1968–1969; Caves and Murphy 1976; Norton 1988) explained, through application of the ownership redirection concept, that as a network becomes mature, the franchisor is increasingly likely to favor company ownership. Other researchers (Gallini and Lutz 1992; Lafontaine 1993) claimed in contrast that the network becomes more heavily franchised over time. In a recent paper, Lafontaine and Shaw (2005) nevertheless showed that the plural form rate remains nearly constant after 8 years.

The theories used in the literature on plural form consist mainly of signaling theory (Gallini and Lutz 1992), resource-based theory (Dant and Kaufmann 2003), property rights and transaction cost theories (Windsperger 2004a, 2004b; Windsperger and Dant 2006), incentives theory and agency theory (Chaudey and Fadario 2004).

One of the most influential articles was perhaps this written by Bradach (1997, 1998), who investigated plural form through an in-depth exploratory study of five U.S. fast food networks. He explained that the plural form within a franchising network is aimed at meeting the following managerial challenges: spatial expansion

through the addition of new units, brand protection by maintaining concept uniformity, local reaction to threats or opportunities, and service and/or product concept evolution with the need to adapt the concept to changes. Bradach described several processes emerging within a plural form network that help the franchisor overcome the four challenges. These would concern, for instance, the additive process during the network development: the franchisor exhibits know-how through company-owned units and thus attracts new franchisees. Moreover, a franchisee can create its own units. A socialization process exists whereby franchisor personnel are a potential source of new franchisees. A plural form network also stimulates a mutual learning process that facilitates the generation, testing, selection and implementation of new ideas.

Following this pioneering study, several researchers have emphasized the advantages of plural form. Ehrmann and Spranger (2004) classified these research works according to the various motivations for the franchisor to apply plural form and identified: cost aspects, growth aspects, quality aspects and risk aspects.

First, cost aspects are considered as a motivation for the franchisor to apply plural form. Using agency theory, Ehrmann and Spranger (2004) explained that mixing franchised units with company-owned units enables the franchisor to reduce costly behavioral uncertainty linked to information asymmetries. Franchisees and managers of company-owned units are characterized by different mentalities and motivations. As Brickley and Dark (1987) asserted, the costs of monitoring, free-riding and inefficient investments are reduced when the franchisor is able to choose the organizational form, i.e. either franchising or ownership, and this effect is dependent upon location specificities. Furthermore, plural form displays advantages as far as information costs are concerned. Minkler (1992) explained that franchisees are more motivated to collect, report and use local information than managers of company-owned units. According to this author, plural form enables optimizing efforts to seek and utilize local knowledge by identifying franchised units where information gathering is necessary, costly and critical to unit success. At the same time, it is important for the franchisor to open company-owned units near franchised operations in order to transfer the information collected and benefit from it as well.

Second, growth aspects are also considered a motivation for the franchisor to use plural form. Rapid growth is a key factor in network success. Franchisors need to build a highly visible and valuable brand name within a relatively short period of time by opening as many units as possible in various locations (Ehrmann and Spranger 2004). Network growth is often slowed due to financial and human capital resource shortages. Choosing a plural form organization contributes to overcoming these resource constraints while increasing strategic flexibility (Cliquet 2000). Franchisors can quickly expand their network thanks to both the financial (Caves and Murphy 1976; Mathewson and Winter 1985) and managerial (Thompson 1994) inputs of franchisees. Additionally, franchisors can open company-owned units at highly-visible locations out of the financial reach of franchisees. Franchisors can also maintain strategic flexibility by keeping the operations of some company-owned units that enable retaining control over part of the business (Oxenfeldt and Kelly 1968–1969; Caves and Murphy 1976; Norton 1988).

Third, quality aspects constitute a motivation for franchisors to apply plural form, and this for several reasons. To begin, plural form enables coping with unfavorable information asymmetries by communicating internal franchisor information to franchisees (Gallini and Lutz 1992). When using the plural form, a showcase effect becomes apparent, thus making it easier for franchisors to attract new franchisees through demonstrating the personal, financial and professional investment capacity in their own networks (Cliquet 2000). In this manner, plural form enables aligning and harmonizing the interests of franchisor and franchisees. According to Lewin-Solomons (1999), greater franchisor involvement in company operations reflects a greater overlap between network management interests and franchisee interests. Plural form favors innovation and accelerates internal changes (Bradach 1997, 1998; Lewin-Solomons 1999; Cliquet and Nguyen 2004). The coexistence of franchised units and company-owned units within the same network stimulates both exploration and operations, while serving to improve network innovation performance. Franchisees are more oriented towards exploration because of their entrepreneurial skills and knowledge of the local market, while managers of company-owned units concentrate primarily on system operations. Sorenson and Sørensen (2001) indicated the existence of an organizational learning process within the plural form network. Lastly, plural form allows creating a more competitive inter-network climate thanks to a possible benchmark set up between franchised units and company-owned units (Bradach 1997). Company-owned units can serve as a data source and partner in order to benchmark franchisee performance. This benchmark process may be considered not just in terms of financial performance, but also unit cleanliness, customer friendliness, employee turnover, etc. Plural form can thus lead to network excellence by virtue of this beneficial inter-network competition.

Fourth, risk aspects are also seen as a motivation for franchisors to choose plural form, which serves to assist the franchisor in implementing a network-wide risk management system. According to Martin (1988) and Chaudhuri et al. (2001), every location bears specific risks regarding the expected profitability profile on the basis of location characteristics. As a consequence, plural form enables the franchisor to optimize the notion of risk by directly operating units for which the level of risk is acceptable and franchising the other units, which remain attractive from a portfolio and brand image perspective.

This literature review of the plural form has highlighted the advantages of such an organizational form in the franchisor's domestic market. Plural form networks, which benefit from various synergies between franchised units and company-owned units, are stronger than the purely or predominantly franchised or company-owned networks. Franchisors enjoying a strong domestic market position however typically have more opportunity to continue their expansion into foreign markets. By maintaining both kinds of units, i.e. franchised and company-owned, in the domestic market, franchisors are better prepared to venture abroad as they hold more entry mode options than the other forms of networks. These franchisors using the plural form are able to enter a new market through either franchising or ownership, depending on the country given that they are already making use of both in their domestic

market. Consequently, plural form is likely to favor network internationalization. The following propositions can then be formulated:

P1: Plural form exerts a significant influence on network internationalization.

P2: The influence of plural form on network internationalization is positive.

3 Research Design

3.1 Sample

The empirical study focuses on the French franchising industry. France has been selected because of its pivotal position in Europe regarding the number of networks. In 2006, 1,037 networks were operating with a total of 43,680 franchised stores generating some 45 billion euros within the French territory (French Federation of Franchising 2007).

The data source used herein is the franchising directory entitled “*2006 Toute la Franchise, les Textes, les Chiffres, les Réseaux*”, published by the French Federation of Franchising. This directory identifies 563 leading franchising networks with operations in France during 2005. This same source has previously been used in several research projects on franchising (e.g. Cliquet and Pénard 2002; Pénard et al. 2003; Perrigot 2006; Dant et al. 2008; Perrigot 2008) and is presumed to be reliable.

Regarding the sample of networks, 64 of foreign origin have been excluded from the analyses due to a lack of data on their activities in the domestic market. Furthermore, six French networks were removed from the analyses for not having any units within the French territory. These pertain to future franchisors listed in the directory for strictly advertising purposes. The final sample therefore comprises 493 networks.

3.2 Methods

As an initial step, descriptive statistics and specifically t-test and Levene statistics will be used to reveal the significant differences existing between purely-domestic networks and international networks. The emphasis is primarily made on the plural form rate even though other differences in variables, such as network age, network size, and financial conditions of franchising contracts, are also observed.

As a second step, logistic regression models will be run to analyze the set of network internationalization factors. Here again, the focus mainly lies on the influence of plural form rate on network internationalization. In sum, logistic regression estimates the effect of explanatory variables that best predict the value of a dichotomous dependent variable, in this case internationalization. These estimates are interpreted as a representation of the differential odds of a network with international operations.

3.3 Variables

The dependent variable in the logistic regression models is internationalization (INT). This categorical variable is coded 1 for an international network and 0 for a purely domestic one. In the sample, a total of 139 networks (28.2%) are international, while the other 354 (71.8%) are purely domestic.

The plural form rate (PFR) is the independent variable of the logistic regression models and enables testing the research propositions. This rate corresponds to the percentage of company-owned units within the network. Small PFR values indicate that the network is predominantly franchised, whereas high values suggest it is mostly company-owned. The average plural form rate equals 40.8% with a standard deviation of 35.0 in the network sample. Table 1 presents the distribution of networks according to plural form rate when coded as a categorical variable like 0–10%, 10–20%, etc. Slightly fewer than one-third of all franchisors possess less than 10% company-owned units.

On the basis of past research findings, several control variables have been incorporated into the model. To begin with, the network age in years (AGE) and total network size in the French domestic market (SIZ) are used as control variables. Larger and older networks are assumed more likely to operate in international markets. Several authors (Walker and Etzel 1973; Hackett 1976; Eroglu 1992; Huszagh et al. 1992; Julian and Castrogiovanni 1995; Shane 1996) have pointed out the positive effect of network size and age on internationalization as a result of better skills in site selection, store layout, procurement and operational policies, enhanced brand name recognition and lower perceived risk.

Secondly, the franchising fee in thousands of euros (FEE) and royalties in percentage of total sales (ROY) are incorporated into the model as control variables. Elango (2007) recently tested the hypotheses of insignificant differences between international and purely-domestic networks in terms of franchising fee and royalties. Only the correlation with respect to the franchising fee however was supported by the empirical study findings. As a third step, the contract duration in years (DUR) was added along with a control variable since reference is being made to a certain

Table 1 Distribution of networks vs. their plural form rate

PFR between	Number of networks	Frequency (%)
0 and 10	144	29.2
10 and 20	49	9.9
20 and 30	41	8.3
30 and 40	33	6.7
40 and 50	46	9.3
50 and 60	18	3.7
60 and 70	38	7.7
70 and 80	32	6.5
80 and 90	31	6.3
90 and 100	61	12.4
Total	493	100

PFR: plural form rate

Table 2 Descriptive statistics

	N	m.	M.	Mean	St. dev.	PFR	AGE	SIZE	FEE	ROY	DUR
PFR	493	0	100	40.8	35.0	1					
AGE	489	0	100	12.8	12.1	-0.053	1				
SIZE	493	1	3861	80.6	214.0	-0.023	0.163***	1			
FEE	412	1	120	19.8	14.0	0.074	-0.075	-0.058	1		
ROY	303	0	38	4.4	4.3	0.203***	-0.122**	-0.022	-0.011	1	
DUR	465	1	99	6.0	4.7	0.096**	-0.043	-0.002	0.095	0.024	1

** : Significant at the 0.05 level

*** : Significant at the 0.01 level

St. dev.: Standard deviation, PFR: Plural form rate, AGE: Network age, SIZE: Network size, FEE: Franchising fee, ROY: Royalties, DUR: Contract duration

Table 3 Distribution of networks by industry type

		Number of networks	Frequency
FOO	Food-related businesses (supermarkets)	57	11.6
PER	Personal items/equipment (apparel networks)	96	19.5
HOM	Home equipment (furniture networks)	36	7.3
OTH	Other retail businesses (florist networks)	61	12.4
H& R	Hotels and restaurants	52	10.5
CAR	Automobile services	28	5.7
SEP	Personal services	149	30.2
SEC	Corporate services	8	1.6
HOU	Residential building (construction networks)	6	1.2
	Total	493	100.0

stability in the franchisor/franchisee relationship and stability in the network, in addition to a future orientation. Fourthly, industry-sector effects are controlled using categorical variables representing the type of industry to which the network belongs. The potential for conducting international operations actually varies from one industry to the next (Julian and Castrogiovanni 1995).

Descriptive statistics of the variables discussed above, along with corresponding correlation values, are listed in Table 2. The correlation values of independent variables indicate that the likelihood of multicollinearity invalidating these research findings remains minimal. Table 3 will then depict the distribution of networks by industry type.

4 Results

4.1 Results of the t-Tests and Levene Statistics

The results from t-tests and Levene statistics have been reported in Table 4. International and purely-domestic networks display significant differences regarding the plural form rate. More specifically, international networks show a distinctly smaller

Table 4 Results from the t-test and Levene statistics

Variable		Purely-domestic networks INT = 0	International networks INT = 1
PFR	Mean	43.3	34.6
	St. dev.	35.8	32.2
	N	354	139
	F; sig	6.291; 0.012	
	T; sig	2.608; 0.010	
	Significance of the difference	YES	
AGE	Mean	10.5	18.4
	St. dev.	9.8	15.1
	N	351	138
	F; sig	20.273; 0.000	
	T; sig	-5.722; 0.000	
	Significance of the difference	YES	
SIZ	Mean	50.6	156.9
	St. dev.	112.7	350.1
	N	354	139
	F; sig	25.331; 0.000	
	T; sig	-3.511; 0.001	
	Significance of the difference	YES	
FEE	Mean	19.9	19.4
	St. dev.	14.5	12.6
	N	299	113
	F; sig	0.537; 0.464	
	T; sig	0.280; 0.779	
	Significance of the difference	NO	
ROY	Mean	4.5	4.2
	St. dev.	4.4	3.9
	N	227	76
	F; sig	0.661; 0.417	
	T; sig	0.527; 0.599	
	Significance of the difference	NO	
DUR	Mean	6.0	5.9
	St. dev.	5.5	2.0
	N	333	132
	F; sig	0.125; 0.724	
	T; sig	0.217; 0.828	
	Significance of the difference	NO	

PFR: Plural form rate, AGE: Network age, SIZE: Network size, FEE: Franchising fee, ROY: Royalties, DUR: Contract duration

rate (34.6%) than the purely-domestic networks (43.3%). In other words, international networks have fewer company-owned units than purely-domestic networks within their local market.

Other significant differences are found in terms of network age and size. International networks are older (18.4 vs. 10.5 years) and larger (156.9 vs. 50.6 units) than

Table 5 Results from logistic regressions

	Model 1	Model 2
PFR		-0.014***
AGE	0.064***	0.063***
SIZ	0.008***	0.008***
FEE	0.008	0.013
ROY	-0.005	0.007
DUR	0.000	0.008
FOO	-0.751	-0.585
PER	-0.370	0.142
HOM	-1.841	-1.787
OTH	-0.614	-0.520
H&R	-1.290	-1.043
CAR	-0.697	-0.693
SEP	-0.790	-0.714
SEC	-20.516	-20.513
HOU		
Constant	-1.856*	-1.734
Pseudo R ²	0.324	0.349
Correctly classified	80.6%	80.6%
Chi-Square	67.664***	73.637***
Sample	273	273

*: Significant at the 0.10 level; **: Significant at the 0.05 level, ***: Significant at the 0.01 level

PFR: Plural form rate, AGE: Network age, SIZE: Network size, FEE: Franchising fee, ROY: Royalties, DUR: Contract duration, FOO: Food-related businesses, PER: Personal items/equipment, HOM: Home equipment, OTH: Other retail businesses, H&R: Hotels and restaurants, CAR: Automobile services, SEP: Personal services, SEC: Corporate services, HOU: Residential building

their domestic counterparts. Nonetheless, no significant difference appears between international and purely-domestic networks as far as franchising fee, royalties and contract duration are concerned.

4.2 Results of Logistic Regressions

Logistic regression results are shown in Table 5. Model 1 only includes the control variables, whereas Model 2 allows testing the propositions for the significant and positive influence of plural form on internationalization. The pseudo R² of Model 2, with a value of 34.9%, is satisfactory. Moreover, 80.6% of the networks are considered as well-classified using this model. The PFR variable has a significant impact on internationalization at the 0.01 level. P1 thus receives statistical support, although this impact is negative. The plural form rate is indeed inversely related to the decision to internationalize the network. P2 is therefore contradicted.

5 Conclusion

5.1 Discussion of Findings

This empirical study involving 493 French networks, with a 28.2% ratio of international networks, has underscored significant differences existing between international networks and purely-domestic networks in terms of plural form. The average plural form rate for networks with operations abroad amounts to 34.6%, in comparison with 43.3% for purely-domestic networks. Furthermore, logistic regression results have revealed the significant and negative impact of plural form on internationalization. *P1 (Plural form exerts a significant influence on network internationalization)* is therefore supported. On the other hand, *P2 (The influence of plural form on network internationalization is positive)* has been contradicted.

These findings may seem surprising since the previous literature on plural form has noted the synergies (Bradach 1997, 1998; Ehrmann and Spranger 2004) generated by combining franchising and company ownership within the same network. It could have been surmised that these synergies would lead to a higher propensity for networks to internationalize. On the one hand, a strong position in the domestic market, through a large number of company-owned units, could be seen to favor network internationalization thanks to knowledge acquisition, etc. Moreover, it could be construed that plural form facilitates the choice of entry modes to foreign markets. While on the other hand, the empirical study shows that as the number of company-owned units in the network rises, the network is less likely to internationalize. Presented below are some of the pertinent explanatory elements.

First of all, if the franchisor is oriented towards company ownership in the domestic market, the priority focus will lie on network development and control within this market. Even in a domestic market, company ownership is more time- and effort-consuming than franchising for the franchisor, since the overall network level must be considered. While a franchising-oriented franchisor would take these same steps, company ownership requires in addition dealing with each unit of the network. As a consequence, the efforts expended to manage and monitor company-owned units within the domestic market can slow the internationalization process.

Second, if the franchisor is oriented towards company ownership in the domestic market, financial and human resources will mainly be allocated to this domestic market. Resources allocated to opening new company-owned units, to unit manager wages, etc. can reduce the possibilities available to invest money and personnel in exploring foreign market opportunities and then entering these markets.

Third, franchising and internationalization are both associated with the notion of risk. Signing a franchising contract implies some risks for franchisors since they are providing a brand name, know-how, etc. to agents that can free-ride (Kidwell et al. 2007). These risks include noncompliance with quality standards and commercial procedures. Yet, going abroad also implies risks for franchisors, as they cannot export the initial concept without introducing any changes. They must adapt the concept to local conditions, to customer tastes, to the legal framework, etc. Franchisors

that mainly rely on company ownership are thus less oriented towards risk-taking than those who prefer franchising. Consequently, they are less likely to internationalize their network.

As a conclusion, a substitution effect is apparently at work. In other words, if a franchisor invests in the network through ownership of units, the opportunities offered by foreign markets will not be adequately explored. This substitution effect concerns financial resources, human resources and efforts in terms of stimulation, control, etc. Furthermore, a risk-taking orientation can help explain the simultaneous preference for franchising and internationalization.

5.2 Managerial Implications and Research Contributions

As regards managerial implications, this paper has emphasized the fact that when a franchisor focuses on company ownership within the domestic market, network internationalization is less likely. Yet this strong position in the domestic market through company-owned units that provide information and knowledge on the local environment (which enable testing innovations and training new franchisees, etc.) could favor the internationalization process. The franchisor could use this experience acquired through company ownership to go abroad, either directly (e.g. by asking managers of company-owned units already familiar with network principles to manage units in new markets) or through franchising (by using the strong domestic market position to attract and recruit new foreign franchisees). This strong domestic position could serve as a sign in building up a brand image in foreign markets. The presence of a substitution effect has been previously mentioned. Nevertheless, franchisors would not have to consider company ownership and internationalization as two opposing strategies. A learning effect is introduced: knowledge directly acquired in the domestic market through the managers of company-owned units can serve to expand the network abroad.

This paper serves to broaden the literature on plural form. As opposed to many papers that champion the advantages of plural form, this contribution has focused on a kind of plural form limitation in the sense that as the network becomes more plural, it is less internationalized. The findings from the present research are consistent with some of the figures provided by Dant et al. (2008) in a recent paper about a cross-cultural comparison of plural forms in franchise networks. The authors noticed that the plural form rate of international networks was less than that of purely-domestic networks. More specifically, in working on 1,318 networks from the United States, France and Brazil, they found that the average plural form rate was equal to 31.2% for the purely-domestic networks and 20.0% for international networks. The same trend was also found in these three countries when taken separately. More research is required to fully explore this surprising relationship.

5.3 Research Limitations and Outlook

The present research naturally contains some limitations. First, the empirical study has been confined to just a single country, France. Even though franchising is particularly well developed in this country, it would still be relevant to explore the same research question, i.e. the existence of a significant and negative link between the plural form rate and network internationalization, within another context, most likely the United States. These two countries represent big franchising markets and many U.S. networks are international. It would also be worthwhile to determine if the impact of plural form on internationalization remains significant and negative in the U.S. context and then compare results from this multicountry analysis. Second, the empirical study relies on cross-sectional data. A longitudinal approach over several years would be relevant for considering the process of international franchising, despite the fact that the plural form rate remains mostly constant after 8 years (Lafontaine and Shaw 2005). Third, another limitation pertains to the consideration that plural form influences internationalization and not the other way around. It is indeed felt that the organizational form of the network in the domestic market constitutes a strategic choice prior to the internationalization decision. Future investigations could explore the two directions of this relationship. Fourth, another track for future research has to do with the notion of risk. It may be assumed that franchising and internationalization are both oriented towards risk-taking. It would now be relevant to pursue this course, for instance by interviewing franchisors in the aim of drawing their profile in terms of risk-taking orientation, entrepreneurship, etc. It would then be valuable to examine their profile alongside their internationalization process relative to presence in foreign markets or not, choice of country (risk levels in terms of economics, politics, etc.), modes of entry, etc.

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Knowledge Management, Trust and Strategic Management Issues

The Knowledge Transfer Strategy of Franchising Firms: Evidence from the Austrian Franchise Sector

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Abstract The paper provides a property rights view on the knowledge transfer strategy of franchising firms. Starting from the information richness theory, we argue that the degree of contractibility of system knowledge determines the information richness of the knowledge transfer mechanism of franchising firms. The lower the contractibility of knowledge, the more knowledge transfer mechanisms with a high degree of information richness are used, such as training, visits and meetings. We examine the following hypotheses: (1) If the franchisor's knowledge is contractible/explicit, knowledge transfer mechanisms with a lower degree of information richness are used. (2) If the franchisor's knowledge is noncontractible/tacit, knowledge transfer mechanisms with a higher degree of information richness are used. (3) If the franchisor's knowledge is partly contractible and partly noncontractible, knowledge transfer mechanisms with a high and low degree of information richness are used. We test these hypotheses by using data from 83 franchising firms in the Austrian franchise sector. The data provide support for the hypotheses.

Keywords: Knowledge transfer · Information richness · Property rights theory · Contractibility · Franchising

1 Introduction

The success of franchising networks, strategic alliances, joint ventures and clusters is highly dependent on the capability to create and transfer knowledge within the network (Albino et al. 1999; Maskell and Malmberg 1999; Hult et al. 2006).

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Franchising networks require the transfer of system-specific know-how to franchisees to create a network of successful franchised outlets. Higher efficiency of the network partners results in a higher residual surplus for the whole system. Thus, a successful replication of the business concept by the franchisees and managers of the local outlets is a key to realize competitive advantage (Argote and Ingram 2000; Winter 1987). This requires an efficient governance of the knowledge transfer from the franchisor to the franchisees. The franchisor can use a variety of transfer mechanisms: Training, conference meetings, councils, committees, outlet visits, telephone, fax, intra- and internet and other electronic transfer mechanisms. The paper addresses the issue of the choice of knowledge transfer mechanisms in franchising networks.

In previous years a large number of researchers in organization theory and management examined knowledge transfer within and across organizational boundaries using information (media) richness theory and the knowledge-based view of a firm. The first attempt was to answer the questions of how to reduce ambiguity in order to facilitate the transfer of information (Daft and Lengel 1986; Russ et al. 1990; Dennis and Kinney 1998; Sheer and Chen 2004). The knowledge based view of the firm (Barney 1991; Kogut and Zander 1993; Nonaka et al. 1996; Connor and Prahalad 1996) argues that gaining competitive advantage by setting up networks requires effective mechanisms to facilitate interorganizational transfer of tacit and explicit knowledge (Zander and Kogut 1995; Inkpen 1996; Håkanson 2005). In this paper we develop a property rights approach that integrates results from the knowledge based view of the firm and information richness theory. We argue that differentiation between tacit and explicit knowledge in the knowledge based theory is closely related to the concept of contractibility of knowledge in the property rights theory. In addition, information richness theory offers a criteria ("information richness" (IR)) to differentiate knowledge transfer mechanisms according to their information processing (knowledge transfer) capacity. In franchising, knowledge transfer mechanism with a relatively higher degree of information richness are training, conference meetings, councils and committees, visits of the outlets; and knowledge transfer mechanisms with a relatively lower degree of information richness are fax, phone, intra- and internet and other electronic transfer mechanisms. According to the property rights theory, contractibility of knowledge determines IR of the knowledge transfer mechanisms. The thesis of our paper is: The higher the noncontractibility of the franchisor's system knowledge, the more knowledge transfer mechanisms with a higher degree of IR should be used to facilitate an efficient knowledge transfer from franchisor to franchisees.

The article is organized as follows: Section 2 reviews the relevant literature related to knowledge transfer in networks. In Sect. 3 we develop the property rights view of knowledge transfer mechanisms and derive testable hypotheses. Finally, we test the hypotheses that the choice of knowledge transfer mechanisms in franchising depends on the contractibility of knowledge using data from the Austrian franchise sector.

2 Relevant Literature

Research on information and knowledge transfer in organization started with the information richness theory in the 1980s (Daft and Macintosh 1981; Daft and Lengel 1984, 1986; Trevino et al. 1987; Daft et al. 1987; Russ et al. 1990; Sheer and Chen 2004). According to this view, effective communication requires a fit between task ambiguity/equivocality and 'richness' of the communication media. Recent studies extend this view to new electronic communication media (Lim and Benbasat 2000; Büchel and Raub 2001; Sexton et al. 2003). However, information richness theory cannot explain the knowledge transfer, because it does not relate the concept of information richness to the characteristics of knowledge. Since the 1990s many researchers in the field of the knowledge based view of the firm have examined the problem of internal and inter-organizational knowledge transfer (Zander and Kogut 1995; Nonaka 1994; Mowery et al. 1996; Szulanski 1995; 2000; Baum and Ingram 1998; Simonin 1999a,b; Argote 1999; Albino et al. 1999; Argote et al. 2003; Bresman et al. 1999; Nonaka et al. 2003; Gertler 2003; Moffat and Archer 2004). Starting from Polanyi's knowledge concept (Polanyi 1962), they investigated knowledge transfer in organizations and networks. According to the knowledge based view of the firm, tacitness positively varies with the difficulty of knowledge transfer. On the other hand, most of this literature does not investigate the relationship between knowledge characteristics and knowledge transfer mechanism. Inkpen and Dinur (Inkpen 1996; Inkpen and Dinur 1998) are an exemption. They go further by analyzing the relationship between knowledge characteristics and knowledge transfer mechanisms in international joint ventures. However, they do not develop a more general approach that explains the relationship between knowledge types and knowledge transfer mechanisms in networks.

Although franchising has been treated extensively in organization economics, management and marketing in the last decade, the problem of knowledge transfer between the franchisor and franchisees remains largely unexplored (Darr et al. 1995; Paswan and Wittmann 2003; Paswan et al. 2004). Darr et al. (1995) examine the transfer of knowledge between franchisee-owned outlets by using reports, phone calls, personal acquaintances and meetings as transfer mechanisms. The study shows that knowledge is primarily transferred across stores owned by the same franchisee but not across stores owned by different franchisees because the frequencies of phone calls, personal acquaintances and meetings are significantly higher in the case of stores owned by the same franchisee compared to stores owned by different franchisees. Furthermore, Paswan and Wittmann (2003) argue that franchising firms as network organizations characterized by dense social contacts have the potential to benefit greatly from knowledge created by its distributed network members. This is compatible with Kogut and Zander's view (Zander and Kogut 1995) who point out that social relations among the network partners may support the transfer of tacit knowledge. However, Paswan et al. (2004) do not investigate the problem of the choice of knowledge transfer mechanisms in the network.

In sum, the existing studies have the following theoretical and empirical deficits: Firstly, they do not offer a theoretical framework for the explanation of the knowledge transfer mechanisms in networks, and, secondly, they do not develop and test hypotheses about knowledge transfer mechanisms in franchising networks. Starting from this gap, the objective of our paper is to develop a property rights approach on the choice of knowledge transfer mechanisms that integrates results from the knowledge based view of the firm and the information richness theory. Our main contribution to the literature is to apply the property rights theory to explain knowledge transfer mechanisms in franchising networks. Further, our study utilizes primary data from Austrian franchise systems that enables us to estimate the factors which the theory considers affect the choice of knowledge transfer mechanism. We present the first empirical evidence that the information richness of knowledge transfer mechanisms in franchising is positively related to the noncontractibility of system-knowledge. Consequently, this research advances the theoretical aspect of knowledge transfer in networks by stating that the choice of knowledge transfer mechanisms depends on the contractibility of knowledge.

3 Theory Development

Since our property rights approach uses the concept of information richness to operationalize the knowledge transfer capacity, first we discuss the main proposition of the information richness theory.

3.1 Information Richness Theory

The information richness (IR) concept was developed by Daft and Lengel (Daft and Lengel 1984, 1986). IR-theory examines the question, which communication (knowledge transfer) mechanisms are effective under different degrees of ambiguity (or equivocality) of the communication task (Daft et al. 1987). An effective knowledge transfer requires a fit between IR of the communication mechanism and the information processing requirements of the task (Sheer and Chen 2004). The information processing requirements directly vary with the task ambiguity. “Richness” consists of four attributes of the communication mechanism: feedback capability, availability of multiple cues (voice, body, gestures, words), language variety, and personal focus (emotions, feelings). The more of these attributes a mechanism possesses, the higher is the degree of IR of the mechanism, and the greater is their capacity to handle ambiguity and hence the knowledge transfer capacity. Knowledge transfer mechanisms with a high degree of IR refer to face-to-face interactions and team-based mechanisms (meetings, trainings, seminars, workshops, visits) and knowledge transfer mechanism with a low degree of IR refer to written media, manuals, reports, data base and written instructions. Face-to-face is the richest

communication mechanism because it has the capacity for direct experience, multiple information cues, immediate feedback and personal focus. Written impersonalized documents, like standardized computer reports, databases, computer prints, are the media with the lowest information richness level. There is no opportunity for feedback and these documents have quantitative nature. The information richness theory can be summarized by the following proposition: The higher the task ambiguity, the more rich knowledge transfer mechanisms are needed for an effective knowledge transfer.

3.2 A Property Rights View on Knowledge Transfer Mechanisms

According to the property rights theory, the characteristic relevant for the determination of the efficient knowledge governance mechanisms is the degree of contractibility of knowledge (Hart and Moore 1990; Brynjolfsson 1994; Hart 1995; Baker and Hubbard 2003, 2004; Lerner and Malmendier 2005). If the knowledge is explicit and hence codifiable, all relevant information on actions and environment can be written down in contracts. In this case, knowledge can be efficiently transferred by using low-IR-knowledge transfer mechanisms. If the knowledge is tacit and hence difficult to codify, contracts are incomplete because not all relevant knowledge and actions can be written down. In this case, higher-IR-transfer mechanisms are needed to process and transfer the noncontractible component of knowledge. This is compatible with Teece' view (Teece 1985: 229): "Tacit knowledge is extremely difficult to transfer without...teaching, demonstration and participation". Therefore, as non-contractibility of knowledge increases by degree, a larger knowledge transfer capacity and hence more higher-IR-knowledge transfer mechanisms are required for an efficient knowledge transfer. Furthermore, Berry and Broadbent (1987), Argote (1999) and Almeida and Kogut (1999) argue that high-IR-mechanisms facilitate both the transfer of tacit and explicit knowledge because of the complementarity between tacit and explicit knowledge. In sum, the property rights view can be stated by the following proposition: The more noncontractible the knowledge is, the more knowledge transfer mechanisms with a higher degree of IR are needed to facilitate an efficient knowledge transfer.

Now we apply this approach to the choice of knowledge transfer mechanisms in franchising networks. We start with an example by comparing three knowledge situations and ask the question which knowledge transfer mechanisms should be used (see Fig. 1).

First, we assume that the system knowledge of the franchisor is codified in reports, manuals and databases. For instance, depending on the characteristics of the franchise system a more codifiable system knowledge refers to the application of rules for cost accounting, pricing and quality control. With a high-contractibility component the system knowledge can be easily transferred by using lower-IR-mechanisms (for instance postal mailings, fax, intra- and internet and other electronic transfer mechanisms) (see FIT I in Fig. 1).

	Lower-IR-Knowledge Transfer Mechanisms	Higher-IR-Knowledge Transfer Mechanisms
Contractible Knowledge	FIT I Postal mailings fax, phone intra- and internet	MISFIT II
Noncontractible Knowledge	MISFIT I	FIT II Training, outlet visits, conferences, committees, councils

Fig. 1 Relationship between knowledge transfer mechanisms and contractibility of knowledge

Second, we assume that the system-specific knowledge is not codifiable. For instance, a more tacit system knowledge refers to the application of rules and procedures concerning the production of goods or promotion and customer service. In this case, most of the franchisor’s knowledge and organizational capabilities reside within persons and groups in the franchisor’s headquarters and at the outlets. With a high-noncontractibility component the system-specific knowledge can only be transferred by using more higher-IR-mechanisms (for instance training, meetings, visits, committees, councils) (see FIT II in Fig. 1).

If these fit conditions are not fulfilled, the following inefficiencies may arise (Russ et al. 1990): (a) MISFIT I: If the franchisor’s system-specific knowledge is mainly tacit, the knowledge is not efficiently transferred to the franchisees by using low-IR mechanisms. In this case, the franchisees are unable to understand and adequately apply the noncontractible system know-how because it is based on organizational capabilities of employees and groups in the headquarters and at the company-owned outlets. (b) MISFIT II: If the franchisor’s knowledge is codifiable, it is not efficiently transferred by using high-IR mechanisms. Although high-IR-mechanisms facilitate the transfer of contractible knowledge, it is not efficient because high knowledge transfer costs arise due to the high set-up costs of high-IR-mechanisms. In addition, due to behavioral uncertainty the risk of information selection and manipulation increases uncertainty under personal knowledge transfer mechanisms.

Third, we assume that the system-specific knowledge of the franchisor is partly contractible and partly noncontractible. Further we assume that the explicit part is codified in manuals, reports, and databases and additional system-specific knowledge resides within the managers, employees and teams in the franchisor’s headquarters and the outlets. Although codified manuals, reports and databases exist, their utility for franchisees is relatively low because they cannot adequately apply the codified part of the system-specific knowledge because this requires

specific organizational capabilities. If in this case the franchisor only adopts lower-IR-knowledge transfer mechanisms, the franchisees are unable to adequately understand and apply the requisite system knowledge. Consequently, since a large part of the system knowledge to be transferred to the franchisees is noncontractible, low-IR-mechanisms are insufficient to facilitate the transfer of the requisite knowledge. In this case, both low- and high-IR mechanisms are needed to efficiently transfer the system knowledge. For instance, training, visits and meetings would facilitate the transfer of the more-tacit component of knowledge and thereby also improve the understanding of the more-explicit-component of the system knowledge.

As a result, the property rights proposition can be stated as follows: The more noncontractible the system knowledge of the franchisor, the more higher-IR-transfer mechanisms are needed for an efficient knowledge transfer; and the more contractible the system knowledge, the more lower-IR-transfer mechanisms are needed for an efficient knowledge transfer. Therefore the following testable hypothesis can be derived:

- H1: The less contractible the knowledge of the franchisor, the more higher-IR-mechanisms relative to lower-IR mechanisms are used. Further, we can derive two sub-hypotheses:
- H1A): If the franchisor's knowledge is more contractible, more knowledge transfer mechanisms with a lower degree of IR are used.
- H1B): If the franchisor's knowledge is more noncontractible/tacit, more knowledge transfer mechanisms with a higher degree of IR are used.

After having presented a property rights approach on the choice of knowledge transfer mechanism, we can answer the question, which relationship does exist between the information richness theory and the property rights view. As argued above, information richness theory examines the influence of task ambiguity on the choice of the knowledge transfer mechanism and the PR-theory examines the influence of noncontractibility of knowledge on the choice of knowledge transfer mechanism. Following Simonin (1999a), we argue that tacitness and hence noncontractibility of knowledge is an antecedent of task ambiguity. Hence the more noncontractible the franchisor's system-specific knowledge, the higher the level of ambiguity. Greater levels of ambiguity, and therefore increased difficulty of transferring knowledge to the franchisees, are associated with aspects of system-specific knowledge that are less contractible.

4 Methodology

4.1 Sample and Data Collection

The empirical setting for testing the hypotheses are the franchising firms in Austria. We used a questionnaire to collect data from 299 franchise systems in Austria. The data was collected between October 2000 and March 2001. The questionnaire was

sent out by mail to the general managers of the franchise systems in October 2000 and March 2001. The questionnaire took approximately 10 min to complete on the average. We received 83 completed responses; hence the response rate is 27.7%. To trace nonresponse bias, we investigated whether the results obtained from analysis were driven by differences between the group of respondents and the group of non-respondents. Nonresponse bias was measured by comparing two groups of responders (October and March) (Armstrong and Overton 1977). No significant differences emerged between the two groups of respondents.

4.2 Measurement

To test the hypotheses the following variables are important: Information richness of knowledge transfer mechanisms, characteristics of knowledge, and sector as control variable (see Table 1).

4.2.1 Information Richness

Information richness is measured by the extent to which the franchisors use intra- and internet, fax, phone, initial and annual training, annual meetings between

Table 1 Measures of variables

LIR	To which extent does the franchisor use knowledge transfer mechanisms with a lower degree of IR: (intra- and internet, fax, telephone) (no extent 1–7 to a very large extent)
HIR	To which extent does the franchisor use knowledge transfer mechanisms with a higher degree of IR: (initial and annual training, conference meetings between franchisor and franchisees, committees and councils, outlet visits) (no extent 1–7 to a very large extent)
RELHIR	Extent of use of higher-IR- relative to lower-IR-knowledge transfer mechanisms
Codifiability (COD)	The franchisor has to evaluate codifiability on a 5 point scale: COD1: Large parts of the business processes between the headquarters and the outlets can be carried out by using information technology COD2: We have an extensive documentation describing critical parts of the business processes in the system
Teachability (TEACH)	The franchisor has to evaluate teachability on a 5 point scale: TEACH1: Franchisees can easily learn the main procedures and activities through personal support and personal discussions with the employees of the franchisor TEACH2: Franchisees can easily learn the procedures and activities by reading the franchisor’s handbook
Sector (SEC)	0: Product and distribution franchising; 1: service franchising

franchisors and franchisees, councils and committees, and franchisors' visits to franchisees outlets. The franchisors were asked to rate the use of these mechanisms on a seven-point scale. The higher the score, the higher is the franchisor's use of a certain mechanism. Based on the information richness theory, we construct indicators for the use of lower-IR-mechanisms (LIR) like intra- and internet, fax, phone and for the use of higher-IR mechanisms (HIR) like initial training for the opening of franchisees outlets, annual training, annual meetings between franchisors and franchisees, councils and committees, and franchisors' visits to franchisees outlets.

4.2.2 Knowledge Characteristics

Knowledge characteristics are classified on a continuum that ranges from explicit to tacit knowledge (Winter 1987; Inkpen and Dinur 1998). Tacit knowledge was defined by Polanyi (1962) as intuitive and unarticulated. Tacit knowledge is difficult to formalize and communicate (Nonaka 1994; Nonaka et al. 2000) and explicit knowledge can be codified and easily transmitted. Winter (1987) points out that transfer of tacit knowledge, if possible at all, requires teaching. For instance, if the system knowledge of the franchisor cannot be taught, the franchisees cannot acquire and apply the requisite knowledge to efficiently manage the local outlets. Hence contractibility refers to two dimensions: codifiability and teachability. Codifiability (COD) is used as a measure for contractible/explicit knowledge and teachability (TEACH) as a measure for noncontractible/tacit knowledge. Codifiability refers to the ease by which knowledge is expressed in language, formal procedures, explicit techniques and manuals, and teachability refers to the ease by which knowledge can be expressed in personal interactions and experience (Zhang and Faerman 2004). We use formative indicators because the constructs are produced by the indicators representing the domain of the content (Edwards and Bagozzi 2000; Diamantopoulos and Winkelhofer 2001). Adapted from Zander and Kogut (1995), we use two-item scales to measure codifiability and teachability (see Table 1). The higher COD, the more contractible system-specific knowledge is used, and the higher TEACH, the more noncontractible system-specific knowledge is used in the network.

4.2.3 Control Variable

Since the know-how intensity of franchising firms varies between product/distribution and service firms (Zeithaml et al. 1985), we include a sectoral variable (SEC) to check for sectoral effects. 0 refers to product and distribution franchising and 1 to the service sector. Since the firms in the service sector are characterized by a higher fraction of noncontractible system-specific knowledge compared to the product franchising firms, franchisors in the service sector should use a relatively higher proportion of high-IR mechanisms.

5 Results

5.1 Sample Description

Tables 2 and 3 present descriptive data for the sample in Austria.

5.2 Test of Hypotheses

To test the hypotheses we carry out a regression analysis. First we test hypothesis 1 by using OLS regression and second we test hypotheses 1a and 1b by using ordinal regression.

Table 2 Characteristics of the Franchise Systems (based on the Survey of the Austrian Franchise Association 2001)

	Minimum	Maximum	Mean	Std. deviation	
Sector – 0: product and distribution, 1: services	83	0	1	0.59	0.495
Number of outlets	82	2.00	172.00	28.0600	34.35197
Age of the franchise system in Austria	79	1.00	78.00	11.9873	11.14760
Number of franchisees	79	1	159	21.25	28.515
Percentage of franchised outlets	79	14.53	99.38	71.9679	24.79448

Table 3 Knowledge transfer modes and knowledge characteristics

	Minimum	Maximum	Mean	Std. deviation
Intra-and internet	1	7	4.00	2.295
Fax	1	7	4.22	1.976
Phone	1	7	5.20	1.591
Initial training	1	7	6.42	1.298
Annual training	1	7	5.22	1.506
Conference meetings	1	7	5.66	1.618
Councils, committees	1	7	3.31	2.230
Franchisors' outlet visits	1	7	5.84	1.384
COD1	1	5	3.80	1.187
COD2	1	5	3.39	1.386
TEACH1	2	5	4.58	.683
TEACH2	1	5	3.78	1.169
COD	1	5	3.58	1.089
TEACH	1.5	5	4.18	.787

5.2.1 Hypothesis 1

We conduct an OLS regression analysis with RELHIR as independent variable measuring the extent of the use of higher-IR-mechanisms (HIR) relative to lower-IR mechanisms (LIR). HIR refers to the use of meetings between the franchisor and the franchisees, initial and annual training, councils and committees and franchisor visits, and lower-IR-mechanisms (LIR) refers to the use of intranet, internet, fax and phone. The franchisors were asked to rate the use of higher-IR- and lower-IR-mechanisms (HIR, LIR) on a seven-point scale. By averaging the scale values we constructed HIR- and LIR-indicators. The dependent variable is modelled as the natural log of the ratio of HIR divided by LIR. The explanatory variables refer to codifiability of knowledge (COD), teachability of knowledge (TEACH), and the sectoral dummy variable (SEC). Therefore, we estimate the following regression equation:

RELHIR = alpha + beta1 COD + beta2 TEACH + beta3 SEC. (1)

Based on our property rights view, RELHIR varies negatively with codifiability (COD) and positively with teachability (TEACH). Hence beta1 has a negative and beta2 has a positive sign. Further, we include a control variable (SEC). Since service franchising firms have a higher fraction of noncontractible system-specific knowledge, the use of higher-IR mechanisms should be higher in the service sector than in product franchising sector; hence beta3 should have a positive sign. Table 4 presents the correlations of the variables used in the regression analysis. We do not find any collinearity indication. Table 5 reports the result of OLS regression analysis. Model fit is acceptable with F value = 4.083 and R2 = 0.134. The coefficients of teachability and codifiability (TEACH, COD) are significant and consistent with our hypothesis. An increase in teachability of knowledge implies the use of more higher-IR-mechanisms and an increase of codifiability implies the use of more lower-IR-mechanisms. The coefficient of the sectoral variable is not significant.

Table 4 Correlations

Table with 4 columns: Variable, SEC, TEACH, COD. Rows: SEC, TEACH, COD. Values: SEC (1), TEACH (.130, 1), COD (.151, .250, 1)

Table 5 OLS regression

Table with 5 columns: OLS Regression RELHIR, B, Std. dev., Sig., Model statistics. Rows: COD, TEACH, SEC. Values: COD (B: -.144, Std. dev.: .050, Sig.: .005), TEACH (B: .177, Std. dev.: .069, Sig.: .013), SEC (B: -.050, Std. dev.: .108, Sig.: .644). Model statistics: N = 83, F = 4.083, R square = 0.134

5.2.2 Hypotheses 1a and 1b

Since lower-IR-mechanisms are primarily used when the knowledge is more codifiable, and higher-information rich mechanisms are used when the knowledge is more teachable, we estimate the influence of COD on the use of lower-IR-mechanisms (LIR) and of TEACH on the use of higher-IR-mechanisms (HIR), separately. To test the hypotheses 1a and 1b, we conduct an ordinal regression with HIR and LIR as dependent variable. We constructed an ordinal HIR- and LIR- variable varying between 1 and 7.

$$\text{LIR} = \alpha + \beta_1 \text{COD} + \beta_3 \text{SEC}, \tag{2}$$

$$\text{HIR} = \alpha + \beta_1 \text{COD} + \beta_2 \text{TEACH} + \beta_3 \text{SEC}. \tag{3}$$

Table 6 Ordinal regression – lower-IR and higher-IR knowledge transfer mechanisms

Ordinal regression	Model		Estimate	Std. dev.	Sig.	Model statistics
LIR (Model 1)	Threshold	[1.00]	-.436	.764	.568	<i>N</i> = 83 Model Chi – square = 14.864 (<i>p</i> < 0.001) –2 Log likelihood = 150.468 Nagelkerke <i>R</i> square = 0.17
		[2.00]	.577	.707	.415	
		[3.00]	1.682	.715	.019	
		[4.00]	2.789	.757	.000	
		[5.00]	4.105	.818	.000	
		[6.00]	6.539	1.076	.000	
	COD		.733	.197	.000	
	SEC		-.081	.402	.841	
LIR (Model 2)	Threshold	[1.00]	-1.219	1.189	.305	<i>N</i> = 83 Model Chi – square = 15.729 (<i>p</i> < 0.001) –2 Log likelihood = 226.887 Nagelkerke <i>R</i> square = 0.18
		[2.00]	-.193	1.146	.867	
		[3.00]	.931	1.143	.415	
		[4.00]	2.038	1.161	.079	
		[5.00]	3.349	1.194	.005	
		[6.00]	5.796	1.381	.000	
	COD		.781	.203	.000	
	SEC		-.056	.404	.889	
TEACH		-.229	.260	.378		
HIR (Model 3)	Threshold	[2.00]	-1.389	1.454	.339	<i>N</i> = 83 Model Chi – square = 9.421 (<i>p</i> < 0.001) –2 Log likelihood = 85.653 Nagelkerke <i>R</i> square = 0.12
		[3.00]	.739	1.128	.512	
		[4.00]	2.504	1.143	.028	
		[5.00]	4.642	1.221	.000	
		[6.00]	6.761	1.347	.000	
	SEC		-.292	.418	.485	
	TEACH		.839	.276	.002	
HIR (Model 4)	Threshold	[2.00]	-.779	1.519	.608	<i>N</i> = 83 Model Chi – square = 12.142 (<i>p</i> < 0.001) –2 Log likelihood = 170.47 Nagelkerke <i>R</i> Square = 0.15
		[3.00]	1.349	1.209	.264	
		[4.00]	3.135	1.228	.011	
		[5.00]	5.337	1.321	.000	
		[6.00]	7.468	1.449	.000	
	SEC		-.377	.423	.373	
	TEACH		.717	.280	.010	
COD		.337	.199	.091		

According to H1a and H1b, LIR varies positively with COD and HIR varies positively with TEACH. According to the property rights view, LIR does not vary with TEACH because less contractible knowledge cannot be transferred by using lower-IR-mechanisms. Hence β_1 is positive in (2). In addition, we include both COD and TEACH in (3) because higher-IR-mechanisms may facilitate both the transfer of explicit and tacit knowledge (Argote 1999). Hence HIR varies positively with TEACH and COD; β_1 and β_2 have a positive sign in (3).

The regression equation is estimated in two steps: First we test the influence of COD on LIR according to (2) and of TEACH on HIR according to (3), and second we include both TEACH and COD in both equations. Results of the ordinal regressions are provided in Table 6.

The fit of the models is tested based on the log of the likelihood ratio. The chi-square values are significant at $p < 0.01$ thus rejecting the null hypothesis that the estimated coefficients are zero. The data supports our hypotheses. The coefficients of teachability and codifiability (TEACH, COD) are significant and consistent with our hypotheses 1a and 1b. Consistent with the property rights view, the knowledge transfer is governed by more lower-IR-mechanisms, if codifiability of knowledge increases, and by more higher-IR-mechanisms, if teachability of knowledge increases. In addition, the data supports the view that higher-IR-mechanisms facilitate both the transfer of codifiable and tacit knowledge (see model 4, Table 6). On the other hand, the impact of TEACH on LIR is not significant, because noncontractible knowledge cannot be transferred by using lower-IR-mechanisms (see model 2).

6 Conclusion and Discussion

The goal of the paper is to provide a property rights explanation on the choice of knowledge transfer mechanisms in franchising networks. According to the property rights view, the knowledge transfer from franchisor to franchisee is governed by more high-IR-mechanisms if the system knowledge is more noncontractible, and it is governed by more low-IR-mechanisms if the system-knowledge is more contractible. Using data from the Austrian franchising sector, the results provide support for these hypotheses.

How does our approach extend the results in the literature? *First*, our property rights theory integrates results from the knowledge based view of the firm and the information richness theory. According to the knowledge based view of the firm, tacit knowledge is the main source of competitive advantage because it cannot be easily codified and hence transmitted. In order to create competitive advantage by setting up a network, knowledge governance mechanisms are needed to facilitate the interorganizational transfer of knowledge. We argue that the concept of tacitness of knowledge in the knowledge based theory is related to the concept of noncontractibility in the property rights theory. In addition, information richness theory offers “richness” as criterion to determine the knowledge transfer capacity of knowledge governance mechanisms. *Second*, the major contribution of our study

is to apply this approach for the explanation of knowledge transfer mechanisms in franchising networks. *Third*, our study utilizes primary data from the Austrian franchise sector that enables the estimation of factors the theory considers to affect the choice of knowledge transfer mechanisms. Based on Zander and Kogut (1995), we use knowledge constructs, such as teachability and codifiability that operationalize more and less contractible system knowledge. However, the measurement of the constructs is not without limitations; it is only a first step to operationalize knowledge with different degrees of contractibility. In future research, case studies should complement quantitative studies in order to sharpen and refine the theoretical constructs (Ragin and Becker 1994). In addition, future empirical research in franchising should also include additional electronic knowledge transfer mechanisms (such as video technologies, electronic bulletin boards, discussion groups, corporate directories) that can support all forms of knowledge transfer between franchisors and franchisees (Alavi and Leidner 2001; Andreu and Ciborra 1996).

Our findings also have practical relevance for the franchisors. According to the property rights approach, franchisors have to select knowledge transfer mechanisms according to the contractibility of knowledge source. In order to gain competitive advantage by setting up a franchising network, low-IR-knowledge transfer mechanisms are needed to facilitate the transfer of codifiable system-specific knowledge and high-IR-knowledge transfer mechanisms are needed to facilitate the transfer of noncodifiable system knowledge. Hence a successful franchiser has to match the knowledge transfer practices to the information processing requirements of the different types of system-knowledge.

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Trust and Fairness in Franchise Relationships

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Abstract Very few studies have investigated the key dimensions and consequences of trust and fairness in franchise relationships. Trust and fairness become especially important when a drastic change in the context of a relationship occurs. This paper therefore aims at generating theory about how franchisees' perceptions of trust and fairness influence their responses toward their franchisors during franchisor-led strategic change processes. On the basis of case studies regarding eight change processes in four Dutch drugstore franchise systems, the paper distinguishes a new level of trust in a franchise context: "franchise system trust" and discusses five instruments that franchisors can "institutionalize" in their franchise systems to influence their franchisees' perceptions of franchise system trust. The results also demonstrate that franchisees' perceptions of distrust and unfairness result in destructive responses toward the franchisor.

Keywords: Franchising · Trust · Fairness · Justice · Strategic change

1 Introduction

In recent years, research has shown that trust, justice and fairness are critical components of inter-firm alliances (e.g. Bachmann 2001; Krishnan et al. 2006; Luo 2005). For many years, transaction cost economics (TCE) has had a profound effect on alliance research by providing insight in appropriate (i.e. the most efficient) mechanisms that can be used to govern economic transactions. However, TCE largely ignores the role of socio-psychological aspects of transactions such as trust (Bradach and Eccles 1989; Husted and Folger 2004; Ring and Van de Ven 1994). Since trust brings about good faith in the intent, reliability and fairness of another actor's

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behavior, it reduces the potential for conflict and destructive behaviors and it encourages smooth information flows, which positively influences the satisfaction of actors (Cohen-Charash and Spector 2001; Sindhav et al. 2006) and the performance of alliances (Krishnan et al. 2006).

However, the importance of trust may vary among alliance forms. Krishnan et al. (2006) argue that the importance of trust in relationships increases with the degree of interdependence between the partners. The more the partners' contributions are intertwined, the more likely it is that any change one partner makes will affect the other partner in unplanned ways, and the more immediate and severe the adverse impact of any mistake (intentional or not) by a partner (Nooteboom 2002). In sum, when investigating the role of trust in inter-firm alliances it is important to look at specific alliance forms since alliance forms differ in their degree of interdependence between the partners.

