Supply Chain Management

Hrsg.: Michael Eßig und Wolfgang Stölzle

Nils Peters

Inter-organisational Design of Voluntary Sustainability Initiatives

Increasing the Legitimacy of Sustainability Strategies for Supply Chains

RESEARCH

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Supply Chain Management

Beiträge zu Beschaffung und Logistik

Herausgegeben von
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Industrielle Wertschöpfung wird immer komplexer. Der steigende Wettbewerbsdruck zwingt zu differenzierten Angeboten, gleichzeitig nimmt der Kostendruck zu. Unternehmen können diesen gestiegenen Anforderungen nur gerecht werden, wenn sie neben der Optimierung eigener Produktion besonderen Wert auf die Gestaltung effektiver und effizienter Netzwerke legen. Supply Chain Management befasst sich mit unternehmensübergreifenden Wertschöpfungsaktivitäten von der Rohstoffgewinnung bis zur Endkundendistribution. Die Schriftenreihe sieht sich dabei besonders den lange vernachlässigten betriebswirtschaftlichen Teildisziplinen Beschaffung und Logistik verpflichtet, die als Treiber des Supply Chain Management gelten.

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Geleitwort

Obgleich die globale Finanzkrise den Fokus von Politik und Wirtschaft derzeit kurzfristig auf die ökonomische Entwicklung lenkt, wird das Thema Nachhaltigkeit in der politischen und öffentlichen Diskussion als eine unumgängliche und immer stärker zu berücksichtigende Notwendigkeit diskutiert. In diesem Zusammenhang sehen diverse Anspruchsgruppen Unternehmen und ihre Supply Chain-Partner vermehrt in der Verantwortung gesehen, wobei diese den Anforderungen aber oftmals nur bedingt gerecht werden können. Innovative Ansätze, um einer solchen Herausforderung zu begegnen, finden sich in der Etablierung und Institutionalisierung von Nachhaltigkeitsinitiativen, welche ökologische und soziale Standards für Supply Chains definieren. Der Erfolg im Hinblick auf deren Umsetzung sowie deren Supply Chain-interne wie -externe Akzeptanz ist jedoch oftmals allenfalls als begrenzt zu bezeichnen, teilweise gar mit fatalen negativen Rückkopplungseffekten für die Reputation der initiierenden Unternehmen. Bislang bieten jedoch weder praxisnahe Studien noch die wissenschaftliche Auseinandersetzung Anhaltspunkte für Unternehmen zur effektiveren Etablierung und Umsetzung ihrer Nachhaltigkeitsinitiativen im Supply Chain-Kontext.

Nils Peters greift in seiner Dissertation diesen Forschungsbedarf auf, indem er auf Basis theoriegeleiteter Konzepte einen Bezugsrahmen konstruiert, diesen anhand von fünf aussagekräftigen Tiefenfallstudien zu einem beeindruckendem Forschungsmodell weiterentwickelt und schließlich in einer großzahligen empirischen Studie validiert. Dabei greift er auf die Institutional Entrepreneurship Theorie und den Ressourcen-basierten Ansatz zurück. Es gelingt ihm, beiden Theorien im Hinblick auf die Forschungsfrage konsistent miteinander zu verknüpfen.

Der wissenschaftliche Beitrag der Dissertation zeigt sich in der detaillierten Beschreibung der einzelnen theoretischen Zusammenhänge und der Konkretisierung dieses innovativen theoretischem Bezugsrahmens zu einem Strukturgleichungsmodell anhand rigider, international anerkannter Forschungsmethoden. Zudem vermag der Autor in der konfirmativen Studie, seine Hypothesen zu bestätigen und somit erstmalig strategisch wichtige ‚Kernressourcen' für institutionelle Entrepreneure zur Institutionalisierung von Nachhaltigkeitsinitiativen in Supply Chains nachzuweisen. Hierin liegt gleichzeitig auch der praktische Mehrwert der Arbeit. Unternehmen können auf Basis der Ergebnisse ihre Ressourcen und Fähigkeiten mit den identifizierten Kernressourcen abgleichen und die Notwendigkeit zur Bereitstellung solcher Ressourcen und Fähigkeiten aufzeigen.

Insofern wünsche ich der Arbeit eine sehr hohe Aufmerksamkeit und Verbreitung sowohl in der Supply Chain-Praxis als auch in der betriebswirtschaftlichen Forschung.

St. Gallen, im November 2009

Prof. Dr. Wolfgang Stölzle

Vorwort

Die vorliegende Dissertation ist das Ergebnis meiner Forschungsarbeit am Lehrstuhl für Logistikmanagement an der Universität St. Gallen (LOG-HSG) in Zusammenarbeit mit dem Bereich für Nachhaltigkeit und Technologie der ETH Zürich (SusTec-ETH). Die Motivation für diese Arbeit erwuchs aus einer engen Zusammenarbeit mit zahlreichen Unternehmen vornehmlich aus der Chemie/Pharma- und Konsumgüterindustrie, welche mir ein umfassendes Verständnis der praxisrelevanten Problemstellung und deren Abbildung im theoretischen Modell ermöglichte.

Dieses Vorwort soll dazu dienen, all jenen zu danken, die meinen Dissertationsprozess begleitet und unterstützt haben.

Gerne möchte ich mich bei meinen Referenten Prof. Dr. Wolfgang Stölzle und Prof. Dr. Volker Hoffmann bedanken, die mich in den letzten Jahren fachlich sowie persönlich gefördert und motiviert haben. Bei meinem Doktorvater Wolfgang Stölzle bedanke ich mich für die Möglichkeit an seinem Lehrstuhl zu promovieren und für das angenehme Arbeitsumfeld, das meine Zeit am LOG-HSG zu einem besonderen Abschnitt meiner beruflichen Laufbahn werden ließ. Volker Hoffmann danke ich für die Übernahme des Korreferats sowie für seine konstruktiven Denkanstöße, welche die Qualität der Arbeit sehr positiv beeinflusst haben. Darüber hinaus möchte ich meinem Projektleiter Dr. Joerg Hofstetter danken, der mir jederzeit mit Empfehlungen und Anmerkungen zur Seite stand.

Der Erfolg praxisorientierter Forschung gelingt nur in Zusammenarbeit mit engagierten Projektpartnern. Daher möchte ich mich bei den Unternehmen bedanken, welche meine Dissertation durch sehr offene Diskussionen im Rahmen der Fallbeispiele unterstützten, sowie bei denen, die durch die Beantwortung des Fragebogens die quantitative Absicherung der Ergebnisse ermöglichten. Ein spezieller Dank gilt Dr. Hans Jöhr (Nestlé), welcher mir eine steile Lernkurve ermöglichte und mein Vertrauen in meine Thesen zur Nachhaltigkeit in Supply Chains bestärkte.

Weiterhin danke ich meinen Kollegen am LOG-HSG, die durch zahlreiche Diskussionen und ablenkende Wettläufe im Wald sowohl zum Gelingen der Arbeit als auch zu meinem persönlichen Wohlbefinden in St. Gallen beigetragen haben. Besonderer Dank gilt meiner Bürokollegin Bettina, welche meine zahlreichen freudigen, begeisterten sowie manchmal genervten Momente stoisch über sich ergehen ließ. Zudem möchte ich mich bei den Kollegen am SusTec-ETH bedanken, die für mich zu einer zweiten Anlaufstation und wertvollen Diskussionspartnern wurden.

Der größte Dank gilt meiner Familie und meinen Freunden, die mein Leben zu einem unbeschreiblichen Erlebnis machen. Besonders bedanke ich mich bei meiner Freundin My-Hien Nguyen, welche durch Ihre Unterstützung und Freude die zügige Fertigstellung meiner

Arbeit ermöglichte. Eine außerordentliche Wertschätzung gebührt meinen Eltern Friedrich-Karl und Maria Anna Peters sowie meinen Geschwistern Annika und Tido, die mir immer die notwendige Stabilität und Ermunterung zu Leistung, Reflektion und Stärke boten. Ihre unermüdliche Unterstützung verdient uneingeschränkten Respekt und Dank, daher widme ich diese Arbeit meiner Familie.

Zürich, im Oktober 2009

Nils Peters

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List of Abbreviations

α	Cronbach's Alpha
AGFI	Adjusted Goodness of Fit Index
AVE	Average Variance Extracted
CFI	Comparative Fit Index
cp.	Compare
CR	Component Reliability
CS	Corporate Sustainability
CSP	Corporate Social Performance
CSR	Corporate Social Responsibility
df	Degree(s) of Freedom
DfE	Design for Environment
Ed(s).	Editor(s)
engl.	English
et al.	et alii, lat.: "And others", used to refer to the co-authors of the book, chapter, or article cited
FSC	Forest Stewardship Council
GFI	Goodness of Fit Index
GMO	Genetically Modified Organism
ibid.	ibidem, lat.: "In the same place", used to refer to the book, chapter, article, or page cited just before
IE	Institutional Entrepreneurship
ILO	International Labor Organisation
IT	Institutional Theory
ISO	International Organisation for Standardisation
LCA	Life Cycle Analysis
MNC	Multinational corporation
MSC	Marine Stewardship Council
n/a	Not Available / Applicable

NFI	Normed Fit Index
NGO	Non-Governmental Organisation
NNFI	Non-Normed Fit Index
OECD	Organisation for Economic Co-operation and Development
PSSSC	Proactive Sustainability Strategy for Supply Chain
R&D	Research & Development
RBV	Resource-Based View
RBVIE	Resource-Based View on Institutional Entrepreneurship
RMSEA	Root Mean Squared Error of Approximation
ROE	Return on Equity
RSPO	Roundtable on Sustainable Palm Oil
RTRS	Roundtable on Responsible Soy
RQ	Research Question
SAI	Sustainability Agriculture Initiative
SAIN	Sustainability Agriculture Initiative Nestlé
SCM	Supply Chain Management
s.d.	Standard Deviation
SEM	Structural Equation Method
SSCM	Sustainable Supply Chain Management
TLI	Tucker-Lewis Index
UN	United Nations
UNEP	United Nations Environmental Programme
VSI	Voluntary Sustainability Initiative
WBCSD	World Business Council for Sustainable Development
WWF	World Wide Fund For Nature

Zusammenfassung

In der betriebswirtschaftlichen Praxis stellen freiwillige Nachhaltigkeitsinitiativen ein probates Mittel dar, pro-aktiv ökologische und soziale Auflagen für Wertschöpfungsketten zu formulieren. Diese strategischen Initiativen treten meist in Form von Verhaltenskodizes auf (engl.: Codes of Conduct). Jedoch finden sich in der Praxis zudem verschiedenste Zertifizierungsansätze und Managementsysteme, welche gleichermassen Wertschöpfungspartner und weitere gesellschaftliche Anspruchsgruppen einbeziehen.

Bei der Gestaltung und Umsetzung von Nachhaltigkeitsinitiativen stehen die initiierenden Unternehmen allerdings zwei wesentlichen Herausforderungen gegenüber. Zum einen konstatieren Unternehmen Akzeptanzprobleme seitens Wertschöpfungspartnern, Aktivisten oder den Medien sowie einen Wettbewerb mit opponierenden Initiativen. Zum anderen beklagen sie bei der Etablierung von Nachhaltigkeitsinitiativen eine hohe und lange Bindung von organisationalen Ressourcen und suchen nach Möglichkeiten der Effizienzsteigerung.

Basierend auf zwei empirischen Studien adressiert die vorliegende Dissertation diese Herausforderungen und identifiziert Kernressourcen, welche eine effektive Gestaltung von Nachhaltigkeitsinitiativen für Wertschöpfungsketten ermöglichen und die weitreichende Akzeptanz und Einhaltung der definierten ökologischen und sozialen Auflagen bei den einbezogenen Partnern sowie externen Anspruchsgruppen sicherstellen. In diesem Zusammenhang werden insbesondere Fähigkeiten zur Stakeholderintegration, zum Management quasi-losgelöster Geschäftsbereiche, zur Supply Chain Implementierung und zu einem problemorientierten, Stakeholder-spezifischen Marketing ein hohes Potential zur effektiven Etablierung von Nachhaltigkeitsinitiativen zugesprochen. Zudem konnten mit der Identifizierung von Fähigkeiten zur Informationsregulation, zur funktionsübergreifenden Integration und zur Prozessverbesserung komplementäre Ressourcen nachgewiesen werden, welche die Wirkung der Kernressourcen verbessern und die Effizienz bei der Gestaltung und Umsetzung der Initiativen erhöhen.

Die empirischen Studien und Ergebnisse der Arbeit sind in einen eklektischen, theoriebasierten Forschungsansatz eingebettet, welcher die Institutional Entrepreneurship Theorie und Ressourcen-basierte Ansätze zusammenführt. Dabei bietet die Institutional Entrepreneurship Theorie Erklärungsansätze zur Kreation und Diffusion von Nachhaltigkeitsinitiativen in einem institutionellen Feld, während die Ressourcen-basierten Ansätze Charakteristika von strategischen Ressourcen aufzeigen, um die zur Kreation und Diffusion einer Initiative notwendigen (inter-)organisationalen Kernressourcen zu identifizieren.

Die Dissertation ergänzt das Forschungsfeld an der Schnittstelle der beiden angewandten Theorien und hilft Unternehmen ökologische und soziale Auflagen für die eigenen Wertschöpfungsketten in Form von weit akzeptierten Nachhaltigkeitsinitiativen zu etablieren.

Abstract

Voluntary sustainability initiatives have become the predominant applied approach for companies to specify proactive environmental or social obligations for their supply-chain partners. As such, they range from codes of conduct to more detailed approaches like certification schemes and sustainability management systems integrating diverse stakeholders such as the affected supply-chain partners, as well as societal stakeholders like non-governmental organisations or regulators.

However, companies face two main challenges in the design of voluntary sustainability initiatives for their supply chains. Firstly, they have recognised acceptance problems by strategic stakeholders such as supply-chain partners, non-governmental organisations or media and opposition by competing initiatives. Secondly, companies have realised significant resource and time demands to set up voluntary sustainability initiatives for supply chains and ask for more efficient solutions.

Building on comparative case studies and a subsequent quantitative study, this thesis addresses these challenges by identifying the key resources that enable an effective design of voluntary sustainability initiatives both in terms of participants' compliance with the initiative's obligations as well the acceptance of initiative-external stakeholders – namely, the capabilities of external-stakeholder integration, management of loosely coupled business units, supply-chain implementation and cultural framing. Furthermore, this thesis identifies complementary resources that increase the value of the key resources and hence the efficiency of designing voluntary sustainability initiatives. These capabilities are gate keeping, cross-functional integration and process improvement.

The two empirical studies and subsequent findings of this work are embedded in an eclectic research framework that integrates institutional entrepreneurship and resource-based theories. While institutional entrepreneurship helps to explain how companies (the institutional entrepreneur) create and disseminate voluntary sustainability initiatives, resource-based theories focus on the characteristics of (inter-)organisational key resources, which enable the entrepreneur to achieve this intended institutionalisation of initiatives.

The findings of this thesis support existing concepts of the resource-based view, but they leverage these concepts into institutional entrepreneurship in the context of designing voluntary sustainability initiatives for supply chains. As such, they open the field for further research integrating both theories and helping companies to improve the design of environmental or social obligations for their supply chains.

Key words:

Voluntary sustainability initiatives; supply chain; resources; institutional entrepreneurship; resource-based view; exploratory case studies; structural equation method.

1. Introduction

1.1. Relevance of this research on the design of voluntary sustainability initiatives for supply chains and research objectives

Managerial perspective

Corporate sustainability, including corporate social responsibility (e.g., Bansal, 2005), is among the hot topics of the 21st century, both in academic research (Paton & Siegel, 2005) and in public media and managerial practice (Dawkins, 2004; McKinsey, 2007). It has become an omnipresent phenomenon on the European and North American political and economic landscape (Doh & Guay, 2006), indicated by agreements like the 'Kyoto Protocol' made in 1997 and the Paris 'Climate Change 2007' protocol, as well as by popular events like the foundation of the World Business Council for Sustainable Development (WBCSD) in 1995, Al Gore's climate project 'An Inconvenient Truth' in 2006, Nobel Prize winner Steven Chu's appointment as Secretary of Energy in the United States by President Obama, and the growing popularity of organisations' corporate social responsibility departments and sustainability reports.

This development poses new challenges for the companies that follow the trend of globalization and source an increasing share of their products from suppliers and supply networks in developing and emerging countries, where regulatory systems and governance are mostly underdeveloped (Matten & Moon, 2008).[1] In these countries, the ecological and social requirements may be more relaxed than in Europe or North America (Detomasi, 2007; Fabian & Hill, 2005; Kaufmann, 2008; Matten & Moon, 2008). Also, many opportunities exist for suppliers to undermine social welfare (e.g., by holding back on production quality and safety, pursuing corruption or using child/forced labour) or ecological preservation such as the deforestation of rain forests, pollution of ecosystems by emissions or toxic waste and the exploitation of natural resources (e.g., Kaufmann, 2008; Khan *et al.*, 2007; Tiemin, 2001; Loew, 2005; Nellemann *et al.*, 2009).

Companies that source in these regions and in other areas worldwide (as exemplified by the exploitation of fish reserves) are receiving growing negative attention in the public media (Hart & Sharma, 2004) and are increasingly accused in public for certain practices in their supply chains, involving issues such as human rights violations or environmental damage (Palazzo & Scherer, 2006). An important reason for this argumentation is the observation that customers and other external stakeholders such as non-governmental organisations (NGOs)

[1]For example, in 2002 the total amount of garment trading was valued at 500 billion USD, with developing markets accounting for 70% of the global exports (Fabian & Hill, 2005).

hardly differentiate between the standards of the brand-owner and the practices of its supply-chain partners (Roberts, 2003). In particular, large multinational corporations (MNCs) have found themselves being continuously scrutinised for the practices conducted in their supply chain by several pressure groups (Detomasi, 2007). Accordingly, a study of Bearing Point (2008) found that 54% of the companies with a turnover above 1 billion USD claimed to consider sustainability in their supply chain, whereas only 29% of smaller companies discussed such issues. However, it is argued that companies of all sizes need to position themselves and their supply chains better in the changing interaction processes with the society (King & Soule, 2007).

This development has created a need for an alternative way to govern global business and supply chains. Several multinational institutions, including commercial companies, have recognised this (Blowfield, 2005; Kell & Ruggie, 1999; Scherer *et al.*, 2006). On the regulatory side, the United Nations has established the Global Compact program (United Nations, 2000), the OECD has issued guidelines for multinational enterprises (OECD, 2000), the Greenhouse Gas Protocol Initiative has defined standards for supply chain greenhouse gas accounting and reporting[2] and the Global Reporting Initiative has developed indicators for the global controlling of business practices (GRI, 2002).

While these guidelines provide an important framework, companies increasingly feel impelled to specify their own sustainability strategy for their supply chains, encompassing political and social domains (Lepoutre *et al.,* 2007; Scherer *et al.*, 2006). For example, in 2004, 31 out of 35 companies in the Gradient Index[3] publicly recognised the need to deal with social, environmental and ethical issues in their supply chains (Fabian & Hill, 2005). Similarly, in a recent McKinsey study, more than half of all 2000 respondents indicated climate change as an important topic to consider for supply chain management (Brickman & Ungerman, 2008). As a result, some companies started voluntarily to develop and implement their own environmental and social business standards – in the form of supplier codes of conduct, programs, guidelines, certification schemes and other means of self-regulation, for example – in order to ensure that their global operations and supply chains comply with certain self-imposed ecological and social standards worldwide (Handfield *et al.*, 2002; Hughes, 2001; King *et al.*, 2005).

The inter-organisational design of voluntary sustainability initiatives is one means by which to increase acceptance for the design and implementation of proactive sustainability strategies

[2]http://www.ghgprotocol.org/standards/product-and-supply chain-standard, retrieved on April 20th, 2009.

[3]This index is a benchmark of 35 FTSE350 companies (FTSE350: British index covering the 350 biggest companies that are traded at the London Stock Exchange). This index scores companies on a range of sustainability supply chain issues like stakeholder engagement or governance and risk management (Fabian & Hill, 2005).

for supply chains (Carmin *et al.*, 2003; Hamprecht, 2006). Specifically, in situations in which the focal firm itself is unable to obtain sufficient legitimacy for its strategic initiatives – either by supply-chain partners or external stakeholders such as NGOs – a collaboration with the affected supply-chain partners and strategic stakeholders in designing environmental or social standards for supply chains may become the key to achieving the company's objectives (Falck & Heblich, 2007) and meeting the complex and urgent challenges of sustainability (UNEP, 2000). Accordingly, an increasing number of companies have implemented their proactive sustainability strategies for supply chains in the form of voluntary sustainability initiatives, collaborating with multiple partners, such as suppliers, competitors, NGOs, and governmental agencies (Schaltegger & Petersen, 2000). At least 150 such initiatives existed in 2003 in the United States alone, of which a significant share was initiated by companies (Carmin *et al.*, 2003). Furthermore, Kolk *et al*. (1999) identified 132 initiatives in the form of codes of conduct for transnational supply chains, of which 82 codes where established by some of the largest MNCs in the world.