This paper focuses on business format franchise relationships as a very specific form of inter-firm alliance. In such relationships, a franchisor owns a business format – entailing a shared identity toward customers and detailed operating procedures – and replicates it by allowing other firms (franchisees) to use it in return for fees. The franchise relationship is embedded in a franchise system consisting of the franchisor as the central actor and its franchised and possibly company-owned outlets all operating under more or less the same business format. The intensity of cooperation between franchise partners can vary in terms of “degree of hardness” (Croonen 2007; Kneppers-Heijner 1988). In hard franchising, cooperation is established by a large number of rules and obligations for the franchisees that entail almost all fields of business, while in the soft form the cooperation is subject to fewer rules and franchisees have more freedom. This degree of hardness relates to an important tension for franchisors, namely that of standardization of the business format versus allowing for local adaptations (Bradach 1998; Kaufmann and Eroglu 1998). Since cooperation in the hard form is closer and many interdependencies between the franchise partners exist, it is expected that the harder the franchise system the more important issues of trust and fairness are. Moreover, research has shown that concerns of trust, fairness and justice become especially important when a drastic change in the context of a relationship occurs (Lusch et al. 2003; Sindhav et al. 2006). In such situations outcomes are uncertain and a certain degree of trust between partners is needed because each of them cannot foresee the returns to be shared.

This paper's contribution is twofold. First, even though research has increasingly shown that trust is critical in inter-firm alliances, there have so far been very few studies investigating the antecedents and consequences of trust within franchise relationships as a specific alliance form (see Bordonaba-Juste and Polo-Redondo 2004, and Dahlstrom and Nygaard 1995 for exceptions). The literature has often considered franchise relationships from economic perspectives that rather focus on efficiency and formal governance mechanisms than on socio-psychological processes and the role of trust in these relationships (Clarkin and Rosa 2005). Additionally, the literature has largely considered franchise relationships as static with franchisees as passive and non-intelligent players (Clarkin and Rosa 2005; Elango

and Fried 1997). However, franchisees are bound to the franchise system by means of a relational contract, with explicit and implicit rights and obligations, and franchisors have to persuade them to implement system-wide changes (Bradach 1997). Research regarding other organizational change processes (e.g. Lusch et al. 2003; Mishra and Spreitzer 1998; Sindhav et al. 2006) has proposed or demonstrated that a member's trust in the initiator and leader of a change process, and a member's perceptions of the fairness of the implementation process are important factors that influence a member's response. It is highly likely that franchisees' perceptions of distrust and unfairness will result in destructive responses toward their franchisor during the change processes, which may negatively impact the effectiveness of the implementation of the changes. The second contribution relates to the fact that the franchising literature has largely disregarded issues of strategic adaptation and strategy implementation (for exceptions see Bradach 1997 and 1998, and Parsa 1999). This lack of attention is odd since adapting the franchise system as a whole to new threats and opportunities is a major challenge for franchisors (Bradach 1997, 1998).

In sum, this paper's objective is to generate theory about how franchisees' perceptions of trust and fairness influence their responses toward the franchisor during franchisor-led strategic change processes. More specifically, it aims to answer the following research questions:

- What forms and levels of trust and fairness can be derived from the literature?
- What are the key dimensions of franchisees' perceptions of trust and fairness during franchisor-led strategic change processes?
- How do these perceptions influence the franchisees' responses toward the franchisor during these processes?

The paper is structured as follows. Section 2 first discusses different forms of trust, fairness, and justice to deal with the variety of definitions and perspectives present in literature, and it then presents a theoretical framework for understanding franchisees' perceptions of trust and their influence on franchisee behaviors during strategic change processes. Section 3 deals with the methodological choices concerning the case studies that were conducted regarding eight "strategic change trajectories" ("SCTs") in four Dutch drugstore systems. Section 4 discusses the results of these case studies, and Sect. 5 presents the conclusions and a discussion.

2 Theoretical Backgrounds

2.1 Trust, Fairness, and Justice: Forms and Levels of Analysis

In the last decade, mainstream management literature has increasingly focused on topics of trust, fairness and justice. However, most scholars have treated issues of trust on the one hand and fairness and justice on the other hand as separate concepts. Exceptions are Brockner and Siegel (1996), Krishnan et al. (2006) and Mishra and Spreitzer (1998). They argue that an important element of trust is the expectation

held by one partner that the other will treat him just or fairly. Regarding the concepts of fairness and justice there is more agreement; many authors consider them as closely related since they often use these terms interchangeably (cf. Cohen-Charash and Spector 2001; Husted and Folger 2004; Luo 2005). This paper also considers the terms as closely related and uses the term “fairness” in the remainder.

Social exchange theory forms a good starting point for discussing the concepts of trust and fairness in inter-firm alliances in general and specifically franchise relationships. This theory was initially developed to examine interpersonal exchanges that are not purely economic. Its originators (e.g. Homans 1958; Thibaut and Kelley 1959) viewed people’s social behavior in terms of the exchange of resources, which is the result of resource scarcity. They viewed social exchange as an ongoing *reciprocal* process in which actions are the result of reactions of others. It includes socio-psychological processes of sense-making that influence the partners’ interactions in relationships. Blau (1964: 4) provides the following description: “*The concept of social exchange directs attention to the emergent properties in interpersonal relations and social interaction. A person for whom another has done a service is expected to express his gratitude and to return a service when the occasion arises. Failure to express his appreciation and to reciprocate tends to stamp him as an ungrateful man who does not deserve to be helped. If he properly reciprocates, the social rewards the other receives serve as inducements to extend further assistance, and the resulting mutual exchange of services creates a social bond between the two.*”

Social exchange is different from economic exchange because as regards the latter there is always some economic value that is exchanged, while in social exchange this either may or may not be the case. In economic exchange the benefits of the exchange are often contracted explicitly, while social exchange is more about implicit obligations. Because of this implicitness and the risk of free riding, trust plays an important role in the social exchange perspective. A degree of trust among the exchange parties reduces anxiety and enables reciprocity to develop over time (Das and Teng 2002). However, trust also involves a certain degree of risk: when an actor decides to trust another actor, he will have expectations regarding the latter’s future behavior, and he may be disappointed in this respect (Das and Teng 2002; Nooteboom 1999).

The originators of the social exchange perspective mainly focused on social exchanges between individuals. In later years this perspective was extended to organizational and inter-organizational levels (e.g. Cropanzano and Mitchell 2005). Ring and Van de Ven (1994) were among the first scholars to develop a model of inter-organizational relationships in which the abovementioned socio-psychological processes play an important role. They argue that the way in which individuals negotiate, execute and modify the terms of the alliance strongly influences the degree to which parties judge the alliance to be equitable¹ (i.e. fair, EC) and efficient. One important issue Ring and Van de Ven point at is the issue of “fair dealing”, which goes beyond rational and economical calculations. It includes the sociological meaning

¹ This term originates from Adams’ equity theory (Adams 1965). Several authors see this as an early form of justice theory focusing only on distributive justice and therefore in recent years equity theory has been replaced by justice theory (Husted and Folger 2004).

of “indebtedness”, meaning that among parties in organizations or among alliance partners there can be social norms or obligations. Other authors (e.g. Nooteboom 1999) would refer to this as “intentional trust” (i.e. trust that the other partner will not act opportunistically) next to “competence trust” (i.e. trust in the other partner’s capability to fulfill his role in the relationship).

When intentional trust is concerned, an important element is a partner’s perception and expectation that another partner will treat him fairly. It is widely recognized (see Cohen-Charash and Spector 2001 for a meta-analysis) that a partner’s fairness perception entails three elements: (1) distributive fairness; i.e. the perceived fairness of outcomes, (2) procedural fairness; i.e. the perceived fairness of the rules, procedures and mechanisms by which outcomes are arrived at, and (3) interactional fairness; i.e. the interpersonal treatment and communication. Scholars disagree whether interactional fairness is a separate form of fairness or part of procedural fairness, but Cohen-Charash and Spector (2001) show in their meta-analysis that the three forms of fairness are strongly related, yet distinct constructs.

Bachmann (2001) is another author who discusses the role of trust on an inter-organizational level. He states that an important distinction can be made between so-called “system trust” or “institutional-based trust” and the so-called “personal trust” or “process-based trust”. *System trust* is mostly based on institutional arrangements. One classical example is the trust that economic actors have in the universal usability of money, which enables the efficient functioning of socio-economic systems. In contrast, *personal trust* is likely to develop when individual actors frequently have face-to-face contact and become familiar with each others’ personal preferences and interests without the extensive use of institutional arrangements. An interesting question that should be posed is how trust can be understood on an intermediate level, namely the (inter)organizational level. Nooteboom (1999: 28) argues that “*organizational trust is a constellation of behavioral trust (i.e. personal trust, EC), with organizational structure and culture acting as institutions that limit and guide behavior of staff.*” Nooteboom refers to this organizational trust as “system trust”, while other scholars use this term when referring to the higher institutional level. This might be confusing, and therefore this paper uses the term “personal trust” on the individual level, “organizational trust” on the (inter-)organizational level, and “system trust” on the level of the wider socio-economic system.

2.2 Key Dimensions of Franchisees’ Perceptions of Trust and Fairness

As pointed out, very few scholars have specifically dealt with franchisees’ perceptions of *trust*, and regarding franchisees’ perceptions of *fairness* there are no studies at all. Because of this lack of previous research, this paper builds on studies in other contexts to develop a theoretical framework for understanding the key dimensions of franchisees’ perceptions of trust and fairness. A useful framework is the one by Mishra and Spreitzer (1998) who distinguish the following key dimensions of

a partner's trustworthiness; a concern for the other partner's interests, competence, openness and reliability. These dimensions may explain why a partner Y would trust his partner X. Translated to this paper's context, it can be argued that a franchisee's perception of trust in the franchisor as the leader and initiator of the change process is influenced by the franchisee's perception of:

- The franchisor's concern for the interests of the franchisee (i.e. does the franchisor take into account the franchisees' interests and does it not act opportunistically?).
- The franchisor's openness (i.e. is the franchisor open and honest about what is happening?).
- The franchisor's reliability (i.e. does the franchisor keep its promises?).
- The franchisor's competence (i.e. does the franchisor have the capabilities to manage the change process adequately and is it able to attain the desired goals?).

The first three dimensions influence a franchisee's perception of *intentional trust*, while the latter influences a franchisee's *competence trust* in the franchisor.

As argued earlier (following Brockner and Siegel 1996; Krishnan et al. 2006, and Mishra and Spreitzer 1998), an important element that should be added to the above three elements of intentional trust is the perception and expectation held by the franchisee that the franchisor treats him fairly. Regarding this fairness concept, this paper uses the well-known distinction of distributive, procedural and interactional fairness.

As pointed out earlier, the first form of fairness, *distributive fairness*, entails an actor's perceived fairness of outcomes, which is closely related to Ring and Van de Ven's (1994) concept of 'fair dealing'. These outcomes can be various, such as promotion decisions or pay reductions in employer–employee relations (e.g. Cohen-Charash and Spector 2001; Hagedoorn et al. 1998). In the context of a change process in franchise systems, a franchisee mainly looks at his financial outcomes of the change process (i.e. profitability) and the degree to which he perceives that costs and benefits of the change process are divided fairly between him and his franchisor.

Regarding the second form of fairness, *procedural fairness*, rules, procedures and governance mechanisms form important antecedents (see for example Cohen-Charash and Spector 2001; Husted and Folger 2004). Cohen-Charash and Spector argue that there are six principles that yield procedures that actors would consider as fair during allocation processes. These principles can be translated to a franchise context in which franchisees have to deal with a franchisor-led strategic change process. This results in the following six principles:

- (1) The consistency principle; stating that procedures during the strategic change process should be consistent across franchisees and over time.
- (2) The bias-suppression principle; stating that personal self-interests of the franchisor and its representatives should be prevented from operating during the strategic change process.

- (3) The accuracy principle; referring to the quality of the information presented to the franchisees during the change process.
- (4) The correctability principle; dealing with the existence of opportunities to change unfair decisions.
- (5) The representatives principle; stating that the needs and opinions of all franchisees should be represented in the decision-making regarding the change process. According to various authors (e.g. Hagedoorn et al. 1998), participation or 'voice' of actors in decision-making processes is a very important element of procedural fairness. In a franchise context, the "Franchise Advisory Council" (FAC) may serve such a function. Such a council refers to an "*elected or selected group of franchisees who meet with representatives of the franchise headquarters to discuss and provide advice on issues of importance to all franchisees*" (Dandridge and Falbe 1994: 43). There is very little scientific literature studying the role of FACs in franchise systems and their working mechanisms (see Cochet and Ehrmann 2007 for an exception).
- (6) The ethicality principle; according to which the strategic change process must be compatible with fundamental moral and ethical values of the franchisee.

The third form of fairness is *interactional fairness*, which relates to aspects of interpersonal treatment and communication. An important element of this is formed by the justification of decisions made (Bies and Shapiro 1988).

In sum, a franchisee's trust in his franchisor during a strategic change process entails both competence and intentional trust, with intentional trust entailing the franchisor's concern for the franchisees' interests, openness, reliability, and fairness.

2.3 The Influence of Perceptions of Trust and Fairness on Franchisee Behaviors

Previous studies have shown that actors' perceptions of distrust and unfairness may result in negative responses, such as stealing or exiting the organization or relationship (e.g. Husted and Folger 2004). It would be very useful to classify actors' possible responses to (dis)trust and (un)fairness since these response types may have different consequences for the organization or relationship.

Some scholars have conceptualized (e.g. Husted and Folger 2004; Mishra and Spreitzer 1998) and empirically investigated (e.g. Hagedoorn et al. 1998) the influence of actors' perceptions of trust and fairness on their responses toward their organizations or supervisors. These authors have all used the so-called Exit, Voice, Loyalty, Neglect (EVLN) framework of which Hirschman (1970) is the originator, and that has been applied and refined in various contexts in the last decades.

Hirschman distinguishes three types of responses to "problematic events": exit, voice and loyalty. Exit refers to ending the relationship, while voice refers to actively expressing and discussing one's problems with the intent of trying to improve conditions. Loyalty refers to remaining silent and confident that the problematic

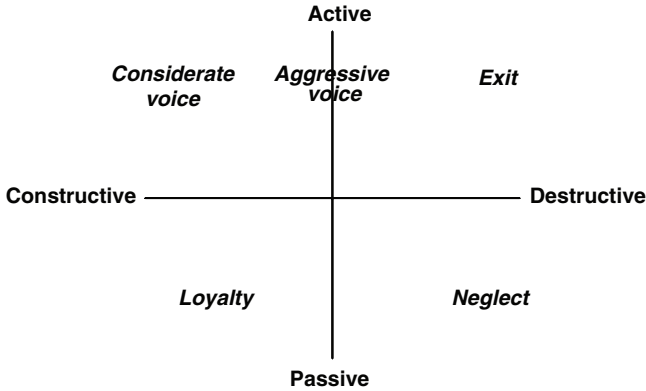


Fig. 1 Typology of responses in relationships (Hagedoorn et al. 1999, p. 312)

conditions will improve by giving things some time. In subsequent years, other authors have added a fourth option: neglect, which means passively allowing the relationship to deteriorate by letting things fall apart (e.g. Farrell 1983). The resulting classification is known as the Exit, Voice, Loyalty, Neglect (EVLN) typology, from which the types can be positioned along two dimensions: the active-passive dimension and the constructive–destructive dimension. More recently, in a study on employer–employee relationships, Hagedoorn et al. (1999) have made a further distinction between considerate voice and aggressive voice. Considerate voice consists of attempts to solve a problem with regard to one’s own concerns as well as those of the other partner. Aggressive voice is shown when a partner wants to win without any consideration for the concerns of the other partner. Aggressive voice is more destructive than considerate voice, but less destructive than exit. Figure 1 presents the typology of Hagedoorn et al.

Following earlier studies regarding trust and fairness perceptions and EVLN responses in other organizational contexts (i.e. Hagedoorn et al. 1998; Husted and Folger 2004; Mishra and Spreitzer 1998), it is expected that franchisees’ perceptions of *distrust* result in destructive responses toward their franchisor, while franchisees’ perceptions of trust will result in constructive responses toward their franchisor during strategic change processes.

3 Methodology

This paper is part of a larger study regarding interactions between franchise partners during strategic change processes (see Croonen 2006). Since trust and fairness turned out to be such important topics in this study, the current paper specifically focuses on the results regarding trust and fairness. This section discusses the design of the study.

3.1 Preliminary Study

The project started with a preliminary study consisting of two phases. In the first phase, a review of national trade magazines and fifteen exploratory interviews within various industries provided a first validity check of the theoretical model and enabled the selection of a suitable industry. The Dutch drugstore industry was the choice for the empirical setting. This industry is characterized by a longstanding tradition of collaboration, which has led to franchise systems and other forms of commercial cooperation having a huge market share. Also, this market has shown some major changes during the last decades of the twentieth century, intensifying the need for strategic change among the existing franchise systems. The preliminary study's second phase included interviews with all seven Dutch drugstore franchisors (administering a total of eleven franchised drugstore systems) and several franchisees per franchise system to get a good insight into the history and characteristics of the industry and its main players. These data were used to develop a case-study design including various protocols in order to increase the reliability and construct validity for the study (Yin 1994). The case-study design includes selection of cases and their embedded units of analysis, data collection and measurement, and issues of analysis and conclusion drawing. These issues are discussed below.

3.2 Case Selection

The four selected franchise systems (DA, STIP, ETOS and UED, see Table 1) are the larger and older Dutch drugstore franchise systems. Each of them had in the recent past gone through strategic change processes and was involved in such a process during the data collection (2001–2004). For each system two strategic change processes (called “Strategic Change Trajectories” or SCTs) were selected, and for each of these SCTs the aim was to select franchisees who had adopted different types of responses. For the selection of SCTs, the study followed a “dual methodology” (Leonard-Barton 1990) and selected one SCT that had occurred in the past and a contemporary SCT for each franchise system. The SCTs were numbered 1–8 (see Table 1). During all SCTs the franchisor tried to impose changes on one or more of the franchise system's “strategic characteristics”, such as a higher degree of hardness (i.e. degree of obligations for franchisees), or another positioning in the market. For each SCT, the aim was to select two franchisees for each of the five response types (see Fig. 1). Each franchisor representative provided a first list of names, but in order to achieve an adequate number of respondents of every response type franchisees were asked to provide additional names (snowballing). Sometimes it was not possible to achieve the target set, for example, during SCT5 no franchisees adopted an exit response. In total, 91 franchisees were contacted, 74 of which agreed to cooperate (see Table 1).

Table 1 Overview of franchise systems and their SCTs

Information about the franchise system (name of system, its franchisor, starting year, number of stores in 2003)	Description of SCT ^a (number and description, SCT starting year)	Number of respondents ^b (# franchisees, # franchisor representatives)
DA by Dynadro BV 1942	SCT1: Toward business format thinking (1992)	13 3
±700 stores (including ±70 luxury DA D' Attance stores)	SCT2: Integration and renegotiation (2002)	12 2
STIP by Dynadro BV 1989 ±110 stores	SCT3: Reanimation (1992)	8 3
From 2004, STIP was integrated into the DA system	SCT4: STIP's integration and renegotiation (2002)	14 2
ETOS by ETOS BV 1918, franchising since 1988	SCT5: Two-front attack (1996)	10 1
±440 stores (including ±200 company-owned stores)	SCT6: Introduction of the four-worlds format (1998)	16 2
Uw Eigen Drogist (UED) by Brocacef BV	SCT7: Prospective acquisition (1997)	9 1
Early 1990s ±130 stores	SCT8: Some hardening (2002)	19 2

^aThe even numbered SCTs are contemporary, the odd ones are past

^bThe number of franchisee respondents adds up to 101. However, actually 74 different franchisees were interviewed, but 23 of them were interviewed about two SCTs within one system, and three about two SCTs within different systems. Several franchisor representatives were interviewed more than once (up to three times)

3.3 Data Collection and Measurement

The data collection consisted of interviews with representatives from the franchisor's organization (i.e. managers and CEOs), interviews with franchisees, observation during visits, and a study of written documents such as strategic plans, franchise contracts, format handbooks, year reports, and information published in trade magazines. This extensive data triangulation aimed at enhancing the internal validity of the study (Yin 1994).

The interviews were all held in the respondent's office or store and took about 70–90 min each. All interviews were structured face-to-face interviews with mainly open-ended questions and were recorded on disk. Respondents were asked about their perceptions of their franchise relationships (including perceptions of trust and

fairness) at various points in time (i.e. before the SCT, when the SCT was introduced, and the time period after the introduction of the SCT), as well as about their actual and planned responses and their reasons for these perceptions and responses.

For measuring the explanatory variables, extant literature in combination with context specific information from the preliminary study provided a list of subvariables and indicators (see Croonen 2006). The response variable was measured using an adapted version of the instrument that Hagedoorn et al. (1999) developed and tested. A first adaptation was the translation of the instrument (consisting of 34 items) to the specific case context. A second adaptation concerns the specificity of the measure. Hagedoorn et al. asked respondents: "Would you indicate how likely it is that you would react to a problematic event in the described ways?". In contrast, the present study asked the franchisees an open question about how they had *actually* responded through time to a *specific event* (i.e. a specific SCT), and then further questions were asked to position the franchisee's responses in Hagedoorn's EVLN-typology (by using items specified for a franchise context).

3.4 Data Analysis and Conclusion Drawing

The large amount of data collected was analyzed following detailed protocols (following Miles and Huberman 1994). First, case narratives provided descriptions of the developments during the SCTs from both franchise partners' perspectives. Second, multiple data displays at different degrees of aggregation were developed to present the data of each SCT in a standardized way (see Croonen 2006 for the precise analysis steps).

4 Results

4.1 A New Level of Trust in Franchise Systems: "Franchise System Trust"

The case studies indicate that for a franchise context a new level of trust should be added to the three levels that have been distinguished in Sect. 2.1. This new level is referred to as "franchise system trust", and it entails an intermediate level between (inter-)organizational trust and system trust. It is a relevant level because an individual franchise relationship is embedded in a franchise system consisting of several other franchised units and possible company-owned units. In other words, a franchise system is a specific form of socio-economic system, which may or may not entail certain institutional arrangements.

Figure 2 presents the five levels of trust in a franchise context (from a franchisee's perspective) resulting from the case studies. The remainder of this subsection discusses these different levels and provides illustrations from the case studies.

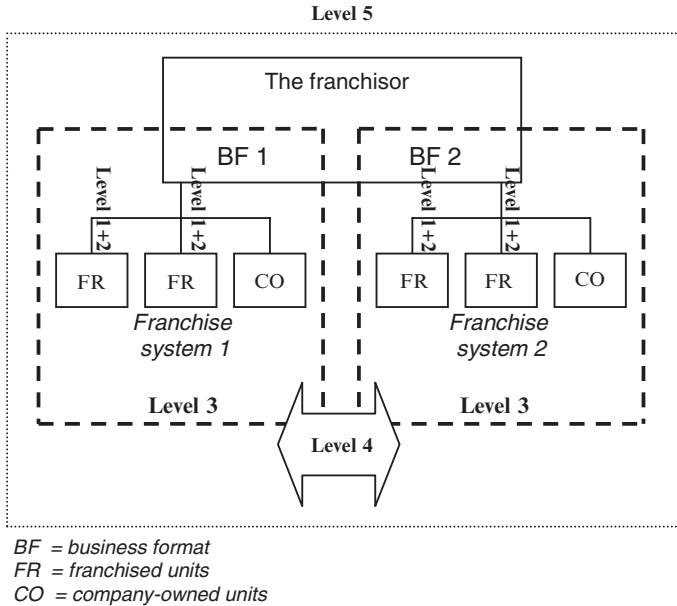


Fig. 2 Levels of trust in a franchise context

4.1.1 Level 1: Trust on the Interpersonal Level (Personal Trust)

Personal trust entails trust of the franchisee in specific representatives from the franchisor's organization. The cases indicate that personal trust is considered important by franchisees, but in a hard franchise system it is not sufficient. This became especially clear at DA, STIP and UED where the franchisor aimed to increase these systems' hardness. Even though several franchisees of these systems had had high degrees of personal trust with specific franchisor representatives, due to these systems' increasing hardness this did not suffice anymore. When the systems were soft, a low degree of trust did not really matter to these franchisees since they had much freedom in running their businesses and therefore felt not very dependent on the franchisor. When the franchisor aimed to introduce more franchisee obligations, franchisees had to make certain specific investments and felt they became more dependent on their franchisor. The franchisees therefore wanted more trust in the *organization* of the franchisor and its franchise system instead of in *specific franchisor representatives* because these representatives could leave the organization, which frequently occurred in the case studies. This fits with Bradach and Eccles' argument (1989) that personal relationships may form a basis for trust between organizations, but only as long as the trusting and trusted individuals stayed in their organizations.

4.1.2 Level 2: Trust on the Inter-Organizational Level (Inter-Organizational Trust)

The inter-organizational level of trust entails the individual franchise relationship between the franchisee and franchisor. The franchisee has to trust that the franchisor takes his interests into account and will not act opportunistically and is able to perform its tasks in the relationship. On this level a very important dimension from the franchisee's perspective is that he perceives that costs and benefits of his franchise relationship are divided fairly between him and his franchisor. This relates to Ring and Van de Ven's "fair dealing" (Ring and Van de Ven 1994). At DA and STIP several franchisees used to have a low perception of fair dealing for a long time because they had the idea that their franchisor aimed to receive extra royalties by charging higher prices on franchisor services for the franchisees, such as purchasing prices, automation systems, in order to finance their too expensive cars and a too luxurious headquarters. The franchisees considered the "implicit charges" as very intransparent; they did not know what the real costs were and what the additional charges were. However, this low perception of fair dealing only became problematic after several obligations regarding purchasing and other franchisor services (to which the implicit charges applied) were introduced by the franchisor during the change process.

4.1.3 Level 3: Trust on the Franchise System Level (Franchise System Trust)

The third level is the new level of "franchise system trust", which reflects a franchisee's trust in the fair and effective functioning of the franchise system as a whole. The franchisees' perceptions of procedural fairness seemed to play a very important role here. The franchisees considered the following principles of procedural fairness as especially important; the consistency, the bias-suppression, the accuracy and the representatives principle. The cases have provided several examples in which these principles were not met in the franchisees' opinions, which ultimately resulted in destructive franchisee responses.

The importance of the *consistency principle* became especially clear from the DA and STIP systems since there were rumors and suspicions that certain franchisees could buy goods from the franchisor more cheaply. Additionally, this applied to the enforcement of certain obligations; DA and STIP franchisees sometimes felt that their franchisor was permissive to particular franchisees, resulting in a perception of unfairness. Another important issue regarding consistency was membership of the Franchise Advisory Council (FAC). At DA and STIP certain franchisees, who had been appointed by the franchisor to the FAC, had been FAC members for a very long time, and other franchisees felt that these FAC members were favored by the franchisor. This was due to a lack of procedures regarding the FAC's organization. This relates to the *representatives principle*; due to the lack of procedures and rules regarding the FAC a large group of franchisees felt that their needs and opinions were

not adequately represented in the decision-making process regarding the strategic changes. At DA and STIP this was considered especially important due to the cooperative structure in which the DA and STIP franchisees were also the owners of the franchisor's organization. Regarding the *bias-suppression principle*, at DA and STIP some franchisees felt that the franchisor did not consider the franchisees' interests but mostly considered its own interests, and those of some powerful franchisees. Regarding the *accuracy principle*, franchisees at UED, DA and STIP sometimes perceived the franchisor's information provision regarding the change process as inadequate, and they therefore did not invest in the proposed changes and waited to see what would happen next before adopting any further responses toward the franchisor.

4.1.4 Level 4: Trust Among Systems of the Same Franchisor (Inter-System Trust)

This level of trust is only relevant in situations where the same franchisor administers more than one franchise system, which was the case with DA and STIP. Several STIP franchisees believed that their payments to the franchisor were invested in DA and not in STIP. This notion was reinforced by the low transparency in the way costs were calculated. Additionally, the STIP franchisees also perceived unfairness from a more "psychological perspective": they felt they received less attention and believed that the franchisor put fewer efforts into them because their stores were too small and not profitable enough.

4.1.5 Level 5: Trust in the Wider Institutional Context (System Trust)

Finally, "system trust" refers to the level of the wider institutional framework, in which factors such as legal regulations influence actors' trust in the wider "socio-economic" system. This relates to Dahlstrom and Nygaard (1995) who argue that trust between franchise partners may emerge due to institutional mechanisms in specific countries, such as legislation, to safeguard transactions ("institutional-based trust").

4.2 Instruments to Create Franchise System Trust

The new level of franchise system trust turned out to be very important for the franchisees (especially in a hard franchise system). This section uses the case study results to discuss various instruments that franchisors can "institutionalize" in their franchise systems to create, maintain or increase franchisees' perceptions of franchise system trust.

4.2.1 The Presence of Company-Owned Units (the “Plural Form”)

A very important antecedent of a franchisee’s perception of franchise system trust seems to be the presence of company-owned units in the franchise system. Of the four systems under study, ETOS was the only system that had company-owned units, but their presence was very important for the ETOS franchisees. At ETOS, the company-owned units were used to convince the ETOS franchisees that the franchisor also ran a risk. The franchisees trusted that adaptations to the business format would be beneficial to their stores because management believed these adaptations were also beneficial to the company-owned units (otherwise management would never introduce them). One franchisee pointed at another advantage of company-owned units as follows: “*Because ETOS has company-owned units, the goods we sell need to produce profits; therefore the interests of ETOS and its franchisees run parallel.*” This relates to the fact that at ETOS the purchasing prices were the same for the franchisees as for the company-owned units (which was monitored by an accountant). Because of the company-owned units, the ETOS franchisor itself had an interest in keeping the purchasing prices as low as possible, and the franchisees trusted that the franchisor would try very hard to do this. At DA and STIP the franchisees thought that the franchisor’s wholesaling interests prevailed, resulting in irritation when obligations were introduced (to which certain purchasing prices were attached). At UED wholesaling also formed an important part of the franchisor’s income, but no problems arose here because at the time of the study there were only few obligations for franchisees.

The above advantages of company-owned units fit with several literature sources (e.g. Bradach and Eccles 1989; Cliquet 2000; Dant and Kaufmann 2003; Gallini and Lutz 1992) that point at the benefits of the so-called “plural form” (i.e. a franchise system consisting of both franchised and company-owned units). The case study results support Bradach’s results that the plural form plays a critical role in enabling the implementation of system-wide adaptations (Bradach 1997). Moreover, the results can be seen as an extension to the so-called “signalling theory” that states that prospective franchisees signal the quality of their concept to prospective franchisees by means of company-owned units (Dant and Kaufmann 2003; Gallini and Lutz 1992). The results show that the signalling function of company-owned units not only applies to *prospective* franchisees but also to *extant* franchisees who need to be persuaded to adopt the proposed adaptations.

However, it seems that certain conditions have to be met for the instrument of company-owned units to work effectively. First, the franchisor needs to have a significant share of company-owned units, otherwise it cannot produce a convincing signal. ETOS management deliberately aimed for a certain division between company-owned and franchised units. It wanted the turnover of the ETOS company-owned units to be at least fifty-one percent of the ETOS system’s total turnover because only then would their own stakes be large enough to provide a convincing signal to the franchisees. Franchisees were also aware of this goal, and they mentioned it quite often when explaining why they were convinced to adopt certain

strategic changes. On the other hand, it seems that the share of company-owned units should not be too large because then the franchisees might feel that the franchisor will be guided too much by its company-owned units. It seems that for the signalling function to work there is some kind of “optimum” for the share of company-owned and franchised units in a system. The second condition for this instrument to work is that franchisees have to be aware of the advantages of company-owned units. The signalling function does not work if franchisees are not aware of it. The third condition that needs attention is the type of units that the franchisor owns; sometimes ETOS franchisees complained that ETOS only had company-owned units at profitable locations in large city centres and therefore was not aware of what was going on at the types of locations franchisees where mostly located (centres of smaller towns and suburbs).

4.2.2 The Organization of the FAC

A second factor influencing the franchisees’ perceptions of franchise system trust is the way participation or “voice” of franchisees in strategic decision-making processes is organized. As Bradach (1997) also points out; franchisees want to be serious players in such processes. This refers to the existence of a FAC, and the degree and types of procedures around the functioning of this FAC. The cases indicate that in case of a high or increasing degree of hardness franchisees want to be “compensated” for this by means of a higher level of organization of their strategic participation, because they want to make sure their interests are taken into account during the SCT. At ETOS, there was a high level of strategic participation, which was, however, considered less important because of the ETOS’ company-owned units. At DA and STIP strategic participation was considered as important due to its cooperative structure and the increasing obligations, but because it was ill-organized the perception level of franchise system trust was low. At UED the organization of franchisee strategic participation had always been low, but because of UED’s softness franchisees did not consider this a problem.

It seems that a high level of franchisee strategic participation positively influences a franchisee’s perception of franchise system trust. Especially when a franchise system does not have company-owned units, or only a small share of them, or when it has a cooperative structure, it is likely that franchisees consider strategic participation as very important. The case studies demonstrate that franchisees consider at least the following procedures as important regarding the organization of the FAC: procedures for selecting franchisees as members of the FAC (e.g. elections instead of FAC members being selected by the franchisor), procedures concerning the replacement of these members (e.g. that FAC membership is restricted to a maximum time period), and procedures regarding the rights of the FAC (e.g. is the FAC allowed to vote for or against certain decisions, or is it only allowed to give advice?).

4.2.3 The Way of Calculating Fees

The ways in which fees were calculated influenced the franchisees' perceptions of trust in their franchisor. This became clear when comparing DA/STIP and ETOS regarding this issue. The franchisor of DA/STIP based a large part of its fees on turnover levels and franchisees therefore felt that the franchisor was tempted to increase turnovers without taking into account the costs and the resulting profitability of the franchisees. Next to this, franchisees felt that the franchisor aimed to receive extra royalties by charging higher prices for purchasing, automation or contracts with builders, and these 'implicit charges' also gave franchisees a perception of unfairness. In the ETOS system, with even more requirements, there were fewer problems concerning fairness because franchisees considered the costs as more transparent. Moreover, because ETOS calculated fees over the purchasing value, franchisees felt that their franchisor did not have an interest in increasing turnover levels at any cost. Additionally, purchasing prices were the same for company-owned and franchised units, and this was monitored by a third party (an accountant). At UED franchisees paid a fixed fee and so the franchisor could not undertake actions to influence the height of the fee.

4.2.4 Procedures Regarding Automatically Sent-in Goods

In the Netherlands, it is common practice that franchisors automatically send goods to their franchisees. This was also the case at DA/STIP and ETOS. At ETOS, franchisees had the right to send back automatically sent-in goods. According to the ETOS franchisees, with this rule the ETOS franchisor showed its conviction that a certain product would sell, and when it would not work the franchisor would accept the losses. At DA/STIP franchisees could not send back the goods, and therefore franchisees sometimes had to face losses, which they perceived as unfair.

4.2.5 The Role of Third Parties

A final factor influencing franchisees' perceptions of franchise system trust, which turned out important in the ETOS case, is the role of third parties. For reasons of competition, the ETOS franchisor withheld information regarding purchasing prices from its franchisees. However, management guaranteed that franchisees paid the same purchasing prices as ETOS did for their company-owned stores. Due to this guarantee the franchisor would not be tempted to charge higher purchasing prices to franchisees and to sell a great deal of low-margin products. An accountant monitored whether the franchisor kept this promise. The ETOS franchise contract stated that every year an accountant of ETOS had to issue a declaration about the correctness of ETOS' purchasing prices as presented toward its franchisees. Additionally, an accountant selected by the FAC was allowed to monitor ETOS' accountant.

4.3 Trust and Franchisee Responses

This section discusses how the franchisees' perceptions of franchise system trust influenced their responses toward their franchisor during the strategic change processes. Although other factors – such as the franchisees' satisfaction with their franchise relationships' profitability, the franchise system's strategic positioning, degree of hardness, and the attractiveness of alternatives – largely influenced the franchisees' responses (see Croonen 2006), the case studies indicate that the franchisees' perceptions of trust and fairness played an important role in their responses toward the franchisor during the SCTs.

In every system there were franchisees who perceived low degrees of trust and fairness; however at ETOS and UED there were only few while at DA and STIP there were several. These franchisees mostly adopted destructive responses during the SCTs, such as neglect, exit or aggressive voice. It is interesting to see that at DA and STIP only the franchisees who adopted considerate voice perceived a high degree of trust and fairness. An explanation for this is that the “considerate voice franchisees” were closely involved in strategic participation and had close relationships with management and therefore were more aware of management's intentions and justifications regarding the SCT. The DA and STIP franchisees who adopted a loyalty response in reaction to the franchisor's introduction of the SCT often had a medium degree of trust. However, as the SCT evolved and more obligations were introduced these franchisees became more “ambiguous”, and these franchisees did not know how to react anymore². When the franchisor introduced even more obligations trust became more important and these franchisees with medium degrees of trust gradually shifted to more destructive responses, such as exiting the franchise system.

In short, the cases indicate that high a degree of trust leads to constructive franchisee responses (considerate voice and loyalty), while low and medium degrees of trust and fairness, especially in a hard franchise system, lead to ambiguity and ultimately to destructive responses (aggressive voice, neglect and exit). This fits with the results of Hagedoorn et al. (1998) who found that negative reactions are more likely when outcomes and processes are considered unfair.

5 Conclusion and Discussion

This paper provides some first insights regarding franchisees' perceptions of trust and fairness and their influence on these franchisees' responses during franchisor-led strategic change processes. First of all, it can be concluded that in a franchise context five levels of trust can be distinguished, of which franchise system trust

² This “ambiguity” is a new response type that should be added to the existing EVLN framework on the axis between loyalty and neglect (see Croonen 2007). However, it is out of the scope of this paper to discuss this in detail.

seems to be a very important one. However, more research is needed to gain insight in the exact role and importance of each level in understanding franchisee responses toward their franchisors.

Second, the paper has distinguished five instruments that franchisors may “institutionalize” in their franchise systems in order to create, maintain or increase their franchisees’ perceptions of franchise system trust. However, more insights are needed in how exactly and under what conditions these instruments work. There are various opportunities for future research regarding these instruments. For example, what kind of procedures are needed for a FAC so that it increases franchisees’ perceptions of franchise system trust? Under precisely what conditions does the instrument of company-owned units (i.e. the plural form) help to increase franchise system trust? What are other instruments that may help in increasing franchise system trust among franchisees, and how do they work?

Third, the cases support the results of Hagedoorn et al. (1998) that perceptions of distrust and unfairness are likely to result in destructive responses. However, since there are various other variables that influence franchisees’ responses toward the franchisor during strategic change processes much more research is needed regarding the relationships between franchisees’ perceptions of their franchise relationships on several dimensions and their responses toward their franchisor. An important question is: how important are trust and fairness compared to other variables? For example, some DA and STIP franchisees trusted their franchisor, but they adopted an exit response because the costs of accepting the changes were too high for them. Croonen (2006) has provided a first insight into relevant factors that influence franchisee responses during strategic change processes, but these factors need to be tested on a larger scale and more attention is needed for ‘contextual variables’. Such contextual variables (e.g. personal characteristics or store attributes), influence how franchisees perceive and behave in their relationships.

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Concept Uniformity: Control Versus Freedom in Business Format Franchising

Odile Streed and Gérard Cliquet

Abstract Developed on a model of uniformity, business-format franchises are likely to experience growing individualization of demand, from franchisees and final customers. Franchisors may need to carefully evaluate trade-offs between standardization and adaptation of the business concept in order to satisfy their customers. The purpose of this paper is to identify potential guidelines for franchisors who are trying to conciliate brand uniformity and adaptation to customer demand. More specifically the cases of McDonald's and Great Harvest will be examined using the Kaufmann and Eroglu's (1998) hierarchy of components framework and the categories of customization developed by Gilmore and Pine (1997).

1 Introduction

Fast food franchises are often compared to assembly lines: the worker is expected to accomplish repetitive and simple tasks in a predictable and uniform manner and to deliver standard products and services. "We are running thousands of identical factories" says Rich Bachman, KFC division director of operations. The McDonald's franchise founder, Ray Kroc explicitly expressed his vision of the fast food sector when he claimed that he didn't need non-conformists in his business. In 1958, in order to solidify this standardized strategy, McDonald's developed a 75-page operating and training manual, internally known as "the Bible", specifying with great

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details the various rules and procedures to follow. Fast-food franchisors are not the only business-format franchisors to link uniformity with success and survival of a franchise chain. Uniformity has traditionally been a supporting pillar in most sectors of franchise development. According to Bradach (1998), the four key elements in fast-food chain management are the addition of new units, maintenance of uniformity across units, local response when appropriate, and system-wide adaptation to environmental changes. Cliquet (2000) adds that uniformity could be maintained through budgeting, MIS, authority or persuasion and that if “local responsiveness is more efficient in a franchise system than in a company system” franchisees should react in an appropriate way according to the global marketing strategy of the chain.

Chains typically spend extensive time and money monitoring the integrity of their brand across stores. The result of this strategy is a multitude of mass-reproduced, cloned facilities that endanger the creativity and diversity of our business ecosystem, the rationale behind standardization is the ability to protect the brand integrity, to realize economies of scale by implementing turn-key systems, and to provide a consistent experience to the consumer. That seems to reinforce the idea of an industrialization of retail and service activities which was one of the major trends of the end of the XXth century and the beginning of the XXIst century (Cliquet et al. 2006), but new processes should now be considered. In an era where mass-customization is becoming a driving force in manufacturing it is surprising to notice that business-format franchising is still for the most part resisting the idea of customization. Indeed the fast-food business model imitates the manufacturing processes of the early 1900 where division of labor and standardization were the collaterals of mass production. However some franchise chains such as the bakery Great Harvest have chosen an opposite strategy: Called the “Freedom franchise” Great Harvest rewards entrepreneurial spirit in its franchisees. Know-how such as recipes and management processes are provided by the franchisor but each store has the opportunity and the duty to build its own identity for a better fit in the local business landscape.

The purpose of this paper is to consider the merits and downfalls of these two philosophies by examining the cases of McDonald’s and Great Harvest. Business concept variations such as localization or adaptation of the business model or personalization of the overall customer experience will be reviewed. Two frameworks will be used as classification tools. The first one was developed by Kaufmann and Eroglu in 1998 and establishes a hierarchy among business concept components, differentiating between “core” components essential to maintain brand integrity and “peripheral” components that could be safely modified. The second one addresses the topic of personalization and more specifically mass-customization. It was developed by Gilmore and Pine in 1997 and identifies four categories of customization. Unfortunately these two frameworks haven’t been tested empirically yet but their merit is their simplicity and versatility. Moser (2007) in his literature review on mass customization confirms that mass-customization research is still preliminary and that theories and frameworks haven’t still been fully demonstrated. The first section of the paper will briefly review general issues related to concept variation

in general from a location or a personalization perspective. The second section will outline the Kaufmann and Eroglu (1998) and Gilmore and Pine (1997) frameworks and the two last sections will compare the strategies of McDonald's and Great Harvest regarding concept uniformity. In conclusion, managerial implications and future research directions will be discussed.

2 Uniformity Versus Variation

According to the Harris Interactive survey conducted for American Demographics in 2001, and the Gardyn article (2001) 75% of adults in the United States wish that more products and services were customized to their specific needs, 70% declare that they are more loyal to companies providing personalized products and 70% are willing to pay higher prices. Gardyn compares the younger consumers, 19 to 24-year-old to 65 and older consumers and concludes that the youth are driving this customization trend: 84% of them crave customization against 62% of consumers 65 and over. Higher incomes are not driving this trend, 85% of people earning between \$(USD)15,000 and \$24,999 and 75% of those earning less than \$15,000 versus 68% of those earning over \$75,000 are interested in customized products and services. These last few years, manufacturing companies such as Dell and Toyota have started to address this problem by implementing mass-customization production strategies where they develop a core framework along with modular components that could be individually selected by the customer. Similarities between fast-food chains and manufacturing assembly lines are intriguing and it is interesting to determine whether these manufacturing and operational theories could be applied to the limited-service restaurant chains. However it is critical to keep in mind that mass-customization is not always the most efficient model: having too many choices may increase the complexity of a transaction; in the fast-food industry it may also increase waiting time at the counter and costs may go up. In 2000, McDonald's experimented with a made-to-order system but received customer complaints about longer wait. Therefore it is important to clearly understand which customizations are valued by the customers and what could be safely personalized without reducing the overall performance of the unit. In their fast-food industry report for McKinsey, McPherson et al. (2003) write that "our market analysis indicates that time-strapped consumers value control, personality, and choice when making their dinner plans. At Chipotle Mexican Grill (owned by McDonald's), control begins at the counter, where diners decide how much of each ingredient goes into their burritos." However they conclude that "no one in the industry has yet found a way to combine distinctive dinner service with the operational performance necessary for scale."

Much has been written on the topic of standardization in business format franchising. According to Theodore Levitt's provocative article in the Harvard Business Review (1983) the world is converging toward commonality, therefore this commonality of preferences drives standardization of products, services, and organizations around the world. However, Levitt realized that a standardization strategy was

not necessarily optimal and that some degree of mass-customization, made possible by emerging technologies would offer some promising opportunities. However, in spite of environmental factors, Caves and Murphy (1976) claim, that in all cases, uniformity across units in a chain is essential to preserve brand equity. Fast food chains such as McDonald's have based their business model on uniformity. Processes and standards are highly documented and units are monitored so that variations are minimized. Franchisees are penalized for non-compliance on major issues. Blair and Lafontaine (2005) state that "at each McDonald's however, one can expect basically the same overall experience. These standards and policies are spelled out in details in its operations manual, which it updates regularly and includes by reference in its franchise contract".

Maintaining uniformity is however extremely cumbersome, principally for a franchise chain where monitoring faces strong limitations. Although franchisors outline the chain's standards in their franchising agreement, it is difficult to enforce uniformity. For example, U.S. Federal, state and local laws preserve franchisee's right to make certain decisions such as pricing or promotion. Antitrust laws prevent franchisors from dictating prices to franchisees, and franchisors cannot force franchisees to buy from certain suppliers. Franchise laws may also vary from state to state. In addition, enforcing contract by terminating or sanctioning the franchisee is very rarely used, leaving persuasion as the main way to convince franchisees to abide by the rules (Birkeland 2002). Trying to maintain absolute uniformity is therefore challenging in its execution, and may lead, even in a company-owned chain, to a bureaucratic and rigid organization with limited ability to adapt and evolve. Avoiding entrepreneurial talents and rewarding strict conformity among franchisees may impair the chain's ability to innovate and ultimately compete. Stan Luxenberg in *Roadside Empires* (1985) believes that strictly enforcing standards will lead to overall mediocrity in a chain. While Birkeland (2002) writes that strict uniformity will hold back the best franchisees and level the overall network to its lowest common denominator. Bradach (1998) observes that fast food chains such as KFC, Pizza Hut and Hardees reward strategic local responses while others consider it a threat to uniformity that can trigger brand damage.

Caves and Murphy (1976), Castrogiovanni and Justis (1998) argue that a "carbon-copy" structure is common and recommended when tasks are repetitive, as it is the case in the fast-food industry. Brand standardization offers also significant advantages such as brand awareness, and brand recognition. Sen (1998) in his study of U.S. restaurant franchises argues that national brandnames provide comfort and security for the consumers. Customers are selecting a recognized brand name to avoid surprises. Selecting a recognized brand-name speeds up the decision making process by eliminating the information search and evaluation steps. This is particularly important in the fast-food sector where product offering is a commodity.

It appears that the key to an efficient franchise network resides in the right balance between localization or customization and standardization since excessive localization could result in brand damage and too much standardization would result in lack of competitiveness. Kaufmann (1989) discusses trade-offs between uniformity and local responsiveness. In one case uniformity is maintained, but the product

doesn't fit local requirements and in another case the product is adapted to local needs but uniformity is jeopardized. The key question is to determine which level of localization and/or customization could be beneficial to both employees and customers, and which components of the brand could be safely customized while preserving the integrity of the brand.

3 Hierarchy of Business Components and Mass-Customization Frameworks

Kaufmann and Eroglu (1998) identify the following four format components that constitute the business format in a franchise chain: product/service deliverables, benefit communicators such as quality, durability or elegance, system identifiers such as trademark or logo and format facilitators such as policies and procedures. Kaufmann and Eroglu state that these four components do not have equal importance and that some are more critical than others. They distinguish between the "core" components such as the brand or the logo and "peripheral" components such as the music or store layout. They believe that "core" components should be kept intact across a franchise network while the "peripheral" components are safe to adapt. They also state that depending on the chain some components could be considered "core" or "peripheral". For example some menu items such as the "Big Mac" or "Chicken McNuggets" are considered "core" components at McDonalds, since both menu items are branded, while the Great Harvest bread assortment could be considered a "peripheral" component since none of them are branded.

On the same line Bradach (1998) agrees that "the shared identity of units in a chain encompasses not only visual markings but also the physical design of the unit, the menu, the production processes, and the service." Bradach doesn't however establish a hierarchy among format components. Marketers often argue that any deviation to the brand image could create a positioning distortion and could result in a weaker brand and lower brand equity. Chernatony et al. (1995) also argue that the core essence of the brand, image and positioning should be maintained across geographies but that its execution could be adjusted to local markets. These theories seem to conclude that variation of the core components could be detrimental to the brand. However peripheral variations may be beneficial. Since they may not carry the same weight and may not have the same impact it is important to categorize them. In addition instead of considering variations in a broader sense, this paper focuses on variations as a result of customization.

The concept of mass-customization was introduced by Davis in 1987. Most mass-customization literature comes from the fields of operations management and manufacturing: (Pine 1993; Lau 1995; Tu et al. 2001; McCarthy 2004; Piller et al. 2004; Squire et al. 2004). According to Piller and Müller (2004) in the mass-customization concept "goods and services are produced to meet individual customer's needs with near mass production efficiency" (Tseng and Jiao 2001; Pine 1993; Duray et al. 2000; Duray 2002; Piller 2003; Reichwald et al. 2003; Tseng and Piller 2003).

The classification developed by Gilmore and Pine (1997) distinguishes between various kinds and degrees of customization. They identified four customization strategies: collaborative, cosmetic, transparent, and adaptive. The first approach is called the collaborative customization and represents the most common model of industrial mass-customization: through ongoing dialogs with their customers, companies develop a clear understanding of customer needs and build an appropriate modular approach. Customers can personalize their purchase by selecting certain modules of their choice. This model has the advantage to be cost efficient. It still allows the time and cost efficiency of mass production while giving customers the opportunity to create the product of their choice. Since the choices are somewhat limited, the complexity of the transaction is reduced. The second form, cosmetic customization deals mainly with the presentation of the product: the product is the same but the packaging for example may vary to accommodate various needs. Customers could choose from a selection of standard package sizes, and labels. The third form, transparent customization is based on observation and recording of customers' choices: technology allows the company to capture customers' preferences and eliminates the needs for customers to "recreate" their order. The fourth approach, adaptive customization consists in promoting versatility in product's usage. For example, one of the leading American brand of baking soda, Arm & Hammer list multiple usages for its product from personal care to cleaning and baking. This last approach does not seem to really apply to our topic therefore only the three former categories will be used in this paper.

In essence, Gilmore and Pine differentiate between the actual product and the "representation of the product" and identified various degrees of customization. Some are more invasive than other. Customizing the "representation of the product" may be a promising option for franchising since it wouldn't necessarily impact core components of the brand.

4 McDonald's, Great Harvest – Two Visions of Franchising

4.1 McDonaldization

Leidner (1993) describes McDonald's as "an exemplar of extreme standardization". Operating procedures are extensively described in McDonald's training manual and absolute respect of defined norms is expected in the smallest details. Watson (1997) writes that one key to McDonald's success is its ability to quickly deliver without jeopardizing consistency. The Economist (2004) describes new technology allowing McDonald's to reinforce its operating procedures. The article outlines various control procedures used by McDonald's such as equipment-check every 30-min, automatically transmitted to the headquarters through scanning devices and sensors. McDonald's tries to make the experience predictable and consistent. Watson (1997) explains that in an era of mobility the three arches provide an element of stability to

children and families who frequently relocate. Predictability however didn't prevent McDonald to slightly adapt to local needs, by offering products such as vegetarian or lamb burgers in India, grilled salmon sandwiches in Norway or Kosher burgers in Israel. However innovations and menu variations are always monitored through regional headquarters. Former McDonald's president James Cantalupo claimed that McDonalds tried to "become as much a part of the local culture as possible. . . I like to call us multilocal". This means that McDonald's typically hires local managers and buys from local suppliers when appropriate.

Actually it appears that there are slight variations in McDonald's positioning around the world. In China for example, McDonald is a status symbol, still somewhat perceived as an upmarket restaurant and targets middle to upper middle class families ready to spend a significant portion of their income for family celebrations at the restaurant. It is important to note that Asian customers are not necessarily interested in fast-food convenience but are looking for an "American" experience. The Big Mac index (2006) published annually by the Economist and using Big Mac prices as a gauge for purchasing power around the world, doesn't show significant absolute price differences for the Big Mac across nations. However, when one takes into consideration hourly wage variations and currency exchange rates, the Big Mac sold the equivalent of \$(USD)1.31 in China or \$1.57 in Indonesia versus \$3.10 in the USA becomes a "luxury" item in those countries. Ashenfelter and Jurajda (2001) calculated that in 2000, the average hourly wage in China could purchase 0.36 Big Macs per hour and the Indonesian's 0.36, while the U.S. hourly wage could buy 2.59 and the French 2.72. It appears therefore that McDonald's has chosen a different positioning in emerging or developing countries. This strategy is quite similar to Starbucks who has chosen to keep very consistent worldwide pricing and has slightly modified its positioning in some emerging countries such as China.

It appears that McDonald's has experimented with various market entry strategies along the years. Love (1986) mentions the case of John Gibson and Oscar Goldstein who in 1965 obtained exclusive rights to develop the Caribbean under limited supervision from McDonald's. The venture failed but nevertheless McDonald's attempted another experiment in the Netherlands where they chose a joint-venture strategy. The local stores replaced traditional menus with local favorites and instead of following its traditional approach of having local entrepreneurs running its stores McDonald's used a combination of expatriates and local partners to manage its restaurants. The result was a disaster and McDonald's decided to revise its international market entry strategy. In a second phase McDonald's focused on "changing" the local culture versus adapting to it.

The example of Japan is particularly characteristic of this approach and was initiated by a Japanese joint-venture partner, Fujita. Fujita as reported by Love (1986) made outrageous statements to sell hamburger's properties such as "The reasons Japanese people are so short and have yellow skins is because they have eaten nothing but fish and rice for two thousand years. . . If we eat McDonald's hamburgers and potatoes for a thousand years, we will become taller, our skin will become white, and our hair blonde". Fujita succeeded in launching McDonald's in Japan and demonstrated that the American menu could be sold abroad without major modification.

It is important to note that menu and décor modifications were initially attempted in Australia or Germany for example, and were later reversed to implement the typical U.S. look-and-feel and family positioning. The key issue faced by McDonald's was the fact that these local innovations were not following the proven operating standards tested in the U.S. and resulted in inconsistencies in quality. Inconsistency in image also resulted in moving away from the traditional family positioning, part of the core McDonald's image. In Japan, McDonald's required the Japanese stores to follow its U.S. operation procedures but due to the Japanese culture of obedience, the rules ended up being applied to the letter and suppressed all opportunity for creativity. McDonald's therefore attempted to "change" the Japanese management culture to make it work as intended. However, Fujita was allowed to localize key components of the U.S. models: he chose prominent downtown locations versus suburban locations recommended by U.S. headquarters, he localized promotional methods, running ads on TVs with a distinct Japanese flair and more importantly focused on educating the market. Love (1986) writes that "In short, Japan proved that the key to success in the international market was the same as it was at home: local control by local owner-operators".

Typically McDonald's has given promotional freedom to its partners and franchisees but has always insisted in keeping their operational system intact. Since McDonald's was attempting to "change" local cultures it was critical for them to use native partners to articulate this strategy thus limiting potential rejection of a foreign entity. Steve Barnes previous Chairman of McDonald's International claimed "McDonald's is an American food system... If we go into a new country and incorporate their food products into our menu, we lose our identity. We're neither fish nor fowl".

McDonald's has also established strict standards among its U.S. suppliers and has tried to implement similar standards abroad by asking established U.S. suppliers to develop international operations. McDonald's tried to "change" local suppliers' standards but failed in some countries such as the UK. Former McDonald's UK Chairman, Bob Rhea said, "the vertical integration of McDonald's England was a result of the British food industry's refusal to give us what we wanted". In developing countries however, McDonald's was successful in imposing its standards to local suppliers and "changing" local suppliers' production processes.

In his book the McDonaldization thesis Ritzer (1998) analyzes the rationality of a system such as the McDonald's system. The term McDonaldization is used to characterize highly standardized and regulated processes based on Fordist theories. The five dimensions of McDonaldization are calculability, efficiency, predictability, non-human technology, irrationality of rationality. Ritzer analyzed this model by using rationalization theories from Weber (1921/1968) and Mannheim (1929/1936). Although highly controversial, these theories have the merit to offer an analysis framework for this concept. Mannheim emphasized the importance of centralized planning as a mean to avoid chaos when dealing with recurrent situations but also warned against the dehumanization associated with functional rationalization: in other terms the ability to think intelligently. On the same line, Ritzer writes "It is clearly dehumanizing to find oneself mindlessly functioning like a robot of

an automaton in a McDonaldized system.” Using Mannheim’s theories of rationalization, Ritzer concludes that McDonald’s operating manual is a perfect example of rationalized behavior. On the same topic, Love (1986) writes about the original McDonald’s procedure “Grill men. . . were instructed to put hamburgers down on the grill moving from left to right, creating six rows of six patties each. And because the first two rows were farthest from the heating elements, they were instructed (and still are) to flip the third row first, then the fourth, fifth, and sixth before flipping the first two”.

In summary McDonald’s tries to regulate recurrent situations and avoid non-recurrent situations that are unpredictable. This explains McDonald’s standard market entry strategy. The McDonald’s core system is inflexible and doesn’t change significantly. Therefore, McDonald’s attempts to change the local environment, but in order to function, the system needs to make tasks and outcomes as predictable as possible so that they can be regulated. Ritzer (1998) brings up an interesting point when he argues that the system not only trains the employees and the suppliers but also the customers. This is precisely the education method that was used by Fujita in Japan. Fujita attempted and succeeded in changing some aspects of the Japanese behavior by “educating” the customers through intensive promotional activities. McDonaldized systems also emphasize the concept of calculability. Everything is quantified and quantity is glorified. In most cases, quality doesn’t have a place in such a system. In order to work, the system needs to be built around simple tasks and outcomes, therefore creativity and innovation become a threat to the system by overcomplicating the processes and making it uncontrollable and unpredictable. However, we can argue that quality may become part of a McDonaldized system. Mass-customization techniques have taken into considerations customer needs and wants and adapted the manufacturing process to accommodate those while maintaining predictability. Ritzer (1998) asks the following question “Does this mean that just as we have moved into a post-Fordist era, we will soon be entering an epoch of post-McDonaldization? To some degree we will”. Ritzer points out that we could reach a point were we develop a McDonaldized system that rationalizes inefficiency and unpredictability giving the example of a chain offering different shapes of hamburgers that would be uniformly different!

4.2 Great Harvest

Although Great Harvest is not a fast-food chain but a bakery it is interesting to examine its approach on uniformity. Named the “freedom” franchise, Great Harvest emphasizes creativity, generosity and entrepreneurial spirit among their franchisees. Tom McMakin (1995), previous COO at Great Harvest states that “Great Harvest occupies the middle ground between joining a franchise and going out on your own. Our goal is to create a community of Mom and Pop operators - each free to create their stores as they please, and each contributing to a pool of expertise that is available to all – something we call a freedom franchise”. Started in 1978 as a bakery store in Great Falls Montana, Great Harvest became a franchise in 1982 and

currently counts over 200 franchised stores in the USA and no corporate owned stores. It is modeled after the philosophy of the founders Pete and Laura Wakeman. Acquired in 2001, the company is still privately owned and able to manage the system according to its own rules. Great Harvest's founders advocate balance in life, for themselves, their employees and their franchisees. The organization is profitable of course but profitability is a means not the end. Great Harvest selects franchisees with similar philosophy of life and values and spends an enormous amount of time screening applicants – good screening limits the needs for monitoring. They also choose to limit their growth in order to maintain the chain's standards of quality. Being a "freedom" franchise doesn't mean that Great Harvest doesn't have systems however. Great Harvest has developed elaborated processes that are communicated to franchisees. The difference between Great Harvest and McDonald's is that franchisees are free to choose to implement these systems or not in their organization. McMakin (1995) writes "As Great Harvest got larger, Laura and Pete focused their talent for producing bakery operating procedures on the franchise business itself, creating hiring checklists, budget checklists, bakery visit checklists and new candidate selection checklists. . . To this day, Great Harvest has a strong culture of checklists. "Systems make you free," we preach to new franchisees. "Without them, you are simply baking bread and training new counter people. With them, you are able to think about growing the business and taking time off with your family".

It is interesting to note that Great Harvest is gently persuading their franchisees to use the systems. Since they share similar values it is certainly much easier to "sell" these concepts to their franchisees. Great Harvest is aware however of a potential flaw in its recruitment system and does not want to create a homogeneous system. Diversity in franchisee recruitment is one of their goals. Great Harvest franchisee recruiter claims that "Fit can become synonymous with "looks like me". One of my jobs is to guard against that and to seek diversity in owners, because in diversity there is strength. The efficiency of the system lay in the community of franchisees". Franchisees are seen as partners. They have absolute freedom to design and manage their store as they please but they must connect with the community of franchisees and share challenges and successes with the rest of the owners. Additionally they are required to use the Great Harvest trademark and logo but have complete freedom to develop new recipes, to personalize their store, to decide on opening hours, pricing and product assortment. Usage of promotional tools and templates provided by Great Harvest is optional. Franchisees also receive extensive training in baking, along with secret recipes but have the option to modify them. They also receive guidelines and suggestions (the systems) in bakery management and employee management but Great Harvest is definitely not a "turnkey" franchise. Among these guidelines are the four C's principles: Coolness, Compensation, Caring and Connection. It must be fun to work in a Great Harvest bakery: employees will often use the term cool when defining their job. They are also compensated above industry average and receive frequent personalized rewards and thank you for their jobs. Owners and employees also feel connected to a bigger goal. One of the owners describes their role in the community as "We make nourishing bread that gives our customers the health and energy to lead good lives".

A “freedom” franchise model is not for everybody however. It should attract mainly entrepreneurial personalities with the ability to work independently and a strong passion for life. This type of organization requires direct involvement from the owners: they work in the store; Great Harvest franchises are not available to pure investors. What keeps emerging as a key value for Great Harvest is pride. Pride in a job well done, pride in the nobility of the product. There is a passion for quality and tradition, a passion for craftsmanship, a respect for work. This pride inspires franchisor, franchisees, employees and suppliers and is felt by the customers. Shopping at Great Harvest becomes an experience. This experience varies depending on the personality of the owners and the employees but the key connection between these people is pride. Pete Wakeman sums it by saying “There are no secret, baking great bread is about attention to the little things. This recipe isn’t complicated. But there are thousand different ways to mess it up. My job is to be present to what I am doing and watch the bread closely. Attention to the little things sounds easy, but you won’t be able to get it unless you have an honest-to-God passion for what you are doing. This is a big deal for me. It is not just bread. It’s my bread”. McMakin adds “Bread is the opposite of “fast food”; it is “slow food” because it takes so long and such care to produce”.

5 Discussion

It may appear that McDonald’s and Great Harvest represent dramatically opposite view of franchising efficiency. To some extent it is true. Their focus is different, their goals are different, their size, maturity and overall global expansion are different but they both made similar choices in preserving the integrity of their core format components, confirming the theory of Kaufmann and Eroglu (1998) that peripheral elements in the franchise format can be safely modified as long as the core elements remain identical.

The key difference between McDonald’s and Great Harvest lies in their definition of these core components. Great Harvest has limited the number of core components to essential elements such as trademark, logo, brand image and positioning while McDonald’s has developed a complex multi-layered system of brands and “sub-brands” components as part of their core components. This complexity seems to lead to rigidity. The five tables below present a succinct comparison of Great Harvest and McDonald’s using first the framework developed by Kaufmann and Eroglu (1998), (Tables 1–4) and secondly the Gilmore and Pine (1997) categories (Table 5).

The key finding comparing both concepts is that McDonald’s uses multiple brands: the McDonald’s brand is the “umbrella” brand but certain menu items such as Big Mac or Chicken McNuggets are also branded. Great Harvest on the other hand doesn’t have individual product brands. This is an essential element to take into consideration since this product branding seems to greatly limit McDonald’s overall flexibility. Branded menu items are key core components of the franchise format in the McDonald’s model. It is interesting to note that menu localizations at McDonald’s are only allowed for non-branded menu items such as the “generic”

Table 1 Product and service delivery

	McDonald's	Great Harvest
Core	Branded basic menu items. A Big Mac is a Big Mac everywhere in the world. Absolute consistency in taste, ingredients and quality	Great quality bread, great service. A welcoming atmosphere, a rewarding experience
Peripheral	Non-branded menu items such as the cheese burger can be easily adapted to local needs	Variety in assortment in store location, hours of operation

Table 2 Benefit communicators

	McDonald's	Great Harvest
Core	Cleanliness and food safety, family oriented	Great quality, experience, friendliness
Peripheral	Playgrounds, kids menus, toys	Local community involvement. Style in customer service

Table 3 System identifiers

	McDonald's	Great Harvest
Core	Trademarks and Logos (Brand and sub-brands)	Trademark and logo (Brand)
Peripheral	Store layout and color schemes	Store layout and color schemes

Table 4 System facilitators

	McDonald's	Great Harvest
Core	Operating manual: very detailed. Highly monitored operating processes	Similar values and mindset among franchisees. Self-regulated system
Peripheral	Local promotion	Local promotion

cheese burger. The burger could therefore be a beef burger in the U.S and a lamb burger in India without jeopardizing the McDonald's brand since "generic" menu items are peripheral components. However a "Big Mac" is a "Big Mac" anywhere in the world with similar ingredients and taste. On the other hand a Great Harvest customer expects to receive quality bread and a friendly experience – core positioning of Great Harvest – in each outlet but cannot predict the assortment provided in the store. What matters is the overall brand image of quality. The assortment is therefore a peripheral component. Great Harvest sells an experience while McDonald's sells product features.

Great Harvest puts experiential branding as the center of its strategy. Providing an enjoyable and rewarding visit to the bakery is one of the core components of its business concept. As long as this goal is achieved, Great Harvest gives total freedom in its execution. McDonald's on the other hand has spelled out the execution part.

Table 5 Customization (Gilmore and Pine categories)

	McDonald’s	Great Harvest
Collaborative	Partly implemented. A modular approach could apply to basic menu items such as Cheese burger but would be more difficult with branded products such as the Big Mac since they are core components of the business concept	Difficult due to the nature of the business to implement a “made-to-order” modular system in the store itself
Cosmetic	Not implemented but seems relatively easy to implement by offering itemized menus such as unit-based pricing for a chicken nugget. Different packaging, plate versus box for example	Partly implemented. Bread could be sliced or not on demand. Could provide different type of packaging or the ability to purchase half orders
Transparent	A relationship management system capturing customer preferences on line or through a kiosk could be implemented. A smart card may be attributed to each customer to maintain efficient ordering process	A system where customers could order on line and pick-up their made-to-order bread in the store could be implemented

There are no significant differences between McDonald’s and Great Harvest. Both attach utmost attention to the trademark and give some freedom, limited in the case of McDonald’s to store operators on store layout and color schemes.

Both organizations have “systems”. The difference again is in the detail. McDonald’s operating processes are mandatory while Great Harvest’s systems are suggestions. Since Great Harvest franchisees have a common mindset, the system is self-regulated.

The other key difference between Great Harvest and McDonald’s is network size and growth philosophy. Great Harvest selects “like-minded” franchisees who share similar values and commitments. Therefore the system self-regulates itself with limited monitoring. The downside of this strategy is slow growth and limited size. The McDonald’s system is based on unit growth. Its profitability has traditionally been fuelled through expansion. A larger network with less selective criteria for common values and standards requires detailed operating procedures and monitoring.

Considering Kaufmann and Eroglu’s recommendation (1998) that core components are not to be adapted, what could a business-format franchise such as McDonald’s with a large proportion of core components personalize without jeopardizing the brand? In order to address this question we used three of the categories outlined in the Gilmore and Pine customization framework to identify peripheral components that could be safely customized without jeopardizing the brand.

Collaborative customization is the essence of mass-customization and uses a lean manufacturing, made-to-order model based on modular components selected by the customer. It appears that McDonald’s could safely use this approach with non-branded menu items, that are peripheral components but could be facing difficulties with branded items, such as the Big Mac, that are core components. Cosmetic customization seems even easier to implement since it modifies only peripheral

components while still providing valuable personalization potentially resulting in higher customer satisfaction. Technology is instrumental in allowing the third type of customization, transparent customization. Using customer relationship management, organizations can capture and analyze customer preferences and automatically customize orders. McDonald's customers could enter their preferences on line or in a kiosk in the restaurant. The second time they order a similar item the system would remember their preference and prepare it accordingly. However operational issues would of course need to be considered since implementing this type of model may present significant challenges. Kasanoff (2001) describes the complexity of personalization making it unpredictable and difficult to manage. He describes the following paradox: "The more modules a business creates, the more flexibility it enjoys...but the more modules, the more complexity".

It appears that one key barrier to flexibility in certain chains may be their definition of core components in their business-format. By including product assortments and operating processes as part of their core components they have developed a rigid system that requires constant monitoring to function smoothly. By focusing on the overall experience as a core value, without controlling the execution mode Great Harvest allows different interpretations and manifestation of this experience while keeping consistent core values. The sense of pride for a job well done and respect for the individual, owners, employers, customers is the common denominator among their franchisees. The Great Harvest's model however doesn't radically challenge the traditional franchising theories. The idea of uniformity of the business concept is still present and subtly monitored. Brand equity is important and core components of the business model are consistent across the network. In addition it is important to mention that due to their relatively modest size and their recruitment practices that tend to attract and recruit a certain type of franchisees with similar mindsets, monitoring needs are much more limited in a chain like Great Harvest where franchisees typically regulate themselves. The benefit of combining the hierarchy of components framework from Kaufmann and Eroglu with the customization framework from Gilmore and Pine was to identify potential personalization of peripheral components in the business concept. At this point the assumption could be made that these peripheral changes may result in increased customer satisfaction but additional research would be necessary to demonstrate this theory. Fornell et al. (1996) demonstrated that customization was one of the central attributes in customers' perceptions and expectations of quality and that quality was positively correlated with customer satisfaction.

6 Conclusion

This paper addresses a problem that will impact the structure of business-format franchising. Traditionally business-format franchising has been associated with the idea of uniformity across the chain as franchisors monitor the execution of the business concept. Increasingly franchisors and franchisees are faced with difficult

trade-offs as they need to balance increasingly diverse customer needs within a standard business setting. Most authors agree that anarchic modification of the business concept could jeopardize brand equity in a business setting. The problem is particularly acute for fast food franchising whose business model is built on predictability and consistency. Through the analyses of McDonald's and Great Harvest it appears that both ultimately had to address this issue of conformity. Both have attached utmost importance in presenting a consistent image across the network but in a different way, one is controlling, while the second is more liberal in its execution. Applying the Kaufmann and Eroglu's hierarchy of components framework combined with the Gilmore and Pine classification framework brought some of these similarities and differences to light. In both cases core components such as brand-name or core positioning are kept intact while peripheral components seem relatively easy to customize according to the Gilmore and Pine categories. The key question would be to determine in future research the impact of peripheral customizations on customer satisfaction. Is it possible to maintain strict uniformity across core components and still adjust to local customer needs by minimizing some of these changes? It is important to recognize the merits of uniformity in business-format franchising but franchisors will need to identify the right balance between standardization and localization or adaptation and ultimately customization. We do not know whether increased localization or customization will result in higher brand equity, brand awareness and brand recognition and we can just assume that it will result in increased brand loyalty and customer satisfaction.

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Entrepreneurship and Franchising

Franchisee Discontinuance and Failure Empirical Findings from Finland

Mika Tuunanen and Jenni Torikka

Abstract The present study focuses on franchisee discontinuances and failures during 1999–2001. The paper deals with notions relating to discontinuance and failure. Franchising is approached from entrepreneurship viewpoint and taken as a form of starting and conducting entrepreneurship and business. The study was carried out in 2002 in Finland. The 46 member franchisors of the *Finnish Franchising Association* (FFA) were surveyed. Altogether 33 responses were received, adding up to a response rate of 72%. The results were parallel with the findings of the previous international studies. The results indicate that the average annual franchisee turnover rate was 11% in 1999–2001 in the studied franchises. In proportion to the average number of franchisee owned outlets (1,027) per year in 1999–2001 the figures gave an average annual franchisee failure rate of 1.66%. The risk of bankruptcy for franchised businesses (0.78%) seemed to be around half of the risk for stand-alone businesses (1.32%). Every fourth (24%) franchisor reported facing unexpected franchisee turnover where franchisee ceased operations before his/her franchise contract expired. Furthermore, every third (32%) franchisor saw unexpected franchisee turnover as detrimental to the franchise. It is worth mentioning that only part of the failure and turnover related disadvantages and problems cause evident and easily measurable expenses. If the whole extent of direct and indirect expenses and financial losses resulting from franchisee turnover and failures were known, franchisors might pay more attention to the issue and try to prevent and control it vigorously. Franchisee discontinuances and failures can be and should be prevented, since they erode the earnings of both franchisees and franchisors.

Keywords: Franchisee · Discontinuance · Turnover · Failure · Finland

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1 Introduction and Background

The present study focuses on franchisee turnover and failure. Franchising is approached from entrepreneurship viewpoint and taken as a form of starting and conducting entrepreneurship and business (see e.g. Shane and Hoy 1996; Hoy and Shane 1998; Kaufmann and Dant 1999; Stanworth and Curran 1999; Hoy and Stanworth 2003; Tuunanen 2005). Shane (2003: 5) perceived survival as a key performance measure in entrepreneurship among growth, profitability and experiencing initial public offering. He defined survival as continuation of entrepreneurial effort. In his view, the importance of survival as a measure stems from the fact that few firms survive.

According to Burns (1989: 32) “most businesses are born to die or stagnate”, and “there is substantial turnover in numbers and types of businesses in all Western countries”. This holds true, e.g. in Finland where 50% up to 55% of all start-up firms will survive through the first five years of operation (Hyrsky 2006). The higher probability of ceasing to trade seems to be a fundamental characteristic, other than size per se, that distinguishes small and large businesses (see Storey 1994: 78). The very small, mainly young firms are responsible for most of the discontinuances (Bates and Nucci 1989: 6–7), and this fact has an effect on the general failure statistics of SMEs. In Finland (99.8%) as well as in other Western European countries majority of the enterprises are small and medium sized, with less than 250 employees. Stanworth et al. (2001) brought out that new franchisors and franchisees that both are many times small businesses face the risk of failure in their early years and that their survival patters largely mirror those of conventional small businesses.

Vesper (1990: 63) saw that both success and failure can take different forms (cf. e.g. Haswell and Holmes 1989; Shane and Spell 1997). Success can mean survival, growth, profitability or satisfaction for the business owner. Failure can mean less of such things than one might prefer, which can be different than what another might prefer. According to Vesper (1990), performance depends upon complex factors. In the franchising context, performance, i.e. failure or success and survival, is always a wider question covering franchisor, franchisee and their collaborative, long-term contractual relationship. A broader stakeholder view of franchisee failure goes beyond the franchisor and franchisee. Suppliers, financial institutions, customers, investors, and others all suffer as the circle of real and/or opportunity cost/loss widens because of franchisee turnover (Holmberg and Morgan 2003). The great pledge of franchising is that it is, or should be, less risky for a franchisee than the option of starting and running a stand-alone business (cf. e.g. Stern and Stanworth 1994: 21; Hoy 1994). These specific features make the topic worth of closer scrutiny.

Franchisee turnover and failure have been studied to some extent for instance in the USA, the UK and Australia. In Finland this was the first study of its kind. Franchise contract is in the heart of franchise relationship and issues related to franchisee turnover and failure are determined in contracts (Tuunanen 2004). However, legal systems, regulations and ethical codes concerning franchising differ for instance, between the EU-countries and the USA. Therefore, a short description of these is given in the following. To further set the scene for the study, Finnish franchising statistics from year 2002 are presented.

1.1 Franchising and Legislation

Franchising specific legislation is virtually non-existent in Finland and in other EU countries¹. The civil law system prevails in all EU countries with the exception of Great Britain and Ireland. To compare, in the USA the common law system and the federal and state constitutions plus a mix of federal and state legislation have shaped a complex and unique juridical entity that influences how franchise contracts are drafted. The respective systems are in fact significantly different (Tuunanen 2004).

In Finland information on the stipulations, franchisee obligations and characteristics of the franchise contracts and pre-sale disclosures for nascent franchisees is scarce and typically not available for the public. Franchise contracts are strictly confidential and no information on the contract may be given to a third party. A very different system is applied in the USA where franchisors are by the federal law forced to publicly disclose key information relating to their franchise systems (Justis et al. 1991; Justis and Judd 1998; Justis and Vincent 2001; Tuunanen 2004).

As a member of the *European Franchise Federation* (EFF) the *Finnish Franchising Association* applies the *European Code of Ethics for Franchising* (EFF 2002). The Code of Ethics prohibits member franchisors from giving misleading or subjective information to franchisees. Moreover, franchisors should give franchisees all possible written material concerning the franchise relationship well before signing the franchise contract. Franchisors should also choose and accept as franchisees only persons who have the skills, education, personal traits and financial qualifications required in running a franchise outlet in the particular franchise. However, it is important to take into account that the law does not enforce the Code. Instead, it is meant to promote good franchising practice. In addition, in Finland it binds only the member franchises of the FFA. This implies that a prospective franchisee might be in a weaker position regarding the quantity and quality of information accessible for his or her disposal. As a result, franchisee dissatisfaction may later arise and lead to friction between the parties.

For comparison, the IFA's *Code of Ethics* (IFA 2002) intends to establish a framework for the implementation of the best practices for the franchisor and franchisee co-operation. It also represents the ideals for the franchise relationships and core values that are the basis for the resolution of the challenges that may arise between the parties. Differences between the Code of Ethics of the EFF's and the IFA's Code of Ethics are evident. While the European Code offers straightforward and detailed instructions and guidelines concerning mainly franchisors' actions, such as presale disclosure, franchisee recruitment and the minimum contents of the franchise contract, the American Code deals with the moral nature of the interdependent relationship between the parties. In general, the differences between the respective codes may reflect the dissimilarities of the franchise specific regulations.

¹ Belgium, France, Italy, Spain and Sweden are exceptions from this. In these countries some aspects of franchising are regulated. In many cases the regulation concerns franchise disclosure.

1.2 Franchising in Finland in 2002

A breakthrough in business format franchising appeared in the late 1980s when a stream of franchises was founded and the national franchise association established (Tuunanen and Hyrsky 2001). Yet today, franchising is a rather novel and under-recognized form of entrepreneurship in Finland. Since the mid-1990s, the number of franchises operating in Finland has grown nearly 15% annually. According to the 2002 statistics there were 164 franchises in the Finnish markets. Of those 69 were Retail franchises, 67 Service franchises and 28 Restaurant franchises (including café and fast food franchises). Majority of the franchises were home-grown and had purely domestic origin while slightly more than a quarter had foreign ancestry. More than a quarter (28% or 46 franchises) of the total amount of franchises was members of FFA. The 164 franchises had together 5,750 outlets. Two out of three outlets (68% or 3,900) were owned and managed by a franchisee. The rest (32% or 1,850) were company owned. There were some 3,400 franchisees, which tells that nearly 500 stores were governed by a multiple-owner (Tuunanen 2003).

Franchising employed 38,000 people directly. The total amount included part and full time employees working in franchisors' headquarters, company owned and franchisee owned stores. The gross annual sales of franchising in 2002 were 3.54 billion euros (equaled some 3.25 billion US dollars). Franchising accounted for around 2.5% of the gross domestic product (GDP). Less than 2% of all active and registered companies in Finland were franchised (Tuunanen 2003).

The paper began with an introductory section starting off with a presentation of the subject, followed by summary of franchising related legislation issues and a brief overview of franchising in Finland in year 2002, when the data for the current study was gathered. Next, literature review is presented with discussion of the definitional issues. Subsequently, research design is depicted and the key findings introduced. The paper ends with discussion and implications section.

2 Literature Review

Entrepreneurship literature has long noted significant new venture failure rates. Furthermore, few franchise topics have generated more interest over the years than franchise failure rates (Holmberg and Morgan 2003). In their extensive sociological model of franchising, Stanworth and Curran (1999) positioned franchise failure as one factor having an influence in the development of franchising. Hoy et al. (2000) identified "degrees of survival and failure" as an issue dominating previous franchising studies. Their view was in line with Kaufmann (1996) who brought forward franchisee failure as an interesting franchising-specific field of study. Additionally, Young et al. (2000) published a content analysis of 285 research papers presented in International Society of Franchising conferences in 1986 and 1988–1999. Among the four most popular subjects of the studies were "franchise management", "franchise relationship issues", and "performance and growth".

Elango and Fried (1997) called attention for better performance measures for franchise systems and instead of *descriptive* studies that have dominated the scene they craved more *prescriptive* studies covering the franchisee side of the business. Elango and Fried (1997) named one stream of the past franchising studies as “creation of franchising relationships”. These studies have managerial orientation, and the perspective of the studies is performance and profit maximization. The present paper falls in this category.

Nye (1989), Williams (1996) and Frazer and Terry (2000) studied franchise terminations and contract non-renewals in the USA and Australia. Empirical findings of these studies have not supported claims (cf. franchisor opportunism) that franchisors systematically abuse their right to terminate. To the contrary, terminations have been mainly motivated by the poor outlet performance.

Perrigot and Cliquet (2004) studied how plural form affects to survival of franchising networks. Their conclusion was that plural form networks have longer life times than predominantly franchised and/or company/owned networks.

Holmberg and Morgan have done a long-term work in studying franchise turnover and failure (Holmberg and Morgan 1996, 2000, 2001, 2003, 2005a,b). According to them past franchisee failure literature has largely been based on franchisor surveys, used very divergent concepts and definitions and indicated widely ranging failure estimates. Thus, comparison of the results of previous examinations is difficult. Holmberg and Morgan (2003) pointed to the need for more reliable franchise failure studies (see also Cross 1994, 1998; Castrogiovanni et al. 1993). Franchise failure research is strongly influenced by the failure concept underlying the study’s research perspectives, data collection, analysis and resulting research conclusions (Bates 1995, 1998; Stanworth and Dandridge 1994). Diverse franchisee “success” and “failure” realities and perceptions exist among researchers and franchise system stakeholders (Falbe and Welsh 1998; Hoy 1994; Justis et al. 1992).

Consequently, Holmberg and Morgan (1996, 2000, 2003) suggested that the need is not to define failure definitely, but rather to view the process comprehensively (see also Cross 1994, 1998). They proposed an eight step franchisee failure model, suggesting that the first indicators of failure can often be seen very clearly: (1) franchisee core competent misfit, (2) franchisee–franchisor dissatisfaction, (3) franchisee discontent, (4) royalty delinquency, etc., (5) complaints to FTC, (6) turnover/termination, (7) defaults/other losses to creditors, (8) closure.

Holmberg and Morgan (2003) also put forward a broader stakeholder view of franchisee failure going beyond the franchisor and franchisee. According to them suppliers, financial institutions, customers, investors, and others all suffer as the circle of real and/or opportunity cost/loss widens because of franchisee turnover. If recognized and managed at earlier steps on the continuum, systematic risk mitigation strategies might be developed, losses minimized and turnover possibly avoided. These strategies may avoid real and/or opportunity costs if franchisor–franchisee relationships, business issues, and failure risk are managed appropriately. Selected studies on franchisee failure and discontinuance are summarized in Table 1.

Table 1 Past studies on franchisee failure and turnover

Scholars (year)	Nature of the study and the sample	Research Interest	Key findings
Padmanabhan (1986)	Empirical, secondary data (U.S. Dept. of Commerce 1971–1981)	Comparison of riskiness figures of franchisee-owned establishments to corresponding figures of whole-sale trade and Dun and Bradstreet annual business failure data	Generally franchising had lower failure rates and risk compared to wholesale trade and stand-alone businesses
Walker and Cross (1988)	Conceptual	Examination on franchise failure and turnover definitions and related issues, comparison of franchise and small business failure data	A serious lack of appropriate data on franchising failures exists, definitional problems plague the area; due to a lack of suitable data it is impossible to conclusively compare failure rates among franchisees and independent businesses Causes of franchisee and franchisor failure are very similar; while many causes of franchise failure relate to small business in general, some are specifically related to the distinctive nature of franchising Failure rate 4.17%; failure rate ascends as franchisors get older; neither size nor capital intensity had effect on failure
Castrogiovanni et al. (1993)	Empirical, secondary data (UFOCs), N = 140, n = 103, response rate 74%	Failure rate (of franchised and company-owned units)	
Cross (1994)	Conceptual	Failure: definitional and measurement issues	Many franchise failure causes are generic but some are related to the distinctive nature of franchising; definitional problems plague; better methods are needed to be able to compare failure rates between franchisees and independent businesses
Cross (1998)	Conceptual	Failure: definitional and measurement issues, failure typologies and potential policy initiatives	General failure categories: discontinuance of franchisee owned-units, termination of the franchisee for financial reasons, failure of franchisor Turnover include items that are not part of failure (conversions of the outlets, outlets sold between franchisees, other termination reasons than financial) lack of reliable data on franchising failure; its unsure whether franchised businesses have lower risk than independent; definitional and methodological problems plague

Stanworth et al. (2000, 2001)	Empirical, secondary data	Failure of franchisors/franchise systems	Young, less than 4 years old, and small franchise systems pose a risk that is of rather similar magnitude than in conventional businesses The sector has had a tendency for overpromise by, e.g. using terms “proven” and “tired-and-tested” Overall franchisee turnover rates increased noticeably over the 4-year study 8.86–10.49%
Holmberg and Morgan (2003)	Empirical, secondary data, <i>N</i> = 472–1226, <i>n</i> = 447–834 UFOCs from 1994 to 1997	Franchise failure and turnover	

3 Definitional Issues

Franchisee turnover and failure have different meanings. Franchisee turnover will take place when a fixed-term franchise contract expires and is not renewed. However, a franchisee may exit the franchise system before the end of franchise contract period or as the contract expires. When expiration date of a fixed-term franchise contract is at hand, the parties will face a situation where franchisee either continues operating the business or gives up the franchise. At that point the franchisor–franchisee relationship and the quality of co-operation are weighted. Frequently franchisee decides to continue and the parties will renew the contract. At times franchisee wants to renew the contract but the franchisor refuses and the other way around. The end result may be mutual agreement or disagreement of one or both parties.

Franchisee termination or withdrawal before the expiration of franchise contract period is many times difficult to anticipate and causes a problematic state of affairs. Depending on contract provisions either franchisor, franchisee or both may initiate termination. Contract violations can often be found when termination occurs before the end of contract period. Franchisor has to find another franchisee to continue outlet operation or take over the outlet. The worst option is permanent closure of the outlet. In that case the possible franchisee failure has led to outlet closure.

Usually the term failure refers to termination due to financial reasons. Nevertheless, there are other causes and failure does not automatically lead to bankruptcy. Reason for termination may also be avoidance of further losses. It should be considered that many problems whether related to business environment, franchisee's company or franchisee will finally result in financial difficulties of the franchisee's business. Reliable and accurate analysis of the causes and consequences of termination is hard. The problems are often versatile and long-term and the parties may have opposite and subjective interpretations of the state of matters. The essential definitions related to the research subject are depicted in Table 2.

The previous studies have taken up some essential points related to the key definitions portrayed above and those are presented in the following. Turnover is a broader concept than closure and "a more encompassing term than failure" (Walker and Cross 1988). Turnover is the term used to denote a change in ownership of a franchise outlet. The change could occur because the unit was cancelled or terminated by the franchisor, reacquired by the franchisor, not renewed by the franchisor, transferred to another entity, or not doing business for other reasons. The turnover rate more appropriately "indicates the overall likelihood of remaining in business" (Cross 1998). Turnover includes the category of transfers, a category particularly susceptible to double counting. Without investigating circumstances behind each outlet's transfer, there is no way of knowing the extent of the double counting problem.²

² The UFOC Item #20 shows prior three years data for five separate turnover event categories that might also refer to business failures: 1) transfers – a franchisee unit is transferred from the existing owner to a new franchisee owner, 2) cancellations - the franchisee unit is cancelled for failure to comply with quality control reasons or other reasons, 3) non-renewals – the franchisee unit contract is not renewed and the unit may be closed, sold to a new franchisee, or converted

Table 2 Key definitions related to the research subject

Notion	Definition	Notes
Exit	Any situation where a franchisee leaves the franchise system	Does not refer to success, failure or reasons for leaving the franchise system
Termination	Franchisee exits before expiration of the franchise contract. Either franchisee or franchisor initiates the termination	Franchise contract provisions concerning termination are franchise system specific
Turnover	Fixed-term franchise contract expires and is not renewed or franchisee exits before the expiration of the franchise contract for some other reason than franchisee's bankruptcy, liquidation or financial reasons	Either franchisor takes over the outlet(s) or another franchisee continues operation(s)
Discontinuance	Discontinuance can be considered as close synonym to turnover and may be used rather interchangeably	Turnover refers to franchisor's point of view whereas discontinuance relates to franchisee's perspective. Discontinuance is a more general notion on the same matter as turnover
Failure	Occasions where franchisee ceases operation and the reason for exit is franchisee's bankruptcy, liquidation or financial reasons. Franchisor may also face failure and a franchisor-owned outlet may have to be closed down. Causes relate to financial reasons, i.e. unprofitable operations, which may stem from, e.g. poor site location and/or tense competition	The outlet(s) may not have to be closed down; franchisor may take them over or find another franchisee to continue operation(s)
Closure	Permanent closure of a franchisee or franchisor-owned outlet	Closure does not necessarily refer to failure

Turnover does not always mean failure, thus the reason for it may be positive or negative. Moreover, this information is not obtained if the whole franchise system ceases. What should be remembered though is that franchisor failure – the closing down of the franchisor does not necessarily mean the closure of the individual franchisee units (Stanworth et al. 2001; Holmberg and Morgan 2003; Buchan 2005; Frazer 2004).

to a company-owned unit, 4) reacquisition – the franchisee unit is purchased by the franchisor and becomes a company-owned unit, and 5) other – units which are no longer doing business for other reasons. There are several problems with the categorization since e.g. the categories are not necessarily mutually exclusive. This may cause double counting. Obviously, the categories do not reveal the reasons behind turnover.

4 Research Design

In the current study the definition of failure means an occasion where a franchisee ceases operation and the cause for exit is franchisee's bankruptcy, liquidation or financial reasons. Other occasions are referred as turnover. When turnover happens, another franchisee or franchisor will continue operating the outlet. Franchisee discontinuance and turnover are considered as close synonyms. However, turnover refers to franchisor's point of view whereas discontinuance relates to franchisee's perspective and is seen as a more general notion on the same matter. Franchisor may also face failure and a franchisor-owned outlet may have to be closed down. Causes frequently relate to unprofitable operations, site location and competition. Evidently contradictions can be found in concept classifications but they have been used in several previous international studies.

The data for the present study was gathered in spring 2002 with a postal survey. The questionnaire was mailed to all 46 member franchisors of the *Finnish Franchising Association*. The survey was targeted to CEOs or franchising managers. Altogether 33 responses were received of which 32 were usable, amounting to a response rate of 72%. When reminder calls were made it was found that many franchisors were reluctant to provide this type of information on their businesses. Those 33 franchisors that responded represented 20.1% of all the 164 franchises operating in Finland in 2002. Hence, the obtained results cannot be generalized nationally. Nevertheless, the results can be considered as indicative. Moreover, it is worth noting that the investigated franchisors were organized in the national franchisor association which might have an effect on the results. A more detailed description of the respondent franchises is given in Table 3.

The youngest of the sampled franchisor companies started business in 2001 and the oldest in 1885. The company that launched franchise operations first did so in 1987 while four companies initiated franchising as late as in 2001. One of the respondent firms had not started franchise operations at the time of the study. The fastest ones launched franchise operations one year after business start-up whereas it took 112 years for the "slowest" company. On average it took some 20 years (median 8 years) for the studied companies to start franchise operations. The size of sample franchises also reflected the size distribution of all franchises operating in Finland in 2002. Typically franchise chains are rather small. The questionnaire included mainly structured questions but some open-ended questions were also incorporated. The questionnaire was based on a model (see Fig. 1) created as a result of in-depth interviews of the six leading Finnish franchise attorneys. Fixed-term franchise contracts were applied in all examined franchises.

The respondent firms were asked on possible franchisee terminations in years 1999–2001, causes for terminations, the party (i.e. franchisor or franchisee) initiating termination, the year of termination, and the status of the franchisee outlet subsequent to termination. Furthermore, information on possible closures of the franchisor owned outlets during the 3 years in question was inquired.

Table 3 Sample description ($n = 32$)

Item		<i>n</i> (%)
Origin of the franchise	Finland	27 (84%)
	USA	3 (9%)
	Sweden	1 (3%)
	Denmark	1 (3%)
Business sector	Services	14 (44%)
	Retail	12 (37%)
	Restaurant, café and fast food	6 (19%)
Year of business start-up	1940 or before	5 (16%)
	1941–1960	1 (3%)
	1961–1980	8 (25%)
	1981–2000	17 (53%)
	2001	1 (3%)
	Mean	1974 and 10 months
Median	1985 and 6 months	
Year of starting franchise operations	1987–1990	9 (29%)
	1991–1994	7 (22%)
	1995–1998	8 (25%)
	1999–2001	7 (22%)
	Not applicable	1 (3%)
	Mean	1994 and 2 months
	Median	1993
Size of franchise systems		
<i>Franchisee owned outlets</i>	Less than 20	19 (65%)
	20–39	4 (13%)
	40–59	3 (10%)
	60–79	2 (6%)
	80 or more	2 (7%)
	Mean	33.9
	Median	8
<i>Company owned outlets</i>	Less than 20	23 (74%)
	20–39	4 (10%)
	40–59	2 (6%)
	60–79	1 (3%)
	80 or more	1 (3%)
	Mean	28.4
	Median	7
<i>Total number of outlets</i>	Less than 20	12 (39%)
	20–39	7 (23%)
	40–59	6 (19%)
	60–79	3 (10%)
	80 or more	3 (10%)
	Mean	62.0
	Median	28

Note: percentages may not add to 100% due to rounding

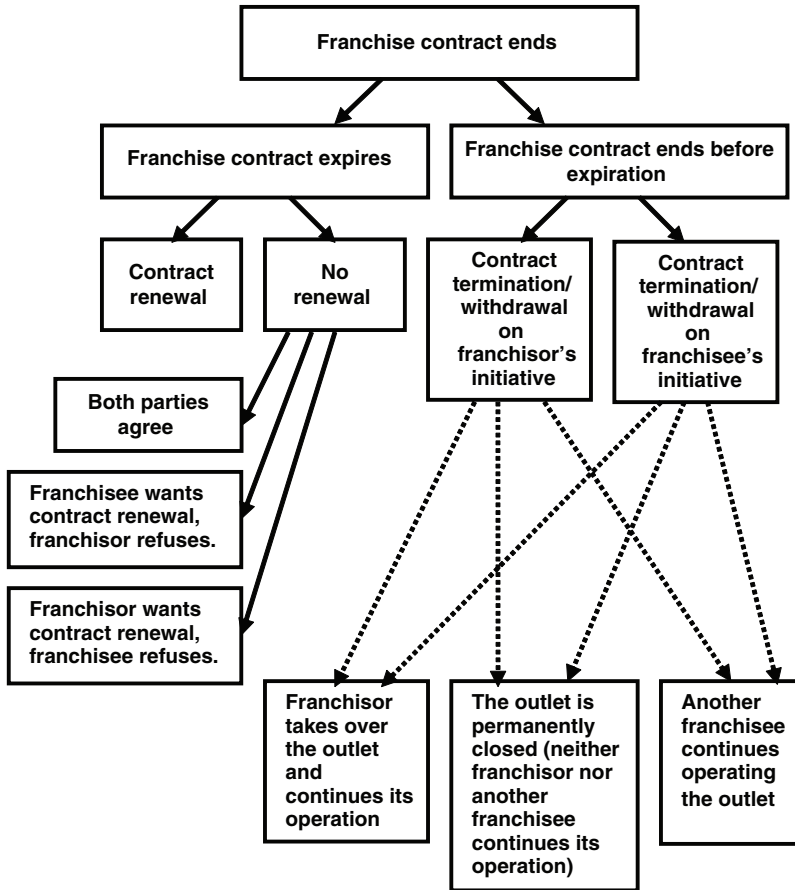


Fig. 1 Generic model on the end of fixed-term franchise contract

5 Results

Table 4 presents franchisee terminations in 1999–2001 and the relative turnover rates in the studied franchises. Franchisee turnover shows franchisor’s ability to hold on and engage franchisees into the franchise system. Further, turnover indicates the average time a franchisee operates in a franchise system. The outcome should be compared to the franchise contract term in the particular franchise. For example, if franchisee turnover is 10% per year, on the average franchisees will change once in 10 years in a franchise system. If turnover rate is high, most likely the franchisor is facing a serious problem lowering the productivity. Franchise contracts that are “too short” will feed franchisee turnover. In Finland franchise contracts are typically significantly shorter than for instance in the USA (Tuunanen 2004). The appropriate length of a franchise contract is based on financial facts of an average franchisee in a particular franchise system.

Table 4 Franchisee terminations and turnover in 1999–2001 ($n = 32$)

Year	No. of franchisee terminations	Total no. of franchisee owned outlets	Relative turnover rate (%)
1999	89	979	9.00
2000	114	1,051	10.85
2001	129	1,051	12.27
Total	332	3,081	10.78

In 1999 almost half (47%) of the ceased franchisees were terminated. In 2000 and 2001 the corresponding figures were 54 and 64%, respectively. Moreover, in more than half (53%) of the cases in 1999 the termination was initiated by a franchisee. In the following two years the equivalent figures were 41 and 42%. Nevertheless, in 1999 there were 14 (64%) franchises with no franchisee terminations and in 2000 and 2001 the corresponding numbers were 13 (57%) and 12 (44%).

Table 4 indicates that on the average the turnover rate was 11% per year which is in line with the results of the earlier international studies. For instance, in 1997 in the UK the amount of franchisee turnover was found to be 10% per year and the US statistics from year 1997 presented a franchisee turnover figure of 10.5%. It should be remembered that turnover figures include failures.

The respondents were inquired on the causes for franchisee exits and the party that took the initiative (see Table 5).

Regarding franchisee related causes for exits the respondents marked most often “something else” and wrote down causes such as “misrecruitment”, “misfit between the franchisee and the business category”, “franchisee did not comply with contract provisions”, “franchisee made a career shift”, “lack of energy on franchisee’s side and franchisee’s carelessness on financial matters”. Some respondents did not identify any particular cause. The large number of answers in this category might indicate that respondents could not classify the causes for exits under any of the given options or on the other hand, took the easy way out if they did not want to identify the cause. Causes that relate to franchisees personally such as tiredness, illness and family situation were behind many exits. Noteworthy, there were also several franchisor related causes for exits. The respondents gave causes such as “management decision”, “operational difficulties” and “inappropriate site selection”.

Business related causes for franchisee exits such as tense competition and unprofitable operations were also found. Franchisee exits due to avoidance of further losses or discontinuance of unprofitable operations were considered as failures. What was interesting though was that only in three cases the cause for exit was termination of outlet tenancy agreement by landlord. Moreover, in more than twenty cases the cause for discontinuance was franchise contract expiration and non-renewal.

The questionnaire included an open ended question asking the two most important reasons that led to closure of franchisee owned outlets in 1999–2001. This referred to situations where neither franchisor nor another franchisee continued operating outlets. Fourteen franchisors answered and gave in total 25 reasons for

Table 5 Causes for franchisee exits in 1999–2001

		Franchisor initiative	Franchisee initiative	Total
Franchisee related causes for exits	– Bankruptcy	7	1	8
	– Liquidation	0	0	0
	– Retirement	0	7	7
	– Illness	26	8	34
	– Death	0	0	0
	– Personal reasons (e.g. family situation)	25	17	42
	– Tiredness	6	40	46
	– Franchise contract violations or another dishonest behavior in part of the franchisee	14	2	16
Franchisor related causes for franchisee exits	– Something else, what?	71	35	106
	– Franchise contract violations or another dishonest behavior in part of the franchisor	0	0	0
Causes for franchisee exits related to the business environment	– Something else, what?	1	15	16
	– Termination of the outlet tenancy agreement by landlord	3	0	3
	– Accident/damage/loss (e.g. fire, water leakage)	1	0	1
Business related causes for franchisee exits	– something else, what?	0	0	0
	– Avoidance of further losses or discontinuance of unprofitable operations	4	5	9
	– Tense and unbearable competition	21	0	21
Other causes for franchisee exits	– Something else, what?	0	0	0
	– Non-renewal of the franchise contract	22	1	23
	– Long-term, unsolvable conflict between the franchise contract parties	1	1	2
	– Something else, what?	0	6	6

closures. Nine (36%) answers indicated financial reasons, six (24%) were franchisees' personal reasons, four (16%) answers related to poor choice of outlet location. Six (24%) reasons could not be classified in any other category.

Worth recognizing is that the number of franchisees and franchisee owned outlets is not necessarily the same since some of the franchisees might be multi-unit owners. However, previous studies have shown that circa 85% of the Finnish franchisees are single-unit owners (Tuunanen 2003). Eight franchisee bankruptcies were recorded during the investigated years 1999–2001. Therefore, the average franchisee bankruptcy rate was 0.78%³. Only one bankruptcy, where no-one, neither franchisor nor

³ 8 bankruptcies/1 027 franchisee owned outlets × 100 = annual franchisee bankruptcy rate 0.78%

Table 6 Closures of the franchisor-owned outlets in 1999–2001 ($n = 32$)

Year	No. of closures	Total no. of franchisor-owned outlets	Relative closure rate (%)
1999	5	758	0.66
2000	14	841	1.66
2001	23	879	2.62
Total	42	2,478	1.69

another franchisee continued operating outlet, took place. The average annual failure rate was found to be 1.66% since franchisee exits due to avoidance of further losses or discontinuance of unprofitable operations and bankruptcies were considered as failures.

Also franchisor-owned outlet closures took place during the studied three years (see Table 6). In total the relative share of closed franchisor-owned outlets of the total amount of franchisor owned outlets was 1.69% in 1999–2001. The figure could be considered as franchisor failure rate. To examine the total failure rate of a franchise, franchisee and franchisor failure rates can be combined. Here the figure was 3.35%.

For the sake of comparison, figures describing the stock of enterprises in Finland are presented in Table 7. Especially the relative shares of ceased enterprises and bankruptcies are of interest. The number of ceased enterprises includes bankruptcies. Ceased enterprises are neither liable to pay value added tax nor do they act as employers. Nonetheless, not all companies are permanently ceased, instead they might be in a so called “resting state”. According to the figures in Table 7 the average risk of bankruptcy for franchised businesses (0.78%) seemed to be around half of the risk for stand-alone businesses (1.32%) during the studied years. Further, the number of ceased enterprises appears significantly higher compared to franchising. The current study measured outlet closures which differ from enterprise closures. Therefore, the figures might not be fully comparable, for instance, there is no equivalent figure for franchisee discontinuance.

The respondents were asked on the status of the outlet subsequent to franchisee exit. According to Table 8, more outlets were transferred to other franchisees than converted to franchisor-owned. On the other hand, there were only three contract transfers relating to generation successions in 1999–2001. Furthermore, more franchisee than franchisor owned outlets were opened in the respondent 32 franchises.

Every fourth (24%) franchisor reported facing unexpected franchisee turnover where franchisee ceased operations before his/her franchise contract expired. Furthermore, every third (32%) franchisor saw unexpected franchisee turnover as detrimental to the franchise. There were several disadvantages and problems mentioned: increased monitoring costs, rise in training, advice and field-support costs, lost revenues, costs from outlet closures, strangled growth of the franchise system, badwill and negative publicity, heightened recruitment costs, know-how leakages and franchisor operational and time management problems.

Table 7 Key figures of the Finnish enterprise stock in 1999–2001

Year	No. of start-ups (%)	No. of ceased enterprises (%)	Net increase (%)	No. of bankruptcies (%)	Total No. of enterprises
1999	21,557 (9.82%)	19,626 (8.94%)	1,931 (0.88%)	3,080 (1.40%)	219,516
2000	22,446 (10.07%)	20,091 (9.01%)	2,355 (1.06%)	2,908 (1.31%)	222,817
2001	21,998 (9.78%)	20,308 (9.03%)	1,690 (0.75%)	2,793 (1.24%)	224,847

Source: Hyrsky 2006, Ministry of Trade and Industry

Notes: Start-ups = number of enterprise openings and their relative share of the stock of enterprises
Ceased enterprises = number of enterprise closures and their relative share of the stock of enterprises

Net increase = Enterprise openings minus enterprise closures and the relative share of the stock of enterprises

Bankruptcies = number of bankruptcies and their relative share of the stock of enterprises

Stock of enterprises = total number of enterprises in Finland

Table 8 Outlet conversions, contract transfers and new outlet openings in 1999–2001 ($n = 32$)

	1999	2000	2001
No. of outlets converted to franchisor-owned	8	8	17
No. of outlets transferred to another franchisee	32	20	32
No. of new franchisor-owned outlets opened	20	19	24
No. of new franchisee owned outlets opened	76	57	42

It is worth mentioning that only part of the failure and turnover related disadvantages and problems cause evident and easily measurable expenses to franchisors. Previous international studies have indicated that franchisors tend to underestimate the costs of franchisee recruitment (Macmillan 1996). The results of the present examination lend support for this. The franchisors were asked as how severe they saw the disadvantages caused by unexpected franchisee turnover. A five-point Likert-type scale ranging from 1, i.e. no disadvantages, to 5, i.e. severe disadvantages, was used to measure the severity of disadvantages. The mean score was 2.74 (median 3) indicating that franchisee turnovers were seen as somewhat disadvantageous. Interestingly, no answers with value 5 were given.

6 Discussion and Implications

6.1 Managerial Implications

Based on the results of the study the following recommendations could be given to franchisors. Franchisee recruitment and outlet site selection are vital issues for the success and growth of the franchise (cf. Bradach 1998). Hence, close attention

should be paid to constant development and improvement of analyses and decision making practices related to them. Franchisees are the collaborative partners of the franchisor and franchisor's success depends inevitably on the success of franchisees. The study showed that part of the exits relate to franchisee's personal matters which can be anticipated and controlled at least to a certain extent. Even though the current study did not focus on outlet location choices, it is an essential matter (cf. Zeller et al. 1980; Kaufmann and Rangan 1990; Ghosh and Graig 1991; Kalnins 2004). Outlet location decisions require expertise and have a straightforward effect on the success of the forthcoming business. The current study showed that many failures and outlet closures had to do with inferior outlet location choices. In the light of the results, it is very likely that many franchisors could improve on the areas of franchisee recruitment and outlet location decisions.