Examples for voluntary sustainability initiatives for supply chains that were triggered by Swiss companies include:

- Migros (Roundtable on Sustainable Palm Oil: RSPO)
- Coop (Roundtable on Responsible Soy: RTRS)
- Nestlé (Common Code of the Coffee Community: 4C as well as Sustainable Agriculture Initiative: SAI)

In other European countries, examples of founding members include:

- Unilever (Marine Stewardship Council: MSC)
- Ahold (Utz Kapeh)
- B&Q (Forest Stewardship Council: FSC)
- Puma (S.A.F.E. initiative)

However, designing a voluntary sustainability initiative for supply chains is typically a very challenging process (Hamprecht, 2006) and very little is known about doing it successfully (Gunningham, 2002: 158). At least four potential problems need to be considered by companies that wish to develop a voluntary sustainability initiative:

1. *Lack of stakeholder support (including supply-chain partners):* In order to ensure the functioning of the initiative, the firm and its partners are dependent on the acceptance of influential and important constituencies involved or interested in the initiative (Nijhof *et al.*, 2008). If they deprive the initiative of their acceptance, negative attention might be the consequence and the initiative might ultimately fail. For example, Unilever faced this problem while developing the Marine Stewardship Council (MSC). In order to ensure fast development, the first talks on the initiative

were held by two parties only: Unilever and the World Wide Fund for Nature (WWF). While the MSC was developed a lot more quickly than the FSC, it exerted less market influence in its beginning (Fowler & Heap, 1998). This is because the MSC did not sufficiently reflect the demands of the fishermen. They decided to withdraw from the roundtable discussions, as they thought that their demands were under-represented. Greenpeace consequently also withdrew its support for MSC and even campaigned against it for a short time (Hamprecht, 2006; Nick *et al.*, 2006).

However, it has also been shown that even in smaller initiatives, such as the design of the Body Shop International's greening, the supply chain initiative can be met with significant resistance and lack of understanding by supply-chain partners, who may challenge the functioning of voluntary sustainability initiatives (Wycherly, 1999). These examples show that while it is very important for a company to ensure the ongoing support of the stakeholders involved in the initiative, it is equally important to secure the support of external constituencies.

2. *Competing standards:* Proposals for environmental and social practices for companies' operations and supply chains have often not been limited to one initiative (Fischlein & Smith, 2008). Rather, rival voluntary sustainability initiatives have emerged in such diverse areas as sustainable forestry, sustainable agriculture and fisheries, fair trade, and carbon off-sets, each integrating several stakeholder groups, which are expected to consolidate over time (Cashore *et al.*, 2004; Kollmuss *et al.*, 2008). For example, a WWF (2007) benchmarking study identified 25 sustainability certification programs for aquaculture supply chains. Consequently, firms that aim to establish standards for supply chains via voluntary sustainability initiatives are challenged by competing initiatives. In the case of suppliers as members of multiple supply chains, the initiatives impose additional complexity and costs on the firm's supply chains. Furthermore, the firm (and its partners) would experience a loss if competing initiatives were to replace its own standard or, conversely, it would achieve first-mover advantages if it prevails with its own initiative.
3. *Significant resource demands in order to design the voluntary sustainability initiative:* This, for instance, is a threat to the initiatives that Nestlé is involved in. The company engages intensively in developing standards for sustainable agricultural supply chains with other industry partners (Reinhardt, 2005). However, the company has yet to examine how it can manage its contribution to the development of the voluntary initiatives more efficiently.
4. *A lengthy design phase of the voluntary sustainability initiative*, as illustrated by the case of Migros: The RSPO that Migros initiated was established in late 2002. Over three years of discussion rounds were necessary until the members of RSPO agreed

upon an initial set of criteria for sustainable palm oil sourcing (Hamprecht, 2006). In November 2008, the first shipments of sustainable palm oil certified under RSPO reached Europe.[4] Similarly, in FSC, defining the criteria for sustainable timber supply chains required more than three years of development (Austin & Reficco, 2005).

These challenges can be abstracted into two main problems relating to the design of voluntary sustainability initiatives in which little knowledge is available at the outset (Gunningham, 2002: 159): the first two challenges reveal the ineffectiveness in establishing initiatives as the dominant standard in the market, whereas the latter two challenges indicate inefficiencies in establishing the initiative in terms of resources and time. Consequently, the ***business-related objective*** of this research is to define:

> *How companies can more effectively and efficiently design voluntary sustainability initiatives and establish them as the dominant, accepted standard in their own supply chains.*

Theoretical perspective

Although voluntary, private initiatives used to certify products or production processes, define labels, and set codes of conduct are generally under-represented in research (Giovannucci & Ponte, 2005: 285), studies have begun to investigate how firms collaborate with other organisations, such as NGOs, in designing voluntary sustainability initiatives for supply chains (e.g., Argenti, 2004; Delmas & Terlaak, 2001; Rondinelli & London, 2003; Weir, 2000).

However, as Schneidewind and Petersen (2000) suggest, research on these collaborations might consider further theoretical perspectives, specifically at the interface of organisational and institutional theories (Hoffman, 2001; 2003). In particular, the characteristics of the organisation that foster the change of values, norms and rules in the institutional field could be examined in more detail (Hockerts, 2003).

Following this call, the research at hand explicitly draws on institutional entrepreneurship (DiMaggio, 1988; Powell, 1988). In the terminology of this literature, institutional entrepreneurs are actors who create new systems of meaning that influence institutional actors (Garud *et al.*, 2002). The development of a voluntary sustainability initiative for supply chains is an example of such a new system. Roundtable talks that lead to the development of voluntary sustainability initiatives for supply chains tie supply-chain members, industry associations, NGOs, as well as further participating parties together and influence them to

[4] http://news.mongabay.com/2008/1110-palm_oil.html, retrieved on December 23rd, 2008.

behave more environmentally or socially responsibly. In this context, the institutional entrepreneur is the focal firm that wants to establish the environmental or social standard in its supply chains and initiates the roundtable talks.

In the literature on institutional entrepreneurship, the actions of institutional entrepreneurs have been described theoretically (Aldrich & Fiol, 1994; DiMaggio, 1988; Oliver, 1991; Phillips *et al.*, 2004; Powell, 1988; Suchman, 1995; Zimmerman & Zeitz, 2002) as well as empirically (Durand & McGuire, 2005; Garud *et al.*, 2002; Maguire *et al.*, 2004).[5] This thesis builds on these ideas and findings and suggests that the theory provides room for a new line of inquiry to fill an existing research gap, namely, the resources and capabilities for institutional entrepreneurship in the context of designing voluntary sustainability initiatives for supply chains. It is emphasised that studies on institutional entrepreneurship have yet to point out what kinds of resources and capabilities an actor requires in order to be successful in institutional entrepreneurship (Hamprecht & Sharma, 2006). As these organisational assets remain unspecified, the studies on the creation of institutions remain weak in analysing the internal dynamics of institutional change. Consequently, Wright *et al.* (2005: 25) as well as Hamprecht & Sharma (2006) call for research that examines the resources and capabilities that allow an actor to be successful in the creation or change of an institution. Particularly in the research on voluntary sustainability initiatives, an integration of institutional and resource-based research emerges as an adequate theoretical basis, as efficiency and legitimacy are two key triggers for the adoption of a voluntary sustainability initiative by businesses and their supply chains (Aguilera & Cuervo-Cazurra, 2004; King *et al.*, 2005; Videras & Alberini, 2000). More specifically, resource-based theories provide characteristics and concepts of *key* resources that specifically enable companies to run their competitive strategies successfully in supply chains, both in terms of effectiveness and efficiency (Barney, 1991; Lavie, 2006).[6] However, these ideas must now be leveraged into institutional entrepreneurship.

Thus the core issue and purpose of this thesis lie in the identification of *key* resources that enable companies successfully to establish voluntary sustainability initiatives for supply chains. Consequently, the ***theoretical-scientific objective*** for the research at hand can be stated as follows:

> *Identifying patterns of (inter-)organisational key resources that enable companies to efficiently establish institutions in the form of voluntary sustainability initiatives that are legitimised by the organisations that are essential to the initiative's development and implementation.*

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[5]For details on institutional entrepreneurship in the context of voluntary sustainability initiatives for supply chains, see section 3.2.

[6]For details on the resource-based view of interconnected firms in the context of voluntary sustainability initiatives for supply chains, see section 3.3.

The following figure summarizes the discussion above on the relevance of this research (Figure 1) and provides the starting point for deriving the research questions of this thesis.

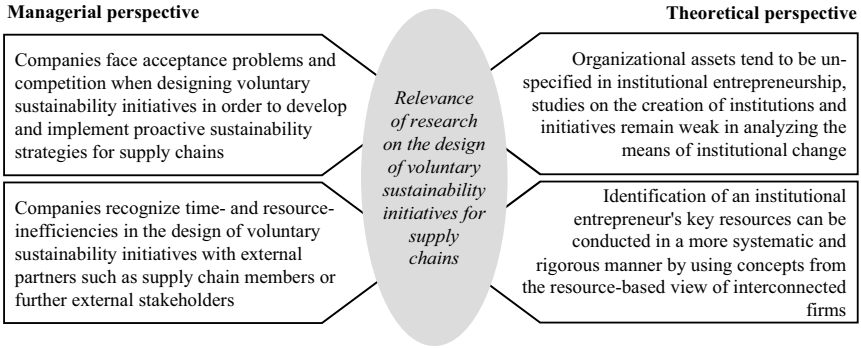

Figure 1: Managerial and theoretical relevance of the research on the design of voluntary sustainability initiatives for supply chains

1.2. Research questions

Based on the managerial and theoretical objectives described above, the thesis at hand attempts to obtain theoretical and empirical insights into the successful (i.e., effective and efficient) design of voluntary sustainability initiatives for supply chains, involving multiple organisations such as supply-chain partners or additional organisations. More specifically, this research aims for the identification and subsequent confirmation of key resources that allow the initiator (the focal firm) to develop and implement an initiative that is legitimised in the institutional environment and is accepted by participants, stakeholders and supply-chain partners instead of suffering competition from rival initiatives.

Consequently, the primary research question (RQ) is formulated as follows:

> ***RQ:*** *Which key resources does an institutional entrepreneur (the focal firm) require to design a voluntary sustainability initiative for supply chains that is legitimised by both participants and external stakeholders?*

In order to support an answer to the primary research question, five secondary research questions are derived that are tackled sequentially in the thesis' answering process.

The first research question (RQ_1) covers the description of the specific research context in which companies design voluntary sustainability initiatives for their supply chains, as well as the presentation of the constituent elements of this phenomenon (the unit of analysis):

> ***RQ_1:*** *Which contexts qualify for the focal firm to design voluntary sustainability initiatives for supply chains and which elements constitute such initiatives?*

The second research question (RQ_2) targets the development of a framework that helps to structure the inter-organisational design of voluntary sustainability initiatives theoretically. Both theories will be reviewed and integrated, leveraging the resource-based view concepts concerning key resources into institutional entrepreneurship. This allows the clear-cut definition of concepts, including the concept of key resources and that of institutional performance, for the further course of the study.

> ***RQ_2:*** *How can the effective design of voluntary sustainability initiatives for supply chains be operationalised and systemised according to institutional entrepreneurship and resource-based theories?*

The third research question (RQ_3) is exploratory in nature and aims to identify the focal firm's key resources according to the characteristics developed in the initial research framework (RQ_2). In the light of empirical data as well as existing literature from institutional entrepreneurship and the resource-based view, propositions on key resources and associated relationships are derived.

> ***RQ_3:*** *What key resources of the focal firm can be explored that ensure the voluntary sustainability initiative's acceptance by participants as well as external stakeholders, which in turn affects the initiative's effectiveness?*

The fourth research question (RQ_4) seeks to analyse the empirical data and literature according to the concepts of the resource-based view that focus on the efficiency dimension, such as the existence of complementary resources, non-linearity of resource value and influence of contingency factors. Thus it aims to enrich the conceptual model of the institutional focal firm's key resources and its institutional performance and to develop additional or alternative relationships.

> ***RQ_4:*** *What further relationships can be explored that reduce the focal firm's key resource demand for working on the voluntary sustainability initiative, thereby increasing the efficiency in designing the initiative?*

The fifth research question (RQ_5) is confirmatory in nature and targets how well the explored and suggested relationships (RQ_3 as well as RQ_4) hold up in a large-scale study. Therefore, the research will utilise the previously derived hypothesis, operationalise the constructs accordingly, and finally test the relationships.

> ***RQ_5:*** *Do the explored relationships between key resources and the successful design of voluntary sustainability initiatives for supply chains hold up in a large-scale quantitative analysis?*

1.3. Positioning of the research within scientific theory

In order to provide an initial understanding of the research at hand and to relate the study's results, it is important to stress the scientific-theoretical positioning of the study. Hence this thesis will be related to three levels of scientific theory[7]: the meta-methodological level (the question of 'why' to research), the methodological level (the question of 'how' to research) and the theoretical level (the question of 'what' to research).

The ***meta-methodological level*** offers declarations for the objectives, subject and meta-methodology of the research itself. These declarations are based on assumptions on the interrelated concepts of ontology, epistemology and human nature (Holden & Lynch, 2004).

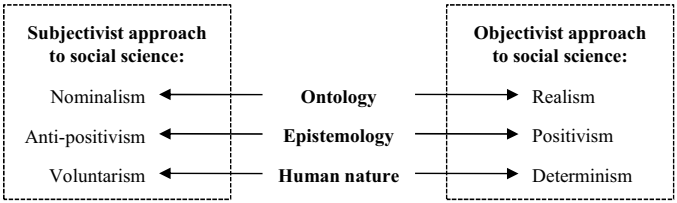

Figure 2: The dimensions of research on the meta-methodological level (inspired by Burell & Morgan, 1979; taken from Holden & Lynch, 2004: 399)

[7]The theory of science is concerned with the foundation and explanation of scientific objectives, systems of declaration, and the development of scientific methods (Kuhn, 2007).

Around these three concepts Burell & Morgan (1979) developed a framework that ranges between two extreme positions that researchers adopt when they approach a research phenomenon (see figure 2):

- Assumptions on *ontology* refer to the nature of beings and concern the essence of the research phenomenon at hand. One extreme position within ontology is 'nominalism', which assumes that the real world is external to the individual's (and hence the researcher's) cognition and only a projection of human imagination. Thus, multiple social realities exist as a product of human intellects, and can vary if their constructor changes.

  By contrast, 'realism' perceives the real world as hard, tangible and consisting of relatively immutable structures, and completely knowable in principle. A view that relativises pure realistic assumptions is 'critical realism' (e.g., Popper, 2004), which argues that the real world exists, but is never directly accessible, although it can be experienced through individual perceptions and values of researchers. Consequently the main goal of any research is to control these influences in order to come as close as possible to the objective reality (Popper, 2004). Similarly to critical realism, pragmatism accepts an external reality that is existent and tangible (Cherryholmes, 1992), but for which humans contribute to forming its concreteness (Holden & Lynch, 2004). Pragmatists stress that an objective reality in the sense of truth is impossible to grasp and thus is operationalised through the meaning that exists within the scientific community and its conventions (Howe, 1988). Furthermore, pragmatists are unsure as to whether one explanation of reality is better than another (Cherryholmes, 1992). Researchers are therefore motivated to choose explanations of reality that are most consistent with the researcher's values (Tashakkori & Teddlie, 1998).[8]
- Statements referring to *epistemology* concern the foundation of knowledge. While 'anti-positivism' (radical constructivism) perceives the real world to be relativistic and that knower (the researcher) and known (the investigated phenomena) are inseparable, 'positivism' aims to explain and predict activities in the real world. In this context, anti-positivists understand phenomena exclusively by taking the view of people involved in the activities under investigation and think that it is pointless to categorise phenomena into causes and effects (Hirschman, 1986).

  By contrast, positivists investigate regularities and causal relationships between the constituent elements. 'Post-positivism' (e.g., Popper, 2004) softens the assumptions of

[8]Tashakkori & Teddlie (1998) argue that the differentiation made in critical realism (seeking the 'best' solution) in research practice will often reflect the explanation that is most consistent with the researcher's values, given that studies are designed and constructs are operationalised by researchers. They therefore argue that the difference between these two viewpoints refers to the difference in the researcher's optimism in finding the truth.

positivism, arguing that there will be 'lawful reasonably stable relationships' (Miles & Huberman, 1994: 429), but that these relationships are influenced by the theory used by the researcher (the frameworks and hypothesis) and may be known imperfectly (in a 'probabilistic' way). Very similarly, 'pragmatism', which lies between post-positivism and constructivism (Holden & Lynch, 2004), acknowledges the existence of causal relationships and encourages researchers to explore, test and retain or discard them as appropriate (Holden & Lynch, 2004; Tashakkori & Teddlie, 1998). However, as Howe (1988) points out, relationships are determined by the chosen explanations of reality and cannot be completely abstracted from contingent beliefs, interests, and projects that underlie the theories and concepts chosen by the researcher.

- Declarations about *human nature* reflect the influence of the nature of humans on the environment and vice versa. 'Voluntarism' at one extreme looks at humans as pure and conscious beings – autonomous and free-willed, able to determine their environment. By contrast, 'determinism' views humans as being totally determined by, and reactive to, their environment. This deterministic assumption is relaxed towards post-positivism and even more towards pragmatism, arguing that humans are born into pre-structured societies (Holden & Lynch, 2004). Humans are perceived as adaptors in an interactive relationship with this world, influencing as well as being influenced by their environment (Morgan & Smircich, 1980).

The ***methodological level*** of scientific research explains procedures and rules for theory development and testing. Within this level, two extremes of methodological approaches can be found. The *inductive approach* is generally ascribed to the subjective paradigm of the social sciences and is used for building theories (Morgan & Smircich, 1980). Theories are built on the basis of regularities that the researcher finds by observing a number of single phenomena (Eisenhardt, 1989). The researcher obtains first-hand knowledge from the research object and explores the object's context in detail in order to abstract theory from the particular objectives. In this context, researchers predominantly draw on qualitative methods that aim to understand the real world through the discovery of intentions, motives, objectives and a sense of human action, without anticipating reality in models that are set up *ex ante* (Morgan & Smircich, 1980).

Conversely, the *deductive approach* represents the objectivist or positivist paradigm (Holden & Lynch, 2004). In deductive research the observation (theory testing) is conducted after the formulation of a hypothesis, most likely in the form of quantitative methods, and aims to falsify incorrect theories (Popper, 2004). The core ideas underlying this method are the isolation of causes and effects, clearly operationalising theoretical interrelations and measuring the research phenomenon, in order to prove models that provide generally applicable principles for the explanation of the real world (Holden & Lynch, 2004).

The ***theoretical level*** of scientific research covers the choice between a single- and a multi-theory approach. Multiple-theory approaches are further divided into pluralistic and eclectic approaches. Pluralistic approaches use multiple theoretical assumptions, applying each theory in its regular form (Kirsch, 1990: 114). By contrast, eclectic approaches combine theories with coherent systems of declarations with respect to the unit of analysis (Singh & Kundu, 2002).

The research at hand takes a pragmatist view – an intermediate stance in the continuum shown in Figure 2 – that is based on the understanding of business research of the University of St.Gallen as an applied social science (an, orientation based on a problem identified in business practice – see Hill & Ulrich, 1979)[9] as well as the understanding of the underlying theoretical problem (an orientation based on a problem identified in theory).[10] In the context of the applied social sciences, the inter-organisational design of voluntary sustainability initiatives is seen as a concept in business administration that deals with the establishment of complex social systems; in other words, institutional arrangements between multiple constituencies aimed at achieving the company's environmental and social objectives for their supply chains. In this model companies are perceived as complex, open, social systems that are embedded in even larger systems of social life (Ulrich, 1984). This is consistent with the theoretical understanding that perceives an organisation as being embedded in, and interacting with, its institutional environment (DiMaggio & Powell, 1983).

Considering all associated interactions, the company's behaviour cannot be controlled fully (Raffée, 1989). This makes it extremely difficult for researchers to determinate causal relationships between constituent processes. Rather, in the research on designing voluntary sustainability initiatives, the social world is best expressed in terms of general relationships between its more stable and clear-cut elements (Morgan & Smircich, 1980: 495). Furthermore, organisations, which incorporate human beings, are perceived as adaptors that interact with their external environment (their institutional environment) and aim to interpret and exploit it to satisfy important needs and ultimately to survive. Hence they are partly affected by the environmental (institutional) pressures they face and partly driven by their own values and strategic interests.[11]

[9] See sections 1.1. (Managerial perspective) and 1.2.
[10] See sections 1.1. (Theoretical perspective) and 1.2.
[11] See sections 3.1. and 3.2.