An interesting finding was that the franchisors did not seem to consider the effects of unexpected franchisee turnover as detrimental or problematic. This is especially surprising since the most severe barrier for faster growth of franchisors in the Finnish market is dearth of future franchisees. If a franchisee decides to exit the franchise franchisor has to either find a successor to the outlet(s) or to close it/(them) down. There are costs related to both options: recruitment costs due to finding another franchisee to continue operations or if franchisor decides to take over the outlet, costs from staff recruitment, training and orientation. The possible sale of the outlet(s) or closing it/(them) down will also demand various resources. Moreover, all the options are likely to require franchisor's attention and move the focus away from the core business. Franchisee turnover and especially failures will cause badwill and negative publicity to the whole franchise system. Additionally, the existing franchisees as well as future franchisees will notice discontinuances and failures and the way franchisor reacts on and manages the situations. In the worst case, more exits, recruitment difficulties and stagnation of growth will follow. Further, franchisors should consider, what is the real growth of the franchise system or is there any, if franchisee exits happen on a regular basis. If the whole extent of direct and indirect expenses and financial losses resulting from franchisee turnover and failures were known, franchisors might pay more attention to the issue and try to prevent and control it vigorously. Yet, not all expenses due to the failure and turnover related disadvantages and problems are evident or easily measurable.

A closer examination of the causes generating franchisee exits gave support for dividing turnover cases into two categories "natural turnover" and "unnatural turnover". "Natural turnover" refers to occasions where franchisee turnover is difficult to anticipate and thus, challenging for franchisor to prevent. Examples are franchisee's sudden personal and health problems or even death. "Unnatural turnover" means occasions where signs and causes for possible turnover can be registered and influenced if proper and timely managerial actions are taken by franchisor. Outlet location, competition, financial reasons, constant under-performance, franchisee's dissatisfaction and frustration, opportunistic behavior, friction and conflicts in the relationship with franchisor are some examples. Franchisors should have regular and versatile measures for monitoring and securing the well-being of the franchised businesses. Moreover, reasons for franchisee turnover and failures should

be examined consistently and annually. Every case should be analyzed individually even though there might be several exits in the franchise. What is more, the outcomes of the analyses should be reflected to recruitment practices and franchisee profiles. Franchising is a growth strategy, but trying to accelerate growth by compromising and bargaining over criteria and standards in franchisee recruitment and site selection is likely to increase franchisee turnover and failures in a long-term.

6.2 Research Implications

Franchisee turnover and failure have been studied to some extent internationally. The earliest studies of the topic date back to late 1980s and interest on this pertinent and complex issue has continued over the past years. However, several disputes relate to previous studies starting from discrepancies related to definitional issues. On the other hand, the topic is very delicate and challenging to study. In the present study careful attention was paid to definitional issues. Furthermore, an extensive literature review on franchisee turnover and failure was portrayed. Contrary to many previous international studies, the current study was based on the primary data gathered with a mailed questionnaire. This can be regarded as a merit, since the method applied provided much richer data on the phenomenon under investigation. The study was the first on this topic in Finland.

What can also be seen as a merit is that franchisor failure rate (i.e. failure of company owned units) was studied. This is a topic that has been not been a focus of the previous research. Moreover, a distinction was made between franchisor and franchisee failure rates. The franchisee failure rate can at least to some extent be compared to stand-alone small business failure rate. Hence, the present study provided insights in business risk between two alternative forms of self-employment. In addition, the current study called attention to the problems franchisors face due to franchisee turnover and failure.

Some limitations relate to implications of the study. First, it should be considered that the study was based on the franchisors' perceptions on franchisee failure and turnover. Second, franchisee turnover and failures is a negative matter and some of the respondents had reserved or even critical opinions on this type of studies. Negative attitudes towards inquiries on the matter may have caused refusals to respond, leaving some of the questions unanswered or wittingly giving false information. Third, the sample of 33 respondents was small compared to the total number of franchisors ($N = 164$) operating in Finland in 2002 and therefore, the obtained results cannot be generalized nationally. Nevertheless, the results can be considered as indicative. Moreover, it is worth noting that the investigated franchisors were organized which might have an effect on the results (cf. Code of Ethics). Fourth, the data was gathered with a postal survey and the questions were mainly structured. Qualitative research methods could be more useful with this type of delicate subject. Fifth, the results do not indicate what happened to franchisees after discontinuances of franchise relationship. How many continued their business as stand-alone business

owner and how many ceased their entrepreneurial career. Therefore, it would be fruitful to collect data from ex-franchisees in order to explore their career paths.

The authors have a follow-up investigation on franchisees who have given up the franchise. The results of the forthcoming study will partly expand on the results presented here. Likewise, research on success and survival of franchisees' businesses compared to stand-alone businesses operating on the same business category is planned. Franchisee turnover and failures are important issues for follow-up, learning and development for the franchisors. The success of a franchise depends on the success of the interdependent parties, franchisor and franchisees.

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Part III
Strategic Alliances

Governance Structure Issues

A Model to Analyse Governance Structures in Technological Networks

Nieves Arranz and J. Carlos Fdez de Arroyabe

Abstract This paper provides an analysis of governance structures in networks. The transaction cost theory provides a description of which variables affect governance forms but it does not explain how they are affected and what variables have a great influence. Taking this departure point, our study proposes a model for analysing the governance structure of a network which allows us to study the variability of governance forms and their efficiency, and also provides an answer to three questions: How is the governance form structured in networks? What factors influence the variability of governance forms in networks? What is the most efficient or suitable governance form of networks? In this study, we used data collected from a large sample of technological networks developed under the V Framework Programmes (1998–2002) retrieved from the publicly available CORDIS (Community Research Development Information Service) projects database.

Keywords: Technological networks · Governance · Transaction cost

1 Introduction

Management theorists and practitioners have long recognized technological networks as a strategic reality. Within the scope of the firm, a significant increase of joint projects in the technological development processes has taken place due more to the fact that technological networks constitute a source of innovation rather than

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to the classic and risky internalisation of these types of activities. The purpose of this paper is to provide theoretical and empirical evidence on efficiency of governance forms in technological networks through an exploratory analysis.

We will consider that the performance of a joint project, as is shown in the literature, supposes on the one hand the development of a technological process (technological process) and, on the other hand the existence of a governance structure (technological network) to develop it. In the development of the technological process a set of partners (firms, universities, research centres, and so on) are involved and, through a series of stages (identification of needs, technological description, and so on), carry out technological activities (basic or applied research, prototype and so on) in order to achieve diverse objectives (patents, new products, training, etc.). To develop the technological network it is necessary to establish a governance structure whose objective is to manage the activities and relationships among the partners in order to fulfil the goals of the technological network (Powell et al. 1996; Gulati et al. 2000; Hagedoorn et al. 2000).

From this departure point, our study focuses on questions: How is the governance form structured in technological networks? What factors influence the variability of governance forms in technological networks? What is the most efficient or suitable governance form of technological networks? By examining the example of networks arising from European Union R&D Framework Programmes, we seek to answer these key questions by approaching the analysis through transaction cost theory.

In Sect. 2, we present a concise overview of relevant literature relating to governance structures and the issue at hand. We subsequently explain our research method and the model of governance structures and discuss our findings in Sect. 4. In the last section of the paper, we provide conclusions and some suggestions for future empirical research.

2 Relevant Literature and Conceptual Framework

2.1 Relevant Literature

Regarding the first question of how the governance form is structured in technological networks, Gulati (1998) defines governance structures as the formal contractual structures used to organize partnerships in strategic alliances. Williamson (2002) points out that the objective of governance structures is to infuse order in a relationship where potential conflict can arise, and where opportunities for common gain exist. Williamson (2002) also illustrates that the mode of governance depends on the incentive intensity, the administrative controls and the legal regime.

Technological networks as voluntary arrangements between two or more firms, as Gulati (1998) points out, require a suitable governance structure whose objectives are to solve conflicts (Mohr and Spekman 1994), coordinate common tasks (Geringer 1991) and distribute results (Ring and Van de Ven 1994).

Furthermore, the governance structures in R&D networks are influenced by the dilemma between conflict and cooperation (Gulati et al. 2000; Williamson 2002) which arises in networks because they are made up of firms and organizations that have their own objectives which do not always coincide with those of the network. Thus, this circumstance can generate discrepancies within networks. Marschak (1974) has described this situation based on the concordance of objectives using three levels: team, foundation and coalition ranging from unanimity among partners to discrepancy. This feature of networks requires the inclusion of certain mechanisms, the safeguard mechanisms, in governance structures whose objective is to avoid opportunistic behaviour.

Regarding the second question, the factors that influence the variability of governance forms in technological networks have been widely studied in the literature (Powell 1990), and in transaction cost theory this issue has a twofold approach. The first one analyses how governance structure varies, determining its limits. Williamson (2002) considers the network as a contractual form between the market and the firm; heuristically, he states that the choice of governance structure shifts from the market to the firm. This can be interpreted as the move from simple to complex. Similarly Imai and Itami (1984) consider alliances as hybrid forms of organisation between the market and the firm. For these authors the governance structure of networks varies from those that are closer to the market (in which the interaction between agents and the existence of common objectives are infrequent) to those closer to the firm in which case the interaction and concordance of objectives are greater.

The second approach analyses which factors affect the variability of governance forms. Transaction cost theory explains the configurations of governance structures emphasizing the degree of hierarchical and safeguard mechanisms they embody, pointing out the set of variables included (Robertson and Gatignon 1998; Williamson 2002). Regarding hierarchical mechanisms, the first variable is the external uncertainty, referring to both demand (which concerns the fluctuation and unpredictability of demand) as well as technology (which refers to the probability of emergence of technological improvements). Another one is the specificity of assets, because the transaction of technological assets involves investments in human and physical capital that cannot be redeployed without losing productive value. The last one is frequency, which refers to the periodicity with which technological transactions occur. Safeguard mechanisms in the governance structure arise with the need to minimise opportunistic behaviour. It is argued that opportunistic behaviour arises from behavioural uncertainty which concerns the difficulty of observing and measuring the adherence of the transacting parties to the contractual arrangements and the difficulty of measuring the performance of these parties. In this case, the variables indicated in the literature which influence the governance structure are the ability to measure the technological performance and the firm's prior experience with networks.

Once the factors that influence the governance forms have been identified, we analyse the variability of governance forms. Transaction cost theory tries to explain this variability through the study of causal relationships between the variables that

affect the governance of technological networks (Brockhoff 1992; Gulati 1998; Artz and Brush 2000; Williamson 2002). Thus it is proposed, from a classical management framework, that a positive and significant relationship exists between uncertainty, specificity and frequency and the hierarchy mechanisms in the network. Thus the greater the specificity, uncertainty and frequency in a technological network, the more hierarchized the form of governance. Similarly, the greater the possibility of measuring technological performance in technological networks is, the lesser the opportunistic behaviour and, therefore, the fewer the safeguard mechanisms.

This approach, though, does not offer an explanation as to which variables will greatly affect governance forms from a quantitative point of view, that is, how each variable affects governance forms or what relationship exists between these variables. Such issues have been reflected in the research which has questioned the validity of the model. Transaction cost theory does not offer as good an explanation as do the results of empirical studies (Zajac and Olsen 1993), the reason for which may be that governance structures in technological networks have their own singularities.

In conclusion, a certain controversy is observed between transaction costs theory and the empirical evidence that shows the causal relationships which influence the variability of governance forms of technological networks.

Finally, the third question we will analyse is that of determining the most efficient form for governing technological networks. In this sense, Walker and Weber (1984) show a previous model in which they consider that the most efficient form of network governance is that which minimizes transaction costs. These authors exclusively consider specificity as the explanatory variable and the relationship between specificity and management costs. In their study, Walker and Weber implicitly assume the correct performance of the network and consider that efficiency is achieved when governance costs are minimized.

In general, transaction cost theory considers that the most efficient form of governance structure is that which minimizes not only transaction costs but also opportunistic behaviour (Williamson 2002). This criterion is certainly restrictive; thus the management literature remarks that the unsuccessfulness of networks is due, among other reasons, to the poor functioning of networks whose objectives are to solve conflicts, coordinate tasks and distribute results.

Taking into account the above relationships we will construct a model that, in our opinion, contains the variables that determine the governance structure of a technological network.

2.2 Conceptual Framework

In this section we propose a model for analysing the governance structure of a technological network that will allow us to study the variability of governance forms and their efficiency.

The governance structure of a technological network can be analysed as a model in which the governance structure is the variable (G), governance of the technological network. In accordance with Gulati (1998) we can define the governance variable (G) as the formal contractual structure used to organize partnerships in networks. The main objectives of governance structure are to solve conflicts, coordinate common tasks, distribute results and avoid opportunistic behaviour.

Similarly, we can define the hierarchy variable (H) and safeguard variable (S). The hierarchy variable represents the range of use of hierarchical mechanisms in the technological network while the safeguard variable (S) represents the range of use of safeguard mechanisms in the governance structure of the technological network.

In these definitions we assume that the limits of variability of the two variables, H and S, are the market and the firm. Therefore the following question is: What does this variability depend on? As the literature review has shown, the hierarchy and safeguard variables depend on variables endogenous and exogenous to the network.

In the case of the hierarchy variable it depends on the technological specificity of assets to be developed in the network, the frequency of contacts among participating partners and the uncertainty of environment. Therefore, $H = \phi (s_a, f, u)$; where: s_a = specificity of asset variable, f = frequency variable, u = uncertainty variable.

The safeguard variable depends on the measure of technological results and on the prior experience of partners in networks. Hence: $S = \gamma (m_t, e)$, where: m_t = measure of technology variable, e = prior experience variable.

As we have mentioned, the governance structure of a network is comprised of a hierarchical structure and certain safeguard mechanisms which can vary from frameworks near to the market up to structures near to the firm. Thus we can formulate that the governance variable of a technological network depends on both the hierarchy variable as well as on the safeguard variable, that is $G = \mu (H, S)$.

This represents a system of three equations, such that, $G = \mu (H, S)$, $H = \phi (s_a, f, u)$ and $S = \gamma (m_t, e)$, in which we will study the interrelations between the input and output variables, that is, we will determine the μ , ϕ , γ functions (Fig. 1).

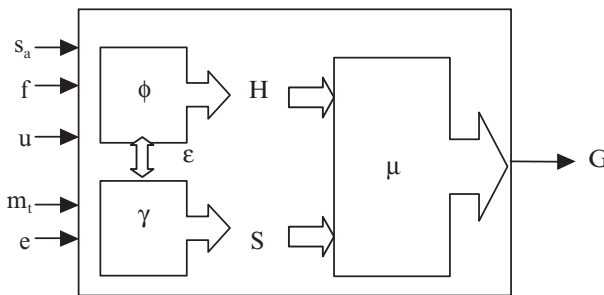


Fig. 1 The model of governance

3 Methodology

3.1 Sample

Before describing the data and presenting the empirical analysis we will describe a series of initial conditions of the study. Firstly, we have used the network as our unit of analysis. Secondly, the measure of the efficiency in the governance form of a technological network is analysed as partner's behaviour, rather than measured by a count of technological results, such as in databases on alliances. There are two reasons for this. On the one hand, the subjectivity of the measure, i.e. efficiency in governance subsystems is defined as the optimization degree in the functions of coordination, which are to solve conflicts, distribute results and avoid opportunistic behaviour among partners. On the other hand, there is not much empirical research on these issues which makes it difficult to treat the efficiency in governance form of technological networks as we expected. Therefore, due to the global character of our analysis and the lack of suitable databases and references we have decided to design a survey following a mixed methodology, through the use of experts (Delphi method) and the search for a representative sample.

To overcome the difficulty of measuring subjective variables, we have based the items on previous research, using a Likert scale to weight these variables (Robertson and Gatignon 1998).

The empirical work is based on an extensive survey of technological networks developed under the V European Research and Development Framework Programme between the years 1998 and 2002. The data were collected in 2002 through a sample of institutions which frequently take part in European technological networks. At that time, 350 institutions were identified in the CORDIS database (Community Research and Development Information Service). We elaborated a complete questionnaire that we pre-tested with a small group of institutions from different countries before sending out the final version. The survey yielded 275 usable responses, which represent a response rate of 78.5%. The respondents were predominantly managing directors and CEOs of these institutions.

3.2 Measure of Variables

The measure of variables implies two initial problems. Firstly in the specific literature, G, H and S have been considered as latent variables so we cannot measure them directly. For that reason, we will take the works of Robertson and Gatignon (1998) and Williamson (2002) as a starting point and we consider that G, H and S are constructs of other variables widely referenced in the literature. Secondly, from a management point of view, the problem lies in how to measure interrelation variables, organizational variables and variables related to the partner's behaviour. In this type of study variables of this kind are usually measured using Likert scales.

In our study most of the variables are measured by single items in the questionnaire. We have mainly used a 5 point Likert scale to enable the respondent to indicate his/her degree of agreement with the statement in the questionnaire on a scale from 1 – strongly disagreeing with the statement, to 5 – strongly agreeing with the statement. Furthermore in the analysis we have discriminated between two kinds of projects, applied projects (or exploitation projects) and less applied projects (or exploration projects), as determined by Dyer and Nobeoka (2000).

March (1991) claims that “the essence of exploitation is the refinement and extension of existing competencies, technologies and paradigms. The essence of exploration is experimentation with new, uncertain alternatives”. While exploitation involves using existing information to improve efficiency and returns from present strategies, competencies and procedures, exploration entails searching and experimenting to find emerging innovations that will produce future profits.

3.2.1 The Hierarchical Subsystem

For output hierarchy variables, the measures are based on the similarity of the network’s structural elements with the market or with the firm (Gulati 1998; Hagedoorn et al. 2000). The mechanisms used are derived from the need to plan, decide and organize the technological activities to be developed. With respect to the network planning, diverse criteria are cited in the literature. The first one is linked to partners’ equilibrium, and in European transnational projects this also includes the country factor, which seeks certain equilibrium in the distribution of tasks. The second criterion considers the scientific and technological specialization of the partners. The last one refers to the special requirements of the project, mainly in sponsored projects. Regarding decision making, the specific literature shows that two centres of decision making exist: the coordinator of the network and the consensus between partners (Hagedoorn et al. 2000). As for the organisation of activities among partners, it is worth mentioning the two most common situations: teams within the network and the independent development of tasks.

The reliability of measures and descriptive statistics have been analysed and the results are reflected in Appendix 1. To assess reliability we computed Cronbach alphas for each multiple scale item. We have also homogenized and simplified the variables with the aim of obtaining constructs or factors that represent each set of variables.

To measure the input variables of this subsystem, as is pointed out in transaction costs theory, we will base these measures on specificity, uncertainty and frequency. The first one, specificity of assets, is the core determinant in transaction costs literature (Robertson and Gatignon 1998; Williamson 2002). The transfer of specific assets involves investments in human and physical capital that cannot be redeployed without losing productive value (e.g. a plant and equipment suited to produce a specific product or to serve a particular customer, brand name, investments in capital, specific knowledge and expertise, and so on). In technological networks, partners sign a contract requiring specific investments which lead to a relationship of mutual

dependence. In our research the measure of the specificity is based on a five item scale which assesses finance, plant equipment and market-ing commitments, and the extent to which technology represents a core competence and a high degree of collective learning. External uncertainty includes both demand uncertainty and technological uncertainty. Demand uncertainty concerns the fluctuation and unpredictability of demand, that is, it assesses volatility of demand. Technological uncertainty refers to the probability of improvements in technology rendering the current technology development effort obsolete. We do not take the frequency variable into consideration because the networks of our sample are sponsored by European Framework Programmes and the temporal variable is defined a priori. The reliability of measures and descriptive statistics are reflected in Appendix 1.

3.2.2 The Safeguard Subsystem

The safeguard output variable is related to the mechanisms which govern R&D networks in order to avoid opportunistic behaviour (Williamson 2002). The specific literature on networks asserts that in the selection of a partner, previous experience and trust serve as important factors in minimizing opportunistic behaviour. Furthermore, the definition of responsibilities (both in the inputs and the sharing of benefits as well as in the definition of tasks) and the supervision mechanisms (reports and meetings among partners, the role of coordinator and so on) are frequently used as safeguard mechanisms (Ring and Van de Ven 1994). Appendix 2 contains the reliability of measures and descriptive statistics for this variable.

To measure the input variable of safeguard subsystems we will use behavioural uncertainty (or internal uncertainty) and the firm's experience in technological networks (Robertson and Gatignon 1998). Behavioural uncertainty is related to the ability to measure innovation performance concerning the specificity with which the performance of the innovation was established and monitored. The firm's experience with technological networks refers to the number of technology development projects in which the firm has been involved over the past 5 years, and also evaluates past technological network success using different criteria, such as the achievement of objectives or the level of market penetration obtained. Safeguard variables were measured in these terms by single items. Reliability of measurements and descriptive statistics are reflected in Appendix 2.

3.2.3 Governance Subsystems

Finally, regarding the measure of the network governance variable, we have already mentioned that objectives of governance structures are to solve conflicts between partners, coordinate tasks and distribute results, and finally to avoid opportunistic behaviour (Williamson 2002). The efficiency of governance structure is measured in these terms by single items. Reliability of measures and descriptive statistics are reflected in Appendix 3.

We obtain satisfactory results for the validity of the variables, as indicated by the Cronbach alpha values (>0.6).

4 Analysis of Results and Discussion

We have already determined the functions of governance (μ), hierarchy (ϕ) functions and safeguards (γ) in each subsystem. We will proceed now to analyse whether there is any interrelation between the hierarchy subsystem and the safeguard subsystem as we propound in our model. Afterwards, we will determine which model – linear or non-linear – offers a better fit to the whole model of governance.

For the interrelation between the hierarchy subsystem and the safeguard subsystem we determine the significance level of interrelation variables, ϵ_1 and ϵ_2 , which represent the effect of input variables from one subsystem into the other (Hirschhorn et al. 2001). We have performed a pre-test using a linear regression which shows the independence between subsystems in each of the projects considered.

The regression model shows (as seen in Table 1) the low degree of interrelation between the input variables group and the corresponding subsystems so that we can consider, ϵ_1 and ϵ_2 residual variables and therefore the independence between hierarchy and safeguard subsystems.

Table 1 Linear regression model ($H = \phi (s_a, f u)$; $S = \gamma(m_r, e)$, $N = 275$)

Variable	Exploitation				Exploration			
	Hierarchy variable		Safeguard variable		Hierarchy variable		Safeguard variable	
	Mod.1	Mod.2	Mod.1	Mod.2	Mod.1	Mod.2	Mod.1	Mod.2
Constant	-0.032	-0.051	0.011	0.009	0.003	0.010	-0.123	-0.101
Specific assets	0.373*	0.322*	0.117	-	0.127**	0.115**	0.034	-
External uncertainty								
Demand volatility	0.087	0.054	0.037	-	0.027	0.027	0.025	-
Technological uncertainty	-0.225*	-0.191**	0.084	-	-0.168**	-0.143**	0.011	-
Behavioural uncertainty								
Measure performance	-0.112	-	-0.371*	-0.350*	-0.081	-	-0.210*	-0.197**
Firm's experience	0.037	-	-0.525*	-0.583*	-0.002	-	-0.281*	-0.254*
R²	0.35	0.27	0.38	0.33	0.14	0.18	0.32	0.25

*p < 0.05; **p < 0.10

Regarding the linear or non-linear nature of governance model functions, in the case of hierarchy (ϕ) and safeguard (γ) functions, from the result of the pre-test (Table 1) we can see the difficulty in adjusting these functions to fit a linear model (\mathbb{R}^2 : 0.35; 0.27; 0.38; 0.33 in the case of exploitation projects; \mathbb{R}^2 : 0.14; 0.18; 0.32; 0.25 in the case of exploration projects) hence, we can assume their non-linear nature. As for the governance function (μ), Table 2 shows the results of linear regression which reveals the impact of hierarchy and safeguard functions on governance function.

It is also observed in this case that the results are not fitted to a linear model (\mathbb{R}^2 : 0.33 in the case of exploitation projects; 0.27 in the case of exploration of projects), hence we will try to approach the system through non-linear analysis.

In order to test the model of governance with a non-linear model we will perform an artificial neural network (ANN) with multi-layer perceptron (MLP), which allows the prediction of non-linear relationships in causal studies and is considered one of the most reliable methods for predictive analyses (see for example, Smith and Gupta 2000).

In the training phase we obtained the best fit of neural networks, determining the number of hidden nodes as well as the transfer function for the three possible combinations of relationships among variables.

Table 3 details the parameters of ANN analysis. For this analysis, we used a restriction in which RMS error is lower than 0.001 for training and validation stages, and the response percentage higher than 95%. We selected the automatic generation of the hidden layer.

Table 2 Linear regression model (governance function, $G = \mu(H, S)$)

Variable	Exploitation	Exploration
Constant	0.036	-0.125
Hierarchy degree	0.179**	0.107**
Safeguard degree	0.451*	0.235*
R^2	0.27	0.33

* $p < 0.05$; ** $p < 0.10$

Table 3 Parameters of ANN analysis

Variable	Hidden Layers		Activation function (hidden layer)	Activation function (output layer)	% Correct	RMS error	
	N^o	Nodes'					
Exploitation projects	μ	1	2	Sigmoid	Linear	87	0.04124
	ϕ	1	3	Sigmoid	Linear	91	0.04076
	γ	1	2	Sigmoid	Linear	85	0.05120
Exploration projects	μ	1	2	Sigmoid	Linear	75	0.06395
	ϕ	1	3	Sigmoid	Linear	82	0.05218
	γ	1	2	Sigmoid	Linear	79	0.06072

To study governance (μ), hierarchy (ϕ) and safeguard (γ) functions we will graphically represent such functions to show the form and to observe whether concavity exists, in which case it will correspond to an efficiency point. The soft-ware used allows the three-dimensional (3D) representation, showing the function related to two variables, maintaining the other variables constant (*ceteris paribus*). In the graphic we represent the two kinds of variables that show the greatest impact for both types of projects studied (Figs. 2a,b, 3a,b and 4a,b).

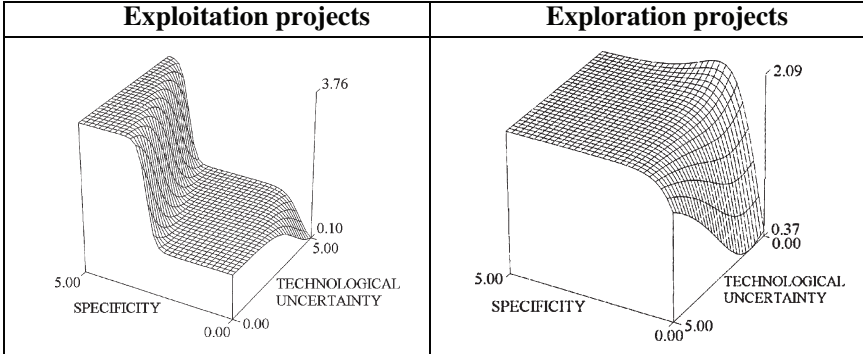


Fig. 2 (a), (b): Three-dimensional (3D) representation of function (ϕ)

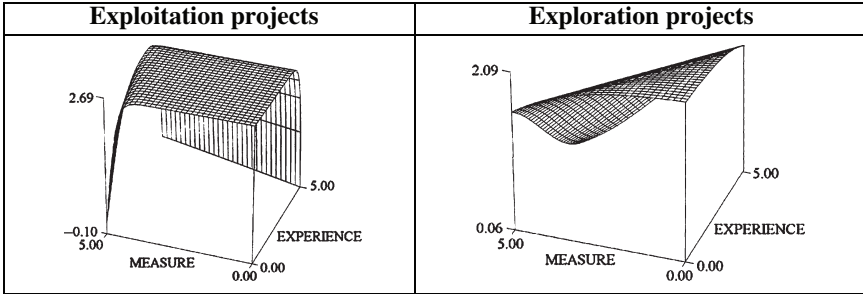


Fig. 3 (a), (b): Three-dimensional (3D) representation of function (γ)

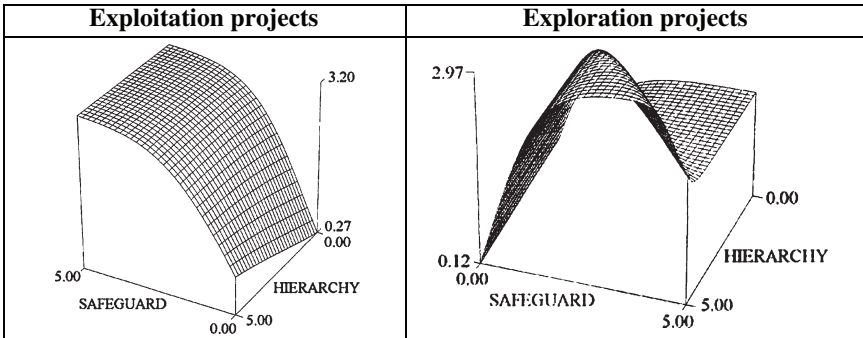


Fig. 4 (a), (b): Three-dimensional (3D) representation of function (μ)

Starting from these results we can respond to several questions. How is the governance form structured in technological networks? What factors do they influence and how, in the variability of the governance forms of technological networks? Is it possible to make reference to efficiency when governance forms of technological networks are analyzed?

Regarding the first question about how the governance form in technological networks is structured, from the transaction cost theory we have seen that governance forms make reference, on one hand, to the hierarchical structure whose objectives were task coordination, planning and control, and on the other hand, to the existence of certain safeguard structures whose objective was to avoid opportunistic behaviour in the management of technological networks. This way, the hierarchical structure of technological networks is sustained in the planning in which the principle of equal distribution of tasks among partners and countries has greater weight than the technological specificity of the partner itself. Also it is observed that in decision making the opinions of partners are considered as much as that of the network coordinator. These features corroborate two characteristics of technological networks: first, the small amount of hierarchical structuring, since the performance of networks is based on consensus; and second, the search for equity in the distribution of tasks between the partners (Robertson and Gatignon 1998; O'Sullivan 2003). With respect to safeguard mechanisms to avoid conflict situations, they are supported by suitable planning both in terms of responsibilities and contributions of partners and in terms of a results distribution policy. Another important aspect indicated in the literature of network management is the selection of partners, a crucial aspect which contributes to the construction of a suitable collaboration environment among partners, both in terms of communication as well as in understanding (Geringer 1991; Mohr and Spekman 1994; Saxton 1997; Gulati 1998). To create these conditions it is observed that technological networks are formed among partners who have collaborated in previous experiences. This contributes to a good climate because the partners already have experience working in networks and, furthermore, the familiarity between partners facilitates the creation of dynamics of commitment and confidence.

Regarding the second question, that is, what factors influence the variability of the governance forms of technological networks, again we have taken the departure point of transaction cost theory. Traditionally, specificity and external uncertainty have been taken into account when studying the variability of hierarchical structures as well as the measure of technology and experience with alliances in the study of technological networks safeguard mechanisms (Brockhoff 1992; Robertson and Gatignon 1998). Our results confirm the soundness of these constructs both in reliability and validity.

With respect to how these variables affect the governance structure of technological networks, transaction cost theory does not explain in what way they condition governance structures (Zajac and Olsen 1993). Hence to determine how these variables affect governance function we have applied the systems theory which allows us to study the effect of each input variable on output variables (Hirschhorn et al. 2001). We have delimited two subsystems: the hierarchical sub-system and control subsystem.

The hierarchical subsystem explains the relationship between the hierarchy variable – the output variable – and specificity and uncertainty – the input variables. The first conclusion shown by the analysis is the non-linear nature of this relationship and the different influence of each variable on the hierarchical function. As shown in Fig. 2a,b the specificity variable has greater influence than technological uncertainty on the hierarchical degree presented by the technological network. To delve into this analysis we have used a dual approach, observing on the one hand, the impact of each variable on governance form and, on the other, through a 3D representation, examining its influence on the hierarchy function and the safeguard function. We have taken the impact of each variable from the regression analysis (Table 1), in spite of the low adjustment level of these coefficients, because they offer a range of magnitude.

Our results on the hierarchy function show that the variables which have the most impact on the variability of this factor are specificity (0.373 in the case of exploitation projects and 0.127 in the case of exploration projects) and to a lesser degree – with negative sign – technological uncertainty (–0.225 in the case of exploitation projects and –0.168 in exploration projects), with demand volatility not being significant (0.087 in the case of exploitation projects and 0.027 in the case of exploration projects). Our results confirm previous research (Robertson and Gatignon 1998; Williamson 2002) in which specificity is marked as the most significant variable in the network structure. For its part, technological uncertainty has a negative effect on the hierarchical structure of networks. Dosi (1988) points out that the less applied a technology is, the greater the levels of uncertainty, both in terms of expected results as well as in the time needed to obtain them. Our results confirm this circumstance both in invention and innovation projects. We can indicate that the incidence of hierarchical structure is higher in innovation projects. Also in the same sense Dyer and Nobeoka (2000) show two distinct kinds of networks depending on technological objectives of the network.

The first are networks that serve to explore information with a large number of partners characterized by a low structuring with the objective of obtaining technological information; and second, networks which exploit information in order, for example, to obtain an innovative product which constitutes a highly structured network with a small number of partners. Therefore, we can affirm that whenever the specificity of a technology is greater – and lesser, therefore, the uncertainty – there will be a greater hierarchy structure in the network.

The 3D analysis shows and confirms the different influence of technological uncertainty and specificity on hierarchy degree, both in the case of invention projects and innovation projects (Fig. 2a,b).

It is worth mentioning, in the case of more applied projects, that uncertainty displays an almost constant value whereas specificity shows two clearly differentiated levels. The first level corresponds to a smaller degree of hierarchy that, as we indicated above, will be related to low levels of specificity in projects which correspond, for example, to diffusion projects. On the other hand, the second level will correspond to a more hierarchized structure which corresponds, for example, to projects with high levels of specificity as in the case of innovation projects to obtain new products.

Regarding the safeguard function we can see that variables which have more impact on the variability of this factor – with negative sign – are experience (-0.525 in the case of exploitation projects; -0.210 in the case of exploration projects) and the ability to measure innovations (-0.371 in the case of exploitation projects; -0.281 in the case of exploration projects). This first approach shows a similar impact of two variables on safeguard mechanisms. The 3D representation (Fig. 3a,b) shows that the behaviour of these two variables is very similar: for small values of the variable it increases very quickly, reaching a value that practically stays constant for the other values of variables. Therefore, we could affirm that the safeguard degree is constant in both types of projects and independent of the variability of technology measure and experience.

Regarding the last question, as to whether it is possible to make reference to efficiency in governance forms of technological networks, firstly it is necessary to remark on what an efficient form of governance is. We consider that a governance structure is efficient when its objectives are to solve conflicts (0.704), coordinate tasks (0.655), allocate results (0.614) and avoid opportunistic behaviour (0.711). Our results show that governance structure has these three actions (Williamson 2002). On the other hand we have found a causal non-linear relationship between the hierarchy degree and safeguard degree in the governance form observing that it varies according to the kind of project. Thus, in exploration projects these two variables influence the governance form to a lesser extent (hierarchy, 0.107; safeguard, 0.235) than in exploitation projects (hierarchy, 0.179; safeguard, 0.451). These results corroborate those of previous empirical works, already classics in transaction cost theory, which conclude that the greater the applicability of projects, the greater the governance structure needed to manage the technological network (see, for example, Williamson 2002). Also we will emphasize that the hierarchy degree has less effect than the safeguard degree on efficiency. This outcome reinforces the above results regarding the low hierarchy degree of technological networks, where control is the main characteristic of their management (Baker 1990; Ring and Van de Ven 1994; Robertson and Gatignon 1998). Specifically, the safeguard degree has an effect of a contingent nature on efficiency which can be seen in the graphic representation (Fig. 4a,b). In the case of exploration projects the efficiency point is reached with low levels of safeguard above which a substantial increase in network inefficiency is observed. On the other hand, in exploitation projects we see that a greater safeguard degree is necessary, as previously pointed out, and from a certain level onward significant increases in efficiency do not occur.

5 Conclusions

In this paper we have tried to explain governance forms of technological networks through transaction cost theory. Firstly, transaction cost theory tries to explain variability of governance forms through the study of causal relations between the variables that affect the governance of technological networks. Thus it is proposed, from

a classical management framework, that a positive and significant relationship exists between uncertainty, specificity and frequency with the hierarchy mechanisms in the network. Thus the greater the specificity, uncertainty and frequency in a technological network, the more hierarchized the form of governance. Similarly, the greater the possibility of measuring technological performance in technological networks is, the lesser the opportunistic behaviour and, therefore, the safeguard mechanisms. This approach, though, does not offer an explanation as to which variables have a great effect on governance forms from a quantitative point of view; that is, how each variable affects governance forms or what relationship exists between these variables. Furthermore, a certain controversy exists between transaction cost theory and the empirical evidence that shows the causal relationships which influence the variability of governance forms of technological networks. Secondly, transaction cost theory considers that the most efficient form of governance structure is that which minimizes not only transaction costs but also opportunistic behaviour. This criterion is certainly restrictive; thus the management literature remarks that the unsuccessfulness of networks is due, among other reasons, to the poor functioning of networks whose objectives are to solve conflicts, coordinate tasks and distribute results.

Taking this departure point, our study proposes a model for analysing the governance structure of a technological network that allows us to study the variability of governance forms and their efficiency, and also provides an answer to three questions: How is the governance form in technological networks structured? What factors influence the variability of technological network governance forms? What is the most efficient or suitable governance form in technological networks? From the answers to these questions we can point out diverse conclusions. First, the corroboration of the contingent character of governance forms in R&D networks. In general, a greater intensity and frequency is observed in the use of governance mechanisms in exploitation projects than in exploration projects. The contingent character of the model implies that in the development of each particular project the most suitable governance form in terms of efficiency must be determined. A second conclusion is the non-linear effect of identified variables on governance forms; this means the difficulty of predicting technological results that will be obtained in the network. A third conclusion is the different impact of input variables on network management efficiency. This leads to determining which mechanisms are the most suitable in each case based on the objective of the network.

From these conclusions we can determine some managerial implications for the governance of networks. The first implication makes reference to the low impact of hierarchy on the management of technological networks and their scant variation when the specificity of the project increases. The second managerial implication is the great relevancy of safeguard mechanisms in the governance forms of R&D networks. These mechanisms have a high impact on efficiency although they can vary according to the technological objectives of the network.

Our results represent a starting point for future research in order to widen theoretical and empirical evidence regarding the governance of technological networks. As a research agenda, we suggest an in-depth analysis of the factors identified for

governance structures, as well as the identification of new factors that might, in some way, have an influence on governance forms. Furthermore, we believe that the consideration of particular projects as a unit of analysis might offer more specific results for each kind of network. In this sense, it would be of interest to analyse governance structures in which partners are featured differently (firm-firm, customer-supplier, and so on) comparing hierarchy and safeguard mechanisms with those applied in sponsored networks. Finally, generalizing the results would require testing our findings with other samples of international technological networks because of the increasing relevance of this kind of cooperation for the development of countries and with the aim of capturing the richness of network governance choices.

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Appendix 1 Hierarchy subsystem: descriptive statistics of input variables

Variable	Factor analysis		Factor analysis		Reliability	
	Value	Weight	Value	Weight	Cronbach alpha	Cronbach alpha
	Average	Exploitation	Average	Exploration		
Hierarchy variable (output)			0.813			0.708
<i>Planning</i>						
Technological knowledge	2.5	0.756		1.7	0.542	
Equal distribution all partners and countries	3.6	0.837		1.5	0.499	
Ad hoc decisions	2.1	0.644		1.8	0.512	
Requirement of UE	3.0	0.785		2.1	0.634	
<i>Decision making</i>						
Opinion of coordinator	3.7	0.811		3.0	0.745	
Opinion of partners	4.1	0.823		2.5	0.710	
<i>Organization</i>						
Activities independently	3.4	0.530		1.6	0.459	
Teams activities	2.5	0.372		1.4	0.391	
<hr/>						
Hierarchy variable (input)						
<i>Specificity</i>						
Collective learning	3.3	0.793	0.712	2.4	0.597	0.675
Plant and equipment	3.1	0.749		2.5	0.551	
Commitments finance	2.0	0.684		2.0	0.460	
Core competence	2.7	0.751		1.7	0.397	
Marketing commit.	1.9	0.637		1.5	0.413	
<i>Demand volatility</i>						
Difficult forecast	2.7	0.634	0.623	2.2	0.581	0.601
Markets are uncertain	2.9	0.598		2.7	0.603	
<i>Technological uncertainty</i>						
The technology is stable	2.5	0.811	0.804	2.5	0.538	0.764
Life cycles are short	3.1	0.793		2.4	0.611	
Moving very fast	3.5	0.841		2.8	0.604	
Technology has reached a plateau	2.8	0.632		1.9	0.561	
Technological pressure is intense	3.6	0.603		2.3	0.637	

Appendix 2 Safeguard subsystem: descriptive statistics of input variables

Variable	Factor analysis		Factor analysis		Reliability
	Value	Weight	Value	Weight	
	Average	Cronbach alpha	Average	Cronbach alpha	
	Exploitation		Exploration		
Safeguard variable (output)			0.732		0.647
<i>Selection</i>					
Previous experience	4.0	0.794		3.2	0.698
Technological qualification	3.3	0.422		3.0	0.711
Requirements of EU programmes	3.7	0.617		3.5	0.644
<i>Responsibilities</i>					
Contribution each partner	3.9	0.811		3.1	0.670
Allocate profits	3.8	0.819		3.2	0.756
Define tasks	3.3	0.790		2.5	0.634
<i>Monitoring</i>					
Partner reports	2.7	0.450		2.4	0.618
Informal communications	3.3	0.547		2.0	0.599
Meetings with partners	4.1	0.765		3.6	0.647
The project coordinator	3.2	0.201		2.4	0.503
Safeguard variable (input)					
Ability to measure innovation performance			0.617		0.604
Goals clearly	4.1	0.624		3.2	0.637
Quality is now	3.7	0.511		3.1	0.584
Specified measures	3.2	0.684		2.7	0.640
Firm's experience with alliances					
Number of alliances established	2.4	0.540		2.1	0.517
Alliances success	2.3	0.624		3.2	0.609
Most of our alliances have met our objectives	2.3	0.537		2.7	0.576
Alliance more successful than competitors	2.3	0.502		1.4	0.278
Innovations by alliances market penetration	1.8	0.321		2.0	0.424

Appendix 3 Governance subsystem: descriptive statistics of input variables

Variable	Exploitation			Exploration		
	Value	Factor analysis	Reliability analysis	Value	Factor analysis	Reliability analysis
	Average	Weight	Cronbach alpha	Average	Weight	Cronbach alpha
R&D governance variables			0.697			0.621
To solve conflicts	3.1	0.704		2.9	0.683	
To coordinate tasks	2.9	0.755		2.5	0.641	
To distribute results	2.5	0.614		2.0	0.570	
To avoid opportunistic behaviour	2.5	0.711		1.8	0.421	

Appendix 4 Correlation matrix between latent constructs

Variables	Product specific assets	Demand volatility	Tech. uncertainty	Measure performance	Firm's experience
Product specific assets	1.000	0.109	0.0072	0.056	0.043
Demand volatility		1.000	0.129	0.020	0.067
Technological uncertainty			1.000	0.083	0.059
Measure performance				1.000	0.163
Firm's experience					1.000

Inter-Firm Relations and Innovative Activity: A Cluster Analysis Based on Subcontracting Firms in the French Sillon Alpin

Rachel Bocquet

Abstract In this paper we investigate the relationship between the different types of firms in the subcontracting industry and their innovative activities. The main objective is to explain how the ability to innovate of these firms is to be found in the nature of their inter-firm relationships. Firstly, we draw on the two conceptual approaches to the firm (contractual and competence perspectives) to differentiate three types of subcontracting firms and to indicate how these approaches can be linked with their ability to innovate. Secondly, we complete the framework by introducing firm-specific determinants derived from the neo-Schumpeterian approach to innovation. The empirical test is based on a cluster analysis. It confirms that the nature of inter-firm relationships is a main source of inter-firm differences in their ability to innovate. It also provides evidence that, apart from their inter-firm relationships, the most innovative firms are able to develop an autonomous capacity to innovate. Finally, we give evidence that some small firms are innovative in the subcontracting industry.

Keywords: Subcontracting · Theories of the firm · Innovative activity

1 Introduction

In the French Alps, particularly in the “Sillon Alpin¹”, the competitiveness of firms operating in the “manufacturing subcontracting industry²” remains unsatisfactory. At a regional level, this fact represents a serious problem since manufacturing is

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¹ The Sillon Alpin is a geographic area in the French Alps which comprises the four departments of Savoie (73), Haute-Savoie (74), Isère (38) and Drome (26).

² This industry is not delineated according to a sectoral base (nature of the final output) but to a destination base (volume of the collected activity). Industrial subcontracting involves production activities only, excluding service industries such as security, catering and cleaning. Pure subcontracting

mainly composed of subcontracting firms. These firms are seen as specific *by nature* insofar as they are dependent (more or less) on partners or contractors (Sessi 2006). Following the neo-Schumpeterian approach to innovation we consider that the solution to enhance the competitiveness of firms depends on their ability to innovate (Pavitt 1990).

Our main objective is to explain the ability that firms have to innovate when operating in the subcontracting industry through their inter-firm relationships. This ability is identified as an important source of inter-firm differences in innovative activity (Cohen 1995). In the case of subcontracting firms we argue that the ability to innovate is a key determinant due to the fact that their nature is the result of inter-firm relations (Baudry 2004).

Thus, the identification of different types of inter-relations should explain the potential variety of innovative activities (and performances). The originality of the framework is based on the combination of two kinds of literature. On the one hand, we specify different natures of subcontracting firms according to the two “visions” of the firm (Fransman 1994), namely, the transaction cost theory and the competence-based approach to the firm. The specification is based on the type of relations with their main contractor/partner. On the other hand, we draw on the neo-Schumpeterian theory to innovation to complete the specification with two classes of variables: the knowledge sources they use and their profile. These new dimensions are introduced in order to observe the degree of autonomy of (small) subcontracting firms in their innovative activity. As suggested by Cohen and Levinthal (1990), beyond their subcontracting relations, firms can develop internal resources and/or an ability to learn from interacting with other firms or institutions. “*The capacity for absorbing knowledge, so-called “absorptive capacity” is a must for large or small innovative firms*” (Fagerberg 2005). All things considered, this framework will allow us to differentiate three theoretical types of subcontracting firms and to indicate how they can be linked to the degree of innovation (improvement and/or development) and the type of innovation (process and/or product).

The empirical test is based on data collected in 2007 through a special designed questionnaire of firms in French Sillon Alpin. These are organizations operating in all the manufacturing subcontracting sectors of this geographic area (such as metal cutting and forming, moulds and models, foundry, technical pieces made of plastic and electronics). To identify the existence of differentiated types of subcontracting firms we have developed a classification system using a cluster analysis procedure. With this methodology we aim to explain why some clusters of firms have a greater ability to innovate than others.

The paper is organized as follows: Sect. 2 presents the theoretical foundations and the two propositions that will be tested; Sect. 3 sets out the empirical procedure and describes the dataset; in Sect. 4 the empirical results are discussed; and we conclude with some final remarks.

sectors are considered those in which 80% of the turnover derives from subcontracting activity (Sessi, 2006).

2 Inter-Firm Differences in the Innovative Activity of the Subcontracting Firms: Theoretical Arguments about the Main Sources

Firstly, we introduce industrial subcontracting to specify the main challenges related to our research question (2.1). Secondly, we present the theoretical foundations of the model and the two propositions that will be tested empirically. The aim of this research is to provide a better understanding of the innovative activity of the subcontracting firms through two main aspects. The first one consists in the description of different theoretical types of inter-firm relationships in the field of subcontracting and their potential role in their innovative activity (2.2). The second one attempts to identify the degree of firms' autonomy and to what extent they can develop new ideas from other sources of knowledge (2.3).

2.1 Introducing Industrial Subcontracting

The industrial subcontracting industry is very important for the geographical region under study. This region which stretches from Valence to Geneva (Sillon Alpin) has the biggest density of subcontracting firms in France. Today, this industry is being called into question. The most important issue concerns these firms' falling competitiveness. Lately, many of them have been experiencing an alarming fall in performance. Within this context, policy makers are now looking for solutions so as to invert this trend. This work, to be considered at an exploratory stage, is part of the research program created to address the problems that this industry is experiencing.

Following the neo-Schumpeterian approach it is possible to say that this fall in competitiveness is due to a lack of innovation in products and processes at firm level (Pavitt 1990). Therefore, it is important to understand why some firms do better than others in terms of innovation. A first approach to deal with this question could be to provide a taxonomy of subcontracting firms in the way of Pavitt's (1984). In spite of the fact that this approach³ might at first glance seem suitable it presents, however, important limitations for our case. The first limit is about the classification criteria used. In Pavitt's taxonomy the decisive criterion for classification is the sources of technological know-how used by firms. This criterion eliminates straightaway non-innovative firms. We think that this factor is a main limit since the lack of competitiveness may come from the fact that non-innovative firms are over-represented in the subcontracting sectors. This hypothesis deserves to be tested. The second limit is about the way the sectoral dimension is considered in the framework. In each category of his taxonomy Pavitt has grouped data at industry level and not at firm level. He himself recognizes that the weakness of his taxonomy is the high degree of variance still found within each category. To overcome this limit many researchers

³ A taxonomy aims at reducing the complexity of the population studied into easily recallable macro-classes (Archibugi, 2001).

have developed a taxonomy at firm level and then compared it to sectoral clusters in order to take into account the variety of firms within the same industry (Niosi 2000). But the level of aggregation usually retained to illustrate the variety of patterns of innovation across sectors is still high (De Jong and Marsili 2006). If we use the same level of aggregation most of the subcontracting firms will belong to the same industrial sector. Thus, the inter-sectoral comparison will lose much of its significance.

Rather than a taxonomy we propose a classification to capture the heterogeneity of firms within the same industry. Our contribution must be seen as a practical classification tool to describe the nature of subcontracting firms according to their innovative activity. We aim to build a tool adapted to the two main characteristics of this industry (Sessi 2006). On the one hand, we have to take into account the fact that this industry is made up of a large number of small independent companies. These small firms, which carry weight in the industry, cannot be ignored. Moreover, many researchers claim that being small in size is no longer an obstacle to innovation (Audretsch 2004). However, specific determinants of innovation have to be introduced as well as convenient measures of innovative activity (Archibugi et al. 1991; De Jong and Marsili 2006). More informal aspects of the innovation process are typical of small firms which cannot be measured by traditional input or output indicators. Furthermore, subcontracting firms are by nature special firm insofar as they are in a situation of dependence (more or less favourable) with regard to other firms. In this way, the characteristics of inter-firms relations can be seen as an important determinant of innovative activity (Cohen 1995; Teece 1996; Angel 2002). These relations define both the nature of the firm and its ability to innovate. It is then essential to understand the features of inter-firm relations. The theories of the firm provide useful insights to explore these relations. However they are not sufficient to capture the determinants of innovation that may exist beyond these relations. That is why we drawn on the neo-Schumpeterian approach to innovation to illustrate the potential role of a series of variables (related to the knowledge sources used by the firm and the characteristics of the firm). The objective is to understand to what extent firms, through their inter-firm relations, are either hindered or helped to develop their own ability to innovate.

2.2 The Nature of Subcontracting Firms from Their Inter-Firm Relationships: Can They Innovate?

The nature of subcontracting firms can be assessed through the two theoretical approaches: the contractual based-approach (transaction costs theory in particular) and the competence-based approach (evolutionary theory in particular) (Foss 1993; Fransman 1994; Langlois and Foss 1996; Cohendet and Llerena 2005; Lazonick 2005). From these two theoretical approaches we identify different types of subcontracting firms and observe to what extent they may differ in terms of intensity and types of innovation.

2.2.1 The Contractual Perspective: Between Suppliers and Pure Subcontractors

The transaction cost theory (Williamson 1975, 1985, 1999) enunciates a theory of adaptive and non-innovative organizations because the role of business enterprise in the innovation process is ignored (Lazonick 1991). The problem is reduced to the combination of given inputs and outputs in a way that minimizes transaction cost, with the technology given. As suggested by Foss (1993), "*innovation, the creation of markets, learning within and between firms and so on...are either side-stepped or implicitly taken to be unimportant to economic organization*". Following this argument as suggested by Williamson himself (1999), there is limited room for firms' innovative activity in the transaction cost theory. In the case of subcontracting firms the room for innovation becomes even smaller. Subcontractors are only seen as a governance structure far from the vision of an organizational entity (Baudry and Gindis 2005). Their "*raison d'être*" is mainly based on economizing and static perspectives. Subcontracting firms are not considered through their organizational competencies and their ability to develop new processes and new products.

It is possible to distinguish two types of inter-firm relations in Williamson's model. From these two types we can differentiate two natures of firms in the subcontracting industry.

The first inter-firm arrangement takes place in a situation where a firm expresses a mere supplying need on the market. In this case the degree of specificity related to the transaction is so weak (market of standard inputs) that the firm does not have to make specific arrangements with any partner. It will go to the supplier who is able to satisfy its need at the lowest cost. Here, the subcontractor is in fact a supplier. Its relationships with other firms are based on price mechanisms. In a competitive market such independent suppliers can be encouraged to innovate because they want to benefit from cost advantages (even if they are temporary) (Milgrom and Roberts 1992). However, this fact compels us to consider whether appropriability conditions and market power are strong enough to encourage innovation (Archibugi and Pianta 1996). In this case, all benefits can remain inside the innovative firm. The buyer will also benefit from a part of the value gained on either a higher quality product or a cheaper product. Conversely, if appropriability is low and diffusion and competition are too strong, benefits can quickly spread and firms will be discouraged to invest. This is true even if products are specialized. Competitive bids provide similar advantages. Looking for an independent supplier the firm benefits from the best resources available and, if competition is adequate, only pays for the real cost.