Taking the strengths and weaknesses of both methodological approaches[12,13] into consideration, this work applies a sequential *mixed-methodology approach,* pragmatically combining the benefits of inductive and deductive research in different phases of the research process (Tashakkori & Teddlie, 1998: 19). This is consistent with the positioning on the meta-methodological level (Brewer & Hunter, 1989) and permits the clear distinction and presentation of the paradigm assumptions that underlie each phase (Creswell, 1995: 177).[14] More specifically, it enables the researcher to investigate the relatively unexplored phenomenon of designing voluntary sustainability initiatives[15] in an initial inductive phase, using the clear-cut result to design a quantitative phase of the study in order to test the hypothesis (Tashakkori & Teddlie, 1998: 47).

For the inductive research phase it is appropriate to determine the application context (the design of voluntary sustainability initiatives for supply chains) and identify the theories relevant to the research problem in the form of an initial research framework (Kubicek, 1977; Rößl, 1990). This initial framework provides descriptions and explanations that allow the analysis of the research phenomenon at hand.[16] At this point, the framework is not detailed and consistent enough to be operationalised into sharp hypotheses, but it incorporates concepts and argumentations that may be further developed into theories and testable relationships in an iterative process (Kirsch *et al.*, 2007, Kubicek, 1977). By describing and interpreting case studies in an empirical, exploratory investigation the initial framework is further developed, and constructs are identified and considered critically in order to achieve differentiation, abstraction, and changes in perspective.[17] Eventually, rules and models are derived that on the one hand may help to solve the practical problems identified (Ulrich & Hill, 1979) and on the other hand provide a substantive basis for hypothesis development and testing (Tashakkori & Teddlie, 1998: 127).

The deductive research phase is oriented towards the testing of the research model explored. Based on the elaborated constructs and assumed relationships between clear-cut elements in the first research phase, hypotheses are formulated and operationalised, leading to a structural

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[12] *The advantages* of *qualitative research* methods are, according to Lamnek (2005) and Miles & Huberman (1994), the openness of data gathering, their chances of discovering novel aspects or theories, and the ability to interpret individuals. The *disadvantages* relate to their lack of structure, their non-measurability and the challenges in reproducing the results. However, advocates of qualitative research have developed techniques partially to overcome the disadvantages (Gibbert *et al.*, 2008).

[13] According to Schnell *et al.* (2008) the *advantages* of *quantitative research* relate to standardised and neutral data gathering, the narrow focus, and exact quantified results. The *disadvantages* of quantitative studies mainly refer to the studies' inflexibility (i.e., not being responsive to individual aspects of each analysed case).

[14] See sections 5.1. (Qualitative study) as well as 7.1. (Quantitative study)

[15] See sections 1.1. and 1.2.

[16] See section 4.2.

[17] For a detailed explanation of the research method applied, see section 5.1.

equation model.[18] This model, which consists of one or more hypotheses, may be tested with quantitative methods[19] in order to retain or falsify the hypotheses concerning the respective relationships (Tashakkori & Teddlie, 1998: 127, 134).

The thesis follows an eclectic approach integrating two theoretical streams: institutional entrepreneurship and the resource-based view of interconnected firms. Both theories contribute to the research phenomenon, but only in certain specific aspects – not in their entirety. In this context, institutional entrepreneurship explains the process of designing voluntary sustainability initiatives, their institutionalisation and dissemination. It also emphasises the entrepreneur's resources.[20] However, the concept of resources in institutional entrepreneurship must be embellished.[21] The resource-based view, as a complementary theory, provides attributes that define (inter-)organisational resources in more detail.[22] This is why this aspect of the resource-based view will be applied to institutional entrepreneurship theory.[23]

Level in scientific theory	Positioning of the thesis
Meta-methodology	The thesis is related to a pragmatic approach of research, acknowledging the existence of (probabilistic) causal relationships that can be tested if the elements are clear-cut. However, it is also accepted that the researcher and its context may also influence the results to a certain degree.
Methodology	The thesis follows a sequential mixed-methodology approach combining an initial inductive study (theory-building via analytical induction) with a deductive study (theory-testing via structural-equation modelling techniques).
Theory	Institutional entrepreneurship and the resource-based view of interconnected firms are applied to an integrative, eclectic multi-theory approach.

Table 1: Positioning of the research in scientific theory

[18]For a detailed explanation of the development of the research model, see chapter 6.
[19]For a detailed explanation of the method applied, see 7.1.
[20]See section 3.2.
[21]See sections 1.2. and 3.2.3.
[22]See section 3.3.
[23]See section 4.2.

1.4. Outline of the thesis

Based on the research questions and the positioning described in the last sections, the thesis is divided into eight chapters (see Figure 3).

As an introduction to this thesis, *Chapter 1* outlined the relevance of this research to the inter-organisational design of voluntary sustainability initiatives from a managerial perspective, as well as from a theoretical perspective. Based on the identified research gap, the research objectives and research questions were derived and the positioning of this thesis in scientific theory was described.

Chapter 2 is concerned with the containment of the unit of analysis that is applied to this thesis. This is necessary in order to describe the context in which companies aim to design voluntary sustainability initiatives for their supply chains (situations that require legitimisation from stakeholders) as well as the elements that constitute a voluntary sustainability initiative.

Chapter 3 reviews theories that may contribute to the research on the inter-organisational design of voluntary sustainability initiatives. Specific attention is given to theories that explain the phenomenon with respect to legitimacy. Furthermore, theories that explain successful designs of strategies in general are reviewed in order to identify their potential as complementary theory.

Chapter 4 presents the research framework that will help to structure the researcher's understanding before engaging in data collection. In this context, the formulation of a theoretical framework allows the revelation of the researcher's mindset and the clear definition of the elements and relationships in order to improve understandability and objectivity in the further course of the thesis; this is the hypothesis-testing phase.

Chapter 5 contains the first empirical study of this thesis. Starting with the empirical research approach ('analytical induction') and a detailed description of the methodology applied, this chapter presents the analysis and findings of five case studies that were conducted by the researcher specifically for this thesis. In the course of the analysis of the empirical data, several propositions will be derived and will consolidate the research framework. Thus the chapter builds a basis for the development of a research model.

Chapter 6 covers the development of the research model. Based on the theoretical framework (Chapter 4) and its refinements (Chapter 5), a research model is developed and hypotheses formulated based on the literature as well as the empirical findings. Finally, all developed hypotheses will be summarised as the basis for testing in the second empirical study.

Chapter 7 includes the second empirical study of this thesis and embraces testing the research model and hypotheses developed before (Chapter 6). This chapter portrays the empirical

research approach (the ‘two-step approach’ for testing structural-equation models) and explains how the measurement model was built. Furthermore, the chapter describes how the testing was conducted and shows the results of data analysis (the rejection or confirmation of hypotheses).

Finally, *Chapter 8* summarises the considerable results of the thesis. Based on the findings, this chapter discusses recommendations for further research as well as providing managerial implications for companies willing or being urged to embark in voluntary sustainability initiatives for their supply chains.

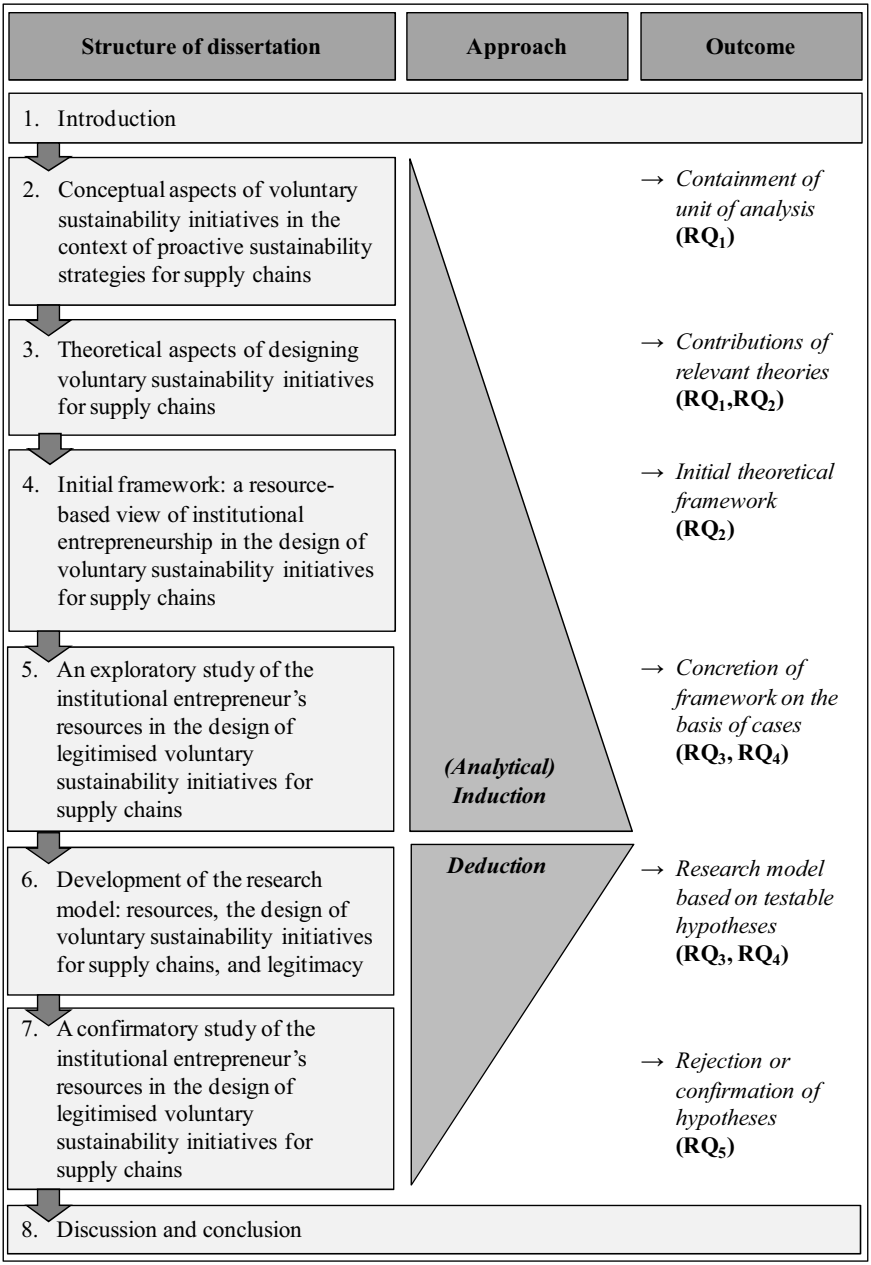

Figure 3: Outline of the thesis according to the research questions and positioning in scientific theory

2. Conceptual aspects of voluntary sustainability initiatives in the context of proactive sustainability strategies for supply chains

In order to outline the scope of this thesis and set forth the unit of analysis, a conceptual definition must be derived from the literature. Defining the research focus from a conceptual viewpoint is achieved in three sections. In Section 2.1., the concept of proactive sustainability strategies for supply chains is found in the literature. This concept will serve as the research context in which the phenomenon of designing voluntary sustainability initiatives will be examined. This chapter will then present the circumstances in which companies design these strategies in the form of voluntary sustainability initiatives. In this context, it is shown that legitimacy and stakeholders play an important role in designing sustainability strategies (see Section 2.2.), and that the involvement of multiple stakeholders leads to voluntary sustainability initiatives comprising several legitimising elements (see Section 2.3.).

2.1. Conceptual foundation and constituent elements of proactive sustainability strategies for supply chains

In order to define the proactive sustainability strategies for supply chains this section will review the fundamentals of this concept. Firstly, the understanding of sustainability strategies at the corporate level will be defined. Instead of stressing the normative-oriented literature of sustainability[24], a reference to the strategic-instrumental rationale of companies is made in order to establish sustainability strategies, also known as the business case of sustainability (Salzmann *et al.*, 2005; Steger, 2004). Secondly, the strategic orientations of sustainability strategies that exist will be described before focusing on the specific strategic orientation applied in the thesis. Thirdly, the literature review is broadened to supply chain networks and related proactive sustainability strategies.

2.1.1. The strategic approach of corporate sustainability

The core idea of sustainability is the integrative consideration of the environmental, social and economic performance of society at the macro level as well as of the company at the micro level (Bansal, 2005; Dyllick & Hockerts, 2002).

In theory as well as in business practice, the concept of sustainability is widespread and encompasses a wide range of meanings and definitions. Research has now begun to model

[24]The normatively-oriented conception of sustainability focuses on the motivation of organisations to 'feel good' (Bansal & Roth, 2000). In this understanding, organisations act environmentally or socially responsibly out of a sense of obligation or philanthropy rather than self-interest.

this elusive concept (Marshall & Toffel, 2005). According to Bansal (2005), sustainability or sustainable development can be divided into macro (environment, society and economy) and micro (corporate or actor) levels, both referring to the 'triple bottom line' (Elkington, 1997), which is also known as the 'three pillars of sustainability' (Schaltegger *et al.*, 2003: 21). It incorporates environmental, social and economic aspects.

The integrative concept of sustainability

Following the Bruntland Report, The World Business Council for Sustainable Development (WBCSD) defines macro-level sustainability as "*development that meets the needs of the present without compromising the ability of future generations to meet their own needs*" (see also WCED, 1987).[25] More specifically, sustainability on a macro level embraces the integration of three basic principles, namely, 'environmental integrity', 'social equity' and 'economic prosperity' (Bansal, 2005: 198).[26] Environmental integrity guarantees that human activity does not erode resources of the earth like land, air or water, and assures the conservation of non-renewable resources (Whiteman & Cooper, 2000). Social equity refers to equal access to resources and opportunities for all members of society and includes basic needs as well as a good quality of life (Savitz & Weber, 2006), for instance by ensuring worldwide food security (Lal *et al.*, 2002; Nellemann *et al.*, 2009). The economic prosperity principle conveys quality of life through the productivity of organisations and individual actors in society, involving the creation and distribution of goods and services that help to raise the standard of living around the world (Bansal, 2005). However, these considerations are hard to apply for organisations (Bansal, 1993; Carter & Rogers, 2008) and they provide little guidance on how to determine the individual roles of organisations within the broader, macro-level perspective (Shrivastava, 1995b).

Definitions of sustainability emerged on the corporate level as well. According to Elkington (1997) companies need to measure and report their economic, social, and environmental performance to achieve corporate sustainability.[27] Similarly, the Dow Jones Sustainability Index defines corporate sustainability as "*a business approach that creates long-term shareholder value by embracing opportunities and managing risks deriving from economic, environmental and social developments.*"[28]

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[25] http://www.wbcsd.org/templates/TemplateWBCSD1/layout.asp?type=p&MenuId=Mjk0&doOpen=1&ClickMenu=LeftMenu, retrieved on June 8th, 2009.

[26] In contrast, Schaltegger *et al.* (2003: 21) call the three elements of sustainability 'eco-efficiency', 'socio-efficiency' and 'eco-justice', while explicitly focusing on the intersections between the three pillars rather than on the pillars themselves.

[27] For the sake of completeness it is important to note that the effectiveness of this tool has also been criticised in the literature (e.g., Wayne & MacDonald, 2004).

[28] http://www.sustainability-indexes.com/07_htmle/sustainability/corpsustainability.html, retrieved on January 8th, 2009.

Sustainability at the corporate level is covered by three principles and underlying management concepts[29]: environmental integrity through 'environmental management', social equity through 'corporate social responsibility' and economic prosperity through 'value creation' (Bansal, 2005).[30] Dyllick and Hockerts (2002: 132) state that "*in the long run sustainability requires all three dimensions to be satisfied simultaneously.*" Similarly, a recently published white paper on sustainability by an international group of economic scientists suggests that organisations wishing to grow profitably in the future must focus their efforts on these three pillars simultaneously, since concentrating on any one of these areas at the expense of others may hinder a company's long-term success (Grayson *et al.*, 2007). They point out that focusing on sustainability provides the best way of implementing all three concepts simultaneously, while enabling the organisations to innovate, differentiate and succeed.

Organisations now recognise that sustainability "*…is not simply a matter of good corporate citizenship – earning brownie points for reducing noxious emissions from your factory or providing health-care benefits to your employees…Sustainability is now a fundamental principle of smart [strategic] management*" (Savitz & Weber, 2006: xiv).[31]

Although the three concepts are interdependent and hard to distinguish in the literature, they are discussed separately in the next paragraph.

[29]However, the notion of the 'triple bottom line' has also been criticised in the literature. For example, Norman & MacDonald (2004: 251) have argued that "*there are fundamental philosophical grounds for thinking that it is impossible to develop a sound methodology for arriving at a meaningful social bottom line for a firm*". They further state that the social pillar of the triple bottom line in particular may not even be needed, as "*it has never been possible to do well by the [financial] bottom line without paying attention elsewhere, especially to key stakeholders*".

[30]Although the conceptual roots and literature streams of corporate sustainability and corporate social responsibility (CSR) are interdependent (Montiel, 2008), we follow the definition of Bansal (2005) subsuming CSR to incorporate sustainability. However, both concepts increasingly encompass similarities in research literature and business practice, thereby addressing the same issues (Montiel, 2008; Norman & MacDonald, 2004; Sharma & Ruud, 2003; Steurer *et al.*, 2005; van Marrewijk, 2003). While corporate sustainability was first introduced in the literature on environmental management, the concept has – in addition to ecological sustainability – more recently been associated with social issues, which are originally emphasized in CSR (Russo, 2003).

[31]By integrating the value creation into the strategic-instrumental sustainability concept, Milton Friedman's (1970) criticism on the environmental and social responsibilities of a company is invalidated. Friedman (1970: 33) argued that the only responsibility of a company is to make profits, supported with his famous notion that "*the business of business is business*", whereas the rest (e.g., the social and environmental consequences) is left for market mechanisms and the 'invisible hand' to take care of (Scherer *et al.,* 2006).

The three pillars of corporate sustainability

Environmental management is an attempt to control and reduce the ecological footprint[32] of an organisation (Bansal, 2005; Schaltegger *et al.*, 2003). In order to attain environmental sustainability, a company has to commit itself to environmental strategies in order to "*exist and flourish (either unchanged or in evolved forms) for lengthy time-frames, in such a manner that the existing and flourishing of other collectivities of entities is permitted at related levels and in related systems*" (Starik & Rands, 1995: 909, also cp. Russo, 2003). Therefore, a company needs to manage the interface between its business and the natural environment (Aragón-Correa & Sharma, 2003; Hart, 1995) including inter-organisational relations, products, processes, technologies and policies, as well as structural and infrastructural changes (Bansal & Roth, 2000; Klassen, 2000; Klassen & Whybark, 1999; Shrivastava, 1995a; 1995c) that either control and decrease the company's consumption of natural resources[33] directly (Dyllick & Hockerts, 2002; Hart, 1995) or increase its ecosystem services such as climate stabilisation, water purification or reproduction of natural resources (Dyllick & Hockerts, 2002; Shrivastava, 1995b). Consequently, corporate environmental management is "*a set of corporate initiatives aimed at mitigating a firm's impact on the natural environment*" (Bansal & Roth, 2000: 717) that intend to increase the environmental performance ('greening') of a company. These initiatives are predominantly categorised as pollution control (responsible waste disposal), pollution prevention (eliminating or reducing waste through innovation), product stewardship (shifting the focus from the processes to the product, in order to reduce the life-cycle impact) and clean technology (by developing sustainable technology that directly addresses and solves environmental problems, such as wind or solar power stations, instead of incrementally improving existing products and processes) (Bansal, 2005; Hart, 1995; 2005).

Corporate social responsibility (CSR) refers to the social pillar of corporate sustainability. Gladwin and colleagues (1995a;b) state that in order to reach social sustainability, a company needs to internalise social costs, increase the capital stock, avoid exceeding the social carrying capacities, strengthen structures for self-renewal, promote democracy, broaden the range of people's choices and distribute resources and property rights fairly (taken from Dyllick & Hockerts, 2002). In this context, CSR considers those "*actions that are not required by law but appear to further some social good, and which extend beyond the explicit transactional interest of the firm*" (Godfrey, 2007: 209; also cp. McWilliams & Siegel, 2001). Companies are thus required not only to consider the financial but also the economic, legal, ethical and

[32]The 'ecological footprint' (Hart, 1997) refers to the environmental impact of a firm [and its supply chain], "*whether it is merely by lighting office buildings or, more significantly, through the waste, [toxics] and further emissions generated by production processes*" (Bansal, 2005: 199). Schaltegger *et al.* (2003: 31) similarly refer to the 'environmental impact' as the "*influence of a corporation's activities on the physical environment*".

[33]Natural resources can be either renewable, like fish or wood, or non-renewable, like fossil fuels.

discretionary expectations of all stakeholders (Bansal, 2005, mainly referring to Carroll, 1979[34]). Differing slightly, Davis (1973) does not require companies to go beyond their own interests in order to be considered as socially responsible. He argues that CSR can be understood as "*the firm's consideration of, and response to, issues beyond the narrow economic, technical and legal requirements to accomplish social benefits along with the traditional performance gains which the firms seek*" (Davis, 1973: 312).