To sum up, there is a cluster of suppliers operating in the competitive market of standard inputs. They have no (or very few) privileged relations with partners/contractors. Their ability to innovate and the type of innovation mainly depend on the appropriability regime and the nature of the competitive environment (Teece 1996). The intensity of innovation will be low and only visible in product or process improvement under a weak regime of appropriability and intense competitive pressure. In contrast, this ability to innovate will be more intense and oriented toward product or process development if the appropriability and competitive conditions are favourable.

In the second type of inter-firm relation the firm does not operate in the competitive market of standard inputs. It is involved in the production of peripheral products that do imply assets with an average degree of specificity⁴ in the case of repeated transactions. In this context, it can be less costly for the contractor to externalize the production to subcontractors if he succeeds in maintaining market incentives and in the meantime avoids bureaucratic distortions (Williamson 1990). The challenge for the contractor is to limit the potential power of the subcontractor, in order to avoid any situation of bilateral dependence (lock-in effect). This situation is well described by Teece (1996) in the case of “virtual corporations” which *subcontract anything and everything*. Several mechanisms can be effective in order to avoid this kind of risk. For example, the contractor can keep the propriety rights on specific assets or maintain a strong competitive pressure by a double sourcing purchase strategy (Baudry 2004). Subcontractors are seen as governance structures based on arm’s length contracts, likely to be at risk at every moment, according to their performance. The degree of interdependence is generally low because the activities concerned are peripheral ones. At the same time, the weight of the contractor can be heavy in order to benefit from scope and scale economies. In terms of supplier management practices this zone requires minimal assistance to subcontractors, accompanied by single functional interfaces and the practices of price benchmarking (Cohendet and Llerena 2005).

Subcontractors are placed under weak appropriability conditions whereby they must most often comply with the instructions or technical specifications fixed by the contractor. They are not in charge of a part of the product design, which is too specific and too risky to be externalised. Sometimes, they can give some advice to the contractor. Considering the nature of this inter-firm relation (short-term contract, control and no guarantee of reconduction) subcontractors find no incentives to innovate, neither in process, nor in product. In any case, we have to admit they have no internal competence to innovate in the transaction cost theory. According to this view, the ability of subcontractors to innovate can only exist through passive learning-by-doing processes as a by product of the division of labour (Cohendet and Llerena 2005). Furthermore, all this depends on the fact that the contract has to be repeated through time, which is not guaranteed in advance.

Even though the transaction cost theory shows some limits it is, nevertheless, useful to describe the non-innovative or less innovative firms. As suggested by Cohendet and Llerena (op.cit.), “*in terms of technology transfer what is at stake in this zone (of quasi-market relations) is the exchange of artefacts, rather than innovative ideas or new tacit knowledge*”. All things considered, there is a category of subcontractors that are dependent on a main contractor. They do not have a free hand in the production conception because it is too risky for the main party involved. Classical contractual schemes are dominant to ensure the information processing. These schemes are placed in a context of strong uncertainty and weak appropriability,

⁴ Williamson (1990) considers that hierarchy is a more efficient institutional arrangement than market or hybrid-forms when assets are very specific.

conditions that hinder all innovative initiative. All this is reinforced by the fact that subcontractors cannot interact with their contractors to compensate for their small internal resources and competences.

2.2.2 The Competence Perspective: Innovative Partners

The competence (evolutionary) perspective gives us a theoretical framework of the innovative firm. Subcontracting relations derive from the needs of contractors to access the complementary forms of knowledge required to make their own knowledge valuable. This perspective emphasizes the dynamic efficiency of capability building rather than the static efficiency of individual transactions. In this view, contracting relations no longer involve the external boundary functions of the contractor. Subcontractors are considered as “*processors of knowledge*” (Fransman 1994) that produce high value components or systems that are strategic for contractors. They contribute to build the knowledge base of their contractors and benefit from their accumulated absorptive capabilities (Cohendet and Llerena 2005). It is also important for contractors to enhance the absorbing capacities of their partners. Since the resources of the subcontractor are essential, innovation also derives from subcontractors’ internal organization (Nelson and Winter 1982; Teece 1996). Here, the social nature of competences is emphasized. Routines that contain these competences “*may extend outside the firm to embrace partners*” (Teece et al. 1997). The key point here is that the learning process is intrinsically social and collective and occurs not only through imitation but also because of joint contributions to the understanding of complex problems. Some evolutionary theorists have shown that multilateral collaborations and partnerships can be a vector for new organizational learning (Doz and Shuen 1990; Mody 1993). “*Compared to arm’s length market contracts such arrangements have more structure, involve constant interaction among the parts, more open information channels, greater trust, rely on voice rather exist, and put less emphasis on price*” (Teece 1996). They are based on relational long term-contracts and coordinative routines for an efficient circulation of creative ideas and knowledge. Cohendet and Llerena (2005) and Teece (1996) have shown that these kind of external linkages are major determinants of innovation, providing autonomy in the making of products and systems and strong incentives for firms even when asset specificity is involved. The incentives for opportunistic recontracting can be attenuated under high appropriability conditions such as equity stake, reputation effects, mutual commitments and the maintenance of reciprocity through the exchange of hostages.

In this view, there is a category of subcontractors called *partners*. They have competences which can complement the contractors’ ones. The relational nature of long-term agreements and the complementary nature of resources/capabilities provide a high degree of autonomy and strong incentives to improve and develop new processes and products.

2.2.3 Apart from Inter-Firm Relationships, Can Firms Benefit from Other Sources of Innovation?

The neo-Schumpeterian approach provides useful insights to identify the sources of inter-firm differences in innovative activity apart from the cross-firm relationships (Nelson and Winter 1982; Dosi 1988; Cohen and Levinthal 1990). This approach proposes a dynamic conception of learning in which firms may have limited knowledge at a given moment but are able to upgrade it.

The “*absorptive capacity*” of firms, defined by their capacity for absorbing extramural knowledge (Cohen and Levinthal 1990) well reflects the cumulative nature of knowledge. As noted by Fagerberg (2005), “*this is of particular importance for smaller firms, which have to compensate for small internal resources by being good at interacting with the outside world*”. Arora and Gamberla (1990) provide further evidence showing that firms that conduct more R&D increase their ability to exploit external sources of knowledge. Moreover, they show that some external sources of external knowledge tend to be complementary.

Nelson (1992) shows that the learning capacity can be influenced by the awareness of technological opportunities. As a consequence, he suggests that innovative activity might depend on what firms think they can do with new technological solutions. The existence of a clear strategic orientation can encourage innovation (Bocquet et al. 2007). Another important aspect well discussed in the literature concerns the features of knowledge that can be highly tacit (Nelson and Winter 1982), sticky (Von Hippel 1994) and complex. A corollary is that the transfer of knowledge is often difficult and costly. It requires an organization’s system, habit of coordinating and managing tasks (Teece 1996).

As for the sectoral effect some empirical studies on the sources of innovation have shown the remarkable difference of patterns (Pavitt 1984; Von Hippel 1988; Archibugi et al. 1991). Traditional industries tend to use external sources while science-based industries use internal sources such as R&D and design. Moreover, researchers have shown that significant non-R&D innovative activities are carried out to a greater extent in smaller firms and in traditional industrial sectors (Pavitt 1984; Acs and Audretsch 1990; Malerba and Orsenigo 1997). In their empirical study applied to small firms, De Jong and Marsili (2006) do not find a clear-cut relation between industrial sectors and clusters of firms. For them this result may reflect the high level of aggregation of sectors used in their analysis.

Finally, the neo-Schumpeterian approach to innovation gives us new arguments concerning the ability of small firms to innovate. Following this literature, a small size is not an obstacle to innovation. As mentioned by Teece (1996), “*even in the absence of adequate internal cash flow, firms need not go to the capital market to find the requisite financing (...) With interorganizational arrangements, there is the possibility that the capital requirements associated with a new project could be drastically reduced for innovator*”.

All these arguments allow us to complete the specification of the three types of subcontracting firms in terms of potential sources of knowledge and in terms of

profile mainly through their size, their R&D budget and their industrial affiliation. Concerning the suppliers operating in the market of standard inputs, as suggested before, they have no privileged relations with partners. A corollary of this fact is that they can benefit from market connections. According to the literature, firms can develop new products or processes if conditions of appropriability are favourable. A main aspect resides in the possession of a learning capacity. However, since most of the subcontracting sectors are traditional ones, the main potential sources will tend to be external. Pure subcontractors are clearly poor innovative firms. They are highly dependent on their contractor. Since they are mainly cost-oriented and have no internal resources for being good at interacting they should use a very small number of external sources of knowledge. Finally, partners have organisational competences to manage their inter-firm relationships (coordinative routines). Their sources of knowledge are internal. They can develop their internal resources by interacting with their partners and other “institutions” to access complementary forms of knowledge.

Table 1 summarizes the theoretical dimensions explaining the nature of subcontracting relations and their potential link with their innovative activity.

This theoretical discussion leads us to formulate the following propositions:

P1 – Since we can observe a great variety of inter-firm relationships in the subcontracting industry we expect to find differences in their intensity as far as innovation is concerned (improvement and/or development) and their type of innovation (process or product).

P2 – Apart from their inter-firm relationships we expect that firms with greater internal resources and better absorptive capacities can develop an autonomous capacity to innovate.

3 Data and Procedure

In this section we present the data, the empirical procedure and the variables used in the cluster analysis.

3.1 Data

The empirical analysis is based on data collected in 2007 using a specially designed questionnaire. Questionnaires were e-mailed to the main unit of each firm with more than two employees operating in industrial subcontracting sectors. All organizations operate in the French Sillon Alpin. The respondents were senior managers of these organizations. They were asked to provide information about the firm’s profile. One central part of the questionnaire was about subcontractors’ relationships; with particular attention to the ones with the most important contractor. Another part was about their activity of innovation. We obtained 111 exploitable questionnaires. As shown in Appendix 1 the final data set is representative of the industrial establishments across the four sectors and the three size classes.

Table 1 Theoretical foundations to link the nature of sub-contracting firms and their innovative activity

	Transaction cost approach		Competence-based approach
Theoretical dimensions explaining the nature of subcontracting firms	Suppliers	Pure subcontractors	Partners
Main objective of inter-firm relations	To buy a standard input	To produce at lower cost	To produce complementary resources and forms of knowledge
Degree of specificity of the transaction	Low	Average	High
Frequency of the transaction	From low to high	High	High
Uncertainty	Low	From low to average	From average to high
Main coordination mechanisms and types of incentives	Prices	Arms' length contracts and market-like incentives	Contractual mechanisms and coordinative routines
Duration of contracts	Not concerned or short-term contracts	Short-term or medium term contracts	Long-term contracts
Degree of interdependence	Not concerned or low	Low	High
Resources complementarity	Not concerned	Not concerned	Strong
Competences/capabilities	Not concerned	From not concerned to low	High
Number of potential sources of innovation	Few number	Few number	Several
Type of potential sources of innovation	External	External	External and internal
Appropriability regimes	Weak appropriability: Process or product improvements High appropriability: Process or product developments	Weak appropriability: Process improvements	High appropriability: Process and product developments

3.2 Empirical Procedure

We conducted a classificatory procedure directly at the firm level to reflect firms' heterogeneity within the subcontracting industry. We made an exploratory test of the role of inter-organisational linkages on the innovative activity of firms.

The theoretical analysis leads us to predict that three natures of firms characterized by their relation with their principal partner can coexist in the subcontracting industry. We expect that these different firms have different intensity and types of

innovation. In step 1, we implemented a non-hierarchical cluster analysis to classify our firms with respect to their subcontracting relations (TYPOST). In step 2, we built two scales of innovation (SCALE1 and SCALE2). The first scale measures the willingness of the subcontractor to innovate in the last 3 years. It combines the intensity (improvement and development) and the type of innovations (process and product) he tried to introduce during the last 3 years. The second scale of innovation introduces the innovations that have been introduced successfully in the last 3 years. Step 3 explores the link between subcontracting firms (TYPOST) and their intensity and types of innovation (SCALE1 and SCALE2). We base the test on a one-way analysis of variance (ANOVA) to observe whether the different subcontracting types are statistically different. Other variables, related to the knowledge sources used by the firm and its profile, have also been introduced as traditional determinants of innovation at firm level.

3.3 Variables Definition

We define first the independent variables: the variables used in the classification procedure and variables which stand as main determinants of firms' innovative activity. Secondly, we define the two scales of innovation (dependent variables).

3.3.1 Independent Variables: the “Determinants” of Innovative Activity

(a) Types of subcontracting firms:

Our survey data describe the subcontracting collected activity (see Table 2). We ask each respondent to give some general information about their production activity in the subcontracting field. We then focus on the nature of their collaboration with their main partner.

Since many variables describe the nature of the subcontracting activity, we conducted a principal component analysis with 15 variables {DUREEP, FREQ, VOLP_C, ...}. We obtained four factors accounting for 55% of the total variance. We then performed a non-hierarchical cluster analysis (TYPOST) based on the factor scores. In order to determine the final number of clusters, we used the three usual criteria. The statistical accuracy of the classification was measured by the ratio of within-cluster and between clusters variance (Fisher's test). We checked both the number of firms per cluster and the economic significance of the clusters identified. According to these criteria, the version with three classes was preferred. To interpret the three clusters, we calculated the mean of each variable in each cluster. Two variables STCAPA and JAT were removed because they were not significant. Additional description of these clusters was done using two other illustrative variables (ORC and ODIVER) (see Table 3).

Table 3 illustrates the three types of firms with respect to their inter-firm relation with their main contractor/partner. In cluster 1, we find 29 “suppliers”. They

Table 2 Variables describing the subcontracting activity

Subcontracting variables used in cluster analysis	Measurement scale	Value range
DUREEP: Predictability of the agreement	Ordinal	1,3 (1 = less than 1 year; 2 = From 1 year to 3 years; 3 = More than 3 years)
FREQ: Frequency of the renegotiation	Ordinal	1,3 (1 = never; 2 = every year; 3 = every two year)
VOLP.C: Share of the main contractor in the total volume of production (%)	Ordinal	1,3 (1 = Less than 20; 2 = From 20 to 50; 3 = More than 50)
NDO.C: Total number of contractors	Ordinal	1,4 (1 = less than 10; 2 = From 10 to 49; 3 = From 50 to 100; 4 = more than 100)
CONTREX: contract of exclusivity	Nominal	1,2 (1 = no; 2 = yes)
STCAPA: capacity subcontracting	Nominal	1,2 (1 = no; 2 = yes)
STSPE: specialized subcontracting	Nominal	1,2 (1 = no; 2 = yes)
STRAT: strategic subcontracting for the contractor	Nominal	1,2 (1 = no; 2 = yes)
AUCUNE: the subcontracting agreement is not written, not strategic, does not imply cooperation nor co-investment	Nominal	1,2 (1 = no; 2 = yes)
CONFLIT: Subcontracting relations with conflicts	Nominal	1,2 (1 = no; 2 = yes)
CONDDO: conditions fixed by the contractor	Nominal	1,2 (1 = no; 2 = yes)
FORM: formalisation of contracts with contractors	Nominal	1,2 (1 = no; 2 = yes)
LJAT: Just-in-time	Nominal	1,2 (1 = no; 2 = yes)
PP: quality circles, management by projects	Nominal	1,2 (1 = no; 2 = yes)
CERT: certification and quality tools	Nominal	1,2 (1 = no; 2 = yes)
Other strategy-related variables used to characterize the clusters	Measurement scale	Value range
ORC: strategic orientation: cost-reduction	Nominal	1,2 (1 = no; 2 = yes)
ODIVER: strategic orientation: market diversification	Nominal	1,2 (1 = no; 2 = yes)

declared not to be involved in any preferential relation with any partners or contractors (means near 0 for NDO and VOLP-C). Since they operate in the market of standard inputs and do not have any privileged collaborations, their main objective is to minimize their costs (ORC). We note that some of them can have a contract of exclusivity if they provide “specialized” inputs (CONTREX). Cluster 2 (58 firms) is made of “pure subcontractors”. They are the most dependent on their main contractor who represents from 20 to 50% of their total volume of production (VOLP-C).

Table 3 Interpretation of types of subcontracting firms⁵

		DUREEP	CERT	PP	FORM	CONFLIT	CONDDO	AUCUNE
Cluster 1. suppliers	Mean	.24	1.38	1.07	1.38	1.03	1.07	1.03
	N	29	29	29	29	29	29	29
Cluster 2. pure subcontractors	Mean	1.24	1.47	1.02	1.07	1.02	1.45	1.45
	N	58	58	58	58	58	58	58
Cluster 3. partners	Mean	1.92	1.75	1.42	1.58	1.29	1.33	1.13
	N	24	24	24	24	24	24	24
Total	Mean	1.13	1.50	1.12	1.26	1.08	1.32	1.27
	N	111	111	111	111	111	111	111

		STRAT	STSPE	CONTREX	NDO.C	VOLP.C	FREQ	ORC	ODIVER
Cluster 1. suppliers	Mean	1.00	1.03	1.14	.34	.34	.3103	1.86	1.45
	N	29	29	29	29	29	29	29	29
Cluster 2. pure subcontractors	Mean	1.05	1.79	1.00	2.28	1.71	1.896	1.19	2.19
	N	58	58	58	58	58	58	58	58
Cluster 3. partners	Mean	1.46	1.92	1.04	2.50	1.38	2.291	1.25	1.63
	N	24	24	24	24	24	24	24	24
Total	Mean	1.13	1.62	1.05	1.82	1.28	1.567	1.38	1.87
	N	111	111	111	111	111	111	111	111

The contract is neither written nor strategic and does not imply any cooperative dimension or investment (AUCUNE). The predictability of the arrangement is very short, less than one year (DUREEP). They are in a situation of dependence and try to free themselves from it by looking for new markets (ODIVER). They submit to the requirements of the main contractor (CONDDO) who exerts an intensive pressure with frequent renegotiations (FREQ). We are in the quasi-market zone where subcontracting is used as a flexible and cost-minimizing tool. Cluster 3 is made up of 24 firms which are “partners”. They are in charge of a specialized production (STSPE) that appears to be strategic for the partner (STRAT). The collaboration with the partner is based on a long-term contract (DUREEP, FORM) supported by specific organizational practices and routines (CERT, PP). The renegotiation of a contract is rare (FREQ). Conflicts can occur in case of bilateral contracts (complementarity of resources and assets). The significance of this variable is certainly the signal of problems of knowledge transfers such as uncontrolled spill-overs (Teece 1996). The main partner represents less than 20% of the total volume of their production and they have more partners than cluster 2.

⁵ For all comparisons of variance, Fisher test is significant at the 0.000 level and indicates a good differentiation of the firms.

Table 4 Definition of the other explanatory variables

Variables describing knowledge sources	Measurement scale	Value range
NSOUR: total number of sources used by firms	Metric	0.10
SOEXT: number of external sources	Metric	0.7
SOIN: number of internal sources	Metric	0.3
Variables describing firms' profile	Measurement scale	Value range
EFF: number of employees of the establishment	Metric	0.200
STAT: independence of the firm	Nominal	1,2 (1 = independent; 2 = not independent)
PM: market power	Nominal	1,2 (1 = strong; 2 = weak)
APET.T industry affiliation	Nominal	1,5 (1 = precision turning 2 = engineering industry; 3 = metals industry (treatment); 4 = Sheet metal work/piping; 5 = Others)
POSR position in the branch of activity	Nominal	1,5 (1 = supplier; 2 = producer, contractor; 3 = assembleur, équipementier, monteur; 4 = subcontractor; 5 = retailer, trader)
CARD.C: R&D budget (% of the turnover)	Ordinal	0,2 (0 = no R&D budget; 1 = less than 5%; 2 = more than 5%)
ORETD: strategic orientation = R&D development	Ordinal	0,4 (0 = Non response; 1 = Rank 1; 2 = Rank 2; 3 = Rank 3)

These results provide a partial validation of proposition 1: there exist different types of firms within the subcontracting industry. We expect that these three types of firms are characterized by different innovative activities.

(b) Other explanatory variables: the knowledge sources and the profile of the firm (see Table 4).

Apart from inter-firm relationships other sources of knowledge are seen as major determinants of innovative activity. The neo-Schumpeterian literature to innovation allows us to make a theoretical distinction between the internal and the external sources of knowledge and the number of sources that can be used by the different types of firms. In the questionnaire we introduced an initial menu of 14 potential sources⁶. The four internal sources were: R&D department or design centre of the organization; R&D department or design centre of the group; training of employees; recruitment of new employees. The ten external sources were: research consortium, consultancy firms specialized in innovation and technology transfer; public research institution; institution of technology transfer; professional associations; asset acquisition (patent, licence, equipment, ...), part-time integration of competences, firms

⁶ Some sources have been regrouped to obtain a menu of 10 potential sources.

with R&D activity; firms without R&D activity; other sources. One important limitation concerns the small number of observations in each of these indicators. A majority of firms have declared to use no source. To overcome this difficulty we decided to put in place three new measures (see Appendix 5). The first one is NSOUR which is the sum of the sources used by each firm. The second one is SOIN defining the total of internal sources used. Similarly, we added the external sources used to obtain the variable SOEXT.

Six variables have been selected to qualify the profile of the firm. Five variables are considered as traditional determinants of the innovative activity of the firm: number of employees (EFF), independence of the firm (STAT), market power (PM), share of the turnover allocated to R&D (CARD) and industry affiliation (APET_T). We added the variable POSR to define the position occupied by the firm in its branch of activity.

3.3.2 Dependent Variables: The Ability to Innovate (See Table 5)

NPROC (number of innovative manufacturing processes introduced in the last 3 years) and NPROD (number of innovative products introduced in the last 3 years) are standard measures of innovation measuring effective innovative activity. In that respect, non-innovative firms are natural non-respondents for these indicators. As a significant number of subcontracting firms are non-innovative (clusters 1 and 2 = 78%), we decided to build up special scales designed to capture the firm's willingness and ability to innovate. The respondent was asked to answer the following question: "Did you try to develop new ideas, new processes, new products in your establishment over the last three years?" The respondent had the choice among

Table 5 Definition of the two scales of innovation

Variables describing the firms' innovative activity	Measurement scale	Value range
SCALE1: Willingness to innovate	Metric	0.10 (0 = no innovative activity; 2 = process or product improvement; 3 = process and product improvements; 4 = process or product development; 5 = product improvement and product development; 6 = product and process developments; 7 = product development, product improvement and process improvement; 8 = product development, process development and product or process improvement; 10 = total innovative activity)
SCALE2: Ability to innovate	Metric	0.4 (SCALE 1* rate of success)

different items such as: no, yes, to improve existing products; to develop new products (radically innovative); yes, to improve existing processes; yes, to develop new processes (radically innovative). We dichotomized these variables and constructed a first scale of innovation that measures the firm's "willingness" to innovate. This first scale is the sum of the "yes" responses to the dichotomized items. The responses were weighed giving a bigger weight to radical innovations over improvements. This scale is not sufficient to capture the ability of subcontracting firms to innovate. Thus we constructed another scale of innovation in which the rate of success related to the innovations implemented by the firm was taken into account. We used NPROC and NPROD to control the validity of the two scales we constructed. The correlation analysis confirms the robustness of our two scales of innovation (Appendix 4). Further, a comparison of means⁷ shows that the firms that have developed the largest number of new products are the ones that have declared to have developed new solutions (new product or new process)⁸.

4 Empirical Results: The Innovative Activities of Firms within the Subcontracting Industry

In this section the two propositions formulated in the theoretical part of this paper are tested. An analysis of variance (ANOVA) is conducted to test whether the three clusters of firms have significantly different means for the two scales of innovation. Some other tests are conducted to catch deeper insights on the statistic relations between the profile of subcontracting firms (included their absorptive capacity) and their innovative activity (Correlation analysis and Chi square test).

Concerning our first proposition, the results are unequivocal. We can reject the null hypothesis of equality of means for both scales. Clusters 1 and 2 score lower on the two scales measuring innovative activity. They are non-innovative firms because their innovative activity is mainly on product or process improvements.

For the suppliers (cluster 1) this result may suggest that they operate in sectors where the appropriability regime is too weak to fully exploit the benefits of innovative activity. Their score in SCALE2 reveals that they succeed quite well when they want to make progress (in more than 50% of the cases). A first explanation comes from adequate competition pressures in the market of standard inputs. More interestingly, the strategy-related variable ORC, though only significant at the $\alpha = 0.09$ level, shows that the ability to improve solutions is also due to the existence of a clear strategic cost-orientation⁹ (ORC). This means that firms logically prefer to improve their processes rather than their products.

⁷ For all comparison of variances, the Fisher test is significant at the 0,00 level. Tables are available on request.

⁸ The most innovative firms have developed on average 4.33 new products or 4.28 new processes.

⁹ We must be cautious because the chi square-tests are not significant at the $\alpha = 0.05$ level:

TYPOST * ORC: Chi square value = 10,876; ddl = 6; sig = 0,09

TYPOST * ODIVER: Chi-square value = 12,107; ddl = 6; sig = 0,06.

In cluster 2, pure subcontractors share the same ability to improve solutions. They obtain a good score on SCALE2. These results are consistent with the prediction of the transaction cost theory where “*accumulation of knowledge can only exist through passive learning-by-doing processes, as a by-product of the division of labour*” (Cohendet and Llerena 2005). Pure subcontractors aim at finding new markets certainly because they want to reduce their dependence on their main contractor. This result leads us to conclude that these two clusters of firms show the same ability to innovate. As for the sources of knowledge they used there is no surprise. They only use one source on average. A small difference concerns the degree of openness which is higher for suppliers because of their upstream position in their branch of activity (POSR). Firms in cluster 2 have less external opportunities. They are constrained by their situation of dependence with respect to their main contractor. We note that the firms’ size has a significant impact both on the nature of the firms and their innovative activity (see Appendices 2 and 4). Suppliers and pure subcontractors are micro-firms (respectively, 24 and 17 employees on average). All things considered, the nature of their inter-firm relationships, the nature of their environment (unfavourable conditions to innovate), their strategic orientation (not oriented towards a knowledge priority), their small size, we can conclude that they do not possess internal resources to innovate and are not able to compensate this lack by absorptive capacities.

In cluster 3 firms are “quasi-integrated partners”. Their distinctive competences are key determinants of inter-firm relations. Table 6 confirms the innovativeness of these firms. They intend to develop new products or processes (score of 4 on the scale1 of innovation). We note that their rate of success (50%) is lower than the rate of success of the other two clusters. This is not surprising since it is easier and less risky to improve existing solutions than to develop new products or processes. Their small size (38 employees on average) does not hamper their ability to innovate. This is consistent with the argument in the neo-Schumpeterian literature. To innovate they tend to use more sources of knowledge than other firms. Internal sources are the dominant ones, showing that they possess their own internal resources to innovate. As suggested in the theoretical part they can also benefit from external

Table 6 ANOVA comparison of means of innovation output measures test in the different clusters of firms

		SCALE1	SCALE2
Cluster 1: Suppliers	Mean	2.2069	.6379
	N	29	29
Cluster 2: Pure subcontractors	Mean	2.2759	.6310
	N	58	58
Cluster 3: Partners	Mean	4.0000	1.1125
	N	24	24
Total	Mean	2.6306	.7369
	N	111	111
F test		0.015	0.023

inter-firm relations as a “quasi-internal market of knowledge”. We have shown that inter-firm agreements are an efficient way to access to complementary forms of knowledge even when asset specificity is taken into consideration. In terms of position in their branch of activity they rather declare to be “subcontractors” (as firms belonging to cluster 2). More than simple contractors their performance in terms of innovation suggests that they can be considered as partners in the sense of competence perspective.

These results are consistent with our first proposition. Different inter-firm relationships coexist in the subcontracting industry and play a significant role in the intensity and the type of manufacturers’ innovative activity.

We try to refine these results by testing the second proposition identifying the role of traditional determinants on the firms’ innovative activity independently from subcontracting modes. In that respect we attempt to assess to what extent firms can gain autonomy from their inter-firm relationships and have their own internal resources to innovate.

The ANOVA tests show that means are significantly different on SCALE1 and SCALE2 for the following independent variables: NSOUR (number of sources of knowledge), SOEXT (number of external sources), SOIN (Number of internal sources), CARD (R&D budget), PM (insufficient market power) and STAT (independence of the firm), ORETD (R&D development priority) (see Appendices 5 and 6).

The firms that allocate more than 5% of their turnover to the R&D budget have the best score in the scale of willingness to innovate. They have been looking for product development and improvement in the last three years. This willingness to exploit existing solutions and to explore new ones may be risky. We observe that their rate of success is lower than other firms. The “status” of firms (independent firms or subsidiary of a group) shows that firms that are subsidiaries are better innovators than other firms. This fact is consistent with the Schumpeterian thesis that firms of this type have a privileged access to internal financial resources from their group. We observe that they can also benefit from their company’s internal knowledge through organizational routines. We also note that they cultivate a remarkable capacity for absorbing outside knowledge. The variable PM is also significant due to the fact that firms that declare to have an insufficient market power are more oriented towards improvements than radical innovations. In contrast, the perception of a great market power is linked with process or product developments. If all these results tend to confirm the Schumpeterian view of innovation namely that small firms have no chance to innovate, the conclusion is not definitive. We observe that firms whose first strategic objective is to develop the R&D resources are intensive innovators as well. This is in line with the neo-Schumpeterian approach which considers that strategic and organizational capabilities are major determinants of innovation. In other words, market power is not the sole relevant determinant factor to explain innovative activity.

We could not find a significant relation between innovation and firms’ industrial affiliation. Different tests have been made according to different levels of aggregation (sub-sectors and sectors). None of them were significant. We interpret this

result as the existence of very similar technological conditions since all the studied firms belong to the traditional subcontracting industry.

To sum up, these results confirm proposition 2. Apart from inter-firm relationships, some firms can gain autonomy in their ability to innovate allocating their own financial resources to innovation and formulating a clear strategic vision. Market power is also a source of innovation.

5 Discussion and Conclusion

The purpose of this paper was to investigate the relation between the different types of firms in the subcontracting industry and their innovative activity. Firstly, subcontracting firms have been defined according to the nature of their inter-firm relationships. We have identified and characterized three different types derived from the contractual and competence perspectives of the firm: suppliers, pure subcontractors and partners. Secondly, we have drawn on the neo-Schumpeterian approach to innovation to complete the description of subcontracting types. This has enabled us to clarify the profile of subcontracting firms in the context innovative activity. The empirical test has confirmed the two main theoretical propositions. The nature of inter-firm relationships is a main source of inter-firm differences in innovative activity within the subcontracting industry. Suppliers (cluster 1) and pure subcontractors (cluster 2) are non-innovative firms. Their ability to innovate aims at improving existing processes. The empirical test has also provided evidence that small firms can be innovative firms. "Partners" (cluster 3) are innovators that develop products or processes even if they are small firms (less than 50 employees). Apart from these inter-firm relationships we have observed that some firms are more able than others to develop their own ability to innovate since they benefit from larger internal resources and cultivate greater absorptive capacity. The others are caught in a vicious circle. Suppliers are constrained by specific market conditions and technological regime that hamper their innovative activity. Their cost-oriented strategy and their small size make us believe that they do not have the ability to interact with other agents. The single source of knowledge they use confirms this aspect. For pure subcontractors there is no much difference. They differ only in terms of dependence on their main contractor. Their high dependence represents a major obstacle for innovation.

More generally, the current analysis suggests two implications for research. The first one proposes a new classification of subcontracting firms based on their ability to innovate. Such classifications are often too rare even though they are powerful tools to detect and confirm the persistence of traditional subcontracting relationships in industrial sectors, including in the most innovative ones (Dyer et al. 1998; Amesse et al. 2001). This result shows that cost-minimization, productivity improvement and flexibility are still major sources of competitive advantage in a context of rapid technological change. This finding also highlights the *dual* nature of contractors. They externalize (to a large extent) their peripheral activities to traditional

subcontractors and, at the same time, mobilize a small number of partners that are called to participate in the domain of their strategic activities (Cohendet and Llerena 2005, Langlois and Foss 1996). As a result, we have to pursue the study of factors that hamper innovation. The manufacturers' qualitative comments in this respect are worth further exploration. This information is in our dataset. Such information can have real implications in the implementation of future public policies designed to support the less innovative firms. A second implication is that this analysis also contributes to a better understanding of the innovative activity of small and micro firms. Here again, we can regret that most empirical studies exclude this category of firms in spite of the fact that they also require an appropriate framework and specific innovation measures. This research confirms that to be a small-size firm is a priori not an obstacle for innovation. Small firms can play a role as *fruit flies of innovation* (De Jong and Marsili 2006).

To conclude, it is possible to say that the specificity of the studied population provides some understanding of within-sector firms' heterogeneity. Nevertheless, since it is impossible to compare it with other sectors it shows its own limits. The challenge is now to extend the study to new sectors in particular to the services sector. As a matter of fact, several empirical studies have shown that the two sectors, manufacturing and services, share many common patterns of innovation. Moreover, some studies related to the analysis of subcontracting relationships outline the systemic effect between the partners of services and the industrial subcontractors.

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Appendices

Appendix 1 The survey, summary characteristics

Industrial subcontracting sectors	Parent population: N (%)	Respondents: N (%)
Stamping, metal cutting and forming, metal finishing,	243 (19.3)	14 (12.6)
Bar-turning	335 (26.5)	34 (30.6)
Engineering industry	398 (31.5)	32 (28.8)
Other subcontracting activities	286 (22.7)	31 (27.9)
Total	1,262 (100.0)	111 (100)

Chi2 value = 7.46, ddl = 4, sig. = 0.11

Firm size (number of employees of the establishment)	Parent population: N (%)	Respondents N (%)
Less than 10	566 (44.8)	55 (49.5)
10 to 50	623 (49.4)	47 (42.3)
More than 50	71 (5.6)	9 (8.1)
NR	2 (0.2)	
Total	1,262 (100,0)	111 (100)

Chi2 value = 2.70, ddl = 2, sig. = 0.26

Appendix 2 Anova test for comparison of means of knowledge sources and profile measures in the three clusters of firms

		NSOUR	SOEXT	EFPE
Cluster 1: suppliers	Mean	1.3793	.7586	23.45
	N	29	29	29
Cluster 2: pure subcontractors	Mean	1.1207	.5517	16.79
	N	58	58	58
Cluster 3: partners	Mean	1.8333	1.1667	37.92
	N	24	24	24
Total	Mean	1.3423	.7387	23.10
	N	111	111	111
F test		0.018	0.027	0.049

Appendix 3 The three clusters according to their position of the branch of activity

	Cluster 1: suppliers	Cluster 2: pure subcontractors	Cluster 3: partners	Total
POSR 1.00	12	21	3	36
2.00	7	5	1	13
3.00	0	0	3	3
4.00	10	32	16	58
6.00	0	0	1	1
Total	29	58	24	111

Chi2 = 26.675; ddl = 8; Sig. = 0.001

Appendix 4 Significantly correlated variables to the two output measures of innovation

		SCALE1	SCALE2
PROD.C	Cor. Coef	.383(**)	.333(**)
	N	111	111
PROC.C	Cor. Coef.	.389(**)	.371(**)
	N	111	111
NSOUR	Cor. Coef.	.447(**)	.428(**)
	N	111	111
SOEXT	Cor. Coef.	.411(**)	.410(**)
	N	111	111
SOIN	Cor. Coef.	.336(**)	.314(**)
	N	111	111
EFFE	Cor. Coef.	.295(**)	.336(**)
	N	111	111

**Correlation coefficient (Cor. Coef.) with a two-tailed observed significance level < 0.01 level (bilateral)

Appendix 5 Anova test for comparison of means of the knowledge sources measures (NSOUR, SOEXT, SOIN) in the two output measures of innovation

NSOUR		0	1	2	3	Total	F-test
SCALE1	Mean	0.8519	2.725	2.6522	4.7143	2.6306	
	N	27	40	23	21	111	0.000
SCALE2	Mean	0.2111	0.7925	0.7609	1.281	0.7369	
	N		40	23	21	111	0.000

SOEXT		SOIN											
		0	1	2	3	4	Total	F-test	0	1	2	Total	F-test
SCALE1	Mean	1.68	3.27	3.67	4	7	2.63		1.88	2.67	4.47	2.63	
	N	56	37	12	3	3	111	0.000	49	43	19	111	0.001
SCALE2	Mean	0.47	0.93	0.94	1.2	2.1	0.74		0.52	0.78	1.19	0.74	
	N	56	37	12	3	3	111	0.000	49	43	19	111	0.003

Appendix 6 Anova test for comparison of means of the firms' profile measures (CARD_C, STAT_T, PM, ORETD) in two output measures of innovation

CARD_C						STAT_T					
		0	1	2	Total	F-test	0	1	2	Total	F-test
SCALE1	Mean	2.03	4.31	5.08	2.63	0.000	0	2.25	4.27	2.63	0.003
	N	86	13	12	111		1	88	22	111	
SCALE2	Mean	0.57	1.29	1.33	0.74	0.000	0	0.64	1.17	0.74	0.007
	N	86	13	12	111		1	88	22	111	

PM						ORETD					
		1	2	Total	F-test	0	1	2	3	Total	F-test
SCALE1	Mean	2.27	4.19	2.63	0.002	2.19	4.27	3	2.87	2.63	0.042
	N	90	21	111		72	15	9	15	111	
SCALE2	Mean	0.63	1.21	0.74	0.001	0.62	1.2	0,86	0.8	0.74	0.048
	N	90	21	111		72	15	9	15	111	

Conflict Resolution Mechanisms in Alliance Networks

Elodie Gardet

Abstract Recent literature on interorganisational relations has adopted a dynamic approach for understanding the performance of alliance networks. However, it focuses mainly on the comprehension of the causes (why) rather than the functioning (how). This article explores conflict resolution mechanisms and evaluates the consequential satisfaction among participating organisations. We demonstrate the necessity to acknowledge moderating variables in order to understand the conflict resolution mechanisms used by alliance network organisations and members. The aim of this study is to analyse the moderating role of the advancement phase of innovation projects (from invention to development; from development to production; from production to diffusion) with regard to conflict resolution mechanisms. This research is of an exploratory nature as the existing literature has not yet developed a definitive hypothesis on the relationship between conflict resolution mechanisms, project advancement phase and the type of organisation (partner/supplier; financial/technical/industrial/commercial).

Keywords: Conflict resolution mechanisms · Alliance networks · Innovation project

1 Introduction

By developing alliance networks in order to create maximum profit and success, project bearers are often confronted with conflict. This conflict is derived from inconsistencies and disagreements from different members who have contrasting or opposing objectives. The relevant literature can be broken down into two principal parts:

The first line of research is concerned with the origins and corresponding foundations of conflict (Alter 1990; Jehn 1994; Jehn and Mannix 2001; Fréchet, 2002;

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Guéry-Stévenot 2006). By implementing contractual theories, Fréchet (2002) aimed to identify the factors that influence initial beginnings of conflict within innovation networks. Employing the cognitive governance analysis, Guéry-Stévenot (2006) explains the birth of conflict relations between investors and directors. From the cognitive point of view, conflict is found worldwide due to a lack of harmony within a relationship (Alter 1990). Similarly, it seems that conflict arrives as soon as the involved parties demonstrate incompatible desires (Jehn and Mannix 2001).

The second line of research is concerned with the impact conflict and its corresponding resolution mechanisms have on an organisation's success (Mohr and Spekman 1994; Iniesta 1999; Gray 2001; Tuten and Urban 2001; Puthod and Thévenard-Puthod 2006). Inestia (1999) considers conflict to be harmful towards alliance networks as it leads to profit diminution and in the worst-case scenario, the discontinuation of the partnership. This research is of this second line.

The aim of this research is to demonstrate the necessity of acknowledging the advancement phase of alliance networks developing innovation projects (ANI) to understand the conflict resolution mechanisms used by organisations involved. Mohr and Spekman (1994) established a link between conflict resolution mechanisms and the partners' degree of satisfaction. However, they did not take the effects of the moderator's role into consideration (Tuten and Urban 2001; Walsham 2002; Duarte and Davies 2003). Considering these effects, we believe that the advancement phase is essential in our chosen example, the ANI. This paper takes a much-needed longitudinal approach to examining the conflict resolution mechanisms. Few studies have attempted to understand the dynamics of cooperation mechanisms. However, no one has tried to understand conflict resolution mechanisms over the three project phases. Hence, this work is important. Research has gone one step further towards understanding interorganisational cooperation and the need for a better understanding of each mechanism is becoming increasingly apparent (Gulati 1998). So our research questions are: "What type of conflict resolution mechanisms are used in ANI? And how is this conflict resolved?" So, the main point is how to resolve conflict and not why conflicts arise, which is much treated in the literature.

This article is divided into three parts. The first part consists of a literature review regarding conflict resolution mechanisms, primarily reviewing interorganisational relations. The second part presents the adopted methodology exemplifying seven case studies involving alliance networks in the process of developing technological innovation projects. Those cases were researched over 12 months gaining primary data (interviews, observations) and secondary data (contracts, media articles). The results are presented in the Sect. 3 with a discussion of the reasons the conflict resolution mechanisms were used.

2 Conflict Resolution Mechanisms in Multilateral Relations

In this second section we present the network form under study, a literature review of the main conflict resolution mechanisms and the evolution of ANI. The aim is to show that the static approach is not adapted to study conflict resolution mechanisms in ANI.

2.1 Alliance Networks: A Specific Form of Interorganisational Cooperation

In an attempt to identify different network forms, the existing literature (Guilhon and Gianfaldoni 1990; Paché 1996) classifies all networks according to two separate criteria: first, concerning the aim of the exchange relationship and second, the nature of the regulation trends, formalized or not. Consequently, two forms of networks are identified:

The “network-firm”, which can be described as a type V network (Guilhon and Gianfaldoni 1990) with vertical exchange organisations, is used to create a transfer of complementary resources.

The “network of firms” can be defined as a type H network (Guilhon and Gianfaldoni 1990), which is composed of horizontal exchange organisations with competitors. This form is used to share or pool identical resources. Like industrial districts, alliance networks benefit from a size outcome that allows more negotiation power with their clients, suppliers and financial contributors while also allowing them to achieve economies of scale and further investment capability (Goerzen and Beamish 2005).

However, most authors have ignored the possibilities of combining both of these situations (Gomes-Casseres 2003). The combination of these two network forms will be referred to as an “alliance network” and can be considered as a third form alongside the two previously noted forms. Following the firm-network and the network of firms, the alliance network can be considered as a type V + H network governed by a focal firm. Alliance networks thus enjoy joint vertical and horizontal exchange partnerships and combine the logic of sharing, merging identical resources, and transferring complementary resources. For a strategic alliance, the aim is either the specialisation (vertical partnerships) or the sharing of resources and costs (horizontal partnerships). It is extremely rare that an isolated alliance accumulates the advantages of specialisation and productivity. However, the alliance network is a combination of vertical and horizontal alliances, which consequently combines these two advantages. Alliance networks must not be considered as consisting of a combination of isolated organisations. Effectively, the advantages that can be achieved from an alliance network are more important than the total advantages gained from different organisations (Gomes-Casseres 2003). In fact, if a particular organisation in an alliance network does not meet the expectations of other organisations, the unsatisfied members have the possibility to turn towards other organisations in the alliance network for guidance and assistance.

To illustrate, let us take the case of Sky Team (Fig. 1) whose members also include: Air-France/KLM, Avis (car rental company) and Continental Airlines. Air-France/KLM and Avis are associates in a vertical alliance. Air-France/KLM is the most significant company in the alliance network and occupies its heart. It is the pivot. Both partners Air-France/KLM and Avis gain an advantage through transferring specialised resources. This transfer is equally beneficial to the horizontal alliance network partners (between Air-France/KLM and Continental Airlines). Moreover, it could have a positive impact on the relationship between partners Continental Airlines and Avis regarding the benefits of sharing resources.

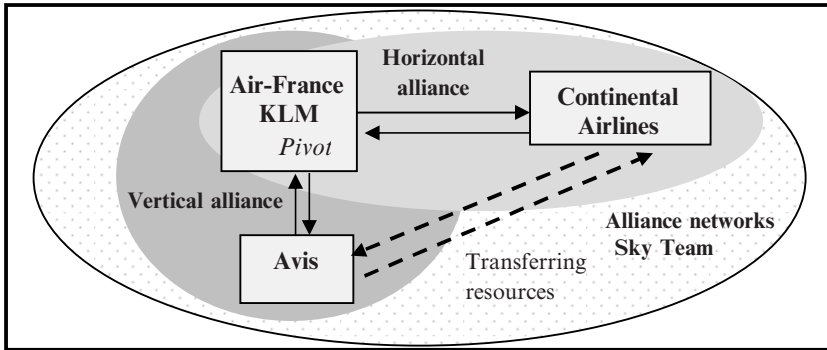


Fig. 1 Illustration of an alliance network

The company in charge of the innovation project (the pivot) weaves a multitude of links with various heterogeneous organisations. In current related literature, these links are studied bilaterally. It thus can be argued that a more global analysis is needed to understand the complexity of the links between different actors and their consequential repercussions on the conflict resolution mechanisms. In order to specify our argument, these mechanisms are examined in the next subsection.

2.2 Conflict Resolution Mechanisms in ANI

The Social Sciences explain conflict as having negative or positive consequences (Assael 1969; Amason and Allen 1996), regarding the performance of the alliance network. We do not wish to enter into this debate in our research, as our primary concern is to understand the conflict resolution mechanisms used by organisations rather than the origins or effects of the conflict. It is thus necessary to define conflict in a way we can empirically observe this phenomenon. For the purpose of this study, we refer to Thomas' (1992: 653) definition of conflict as "a process, which begins as soon as one group perceives that another is negatively affecting them, or is at the point of negatively affecting them or something important for them".

The specificity of each alliance network makes it necessary to develop a specific executive analysis in order to holistically examine them (Doz and Hamel 2000). It is for this reason that we propose a new conflict resolution mechanism that can be applied to interorganisational cooperations in general. In the next section, we show the specificities of the alliance networks, which had a goal of developing a technological innovation project (ANI), using data taken from seven case studies. By nature, innovation projects are unstable; the level of emotional engagement involved in the project is extremely high and strategic assets are required. Consequently, these alliance networks are particularly prone to conflict, which negatively affects the development of innovation projects.

The literature on conflict control (Mohr and Spekman 1994; Bendersky 2003; Jabs 2005) identifies various types of conflict resolution strategies. Different levels of analyses (individuals, organisations, etc.) that bring about a notable distinction

between typologies are discussed. In turn, researchers limit themselves to a dyadic analysis. However, in an alliance network (Gomes-Casseres 2003), it is essential to consider the entire collection of interactions (e.g. two-to-one or several-to-several).

As soon as there is an interaction, there is a high risk that conflicts may occur. Regarding interorganisational cooperation, conflict is seen as almost inevitable considering the inherent interdependencies between the groups (Mohr and Spekman 1994). It is therefore important to put resolution mechanisms into practice, yet these mechanisms have repercussions regarding the success or failure of the alliance network (Bory and Jemison 1989). Companies that are engaged in an alliance network are motivated to find ex-ante mechanisms, which permit conflict resolution. These companies have a common goal: "to control" an uncertain environment (Cummings 1984).

The number of organisations in ANIs (Gay and Dousset 2005) means that we have relationships that are not necessarily dyadic (though all the research cited above is limited to bilateral relation analyses). Furthermore, if a conflict emerges between two technical partners in an ANI, it is possible that another member of the network intervenes to find a solution (for example: the project bearer). It is extremely probable that the pivot intervenes to head the conflict resolution process. This type of situation is not contemplated in current literature surrounding conflict resolution. Conflict resolution mechanisms are seemingly more complex when considering ANI cases as they are not always ex-ante (an innovation project is unstable by nature and thus does not allow for a mid-term visibility of the alliance network structure). Moreover, the level of engagement of organisations may be different (for example, if two technical partners participate in a project at different levels it will increase the chances of conflict). Mohr and Spekman's 1994 typology includes six types of conflict resolution mechanisms that are used for dyadic relations. This typology has the advantage of being easy to use. As these authors study bilateral relationships, we have adapted these mechanisms to take multilateral relationships into account:

Conjoined resolution: Different groups come together to find a mutual solution for a problem.

Persuasion: One of the organisations (or a group of organisations) attempts to persuade the other organisations that solution A or B is the best to rectify the conflict situation. In the case of multilateral relationships, we specify that "persuasion" refers to an actor (or actors) who persuade the other members of the ANI. According to Amason and Allen (1996), persuasion is generally more constructive than coercion.

Coercion: One or many partners restrain the others from choosing the conflict resolution solution. Mohr and Spekman (1994) distinguish coercion from domination but fail to offer a clear definition. We therefore do not support this distinction between coercion and domination.

Sanction: Reprimanding a partner in a friendly manner or excluding that partner from the alliance network.

Introduction of a third party: A third party (arbitrator or court) creates a solution for the conflicting groups.

According to Mohr and Spekman (1994), choosing to call in a third party may generate positive consequences regarding the alliance network's continuation and future, but it must be noted that these results do not consider the presence of moderating variables. Mohr and Spekman (1994) argue that an alliance network's success depends on three variables: the association's attributes (trust, coordination, interdependence, etc.), communication behaviour between members (quality, frequency, etc.) and conflict resolution mechanisms. These authors carried out a quantitative study without moderating variables, which was noted as a limitation. Tuten and Urban (2001) expanded Mohr and Spekman's (1994) model to include previous partnerships by using the time-length of the exchange as a moderating variable. The survey respondents clearly distinguished the difference between long-term partnerships and more occasional buyer-supplier relation. Tuten and Urban (2001) support the necessity of using a dynamic approach in order to understand the different conflict resolution mechanisms in interorganisational cooperation situations. Conflict resolution is not a static variable. Conflicts and their mechanisms evolve over time and yet no research to date explains or describes this evolution. Our aim is to overcome the information gap for evolution of resolution conflict mechanisms.

2.3 Analysing Conflict Resolution Mechanisms Using the Dynamic Approach

Among ideas surrounding academic debates on cooperation, more specifically regarding innovation alliance networks, is one that is particularly important, and it concerns the importance of taking the evolution dynamics into consideration (Larson 1992; Zajac and Olsen 1993; Ring and Van de Ven 1994; Doz 1996; Reuer et al. 2002). It must be noted though, there are few authors who analyse the evolution of coordination mechanisms in relation to cooperations (Reuer et al. 2002). Longitudinal research regarding interorganisational cooperation generally identifies three phases of development such as in Das and Teng's (2002) work which categorises the three phases as: formation, construction and results. According to Ring and Van de Ven (1994), the evolution process of associates can be sorted into three phases: negotiations, agreements for future action and the execution of these agreements. This model is adapted to study non-repeated dyadic relations but it cannot be implemented to study an entire project. Moreover, although this model indicates the key states and each principal risk, it remains inadequate as it fails to include any circumstantial factors (the environment, internal conditions, etc.), which could affect the cooperation process. However, despite studying the multilateral relationships, the number of associates is not fixed and therefore it is difficult to linearly structure the phases. The cycle of an ANI is interactive and iterative. The project bearer is able to negotiate before hiring (psychological contract) a commercial provider during the development phase. Then during the diffusion phase, and according to the other partners' advice, he can hire a second commercial provider, which will inevitably lead to returning to the negotiation phase.

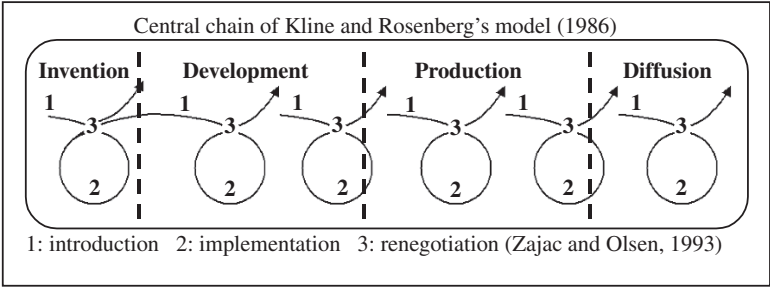


Fig. 2 The integration of the value creation process in the central chain of innovation

Zajac and Olsen (1993) studied the evolution of alliance networks regarding the value creation process, which they break down into three phases: introduction, implementation and renegotiation. Their approach is most suited to our research because it includes a repetitive and iterative cycle of relationships that can be seen during the renegotiations phase in our case studies. Figure 2 demonstrates the possibility of combining the value creation process and the innovation process. The value creation process' repetitive and iterative cycle is situated in the central chain of Kline and Rosenberg's (1986) innovation model. They propose a chain that begins with the invention phase and continues with the development, production and implementation (diffusion) phases.

Considering an ANI, this analysis allows us to study different phases of the innovation process throughout the entire project. The combination of the innovation and cooperation processes allows us to understand all the interactions that develop in an ANI.

Furthermore, Kline and Rosenberg's (1986) proposed phases are common in innovation project groups. It is for these reasons that we support the following three phases in this study of innovation projects: from invention to development (Phase 1); development to production (Phase 2); production to diffusion (Phase 3). Together, these analyses respond to the necessity of better understanding the evolution of the interorganisational cooperation functions. Furthermore, no research has studied conflict resolution mechanisms in the evolution of phases. The empirical section of this research aims to verify the importance of the mechanisms adopted by the members of the ANI during the evolution of phases.

3 Methodology

A qualitative methodology was adopted in the case studies during the research process, as the phenomenon in question is vast, complex and largely unexplored. Our research is therefore of an exploratory nature, in the sense that the literature has not yet developed a precise hypothesis regarding the relationship between conflict resolution and the project evolution stage. It is for this reason that our interviews

began with an in depth questionnaire in order to take the different dimensions of potential conflict resolution mechanisms into account. Moreover, to understand the impact the advancement phase has on the mechanisms, we met with the project bearers at least once every 2 months over a period of 6–12 months (depending on the start date of the case). We carried out 57 interviews of which 33 were tape-recorded. Due to confidentiality reasons, the remaining 24 could not be audio-recorded.