A variety of definitions of CSR exist today. However, the terminology in CSR remains largely contested and much effort has been devoted to developing typologies and taxonomies, since the debate over an unbiased definition of CSR is still ongoing (Boxenbaum, 2006; Dahlsrud, 2008; Matten & Moon, 2008; Paton & Siegel, 2005).[35] Further confusion derives from the various overlapping typologies that similarly address the social issues that corporations need to face.[36,37] Nevertheless, whichever definition is used, the fundamental idea embedded in CSR is the one that reflects the social imperatives and social consequences of business success (Matten & Moon, 2008). In this context, studies distinguish environmental assessment (the identification of societal issues and subsequent responses), stakeholder management (the firm's response to individual external stakeholders that have a legitimate stake in the firm)[38] and social-issues management (establishing processes to address societal issues) as initiatives to improve social performance (Bansal, 2005).

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[34]Carroll (1979) conceptualises four types of responsibilities for a company: Firstly, the economic responsibility to be profitable; secondly, the legal responsibility to abide by the laws of society; thirdly, the ethical responsibility to do what is right, just and fair; and fourthly, the philanthropic responsibility to contribute to various kinds of social, educational, recreational or cultural purposes.

[35]For example, Chahal and Sharma (2006: 205) define CSR as the "*firm's obligation to protect and improve the welfare of society and its organisation, now as well as in future, through its various business and social actions, and to ensure that it generates equitable and sustainable benefits for the various stakeholders.*" Chakraborty *et al.* (2004: 109), in turn, view CSR as a means of "*achieving commercial success in ways that honour ethical values and respect people, communities, and the natural environment*", encompassing all those actions of organisations that affect society and its wellbeing.

[36]Some scholars abbreviate corporate social responsiveness as CSR too, thereby addressing what companies do in order to be socially responsible (Black, 2006). Yet another concept is corporate social performance (CSP), combining both responsibility and responsiveness into a more comprehensive framework (Wood, 1991), and measuring the social performance as well as proposed relationship between CSR activities and the firm-level corporate financial measures (Dennis *et al.,* 2008). Wood (1991: 693) defines CSP as "*a business organisation's configuration of principles of social responsibility, processes of social responsiveness, and policies, programmes, and observable outcomes as they relate to the firm's societal relationships.*"

[37]Another related term in the literature is corporate citizenship. While very similar to CSR, it nevertheless bears a slightly different meaning. It emphasises the influence companies have in the communities in which they operate (Carroll, 1998; Matten & Crane, 2005; Saiia *et al.*, 2003). One idea is that, just like private citizens, companies are expected to fulfil certain expectations and responsibilities in their everyday behaviour. These are, according to Carroll (1998), to be profitable, obey the law, engage in ethical behaviour and give back through philanthropy. By contrast, Matten & Crane (2005: 173) state that corporate citizenship "*describes the role of the corporation in administering citizenship rights for individuals*". Their definition reframes the concept from the notion that the company is a citizen in itself to one in which it administers certain aspects of citizenship for other constituencies in society.

[38]See section 2.2.

Value creation contributes to the economic performance and success of an organisation. From an internal perspective of the organisation's investment, a company creates value through the goods and services that it produces, measured in the difference between the perceived benefits gained by the purchasers and the economic costs to the company (Bowman & Ambrosini, 2000; Peteraf & Barney, 2003). In this context, value creation takes place by improving the effectiveness of these goods and services efficiently. Thus, in producing goods and services, value creation expresses customer desires, lowering the costs of the input factors or realising production efficiencies (Bansal, 2005). However, a company captures the value created in the form of financial capital only if it can sell the goods and services at a higher price in comparison to its actual costs (Bowman & Ambrosini, 2000). This ultimately depends on a company's bargaining behaviour and its environmental context, such as regulations. Besides the financial capital, a company can create value from internal investments in terms of tangible capital (measured in a company's assets) and intangible capital, which is determined by a company's know-how, reputation, inventions or organisational routines (Dyllick & Hockerts, 2002; Sharma & Vredenburg, 1998). External factors also have an effect on the economic performance of a company (Singh *et al.*, 1986), specifically if the market-risk perceptions of a company decreases, such as in the form of lowered exposure due to better environmental or social performance (Albertini & Segerson, 2002). The reduction of the perceived risk of a company's cash flow causes financial markets to accept lower price premiums on equity or allow the company to acquire higher levels of leverage, most likely resulting in a lower cost of capital and an increase in shareholder value (Sharfman & Fernando, 2008).

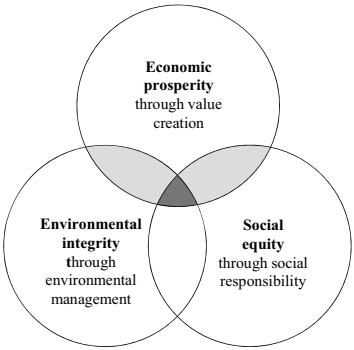

Figure 4: The integrative concept of corporate sustainability (according to Bansal, 2005)

In summary, corporate sustainability stands for the integrated management and enhancement of a company's environmental, social and economic performance, allowing a company to accomplish benefits for the environment and/or society along with accessing strategic value for the company and its shareholders.

2.1.2. Proactiveness of sustainability strategies

Sustainability strategies have now gained momentum among different scholars of strategic management (e.g., Aragón-Correa, 1998; Aragón-Correa & Sharma, 2003; Bansal & Roth, 2000; Matten & Moon, 2008; Porter & Kramer, 2006; Sharma *et al.*, 1999; Sharma & Vredenburg, 1998) and in the field of strategic political management (Bonardi *et al.*, 2005, 2006; Oliver & Holzinger, 2008).

Recent papers have suggested different strategic orientations of sustainability strategies (e.g., Bansal & Roth, 2000; Reinhardt, 1999). In this context, van Marrewijk (2003) argues that organisations adopt sustainability practices either because they are 'made to do it', 'feel obliged to do it', or 'want to do it'. Following Husted & De Jesus Salazar (2006), these practices are further subdivided into compulsory actions (required by law), altruistic and strategic actions.

Apart from altruistic or normative motivations, which are not the subject of this thesis, scholars differentiate sustainability strategies into *compliance* and *proactive* strategies, regardless of whether they are focused on the organisation itself or its supply chains (Aragón-Correa, 1998; Maignan *et al.*, 2002: 643; Matten & Moon, 2008; Porter & Kramer, 2006; Sharma *et al.*, 1999).[39] In this context, Bansal & Roth (2000) emphasise two rationales underlying the selection of one of the two strategies. Firstly, the organisation's *legitimacy* to operate; and secondly, organisational *competitiveness*.[40] Sharma *et al.* (1999) connect these two differentiation approaches, arguing that compliance strategies aim for reduced risk and liabilities – in other words, ensuring legitimacy in order to maintain the current competitive position – whereas proactive strategies are voluntarily adopted in order to create additional competitive advantage.

Firms that voluntarily undertake sustainability strategies may aim for two different types of competitive advantage.

When pursuing a *market-based* strategy on the one hand, companies compete on the market by increasing efficiency due to the environmental sophistication of processes (by being 'lean and green') or targeting environmentally and socially conscious consumers and investors while proactively dealing with environmental and social problems. By voluntarily adopting these strategies, or what they call 'voluntary environmental programs' (Toffel, 2005),

[39] In this context, Porter and Kramer (2006) coin these strategies 'rule-based approach', referring to the legitimacy of an organisation, and 'principle-based approach', where organisations strive to become a social leader of their industry and to achieve a competitive superior position. A comprehensive review of how these two dimensions are defined is given by Hillman and colleagues (1999).

[40] It is important to note that companies must not necessarily follow one single strategic motivation. Rather, they may balance their strategies so that they comply to the given demands and differentiate from these demands to a certain degree in order to achieve competitive advantage (Deephouse, 1999).

companies may increase efficiency or develop a 'green' or social reputation and take a competitive position in markets as a result (Moon & DeLeon, 2007; Orsato, 2006).

On the other hand, voluntary actions can be seen as *political-* or *institution-based* – as a strategic means to influence the institutional pressures exerted on the company, such as regulations. In this context, a company can pursue 'non-market' political strategies that aim to convince the institutional and regulatory agents and the public of its environmental and social receptivity in order to increase the regulatory pressures faced by competitors, either directly (Bonardi *et al.*, 2005, 2006; Oliver & Holzinger, 2008) or indirectly, by building constituencies itself (Hillman & Hitt, 1999). In this context, Oliver & Holzinger (2008) as well as Saiia *et al.* (2003) derived four alternative strategies that companies can pursue to create strategic benefits from managing their business and political environment (see Figure 5). They propose that sustainability actions can be divided into two sub-categories, depending on the strategy's capacity to either sustain or improve legitimacy and competitiveness. In their argumentation, a compliance strategy either represents a *reactive* strategy, in which strategies are undertaken to align organisational processes with the demands of the institutional and market environment (e.g., by developing an efficient pollution-control process)[41]; or an *anticipatory* strategy[42], in which actions are undertaken in anticipation of public policy or market changes (Oliver & Holzinger, 2008). Anticipatory strategies take a step towards more proactive sustainability; nevertheless, they are usually followed by a clear indication of forthcoming changes. In contrast, strategies for influencing the institutional and market environment are either *defensive* strategies to prevent unwanted changes by protecting the *status quo* (e.g., through active advocacy and lobbying, or by putting up defensive social networks), or a *proactive* strategy that tries to shape and control the way in which markets, norms and public policies are defined.

Both compliance and proactive strategies can provide strategic benefits for companies and their supply chains. However, these advantages are usually short-lived in compliance strategies (*ibid.*) and few if any benefits are associated with pursuing a defensive strategy (Palazzo & Scherer, 2006; Zadek, 2004). Hart and Sharma (2004) even suggest that compliance strategies may no longer suffice as basic compliance with the laws and regulations of society. Merely desisting from doing anything illegal may be perceived as insufficient, especially if influential audiences such as NGOs, customers or civil society organisations decide that such laws or regulations are inadequate.

[41]For processes enabling organisational reactions to market and non-market (i.e., institutional) demands in the context of corporate sustainability, see Delmas & Toffel (2008).

[42]Also called 'accommodative strategy' (Saiia *et al.*, 2003).

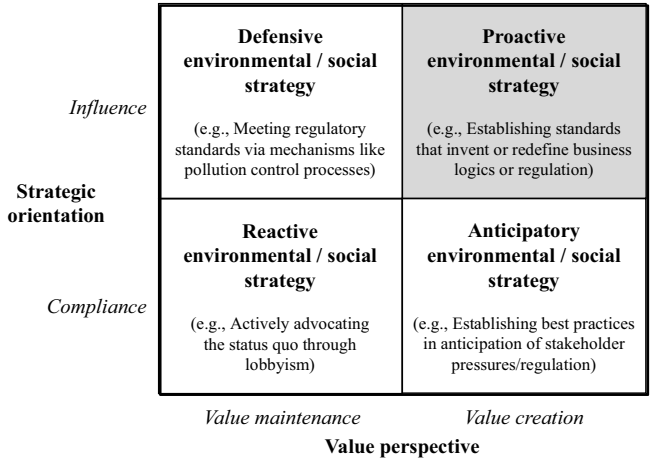

Figure 5: Strategic orientation of sustainability strategies with examples from the institution-based argumentation (with modifications taken from Oliver & Holzinger, 2008: 506)

This thesis focuses on proactive strategies that require participating companies to improve the environmental and social performance of operations beyond the legal or market requirements existing in the institutional environment, enabling participating companies to shape public policies or business logic and enhance their competitive position.

2.1.3. Sustainability strategies for supply chains

Although in business practice the majority of companies running corporate sustainability still restrict the three introduced concepts predominantly to their own organisation, a growing number of scholars argue that organisations additionally need to expand their strategies throughout the entire supply chain and consider inbound, in-house and outbound supply-chain processes (e.g., Carter & Jennings, 2002; Ciliberti *et al.*, 2008; Darnall *et al.*, 2008; Neto *et al.*, 2008; Rao & Holt, 2005; Svensson, 2007; Vachon & Klassen, 2006; 2008; Zhu & Sarkis, 2004), depending on the supply chain configuration and its public recognition (Handfield *et al.*, 2005; Roberts, 2003).

This is why the focus on proactive sustainability strategies is broadened to include entire supply chains. In this context, supply chains are coordinated by the initiator of the sustainability strategy and consist of multiple internal functional departments or external business partners along the upstream and downstream flows of products, services, finances or information from their source to the end customer (Mentzer *et al.*, 2001: 4). Thus, as illustrated in Figure 6, supply chains are perceived as a specific form of ‘strategic networks’

(Sydow, 2006: 396), being coordinated and managed hierarchically by a 'focal firm' (Mentzer *et al.*, 2001).[43]

In the following section, the concept of supply chain management will be presented and how its understanding is anchored in the literature will be set forth. Finally, current work on sustainability strategies in the context of (hierarchical) supply chains[44] is reviewed.

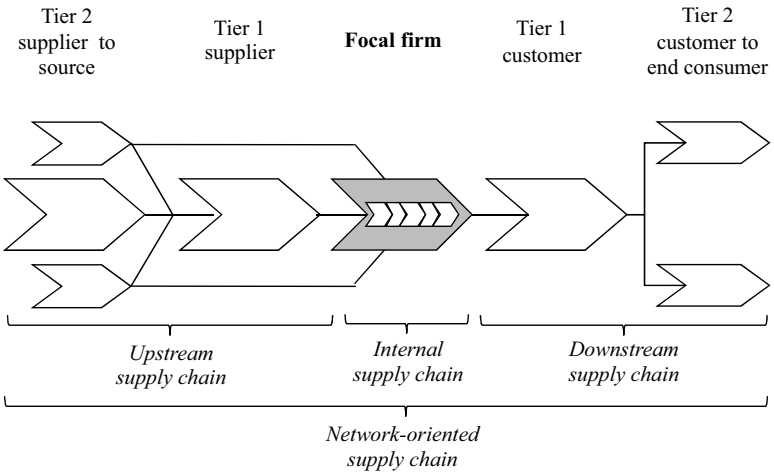

Figure 6: Network-oriented supply chain understanding applied to this thesis (with modifications taken from Heusler, 2004: 42)

Supply chain management from a focal firm perspective

Supply chain management (SCM) is a strategic concept designed to manage and coordinate supply chains consisting of numerous participating organizational functions and organisations as an entity, instead of dealing with fragmented organisations or functions (Mentzer *et al.*, 2001; Stölzle, 1999: 164f.). Monczka *et al.* (2004: 78) focus on the supply side (i.e., upstream supply chain) and define the SCM concept, "*whose primary objective is to integrate and manage the sourcing, flow, and control of materials using a total systems perspective across multiple functions and multiple tiers of suppliers.*" Complementarily to the supply side, Heikkilä (2002) focuses on the demand side (i.e., downstream supply chain), arguing that the

[43]For the sake of completeness, this thesis refers to Heusler (2004: 130ff.), who stresses the existence of heterarchical supply chain networks as opposed to hierarchical network structures. These networks are not coordinated by a focal firm and are composed by means of markets and prices. However, as the thesis takes a focal-firm view of supply chains (i.e., the company that defines the way in which its supply chains should behave), this kind of supply chain network structure is not appropriate for analysing the research phenomenon.

[44]For simplification, these network-oriented supply chains will be referred to as supply chains (including the organisation-internal supply chain, inter-organisational relationships with supply-chain members and the entire network) in the further course of the thesis.

focal company should start from the consumer integrating towards customers and their subsequent downstream networks. Cooper *et al.* (1997: 195) reflect on both sides of the supply chain, arguing that SCM "*ideally embraces all business processes cutting across all organisations with the supply chain, from initial point of supply to ultimate point of consumption*". Similarly, according to Handfield & Bechtel (2002: 367), SCM is the management of "*all activities associated with the flow and transformation of goods from the raw materials stage (extraction), through to the end user, as well as the associated information flows*". Hence, SCM requires "*the recognition by an organisation of the systemic, strategic implications of the tactical activities involved in managing the various flows in a supply chain*" (Mentzer *et al.*, 2001: 11) in order to create unique, individualised sources of customer value and to enhance the competitive advantage of the whole supply chain, as well as each member firm.[45] By considering and coordinating whole supply chains instead of merely achieving local sub-optima, a company is able to create the greatest value at the lowest costs (Handfield & Nichols, 1999). Thus, SCM increasingly becomes a strategic tool, used not only as a concept to provide products where they are needed, but also as a tool to improve key operational outcomes (such as cycle-time performance) and the associated financial benefits (Hult *et al.*, 2002; 2004; 2007). According to Krause *et al.* (2000), coordination of supply-chain members is either externalised via competitive pressures on supply-chain partners, assessment and incentives or internalised via direct involvement through specific investments into the supply chain relationships by the focal firm. Similarly, Heusler (2004: 132f.) states that in hierarchical supply chains coordination is mainly achieved directly via directives, programs, and plans, and/or indirectly via integration and collaboration (e.g., negotiations, standardisation, incentives, specific-investments).

However, due to high complexity, it has been stressed that a total integration of all participants in the supply chain might be an inappropriate approach in practice (Lambert *et al.*, 1998; Tan *et al.*, 1998). Instead, companies consider key supply-chain members to integrate (Tan *et al.*, 2002), depending on the transaction costs associated with the respective relationship (Skjøtt-Larsen, 2007)[46], the power relations between the involved actors (Cox, 2001; Cox *et al.*, 2001)[47], and its relational benefits (Dyer & Singh, 1998)[48].

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[45]For the sake of completeness it has to be noted that supply chain management covers, besides the management of material and information flows across supply chains, the financial flows. Details of supply chain management under a financial-flow perspective can be reviewed elsewhere, e.g. Hofmann (2007).

[46]In short, in the context of supply chain relationships, transaction cost theory explains the choice for either a cooperative-governance structure (cooperative relationships) or a market-governance structure (arm-length relationships) as a function of the complex interaction between the environment, the institutions themselves and the transactional characteristics (Skjøtt-Larsen, 2007). According to this theory, market governance is the appropriate structure in the case of great uncertainty, high transaction frequency and high asset specificity; conversely, cooperation or, in extreme cases, vertical integration is the appropriate mode of governance

Supply chain management in the context of sustainability strategies

Sustainable (Carter & Rogers, 2008), environmentally conscious (Beamon, 2005), green (Darnall *et al.*, 2008; Handfield *et al.*, 2005) or closed-loop supply chain management (Rogers *et al.*, 2008) goes beyond the core of traditional supply chain management (Linton *et al.*, 2007), eventually leading to additional complexity in the focal firm's decision making (Handfield *et al.*, 2002). Supply-chain members are encouraged to fulfil customer value concerning the environmental and social performance of products and processes (Zhu & Sarkis, 2004), eventually forming a prototype for future regulation and public policy (Carter & Dresner, 2001; Morash & Lynch, 2002).

According to Srivastava (2007: 54), organisations that practice sustainable supply chain management (SSCM) integrate "*environmental thinking into supply chain management, including product design, material sourcing and selection, manufacturing processes, delivery of the final product to the consumers as well as end-of-life management of the product after its useful life*". Besides the environmental aspects, the social aspects are gaining momentum in an increasing number of global supply chains (deBakker & Nijhof, 2002), as indicated by emerging standards on supply chain social responsibility (Boyd *et al.*, 2007; Piplani *et al.*, 2008).[49] Thus SSCM can be defined as "*the strategic, transparent integration of an organisation's social, environmental, and economic goals in the systemic coordination of key inter-organisational business processes for improving the long-term economic performance of the individual company and its supply chains*" (Carter & Rogers, 2008: 368).

SSCM requires companies to implement internal supply-chain practices within the organisation, like eco-design, environmental management or investment recovery, as well as external environmental or social management practices including transactions with supply-

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(Williamson, 1979; 1985). Details of supply chain relationships under a transaction-costs perspective can be reviewed elsewhere, e.g. Skjøtt-Larsen (2007).

[47] In short, in the context of supply chain relationships, power-dependence theory argues for the choice of close cooperation over market relationships as a function of the buying firm's dependence and power over the supplier (Cox *et al.*, 2001). In the case of dominance, buying firms may achieve the goal of structural leverage and allow the supplier to achieve normal rents only (i.e., by using of market mechanisms). In the case of an unfavourable dependence asymmetry to the buying firm, power-dependence theory argues for establishing coalitions (Emerson, 1962), ultimately in the form of cooperative buying approaches with horizontal alliance partners (Essig, 1998). Details of supply chain relationships under a power-relationship perspective can be reviewed elsewhere, e.g. Cox (2001) or Cox and colleagues (2001).

[48] In short, in the context of supply chain relationships, the relational view explains the choice for cooperative relationships as being dependent on the associated relational rents as well as inbound-spillover rents (Lavie, 2006). If the relationship bears high opportunities to access such rents, the theory favours a close relationship with the respective supply chain partner (Dyer & Singh, 1998). Details of supply chain relationships under a relational-view perspective can be reviewed elsewhere, e.g. Dyer and Singh (1998), see Chapters 2.2.2. and 3.3.