3.1 A Case Study Approach

Each of the seven case studies relies on three information collection tools to ensure data triangulation (Yin 1994): interviews, direct observation and secondary data analysis. We chose these particular seven alliance networks because each of them was developing a technological innovation in collaboration with at least three other organisations (see Table 1). Fifty-seven interviews were carried out with different members of the innovation networks: the project bearer and the financial, technical and industrial members. By carrying out semi-structured interviews over an average of one and a half hours each, we hoped to gain a better understanding of the innovation networks' history, the different conflict resolution mechanisms implemented in these networks, and the difficulties experienced and their consequential repercussions on the innovation project. This research was equally executed using secondary data:

Internal: emails exchanged between different project members, the project bearers' internal notes during the project advancement presentations, business plans and contracts between members.

External: internet; press releases and articles and newspaper clippings.

And last, a passive observation was carried out (regular presence: one day every 2 months over 6–12 months in the project bearers' offices), to capture the actual environment and working atmosphere (the eventual tensions or, in contrast, the joyful periods linked with the innovation project).

3.2 Case Presentation and Data Treatment

This section discusses the selection of the cases, assessing their comparability and their ability to support the meta-analysis. Alliance networks developing exploration innovation projects are selected in collecting case data, because this type of innovation manifests the typical features of high-risk and uncertainty (Lin et al. 2007). The members of ANI are not able to fix all the types of coordination mechanisms at the beginning of their cooperation (Dhanaraj and Parkhe 2006), and consequently they are often confronted with conflicts.

Actually, most of the cases of ANI that were studied previously were in biotechnology or information technologies (Baum et al. 2000; Gilsing and Nooteboom

Table 1 The characteristics of the structure of ANI studied

Projects ^a	Project bearer(s)	No Mbr. ^b	Sector of activity
Project A	SME (12 employees)	65	Automobile
Project B	Craftsman (two employees)	8	Large-scale distribution
Project C	Independent (one employee)	11	Large-scale distribution
Project D	SME (three employees)	9	Industry
Project E	SME (six employees)	24	Sports and leisure activities
Project F	Independent (one employee)	6	Sport and leisure activities
Project G	Three enterprises	7	Industry

^aFor reasons of confidentiality, we do not reveal the names of the innovation projects

^bNumber of Stakeholders: the average number of stakeholders during the year of observation. The term 'member' is used in the organization sense

Table 2 The characteristics of the projects of ANI studied

Projects	Innovation object	Studied phase	Remarks	No. inter-views
A	Component for car manufacturers	I and II	Ambitious project: heavy investments and strong degree of professional skill	13
B	Products for beauticians (B to B)	I, II, III	Commercial partner demands property rights on the already deposited patents	9
C	Basic consumable products	I and II	Project remains stable: target market is oligopolistic	6
D	Machine to improve the manufacturing process	II and III	Opportunist behavior: deposit of an additional patent	7
E	Sport protection product	II and III	Project succeeds without major difficulties	10
F	Product specialized in sliding sports	II and III	The project bearer consulted to the experience of the project bearer E	8
G	Autonomous products	I	Tedious and formal negotiations	4
Total				57

2005; Roijackers et al. 2005). That is why in this paper we selected cases from other sectors, which we believe, are often neglected in the literature (see Table 1).

The selection was made according to the patenting, and information was collected in chronological order until seven cases were selected. The cases cover one or more phases of the development project. Unfortunately, we were not able to study the three phases of some projects because of time limitation. For example, project A (see Table 2) attempts to develop a new motor over a period of 12 years.

The multisite case studies constitute a theoretical sample (Glaser and Strauss 1967). This critique allowed us to select the cases that correspond to our research question. Thus, we carefully chose innovation networks of different sizes and from different activity sectors that aimed each at successfully executing a technological

innovation project. We specifically chose cases that shared enough common traits (technological innovation, networks with at least three collaborators, etc.) with the others but that could be clearly distinguished from one another in many other ways (Hlady Rispal 2002). The aim of our research is not to replicate results but more so to discover conflict resolution mechanisms used during the life span of an ANI.

4 Relationship Between Conflict Resolution, Project Advancement Phase and Organization

We will now present the case studies' results concerning the conflict resolution mechanisms used by the project members. One proposition to take into account involves three moderating variables: the innovation project's advancement phase, the type of organisation and nature of the relationship.

4.1 Conflict Resolution Mechanisms and the Project Advancement Phase

Each case study's principal result is that conflict resolution mechanisms are not static but in fact change according to the innovation project's advancement phase. Furthermore, the project bearers reiterate that they do not hire people using the same mechanisms in the development phase as in the diffusion phase.

Phase 1 (invention to development): Exterior arbitration and coercion are never employed. Instead, collaborators use "softer" mechanisms such as persuasion exercised by the project bearer and joint conflict resolution. The use of "soft" mechanisms has several reasons. First and foremost, as we have detailed in Sect. 1, we are interested in ANIs, which are particularly subjected to fixed time constraints. Moreover, if the project falls behind during Phase 1, undesirable repercussions could occur in Phases 2 and 3, which could compromise the project's aims or lead to the project's failure. This explains why we have never observed the practice of "neglect" in our case studies, which can be observed in many other networks (e.g. franchises). Similarly, the project bearer has certain patent deposits but these do not provide him legitimacy in the alliance network. The project bearer must initiate the "snowballing effect" in order to prove the relevance of the project. During this phase, the bearer cannot enforce his point of view, so negotiation is not in his favour, which partly explains the desire to resolve conflict in a joint manner. This explication relates to cases A, B, C, D, E and F as the organisation is of a small size (Craftsman, SME, independent). In project G, the bearer is strong enough (big company) to enforce his point of view.

Phase 2 (from development to production): The mechanisms start to harden and we see persuasion occurring more and more frequently. The bearer plays the role of

the mediator because he has a global vision of the project. This in turn allows him to believe that he personally is the most suitable to find the best conflict solution:

“I have recently had conflicts between two of my technical associates who did not understand why we kept this method of manufacturing. I therefore had to give them an entire sales pitch, like a salesman, so that they would agree to this solution” (bearer, project A).

Phase 3 (from production to diffusion): The mechanisms that are mostly used are exterior arbitrations and coercion. This phase is where the organisations release the product into the market. Use of a third party (arbitrator or court) is common as there are fewer hostilities (Frery 1997) between associates.

In this sub-section, we are encouraged to think that it is necessary to integrate the project’s advancement phase as a moderating variable during the study of conflict resolution mechanisms. Following this, we remarked that the mechanisms changed according to the types of organisations in the alliance network.

4.2 Conflict Resolution Mechanisms and the Type of Alliance Members

As a result of the different interviews, we realised that the project bearers saw the partners and contractors in their ANI differently:

“With a contractor, you have a budget, a proposition and a result. With a partner, you have direct lines, common long-term and ‘medium-term goals’. You find a partner to accompany you, to achieve your goals together” (bearer, project F)

It therefore can be argued that it is essential to identify this distinction regarding the nature of the partnerships in our analysis so that we can readily see how this difference influences the conflict resolution mechanisms. Technological innovation demands a combination of different resources to succeed, which in turn requires the presence of different members within the innovation network who bring these resources together with specific skills. Callon et al. (1995) categorise these members into four groups: science/technology, industry, regulation and user or market. During our research, we questioned people on the type name that they gave to each member of their innovation network. For the majority, the interviewees made distinctions between financial, technical, industrial and commercial associates. This is not surprising as it relates to the guidelines offered by OSEO¹ for advising the project bearer on how to develop the innovation network. Considering our data treatment, we employed the typology used by the members, which has multiple similarities to Callon et al. (1995) typology (e.g. science sector/technology to mean technical members; industrial sector to mean industrial members). But instead of the users, it

¹ OSEO: Its mission is to provide assistance and financial support to French SMEs and VSEs in the most decisive phases of their life cycle: start up, innovation, development, business transfer/buy out. By sharing the risk, it facilitates the access of SMEs to financing by banking partners and equity capital investors.

Table 3 A typology of an alliance network's members

		Nature of the members			
		Technical	Financial	Industrial	Commercial
Nature of relationship Partners	Providers	Enterprise X	Credit establishments	Producers X	Distribution agents
	Private	Clearly identified enterprises	Priming base Business angels	Clearly identified enterprises	License
	Public	CRITT ^a	OSEO, Trade chamber	–	UBIFRANCE ^b

^aCRITT : public technical center for technological innovation

^bThe French Agency for international business development, helps project bearer to expand their business abroad

considers the commercial associates (B to B). Table 3 summarises our reflection on the different members within the innovation network according to the nature of the relationship that they have with the project bearer and their nature.

We examined the seven case studies to see if these variables (nature of members and nature of the relationship) influenced the conflict resolution mechanisms.

Technical Members

The conflict resolution mechanisms used in conflict situations with technical members are generally “soft”. It must be noted that although these mechanisms are “soft”, they may intensify with partners for the project phases (P1: joint resolution; P2: persuasion; P3: sanction or threat), where as they “soften” for the providers (P1: sanction, output; P2: joint resolution; P3: joint resolution). Supporting these elements, the bearers explain that it is necessary to understand how to communicate with the partners and similarly, to learn how to “resolve conflict calmly and with dialogue” (Project G’s Bearer) because partners are essential in order to technically achieve innovation. The way bearers deal with providers is different. Among the projects studied during Phase 1, not one of the providers had sound knowledge of the project. It is therefore relatively easy for the project bearer to fire the providers before hiring another provider. For the public technical partners, the scenario is slightly different as they are not in a “give–give” relationship. They are in charge of helping the companies but are not valued or paid in relation to the results they produce. Therefore, if the relationship does not suit the member, it is up to him to leave the ANI.

Financial Members

Private financial partners are of a different nature according to the project’s advancement phases (P1: priming bases; P2 and P3: business angles). Generally, like for all technical members, conflict resolution mechanisms are mainly soft. Private finan-

cial partners are essentially used in projects that need large investments (projects A and C). However, these financial partners are likely to stop providing support when the bearer's behaviour does not satisfy them. If conflict erupts during Phase 1, as the partners' investments are limited, the decision to break up the partnership is often made:

"We want to be nice and take a chance on these projects but there are limits. If we are going to be in total disagreement for the total duration of the project, it is better to disengage entirely while we still can" (Private financial partner, project C).

In Phases 2 and 3, the conflict resolution mechanisms intensify. The project bearer has proven the project's technical feasibility and is in a position to convince his partners of the project's potential.

Industrial Members

Industrialisation is becoming more and more evident in developing countries (China, eastern countries, etc.). The conflicts in Phases 2 and 3 are often linked with the collaborator's opportunistic behaviour (fraud, no respect for deadlines, etc.). In Phase 2, the power struggle favours the industrial partner who uses coercion to resolve conflict. Furthermore, an industrial partner who is present from the beginning of the project acquires a certain command of the product, which allows him to impose a certain number of choices.

In Phase 3, it is the project bearer, with help from his commercial partners who will attempt to use his power of coercion to resolve conflict. Having said this, it is common that industrial partners act as the providers of certain commercial partners in an ANI. Thus, if they do not meet the terms of the project bearer's solution, which will put an end to the conflict, they endanger their reputation, which can lead to the simultaneous loss of many clients (the bearer, certain commercial partners, etc.).

Commercial Members

Conflict resolution mechanisms are at their "hardest" when dealing with commercial members. Conflicts may emerge between the bearer and one of the commercial members or between different commercial members (resulting from competition). In the first case, whether it concerns a partner or a provider, the arbitrator is privileged. This can be explained by the detailed contracts signed between parties in Phase 3 of four different case studies.

In the second case, similarly, arbitration was used, but this arbitration was performed by the pivot of the ANI: the project bearer.

"We wanted to introduce a new provider to take care of Northern Europe. However, the relationship with Enterprise X and our commercial partner rapidly turned sour because he stepped on everyone's toes, stuck his nose into everyone else's business and tried to take over everyone's projects. I therefore had to mediate and I chose to keep my partner but found an international provider who couldn't possibly cover France" (bearer, project E).

Table 4 Conflict resolution mechanisms during the project advancement phase and in relation to the type of collaborator

	Partners		Providers	
	Private		Public	
		<i>Phase 1</i>		
Techniques	Joint resolution	Joint resolution of the problem	Joint resolution	Sanction: launch
Financiers	Sanction: launch		Joint resolution	— ^a
Industries				Bearer's persuasion
Sales	Joint resolution of the problem		— ^a	Bearer's persuasion
		<i>Phase 2</i>		
Techniques	Project bearer's persuasion		Sanction: launch CRITT, no obligation to results but to their means	Joint resolution with the project bearer
Financiers	Project bearer's persuasion		Sanction: launch	— ^a
Industries	Coercion		Coercion	Industrial coercion
Sales	Partner's persuasion		— ^a	— ^a
		<i>Phase 3</i>		
Techniques	Sanction: threat		— ^a	Joint resolution with convocation from the group of partners
Financiers	Coercion: intervention from other partners		— ^a	— ^a
Industries	Coercion: of partner (weight of commercial collaborators)			Exterior arbitration: court
Sales	Exterior arbitration: court		Sanction: launch	Exterior arbitration: court

^aFor each of these seven case studies, we could not record the conflict resolution mechanisms in Phase 1 between or with the ANI financial providers. However, this does not mean that the conflicts and mechanisms used to resolve them do not exist

Table 4 demonstrates the principal conflict resolution mechanisms used by the ANI members as taken from both our analyses and observations.

5 Discussion and Conclusion

This paper has studied the conflict resolution mechanisms used by members in seven different ANIs and considered the arguments and conclusions of other studies

regarding the factors that lead to partnership satisfaction (Mohr and Spekman 1994; Tuten and Urban 2001). Following this, two main points have emerged.

First, regarding an innovation project's process, we have distinguished three phases that correspond to the principal phases of an innovation project and in which the repetitive and interactive cycle of the value creation process is found. Conflict resolution mechanisms are not static and vary according to the project's advancement phase. This is to say that during the first phase, the mechanisms used are mainly "soft" (joint resolution, persuasion by a partner or project bearer) and harden with the advancement of the project (exterior arbitration, coercion).

Second, conflict resolution mechanisms differ according to the members in an ANI. In our seven case studies, the majority of the respondents put a significant importance on distinguishing between partners and providers. We have integrated this element in our analysis and finally it appears that conflict resolution mechanisms are mainly "soft" for partners and mainly "hard" for providers. Similarly, regarding the resources and skills brought by each of the members, conflict resolution mechanisms vary but are mainly "soft" for technical and financial members and mainly "hard" for industrial and commercial members.

This study extends the literature in several ways. First, we incorporate the concept of project advancement phases into the analysis of conflict resolution mechanisms and the evolution of those mechanisms over time. Second, the literature identifies "neglect" as a means to resolve conflicts (Turnley and Feldman 1999). However, in our case studies, this type of conflict resolution mechanism is never used. Indeed, ANIs have the particularity of being subjected to very severe constraints in terms of time. If the project is delayed in Phase 1, it creates an impact in Phases 2 and 3, which could lead to failure. Probably that is why, in the cases studied, we have never seen the practice of "neglect", which is common as a conflict resolution mechanism in other types of interorganisational cooperation (e.g. franchises). Finally, most of interorganisational cooperation research is limited to a dyadic relationship analysis. But in ANI, it seems essential to consider all types of interactions (e.g. two-to-one or several-to-several) (Gomes-Casseres 2003). In fact, in alliance networks developing an innovation project, if a conflict arises between two technical partners, it is possible that another member of the network would intervene to solve it. It is very likely that the pivot will try to resolve the conflict (as a mediator). However, this type of situation is not considered in the literature reviewed on conflict resolution mechanisms.

Future research could further the limits of the current research. However, these contributions must be contextualised. Conflict resolution mechanisms can vary depending on the position of the innovation in the value chain (final product, integrated product). Future quantitative research could relieve the insufficiency of data for generalising results.

Future work could demonstrate that it is necessary to take the moderating role of the project advancement phase of an ANI into account, as well the type of members and relationship. In addition to Grandori and Soda (1995) research, which considers coordination mechanisms in interorganisational partnerships, we suggest it is necessary to study the following coordination mechanisms: exchange regulation, decision-making, collaborator selection and result allocation.

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Intermediary Institutions and Embeddedness in Technology Networks

Régis Coeurderoy and Valérie Duplat

Abstract A wide literature in strategic management is dedicated to the study of technology networks as a locus of innovation. They shape an organizational field in which strategic alliances leverage firm capabilities to generate new knowledge and access complementary assets. Much less attention, however, has been focused on the role played by other particular players – that we label ‘intermediary institutions’ – in the institutional foundation of those networks. In the present paper, our intent is to highlight the choice made by alliance partners, members of a same technology network, to have recourse to services proposed by ‘intermediary institutions’ in order to ease their alliance relationships. We propose an analysis of the impact of this choice on the institutional design of the network as a whole. We argue that by backing up a firm’s alliance activities, ‘intermediary institutions’ deepen the relational, structural and cognitive embeddedness of the firm within its network. In turn, reinforced embeddedness helps go beyond the conflict between ‘trying to learn’ and ‘trying to protect’, typical of technology networks, and so enhances the viability of the network as a whole.

Keywords: Intermediary institutions · Embeddedness · Technology networks

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1 Introduction

Albeit a wide literature in the field of business economics and strategic management is dedicated to the inter-organizational networks, the great majority of papers have been focused on the inter-firm relationships within the networks. By comparison, the role of players other than the firms in the network and their contributions to its functioning have received limited attention (Provan and Kenis 2008; Provan et al. 2007). Following the organizational economics reasoning, however, we suppose that their *raison d'être* follows efficiency purposes: without them, the network on a whole would be very unlikely to strive and even to survive in some cases.

In this study we thus examine the role of 'intermediary institutions' in technology networks. As pointed out by Howells (2006), these institutions refer to third parties, bridgers, brokers and other forms of intermediaries; examples in technology networks are industry federations, chambers of commerce, auditing firms, incubators, technology transfer offices or technology brokers. In this theoretical contribution, we argue that services developed by 'intermediary institutions' increase firms' embeddedness within the technology network. Therefore, they substantially help reduce the tensions between 'trying to learn' and 'trying to protect' which are inherent to corporate inter-organizational relations. The positive externalities within the networks are supported by the firms as long as they are superior to the costs they create. To the best of our knowledge, this paper is one of the first attempts to explain the economic rationale behind these 'intermediary institutions'.

The paper proceeds as follows. In Sect. 2, we examine the internal conflict that technology strategic alliances face – namely the conflict between 'trying to learn' and 'trying to protect', and show how relational, structural, and cognitive embeddedness contributes to dealing with this internal conflict. In Sect. 3, we develop propositions regarding the impact of support services offered by 'intermediary institutions' on the relational, structural, and cognitive embeddedness of the firm within its network.

2 Embeddedness and Conflict Between 'Trying to Learn' and 'Trying to Protect' in Technology Networks

2.1 Internal Conflict of Technology Strategic Alliances: 'Trying to Learn' Versus 'Trying to Protect'

Although firms realize numerous benefits by participating in strategic alliances, alliances have to deal with challenging tensions between 'trying to learn' and 'trying to protect', which are particularly prevalent in learning alliances (Gulati and Singh, 1998; Kale et al. 2000). Tensions stem from the fact that, on one hand, firms participate in alliances to learn know-how and capabilities from their alliance partners and, on the other hand, firms want to protect themselves from the behavior of their

partners that have similar incentives (Kale et al. 2000). Indeed, during the value creation process, each partner of a technology alliance has to expose proprietary assets to the other(s). Any firm has opportunities to learn from its partner(s). Consequently, beyond usual concerns on the real efforts of each partner within the alliance (free riding), these absorption and learning issues raise concerns on the externalities generated by the cooperation; i.e. independent redeployments of new assets or competences into other projects and dilution of specific corporate competitive advantage.

As a result, on the one hand, alliance partners will try to get new information and knowledge from the other parts that could be used for other purposes than the cooperation's ones themselves. Since partners do not 'unlearn', they will try to build on their new skills and capabilities and exploit them in other projects. On the other hand, each alliance partner will prefer to protect its own assets and competences that are core; otherwise it will be at risk to lose the basis of competitive advantage. In other words, the perspective of value appropriation inhibits the process of value creation but value appropriation is meaningless without value creation upstream.

2.2 Hierarchy and Embeddedness in Technology Networks

Several ways to cope with these tensions have been explored in the literature. First, the transaction cost literature on strategic alliances suggests that this problem can be mitigated by the choice of more hierarchical modes of governance (e.g., Williamson 1991; Oxley 1999). Basically, when partners cannot set up an agreement on value appropriation, they will opt for an equity agreement (equity joint venture). In that case, the strategic alliance is governed by a bilateral hierarchy, which is more able to closely coordinate and monitor the partners inside the alliance via enhanced communication, organizational routines, and necessity for continuous collaboration (Kogut 1988). Such a solution, however, suffers from limitations: (1) it implies that partners support bureaucratic costs; (2) it does not allow controlling for partners' behavior outside the alliance; and (3) it remains dependent on the external credibility to enforce the decisions of partners in case of conflicts.

Second, as pointed out by Kale et al. (2000), the inter-organizational network literature investigates the mechanism of social embeddedness in alliances. Social embeddedness has been introduced in economic sociology by Granovetter (1985) and has been extensively studied by Gulati (e.g., Gulati 1995; Gulati 1998; Gulati and Garguilo 1999; Gulati and Singh 1998). Following Nahapiet and Goshal (1998), we differentiate social embeddedness in relational embeddedness, structural embeddedness and cognitive embeddedness. These three types of embeddedness enable balancing the tensions between learning and protecting knowledge in technology networks (Fig. 1).

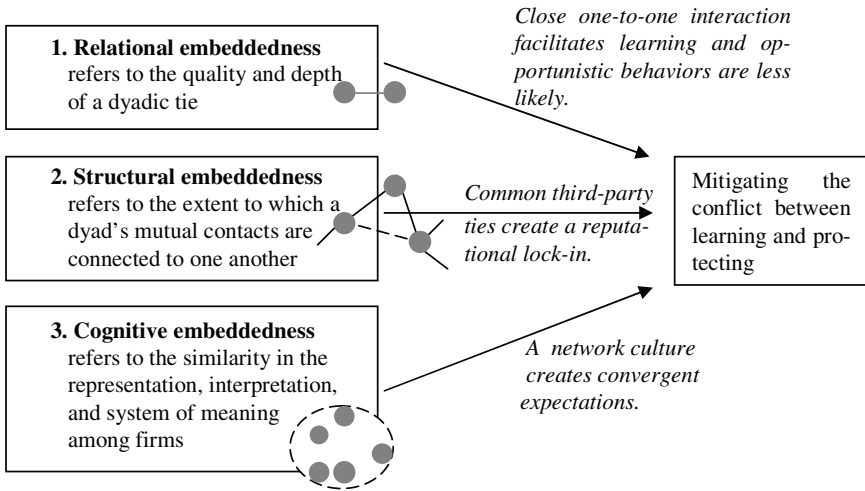


Fig. 1 Social embeddedness and the limitation of conflicts in technology strategic alliances

First, relational embeddedness is related to the quality and depth of a dyadic tie (Granovetter 1985, 1992; Uzzi 1996, 1997; Jones et al. 1997). As explained by Jones et al. (1997), it captures the degree to which exchange parties consider one another's need and goals (Granovetter 1992) and the behaviors exchange parties exhibit, such as trust, confiding, and information sharing (Uzzi 1997). Relational embeddedness resulting from prior cohesive ties between alliance partners allows to mitigate the tensions between 'trying to learn' and 'trying to protect' since prior cohesive ties increase the mutual trust, respect, and friendship for subsequent cooperation (Poldolny 1994; Burt and Knez 1995; Gulati 1995; Gulati and Gargiulo 1999). So as shown by Kale et al. (2000), relational capital facilitates learning through close interactions between alliance partners. Simultaneously, it creates a strong deterrent effect on potential opportunistic behavior aimed at unilaterally absorbing or stealing information or know-how that is core or proprietary to its partners.

Second, structural embeddedness reflects the extent to which 'a dyad's mutual contacts are connected to one another' (Granovetter 1992). In other words, structural embeddedness means that parties may have relationships with the same third party, and are therefore indirectly linked (Granovetter 1985, 1992; Uzzi 1996, 1997; Jones et al. 1997). The underlying tenet of the structural embeddedness dimension is that inter-firm networks cannot be validly decomposed into independent 'bilateral monopolies' (Baker 1990; Simsek et al. 2003). The study of the influence of social relationships on the firm behaviors requires going beyond the firm dyads as unit of analysis (Granovetter 1992) and the focus of analysis shifts from direct communication to indirect channels for information and reputation effects (Gulati and Gargiulo 1999). Structural embeddedness enables mitigating the tensions between 'trying to learn' and 'trying to protect' for reasons that have notably been stressed by Gulati and Gargiulo (1999). When two firms share common ties, it signals that

both are considered as suitable and trustworthy by the same firms. Moreover, common third-party ties contribute to creating a reputational lock-in and opportunistic behavior may be reported. This spiral effect serves as an effective deterrent (Raub and Weesie 1990; Burt and Knez 1995).

Third, cognitive embeddedness refers to the proximity in the representation, interpretation, and systems of meaning among firms (Abrahamson and Fombrun 1994; Nahapiet and Ghoshal 1998; Simsek et al. 2003). Cognitive embeddedness also contributes to mitigating the tensions between ‘trying to learn’ and ‘trying to protect’ since it fosters a network culture notably based on converging expectations (Williamson 1991), an idiosyncratic language to summarize complex routines and information (Williamson 1975, 1985) and to define broad rules for action under uncertainty (Camerer and Vepsäläinen 1988).

While some arguments can be found in the existing literature to explain how these three attributes of social embeddedness contribute to balancing the tensions between ‘trying to learn’ and ‘trying to protect’, this issue has received very limited attention. In our opinion, stressing the role played by ‘intermediary institutions’ at this level gives new insights into how social embeddedness of alliance partners within a technology network helps mitigate tensions within the network as a whole.

3 Link Between Intermediary Institutions and Embeddedness in Technology Networks

In this section, we examine the impact of ‘intermediary institutions’ on the firm’s embeddedness in its technology network. We consider ‘intermediary institutions’ as entities that offer service(s) to firms aiming at facilitating their alliance activities. Examples of ‘intermediary institutions’ in technology networks are collective research centers, industry federations, chambers of commerce, auditing firms, incubators, technology transfer offices or technology brokers. Ten support services in the innovation process have been identified by Howells (2006): (1) foresight and diagnostics, (2) scanning and information processing, (3) knowledge processing, generation, and combination, (4) gate-keeping and brokering, (5) testing, validation, and training (6) accreditation and standards, (7) regulation and arbitration, (8) protecting the results, (9) commercializing and exploiting the outcomes, (10) assessment and evaluation.

While these ten support services are essentially dedicated to support a specific strategic alliance, they impact on the technology network in which the alliance is embedded due to the organizational mechanisms they implement. Through their support services, ‘intermediary institutions’ have the ability to strongly influence the innovation culture and content of the network (i.e. which innovation approach to foster), to reinforce the reputational lock-in within the network, to reduce the information asymmetry among the members of the network, to implement a formal or informal dynamic of control within the network, to propose coordination tools to

network's members, and to impose a formal or informal regulation via procedures such as arbitration and collective sanctions.

Starting from the ten functions of 'intermediary institutions', we develop propositions about the link between 'intermediary institutions' and the firm's relational, structural and cognitive embeddedness within its technology network. Thereby we differentiate five groups of support services of 'intermediary institutions':

3.1 Intermediary Institutions Involved in (1) Foresight and Diagnostics, (2) Scanning and Information Processing, (3) Knowledge Processing, Generation, and Combination

These support services respond to the firms' potential need for help to "*identify what they might need from partners or even more generally what their innovation and business strategy should be*" (Howells 2006). In that respect, some 'intermediary institutions' provide firms with scanning and technology intelligence advices in order to help firms identify where they should be searching and seeking information in the first place. They are involved in support services relative to technology foresights and forecasting, and articulation of needs and requirements. They are dedicated to complementing corporate technology intelligence and search support services. The third support service goes further than foresight, diagnostics and scanning and consists either in combining the collected information from foresight, diagnostics and scanning with the firm's specific knowledge or in generating in-house research and technical knowledge to combine with the firm's knowledge (Howells 2006).

When guiding firms at these preliminary levels, 'intermediary institutions' have the ability to strongly influence the content of networks in terms of *which innovation approach* to foster within networks. This allows them to favor, at the same time, a network innovation culture through convergence of expectations and idiosyncratic language to summarize complex routines and information. A consistent innovation culture will be determining to ease and enhance the future collaboration within the network.

The first class of support services reinforces the cognitive embeddedness within the technology network. A consistent innovation culture contributes to harmonizing the representations, interpretations, and system of meaning among firms, and so to fostering the cognitive embeddedness (Nahapiet and Ghoshal 1998; Provan et al. 2007). The earlier the intervention of 'intermediary institutions' in the innovation process, the stronger their ability to influence the network innovation culture, and so the higher the cognitive embeddedness.

Proposition 1. *Intermediary institutions involved in foresight and diagnostics, scanning and information processing, and/or knowledge processing, generation, and combination have a positive impact on the cognitive embeddedness.*

3.2 Intermediary Institutions Involved in (4) Gate-Keeping and Brokering

This support service consists of matchmaking and brokering collaborative deals for the client firm(s) on the one hand, and in providing contractual advice, on the other hand (Howells 2006). The main difficulty firms may face in determining with whom to ally is to obtain information about the competencies, needs, and reliability of potential partners (Van de Ven 1976; Stinchcombe 1990; Gulati and Gargiulo 1999). As pointed out by Gulati and Gargiulo (1999), because of imperfect information within networks, partners experience high search costs and opportunism risks. ‘Intermediary institutions’ contribute to mitigating this difficulty since they may serve as formal or informal repositories of information about players’ resources, capabilities and needs on the one hand, and about players’ reputation, on the other hand.

First, regarding the information about players’ resources, capabilities, and needs, the role of ‘intermediary institutions’ is to collect and disseminate it. They thus enable firms to gather superior information on each other (Gulati 1995; Gulati et al. 2000) and to identify potential partners and learn about their resources and capabilities. Second, obtaining information about players’ reputation is particularly crucial within technology networks since the assets are often characterized by high relationship-specificity and represent sunk costs that have little value outside of the particular exchange relationship. Therefore, the continuity of the relationship within technology networks is highly valued and, in the presence of opportunism, the relationship-specificity poses a serious safeguarding problem. ‘Intermediary institutions’ may allow to avoid allying with recurrent opportunistic partners since they may have a higher ability to collect, convey information, and to publicize defaults under the rules within the network¹ (Hadfield 2000).

This group of support services reinforces the structural embeddedness within the technology network. As a result, ‘intermediary institutions’ allow the complementing of information stemming from structural embeddedness about competences, needs, and reliability of firms. Indeed, when considering the structural embeddedness, the focus of analysis is indirect channels for information and reputation effects (Gulati and Gargiulo 1999). In this line, ‘intermediary institutions’ may be considered as additional nodes that develop for themselves numerous direct and indirect links since intermediaries are at the nexus of a web of multiple vertical and horizontal relationships (Howells 2006).

We can therefore suggest, on the basis of the network centrality arguments (Freeman 1979; Krackhardt 1990; Gulati and Gargiulo 1999), that the more central the informational position of these intermediary institutions is, the more accurate their own representation of the existing network, and the more efficient their impact on the decisions about new cooperative ties can be. Central organizations have a larger ‘intelligence web’ through which they can learn about collaborative opportunities, hence lowering their level of uncertainty about partnerships (Gulati 1999).

¹ They can serve as repositories of players’ reputational information regarding, for instance, the debts unpaid or the low-quality goods delivered.

Given the informational benefits ‘intermediary institutions’ get from being in a central position, they allow firms to go beyond their proximate direct and indirect ties.

Proposition 2. *Intermediary institutions involved in gate-keeping and brokering have a positive impact on the structural embeddedness.*

3.3 Intermediary Institutions Involved in (5) Testing, Validation, and Training

This support service involves (1) testing, diagnostics, analysis and inspection, (2) prototyping and pilot facilities, (3) scale-up, (4) validation, and (5) training. At this level of the innovation process, ‘intermediary institutions’ may put at the firms’ disposal their specialist facilities and/or may perform activities such as diagnostics, testing, prototyping, and training dedicated to facilitating the inter-firm collaboration (Howells 2006).

This group of support services reinforces the relational embeddedness in the technology network. Beyond the purpose of facilitating and supporting the inter-firm collaboration, those support services contribute to controlling the activities carried out by each party and its task performance on behalf of the other parties. This second purpose enables firms to mitigate risks from behavioral uncertainty and to reduce direct measurement costs (Eisenhardt 1985) of outputs and/or behaviors of other parties. As a result, testing, validation, and training support services correspond to coordination and control tools, which contribute to building trustworthy relationships favoring the consideration of one another’s need and goals, the information sharing, and so the relational embeddedness.

Proposition 3. *Intermediary institutions involved in testing, validation, and training have a positive impact on the relational embeddedness.*

3.4 Intermediary Institutions Involved in (6) Accreditation and Standards Work, (7) Regulation and Arbitration

Intermediary institutions generally play a key role in setting standards and norms, which formally drive the collaboration within the network. Second, ‘intermediary institutions’ are privileged vectors to diffuse values and foster a network culture (Jones 1996; Jones et al. 1997). These formal and informal regulations may lead to formal and/or informal schemes of collective sanction(s). As defined by Jones et al. (1997), collective sanctions are produced by group members against other group members because they violated the norms or the values of the network. Sanctions can go from rumors to exclusion and sabotage. Collective sanctions make the opportunism more costly since opportunistic behaviors damage not only the specific

alliance in which one behave opportunistically, but also the other current and potential alliances (Blumberg 2001).

In addition, some 'intermediary institutions' may provide arbitration mechanisms. When opting for arbitration, parties voluntarily agree to refer their dispute to an impartial third person and agree, in advance, to be bound by the decision of that person (Bonn 1972). These mechanisms enjoy sources of efficiencies over the public courts (Richman 2004; McMillan and Woodruff 2000; Hadfield 2000), and that is particularly true in the case of innovation. First, arbitrators are more expert and specialized than public courts and are chosen on the basis of their expertise regarding the subject matter in dispute. Second, specialized rules are tailored to the idiosyncratic needs and transactional challenges of firms having recourse to a specific 'intermediary institution'. The principles guiding the dispute resolution process rest on custom rather than on law. Third, specialized procedures are used to act more swiftly, at lower costs, and with more nuances than public courts. They permit greater flexibility and higher speed in business relationships. Fourth, the arbitrator can consider information that could not be introduced in public court (Bonn 1972).

This group of support services reinforces the relational embeddedness within the technology network. The support services of accreditation, regulation, and arbitration may strongly impact on the network development. As pointed out by Sydow and Winderler (1998), the network development is not only the result of the use of resources, the use of rules and norms produced as steering mechanisms also drives the development of network. However, the influence of these rules on the network development is determined by the meaning the individual firms attach to them and so by the meaning, goals, and value of all firms within the network (Lipparini and Lomi 1999). These formal or informal rules and norms may support bilateral relationships and magnify their quality and depth since they contribute to increasing trust, confiding, information sharing, and to diminishing the uncertainty associated with future partnerships.

Proposition 4. *Intermediary institutions involved in accreditation, and/or regulation and arbitration have a positive impact on the relational embeddedness.*

3.5 Intermediary Institutions Involved in (8) Protecting the Results, (9) Commercialization, (10) Evaluation of Outcomes


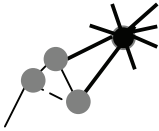

The services (8 and 9) are respectively associated with protecting and commercializing the outcomes of innovation and collaboration (Howells 2006). They consist respectively in providing IP advice and management, and in identifying market opportunities, developing business plans and assessing and providing filtering capability for funding. The tenth support service is relative to the assessment and evaluation of 'post innovation' (Howells 2006). These support services reinforces the cognitive embeddedness within the technology network. When guiding firms at these downstream stages in the innovation process, 'intermediary institutions' have the ability

to influence current and future content of networks in terms of *which innovation approach* to foster. This stems from the fact that they help both firms and the network to gain legitimacy, on the one hand (support services 8 and 9), and they work for assuring a continuous updating of the network innovation content (support service 10), on the other hand.

Proposition 5. *Intermediary institutions involved in protecting the results, commercialization, and/or evaluation of outcomes have a positive impact on the cognitive embeddedness.*

Table 1 provides a synthetic view of the five propositions. Intermediary institutions strongly contribute to reinforcing the social embeddedness of firms within their technology network. Search costs and opportunistic behaviors are substantially lowered for firms in the network (by comparison with a world without any intermediary institutions). Firms within the network are less exposed to the tensions between ‘trying to learn’ and ‘trying to protect’ and are more focused on their innovative effort. Without being directly innovation producers, ‘intermediary institutions’ are thus active supports in innovative processes.

Table 1 Social embeddedness and support services of the ‘intermediary institutions’ in the innovation networks

Embeddedness reinforced	Organizational mechanisms	Support services of intermediary institutions in the innovation process (based on Howells 2006)
Relational embeddedness 	Coordination tools + Control mechanisms Arbitration mechanisms + Collective sanction mechanisms	Testing, validation, and training Accreditation and standards Regulation and arbitration
Structural embeddedness 	Information asymmetry reduction mechanisms + Reputation mechanisms	Gate-keeping and brokering
Cognitive embeddedness 	Content definition mechanisms Content definition mechanisms	Foresight and diagnostics Scanning and information processing Knowledge processing, generation, and combination IP: Protecting the results Commercialization: exploiting the outcomes Assessment and evaluation

4 Conclusion

The aim of the present paper was to shed light on the critical role played by ‘intermediary institutions’ in balancing the conflicting objectives between ‘trying to learn’ and ‘trying to protect’ in technology networks. We argue that the choice made by a firm to have recourse to support services offered by ‘intermediary institutions’ for its alliance activities reinforces its relational, structural, and cognitive embeddedness, and so mitigates the tensions between learning and protecting inside its strategic alliances.

This paper is a first attempt to explicitly address the *raison d’être* of these particular governance mechanisms that contribute to designing the institutional foundation of technology networks. However, further research is necessary to empirically evaluate and generalize our results. In addition, we can derive the following implications for future research. Management studies on networks need to adopt a broader view than investigating the interfirm relationships within the network and to consider the role of players other than the firms in the network. Apart from few exceptions (Provan et al. 2007), this is a very under-explored research issue. A better understanding of network governance would be also useful for decision-makers. We are in a time of public policies claiming that innovation is at the first rank and many projects are launched to back up clusters, regional initiatives, innovation platforms, etc. More research findings at the network level could help to establish successful strategic initiatives. The present contribution on the ‘institutional intermediaries’ is an effort in that direction.

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Performance and Strategy of Networks

Governing for Success: The Host Country Uncertainty and the Design of Foreign Parent Control in International Joint Ventures

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Abstract In this paper we develop a model of the international joint venture (IJV) control which deals with the level of uncertainty of the host country. The host country uncertainty is characterized by cultural, environmental, and competitive uncertainty. Following Geringer and Hebert (1989); Buckley et al. (2005), we conceptualized foreign parent control across three dimensions including mechanism, focus, and extent. Our empirical evidence is based on the survey of Finnish firms that established IJVs with local firms in the 1990s. The results show that foreign parent firms tend to exercise more formal, broad, and tight control over their IJVs when they perceived high cultural uncertainty and high competitive uncertainty in the host countries. On the other hand, they prefer formal, narrow, and loose control over their IJVs in cases of high environmental uncertainty. In addition, the firms that exercise broad, formal, and tight control in high uncertainty countries and narrow, social, and loose control in low uncertainty countries were more satisfied with their IJV performance. Finally, we conclude the paper by discussing the implications of our findings and directions for further research on IJVs.

Keywords: Foreign firms · Host country uncertainty · International joint venture control

1 Introduction

In the last several decades, international joint ventures (IJVs) have become a major strategy for the firms entering in international markets (Dunning 1995). The international business literature shows that one of the biggest challenges that the parent firms face when entering IJVs is the control issue over the venture's activities (Anderson and Gatington 1986; Geringer and Hebert 1991; Groot and Merchant

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2000). This is because while participating in a voluntary cooperative relationship in the IJVs, the foreign parent firms are exposed to the risk of opportunism (Zhang and Li 2001). Researchers have pointed out that the IJVs eventually break up at a rate of 30–70% of their total numbers (Geringer and Hebert 1991; Yeheskel et al. 2004; Hennart et al. 1998). Insufficient control may translate into the leakage of knowledge, or proprietary components and capabilities to the outside group (Geringer and Hebert 1989), or the loss of the competitive advantage in favor of the other parent (Hamel 1991) or some other competitors (Reich and Mankin 1986). Despite the popularity and importance of the IJVs and the extensive research in the field, the understanding of their functioning is rather limited (Das and Teng 1998). For that matter, Geringer and Hebert (1989) and Ramaswamy et al. (1998) proposed that future research should deepen the IJV control debate in terms of mechanisms, control extent, and control focus. Additionally, another avenue of research may be to focus on the foreign parent firm's adaptation of their control in response to the IJV's operating environment (Yan and Zeng 1999; Zhang and Li 2001; Barden et al. 2005: 170).

The primary objective of the present study is to build up a framework for the managing of IJVs from the viewpoint of the foreign parent firms, in their endeavor to cope with uncertainties in the host countries. In order to accomplish this goal, we strive to answer to the following research question: *How host country uncertainty influences the foreign parent firms' choice of control structure in the IJVs?* The research puzzle is addressed through the following questions:

1. How do foreign parent firms design their IJV control in order to cope with the host country uncertainty?
2. What are the relationships between the foreign parent control structure in IJVs and the IJV performance?

The first research question would enable us to analyze the link between the foreign parent control design in their IJVs and the host country uncertainty. It inquires into what control structures, in terms of mechanism, focus, and extent, is needed to respond to uncertainty. The host country uncertainty can be defined in terms of cultural uncertainty, environmental uncertainty, competitive uncertainty, and behavioral uncertainty. The second research question investigates whether the foreign parent control structure influences the IJV performance.

The issue of uncertainty in the host country is not new in the international business literature. However, it has not been studied exhaustively. Most studies related to uncertainty issues in the host country focus on the choice of entry strategy by the foreign firms such as those by Erramilli (1996), Delios and Henisz (2000), Brouthers et al. (2003), Kontkanen (2006), Sanchez-Peinado and Pla-Barber (2006); on the governance structures in strategic alliances like those of Chen and Chen (2003); or on the headquarters' behavior such as Lang and Lockhart (1990). In IJV studies, Taco and William (2004) reviewed ten major journals for a period of 15 years between 1988 and 2003, and identified 388 IJV studies. Among these, there were a few studies researching control (15/388), while most IJV studies focused

on the entry mode strategy (57/388), the partner learning (39/388), and the partner selection (28/388). After carefully reviewing the IJV literature in the major international business journals using the most significant data sources such as *Elsevier-Science Direct*, *AIB Inform-Proquest Direct*, *EBSCO*, *Emerald*, *JSTOR*, and *Blackwell synergy*, we reached the conclusion that no study has dealt with the IJV control designed to cope with the host country uncertainty properly. Among those studies discussing about uncertainty in joint venturing, Birnberg (1998) attempted to explain the link between IJV interdependency and uncertainty. He suggested dealing with uncertainty solely through a formal contract. Similarly, even though the environmental uncertainty was mentioned in Kumar and Seth's work (1998), it was limited to the link between environmental uncertainty, IJV strategic interdependence, and control mechanisms. These few studies did not analyze the uncertainty in the host country thoroughly and have ignored the multidimensional aspects of control, and our aim is to fill in this gap. In the present paper, an IJV is regarded as a separate entity located in a foreign country formed by one (or more) MNC(s) and one (or more) local firm(s) through either greenfields, or partial acquisitions. Uncertainty refers to the difficulty or inability to predict the environment (Miller 1992), or to the unpredictability of changes of some factors (Brouthers et al. 2003). Host country uncertainty in this academic enterprise refers to the following factors: cultural uncertainty, competitive uncertainty, and environmental uncertainty.

In the following sections, we conceptualize the IJV control along three dimensions control mechanism, focus, and extent. Subsequently, we develop several hypotheses regarding the foreign parent control structure in their IJV and the host country uncertainty. Eventually, we discuss our data methodology and present the main results of our survey. Finally, we conclude the paper by pointing out the implications for researchers and managers, and indicate some opportunities for future research.

2 Conceptualization of the IJV Control

In this section, we first review the key points of IJV control. Second, we elaborate three dimensions of the IJV control: control mechanism, control focus, and control extent, which is based on the work of Geringer and Hebert (1989).

2.1 Definitions of Control in IJVs

In the organizational literature, management control refers to the process by which an organization influences its members and its units to work in ways that meet the organizational objectives (Glaister and Buckley 1998). According to Child et al. (2005: 15), the control is a central aspect of the management, and essential in any system that holds the managers accountable for their actions and decisions. Ouchi

(1977: 95) suggested that “control can be conceptualized as an evaluation process which is based on the monitoring and evaluating of behavior or of outputs”. Thus, the organizational literature emphasizes how control can be used to manage individuals and subunits. The management control in IJV is complex because there are two or more parties involved (Geringer and Hebert 1989). In this paper, the control of IJVs is defined as the influence of the foreign parent firms on the IJV operations. Furthermore, researchers have acknowledged that the control systems are complex and multidimensional (see e.g. Geringer and Hebert 1989; Glaister 1995; Kumar and Seth 1998; Ramaswamy et al. 1998; Das and Teng 1998; Buckley et al. 2005; Lu and Hebert 2005). This study adopts the multidimensional approach of control developed by Geringer and Hebert’s (1989). In the following, these control dimensions are elaborated. Key empirical studies made in 1995–2007 are summarized in Table 1.

2.2 Control Mechanisms

In general, the control mechanisms are structural arrangements deployed to determine and influence what the members of the organization do (Geringer and Hebert 1989; Fryxell et al. 2002). The control mechanisms consist of a variety of instruments including formal and social controls that are available to firms for exercising effective control over their members (Behrman 1977; Friedman and Beguine 1971). *Formal control* depends on hierarchies, standards (Perrow 1972), codified rules, procedures, goals, and regulations that specify desirable patterns of behavior (Das and Teng 1998). These instruments of formal control are usually agreed upon and imposed by both the foreign and local parent firms (Fryxell et al. 2002). The noteworthy control mechanisms are ownership, the board of directors, the appointment of key personnel, the planning and approval process for capital budgeting and resource allocation, and the lay down procedures and routines for IJVs (see e.g. Makino 1995; Lu and Hebert 2005). In turn, *social control* is designed to promote expectations and mutual commitments through which the JV managers learn to share the common attitudes and knowledge of the organization (Nonaka and Takeuchi 1995). Social control refers to various mechanisms such as informal communication, information exchange and training, personal relation, mentoring, and development of a common organizational culture. These mechanisms foster shared values and norms, without explicitly restricting the behavior of the targeted people through the means of these social controls (Schaan 1983; Das and Teng 1998; Chalos and O’Connor 1998, Fryxell et al. 2002).

Table 1 Key empirical studies on IJV control 1995–2007

Author (Year)	Sample size	Data collection	Concept of control	Focus area
Glaister (1995)	94	Survey	Mechanism, extent focus	Parent control, IJV autonomy
Hébert (1996)	70	Survey	Extent of control	Parent control, conflict
Mjoen and Tallman (1997)	102	Survey	Activity control	Equity control, IJV performance
Kumar and Seth (1998)	64	Survey	Mechanisms of control	IJV interdependence, uncertainty, control
Wang et al. (1998)	132	Survey	Mechanisms of control	Parent control, IJV performance
Child and Yan (1999)	67	Survey	Strategy, operation	Resources provision, appointment control
Lyles et al. (2000)	73	Survey	Social, formal control	Partner's trust, knowledge acquisition, control
Yan and Gray (2001)	90	Survey	Strategy, operations control	Effects of parent control on IJV performance
Fryxell et al. (2002)	129	Survey	Formal, social control	IJV age, partner's trust
Johnson et al. (2002)	51	Survey	Decision-making	Parent control, fairness, commitment
Mohr (2003)	110	Survey	Extent of control	Partner's trust, control
O'Connor (2004)	117	Survey	Mechanisms of control	Determinants of control
Choi and Beamish (2004)	71	Survey	Split, shared control	Parent control, IJV performance
Pangarkar and Klein (2004)	76	Survey	Parent strategy	Parent control, IJV performance
Barden et al. (2005)	12	Interviews	Operational control	Partner control, conflict
Buckley et al. (2005)	20	Survey, Interviews	Mechanisms, focus, extent of control	The use of different control in IJVs
Lu and Hebert (2005)	720	Secondary data	Ownership	Parent control, IJV performance
Brouthers and Bamossy (2006)	8	Interviews	Ownership, IJV managers	Parent control, IJV performance
Duan and Chuanmin (2007)	3	Interviews	Ownership, control mechanisms	Parent control, IJV performance
Whitlock and Yang (2007)	61	Survey	IJV Strategies, operations	Parent control, objectives, IJV performance

2.3 Control Focus

Control focus can be further divided into broad control and narrow control (Geringer and Hebert 1989). In control focus, the partners can choose to have a *broad control* focus and attempt to exercise control over the entire range of the IJV's activities, or they can have a *narrow control* focus and confine their control activities to the performance dimensions they consider to be critical (Geringer and Hebert 1989; Groot and Merchant 2000). Child et al. (2005) maintain that the parent firms may focus their control on activities related to technology, if they have strong competencies in the field; alternatively, they may concentrate on the market related activities of the IJV, if they are better equipped to assess them. There are also cases when the parent firms may focus their control on both technology and market related activities. The areas of control focus consist of marketing, sales and distribution, procurement, general management and operation, finance and accounting, research and development, production and quality, and human resources. Geringer and Frayne (1990) suggested that one of the crucial areas that determine whether the parent's intended objectives are achieved is their focus on the human resource control. In this paper, the control focus is considered to be broad when it is based on more than two areas, and narrow when it is based on only one or two areas.

2.4 Control Extent

The control extent refers to the degree or tightness of control which is exercised on the venture (Geringer and Hebert 1989). Control extent consists of tight control and loose control. In loose control, the parent firms tend to use only one or two control mechanisms and focus their control on only one or two control areas exercised over the IJVs. Furthermore, in loose control, the parent firms are more flexible in their evaluation of the employees' behavior and their performance. The frequency of reports that the IJV managers have to submit to the parent firms and the meetings between the parent firms and the IJV managers are very few in loose control. In contrast, the tightly controlled organizations tend to be strict with respect to their employee's dress code, punctuality, and cost-consciousness (Hofstede et al. 1990); and detail oriented, precise in operation O'Reilly et al. 1991). Control is tight from a partner's perspective if that partner has the right to make or approve the key decisions (Geringer and Hebert 1989). Tight control is manifest also if the IJV staff is held strictly accountable for adhering to a complete set of ascribed actions such as policies and procedures. Tight control is as well related to highly frequent and precise reporting (Child et al. 2005). Control can be tightened through more intensive training of the IJV employees in production and management techniques (Van Sluys and Schuler 1994).

3 Host Country Uncertainty and Foreign Parent Control in IJVs

The business environment today is increasingly challenging, the multinationals are facing an ever growing degree of uncertainty and risk. Previous studies indicate that the level of uncertainty strongly influences the design of the control dimensions in the IJVs (Johnson et al. 2002). Govindarajan and Shank (1992) stated that because of the different levels of uncertainty faced by the constitutive units of a multinational, each unit would require systematically different management control systems. According to Kumar and Seth (1998), the host country uncertainty is defined as the complexity and volatility of environmental factors. The uncertainty can be high due to physical and cultural uncertainties, changes in host-government policies, and other specific factors (Pangarkar and Klein 2004). In the present study, the host country uncertainty refers to the *cultural uncertainty* (see Sanchez-Peinado and Pla-Barber 2006), the *environmental uncertainty* (Sutcliffe and Zaheer 1998), the *competitive uncertainty* (see Lang and Lockhart 1990). To manage the risk involved in operating in these environments, previous researchers suggested that the firms' structure and governance play a decisive role (Drew and Kendrick 2005). In the following we will discuss how the foreign parent firms design their IJV control in order to deal with the host country uncertainty.

3.1 Cultural Uncertainty

The cultural uncertainty is often a potential source of misunderstandings (Child et al. 2005) and internal uncertainty for the IJVs (Luo et al. 2001). The cultural uncertainty between nations has been evidenced in the differences in managerial practices, values, mind-sets, and norms (Ralston et al. 1993). The foreign and local parent firms differ in management styles, which may result into conflict and incompatible goals (Ding 1997; Hennart et al. 1998; Yan and Gray 2001). This may lead to bargaining and negotiating between the foreign and local parent firms, which slows down the decision-making process and adds to the bureaucratic costs (Balakrishnan and Koza 1993; Ding 1997). The slow down of the decision-making process may lead to the failure of IJVs to respond to the market's frequent changes. Furthermore, the foreign and local parent firms may have differences in routines (Hennart et al. 1998) and may clash over issues like product quality, exports, employee wages, or labor policy. These may result in higher uncertainty and higher bureaucratic costs as a result of increased bargaining and negotiating between partners (Ding 1997; Pangarkar and Klein 2004). According to Egelhoff (1984), the greater the cultural uncertainty between the foreign and local parent firms, the greater the problem is in exercising organizational control over the IJVs. Thus, to avoid the slow down of the decision-making process and the high bureaucratic costs they incur, the foreign parent firms will attempt to obtain a broad, tight, and formal control over the IJVs.

On the other hand, Bai et al. (2003) evidenced that there is less control when the foreign parent firms and their local partners share a similar cultural background.