[49] However, it has been found that the implementation of social SSCM strategies is far behind the implementation of environmental SSCM strategies (Beske *et al.*, 2008).

chain partners (Zhu *et al.*, 2008a).[50] The long-term economic performance is expressed by customer satisfaction on cost expectations[51] due to the environmental and social sophistication of processes and the efficient use of resources within the supply chain (Carter & Rogers, 2008; Christmann, 2000; Hart, 1995), as well as by increased attractiveness for consumers, suppliers and investors (Capaldi, 2005; Klassen & McLaughlin, 1996). Furthermore, sustainable supply-chain practices, especially in the agriculture and food sector, are associated with securing the long-term supply of high-quality (raw) materials as well as decreasing reputational risks (Argenti, 2004; Jöhr & Ware, 2007).

Prominent attempts to concretise sustainability strategies for supply chains are sustainable supply chain initiatives like green/responsible purchasing policies or supplier codes of conduct (deBakker & Nijhof, 2002; Kolk *et al.*, 1999: 152; Green *et al.*, 1996; 1998; Roberts, 2003; Waddock *et al.*, 2002), certification schemes (King *et al.*, 2005) or management systems and concepts such as life-cycle analysis (LCA)[52], "design/manufacturing for the environment" approaches or total environmental management systems (Hart, 1995; Shrivastava, 1995c). In this context, codes of conduct cover programs, guidelines, policies, recommendations or rules and are issued by the focal firm in order to steer the behaviour of the targeted business entities (the affected supply chain actors) towards enhancing their environmental and social performance (Kolk *et al.*, 1999: 151). Similarly, certification schemes specify sets of environmental (or social) management practices for the individual supply-chain members and create systems for certification (King *et al.*, 2005). Environmental management systems cover collections of internal policies, assessments, plans and implementation advice that concern the affected organisations and their relationships with the natural or social environment (Coglianese & Nash, 2001; Darnall *et al.*, 2008). Thus, whichever of these vehicles is formulated, they all manifest sustainability criteria and/or process obligations for the affected supply-chain members.

Implementation-wise, these sustainable supply chain initiatives have to be coordinated either via directives and environmental monitoring in rather arm's-length supply chain relationships and the use of competitive pressures, or through jointly-developed solutions also known as "environmental collaboration" (Vachon & Klassen, 2006) in order to achieve internal supply chain compliance (Nadvi, 2008). More specifically, in arm's-length relationships, the pressure

[50]For a collection of green inbound, in-house and outbound supply chain management practices, see Rao & Holt (2005) and Zhu *et al.* (2008).

[51]In this context, it is important to note that many sustainable supply chain management practices require a total-cost thinking and the consideration of the entire lifecycle of the product in order to detect cost savings (Linton *et al.*, 2007).

[52]LCAs are used to assess the environmental and social burden that is created by a product and its manufacturing process from 'cradle to grave' (Hart, 1995: 994) in order subsequently to optimise this impact through environmentally-conscious design (design for the environment, design for disassembly), manufacturing (manufacturing for the environment), distribution or recycling (e.g., Shrivastava, 1995c).

on supply-chain partners to implement the strategic initiative is exerted through market mechanisms (Jiang, 2009), whereas the collaboration approach is based on relation-specific investments (e.g., joint investments in environmental management systems or supplier development) and relational-governance mechanisms (contracts) that incentivise the partners to comply (Mamic, 2005; Simpson *et al.*, 2007).

In arm's-length relationships (the use of the market mechanism) that often go along with a multiplicity of competitive suppliers, monitoring of the implementation often takes place in form of widely applicable certification standards (e.g., ISO 14001), so that the search and information costs for the focal firm to identify the best performer are reasonable (Delmas & Montiel, 2009; King *et al.*, 2005). Conversely, in collaborative relationships, suppliers may be better known and trusted, and information about their compliance is easier to access for the focal firm (Delmas & Montiel, 2009). However, some form of transparency concerning the supply chain partner's SSCM compliance is still needed in order to detect implementation gaps and to correct non-compliance jointly. In this context, partner-specific monitoring activities or environmental and social audits in particular have shown to improve the partner's compliance and thus environmental or social performance (Johnson, 2004; King *et al.*, 2005; Locke *et al.*, 2008; Noci, 1997; Pedersen & Andersen, 2006).

While both implementation approaches for SSCM are needed and can be observed in business practice, early empirical studies suggest that the relational approach might lead to fewer violations of the SSCM strategy by supply-chain partners compared to the market approach (Hughes, 2001; Hughes *et al.*, 2007; Hughes *et al.*, 2008; Jiang, 2009; Lim & Phillips, 2008).

2.1.4. Constituent elements of proactive sustainability strategies for supply chains

As developed in the previous sections, several constituent characteristics of proactive sustainability strategies for supply chains can be summarised for this thesis (see Table 2).

Literature stream	Contribution to thesis - Constituent characteristics
Corporate sustainability (2.1.1)	→ Strategies that consider integrative improvement of: - environmental performance - social performance - economic performance of product and operations.
Strategic (political) management [Context: Sustainability] (2.1.2)	→ are voluntarily imposed → go beyond complying with existing laws, rules and standards
Supply chain management [Context: Sustainability] (2.1.3)	→ defined by the focal organisation → for the entire affected supply chain(s) → covering inbound, in-house and outbound processes → operationalised in the form of initiatives covering guidelines, codes of conduct, certification schemes, or management systems → implemented in the supply chain via transparent approaches: - indirectly via market mechanisms (e.g., competitive pressures and advice), or - joint development in close relationships with key members.

Table 2: Summary of the constituent characteristics of proactive sustainability strategies for supply chains

Firstly, proactive sustainability strategies for supply chains incorporate the basic idea of (corporate) sustainability and enhance the environmental, social and economic performance of products and processes in order to benefit the organisation's competitiveness, the environment and society simultaneously.

Secondly, such strategies are adopted voluntarily by the organisation and go beyond complying with current legislation and business standards. These first-mover strategies define innovative environmentally or socially responsible ways of doing business (concerning the affected processes as well as for business practice in general), seizing the greatest opportunities to provide strategic benefits to the initiating company.

Thirdly, these strategies reflect the trend towards integrated supply chains. Hence focal organisations in a supply chain network have to formulate strategies for their entire (affected) inbound, in-house and outbound supply chains and manage them accordingly in order to deliver products that comply with the sustainability promise the company gives to its

customers. In this context, research has emphasised that the design of strategic initiatives such as codes of conduct (which are quite similar to policies, programs or guidelines), certification schemes and management concepts and systems should be transparently implemented in the supply chain, mainly through market and/or collaborative approaches.[53]

2.2. The objective to retain legitimacy with proactive sustainability strategies for supply chains

Most scholars argue that being able to understand and respond to the expectations of a multitude of audiences – the stakeholders – is vital for accomplishing effective proactive sustainability strategies for supply chains (Sharma, 2005) and to obtain the necessary legitimacy to design and implement these strategies (Hamprecht & Sharma, 2006; Roloff, 2008a).

For this reason, this section will initially identify what kind of stakeholders tend to legitimise proactive sustainability strategies for supply chains (2.2.1.) and will then review the current literature on how to cooperate with these legitimising actors (2.2.2.).

2.2.1. The legitimising role of strategic stakeholders in the design of proactive sustainability strategies for supply chains

In the following section we will provide a brief introduction to strategic and issue-focused stakeholder views (Freeman, 1984; Roloff, 2008a)[54], and address which kinds of stakeholders are relevant to the design and implementation of a proactive sustainability strategy for supply chains.

Fundamentals of the strategic-stakeholder view

Strategic stakeholder thinking[55] was first introduced in stakeholder theory by Freeman (1984) and has been a faithful companion to the notion of environmental management and corporate social responsibility in business literature ever since (e.g., Buysse & Verbeke, 2003; Clarkson,

[53]Based on this operationalisation, proactive sustainability strategies for supply chains refer to the design and implementation of specific sustainable strategic initiatives for supply chains.

[54]We will not provide a review of the evolution of stakeholder theory, as it has been adequately reviewed elsewhere (deBakker & den Hond, 2008; Clulow, 2005; Mitchell *et al.*, 1997) and is of no further relevance to this thesis.

[55]Donaldson & Preston (1995) expanded Freeman's theory by introducing a taxonomy that further divided stakeholder theory into three types: descriptive, normative and instrumental stakeholder theory, which have since evolved into separate research streams. Descriptive stakeholder theory focuses on whether and to what extent managers attend to various stakeholders and act according to their interests. Normative stakeholder theory explores whether managers should attend to stakeholders other than shareholders and, if so, what type of justifiable claims these various stakeholders have on the firm. Instrumental stakeholder theory, in turn, investigates the consequences for shareholder value that follow from attending to a range of stakeholders and incorporates both descriptive and normative perspectives (Freeman, 1999).

1995; Harrison & Freeman, 1999; Madsen & Ulhøi, 2001; Sharma & Henriques, 2005; Wood, 1991).

In his work, Freeman (1984: 74) states that a company is responsible for managing and coordinating a group of competitive and cooperative interests of various constituencies – what he calls the "stakeholders" of a firm: "*[...] a stakeholder is any group or individual who can affect or is affected by the achievement of a corporation's purpose. Stakeholders include employees, customers, suppliers, stockholders, banks, environmentalists, government and other groups who can help or hurt the corporation*". Savage *et al.* (1991: 61) give a more specific definition: stakeholders "*have an interest in the actions of an organisation and [...] the ability to influence it*". Similarly, Donaldson & Preston (1995: 67, 85) define stakeholders as "*persons or groups with legitimate interests in procedural and/or substantive aspects of corporate activity… identified through the actual or potential harms and benefits that they experience or anticipate experiencing as a result of the firm's actions or inactions*". More specifically, Clarkson (1995: 106) defines stakeholders as "*persons or groups that have, or claim, ownership, rights, or interests in a corporation and its activities, past, present, or future. Such claimed rights or interests are the result of transactions with, or actions taken by, the corporation, and may be legal or moral, individual or collective. Stakeholders with similar interests, claims, or rights can be classified as belonging to the same group.*" Rowley (1997) takes a more complex view of stakeholders, arguing that a strategic stakeholder is determined by the strength of its social-network position and relationships with further relevant stakeholders in addition to the characteristics of the stakeholder itself.

In summary, strategic stakeholder management argues that a company should consider three aspects of stakeholder 'salience' – that is, whether or not an interaction with stakeholders is mandatory for a company's long-term success and legitimacy (Mitchell *et al.*, 1997): firstly, the perceived level of direct as well as indirect power and influence of stakeholders over the company and its ability to harm the company (Frooman, 1999; Rowley, 1997; Savage *et al.*, 1991); secondly, the perceived legitimacy of their claims towards the company (Mitchell *et al.*, 1997); and thirdly, the perceived urgency of the issue presented by the stakeholders (Mitchell *et al.*, 1997). Eesley & Lenox (2006) go even further, arguing that stakeholder salience occurs in terms of actions, not perceptions, and by proposing that power, legitimacy and urgency arise out of the nature of 'stakeholder-request-firm triplets' that are the result of overlapping interests, identities, resources and memberships of different stakeholder groups (Rowley & Moldoveanu, 2003).

Issue-focused stakeholder thinking is an evolution of the strategic-stakeholder approach that addresses the multiple interests of different stakeholders, affected by issues in society (Bonardi & Keim, 2005; Roloff, 2008b) as well as the trend of the 'politicisation of corporations' (Scherer & Palazzo, 2007). It allows the development of legitimised policies for

the interaction between business, environment and society in strategic networks (Roloff, 2008a). In this context, Roloff (2008a: 241) considers a stakeholder "*any group or individual who can affect or is affected by the approach to the issue addressed by the network*". Still, the organisation that takes responsibility for the respective issue represents the focal point. However, as in the company-focused stakeholder approach, other stakeholders may be identified as relevant and can be brought together by the focal organisation (Hillman & Keim, 2001); their power, legitimacy and the urgency of their claim towards the *issue* identify them as relevant and worthy of consideration (Mitchell *et al.*, 1997). This may include direct project partners (e.g., external consultants, NGOs, supply-chain partners and other companies) as well as relevant project-external constituents (e.g., governmental bodies, public representatives, communities).

Types of stakeholders relevant to the design of proactive sustainability strategies for supply chains

The success of proactive sustainability strategies for supply chains and their concretisation in the form of strategic initiatives is determined by many different stakeholders who confer legitimacy to the design of these new practices (Hamprecht & Sharma, 2006), each being concerned with the respective sustainability issue (Roloff, 2008a; 2008b) and possessing sufficient influence, resources or legitimacy to either support or oppose the implementation of the strategy (Mitchell *et al.*, 1997). However, in the context of global supply chains in which clear guidelines for corporate conducts are lacking and conflicting rules and regulations exist (Gössling & Vocht, 2007), the identification of relevant stakeholders may prove even more problematic, as the understanding of legitimising stakeholders and their salience becomes increasingly vague (Palazzo & Scherer, 2006).

In general, stakeholders can be split into primary (those directly involved with the company's value-creating processes) and secondary (those indirectly involved with the company), internal (functional departments, employees, managers)[56] and external (customers, competitors, regulators, suppliers), core (visible and readily identifiable parties with a stake in the firm's existing operations) and fringe (peripheral stakeholders) or societal (government, industry associations, non-governmental organisations and the media), and economic stakeholders (supply-chain partners, shareholders, financial institutions like creditors, banks, or credit-rating agencies), depending on the characteristics of the stakeholder groups (Clarkson, 1995; Hamprecht & Sharma, 2006; Hart & Sharma, 2004; Maignan *et al.*, 2005; Mitchell *et al.*, 1997; Roloff, 2008a).

[56]In the further course, this thesis will focus on external stakeholders and the term "stakeholder" will cover company-external actors only in the following.

However, the identification of strategic stakeholders according to categories such as primary and secondary or core and fringe may not be suitable, as all of these stakeholders may have a distinct influence over companies and their strategies and give their legitimacy accordingly (deBakker & den Hond, 2008; Maignan *et al.*, 2005). Specifically, stakeholders usually identified as secondary are increasingly the driving force when bringing sustainability issues onto the political, corporate, and supply chain agendas (Bonardi & Keim, 2005; Eesley & Lenox, 2006; Hart & Sharma, 2004; Zietsma & Winn, 2008), thereby influencing primary stakeholders. A prominent example in this context is the destruction of 'Brent Spar' by Shell, in which the NGO Greenpeace influenced consumers to boycott Shell. This, among other stakeholder pressures induced by Greenpeace, forced Shell to destroy the oil platform instead of sinking it (May *et al.*, 1999; zu Knyphausen-Aufseß *et al.*, 2003).

With respect to identifying types of stakeholders necessary for the legitimacy of proactive sustainability strategies for supply chains, a distinction between societal and economic stakeholders seems to be more compelling. This differentiation emphasises the interests of the different stakeholders in certain aspects of the sustainability strategy, instead of evaluating the relationship between the stakeholder and the company itself.

Referring to the pillars of sustainability[57], Hamprecht & Sharma (2006) state that, in the context of proactive sustainability strategies for supply chains, two stakeholder groups may be especially important to the legitimacy of strategy design. They argue, similarly to Bansal (2005), that the performance of sustainability encompasses *'societal performance'* (including the environmental and social pillar of sustainability strategies) as well *'economic performance'* (referring to the economic pillar of sustainability strategies)[58], each being the focus of different stakeholders (Hamprecht & Sharma, 2006).[59]

Societal stakeholders request a certain minimum standard of societal performance (x^{min}, Figure 7) in order to legitimise a strategy (Hamprecht & Sharma, 2006) and determine the access to important resources such as operating licenses (Sharma & Vredenburg, 1998), knowledge, or human resources (Zimmermann & Zeitz, 2002). Examples in the context of proactive sustainable supply chain strategies are regulatory stakeholders (environmental /

[57] See chapter 2.1.1.

[58] Similarly to the 'economic legitimacy' introduced by Hamprecht & Sharma (2006), which refers to Bansal's (2005) value-creation pillar of corporate sustainable development, Dacin *et al.* (2007: 177) argue that organisations enter strategic alliances in order to strengthen 'investment legitimacy'. Also, Dacin *et al.* refer to Hamprecht & Sharma's 'social legitimacy' as 'societal legitimacy', but also refer to Bansal's environmental management and CSR pillars of corporate sustainable development.

[59] In the same vein, Witte *et al.* (2003) argue that companies and their sustainability strategies must be accountable to a broad range of affected stakeholders, including societal stakeholders such as NGOs, the media, governments, and donors as well as economic stakeholders. Accordingly, they demand that such strategies be given pluralistic accountability structures, thereby taking into consideration the fact that multiple different stakeholders legitimise companies' sustainability strategy.

social legislation or administration control) and external stakeholders (Henriques & Sadorsky, 1999; Murillo-Luna *et al.*, 2008) such as NGOs or media, which may point out deficiencies in the societal performance of a company's supply-chain practices. They may influence direct stakeholders to withdraw legitimacy from the strategy (Rowley, 1997).

Examples in this context are campaigns against child labor in Nike's supply chain in the nineties (Friedman & Miles, 2006: 235) as well as significant NGO demands for applying fair-trade rules and sustainability codes in coffee supply chains in the beginning of the current millennium (Argenti, 2004; Hamprecht, 2006; Hockerts, 2005; Kolk, 2005). Examples for media pressure include Indian national media, which denounced Coca-Cola's and PepsiCo's strategies for their operations and supply chains due to poor labor standards, violations of environmental management standards, and contributing to ground water scarcity (Hamprecht & Sharma, 2006). Regulators or regulatory agencies may also force companies to ensure a certain minimum standard of societal performance of their own supply-chain practices. These demands are set by laws for human rights or labor safety and emerging platforms for sustainable (supply chain) practices as well as the establishment of norms for multinational enterprises and sustainable supply-chain practices by the OECD (2000; 2002).

Economic stakeholders, in contrast, request a certain minimum standard of economic performance to give their legitimacy to a strategy. They can only allow access to critical resources such as cost-effective supply networks, distribution channels and financial instruments (such as debt or equity) if they legitimise the strategy (Hamprecht & Sharma, 2006). Although they may recognise that it pays to be sustainable beyond complying with regulations and industry norms, at least to a certain degree (e.g., Hart & Ahuja, 1996; Klassen & McLaughlin, 1996; Russo & Fouts, 1997; Sharma & Vredenburg, 1998)[60,61] economic stakeholders also determine the maximum acceptable burden associated with societal performance (x^{max}, figure 7, Hamprecht & Sharma, 2006), as they observe a curvilinear

[60]Numerous studies found direct and indirect benefits of corporate sustainability practices (Hart & Ahuja, 1996; Klassen & McLaughlin, 1996; Russo & Fouts, 1997; Sharma & Vredenburg, 1998) and sustainable supply chain strategies on firms' environmental and financial performance (Klassen & Vachon, 2003; Rao & Holt, 2005; Vachon & Klassen, 2008; Zhu & Sarkis, 2004). However, researchers also found negative correlations (Waddock & Graves, 1997; Zhu *et al.*, 2005). Hence, overall, the phenomenon is not yet fully understood, because positive, neutral and negative results can all be observed (Hart & Ahuja, 1996; Klassen & McLaughlin, 1996; Margolis & Walsh, 2003; McGuire *et al.*, 1988; McWilliams & Siegel, 2000; Orlitzky *et al.*, 2003; Russo & Fouts, 1997).

[61]It is important to note that stockholder theory, which puts financial stakeholders in the main focus of interest, also does not argue for a single orientation on profitability, but accepts a certain minimum of societal performance instead. As Hasnas (1998: 22) states: "*the stockholder theory does not instruct managers to do anything at all to increase the profitability of the business. It does not assert that managers have a moral blank check that allows them to ignore all ethical constraints in the pursuit of profits. Rather, it states that managers are obligated to pursue profit by all legal, non-deceptive means*".

relationship between societal and financial performance (e.g., Barnett & Salomon, 2006; Brammer & Millington, 2008).[62]

Examples in the context of proactive sustainability strategies for supply chains are stakeholders – such as suppliers, customers, financial institutions, or shareholders (Murillo-Luna *et al.*, 2008) – who constrain the strategy implementation by a lack of willingness or understanding to establish or invest in sustainable processes and products. For instance, European suppliers and manufacturers in the fast-moving consumer-goods sector distrust joining several retailers' carbon-footprint strategies for their supply chains because they fear inappropriate measurement systems and transparency about their own environmental performance as well as the associated additional costs (Kranke, 2008: 13). Competitors or other companies on the same supply chain level may further constrain an increase in societal performance due to an overlapping supply chain configuration (Kolk & Pinske, 2004). In this context, powerful actors who buy their material from the same source (thus being part of the targeted sustainability issue itself) and who are not willing to pay for enhanced societal performance are problematic if the supply chain infrastructure does not allow a separated handling of different products. An example is the exploitation of fish; a sustainable fishing strategy is constrained by competing fisheries and food manufacturers who are not willing to invest in a similar strategy, even if the strategy were to be implemented in their own supply chain (Hamprecht, 2006). Similar problems may arise if the targeted purchases are also made by companies that act in industry sectors in which the sustainability issue is not discussed or is perceived as problematic. For example, GMO[63] is viewed very critically in the food industry, but not in the chemical industry, which is a big customer of agricultural raw materials as well. Their own customers or consumers may further determine the maximum level of societal performance imposed by a strategy if they do not pay an extraordinary premium for sustainable products compared to traditional ones to cover additional costs (Roper ASW, 2002).[64]

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[62] A curvilinear relationship between environmental / social investments and financial performance is assumed, because at some point the costs of the environmental/social improvements may outweigh the benefits associated with the strategy (Barnett & Salomon, 2006).

[63] GMO: Genetically Modified Organism

[64] Although 'true-blue green' consumers are financially stable and more likely to demand minimum societal investments, they only account for a minority of all consumers, according to a recent study in the United States (Roper ASW, 2002). This is why the majority of consumers may buy green products when the economy is doing well or when they are appealed to properly, but will at the same time determine the maximum societal investment. However, some recent studies found sustainability to be an emerging trend for mainstream consumers in developed countries (Kaenzig & Wüstenhagen, 2008; Kirig *et al.*, 2007, cited from Bilharz & Belz, 2008), as a McKinsey study shows specifically with respect to climate change (Bonini *et al.*, 2008). Within these studies, a Boston Consulting Group (BCG) study including 2000 European consumers found a 6.25% increase in green product demand from 32% in 2007 to 34% in 2008 (Manget *et al.*, 2009).

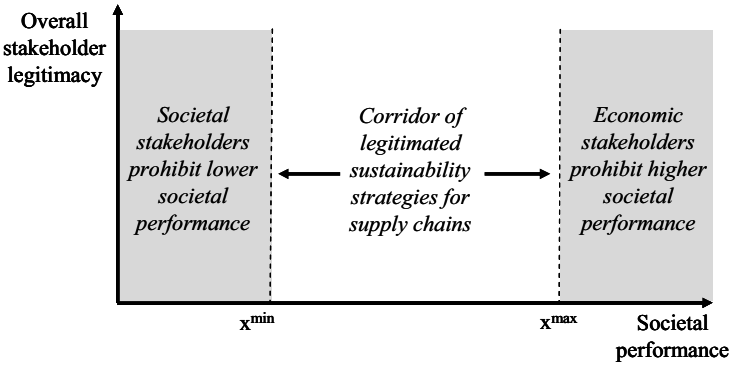

Figure 7: Societal (including environmental and social) performance of proactive sustainability strategy for supply chains and overall stakeholder legitimacy (with modifications taken from Hamprecht & Sharma, 2006: 15)

According to Hamprecht & Sharma (2006), a stakeholder-legitimised, proactive sustainability strategy for supply chains and its associated initiatives allocate the societal performance between x^{min} and x^{max} (see Figure 7) in order to cope with societal as well as economic stakeholders, or stakeholders with sufficient influence on them (Rowley, 1997). This means paying equal attention to both societal and economic legitimacy, because a narrow focus on one of the two stakeholder groups might lead to declining chances of success of the strategy design and its implementation due to legitimacy shortfalls. Particularly in cases of proactive (innovative) sustainability strategies in which stakeholder positions are diffuse and not always clear, companies may be required to involve these stakeholders (Sharma & Vredenburg, 1998), often leading to strategies that are negotiated between the partners in a discursive process (Scherer & Palazzo, 2007). This idea is supported by Shrivastava (1986: 373), who states that "*conceptualising strategy as praxis ... requires that stakeholders who influence or are influenced by organisations be identified as legitimate participants in the discourse on its strategy. Ideally, organisational goals should be settled discursively, through rational argumentation under undistorted communicative conditions.*"

2.2.2. A process model of involving stakeholders in the design of proactive sustainability strategies for supply chains

In order to identify the salient stakeholders and supply-chain partners that are worth being integrated into the design and implementation of sustainable supply chain strategies, scholars have suggested several steps that can be taken (see Figure 8).

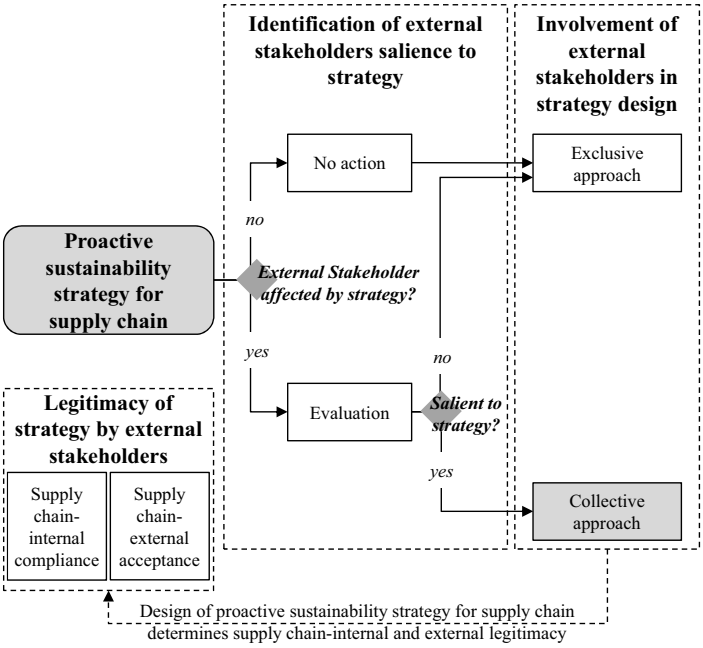

Figure 8: Design and legitimacy of a proactive sustainability strategy for supply chains

In a *first step*, it is suggested to identify external stakeholders, including supply-chain partners, who are affected by (or interested in) the respective proactive sustainability issue and the company's strategy for its supply chains (Falck & Heblich, 2007; Walton *et al.*, 1998). For example, WWF is likely to have an interest in strategies on timber supply chains, because this organisation defines itself as responsible for worldwide forest conservation and related endangered species.[65]

[65] See www.panda.org (retrieved on 19th November 2008)

In a *second step*, the initiator of such a strategy should identify which affected or interested stakeholders are salient in strategy implementation (Maignan *et al.*, 2002; Mitchell *et al.*, 1997)[66], as well as whether these stakeholders can be influenced by integration (Walton *et al.*, 1998). Specifically, their power, legitimacy and ability to influence the implementation of the sustainability strategy (e.g., critical suppliers) are characteristics that determine a stakeholder's or supply chain partner's salience in the strategy's success (Mitchell *et al.*, 1997; Walton *et al.*, 1998).

In a *third step*, the identified organisations should be considered and involved in the design and implementation of the strategy, securing their legitimisation and any resources needed (Falck & Heblich, 2007).[67] Also, the organisations should secure both supply chain-internal compliance with the strategy by upstream and downstream supply-chain partners and the acceptance of the strategy by supply chain-external (salient) stakeholders.

If no stakeholder is able to harm the strategy implementation, a purely 'exclusive approach' (e.g., without involving competitors) is – besides ensuring legitimacy – more likely to affect first-mover advantages for the strategising company (Jones, 1995), to improve the company's reputation among customers, and finally to secure or expand the company's market share (Werther & Chandler, 2005).

Conversely, a 'collective approach' is needed when at least one external stakeholder (including supply-chain partners) is salient and questions the strategy design and its implementation (Falck & Heblich, 2007), which can happen, for example, if the aim of the initiative goes beyond the company's own supply chain (Kolk & Pinske, 2004). In this case the single company's commitment to the strategy may be too risky, because competing supply-chain practices might be quick to take advantage if the company's exclusive supply-chain practices weaken its legitimacy and competitive position. Ultimately, the company might be forced to comply with the competing supply-chain practices or leave the market.

[66]For the determination of the stakeholders that are salient to a strategy (i.e., key or strategic stakeholders), see Chapter 2.2.1.

[67]It is important to note that companies cannot include each and every stakeholder (Raynolds *et al.*, 2007; Roloff, 2008a) – particularly when different stakeholders have conflicting expectations and perceptions (Mitchell *et al.*, 1997). Furthermore, the involvement of too many stakeholders can be time-intensive and costly (Carmin *et al.*, 2003), as the number of participants determines negotiation costs (Delmas & Terlaak, 2001). This is why companies must be able to handle this 'trade-off between participation and effectiveness' (Bernstein, 2005: 163) by selectively identifying the stakeholders and related concerns that are most influential for their goals (Hart & Sharma, 2004). Particularly with larger and more complex multi-stakeholder networks, the selection, balancing and exclusion of certain participants may be a crucial, albeit sensitive, element of successful strategy design and implementation (Fransen & Kolk, 2007; Roloff 2008a).

2.2.3. Types of stakeholder relationships in the context of proactive sustainability strategies for supply chains

In order to establish collective approaches in the context of sustainability strategies, Nijhof *et al*. (2008) suggest that distinct orientations be taken by companies towards their stakeholders: the 'inside-out' orientation, the 'outside-in' orientation and the 'stewardship' orientation, each entailing different types of relationships and governance structures. While the inside-out orientation focuses on an organisation-internal understanding of the company's role in society and an exclusion of stakeholders (manifested in a one-sided communication), both the outside-in and stewardship ideas emphasise a two-way dialogue and cooperation between the company and its strategic stakeholders (Hart, 1995; Nijhof *et al.,* 2008).[68] More precisely, the outside-in orientation tries to prevent reputational damage by having a 'narrow' dialogue or consultation with the stakeholders perceived as salient to the strategy design (Fransen & Kolk, 2007; Nijhof *et al.,* 2008). Stakeholders have more of an advisory role, giving input at roundtables while the actual implementation of the strategy is carried out by the company (Fransen & Kolk, 2007).

By contrast, having a stewardship orientation means that the organisation reflects its position and strategies in society as well as the environment, and focuses on the roles the different members in and around their global upstream and downstream supply chains can have. Hence organisations pursue 'broad', relational partnerships (*ibid.*) with their stakeholders in the design of their strategies in order to contribute to the common good and make their organisation and strategies 'subservient' to facilitating change and the gradual solutions to important societal issues (Friedman & Miles, 2001; Mackenzie, 1998; Nijhof *et al.,* 2008). Within this extensive participation, also known as 'involvement' (Sharma, 2005; Sharma & Vredenburg, 1998), the design and implementation of initiatives (e.g., business standards) is carried out by various stakeholders (Fransen & Kolk, 2007). In this context, supply-chain partners as specific groups of primary stakeholders obtain an important role. By involving them early in the design phase of sustainable products and processes (e.g., Walton *et al.*, 1998)[69], as well as in the implementation and production phase (e.g., King & Lenox, 2001)[70],

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[68] A similar view is taken by Arnstein (1969), who developed a ladder of public involvement in policy creation, ranging from a passive 'one-way' involvement to an active 'two-way' involvement of stakeholders, depending on the power they have over the company.

[69] 'Early supplier involvement' in the field of sustainability strategies is predominantly discussed with respect to 'design for environment' (DfE) initiatives. In this context, suppliers are involved in DfE activities and processes and take the responsibility for environmentally friendly product materials and design processes (Walton *et al.*, 1998).

[70] In the literature on sustainability strategies, the benefits of supply chain integration in the production phase is primarily discussed in relation to the 'lean and green' debate (Florida, 1996; King & Lenox, 2001), as well as to supply chain risks. In this context, scholars argue that integrated, lean supply chains simultaneously contribute to process improvements and supply security, as well as reduced emissions and waste.

they provide legitimacy to the strategy (i.e., supply chain-internal compliance) as well as further benefits like process improvements resulting in cost or complexity reductions, increase of environmental performance (e.g., reduced emissions), improvements of service or product characteristics, and reductions of uncertainty.

In the context of proactive sustainability strategies for supply chains, particularly when tackling complex social and environmental challenges or aiming for the radical transformation of existing practices, companies increasingly engage in collective approaches involving a broad spectrum of multiple stakeholders (including both 'for-profit' and 'non-profit' organisations) in order to address the environmental or social issue (Bäckstrand, 2006; Detomasi, 2007; Etzion & Ferraro, 2007; Fransen & Kolk, 2007; Hart & Sharma, 2004; Khan *et al.*, 2007; Roloff, 2008a; Waddell *et al.*, 2006; Waddell, 2007).[71] This is because companies that pursue such strategies need to be able to expand their sources of knowledge beyond the traditional business relations if they are to generate and implement unique and radical new ideas beyond their usual business approach (Hart & Sharma, 2004; Sharma, 2005; Witte *et al.*, 2003). While the role of the business participants and supply-chain partners is to ensure that value is generated for the benefit of the various stakeholders (e.g., in terms of supporting the values and norms they represent, or protecting the resources relevant for them), the involvement of societal stakeholders may result in various benefits, in terms of legitimacy, complementary resources, capabilities and knowledge (Lawrence *et al.*, 2002; Sharma, 2005), or the capacity to sense emerging societal concerns earlier (Dorado, 2005; Sharma & Vredenburg, 1998). Furthermore, the presence of various stakeholders increases the chances that both the strategy and the participants themselves can achieve credibility among external stakeholders (e.g., the media, competitors, governments) which is a key element for the company's and the strategy's success (Bäckstrand, 2006; Detomasi, 2007; Perez-Aleman & Sandilands, 2008; Roloff, 2008a; Waddell, 2007).[72] In this context, the involvement of actors such as NGOs receives increasing attention (Doh & Guay, 2006; Fransen & Kolk, 2007). These stakeholders are often a vital source of important local knowledge that may lead to superior and more strongly accepted solutions (Neilson & Pritchard, 2007; Prahalad, 2005) and may contribute to the credibility of a project, e.g. as observers of certification (Raynolds *et al.*, 2007). By contrast, governmental bodies are only important when the strategy requires changes in domestic or international policies (e.g. the Kimberly Process for sustainable diamond mining and trading rules, see Fransen & Kolk, 2007).

The inclusion of multiple stakeholders allows the generation of effective collective problem solving and also leads to increased trust in decision making and achieved outcomes

[71] See section 2.2.1.
[72] See section 2.2.1.

(Bäckstrand, 2006). In this context, Utting (2002: 61) stresses the notion of 'multi-stakeholder initiatives' in which multiple stakeholders participate in schemes "*that set social and environmental standards, monitor compliance, promote social and environmental reporting and auditing, certify good practice, and encourage stakeholder dialogue and 'social learning'.*" Similarly, Kell & Ruggie (1999: 4) state that the successful design and implementation of strategies that intend to reduce the impact on nature or increase human rights and labor depends on the capacity to establish global networks that "*mobilize sufficient advocacy and support for strengthening such endeavors*". Furthermore, they notice (Kell & Ruggie, 1999: 4) that only collective initiatives "*can circumvent the collective action problems faced by individual firms. In the absence of aggregate corporate representation, collective responsibilities can neither be formulated nor implemented*".

Summarising these ideas, proactive sustainability strategies for supply chains will often take the form of a network strategy in which organisations co-operate with several stakeholders (at least in certain aspects of the strategy design) instead of competing (Roloff, 2008a; Sharma, 2005). When properly managed, these networks are "*an adequate form of policy management for corporations that are aware of their impact on society and want to be part of the solution proposed by globalisation rather than part of the problems resulting from it*" (Roloff, 2008a: 238), and in some cases even form 'global public policy networks' (Detomasi, 2007; Streck, 2002)[73]. Thus they can be seen to be taking an instrumental-stakeholder approach (Donaldson & Preston, 1995) in which companies promote collective action of selected multiple stakeholders on common problems and challenges (Zadek, 2004).

In this thesis, these strategic networks will henceforth be referred to as 'voluntary sustainability initiatives'.

[73] In the context of environmental or social problems arising on the global scale, such as Climate Change, these kinds of networks are frequently called 'global issue or global action networks' (Rischard, 2002, Waddell, 2003).

2.3. Designs of voluntary sustainability initiatives in the context of proactive sustainability strategies for supply chains and legitimacy

In this section, voluntary sustainability initiatives will be described in further detail. On the one hand, the different types of initiatives will be presented. On the other hand, the legitimising elements of these initiatives will be presented, as legitimacy is the main interest in the research context.

2.3.1. Voluntary sustainability initiatives and proactive sustainability strategies for supply chains

Voluntary sustainability initiatives, also known as voluntary environmental or social agreements or programs (Carmin *et al.*, 2003; Darnall & Carmin, 2005; ten Brink, 2001; Toffel, 2005), have established themselves as a specific type of multi-stakeholder network in which participants establish collaborative governance structures, including multiple relationships, with a broader spectrum of stakeholders from various fields, such as governmental organisations, NGOs, governments and civil society at large, in order to tackle sustainability issues (Bäckstrand, 2006; Detomasi, 2007; Fransen & Kolk, 2007; Schaltegger & Petersen, 2000; Zadek & Radovic, 2006). Here, different types of participants can bring a broader scope of knowledge and understanding to the issues at hand and create synergies among the participants (Fransen & Kolk, 2007). This may consequently lead to institutional arrangements that aim to help the participating organisations to meet the complex and urgent challenges of sustainability (UNEP, 2000) by developing innovative solutions[74] (Delmas & Terlaak, 2001). Such arrangements can be formed at the product, company, industry or process level to "*create formal rules, norms, standards and procedures, voluntarily adopted or contracted by firms and the organisations that draft, monitor, and enforce compliance with them*" (Garcia-Johnson, 2001, cited in Fischlein & Smith, 2008), often in the form of roundtables that define programs[75], codes of conduct[76], policies, guidelines, certification

[74] In this context, Waddell *et al.* (2006) refer to the concept of second-order change (i.e., reformation of sustainability practices) and third-order change (i.e., transformation of sustainability practices), indicating the (radical) innovativeness of most voluntary sustainability initiatives in place.

[75] A recent example of a voluntary sustainability initiative in the form of a program is the Water Stewardship program of Coca-Cola Company and the WWF, which aims to reduce water scarcity and improve water quality for Coca-Cola's supply chains and the communities Coca-Cola serves (http://www.thecoca-colacompany.com/citizenship/water_main.html, retrieved on 25th November 2008).

[76] An example of a voluntary sustainability initiative in the form of a code of conduct is the development of supplier codes of conduct of the US-American apparel producers (including Levi Strauss, Nike and Reebok), in order to set minimum performance requirements for the suppliers in terms of environmental or social performance. These codes were further developed into industry-wide codes of conduct called the Apparel Industry Partnership (Kolk *et al.*, 1999).

schemes[77] and management systems[78] (e.g., Carmin *et al.*, 2003; Darnall & Carmin, 2005; Nash, 2000; Nash & Ehrenfeld, 1997; Terlaak, 2007; UNEP, 2000; Wright & Rwabizambuga, 2006).

Several different kinds of voluntary sustainability initiatives exist today (UNEP, 2000). A frequently used differentiation is provided by Carmin *et al.* (2003) who segment voluntary sustainability initiatives into industry-sponsored, government-sponsored and third-party-sponsored initiatives. Other studies differentiate private voluntary standards (i.e., focusing on one company and its supply-chain members, such as supplier codes of conduct), collective voluntary standards (e.g., developed by multiple business partners, such as industry standards), and government- as well as NGO-sponsored schemes (Raynolds *et al.*, 2007). Similarly, Bondy *et al.* (2004) distinguish internal codes (i.e., formulated for internal purposes and to guide business practice), external codes (i.e., developed for external purposes and stakeholders) and third-party codes (i.e., developed by an external group in order to be adopted by multiple firms) within the types of codes of conduct (as one form of voluntary sustainability initiatives). According to Wright & Rwabizambuga (2006), third-party codes can be further split into principled codes (codes that express desires and lack clear implementation provisions), commitment codes (codes that formulate aspirations and specify intended actions or behaviour) and punitive codes (codes that operate in a quasi-legal fashion, and specify actions and sanctions for non-compliance).

Summing up, voluntary sustainability initiatives are collaborative arrangements involving multiple organisations that define the scope of sustainable and legitimate corporate practices or strategies in relation to specific environmental or social issues (Wright & Rwabizambuga, 2006). These collaborations could be initiated by different kinds of organisations, being either private or public (Terlaak, 2007). However, this thesis will only focus on initiatives that are triggered by privately owned companies.[79]

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[77] Examples of a voluntary sustainability initiative in the form of a certification scheme are the schemes developed in the context of timber supply chains. For example, the Forest Stewardship Council provides several certification schemes that allow companies to ensure that the timber used in their products complies with certain standards (http://www.fsc.org, retrieved on 25th November 2008).

[78] An example of a voluntary sustainability initiative in the form of a management system is the ISO 14001 standard, which requires adopters to manage environmental performance in a structured way and to seek independent verification of conformity to the standard (Toffel, 2005).

[79] It is important to note that the organisation that founds the voluntary sustainability initiative could be an NGO, or that the formal organisation of the voluntary sustainability initiative could be an NGO (Waddell *et al.*, 2006), but the foundation of the initiative must be triggered or co-initiated by a company.