They showed that whenever setting up a joint venture with firms from the mainland China, the partners from Hong Kong, Macau, Singapore and Taiwan share a similar cultural background. They speak the same language, and may even have kinship relationships with the local partners. Under these circumstances, it is easier for them to find other ways to mitigate the expropriated problems and this in turn, determines them to be less reliant on control than other foreign parent firms. Nevertheless, the loose control can also have serious shortcomings, as evidenced by Bai et al. (2003) when citing the spread of profanities among people of the same ethnicity and its negative impact on the future investment opportunities of the perpetrator of the expropriation. Corroborated from the above discussion we can state:

Hypothesis 1. *The higher the cultural uncertainty between the foreign and local parent firms, the more likely the foreign parent firms exercise a broad, formal, and tight control over the IJVs.*

3.2 Environmental Uncertainty

The environmental uncertainty is defined as the complexity and volatility of the environmental factors. The environmental factors' volatility refers to the unexpected changes in regulation, legislation, judicial decisions, interest rates, or changes in demand (Kumar and Seth 1998). While operating in foreign countries, for a firm to take full advantage of the opportunities offered by the environments, it has to develop capabilities that keep it in harmony with the environment (Wernerfelt 1984). Therefore, a different context requires different control mechanisms (Johnston 2005). This is due to, the frequent and unpredictable changes of the government policy (Child et al. 1994), and the possibility of collusion, at the IJV level between the local parent firm and the local government, especially when the local parent firm is a state-owned enterprise (Pangarkar and Klein 2004).

In intricate environments, the excessive control can be problematic because the foreign parent firms may not be fully aware of the operational complexity of the local conditions. Shortell and Zajac (1988) maintained that the IJVs should adapt more readily to the changing external environments. When the IJVs are faced with a high environmental uncertainty, the foreign parent firms may need to provide the IJVs with more autonomy in decision-making, and to allow them to be more flexible so that to deal with uncertainty in a timely and efficient manner. Calantone and Zhao (2001) suggested that for the parent firms that are unfamiliar with these markets, obtaining local knowledge about the specificities of the environment should be of major concern rather than the control issues. Foreign firms tend to allow local partners to keep a high level of control if they want to learn about unfamiliar markets (Whitelock and Yang 2007). Peng and Heath (1996) commented that when operating in an unfamiliar environment such as China, the foreign parent firms may need to rely on the local parent firms to secure the needed resources, thus willingly sharing the control with the local parents. This is because they are closest to the

changing environments and thus they have the best knowledge in these particular situations (Lewis 1990).

Furthermore, Kumar and Seth (1998) maintained that at high levels of environmental uncertainty, more complex control appears to be inefficient in managing the relationship between the IJV and its parent. The habitual legislation change and the increasing number of new competitors entering to the markets are quite popular in foreign markets. To stay competitive, the IJVs need to react fast to these changes. Sanchez-Peinado and Pla-Barber (2006) argued that when faced with unexpected changes in demand, the firms tend to adopt a weaker control that allows the IJVs to enjoy greater flexibility in responding to these changes. In addition, according to Lyles et al. (2000), it may be significantly difficult to implement a more formal control in a rapidly changing environment. On the other hand, Guidice (2001) found that social control was not moderated by the degree of uncertainty, and it appeared to be an efficient control mechanism regardless of environmental conditions. Similarly, Drew and Kendrick (2005) argued that in this kind of environment, cultural mechanism could be an effective control mechanism. They maintained that the firms' structures and systems need to be adaptive in managing the risk involved. Thus, as the environmental uncertainty rises, the need for flexibility increases. As a result, we expect that:

Hypothesis 2. *The higher the uncertainty of the IJV's operating environments, the more likely the foreign parent firms exercise a loose, narrow, and social control over the IJVs.*

3.3 Competitive Uncertainty

The competitive uncertainty refers to the unpredictability of the future state of competition (Miller 1992). Mjoen and Tallman (1997) maintained that a specialized control design would enable the foreign parent firms to protect their IJVs. In the countries where the competitive uncertainty and the possibility of the new competitors entering to the market are high, the foreign parent firms need to closely monitor the IJV operations through formal control mechanisms so that to protect their own interests and avoid suffering from low performance (Chen 2004). According to Calantone and Zhao (2001), the foreign parent firms that face a high pressure from their competitive uncertainty in the host countries where the IJVs are located are likely to increase their control level over their IJVs. On the other hand, in the fast growing markets where the competitive pressure is low or the stakes are big enough for all players, the foreign parent firms may be willing to give the IJVs more flexibility in dealing with other types of uncertainty (Hedlund 1986). Thus,

Hypothesis 3. *The higher the competitive uncertainty, the more likely the foreign parent firms exercise a broad, formal, and tight control over the IJVs.*

3.4 Linkage Between the Host Country Uncertainty, Foreign Parent Control, and IJV Performance

There is no consensus among researchers about the most appropriate measurement of IJV performance. The measures often used in investigating the IJV performance are either exclusively objective types, or a mix of both objective and subjective types. The indicators of objective measurement are profitability, growth, cost, survival and duration of the IJVs, instability of ownership, and the necessity to renegotiate the IJV contract. The subjective performance measure is the parent firm's overall satisfaction with the IJV.

Child and Yan (2003) argued that the choice of the right control structure permits the effective use of strategic resources that the parent firms have in the IJVs. The strategic choice of a firm is directly linked to its external environments and has a significant implication for the overall performance (Miller and Friesen 1983). O'Connor and Chalos (1999), when studying the determining factors for success and failure of IJV, suggested that in order to succeed in China, the design of IJV control system has to be adapted to the business environment. The appropriate control structures in their IJVs can safeguard the foreign parents' competitive advantage (Geringer and Hebert 1989; Hamel 1991) from competitors. Thus, the foreign parent firms will be more confident and continue supporting their IJVs, support which plays an important role in the IJV performance.

To achieve the overall parent objectives in the IJVs, they have to ponder between the IJV control structure and the risks involved (Lynch 1993), taking into account the extent of environmental uncertainty and the degree of trust (Birnberg 1998). Lorange et al. (1986) maintained that by exercising a proper IJV control structure in their dealing with the host country uncertainty, the foreign parent firms can make sure that their strategies are effectively implemented, and that their resources are efficiently utilized for enhancing the IJV performance. Luo (1996) maintained that tailoring the company's strategies to the investment environment represents a necessary condition for attaining a high level of performance. In contrast, the lack of appropriate control to monitor uncertainty can lead to IJV failure (O'Connor and Chalos 1999). Thus, the foreign parent firms which adapt their control structures in the IJVs to respond to the specific host country uncertainty will have a better IJV performance than those that do not. As a result of Hypotheses 1 and 3, we expect that:

Hypothesis 4. *Foreign parent firms are more satisfied with IJV performance when they exercise broad, formal, and tight control over the IJVs operating in high uncertainty host countries, and exercise social, narrow, and loose control in low uncertainty host countries.*

4 Sample Description and Results

In this section we present the methodology, the sample, and the results of the study.

4.1 Methodology and Measurement

This study adopted a survey research design to fit with the exploratory nature of the research. In the survey, the questions about joint venture control and performance were collected directly from those involved in IJV operations. Furthermore, to be able to generalize conclusions about the joint venture control, a large number of IJVs is needed to be examined. This made direct interviews very costly in terms of time and money and impractical so that to achieve the desired sample size. The measure of variables is based on a 5 point-scale. Concerning control measurement, a list of different control mechanisms, focused on areas of IJV activities were provided, the respondents were asked to evaluate their control with 1 = always used to 5 = never used. Host country uncertainty: is a mean of cultural uncertainty, environmental, and competitive uncertainty. In each uncertainty dimension, the respondents were asked to evaluate the uncertainty from 1 = very high uncertainty to 5 = very low uncertainty. IJV performance was measured by parent firm's satisfaction of IJV operation with 1 = very unsatisfied to 5 = very satisfied. (See Appendix for more details). The methodologies used in this study to analyze the data are description statistics and the Chi-square test. The purpose of the methods is to determine how well an observed set of data fits an expected set of hypotheses. These methods are used to examine the differences with categorical variables and the relationships between uncertainty factors and IJV control structures, and IJV control structure and IJV performance. The method is particularly useful to find out whether an IJV control structure which is made by different elements of IJV control dimensions (formal, social, broad, narrow, tight, and loose) has a normal distribution or the structure has formed under the influence of uncertainty factors. Similarly, the method evidences whether or not IJV performance is influenced by the IJV control structure.

4.2 Sample Description

The study herein is a part of an on-going research project focusing on IJV behavior, strategies, partner selection, control structure, and performance of Finnish firms. The target firms and investments were identified as follows (1) the FDI data base collected by the project leader starting from late 1980s based on press releases regarding IJVs published on leading business magazines and newspapers and (2) annual reports and websites of the 250 largest Finnish firms from the leading magazines; (3) based on the earlier surveys focusing on IJVs and WOS by Finnish firms conducted by the project leader. From the resources, we identified 340 IJVs qualifying

for our study; they were founded by 200 Finnish parent firms since 1988 and in operation at least until 2002. Among these 200 firms, several firms were very difficult to contact either because they had been restructured or gone out of business. While researching for informants, we found that in some firms there was no longer anyone with sufficient knowledge required for the study. This left a total of 161 Finnish parent firms. Given the time and cost constraints a postal questionnaire and online web survey were used to gather the data. The participants were those managers who were directly involved into the IJV's establishment and operations.

To enhance the quality of the data, the respondents were contacted by phone in December 2006 to explain the key points of the study and the questionnaires. In exchange for their participation in the study and to ensure accurate responses, the respondents were assured of their anonymity and were promised a summary report of the findings and participated in a draw for three gifts. After one reminder at the end of January 2007, at the end of February, 54 questionnaires were returned from which five questionnaires were not usable. Thus, the final sample was 49 IJVs including 40 Finnish parent firms. The response rate was 24.84%, which is relatively similar to that of earlier respective studies in Finland (see Larimo and Rumpunen 2006). The sample was carefully examined for any systematic response bias using t-tests. Respondents and non-respondents were compared across their age, size, international experience, and IJV experience. No statistically significant difference was found. Thus, there was not response bias to be found in the final sample. Among the 49 IJVs of the final sample, 45% were established in 1988–1995, 55% in 1996–2006; 53% through acquisitions, 47% through greenfields, 76% were with two partners and 24% with three partners; 61% with indefinite duration, 22% with less than 5 years, 17% more than 5 years; 41% with 10–49% Finnish ownership, 10% with equal ownership, 49% with Finnish major ownership at establishment; 71% located in emerging economies, and 29% in developed economies; 63% with industrial products, 27% with consumer products, 18% with both consumer and industrial products. The summary of the operationalization of the key variables of the study is presented in the appendix.

4.3 Results

In this section, we discuss the results of empirical test of the hypotheses developed in Chap. 3.

4.3.1 Host Country Uncertainty and IJV Control Structure

Most respondents regarded the same countries with the same level of uncertainty like Estonia, Russia, China, etc. Concerning the perception of cultural uncertainty in the host countries, most respondents regard host countries in emerging economies as a high cultural uncertainty (with a mean of 2.06; where 1 = very high and 5 = very

Table 2 The results of the study based on the chi-square test

Hypotheses		χ^2	DF	Results	
Uncertainty dimensions	Control structure				
H1: High cultural uncertainty	Broad, formal, tight	15.30	5	Significant at 0.01	
H2: High environmental uncertainty	Narrow, social, loose	9.73	5	Not significant	
H3: High competitive uncertainty	Broad, formal, tight	16.70	5	Significant at 0.005	
Country uncertainty	Control structure	Performance			
H4: High	Broad, formal, tight	+	12.43	5	Significant at 0.05
Low	Narrow, social, loose	+	15.13	5	Significant at 0.01

low) and developed economies with low uncertainty (with a mean of 3.21). The most commonly adopted control structure by Finnish parent firms in the reviewed IJVs was formal, broad, and tight control at 26/47 which accounts for 55.32%. With respect to Hypothesis 1, over 75% of Finnish parent firms exercised formal, broad, and tight control in their IJVs located in high cultural uncertainty countries. Less than 25% of the Finnish firms exercised social, narrow, and loose control in high cultural uncertainty. Based on the chi-square test, $\chi^2 = 15.3$ the result was significant at $p < 0.01$ ($df = 5$). Thus, the result supported H1. Regarding the Hypothesis 2, as a whole, the hypothesis was not supported. However, the more detailed analysis revealed that more than 70% Finnish parent firms exercised narrow and loose control in high environmental uncertainty. However, only 49% of Finnish parent firms exercised social control over IJVs when they perceived a high uncertainty environment. Therefore, the result only partly supports Hypothesis 2. In Hypothesis 3 over 75% Finnish parent firms used formal, broad, and tight control in high competitive uncertainty countries. In contrast, when the host countries are characterized with low competitive uncertainty, almost 70% Finnish parent firms exercise more social, narrow, and loose control over their IJVs. Based on the chi-square test, $\chi^2 = 16.7$ the result was significant at $p < 0.005$ ($df = 5$) (see Table 2). Thus, the results supported H3.

4.3.2 Parent Control Structure and IJV Performance

The performance was measured using seven different subjective measures. Respondents were asked to rank on a 5 point Likert scale, first the weight given and secondly their degree of satisfaction to all seven measures. The two most important measures of performance were total performance and financial performance. In the reviews, the mean of financial performance of IJVs was 3.4 and the total performance of IJV was 3.6. This shows that Finnish parent firms are somewhat more satisfied with the IJV total performance than IJV financial performance. In addition, the findings of the study show that in high uncertainty countries, Finnish parent firms are more

satisfied with their IJV performance (mean 3.82) when they exercise formal, broad, and tight control over their IJVs than other control structures (mean 2.95).

Based on the chi-square test, $\chi^2 = 12.43$ the result was significant at $p < 0.01$ ($df = 5$) (see Table 2). Similarly, in low uncertainty countries, Finnish parent firms also seem to be more satisfied with IJV performance (with mean of performance: 3.90) when using narrow, social, and loose control over their IJVs, than in the cases of using other control structures in IJVs (with mean of performance: 2.40). Based on the chi-square test, $\chi^2 = 15.13$ the result was significant at $p < 0.01$ ($df = 5$) (see Table 2). Thus, the results supported H4.

5 Summary and Conclusions

The present paper offers a valuable insight into these challenges and evidences some traits for successful operations in foreign countries through the use of proper control structure by the foreign firms. The presented set of hypotheses may prove very useful, since the ability to adapt and change successfully has become critical (Brown and Eisenhardt 1997; Feldman 2004). The aim of the paper was to answer the questions: (1) How do foreign parent firms design IJV control to cope with the host country uncertainty? and (2) What are the relationships between foreign parent control structure in IJVs and the IJV performance? The results show that in high cultural uncertainty and high competitive uncertainty, parent firms preferred broad, formal, and tight control over their IJVs. In contrast, in high environmental uncertainty, in order to react fast to the changes of the environments, most firms preferred narrow and loose control. The present study contributes to the IJV control theory by offering a model of linkage between host country uncertainty and parent control. In more detail, most foreign parent firms want a high level of control that is consistent with their bargaining power (Calantone and Zhao 2001). However, the present study suggests that, in order to operate successfully in foreign countries, the foreign parent firms need to have a comparable IJV control structure that fits the IJV operating environments.

This finding is consistent with the work by Lynch (1993), in which the author maintained that the parent control has to be compatible with the risk and uncertainty of external environments. Previous researchers, for example Birnberg (1998) analyzed the uncertainty which may occur when involving in partnerships but without assessing how firms can cope with it. This paper also extends the previous studies by specifying which control structure could be implemented in the IJVs to deal successfully with different kinds of uncertainty. In particular, in high uncertainty countries, parent firms will need to exercise formal, broad, and tight control over their IJVs to have high IJV performance. On the other hand, IJVs will perform better when parent firms exercise social, narrow, and loose control in a low uncertainty country.

In sum, although IJV control has been frequently addressed in the IJV literature, the inquiry into how to manage the IJVs dealing with host country uncertainty

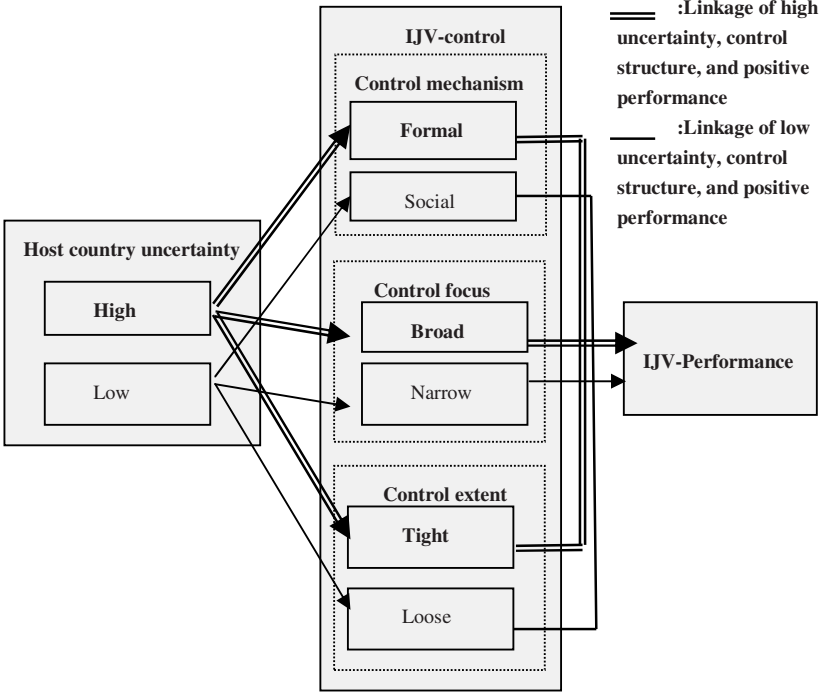


Fig. 1 IJV control model

remains limited. The study presents one effort to build a more comprehensive IJV theory by providing an IJV control model (Fig. 1). We also acknowledge several limitations to our study. First, the sample size of the study is rather small and only from Finnish IJVs. In addition, in the analysis of IJV control, we focused only on two main IJV control structures including formal, broad, and tight control and social, narrow and loose control. However there are possible of other combinations of IJV control structure which include three dimensions of control. For further studies, researchers could use the framework of the present work with a bigger sample size and foreign parent firms from several countries. In addition, researchers could also investigate how the foreign parent firms exercise their control in their IJVs in order to cope with other specific factors that contribute to the uncertainty in the host country, such as interest rate fluctuation and the supply and demand uncertainty. In addition, because IJVs evolve overtime, further studies are also needed to investigate the dynamic of the parent control over IJVs to deal with the host country uncertainty along the IJV's life cycle. Finally, it would be worth researching whether the control of the IJVs functioning in the emerging markets is different than that of those IJVs located in the developed markets.

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Appendix: Operationalizations of the Present Study

Control Dimensions

Control mechanisms: Measured on a 5 point-scale, the respondents were asked to assess their method of monitoring and control of the IJVs.

Formal control: (a) Participation in venture's board meetings; (b) Appointment of key venture personnel; (c) Incentive plans for top management; (d) Financial reports; (e) Exercising veto rights at the board meetings; (f) Taking part in planning JVs budgets; (g) JV general manager participates in parent worldwide; (h) Parent-venture face to communication, formal meeting; (i) Participation in JV's decision-making; (j) Control based on equity share.

Social control: (k) Feedback; (l) Parent-venture informal socialization (informal phone calls, outdoor activities); (m) Parent training of venture managers. Control

mechanism is formal if parent firms resort to more on formal mechanisms (such as those from a to j with a response value equal or greater than 3. On the other hand, control mechanism is social if parent firms exercise those from point k to m with a value from 3 to 5.

Control focus: Measured on a 5 point-scale, the respondents were asked to assess their monitoring and control of the IJVs on the focus areas: (a) International marketing; (b) Local marketing; (c) Domestic sales; (d) Human resources; (e) Procurement; (f) Production; (g) Quality control; (h) Prices and costs; (i) Financing and accounting; (j) Research and development; (k) Local government relations; (l) General management.

Control focus is *narrow* if the parent firms exercise it over some selected areas (between 1 to 3 areas from the above list). On the other hand, control is *broad* if they exercise it over more than 3 aforementioned areas or all areas of IJV activities from a to l.

Control extent: Degree of control which is exercised over the IJVs based on control mechanism and focus. Control extent is *tight* if parent firms exercise more than three control mechanisms and broad control. Control is *loose* if parent firms exercise less than three control mechanism and narrow control.

Uncertainty dimensions: (Perceiving cultural, environmental, and competitive uncertainty) were measured on an ordinal scale from 1 = "very high" to 5 = "very low".

Host country uncertainty: is a mean of cultural uncertainty, environmental uncertainty, and competitive uncertainty.

Performance: was measured on 5 point-scale, respondents were asked if they satisfy with IJV performance with 1 = "very unsatisfied" to 5 = "very satisfied".

Performance Implications of Network Structure, Resource Investment, and Competition in the German Motion Picture Industry

Brinja Meiseberg and Thomas Ehrmann

Abstract This study offers a new framework for organizing a motion picture in such a way that chances for box-office success are enhanced. We combine and expand two strands of research for the moviemaking industry: the economic approach and the social network perspective. Therefore, we integrate the product-inherent categories of creative sphere and financial resources as well as the product-induced categories of marketing support and competition with concepts from social network analysis (i.e., connectivity and density). We test our hypotheses on a sample of each year's top ten German movies as to box-office admissions for the period 1990–2004. In particular, we find that extensive care and industry knowledge are required when organizing the economic and social framework in which a film project is undertaken, since ultimately, movie success does not depend on individual star power. On the contrary: The real star is the team.

Keywords: Motion picture industry · Network analysis · Star power

1 Introduction

As a general rationale, the national motion picture industry is highly influential in society by reflecting cultural identity (Neumann 2006) and by shaping and spreading norms, ideas and trends. Also, this industry is economically very important with movie project budgets mounting up to double-digit size, huge potential for ancillary products and movie theatre revenues of e.g. around €1 bn in Germany in 2004 or \$9 bn in the US in 2005 (Hennig-Thurau and Wruck 2000; SPIO 2005). But apart

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from being powerful, it is a highly risky industry as regards returns on individual movie projects. Often, movies which were considered “a sure thing” turned out to be ten ton turkeys, meaning they totally flopped at the box-office (“Waterworld” being a famous example; De Vany and Walls 1999). Others, which were supposed to be niche films, unexpectedly showed enormous power to attract audience (“The Passion of the Christ”). Risks resulting from demand unpredictability (Frank 1993) are intensified by the sunk nature of costs as they occur almost completely prior to film release (Goettler and Leslie 2004). Tremendous losses are ubiquitous in the movie industry: About 60–70% of movies never win their budget back (Vogel 2001). Therefore, it is in the producers’ fundamental interest to understand how movie success may be promoted prior to production and how success prospects are influenced by external circumstances.

Considerable energy has been invested into determining what factors can be relied on to boost movie success. However, previous studies have produced conflicting results. Although some studies found the presence of a star to be important, others found star power to be an insignificant predictor of success (for an overview, see Basuroy et al. 2003). The same holds for director’s popularity (Chang and Ki 2005; Ravid 1999), and movie genres (Jansen 2002; Litman 1982). On the one hand, these results may demonstrate that audiences’ tastes and preferences, as the basis for buying decisions, change over time. But also, on the other hand, they may indicate that important explanatory factors have still been missing in the analysis. Prior studies focussed almost exclusively on the participation of individual stars to explain movie success. But, the role of the film team as a whole has not been studied in detail yet. The team’s joint potential to provide creative input and know-how for movie creation is expected to be a crucial contribution to movie performance.

To bridge this gap in literature and add further clarification, we combine the two perspectives of economic and social network analysis to gain evidence from the German movie industry. Our economic framework partly builds on prior research accounting for factors related to star power, financing, marketing and competition. Further widening the scope, we include team structure elements. As a part thereof, social network analysis is used to explore and interpret a movie’s position within its industry’s structure and derive implications for financial success. Basically, two different attempts can be made to achieve financial success in the movie industry, or show business in general. Most promising, as proposed in this paper, producers should try to manage economic and network structure elements to match consumer demand best and produce hits. The Globe-nominated recent movie “The Producers” (a 2005 remake of the 1968 Oscar-winning production) comes up with a different yet creative approach. It proposes a scheme tailor-made for producers who can only make flops: Raise far more money than you need, then make sure the show is despised. No one will be interested in it, so you can pocket the surplus. Although this plan seemed to be faultless it does not work out in the end. Thus, as the quick-rich plan seems prone to failure, we attempt to look in the opposite direction by developing hypotheses on factors that contribute to making a film a hit.

The remainder of this paper is organized as follows: In the next section, we review the literature on economic factors influencing movie success and describe the theoretical background against which our investigation into success factors in the movie industry is organized. We proceed to explain the concept of social network analysis and the strand of research relevant to our examination. Thereafter, research hypotheses are developed (Sect. 3), before the data and methods are described (Sect. 4). Subsequently, we report and interpret the results obtained (Sect. 5). The paper concludes with a summary, discussion and implications for further research (Sect. 6).

2 Theoretical Framework

2.1 Economic Success Factors in the Motion Picture Industry

The motion picture industry belongs to the cultural goods industries. Cultural goods are nonmaterial goods directed at a public of consumers for whom they generally serve an aesthetic or expressive, rather than a clearly utilitarian function (Hirsch 1972). These characteristics make it difficult for consumers to assess movie quality prior to consumption. Also, they make it hard for producers to predict buying decisions and to figure out why some movies succeed and others fail.

Previous research has tried to examine how buying decisions are made. The two major strands of research focus on individual buying decisions (communication theory; Sharda and Delen 2005) and collective movie attendance decisions (economic approach). Communication theory considers movie content as primary criterion for the choice of a certain movie from the available range, once the initial decision for movie-going has been made. The economic approach further regards institutional factors like release timing, marketing and financing (Sochay 1994). Garrison (1971) established the economic approach first and found that the director, the characteristics of hero and heroine and the settings were significant for distributor film rentals. Kindem (1982) analyses star power and could support the theory of a “bankable star”, meaning that a star adds to guaranteeing success. Litman (1983) provides a compelling categorization of areas affecting consumer buying decisions: creative sphere, scheduling and release pattern, and marketing effort. He finds that the production budget, critics’ ratings, and Academy Award nominations, had significant positive impacts on distributor rents. Sochay (1994) organizes variables along the lines of Litman and finds that Oscar nominations and wins were significant to the length of run and rents, whereas star power and comedy genre were significant to rents only. Chang and Ki (2005) observe that sequel, actor, budget, genre, age rating, release season and number of opening screens were significantly related to box-office performance.

The studies described above apply evidence from the US movie industry. In general, the comparatively small number of studies on the German movie industry

has built on insights from the US industry.¹ Picker (1999) analyses incentives for cooperation as well as benefits of repeated interaction within German film teams, highlighting the importance of considering each potential team member's creative know-how and teamwork capacity when deciding on team assembly. Hennig-Thurau and Wruck (2000) distinguish between product-inherent and product-induced factors and stress the impact of movie quality and symbolicity, defined as a measure of consumers' efforts necessary to group a certain movie into their cognitive frames. Jansen (2002) finds the presence of previously successful actors, directors and production companies, the budget size and critics' reviews significant for a movie's success in terms of admissions.

In line with Sochay (1994), we explore the economic approach as it allows for a broad perspective on factors affecting movie performance. For our study, we define the relevant economic concept by the categories of creative sphere, financing, marketing, and competition. We add considerations on organizational structure by focussing on the impact of a film's position within the social network structure in the movie industry. Therefore, we use social network analysis.

2.2 Social Network Analysis and the Small World Phenomenon

In project-based industries, organizational forms such as networks may favour innovation and creativity (Guimerà et al. 2005), both of which are principle reasons why cultural industries can attract audience (Jones et al. 2005). A movie team's position in the industry's network may improve or hinder its access to creative ideas and know-how. Social network analysis provides a means to analyse these social structures, conceptualized as networks of social ties among actors. In the terminology of network analysis, the term "actor"² may refer to people, groups or organizations. Ties may be friendships, collaboration or common membership (Newman 2001b). Network analysis offers the methodology to detect and interpret patterns of these ties. As Padgett and Ansell (1993) observe, social ties do influence the performance of creative actors in a network: By acting as fans and critics of each other, each actor's creativity can be amplified or stifled.³ With similar arguments, Delmestri et al. (2005) explore the influence of horizontal and vertical ties of directors in the Italian movie industry. They find that a movie's commercial success is favoured by a

¹ This finding mirrors the imbalance in public attention to Hollywood and Non-Hollywood productions. As Gianni Amelio, one of Italy's most successful filmmakers, states: "Italy knows how to produce films, but still have not figured out how to encourage the public to see them." (cited in Sklar 2002). However, the German movie industry has figured out how to attract, with a market share of 23.8% in 2004 (FFA 2005).

² To be specific, in the following the term "actor" will be referred to as "movie actor" if it denotes a film team member, if else there is a risk of confusing it with the term "actor" used in network terminology.

³ For the process of transforming creative potential within movie project networks, see Manning and Sydow (2007).

director's strong vertical ties with producers and distributors, while artistic merit is positively affected by a director's weak horizontal ties with creative partners. The authors explain these results by the varying degrees of task routineness and creative innovation in movie creation.

One particular form of social organization that has received great attention for its ability to influence creativity and performance is the "small world network" (Uzzi and Spiro 2005). The term denotes a network structure which features two usually opposing elements: The network is both highly locally clustered, i.e. the network consists of groups of actors and within each group, most or all actors are connected, and it has a short path length, i.e. a small mean geodesic distance of all pairs of actors between which a path exists (Watts 1999a, b). "Path" means that actors are linked either directly or via a chain of contacts of other network actors.⁴ The more a network exhibits characteristics of a small world, the more actors are directly linked or connected by persons who know each other through past collaborations or who have third parties in common. Uzzi and Spiro (2005) argue that the small world conditions enable creative material in separate clusters to circulate to other clusters and to gain the kind of credibility unfamiliar material needs to be regarded valuable and productively used by another cluster. However, these advantages may hold only up to a threshold of connectivity, after which they turn negative as ideas in the network become homogenized; then, cohesiveness leads to sharing common rather than novel ideas (Uzzi and Spiro 2005). As Linus Pauling states, who attributed his creative success not to his immense brainpower or luck, but to diverse contacts: "The best way to have a good idea is to have a lot of ideas." (cited in Uzzi and Dunlap 2005).

Research has determined fields which are subject to small world networks and found scientific collaborations, the Hollywood actor labour market or production teams in business firms (Uzzi and Spiro 2005). Examining scientific co-authoring, Newman (2001a) draws the conclusion that small worlds account for how quickly ideas fly through disciplines. He reformulates the small world theory for bipartite networks meaning there are two different sets of actors, such as movies and movie actors (Albert and Barabási 2002; Watts 2004). Bipartite networks are distinctive in that all network actors are part of at least one fully linked cluster, also called fully linked clique (Uzzi and Spiro 2005). As Fig. 1 illustrates, the network is made up of these cliques that are connected to each other by actors of multiple team memberships. The movie industry qualifies as an example par excellence of such a small world featuring a bipartite network structure (Marchiori and Latora 2000; Newman 2000).

To recapitulate the main points so far, producers in the cultural industry of movie-making are confronted with two problems: (1) Demand patterns that seem highly unpredictable and (2) production processes that depend on the team's joint potential to contribute know-how, creativity and talent to movie creation. Creativity and talent along with innovation are acknowledged as the resources crucial to success (Jones

⁴ This idea has been illustrated by Milgram's famous theory of "six degrees of separation" (Milgram 1967).

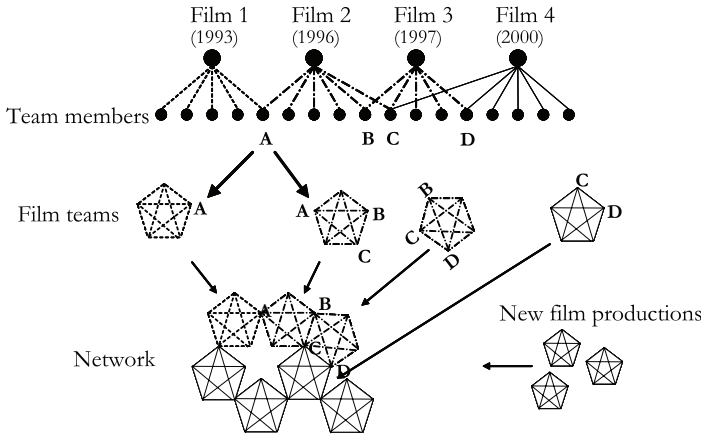


Fig. 1 Schematic representation of an actor-movie network. Following Uzzi and Spiro (2005)

and DeFillippi 1996). Thus, when organizing a movie, it seems necessary to regard economic circumstances relevant to success as well as teaming up individuals in consideration of network structure, which is the general idea of our paper. As a general hypothesis, the following should hold:

$$\text{admissions}_j = f(\text{creative_sphere}_j, \text{financial_resources}_j, \text{marketing_support}_j, \text{competition}_i, \text{network_structure}_j), \text{ with } j = 1, \dots, J \text{ (denotes a particular film); } i = 1, \dots, I \text{ (denotes the year in which a film is released).}^5$$

Accordingly, in the following, we develop hypotheses which are grouped within product-inherent (i.e. film intrinsic) and product-induced (i.e. film-related) categories that form the economic perspective of this study. Then, we add hypotheses on network structure.

3 Hypotheses

3.1 Hypotheses on Product-Inherent Categories

3.1.1 Creative Sphere

Team Structure. The professional completion of a number of tasks is of vital importance for a film’s success. These tasks encompass acting as well as directing or producing the movie. The experience and know-how contribution of team members (i.e. the input of knowledge-based resources) who have been successful in reaching

⁵ We analyse the creative sphere, or network structure, e.g., of a movie j considering the time of production. However, “competition” is indexed with an i since movies face competition in the year of release, not of production.

a large audience before can enhance team performance. Famous movie actors may serve as magnets for attracting audience and media attention; previously successful directors and producers seem to have both the necessary talent and the ability and willingness to meet market demand; successful production companies have better chances to realize further projects due to better financial resources.⁶ Although market experience does not guarantee optimal strategic choices – otherwise flops would never be made – the participation of a well-reputed previously successful company can signal a movie's attractiveness to consumers. This reduction in consumers' uncertainty is highly valuable: Well-reputed participants provide a reliable factor to the audience in this project-based industry, where different teams form for each project and outcome depends largely on the joint team effort. Hence, we expect that the more previously successful participants, the better the chances of first, finding the creative and technical know-how to make a complex movie and meet diverse consumer interests. Second, chances of attracting media attention necessary to influence consumer buying decisions and boost demand are higher.

Hypothesis 1. (H1). *A high number of experienced team members positively influences a film's admissions.*

Star Power. While a movie featuring unknown movie actors is more difficult to market, employing prominent actors with a considerable fan community ("stars") could provide a stronger potential to attract large audiences. As Baimbridge (1997) suggests, often the most significant aspect, or key ingredient (Albert 1998) of any movie is the leading actor upon whose reputation success depends. Previous studies tried to determine the effects of star power on movies' box-office revenues, lengths of run, profits, opening screens and admission numbers (Basuroy et al. 2003). These studies produced conflicting results (Ravid 1999). Litman and Kohl (1989) and Sochay (1994) prove star power to be significant for film rentals. Prag and Casavant (1994) find stars positively impact a film's financial success, whereas other studies find stars are an important factor in the public's attendance decisions (De Vany and Walls 1999), but are not significant predictors for financial success (Delmestri et al. 2005). However, the use of stars can be interpreted as ingredient branding (Hennig-Thurau and Dallwitz-Wegner 2003) and providing the audience with a recognition factor. Thus, stars can add a quasi-search quality to movies (Hennig-Thurau et al. 2001) helping to reduce consumers' uncertainty as a dominant feature of movies as experience goods (for advertising's information function, see Nelson (1974)). Although German stars may not be as appealing to the masses as Hollywood stars, still they are likely to increase media attention and help to book the movie on more opening screens. Initial screen coverage is most important as during the first weeks demand for the movie is revealed and follow-up contracts for screens are adjusted. Thus initial coverage forms the basis for bandwagon effects in this industry: Subsequent growth in demand depends on the demand level already attained (De Vany and Walls 2002). Interestingly, previous research has shown differences in the genders'

⁶ This is in line with the German reference funding principle, i.e. funding is granted for realizing a new project after making a movie which reached a certain threshold of viewers (FFA 2002).

contribution to box-office success: Previously successful actors may be a weaker success contributor than previously successful actresses (De Vany and Walls 1999).

Hypothesis 2a. (H2a). *The participation of male stars positively influences a film's admissions.*

Hypothesis 2b. (H2b). *The participation of female stars positively influences a film's admissions. The female star effect on admissions is stronger than male star power.*

3.1.2 Financial Resources

Budget. The impact of budget size on success may be of a dual nature. Investing a high budget conveys the producer's conviction that a movie has great economic potential, but also, consumers may perceive a high budget as an indicator of certain benefits the film provides, which could positively influence buying decisions. Definitely, high budget films are in an advantageous position: first, they have the resources to afford well-known and talented personnel. Second, they can meet diverse consumer interests as big budget translates into lavish sets and costumes, expensive digital manipulations, and special effects – all of which should lead to heightened attractiveness for consumers (Basuroy et al. 2003). Third, more can be spent on marketing to further increase demand.

Hypothesis 3. (H3). *A high budget positively influences a film's admissions.*

Funding. Similar to the line of arguments for budget, funding should positively influence admissions. There are several sources of funding in Germany, which together account for more than half of the total film budgets today (Kurz 2004). However, federal funding is often intended to support films of artistic rather than commercial value. These movies may not appeal to a wider audience as they are perceived as “arty”, i.e. of little entertainment value. Still, apart from official funding in a strict sense (federal), TV broadcasting agencies provide funding according to private law contracts with the FFA (German Federal Film Board). In 2004, funding by public TV agencies amounted to €15.6m and €12m by private ones (FFA 2005). TV-funding is intended to support films suitable for theatrical release as well as for TV, and usually the participating TV agency holds the broadcasting rights. Hence, we expect TV-funding to favour movies of supposed commercial value. Receiving funds also implies that the movie and the team's power to raise interest have already been demonstrated on a smaller scale, having convinced funding committees. This should signal the movie's quality and reduce consumer uncertainty if the fact that funding has been received is made public.

Hypothesis 4. (H4). *A high amount of TV-funding positively impacts a film's admissions.*

3.2 Hypotheses on Product-induced Categories

3.2.1 Marketing Support

Critics' Reviews. With respect to the nature of films as experience goods, two perspectives on the impact of critics can be taken. Either, critics may act as predictors of success by representing viewers' preferences (Wanderer 1970). Or, as many studio executives believe (Eliashberg and Shugan 1997), critics may influence success by en- or discouraging consumers to watch certain movies (Weiman 1991). In Germany, the Filmbewertungsstelle Wiesbaden (FBW) acts as an important critic: It can award two alternative certificates, the "recommended" or the "highly recommended" certificate, if it believes a film to be of high artistic value. Since artistic value is not necessarily the primary attendance criterion, these awards are not likely to predict the audience's taste. Rather, they gain relevance according to the influencer instead of the predictor perspective. Thus, admissions do not only correlate with awards (as the predictor perspective suggests), but awards cause part of the success: Certificates can influence movie-goers by signalling valuable movie content. This would be consistent with prior research on US audiences which observed that one third of the audience chose a film due to a favourable review (Reinstein and Snyder 2005). Additionally, decisive indirect effects may occur: Media reviews may be positively influenced by awards, in turn the distributor may intensify marketing efforts, or consumers attend due to the review and then influence others by word-of-mouth (Austin 1989). We focus on the more prestigious, the "highly recommended", certificate, expecting effects to be stronger here.

Hypothesis 5. (H5). *Obtaining the FBW-"highly recommended"-certificate positively influences a film's admissions.*

Movie Awards. Awards are another indicator of the benefits watching a certain movie may provide. Taking a competitive perspective, movie performance is rewarded as a result of a comparison between all movies of a year (Hennig-Thurau et al. 2001). The German and the Bavarian Film Award are the two most important German awards. Here, the rationale is that awarded films get higher attendance due to reducing consumer uncertainty and providing for heightened media attention, and in particular, because awarded films often get a second or third run in movie theatres to capture audience.⁷

Hypothesis 6. (H6). *Movie awards positively influence a film's admissions.*

⁷ It could be argued that awards are an ex-post measure of how much audience a movie obtained. However, awards are granted by an independent jury of movie industry experts for outstanding performance, not for reaching a certain attendance. Hence, reversed causality should not be an issue here.

3.2.2 Competition

Consumers have to make choices as to which movies to watch from the range of available alternatives. Admissions to each movie depend on the competitive strength of films concurrently released in the same market. Movies are an example of a vertically differentiated product, as although each film is unique in some respects, they are not equally attractive to the audience. The logic behind vertical product differentiation is that where prices are invariant between products, it is possible for a small number of products to appear superior in almost all respects – not to just one consumer, but to almost all consumers across a variety of circumstances of time and place (see Ehrmann (2006) for the value map concept). Films with a particularly strong power to gain attendance are called “blockbusters”. Our data show that over 80% of blockbusters are American productions, reducing the status of the German film. If blockbusters have the power to decrease the total box-office and create a one- or two-film market, this phenomenon is known as the “black hole effect” (Sochay 1994). In this case, the rationale is that blockbusters reduce the attendance at competing films.

Hypothesis 7a. (H7a). *There is a negative impact of the number of blockbusters per year on a film’s admissions.*

As a competing hypothesis, blockbusters could be able to expand the total box-office potential for all films, which is called the “ripple effect” (Sochay 1994). This effect manifests itself if spill-overs occur when the hits are sold out: As blockbuster tickets are not auctioned off, being price invariant, extra demand is not rationed but goes to alternative movies. Hence, blockbusters provide positive externalities to other movies, as other movies become recipients of subsidies from the blockbuster since it does not absorb buying power. Moreover, people who enjoyed watching the blockbuster are likely to seek out other movies playing at the same time. Thus, blockbusters could increase the attendance at competing films.

Hypothesis 7b. (H7b). *There is a positive impact of the number of blockbusters per year on a film’s admissions.*

3.3 Hypotheses on Network Structure

Vertex Degree. Technically, a network consists of a graph and additional information on the vertices or the lines of a graph. That is, a network $N = (V, L, P, W)$ is defined by a graph $G = (V, L)$ where V is the set of vertices and L is the set of lines, whereas P denotes vertex value functions (information on the vertices) and W line value functions (relational strength e.g.). The graph represents the structure of the network. A vertex is the smallest unit in a network, representing an actor. A line is a tie between two vertices indicating any social relation. The degree of a vertex is

the number of lines incident with it (Watts 1999b): its neighbours. Here, we have two different sets of vertices; movies, i.e. film teams, and film team members. Two vertices representing single film team members are connected if they have appeared in a film together (Newman 2003). A movie vertex, on which our analysis centres in the following, is connected to another one if these movies share any film team member.

Contacts to former team members help ideas and information to spread within the network. Hence, creativity and know-how is not only part of individual talent and experience, but results also from a social system whose members amplify or stifle one another's creativity and contribute to information flow. Creativity aids problem-solving, innovation and aesthetics in a movie and it is spurred when different ideas unite or creative material in one domain inspires fresh ideas in another (Guimerà et al. 2004). Therefore, a movie team that entertains more contacts has better chances of obtaining creative input and know-how. A combination of distinct relationships could lead to competitive advantage (Gulati and Kletter 2005) by supporting the movie team's joint performance, which in turn helps to meet consumer interests and render the movie attractive to the audience.

Hypothesis 8. (H8). *A high degree positively influences a film's admissions.*

Structural Holes. A structural hole is present in the ego-network of a vertex (which consists of this vertex, its adjacent vertices and all lines between all these vertices) if two of its neighbours are not directly connected. This idea can be conceptualized looking at a "triad", which is a construct of three vertices: the focal vertex, an alter and a third vertex. According to sociologist George Simmel, a triad which has links between all three vertices (complete triad) reduces the individuality of its members: Full connection brings about that vertices share norms and information and makes them behave like a group rather than as a set of individuals (De Nooy et al. 2005). Transferring this idea to the movie business, more direct links between a movie's neighbours yield a higher degree of homogeneous information (film B builds on film A, while C builds on A and B). In this case, information, know-how and creative input may be less valuable for a movie as others have (had) similar input at their disposal. Hence, it should favour a movie vertex's performance, if there is no connection between its alter and the related third vertex – which means there is a structural hole (Guimerà et al. 2005) – in many of its triads. Then, the vertex can build on more diverse knowledge and obtain ideas from creative personnel that is not in turn directly influenced by one another.⁸ This is likely to positively influence movie performance which is necessary to differentiate the movie from its competitors.

Hypothesis 9. (H9). *A high number of structural holes positively influences a film's admissions.*

⁸ On the importance of diversity for team collaboration, see Guimerà et al. (2005) and Kravitz (2005).

4 Data, Variables and Methods

4.1 Sample

The data contain 160 films that were produced in the closed interval 1990–2005. 1990 was chosen as a starting point for the analysis since the reunification of Germany constituted a structural breach in the data. Besides, the movie industry may serve as a source of cultural identity (Jarvie 1978); as the reunification initiated a re-interpretation of Germany's cultural identity, it may have impacted the industry.

For each year, the top ten German films as to admissions in German cinemas were selected from the FFA database.⁹ The sample was pared down as data for 2005 was not completely available at the time of the analysis. Furthermore, seven films were excluded due to abnormally low or high admissions.¹⁰ The movies produced in the period of 1990–1992 were used to form the initial network; to select each year's top movies, they were grouped according to the year of production. This was important to analyse the network which influenced movie production. For the testing of hypotheses, however, films were categorized according to their release years (as films face competition in the year of release, not of production). Two more films produced in 2004 had to be excluded as they were released in 2005. Therefore, the testing of hypotheses was performed on 111 films¹¹ released in 1993–2004.

4.2 Variables and Descriptive Statistics

4.2.1 Dependent Variable

To operationalize success, we used the total number of admissions to each respective movie, labelled as ADMISS. Data were taken from the FFA database. Within the sample, admissions range from 159,026 to 4,951,385.¹²

⁹ Following the definition applied by Filmportal, a movie was considered "German" if produced under significant participation of a German production company. For the purpose of network analysis, we required each movie to feature at least one German participant under the main functions (here, producer, director, camera person, scriptwriter) or the three leading movie actors, unless the movie was animated.

¹⁰ With the sample admissions' mean being larger than the median and per definition non-negative admission numbers, the distribution is left-truncated and right-tailed. We excluded those films with admissions higher than the mean plus four times the standard deviation, and also those failing to reach the bottom-line admissions for successful directors and production companies, which is 100,000.

¹¹ At the beginning of the 1990s, there were approx. 80 theatrical releases per year, growing to 120 in 2004. Hence, our sample covers a reasonable percentage of films in this period.

¹² Also, we collected data for a sub-sample and applied a logit model with the dependent variable of success or failure as to winning the "Box-Office Germany Award" and a reduced independent variables set to demonstrate result stability.

4.2.2 Independent Variables

Team Structure. Information on a movie's cast was obtained from the Filmportal database (a cooperation of the German Film Institute and several other official institutions). We took the three leading movie actors and, in line with Jansen (2002), categorized those that had been long-time well-known, or were "celebrities", or starred in a film with at least 400,000 admissions, as successful. This number implies a threshold value which only approximately the top 20% of German films released in 1990–2005 reached. The same threshold was used for producers. Following Jansen (2002), we further identified directors and production companies (for a company, we considered the average admissions of its German films released in 1990–2005 outside the sample) that reached at least 100,000 admissions as successful. Summing up the number of previously successful team members – 103 sample movies employed at least one – we defined the variable STEAM.

Star Power. We constructed the binary dummy variables ACTOR and ACTRESS. Again we used the threshold of 400,000 admissions to indicate whether a movie was supported by star power, that is, whether it had at least one actor or actress in the cast who had participated in a movie reaching that threshold before. Independent of how many stars participate, the binary variable takes a value of one if the movie features at least one star. Successful actors participated in 50 sample movies, while 28 movies had successful actresses in the cast.

Budget. Budget data were not publicly available for the sample movies. We expected human resources to be the biggest cost block in a movie budget. In Germany, star fees are not as high as in the US. The top 25 German stars earn €100,000–200,000 per movie, in contrast to some Hollywood stars who may demand \$25m (Hennig-Thurau and Wruck 2000). Furthermore, the German workers' union "ver.di" provides guidelines for tariffs developed with several producers' organizations. Hence, wages for comparable tasks should not vary much across movies. Thus, in Germany, costs should not be determined by employing stars but rather by how many functions must be fulfilled for making a movie that require the employment of personnel. Hence, we expected: $\text{budget} = f(\text{functions performed by personnel})$. Using Filmportal, we counted the total number of direct (director, scriptwriter, etc.) functions, movie actors and indirect functions (general management e.g.) and defined the sum BUDGET as a budget proxy.¹³

Funding. TV-funding for individual films ranged up to €2.23m and was represented by the variable TVFUND. Funding was granted to 16 movies and data were provided by the FFA. As the absolute correlation value between TVFUND and BUDGET was low (0.09), we included both variables.

FBW-Certificate "Highly Recommended". The binary variable FBWHR shows whether a movie was awarded this certificate, which was the case for 38 movies in the sample. Information on certificates was acquired from the FBW.

¹³ However, we could obtain budget data for a third of the sample. The correlation between budget data and the budget proxy was as high as 0.415 for a significance of 0.013, which further validates the proxy. Here, we do not attempt to analyse production and marketing budgets separately, as data were not available to validate potential proxies for a more detailed approach.

Movie Awards. Information on movie award wins was collected from www.kino.de and www.imdb.com. The number of awards was mirrored by the variable AWARDS encompassing the German and Bavarian Movie Award. With the number of awards ranging from 0 to 4 in the sample, 44 movies managed to win at least one award.

Blockbusters. The number of blockbusters (movies with over 1m admissions) was calculated on a yearly basis from the FFA database. The sum was represented by the variable BLOCKB. Over the period on hand, the yearly number of blockbusters ranged from 29 to 48.

Vertex Degree. As described above, a network consists of a graph and additional information on vertices or lines. An undirected line is an “edge” (an unordered pair). A simple undirected graph consisting of edges was used for the analysis.

Within the industry’s bipartite structure, movies on the one hand and the functions of director, producer, camera person and scriptwriter and the three leading movie actors on the other hand, are two sets of vertices. An edge was drawn if a person had participated in a particular film, constituting a vertex pair (movie A – person B). Within network logic, vertices can only be related to vertices in the other set. This structure is also called “two-mode”. For the analysis, each year’s two-mode data were transformed to one-mode data using the Ucinet 6 program. Thereafter, all vertices of the functions set that had been linked to the same movie were connected, rendering fully linked cliques. In the movies set, films which had personnel in common were incident to a line. For in-depth analysis, each year’s one-mode movie network was modelled in the Pajek 1.14 program, which is used for analyzing and visualizing large networks. To construct the variable NDEGREE, we computed the degree for each movie in its production year. In order to account for the fact that the network grows over time, thus increasing the probability that a movie entertains many ties, we calculated the normalized degree of vertices (i.e. each vertex’s degree divided by the number of its potential network neighbours). The mean normalized vertex degree ranges between 0 and 0.317, the average is 0.07, indicating that over time, on average 7% of all possible ties exist.

Structural Holes. We used the density of the ego-network of each movie (this density is the number of lines existing among a focal vertex’s neighbours in proportion to the number of maximum possible lines between them, see Fig. 2) to indicate the proportion of structural holes in the vertex’s relations. Following the notation of Watts (1999b), formally, the ego-network density of vertex i is measured by the vertex’s local clustering coefficient:

$$C_i = \frac{|E(\Gamma_i)|}{\binom{k_i}{2}}$$

where $|E(\Gamma_i)|$ is the number of edges in the neighbourhood Γ_i of i , i.e. the subgraph that consists of the vertices adjacent to i not including i itself, and $\binom{k_i}{2}$ is the total

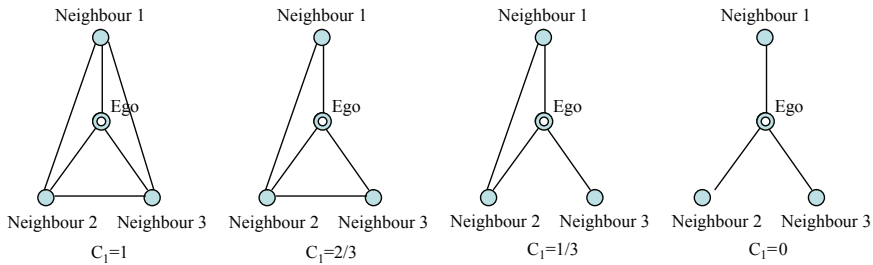


Fig. 2 Ego-network density. Measured by the local clustering coefficient C_1

number of possible edges in Γ_i . That is, given k_i vertices in the subgraph Γ_i , at most $\binom{k_i}{2}$ edges can be constructed in that subgraph.¹⁴

The variable EGODENS serves as an indicator of homogeneity of information. Vertices with low ego-network density are hypothesized to perform better (see Sect. 3.3; De Nooy et al. 2005; Goyal and Vega-Redondo 2007). We computed a movie's ego-network density by taking into account all movies produced from 1990 onwards up to and including the production year of the movie currently analysed. Density may range from 0 to 1, where a value of 1 means that all a vertex's neighbours are connected (Barabási 2003). The sample movies' densities showed a mean of 0.477, which indicates that on average nearly half of all possible lines between a vertex's neighbours exist.