2.3.2. Legitimising elements of voluntary sustainability initiatives for supply chains

Companies establish voluntary sustainability initiatives in order to legitimise their strategies (as set forth in the previous sections[80]) and to access resources that can produce new or improved capabilities by transferring or pooling resources. This allows organisations to "*do things they could not do alone*" (Hardy *et al.*, 2003: 323) and achieve their objectives accordingly. In order to generate trust and legitimacy among the affected stakeholders and supply-chain partners, organisations are forced to design and implement mechanisms for accountability, transparency, participation and effectiveness (Bäckstrand, 2006; Waddell *et al.*, 2006). In this context, the use of several elements and activities has been suggested in order to increase the legitimacy of a voluntary sustainability initiative. In the following, a summary of the mainly discussed legitimising elements will be derived from the literature on voluntary sustainability initiatives.

Common understanding and action plan

A key element of legitimised voluntary sustainability initiatives is to share a common understanding of the emerging norms and practices (Terlaak, 2007), building a 'belief system' for all organisations involved (Nijhof *et al.*, 2008). If participants lack consensus on the interpretation of means and ends, the initiative will become unsystematic, since different behaviours constitute compliance or defection, and consequently become ineffective in guiding firm behaviours (Weiss, 2000). The development of a shared understanding among the participants is thus a key developmental step (Waddell *et al.,* 2006), involving a specific form of 'dialogue' to share knowledge and understand each other's positions (Burchell & Cook, 2006; Roloff, 2008a; 2008b). This shared interpretation of knowledge can lead to the definition of the problem and shared objectives (Rauschmayer & Wittmer, 2006), which are closely related to the question of which participant will contribute which resources in the design and implementation of the collective strategy (Roloff, 2008a).

However, the development of a shared understanding might be challenging, as participants could be tempted to obtain individual advantage (Roloff, 2008b). As an example, it took about three years to build a collective understanding of 'integrated water resource management' in the Global Water Partnership due to diverse interests and interpretations (Waddell, 2007).

[80] See section 2.2.

Coordination mechanisms

In order to identify and implement a shared course of action, coordination and communication dominates the interaction between supply-chain partners and further stakeholders (Bernstein, 2005; Nijhof *et al.*, 2008; Roloff, 2008a). Dialogue is a central mode of interaction in establishing voluntary sustainability initiatives and is characterised by the exchange of arguments among the participants. In the literature, the concept of dialogue is broadly used, and involves many different types of processes (Burchell & Cook, 2006; Fransen & Kolk 2007). In essence, establishing a 'dialogue' with various stakeholders aims for the creation of a "*channel through which to transcend beyond traditional conflictual processes of communication [...] and develop a more progressive form of engagement and understanding*" (Burchell & Cook, 2006: 212)[81]. This dialogue requires the 'two-way' process of breaking down the existing assumptions and developing new ways of learning (Fransen & Kolk, 2007), showing each other's competencies (Zerbini *et al.*, 2007) and jointly experimenting with projects (Waddell, 2007). This functioning interaction between the participants may consequently lead to initial positive experiences and commitment (Roloff, 2008a).

Besides communication, effective stakeholder cooperation requires coordination achieved via governance mechanisms and decision-making structures (Sharma, 2005). Voluntary sustainability initiatives in the form of inter-firm networks are often headed by a lead organisation, whereas initiatives in the form of private governance networks generally feature an organisational entity that coordinates all network activities and represents the network participants to society (Fischlein & Smith, 2008), also called 'network administrative organisation' (Provan *et al.*, 2007). A network administrative organisation commonly has non-hierarchical decision-making structures (also known as 'stakeholder democracy', see Bernstein, 2005: 163) and addresses public-policy issues (Bäckstrand, 2006). In this context, previous studies have stressed the legitimising effects of democratic regulation and the so-called 'claim of independence' made by voluntary sustainability initiatives (Raynolds *et al.*, 2007). In practice, this means that boards, working groups, committees, inter-organisational teams or stakeholder meetings are established as knowledge-sharing routines that consist of several organisational members, including company representatives as well as representatives from other stakeholders (Etzion & Ferraro, 2007; Sharma, 2005). These routines may help to establish a network identity (Dyer & Nobeoka, 2000) that serves as an effective governance mechanism and amplifies the commitment of the participants (Kogut, 2000).

It is important to note that voluntary sustainability initiatives for supply chains can also combine both types of networks. Often, a network administrative organisation is installed in

[81] But see Section 2.2.2. for a relational setting.

the design of voluntary sustainability initiatives (Waddell *et al.*, 2006), while the implementation and evolution of the practices and processes in the supply chains of member companies takes place in networks that are lead by the focal firm of the respective supply (chain) network (e.g., Hamprecht, 2006).[82]

Codification of performance- and process-based standards

The codification of voluntary sustainability initiatives' objectives and expected outputs is an additional legitimising element of initiative-internal commitment as well as initiative-external acceptance (Bernstein, 2005; Darnall & Carmin, 2005; Detomasi, 2007; Terlaak, 2007). Since the initiatives are innovative and initially lack consensus on how things should be done, the codification of the approach creates a reference point for participants' behaviour (Nijhof *et al.*, 2008; Terlaak, 2007). This codification can be operationalised by the creation of environmental plans and targets (Darnall & Carmin, 2005; Nash, 2000) such as principles, criteria, indicators, verifiers or process recommendations. Criteria and indicators in particular have found global acceptance (Rametsteiner & Simula, 2003), since they allow a clear measurement of the initiative's and participants' achievements.

Measuring success with robust, credible measures is seen as a critical activity for effectively attaining the objectives – both for initiative-internal management and commitment and for the publication of achievements in order to increase initiative-external acceptance (Waddell *et al.*, 2006). In this context, the use of performance-based standards provides a clear indication of a firm's superior environmental performance and avoids the free-riding behaviour of companies with a poor environmental performance (Rivera, 2002; Rivera *et al.*, 2006). Furthermore, the use of performance- rather than technology-based targets leads to well-designed standards with higher flexibility for the participants (Albertini & Segerson, 2002) and better chances to accrue financial benefits to participating organisations (Majumdar & Marcus, 2001). Setting up such standards requires participants to develop technical protocols, definitions and equations for how environmental and social indicators like water, child labor, health & safety and others should be measured (Etzion & Ferraro, 2007). However, it is also argued that social and environmental standard setting in supply chains requires – besides the definition of outcome measures – a clear focus on the definition of process recommendations (Melnyk *et al.*, 2002), leading to increased attention being given to how new sustainability standards affect different types of organisations engaged along the supply chain (Perez-Aleman & Sandilands, 2008).

[82] See Section 2.1.3.

Enforcement mechanisms

Enforcement mechanisms are frequently-discussed elements in the context of the credibility and legitimacy of voluntary sustainability initiatives. Several studies suggest that 'free riders'[83] who participate in an initiative undermine the credibility and legitimacy of this initiative in society (Bäckstrand, 2006; Delmas & Terlaak, 2001; Giovannucci & Ponte, 2005; Raynolds *et al.*, 2007; Rivera, 2002; Rivera & deLeon, 2004). In consequence, it is evidenced that the self-disclosure of participants is more likely if participants' operations are recently inspected (Gray & Shadbegian, 2005; Gunningham *et al.*, 2003; 2005; Kuperan & Sutinen, 1998; Laplante & Rilstone, 1996; Magat & Viscusi, 1990; Winter & May, 2001) or subjected to an enforcement action (Albertini & Segerson, 2002; Aoki & Coiffi, 2000; Gray & Scholz, 1991; 1993; Gray & Shadbegian, 2005; Gunningham *et al.,* 2005; Mendelhoff & Gray, 2005; Nijhof *et al.*, 2008; Shimshack & Ward, 2005; Short & Toffel, 2008; Werther & Chandler, 2005). Also, it has been demonstrated that certification serves as a governance mechanism in ongoing vertical relationships with suppliers and in relationships with distant actors in order to improve their compliance and the functioning of voluntary sustainability initiatives in their companies (King *et al.*, 2005). These studies reflect the assumption that the threat of penalising non-compliance by a participant by tarnishing its reputation is an important driver of compliance with the initiative (Terlaak, 2007). In addition to merely measuring the adoption of the specified processes and practices (Corbett & Kirsch, 2001; Guler *et al.*, 2002), subsequent punishment might influence the functioning of management standards, as they provide systematic guidance for designing environmental management systems (Bansal & Hunter, 2003; Jiang & Bansal, 2003).

Enforcement mechanisms can be divided into administrative requirements (the signing of agreements) and conformance requirements imposed on the participants (Darnall & Carmin, 2005). Conformance requirements can be seen as non-monitoring regimes (which are not perceived as enforcement mechanisms), 1st-party certification or self-monitoring regimes (e.g., requiring participants to submit a progress report of strategy implementation), 2nd-party certification and monitoring regimes (i.e., involving industry associations in establishing verification procedures), 3rd-party certification and monitoring regimes (involving non-corporate coordination bodies such as NGOs in establishing verification procedures), as well as 4th-party certification and monitoring regimes (involving governmental bodies in establishing verification procedures). Most monitoring regimes also have defined time

[83] In the context of voluntary sustainability initiatives, 'free riders' are defined as participants who consume more resources or legitimacy than their fair share, or shoulder less than a fair share of the investments needed to design and implement the initiative (Rivera, 2002; Rivera *et al*., 2004). It has been shown that in initiatives with a small number of participants it is more likely that a few participants value the collective good so much that they accept bearing more than their share of costs to ensure that the initiative is successful (King & Lenox, 2000).

horizons for recertification (Terlaak, 2007) and are mostly combined with sanctions (actions that are taken when participants fail to implement the initiatives provisions or achieve defined goals) or rewards (actions that are taken when participants succeed in implementing the initiative's provisions or achieve defined goals) (Darnall & Carmin, 2005). 3rd- and 4th-party regimes are most legitimised to affect the greatest associated consumer and market appeal (Raynolds *et al.*, 2007) and to increase environmental performance collectively more than self-monitored regimes (Darnall & Sides, 2008; Rivera, 2002).

However, research has also identified a dark side of monitoring and sanctioning regimes. For example, recent work suggests that these elements are not always easily established; for example, the assessment of participants' R&D efforts in "design for environment" initiatives is quite challenging. Also, the extra costs for certification and auditing are affordable for big, professional companies, but not for traditional small businesses (such as small, traditional companies in natural reserve areas), which are often very important stakeholders in voluntary sustainability initiatives (Delmas & Terlaak, 2001; Neilson & Pritchard, 2007).

Communication of vision, standards and achievements

The expression of the initiative's values, goal statements, and performance results, as well as decision-makers' justification of their actions towards initiative-external stakeholders, indicates a basic level of commitment by participants (Bäckstrand, 2006; Darnall & Carmin, 2005; Nash, 2000). These expressions reduce information asymmetries, as they "*provide valuable information about members' progressive environmental activities, because so much of firms' environmental activities are unobservable to most external audiences (though different audiences may have different information about firms' performance)*" (Potoski & Prakash, 2005: 237). It is further argued that by supporting and adopting voluntary sustainability initiatives, participants can "*communicate their green credentials and signal a commitment to the environmental and social issues that are of great concern to the wider public, and the role they can play in addressing them*" (Wright & Rwabizambuga, 2006: 95). This may affect public recognition, which allows participants to strengthen their brand identity as well as to access economic opportunities and consequently strengthen participants' commitment (Arora & Cason, 1996; Perez-Aleman & Sandilands, 2008). Furthermore, signaling the initiative's benefits might activate imitation by or participation of further organisations (Khanna & Damon, 1999; Videras & Albertini, 2000). Hence, overall, the expression of the initiative's contributions and achievements towards a societal issue such as sustainable development, climate protection or anti-piracy (e.g., via product labels) has become widespread and fosters legitimacy (Bernstein, 2005). Moreover, suggestions have been made to differentiate these expressions according to different external stakeholders (Etzion & Ferraro, 2007; Howard-Grenville & Hoffman, 2003) and explain new concepts through familiar ones – for example, by using an environmental reporting scheme similar to

financial reporting schemes when targeting sustainability asset managers. While recent studies suggest that consumers are increasingly receptive to product labels (e.g., Loreiro & Lotade, 2005; see Figure 9 for recent examples of sustainability labels of selected voluntary sustainability initiatives), other studies remain skeptical and argue that at least some of the larger consumer segments will remain unaffected (e.g., Forsyth *et al.*, 1999). In this context, Giovannucci & Ponte (2005) argue that voluntary sustainability initiative-related labeling and advertising in print media mostly targets a receptive niche market. In order to direct public and consumer attention to the initiative and charge premium prices, they call for sophisticated promotion and clear messages to consumers concerning the actual achievements of the initiative. However, as Neilson & Pritchard (2007) state, the absence of a logo would preclude quality differentiation and might compromise the legitimacy given by the affected supply-chain members.

MSC:
Sustainable practices throughout fish supply chain
www.msc.org

Carbon Trust:
Carbon footprint throughout supply chain
www.carbon-label.com

FSC:
Sustainable practices throughout timber supply chain
www.fsc.org

Rainforest Alliance:
Sustainable practices throughout timber / agricultural supply chains
www. rainforest-alliance.org

Figure 9: Selected labels of recent voluntary sustainability initiatives indicating the environmental and social performance of the final product

2.4. Intermediary recapitulation: relevance and legitimising elements of voluntary sustainability initiatives for supply chains

As shown in this chapter, voluntary sustainability initiatives are specific approaches for designing and implementing proactive sustainability strategies for supply chains. In this context, proactive sustainability strategies for supply chains are defined as strategies imposed by the focal company that improve the environmental, social and financial performance of products and processes throughout the entire (affected) supply chain, including inbound, in-

house and outbound processes. They are voluntarily adopted and go beyond mere compliance with existing laws, rules and standards.

Specifically, when proactive sustainability strategies for supply chains lack the legitimacy conferred by key societal or economic stakeholders, the involvement of these constituencies (including relevant supply-chain partners) is needed. This may lead to (multi-)stakeholder networks cooperating in the design and implementation of such strategies.

Several elements have been suggested to increase the legitimacy of voluntary sustainability initiatives in terms of compliance by participants and acceptance by external stakeholders, such as a common understanding by the participants, appropriate coordination mechanisms, codification of performance- and process-based standards, enforcement mechanisms and the effective communication of the initiative's vision, standards and achievements to society (see Figure 10).

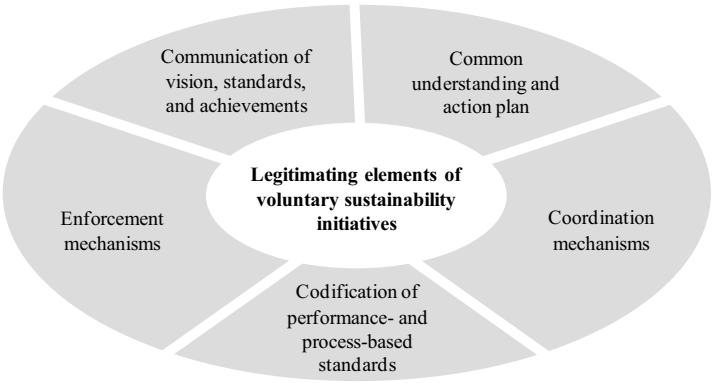

Figure 10: Elements of voluntary sustainability initiatives for supply chains leading to initiative-internal compliance and initiative-external acceptance (approximately equivalent to stakeholder legitimacy)

Nevertheless, the organisational characteristics that enable companies to establish voluntary sustainability initiatives remain unclear (Gunningham, 2002).[84] In order to fill this knowledge gap, relevant theories explaining the design of voluntary sustainability strategies will be reviewed and applied to the phenomenon in the following chapters in order to explore how successfully to establish voluntary sustainability initiatives that are widely legitimised.

[84] See Chapter 1.

3. Theoretical aspects of designing voluntary sustainability initiatives for supply chains

Against the conceptual background given in the previous sections, this chapter will explore a theoretical setting for the design of voluntary sustainability initiatives for supply chains and legitimacy. This chapter will therefore begin by briefly identifying relevant theories that consider legitimacy aspects in the design and conduct of voluntary sustainability initiatives for supply chains (see Section 3.1.). Secondly, the chapter will explain these theories (institutional theory and institutional entrepreneurship) in more detail and discuss their contributions to the eclectic research framework (see Sections 3.2. and 3.3.). While the institutional theories takes an institutional field-level perspective as the unit of analysis, the resource-based view and its enhancements will be discussed as a complementary theory (see Section 3.4.). This theory addresses the (inter-)organisational means of establishing successful strategies from the strategic-management perspective of a specific firm that acts in network constellations as the initiating company of a voluntary sustainability initiative.

3.1. Presentation of the theories applied to voluntary sustainability initiatives and legitimacy in the literature

Different theoretical views have been taken to investigate and explain corporate activities with respect to voluntary sustainability initiatives for supply chains and legitimacy.

Scholars of the *institutional theory* (or: institutionalism in organisational theory) have been prominent in explaining sustainability strategies and legitimacy in general (Bansal, 2005; Bansal & Roth, 2000; Campbell, 2007; Hoffman, 1999; King & Lennox, 2000; Matten & Moon, 2008; Russo, 2002; Toffel, 2005). Although not explicitly exploring voluntary sustainability initiatives for supply chains, Bellah *et al.* (1991: 40) provide a well-fitting reason for the suitability of institutional theories in the study of the environmental and social responsibilities of companies and their supply chains: "*Institutions form individuals by making possible or impossible certain ways of behaving and relating to others. They shape character by assigning responsibility, demanding accountability, and providing the standards in terms of which each person recognises the excellence of his or her achievements.*"

In this vein, institutional theorists argue that a company's or supply-chain members' compliance with voluntary sustainability initiatives or regulatory sustainability standards ensure an organisation's legitimacy (Bansal & Roth, 2000). The likelihood of long-term survival is higher (the economic risk is lower) for these companies if they comply with environmental or social legislation, societal norms and standards (Godfrey *et al.*, 2008) as

well as with the environmental or social interests of those stakeholders that are perceived as being of strategic value to them (Bansal & Clelland, 2004; Sharma & Henriques, 2005). In doing so, the organisations avoid fines, penalties, public protest campaigns (Birett, 1998; Davidson & Worrell, 2001; Videras & Albertini, 2000) or common sanctions caused by industry- or supply chain-related incidents (King & Toffel, 2007). However, even when strict regulations are not imposed, organisations can be motivated to respect environmental standards. In this context, industry self-regulation may emerge (Campbell, 2006) before stakeholders, such as non-governmental organisations (NGOs) and the media, expose unsound corporate environmental practices (Greening & Gray, 1994). Industry self-regulation translates poor environmental performance (non-compliance with the self-regulation) into lowered legitimacy, which results in penalties, a negative public image, lower consumer goodwill and, ultimately, a lower firm value (Dowell *et al.*, 2000; Godfrey, 2005).

However, institutional theory only explains compliance with existing institutional pressures and does not account for the active manipulation of norms and standards through the design and establishment of voluntary sustainability initiatives.

This is why scholars of *institutional entrepreneurship* build on findings from institutional theory and examine how organisations influence the establishment of broadly applied institutional practices and demands such as rules, norms, and standards (DiMaggio, 1988; Powell, 1988). Core ideas of institutional entrepreneurship have been related to the field of voluntary sustainability initiatives. Being aware of the disciplinary effect of institutional pressures, an organisation may proactively identify sustainability issues and (re-)shape the fundamental nature of how public policies, norms and standards for the environmental and social performance of operations and supply-chain practices are defined (Buysse & Verbeke, 2003; Moon & DeLeon, 2007; Oliver & Holzinger, 2008). One prominent way to influence institutional demands is to establish voluntary sustainability initiatives in the format of roundtables, codes of conduct or management systems (Hamprecht, 2006). These voluntary sustainability initiatives may help to overcome the environmental or social problems commonly faced by a collective of organisations (King *et al.*, 2002; Barnett & King, 2008), limit the risk of unwanted laws, societal norms or standards being externally imposed (King & Lenox, 2000) and help to raise institutional expectations that competing organisations face (Aragón-Correa & Sharma, 2003; Gardberg & Fombrun, 2006; Lyon & Maxwell, 1999). For instance, voluntary sustainability initiatives help to control potential competitive disadvantages due to the higher costs of environmentally and socially friendly practices (Zadek, 2004), increase supply security of (and ultimately exclusive access to) important input factors (Hart, 1995; SAI, 2007), encourage environmental ‘watchdogs’ to investigate competitors’ activities more stringently (Bansal & Clelland 2004), pressure competitors to

also invest in similar sustainability strategies (McWilliams *et al.*, 2002) and create market entry barriers (Dean & Brown, 1995).

In the following, both theories and their contributions to the research phenomenon 'design of voluntary sustainability initiatives for supply chains' will be explained in more detail.