4.2.3 Control Variables

Competition from Piracy. We focussed on the competitive environment to control for further factors influencing admissions.¹⁵ Piracy encompasses offering hardcopies or illegal internet downloads. A 2005 FFA-survey revealed that in the first half of the year, 11.7m movies had been downloaded in Germany, about 10% of those prior to release and about 34% after release but prior to DVD release. Watching downloaded movies may result in lower admissions. This logic is confirmed by 29% of the download users who stated they had reduced movie-going due to downloading, while 13% did not go to the movies at all any more (FFA 2006). As a piracy behaviour proxy, we used the yearly number of proceedings initiated by the GVV (German association for the prosecution of copyright infringement), denoted as PIRACY.

¹⁴ More general, clustering coefficients can be illustrated by this phenomenon: For a pair (u, v) of vertices, the event that an edge between u and v exists is highly negatively correlated with the graph distance between u and v in the network with the possibly existent edge (u, v) deleted (Liben-Nowell 2005).

¹⁵ However, we controlled for factors like FSK, season, competition from events and market position of multiplex theatres separately, which were not found to be significant.

Competition from Film Imports. Our data suggested that over time, the increase in movie-going was considerably lower than the increase in released movies. Thus, the more movies there are, the less may be the chances of each movie to get attention as the audience spreads over the alternatives on hand. We controlled for effects of competition from imported movies with the variable IMPORT. Import statistics were obtained from the BAFA (Federal Office of Economics and Export Control) and SPIO (“Spitzenorganisation der Filmwirtschaft e.V.”, the German film industry umbrella organization).¹⁶

Distribution Revenues. Distribution revenues indicate the number of German movie copies which distributors have rented out multiplied by the copies’ prices. Higher revenues imply that screen coverage has risen. As the screen number has increased only moderately over the period analysed (SPIO 2005), a higher number of German movie copies should go at the expense of foreign movie copies. Higher screen coverage increases the chances of attendance for German movies. However, with increasing popularity of German films, rental fees may have risen. Thus, we found that we could control for distribution revenues best with a logarithmic term. The variable was denoted LDISTREV. Revenues were obtained from SPIO.

Genre. While Austin and Gordon (1987) observe that “the idea that movie audiences do have movie type preferences is widely acknowledged”, studies on genre impact on box-office performance produced different results. Comedy is positively significant in the work of Litman (1982) and Sochay (1994); science-fiction and horror are empirically supported by Litman and Kohl (1989); drama negatively impacts success in the study of Jansen (2002). We conducted a factor analysis for the eight genres into which we had categorized films according to Filmportal. We used the anchor points of the entertainment factor ENTERTAIN and the documentary factor DOCU as controls.

Symbolicity. Symbolicity (Hennig-Thurau et al. 2001) may encompass that first, a movie is a sequel which can be understood as a brand extension (Chang and Ki 2005). Second, it could be based on a well-known idea like historic characters or scripts adapted from other media. As symbolism partly builds on prior success, it reduces uncertainty and promotes individual utility as consumers believe to have some knowledge of the film in advance. As the number of sample sequels is very limited, we focus on the well-known idea aspect constructing the variable KNOWN-IDEA.

Table 1 provides a summary of the hypotheses and the related variables as well as the controls. Appendix 1 displays the descriptive statistics and correlations for each of the variables.

¹⁶ Although the categories of blockbusters and imports may overlap partly as blockbusters may also be imports, blockbusters (showing a mean of 39 for the whole period) were only a small fraction compared with total imports (here, the mean is 832) and correlations were not high either. Therefore we took both categories into account.

Table 1 Overview of hypotheses and variables

Category	Subcategory	Hypothesis	Variable
Product-inherent categories			
Creative Sphere	Team structure	H1: A high number of experienced team members positively influences a film's admissions	<i>STEAM</i>
	Star power	H2a: The participation of male stars positively influences a film's admissions	<i>ACTOR</i>
		H2b: The participation of female stars positively influences a film's admissions. The female star effect on admissions is stronger than male star power	<i>ACTRESS</i>
Financial resources	Budget	H3: A high budget positively influences a film's admissions	<i>BUDGET</i>
	TV-funding	H4: A high amount of TV-funding positively impacts a film's admissions	<i>TVFUND</i>
Product-induced categories			
Marketing support	Critics' reviews	H5: Being awarded a FBW-"highly recommended"-certificate positively influences a film's admissions	<i>FBWHR</i>
	Movie awards	H6: Movie awards positively influence a film's admissions	<i>AWARDS</i>
Competition		H7a: There is a negative impact of the number of blockbusters per year on a film's admissions	<i>BLOCKB</i>
		H7b: There is a positive impact of the number of blockbusters per year on a film's admissions	
Network structure			
Vertex degree		H8: A high degree positively influences a film's admissions	<i>NDEGREE</i>
Structural holes		H9: A high number of structural holes positively influences a film's admissions	<i>EGODENS</i>
Controls			
Category			Variable
Competition from film imports			<i>IMPORT</i>
Competition from piracy			<i>PIRACY</i>
Distribution revenues			<i>LDISTREV</i>
Genre			<i>DOCU</i>
			<i>ENTERTAIN</i>
Symbolicity			<i>KNOWNIDEA</i>

4.3 Methods of Statistical Analysis

Our design uses a stepwise Ordinary Least Squares Regression (OLS) to model the effects of the independent variables and controls on the dependent variable.¹⁷

¹⁷ We also used a logit model to test result stability.

To avoid violation of model premises, we controlled for absence of multicollinearity, for homoscedasticity and normal distribution of disturbance terms, using Variance Inflation Factors (VIFs) and correlations, White- and Newey–West-Tests and the Kolmogorov–Smirnov-Test. VIFs were all lower than 2, thus beyond the critical tolerance limit of 10 suggested by Hair et al. (1998). Both the White- and the Newey–West-Test proved heteroscedasticity for all models, such that the premise of constant variance of the disturbance terms had to be rejected. Hence, we employed heteroscedasticity-consistent error estimates using Newey–West consistent covariances. Thereafter, OLS could be carried out.

5 Regression Results

Table 2 displays the regression results of the OLS analysis. First, we introduced the controls. Then, we added variables on the product-inherent and -induced categories, and the network structure.

Together, the controls explain about 23% of the variation in admissions according to the adjusted R^2 . Distribution revenues LDISTREV are positively significant at a 1% level, whereas symbolicity KNOWNIDEA is positively related to admissions at a 5% significance level. Taking the product-inherent and product-induced categories' variables into account, the adjusted R^2 increases by about 24% and reaches its maximum value, which is nearly 48%, after inclusion of the network structure variables.¹⁸

In the second model, two variables are significant at a 1% level (FBWHR, AWARDS), as well as three of the controls (LDISTREV, ENTERTAIN, KNOWNIDEA), all of which show positive coefficients. Three more variables (STEAM, TVFUND, BLOCKB) are positive and significant at a 5% level, whereas BUDGET is marginally positive and significant. Of the variables for which we posited hypotheses, AWARDS and FBWHR exert the most influence with standardized coefficients of 0.289 and 0.217, followed by the variables TVFUND (0.194), BUDGET (0.192), BLOCKB (0.154) and STEAM (0.150). These results as to the significance levels of variables (with STEAM excluded) are confirmed by model 3, with the only differences of BUDGET and FBWHR being significant on a 5% level here. Additionally, in the third model, the network variable NDEGREE is positively significant for a movie's admissions. The strongest influence can be attributed to awards (0.294), FBW-certificates (0.205), budget (0.204), funding (0.203), blockbusters (0.151) and the normalized degree (0.146). For the controls, symbolicity is strongly influential (0.376), followed by the entertainment factor (0.239) and distribution revenues (0.186).

Concluding from these observations, most hypotheses are supported: With respect to the product-inherent variables of creative sphere, the positive significance

¹⁸ It is intuitive that the adjusted R^2 does not increase further for model 3, since STEAM was excluded from the third regression (due to highly significant correlations of up to 0.608 with the network variables).

Table 2 OLS-regression results for models 1–3. The dependent variable for all regressions was the number of box-office admissions

	Model 1 coefficient std. coeff. (std. error)	Model 2 coefficient std. coeff. (std. error)	Model 3 coefficient std. coeff. (std. error)
C	−694083.316 (735332.379)	−2079593.343** (831350.562)	−2023355.574** (793481.996)
STEAM		71955.684** 0.150** (34772.000)	
ACTOR		−142514.464 −0.074 (169666.800)	−58248.298 −0.030 (151810.411)
ACTRESS		61635.324 0.028 (138567.181)	106813.148 0.048 (149996.396)
BUDGET		5705.221* 0.192* (2999.427)	6058.293** 0.204** (3011.805)
TVFUND		0.463** 0.194** (0.221)	0.484** 0.203** (0.212)
FBWHR		442630.467*** 0.217*** (161751.790)	418296.918** 0.205** (161165.007)
AWARDS		244247.114*** 0.289*** (90848.688)	248432.362*** 0.294*** (93762.108)
BLOCKB		28070.997** 0.154** (11321.544)	27381.925** 0.151** (11385.963)
NDEGREE			2121958.927* 0.146* (1243771.842)
EGODENS			79360.622 0.030 (182913.792)
PIRACY	19.987 0.016 (97.179)	−66.201 −0.053 (112.514)	−21.979 −0.018 (106.222)
IMPORT	−253.765 −0.063 (363.319)	−192.827 −0.048 (365.149)	−198.337 −0.049 (350.812)
LDISTREV	631957.620*** 0.279*** (171112.995)	447202.701*** 0.198*** (143197.919)	420920.875*** 0.186*** (143372.693)
ENTERTAIN	108056.634 0.114 (92364.257)	232613.062*** 0.246*** (66535.441)	225901.411*** 0.239*** (66243.426)
	−47791.947	49615.519	55045.727

(continued)

Table 2 (continued)

	Model 1 coefficient std. coeff. (std. error)	Model 2 coefficient std. coeff. (std. error)	Model 3 coefficient std. coeff. (std. error)
DOCU	-0.052 (51077.574)	0.054 (35415.780)	0.060 (41664.970)
KNOWNIDEA	1071545.130** (440717.177)	1180540.461*** (353892.606)	1152313.943*** (331059.313)
N	111	111	111
R ²	27.43%	54.23%	54.94%
Adj. R ²	23.24%	47.55%	47.82%
F-Statistic	6.550***	8.123***	7.722***
F-Value	0.000	0.000	0.000
Durbin Watson	1.932	2.080	2.100

Significance levels: *** $p < 1\%$ ** $p < 5\%$; * $p < 10\%$

of the number of successful team members STEAM confirms our hypothesis that experience from prior projects positively influences a movie's success. In contrast, independent from gender, individual star power is insignificant in both models.¹⁹ This supports the statement of Delmestri et al. (2005) that the star system does not seem to be relevant in Europe in predicting movies' economic performance. As to the financial resources variables, BUDGET is positive and significant, so that we can accept the hypothesis that a larger budget allows to reach more viewers. This is in line with Jansen (2002) who suggests that high budgets allow high quality choices for "below the line" inputs such as technical equipment, as well as for "above the line" input like creative personnel. The same line of arguments holds for TV-funding; funded films can afford more expensive input. Also, funding may signal movie quality and is allocated to films that have proven their ability to convince, as funding committees found the movie attractive.

Regarding the product-induced category of marketing support, the FBW-certificate and movie awards are both highly positively significant and also, they exert strong influence. Thus we find support for the hypothesis of admissions being positively influenced by the signalling quality of certificates and awards, by second runs due to awards and indirect effects from positive critiques. Turning to competition, interestingly, the number of blockbusters in the year in which a sample movie was released influences admissions positively. Thus, the ripple effect prevails as blockbusters increase overall movie attendance.

If we take the network variables into account, we find that a high number of connections a film team entertains due to previous projects adds to reaching a wide audience. This supports the small world theory of creative ideas being transmitted through the network and proves that the movie's network position is important to financial success. The advantageousness of entertaining more contacts confirms the hypothesis that higher information flow to the movie supports performance and

¹⁹ Including a variable representing the joint (male and female) star power did not prove significant either.

helps to meet consumer demand. However, ego-network density is insignificant. This may be attributed to the fact that the industry is still at the beginning of its life-cycle, indicating that numerous creative ideas exist which have not been realized before. For instance, in recent years movies have emerged dealing with topics that had not been shown on screen extensively before, but are considered “German interest” (e.g. themes related to Germany’s reunification or World War II).

6 Restrictions and Discussion

6.1 *Main Restrictions of the Study*

There are several limitations to this study. First, our analysis does not consider the success of German movies outside Germany, as reliable data are hard to obtain. Additionally, external result validity requires the sample to be chosen at random. However, the sample was chosen according to the movies’ box-office performances in terms of admissions, as the focus of the analysis was placed on *successful* productions. Moreover, we could only regard “survivor” movies which were actually released, as we could not include data on movies that died in production. This survivor bias, however, is a common restriction to economic research.

Also, the logic behind the STEAM variable suggests that experience and know-how are gained by previous success. However, it may also be possible to learn from failure. Still, the ability and willingness to meet market demand has been proven by participants of successful productions, which remains unproven with unsuccessful films.

6.2 *Discussion*

The objective of this research was to widen the scope of the investigation into success factors in the project-based cultural industry of motion pictures by taking into account important explanatory variables that had been missing in the analysis so far. We aimed at providing clarification as to how producers can first, cope with demand patterns that are highly unpredictable. Second, we address how to manage production processes that are difficult to control as they depend on a team’s joint potential to contribute creativity and know-how. Therefore, we combined two strands of research, focussing on the two concepts of economic and network analysis. We tested our general hypothesis stating that a movie’s financial success in terms of admissions is a function of product-inherent categories (i.e. creative sphere, financial resources), product-induced categories (i.e. marketing support, competition) as well as of network structure (i.e. a movie’s position within its industry).

According to this hypothesis, we defined specific hypotheses which were tested and widely supported. With respect to the first of the two product-inherent categories, creative sphere, it was confirmed that the number of previously successful

film team members positively influenced admissions, whereas individual star power whether male or female had no effect at all. For the second category, financial resources, both the variables budget and funding positively influenced admissions. This held also for the first product-induced category, marketing support, represented by the variables critics' reviews and movie awards. Interestingly, the second product-induced category, competition, showed that a high market presence of blockbusters positively influenced a movie's success. As to network structure, whereas the diversity of a movie team's contacts had no effect, its normalized degree (the number of teams to which it entertained contacts in relation to the total number of other teams existing in the network) proved to positively impact its box-office success. Therefore, we find support for the basic hypothesis: $\text{admissions}_j = f(\text{creative_sphere}_j, \text{financial_resources}_j, \text{marketing_support}_j, \text{competition}_j, \text{network_structure}_j)$. As regards the control variables, distribution revenues in the industry as well as the genre of entertainment and symbolicity were related to a movie's success.

First, on the demand side, considering the economic concept outlined in this paper should help producers to overcome uncertainty as to which factors influence the audience's buying decisions. In line with Cassidy (1997), we find that "there is a distribution of success in the movie business that can be impacted by management". Here, gathering successful team members, acquiring a larger budget and funding, aiming to obtain critics' appraisal and producing an entertaining movie based on a well-known idea should be promising. Moreover, it would promote success if there was a large number of blockbusters in the year of the release as well as high distribution revenues, meaning that the industry in general has a successful year. Second, on the supply side, creativity, talent and innovation are provided not only by individuals, but by a social structure which can enhance or hinder performance according to the small world theory. Thus, successful project-management in cultural industries implies to recruit and motivate those individuals who seem to possess talent, know-how and an understanding of how to develop and make use of structures which leverage creative resources without stifling them. Therefore, we conclude: For team formation, when it comes to star power, the team is the star.

Future research could concentrate on further exploring the relation between network structure and economic implications as this study was subject to the restrictions outlined above. Moreover, we abstracted from the assumption that relations decay over time, as the industry was still young. Also, the acquisition of knowledge, particularly within the framework of tie strength in this industry, should be analysed in greater detail.

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Appendix 1 Pearson correlations and descriptive statistics

	Mean	SD	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.
1. ADMISS	1293306.49	964629.11	1.000															
2. STEAM	3.28	2.00	0.252***	1.000														
3. ACTOR	0.45	0.50	0.088	0.465***	1.000													
4. ACTRESS	0.25	0.44	0.078	0.336***	-0.026	1.000												
5. BUDGET	64.58	33.00	0.246***	0.058	-0.037	0.196**	1.000											
6. TVFUND (in €)	148312.22	410713.48	0.230**	0.158*	0.029	0.106	-0.088	1.000										
7. FBWHR	0.34	0.48	0.234**	0.061	0.034	0.149	0.252***	-0.057	1.000									
8. AWARDS	0.58	0.89	0.307***	0.077	0.044	-0.027	0.125	0.113	0.259***	1.000								
9. BLOC KB	39.12	5.27	0.195**	0.049	0.052	0.003	-0.263***	0.068	0.074	0.185*	1.000							
10. NDEGREE	0.07	0.07	0.282***	0.608***	0.166*	0.182*	0.102	0.030	0.094	-0.005	-0.037	1.000						
11. EGDENS	0.48	0.36	0.108	0.193**	0.095	0.016	-0.025	-0.010	-0.063	-0.049	0.102	0.297***	1.000					
12. PIRACY	994.50	749.79	0.067	0.137	0.063	0.008	-0.444***	0.233**	-0.015	0.264***	0.446***	-0.099	0.056	1.000				
13. IMPORT	840.71	234.95	-0.064	0.033	-0.089	0.063	0.087	0.055	0.023	0.030	-0.286***	0.052	-0.039	0.000	1.000			
14. LDISTREV	3.25	0.43	0.358***	0.060	0.016	-0.142	0.116	-0.009	0.044	0.059	0.185*	0.138	0.025	0.116	0.006	1.000		
15. ENTERTAIN	-0.03	0.01	0.132	0.001	0.173*	-0.077	-0.004	-0.097	-0.216**	-0.244***	-0.042	0.044	0.113	-0.262***	-0.106	0.052	1.000	
16. DOCU	-0.03	0.95	-0.067	-0.168*	-0.042	-0.100	-0.229***	-0.034	-0.032	-0.019	-0.010	-0.136	-0.233**	0.057	-0.105	0.006	0.016	1.000
17. KNOWNIDEA	0.12	0.32	0.420***	0.132	0.064	-0.083	-0.055	0.110	-0.145	0.016	0.003	0.147	0.088	0.141	0.009	0.192**	0.008	-0.087

N = 111; Significance levels: *** p < 1%; ** p < 5%; * p < 10%

Syndication Strategies in Venture Capital Networks

David Mas, Annick Vignes, and Gérard Weisbuch

Abstract Empirical evidence shows that venture capitalists syndicate to finance start-ups. This paper focuses on the role of the social network generated by these syndication operations. We consider the links developed between venture capitalists, through co-investment rounds, and we study their relationships both through network and econometric analyses. We first demonstrate that the syndication network is not random. Secondly, we show that the different assortativities (degree, spatial, industrial) are positive, suggesting that venture capitalists tend to co-invest with their peers. Thirdly, we measure the influence of different proximities (spatial, national and industrial) on the collaborations between the different players. National and industrial proximity have a strong impact on the determination of links. Finally, we provide evidence that past partners are preferred for future syndication, even if new links do appear regularly.

Keywords: Social networks · Venture capital · Syndication strategies · Proximity

1 Introduction

Empirical evidence shows that venture capitalists form syndicates to finance start-ups. Lerner (1994) explains why venture capitalists tend to share their investment, rather than investing alone, in terms of risk-sharing and information-gathering. Venture capitalists finance start-ups or young enterprises which mainly develop

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radical innovations, and a high level of uncertainty is associated with this type of investment. The role of venture capital is firstly to select and finance the most promising start-ups and then to assist and bring the successful ones to industrialization. Syndication can help a venture capitalist to carry out this task in an uncertain environment. According to Brander et al. (2002), venture capitalists syndicate for three main reasons: to diversify their investment portfolios, to achieve better screening, and finally, because increasing the number of venture-capitalists involved has a positive influence on the outcome, as each venture capitalist adds value to a start-up.

In this article, we explore whether and how venture capitalists adopt strategies when they syndicate. We consider how the structure of the co-financing network reveals the determinants of the choices of syndication partners. For that purpose, we evaluate the role of different proximities (national, geographical, industrial) and we identify some determinants of link creation. The originality of our paper is that we answer these questions *via* an empirical network approach, completed by an econometric analysis.

We empirically study the syndication strategies both through network analysis and econometric analysis. We first characterize the structure of this network: obviously, syndication results from strategic behaviors, as venture capitalists choose their partners (the network statistics suggest a non-random network). We then show that national frontiers play a crucial role, whereas geographical proximity does not matter. Industrial proximity, however, does influence co-financing strategies. Finally, it is easier to invest with somebody already known (the econometric analysis reveals that most of the syndication operations are carried out with previous partners). In a world without credible information signals, confidence plays a central role.

The article is organized as follows. Section 2 surveys the relevant literature and presents the development of hypotheses. The database and methodology are shortly summarized in Sect. 3. Section 4 explores the topological properties of the network, and Sect. 5 focus on the influence of different proximities on syndication strategies. Finally, Sect. 6 presents an econometric analysis of the determinants of link creation, the conclusion follows.

2 Relevant Literature and Hypotheses

2.1 *Relevant Literature*

Many contributions from the social sciences, such as Granovetter (1985), Granovetter (2006) or Cohendet et al. (1998), have pointed out the importance of networks in explaining the role of social interactions in various economic fields. More specifically, some recent articles highlight the role of social networks in the world of venture capital. They all conclude that network interactions strongly influence the functioning of venture capital: the main observed features are the importance of each agent's position in the network and more precisely

the advantages of central positions (Sorenson and Stuart 2001; Hochberg and Ljungqvist 2007), the diversity of attachment strategies developed by the venture capitalists (Powell et al. 2005), the influence of national communities on the investment decision (Saxenian and Li 2003) and the influence of national borders on flows of knowledge (Ho and Verspagen 2006).

The reasons for syndication are numerous and correlated with the questions of dynamic management, information signals and spatial and industrial proximity. Lerner (1994) points out an “expectation of reciprocity” phenomenon. For Sah and Stiglitz (1986), every time a venture capitalist accepts a syndication operation, he gives a credible information signal (of expected high quality of the future product or expected high return) that is extremely important in a very uncertain environment. Finally, syndication, through the social network, can help to diffuse information.

Hochberg and Ljungqvist (2007) examine the performance consequences of strong relationships and networks when venture capitalists syndicate portfolio company investments. An empirical analysis reveals two important facts. Firstly, the firms which enjoy more influential network positions perform significantly better in terms of successful exits, but acting as an intermediary does not improve the results very much. Secondly, the portfolio companies of better-networked venture capitalists are significantly more likely to survive, and in the end to exit better.

Proximities strongly influence investment and co-investment decisions. On the basis of this hypothesis, some recent articles have shown the influence of network position on the success of the investments. From the empirical study of a bipartite network (venture capitalists and start-ups) Sorenson and Stuart (2001) show that venture capitalists have a strong tendency to invest in nearby start-ups. They investigate both spatial and “industry” proximity. They explain how the intrinsic characteristics of venture capital can justify this tendency. Because of the high level of uncertainty associated with the financing of new technologies, venture capitalists have to screen the start-ups and then evaluate their expected “quality”. For that purpose, they need to gather information about the innovator, future market potential, etc. Throughout these different steps, being spatially close to the start-up is more practical and keeps costs down. The activity of managing is also facilitated by different types of proximity. Having what the authors call an “industry” proximity, i.e. having already invested in the same field, helps venture capitalists to evaluate the future product and monitor the firm better. But through syndication, the more experienced and better-connected venture capitalists, who are also those with the more central positions, can extend the radius of their activities. Thus, the network can be a vector of diffusion. Going further, Powell et al. (2005) study the network of relationships between pharmaceutical firms, start-ups, venture capitalists and universities in the biotechnology industry. They develop and test four alternative logics of attachment to account for both the structure and dynamics of interactions in this particular field. The four possible forms of attachment are “accumulative advantage”, “homophily”, “follow-the-trend” and “multiconnectivity”. These four attachments correspond to four different types of “network strategy”, which can be used by agents to access a more central position in the network. As organizations increase the number and diversity of links, cohesive sub-networks appear, which are characterized by multiple independent pathways.

2.2 Hypotheses

In this article, we study a homogeneous network of venture capitalists where two investors are linked every time they co-invest. By applying network and econometric analysis, we investigate whether the syndication results from strategies and we examine whether the venture capitalists favour similarity based on different proximities. Through our study, we test the three following hypotheses:

- **Hypothesis 1 (H1).** *Venture capitalists choose their co-investors and the syndication network is not random.*

Consequently, it is important to characterize the structure of the network in order to understand the types of relationships between partners.

We then seek to investigate whether the syndication decisions follow a need for complementarity or for similarity.

- **Hypothesis 2 (H2).** *Venture capitalists favor similarity and the syndication network is divided into multiple sub-networks, revealing different attachment preferences (spatial, industrial or national).*

Finally, we seek to evaluate the determinants and dynamic of the links between venture capitalists.

- **Hypothesis 3 (H3).** *When two venture capitalists have already invested together, the uncertainty related to distances no longer matters.*

3 Data and Methodology

3.1 Data

Our empirical results are based on the study of a database provided by Dow Jones – Venture Source. A venture capitalist raises successive funds from institutional investors and invests them in different start-ups. Venture capitalists usually spread their investment in start-ups over successive rounds, following the development of the firm. Venture capitalists also often syndicate their investments, each round usually involving more than one investor. The investors distinguish between five main stages of development, which we group into two main categories, early stages (start-up, product development, product in beta test) and later stages (shipping product, profitability).

For each venture capitalist, the database provides the successive funds they have raised between 1990 and 2005 and the characteristics of the start-ups in which they have invested. For each start-up, we know the financing rounds it has received and the venture capitalists involved in each round. We also know the amount of the investment in each round, and the stage of development of the start-up when the round

occurs. Finally, we know the industry in which the start-up is operating (Information Technologies (IT), Retail and consumers, (RETAIL) or Health care (HEALTH)) and its current status at the end of the observation time (bankruptcy, private or exit). There are different types of investors in the database (Venture Capital, Corporate, Investment Bank, Public, Angel Investor). To ensure some homogeneity in our analysis, we exclusively study the Venture Capital type, which designates independent venture capital firms. They represent 48% of the investors in the database, but 72% of the investments.

Our data set contains 25,942 syndicated rounds involving 1,825 venture-capitalists and 10,961 start-ups, which generate 34,565 links. The different agents belong to three main geographical areas: Israel, the United States and Western Europe.

3.2 Methodology

We focus mainly on the syndication networks between venture capitalists. Most investments in start-ups are syndicated; 63% of all the rounds in our database involve at least two venture capitalists. In our network analysis, we consider that two venture capitalists are linked if they participate in at least one round together. Links are weighted by the number of start-ups in which the two venture capitalists have co-invested. Networks can be restricted to the region of the world in which the venture capitalists have their main office and/or to a given time period.

We first study the structural properties of the networks, then validate our findings with an econometric analysis of link creation.

3.2.1 Network Analysis

We use social network tools to analyze a network in which nodes are venture capitalists. We follow the small-world and scale-free network perspective recently developed by Watts and Strogatz (1998), Newman (2001) and Albert and Barabasi (2002), and the recent contributions from the social sciences such as Moody and Douglas (2003). In order to characterize the structure of the network and to identify syndication strategies, we start by computing network properties including degree distribution, degree assortativity and clustering coefficient for regional, industry-restricted, or world-wide networks. The graphic representations are based on the Kamada–Kawai and Fruchterman–Reingold algorithms. Both are force-directed layout algorithms, i.e. a repulsive force affects all nodes and an attractive force keeps connected nodes next to each other.¹

¹ We use the free software GUESS (Adar 2006) for the visualization of networks. GUESS is slower and less complete than PAJEK, but it allows easy manipulation of the networks *via* a command-line interface and an SQL-oriented manipulation of nodes and edges. We use R (R Development Core Team 2005) and the igraph package to compute the statistical properties of the networks.

3.2.2 Econometric Analysis

In order to analyze the process of link creation, we follow Sorenson and Stuart (2001) and we use the rare event logit model developed by King and Zeng (2001). These authors observe that in a given context (international relations, for example), certain events (such as war or revolution) are very rare, but have a great impact on the outcome of societies. Their model makes it possible to study rare events in an efficient way. Since most of the information comes from the positive but rare events, it is sufficient to consider a restricted set of negative events. The required amount of data is then significantly reduced. Following this methodology, and considering co-investment between two venture capitalists as a rare event, we build a sub-sample in which we include all cases of funding relations that actually appear in the data. We then create a matched sample of potential ties that did not occur. The rare event logit model provides a correction for the selection bias induced by the sampling of negative events. This is sufficient to provide the real rate of the positive events. Apart from this correction, the model is similar to a usual logit.

4 Syndication and Strategy

In this section, we use tools from social network analysis to test the Hypothesis H1, i.e. to see whether the syndication phenomenon results from strategies or from simple random matching. For this purpose, we first compute the connectivity of the network nodes, to determine whether or not the degree distribution follows a well-known distribution. We then compute usual network statistics to characterize the network structure.

4.1 Connectivity

The degree distribution of a network can reveal its structure. For instance, a random network will have a Poisson distribution, resulting from the random allocation of links between the nodes. A particular class of networks, called scale-free networks, display a power-law (or Pareto) degree distribution, i.e. a large number of very poorly-connected nodes (small degree) and a small but influential number of very well-connected nodes (high degree). A typical example of this kind of network is the world-wide-web. Scale-free networks typically result from the preferential attachment of the new nodes to the most connected nodes of the existing network.

These distributions essentially differ in their tails: the Poisson distribution has a very short tail, whereas the power-law distribution is heavy tailed. In what follows, we plot the complementarity distribution function on a logarithmic scale. A Poisson distribution would display a very sharp, almost vertical, decrease in its cumulative function, while the power-law would display a straight line.

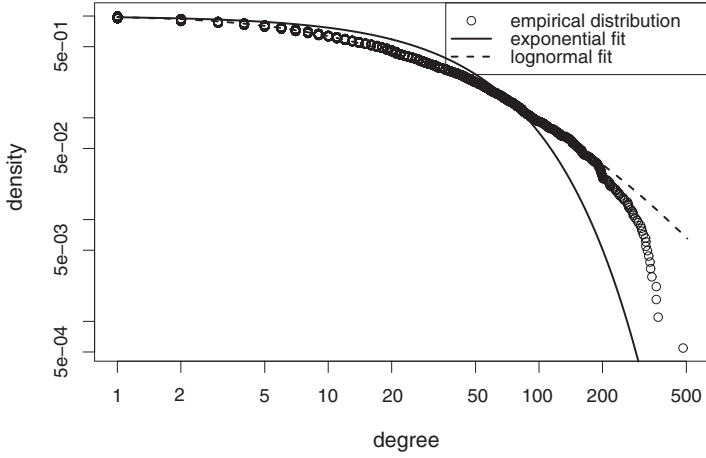


Fig. 1 Degree distribution of the whole set of venture capitalists. Complementary cumulative distribution function plotted on a logarithmic scale with an exponential and a lognormal fit

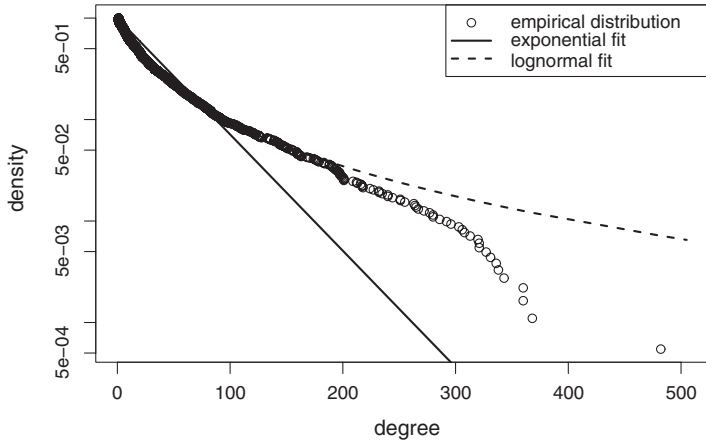


Fig. 2 Degree distribution of the whole set of venture capitalists. Complementary cumulative distribution function plotted with semi-logarithmic scale with an exponential and a lognormal fit

We compute the degree distribution for the complete network, based on the full sample. The complementary cumulative distribution function is shown on Figs. 1 and 2. The decrease of the cumulative function is slow but not linear, which suggests that the distribution is neither a Poisson distribution nor a power-law. So our first observation is that the syndication network is neither random nor driven by preferential attachment.

Table 1 Descriptive statistics for regional and/or industrial restricted networks. All networks display a significant positive degree assortativity (except for Israel Retail). All have clustering coefficients much larger than link density

Region	Industry	Nodes	Edges	Density	Degree assort.	Clustering
Israel	Retail	22	19	0.0822	-0.195	0.409
Israel	Healthcare	52	179	0.135	0.262	0.398
Israel	Information Tech.	67	330	0.149	0.246	0.401
Israel	All industries	78	464	0.154	0.210	0.389
West. Europe	Retail	252	410	0.0130	0.340	0.296
West. Europe	Healthcare	239	865	0.0304	0.275	0.294
West. Europe	Information Tech.	413	1,178	0.0138	0.409	0.208
West. Europe	All industries	518	2,262	0.0169	0.424	0.222
United States	Retail	779	4,998	0.0165	0.280	0.209
United States	Healthcare	692	8,355	0.0349	0.190	0.295
United States	Information Tech.	1,049	18,292	0.0333	0.276	0.289
United States	All industries	1,198	27,796	0.0388	0.276	0.285
All regions	Retail	1,104	5,899	0.00969	0.303	0.199
All regions	Healthcare	1,018	10,652	0.0205	0.254	0.278
All regions	Information Tech.	1,570	22,370	0.0182	0.328	0.268
All regions	All industries	1,825	34,565	0.0207	0.330	0.263

4.2 Network Statistics

To deepen our understanding of the network structure, we compute some usual network statistics (degree assortativity, clustering) in Table 1. To check the robustness of these statistics, we distinguish between the different regions of the world (United States, Western Europe and Israel) and/or between the different industrial fields (Information Technologies, Healthcare, Retail).

4.2.1 Degree Assortativity

The degree assortativity measures the propensity of the nodes to connect with their peers (the ones which have the same number of links). In a random network this measure is zero. We observe a positive assortativity whatever the region of the world or the industrial field. This robust result suggests that well-connected venture capitalists prefer to connect with other well-connected venture capitalists. This contrasts with the world-wide-web network, which has a negative degree assortativity, typical of a preferential attachment strategy.

4.2.2 Clustering Coefficient

The clustering coefficient is a measure of the likelihood that two nodes connected to the same third node are themselves connected together. A high clustering coefficient

indicates a tendency to gregariousness. In a random network, the clustering coefficient is equal to its density (the ratio of the actual number of edges to the number of edges of the fully-connected network). We observe that syndication networks have a clustering coefficient ten times higher than their density. Obviously, reputation and notoriety effects influence the co-investment decision.

5 The Role of the Different Proximities

Topological network properties have revealed that the syndication network is not a random one, which suggests that venture capitalists have some co-investment strategies. But the previous analysis also reveals that they don't use preferential attachment strategies.

In order to understand better how the investors choose their syndication partners and test the Hypothesis H2, we evaluate the role of different proximities (geographical and industrial), in the line of Sorenson and Stuart (2001), Powell et al. (2005) and Hochberg and Ljungqvist (2007).

5.1 Geographical Proximity

Are co-investing venture capitalists geographical neighbors? Positive assortativity would imply that local social interactions greatly influence the choice of partners. On the contrary, negative assortativity would signify that syndication is essentially a tool to reach new markets, as asserted by Sorenson and Stuart (2001).

We evaluate geographical assortivity on Kamada–Kawai plots of the networks, on both American and European data (Figs. 3 and 4). In the Kamada–Kawai, the proximity of nodes on the graph corresponds to the existence of strong links between the nodes. We use different symbols to indicate the venture capitalist country or state. Sub-networks with a high density of homogeneous symbols reveal positive geographical assortativity within this sub-network.

In Europe, co-investment practices generally take place within the same country (with the exception of Switzerland). In the United States, there is more State dispersion in the choice of partners. This suggests that the barriers between the different venture capitalists are more influenced by the differences between cultural, legal and/or social norms (quite significant between different European countries) than by geographical distances.

5.2 Industrial Proximity

Do venture capitalists choose partners in the same industry (the industry in which they have mostly invested in the past) or in different ones? Investing with venture

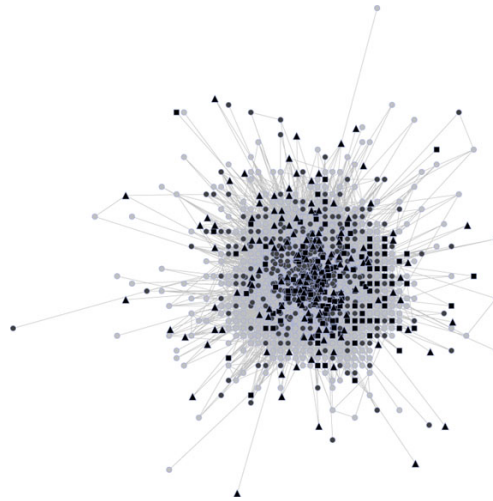


Fig. 3 “States labeled” Fruchterman–Reingold representation of the venture capitalists network of the United States (main component). The symbols represents the states of the venture capitalists: *grey dots* for California, *black squares* for Massachusetts, *black triangles* for New York

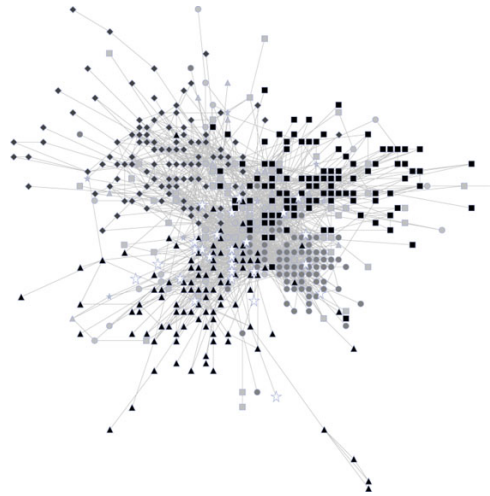


Fig. 4 “Country labeled” Fruchterman–Reingold representation of the venture capitalist network of Western Europe (main component). The symbols represent the countries of the venture capitalists: *black squares* for United Kingdom, *grey dots* for France, *black triangles* for Germany, *grey diamonds* for Scandinavia and *white stars* for Switzerland

capitalists from a similar industry background is a means of getting more information about the start-up, in order to reduce uncertainty and achieve better selection, as argued by Brander et al. (2002). Co-investing with venture capitalists of another industry suggests that syndication is used as a tool to extend the venture capitalist’s scope of investment, as suggested by Sorenson and Stuart (2001).



Fig. 5 “Industry labeled” Fruchterman–Reingold representation of the venture capital network of the United States (main component). Node symbols represent the main industry of the venture capitalist (more than half of the investments in the industry): *black squares* for IT, *grey dots* for Health, *black triangles* for Retail and *white stars* for diversified portfolio

We first evaluate the industrial proximity with Kamada–Kawai plots (Figs. 5 and 6). For each venture capitalist, we define a portfolio measuring the fraction of their investment in Information Technologies (IT, represented by black squares), Healthcare (grey dots) and Retail (black triangles). Each venture capitalist is represented on the figures by a symbol which corresponds to his main field of investment (more than fifty percent). When the portfolio is diversified, i.e. there is no dominant field of investment, the symbol is a white star.

The results of this first analysis of industrial proximity are less clear than those obtained for geographical proximity. For the “United States” network, a cluster appears for the “Healthcare” industry, indicating a positive assortativity in this industry. But the two other industries, “Information Technology” and “Retail”, cannot be separated. In the European networks it is hard to distinguish any clear industrial cluster, maybe because geographical proximity absorbs most of the effect.

To assess the influence of industrial proximity we therefore define a measure based on a more detailed definition of industries. In our database, the industries are categorized in a three-level hierarchical classification (for more details concerning the different categories, see Table 5 in the annex).

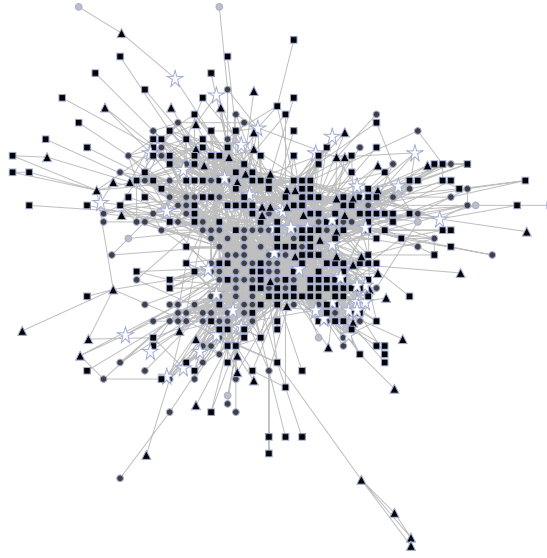


Fig. 6 “Industry labeled” Fruchterman–Reingold representation of the VC network of Western Europe (main component). Symbols code is the same as US

5.2.1 A Measure of Industrial Proximity

We define the distance d_{ij} between two industries i and j as the height of their lower common ancestor in the classification tree.

A portfolio of a venture capitalist is now defined as a vector, the components of which are the number of investments in the different specific industries in the 3-digit classification. A possible measure of similarity between two portfolios could be the normalized scalar product of the portfolios, but such a measure would then miss the opportunities for co-investment based on experience between close industries. We therefore use the following definition of portfolio similarity, which takes into account the distance between industries:

$$s(\mu, \nu) = \sum_{i,j} \mu_i \nu_j e^{-\alpha d_{i,j}} \tag{1}$$

$$S(\mu, \nu) = \frac{s(\mu, \nu)}{\sqrt{s(\mu, \mu) s(\nu, \nu)}} \tag{2}$$

μ and ν refer to the portfolios, and indices i and j refer to the industries. μ_i is then the number of investments in the industry i of the portfolio μ .

S is a normalized measure of similarity ranging from 0 to 1.

s is a generalized scalar product, where α is an adjustable parameter representing the sensibility to the industry distance. When $\alpha \rightarrow \infty$, $e^{-\alpha d_{i,j}} \rightarrow \delta_{ij}$ (Kronecker delta), s is exactly the usual scalar product and S the Euclidian norm. When $\alpha = 0$, the heterogeneity of the industries is no longer considered, the industrial proximity is always 1.

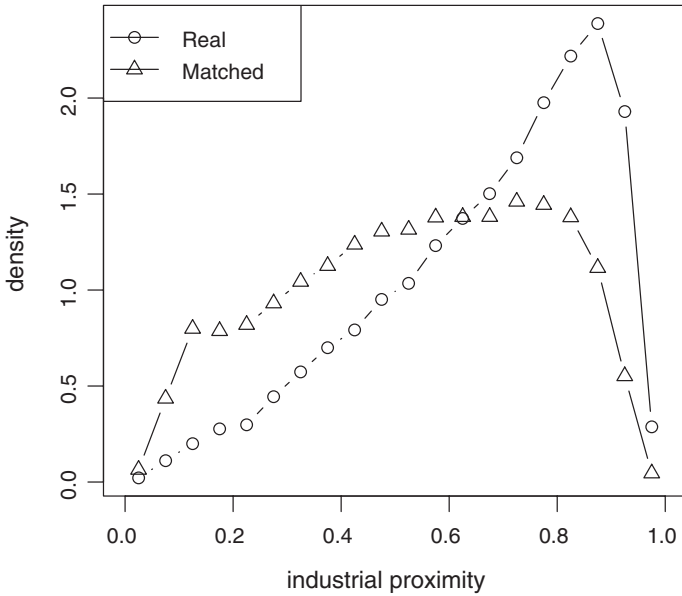


Fig. 7 Histogram of overlap in portfolio of VCs. The *dots line* corresponds to real links and the *line of triangles* to the matched non-existent links

Figure 7 displays the density of the industrial similarity of the links in the syndication network. It clearly indicates a positive industrial assortativity, especially when compared to the zero hypothesis of virtual co-investments among the venture capitalists. This original result means that venture capitalists invest preferentially with their peers, or at least with people who have similar competence. This could suggest that uncertainty is very high, and that the need for credible information is a main motive for syndication.

6 Econometric Analysis: The Determinants of Link Creation

In order to test the Hypothesis H3, we now use econometric analysis to evaluate the determinants of link creation in the syndication network and consider how the significance of the variables varies when the links are repeated. For this purpose, we consider the links created each year between venture capitalists. A link is defined as the first round shared by two venture capitalists in a same start-up. Once they have invested in a start-up, venture capitalists usually take part in the following rounds. To avoid correlation effects, we do not weight the links by the number of common rounds, and exclusively take into account the first co-investment in a same start-up.

6.1 *The Model*

We use a rare event logit model. A rare event here is the creation of a link between two venture capitalists during a given year. In order to fit the model we need to match each positive event with a sample of negative, virtual events.

Let us first define the set of possible events. We consider as “active” each venture capitalist involved in the creation of a link in a given year. We assume that each active venture capitalist could have made a link with any other active venture capitalist. Therefore the set of possible events is composed by all the possible links (real and virtual) between active venture capitalists. With this definition, the rate of positive events in our data is $\tau = 0.01689$, which is very low.

Then we apply a matching procedure. We associate two virtual links with each existing link. With each venture capitalist involved in the formation of a real link, we associate a virtual link to a active venture capitalist selected at random from the set of investors with whom he has not syndicated in the year in question.

The combination of three elements, i.e. a set of positive events (the existing or “real” links), a set of negative events (the matched virtual links), and the real rate of positive events τ , allow us to run the rare event logit model.

6.2 *The Variables*

In what follows, the explained variable is the creation of a link between two venture capitalists. The analysis is driven on 29,287 links created in United States, Western Europe and Israel between 1990 and 2000. In this analysis, we focus particularly on the influence of past experience and assortativity on the creation of links. For this purpose, we compute the following original variables.

- A dummy variable “repeated links” is used to indicate if two venture capitalists have invested together in the past. This allows to measure the propensity of a venture capitalist to make investments with already-known partners. This dummy variable helps to study new and repeated syndication links independently.

We then build three variables corresponding to the three types of assortativity studied in the previous sections.

- For country assortativity we use a dummy variable “same country” which indicates if the two venture capitalists are located in the same country.
- For experience assortativity we use two different variables. First, we measure the total experience of a pair of venture capitalists “experience (sum)”, i.e. the sum of all the previous investments made by both venture capitalists, to determine whether they are looking for experienced co-investors. We then create a variable of experience similarity “experience (ratio)” as the ratio of the smallest experience to the greatest.

- To measure industry assortativity, we compute the industrial proximity between the portfolios of the previous investments of the two venture capitalists “industrial proximity”, according to (2). This can only be computed if both venture capitalists have some experience, and therefore a portfolio of previous investments.

6.3 Descriptive Statistics

We present now some descriptive statistics concerning the real and virtual links of our sample.

From the Table 2, we observe that the frequency of “repeated links” is higher for the real links (38%) than for the virtual ones (11%). This indicates a preference for already-known partners, which suggests a possible confidence effect. But the proportion of new partners (not repeated links) remains high (62%) which also suggests a nomad population, always looking for new partners.

If we now consider the impact of the different assortativities (experience (sum), experience (ratio), industrial proximity and same country) we again find some of the results of the previous network analysis. The real links occur more often between venture capitalists of the same country: 27% compared with 9% for the virtual links. The average total experience of the real links is significantly greater than that of the virtual links (110 *versus* 75), and the same is true for experience similarity of the two partners (0.33 *versus* 0.25). There is both a tendency to optimize the total experience of the partners and a positive experience assortativity. Finally, the industrial similarity between venture capitalists’ portfolios is significantly greater for actual links than for virtual links (0.67 against 0.54).

Table 2 Descriptive statistics for real and virtual links

	Real links	Virtual links
Experience (sum)	109.1 (97.63)	74.31 (74.98)
Experience (ratio)	0.3283 (0.2946)	0.2462 (0.2839)
Industrial proximity	0.6688 (0.2098)	0.5374 (0.2334)
Repeated links	0.38433	0.10797
Same country	0.90713	0.72216
Year = 2000	0.26575	0.26575
Year = 1999	0.19073	0.19073
Year = 1998	0.10247	0.10247
Year = 1997	0.072899	0.072899
Year = 1990	0.069724	0.069724
Year = 1996	0.062997	0.062997
Year = 1991	0.056339	0.056339
Year = 1995	0.051866	0.051866
Year = 1992	0.048247	0.048247
Year = 1993	0.041964	0.041964
Year = 1994	0.037013	0.037013
N =	29,287	58,574

6.4 Multivariate Analysis

In what follows, we present the results of a multivariate analysis on the whole data set (Table 3), then for the American data and the European data (Table 4).

In Table 3 we observe that the most influential variable is the “repeated link” dummy. Having already invested together before multiplies by 3.34 the probability of syndication in a new firm. Already-known partners are favorite for making new investments. Country similarity also strongly influences the choice of partners. Being established in the same country multiplies by 3.06 the probability of syndication. This confirms the result found before, that venture capitalists tend to invest with partners in the same country. But the two experience variables lose their significance in the multivariate analysis. This is due to the strong correlation between these variables and the industrial proximity. The effect of industrial proximity seems

Table 3 Determinants of link creation. Rare event logit model driven respectively on the whole data set (first column), on the new links (second column) and on the repeated links (third column)

	All	New	Repeated
(Intercept)	-5.6441 ***	-5.6934 ***	-3.9594 ***
Repeated link	1.1628 ***		
Same country	1.1145 ***	1.2421 ***	0.041162
Experience (sum)	-0.00022325	-0.00031463	0.00056525 *
Experience (ratio)	0.072474	0.14641	0.47549 ***
Industrial proximity	1.423 ***	1.7491 ***	0.16661
N	10,000	10,000	10,000
Null deviance	12,676	11,438	13,052
Deviance	11,170	10,663	12,766
Pseudo R^2	0.11881	0.067743	0.021954

Significance levels: *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$; . $p < 0.1$

Table 4 Determinants of link creation by world region. Rare event logit model

	Western Europe	United States
(Intercept)	-6.1025 ***	-4.967 ***
Repeated link	1.5177 ***	1.0938 ***
Same country	2.3675 ***	
Same state		0.054075
Experience (sum)	-0.010004 ***	0.00097554 **
Experience (ratio)	0.066285	0.045549
Industrial proximity	3.1624 ***	1.4578 ***
Year dummies	Yes	Yes
N	2,100	10,000
Null deviance	2,860.4	13,251
Deviance	2,112.4	11,936
Pseudo R^2	0.26149	0.099184

Significance levels: *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$; . $p < 0.1$

to absorb the effect of experience. The industrial proximity does indeed have a clear positive effect. Going up from the first quartile of industrial proximity $q_1 = 0.41$ to the third $q_3 = 0.78$, the probability of syndication is multiplied by 1.67. This confirms the previous result of positive industrial assortativity.

The strong positive effect of the “repeated link” variables indicates a clear preference to invest with already-known partners. One question we may ask is whether the effect of the other variables, measuring the effect of assortativity, is the same for new partners as it is for old partners. We therefore run the estimation on two subsets of the data, one for the new partners (“New”) and one for the old partners (“Repeated”) (see Table 3). The significant variables keep their effect for the new syndication links, but not for the repeated ones. It seems that the assortativity effect essentially influences the choice of new partners, i.e. the creation of new links in the syndication networks. The reinforcement of syndication links no longer depends on assortativity. These results are reinforced by the country analysis, at least for Europe and the United States (Table 4). Obviously the “same country” variable is strongly significant for Europe whereas the “same state” variable is not significant for the United States which confirms that the assortativity is more national than spatial. Concerning Israel, we do not have enough data to run an accurate econometric analysis.

7 Conclusion

Through syndication, venture capitalists build an international social network. The statistical analysis suggests that this network is not random, and that co-investment can result from strategic behavior. A number of features of the venture capital network emerge from our measurements. An important result is that the connections are not purely determined by preferential attachment, which contrasts with the structure of numerous well known social networks. Other interesting results concern the different assortativity forms of the network. The assortativity is positive, which suggests that people are looking for similarities, of a national and/or industrial nature. Clearly, for venture capitalists, frontiers are more important than geographical distances. It is easier to co-invest with somebody who shares the same legal, linguistic or social norms. More surprisingly, it is easier to co-invest with somebody who has the same kind of expertise. Through their co-investment, venture capitalists do not look for diversification. This certainly has something to do with the radical risk inherent to this kind of investment. In a very uncertain environment, investors need credible information signals, i.e. signals that they can interpret. Finally, studying the determinants of links creation emphasize the influence of past common experience, even if new links (between new pairs of venture capitalists) appear regularly. This research could be taken further by exploring the extent to which more experienced venture capitalists are more involved in diversified strategies. In other words,

this paper has shown that different proximities influence co-investment decisions, it remains for us to explore the conditions that enable syndication to overcome proximity.

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Annex

Table 5 Industry classification

Group	Segment	Code	Count
Inform. Tech.	Software	Business application software	1,668
		Connectivity/Communications tools (...)	1,656
		Total	7,029
	Communications	Connectivity products	617
		Fiberoptic equipment; Photonics (...)	479
		Total	2,542
	(...)		
Total		14,669	
Retail	Cons/Bus services	Business services	2,848
		Financial institutions and services (...)	573
		Total	4,073
	Retailers	Speciality retails	486
		Electronic commerce (...)	82
		Total	810
	(...)		
Total		5,617	
Healthcare	Biopharmaceuticals	Biotechnology	964
		Drug discovery (...)	580
		Total	2,088
	Medical devices	Surgical devices	286
		Therapeutic devices-impleantable (...)	237
		Total	1,577
	(...)		
Total		4,879	
Other			859
Total			26,024

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