3.2. Institutional theory and its contribution to the design of voluntary sustainability initiatives for supply chains

In order to explain the application and contributions of institutional theory, voluntary sustainability initiatives will be explained as a specific form of institution that is embedded in a wider institutional field. Therefore, this section will begin by introducing the understanding of institutions that is applied to the thesis (see Section 3.2.1.). How the design of voluntary sustainability initiatives for supply chains can be operationalised according to institutional theory will then be explained. This part is split into the operationalisation of the initiative as proto-institution (see Section 3.2.2.) and the consideration of the initiative as being part of a wider institutional field (see Section 3.2.3.).

3.2.1. Characterisation of institutions in theory

Institutional theory provides a helpful perspective with which to explain how strong regulatory, normative and cognitive processes lead to standardised and rationalised practices among actors in institutions such as voluntary sustainability initiatives (Matten & Moon, 2008).

Following Hargrave & van de Ven (2006: 866), 'institutions' are 'institutional arrangements' or 'institutional fields' connecting and influencing 'institutional actors' (e.g., organisations). In this context, DiMaggio & Powell (1983: 148) define institutions as 'organisational fields' "*that constitute a recognised area of social life*" for the "*totality of relevant actors*" in terms of connectedness[85] and structural equivalence[86], including key suppliers, resource and product consumers, regulatory agencies, and other organisations that produce similar products or services. North (1990: 3) defines institutions as "*the rules of the game, or […] the humanly devised constraints that shape human interaction.*" Similarly, Meyer & Rowan (1977: 340) refer to the institutional structures being based on rules that function as "*myths which*

[85] 'Connectedness' refers to existing transactions that tie organisations to one another, including formal contractual relationships as well as informal ties (Laumann *et al.*, 1978, taken from DiMaggio & Powell, 1983).

[86] 'Structural equivalence' refers to a similar position in a network structure, e.g., two organisations having a similar set of ties to other organisations, even though they themselves are not connected to each other (White *et al.*, 1976, taken from DiMaggio & Powell, 1983).

organisations incorporate, gaining legitimacy, resources, stability, and enhanced survival prospects". Thornton & Ocasio (1999: 804) define institutions as being guided by a logic of a "*socially constructed, historical pattern of material practices, assumptions, values, beliefs, and rules by which individuals produce and reproduce their material substance, organise time and space, and provide meaning to their social reality*". In a similar vein, Campbell (2006: 926) defines institutions as the "*formal rules and taken-for-granted cultural frameworks, cognitive schema, and routinised processes of reproduction.*" In all of these understandings, institutions are humanly created schemata, norms and regulations that enable and constrain the behaviour of social actors and make social life predictable and meaningful (Scott, 2001).

Scholars emphasise the role of institutional pressures that institutions impose on participating organisations to influence organisational practices and structures (Hargrave & van de Ven, 2006). According to theory, these practices and structures change and become institutionalised because they are considered legitimate by the participants of the institutional field (Matten & Moon, 2008). Put differently, both formal and informal embedded understandings specify and justify the social arrangements of organisations (Garud *et al.*, 2007). Strategies of companies within the institutional arrangement are perceived to follow a 'logic of appropriateness,' being constrained not only by technological, informational and income limits, but also by socially and culturally constructed limits (Oliver, 1997). This logic drives isomorphism in the institutional field, which is a constraining process that forces all embedded actors to resemble one another in order to be legitimised and able to access resources and input factors necessary for long-term survival (DiMaggio & Powell, 1983; Meyer & Rowan, 1977).

North (1990), Meyer & Rowan (1977), DiMaggio & Powell (1983) and Scott (2001) distinguish three kinds of institutional demands or pressures leading to isomorphism – namely, regulative or coercive, normative, and cultural-cognitive or mimetic demands. The stronger these demands are in an institutional field, the more restricted are the institutional actors in the respective field.

Coercive isomorphism stems from the constitutions, laws, policies and formal agreements that citizens of different locales create. In this context, the threat of sanctions when these rules or laws are violated force organisations to conform to these agreements (Bresser & Millonig, 2003).

Normative isomorphism, by contrast, is rooted in the growth and elaboration of professional networks spanning organisations. These sources of normative isomorphism create organisational norms that pressure companies to conform and do what is generally considered as 'desirable', 'proper' or 'appropriate' (Suchman, 1995: 574). In this context, norms define means for value ends and build a reference point for the behaviour of institutional actors (Scott, 2001). Hence it is not the coercive pressures that force organisations to comply, but their acceptance of the norms and values (Bresser & Millonig, 2003).

Cultural-cognitive or *mimetic isomorphism* stems from mental models existing in the institutional field. These demands are characterised by the organisations' perceived needs to comply with the 'taken-for-granted' standards (Scott, 2001: 57) in business practices as well as to benchmark and follow (mimic) 'best practice' organisations in order to alleviate feelings of uncertainty, especially when organisational technologies are poorly understood or when goals are ambiguous (Hardy *et al.,* 2003), independently of their 'actual proof of superiority' (DiMaggio & Powell 1983: 150).

While admittedly hard to distinguish empirically (DiMaggio & Powell, 1983; Hoffman, 1999), all three dimensions or 'pillars' can be identified in institutions, although their strength and weight may vary (Scott, 2001).

3.2.2. Voluntary sustainability initiatives for supply chains as institutions

Voluntary sustainability initiatives for supply chains are a specific form of institutions as described above. Similarly to initiatives or laws created by public authorities (Ingram & Clay, 2000), private voluntary sustainability initiatives for supply chains, including codes of conduct, management systems, certification institutions and labels, forge a system of '(transnational) private governance' (Gereffi *et al.*, 2001: 56) that introduces rules, norms and mental models that force participating organisations and their affected supply chains to behave in an appropriate (more sustainable) way (Terlaak, 2007).

Voluntary sustainability initiatives incorporate coercive, normative and mimetic elements (King & Lenox, 2000; Matten & Moon, 2008) that influence or pressure participants to follow the intended sustainable supply-chain practices (Figure 11). The stronger these forces are, the more likely the participants are to comply with the intended practices. The forces consist of several aspects that cover the legitimising elements of such initiatives in the previous chapter.

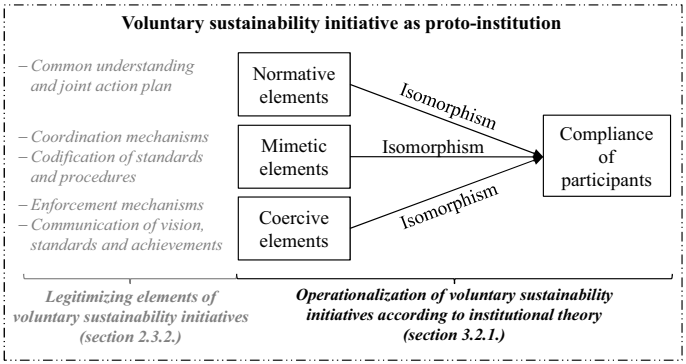

Figure 11: Institutional pressures imposed by voluntary sustainability initiatives for supply chains on the initiative's participants

Normative pressures stem from the diffusion of norms and values within the voluntary sustainability initiative (Delmas, 2003; King & Lenox, 2000; Mendel, 2002; Terlaak, 2007). If the initiative's participants agree on the objectives (i.e., values and norms that define how to behave within the supply chain) and a joint action plan (i.e., define the way in which to achieve the intended behaviour within the supply chain), they define legitimate means for achieving value ends (Terlaak, 2007). In this context, a common language and understanding of the sustainability issue at hand and how to approach this issue is a prerequisite for a clear guidance for participants' compliance (Roloff, 2008a; Terlaak, 2007).[87]

Mimetic pressures imposed by voluntary sustainability initiatives for supply chains stem from the standard itself, and induce conformity when the defined objectives and procedures are perceived as 'the way we do these things' (King & Lenox, 2000). In this context, Terlaak (2007) argues that the codification of how things should be done in the form of concrete standards[88] increase consensus between the affected actors and may guide their behaviour. For example, the Responsible Care initiative of the chemical industry includes approximately 15 practices that outline the structure of how participants should design their environmental management program (King & Lenox, 2000). Furthermore, a structure for collaboration, coordination and learning[89] is a means for mimetic isomorphism, because it enables the interaction and transfer of information among the participants (King & Lenox, 2000; Terlaak, 2007).

Coercive pressures imposed by voluntary sustainability initiatives for supply chains are rooted in the rules and enforcement mechanisms[90] developed within the initiative (Cashore, 2002; King & Lenox, 2000). According to Terlaak (2007), these regulatory mechanisms could be centralised with designated central enforcement functionalities (e.g., Responsible Care initiative) or rely on uncoordinated and decentralised interactions of individual actors to punish violations, as in the ISO 14001 certified management standard[91] (Ingram & Silverman, 2002; King *et al.*, 2005). In voluntary sustainability initiatives, coercive isomorphism works through informal processes like shaming activities (King & Lenox, 2000), as well as through formal processes such as monitoring, certification and subsequent sanctioning (e.g., exclusion of the violating actor from the initiative) or rewarding, like the communication of participation or achievements via product labels[92] (Terlaak, 2007).

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[87] See Section 2.3.2. 'Common understanding and action plan'
[88] See Section 2.3.2. 'Codification of performance-based standards'
[89] See Section 2.3.2. 'Coordination mechanisms'
[90] See Section 2.3.2. 'Enforcement mechanisms'
[91] Note that ISO 14001 is hosted by a central institution, but its enforcement is carried out by decentralised actors.
[92] See Section 2.3.2. 'Communication of vision, standards and achievements'

3.2.3. The emergence of voluntary sustainability initiatives for supply chains in the wider institutional field

Voluntary sustainability initiatives for supply chains are often similar to political processes and social movements that are embedded in a larger institutional field (Fischlein & Smith, 2008; Fligstein, 1996; Hargrave & van de Ven, 2006; Rao, 1998). Thus, voluntary sustainability initiatives might look for legitimacy from further constituencies that are not part of the initiative but that are needed to compete with opposing standards and to diffuse the established practices in the wider institutional field (Corbett & Kirsch, 2001; Delmas, 2002; Hargrave & van de Ven, 2006; Guler *et al.*, 2002). In this context, legitimacy is defined as an important indicator of collective or social acceptability (Barnett, 2006; Ruef & Scott, 1998; Suchman, 1995) that is subjectively bestowed upon an initiative by societal actors (Thomas, 2007).[93] As a result, different actors in the wider institutional field influence the capacity of corporations to act in environmentally or socially responsible ways, to establish voluntary sustainability initiatives (e.g., Campbell, 2006; 2007; Doh & Guay, 2006; Matten & Moon, 2008), and to achieve legitimacy for these strategies (Basu & Palazzo, 2008).[94] These initiative-external stakeholders can be mapped to the three institutional pillars (see Figure 12).

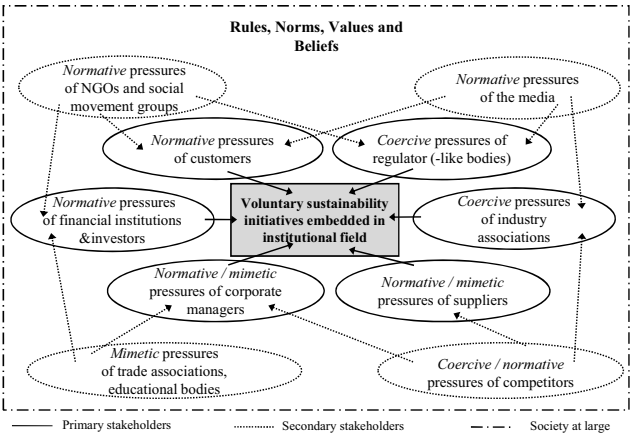

Figure 12: Examples of possible pressures and legitimacy from stakeholders in the institutional field (with modifications taken from Maignan *et al.*, 2005: 962)

[93] In order to distinguish legitimacy from reputation, the literature emphasises that legitimacy is a collective indicator of acceptability, whereas reputation distinguishes one entity from another as a comparative measure of favourability (e.g., Deephouse & Carter, 2005; Fombrun, 1996).

[94] See Section 2.2. Seeing a particular pressure as a stakeholder pressure or as an institutional pressure is largely a matter of perspective. In stakeholder theory, the emphasis is on the stakeholder *values*, *norms and beliefs,* as well as on the nature of the pressures that these stakeholders impose on companies (Maignan *et al.,* 2005), but these values and norms are what make 'the rules of the game' in institutional theory (North, 1990: 3).

Coercive pressures that determine the application or diffusion of sustainability practices in supply chains primarily take place through sanctions implemented by the state (Guler *et al.*, 2002). If strong regulations for sustainability are in place, companies and their supply chains are more likely to act in a responsible manner (Campbell, 2006). Even the anticipation of regulation imposed by the state might lead to the adoption of strict sustainability practices and subsequent professional peer pressure, most likely in the form of self-regulation adopted by industries and industry associations (Christmann, 2004; Hoffman, 1999; King & Lenox, 2001; King & Toffel, 2007). For example, some firms in Europe voluntarily committed to the ISO 14001 initiative to prepare for the Eco-Management and Audit Scheme (EMAS) issued by the European Commission in 1993 (Delmas, 2003). Furthermore, regulatory bodies such as the United Nations (UN), the Organisation for Economic Cooperation and Development (OECD), or the International Labor Organisation (ILO) may force organisations and their supply chains to achieve increased environmental and social performance (Delmas, 2003; Campbell, 2007; Matten & Moon, 2008). In cases like fair practice, product quality and workplace safety, these bodies have set the rules to which their members are expected to adhere (Campbell, 2007; Matten & Moon, 2008). For instance, the World Trade Organisation (WTO) has been an important advocate for the ISO 14000 standards in global supply chains (Potoski & Prakash, 2004).

Normative pressures that enable or constrain sustainability practices in supply chains stem from several stakeholders in the institutional field that monitor and steer corporate activities towards environmentally and socially responsible practices (Bansal & Clelland, 2004; Sharma & Henriques, 2005) – particularly when the multinational corporations (MNCs) and their supply chains have grown beyond the boundaries of nation-states and national governmental regulation (Doh & Guay, 2006). Examples in this context are the norms that are set by non-governmental organisations, social movement groups and the media (King & Soule, 2007). These constituencies put corporations under constant threat of public exposure, resulting in customers' growing concern over corporate environmental and social behaviour or, in the extreme, leading to (self-)regulation that demands stricter environmental and social practices from corporations (Campbell, 2007). In developed countries, customers have taken an important role in determining how multinational companies and their supply chains should behave and what kind of norms can be established (Christmann & Taylor, 2001; Christmann, 2004). Also, shareholders like institutional investors (e.g., pension funds, mutual funds such as sustainability asset management funds, or CSR funds) have become an increasingly important driving force of sustainability practices in supply chains (Campbell, 2006; 2007; Porter & Kramer, 2006). These kinds of stakeholders have established a new kind of social movement that monitors corporations' behaviour and may pressure companies to establish more responsible practices within their supply chains (Campbell, 2007).

Mimetic pressures that influence the application of sustainability practices in supply chains stem from stakeholders that establish cultural frames, mindsets, conceptions or world views of managers who run firms in the institutional field (Campbell, 2007). These kinds of stakeholders include education institutions such as universities, editors of business journals and organisers of conferences and seminars, as well as media and trade or employer associations that promote sustainability (Campbell, 2007), and may provide corporate managers with guidance when uncertainty prevails as to how to cope with emerging sustainability and related issues.

3.3. Institutional entrepreneurship and its contribution to the design of voluntary sustainability initiatives for supply chains

The concept of an organisation's intended creation of institutions and catalysis of institutional change has received increasing interest in the recent years (Dacin *et al.*, 2002; Dorado, 2005). According to Leca *et al.* (2006; 2008), DiMaggio (1988) and Powell (1988) were the first to introduce the theory of *institutional entrepreneurship*, arguing that companies can actively create and influence the demands in their institutional environment (Hwang & Powell, 2005), instead of blindly complying with the institutional rules of the game.

3.3.1. Institutional entrepreneurship as an organisational strategy to influence institutions

According to institutional entrepreneurship theory, "*new institutions arise when organised actors with sufficient resources [institutional entrepreneurs] see in them an opportunity to realise interests that they value highly*" (DiMaggio, 1988: 14). In the terminology of this literature, the institutional entrepreneur is an actor who is able to "*infuse new beliefs, norm, and values into social structures*" (Rao *et al.*, 2000: 240) and thus may "*create a whole new system of meaning that ties the functioning of disparate sets of institutions together*" (Garud *et al.*, 2002: 196), including the transformation of structures (Rao, 1998) and practices such as setting technology standards or rules for membership (Garud *et al.*, 2002; Lawrence, 1999).

Institutional entrepreneurs integrate their institutional environment into their strategic considerations actively to manipulate or create institutional demands (Durand & McGuire, 2005; Oliver, 1991; 1997). Lawrence (1999:168) has aptly summarised the ultimate goal in institutional entrepreneurship, stating that the success of institutional entrepreneurs is shown by their ability to "*influence legislative or regulatory frameworks, affect cultural norms or values, or establish some structures or processes as taken-for-granted*". Influencing institutional demands may help the institutional entrepreneur to realise opportunities and organisational growth (George *et al.*, 2006; Zimmermann & Zeitz, 2002). Consequently, this decision is not exclusively based on a rationale of long-term survival as the primary

organisational objective. Rather, the organisation aligns its strategies with the institutionalised external demands (Lawrence, 1999; Oliver, 1991; Zimmermann & Zeitz, 2002), ultimately leading to an economic-rational logic that links the risk of losing legitimacy with the risk of losing competitiveness in the institutional field (Hamprecht & Sharma, 2006).

3.3.2. The design of voluntary sustainability initiatives as an institutional entrepreneurship strategy

Institutional entrepreneurship has been gaining increasing popularity in the research on voluntary sustainability initiatives and has been linked to, among others, the effects of companies' sustainability efforts (Hoffman, 1999), the political processes providing nation-wide environmental protection standards (Child *et al.*, 2007), the processes to establish a community dialogue on the development of social responsible products (Maguire *et al.*, 2004), purchasing and certification processes (Cashore, 2002; Hamprecht, 2006) and the cooperation between companies and stakeholders (Wijen & Ansari, 2007). Nevertheless, institutional entrepreneurship strategies have also received some criticism, as they have been used to implement superficially responsible supply-chain practices in the soccer ball industry in Pakistan (Khan *et al.*, 2007).

In all of these studies, the establishment of a voluntary sustainability initiative for supply chains has been described similarly to the development of a 'whole new system of meaning' (Garud *et al.*, 2002: 196), including suppliers and further stakeholders like industry associations, financial institutions, regulators or non-governmental organisations (NGOs). In this context, the institutional entrepreneur is the actor who initiates the development of a voluntary sustainability initiative in order to create, manipulate or transform the values, norms and cognitive schemata (Oliver, 1991; Zimmermann & Zeitz, 2002) that define the environmental and social characteristics of practices applied. Recent examples of such institutions are the development of forest certification or environmental management schemes, and codifying practices that are environmentally and socially desirable (maybe even profitable) in areas as diverse as environmental management, labor management, or health & safety.

Institutionalisation process of voluntary sustainability initiatives

The process to institutionalise voluntary sustainability initiatives for supply chains consists of several steps, which reflects both considerations – the voluntary sustainability initiatives as institutions, as well as being embedded in a wider institutional field.[95]

According to DiMaggio (1988), in the beginning, the institutional entrepreneur defines a project and seeks support for the project from backers. Similarly, Hinings *et al.* (2004) as well as Hargrave & van de Ven (2006) argue that institutional change begins with a *design or emergence phase* of a voluntary sustainability initiative. In the emergence phase the institutional entrepreneur partially distances itself from the institutional pattern and strategises the new institutional approach (Battilana, 2006; Barley & Tolbert, 1997).[96] The entrepreneur then engages in discursive or framing contests in order to override the existing institutional pattern via 'deliberate cognition'[97] (DiMaggio, 1997: 271). In this context, framing means making the strategy of designing a voluntary sustainability initiative 'meaningful' – to make the strategy understandable to other actors in the institutional field – so that the identification of necessary forms of action and experience is possible for other actors in the institutional field (Benford & Snow, 2000; Creed *et al.*, 2002; Lounsbury & Glynn, 2001). In addition, Phillips *et al.* (2004) introduced a discursive model of institutionalisation to explain the relationship between action and discourse. They argue for a closed-loop process starting with actions that generate texts, which are then embedded in a discourse. This may finally lead to the new institution, which then constrains and enables further actions. In the following, also known as the *collective action phase* (Hargrave & van de Ven, 2006), the institutional entrepreneur engages in constructing networks and field reorganisation in order to access necessary support in establishing the institution (Dacin *et al.*, 2007; Dorado, 2005; Lawrence *et al.*, 2002; Peng, 2003). Hargrave & van de Ven (2006) argue that the initial result from collective action is an institutional precedent, which is a new or changed working rule and institutional innovation, also called a 'proto-institution' (Lawrence *et al.*, 2002). Similarly, Scott (2001) writes in this context of institution formation and the birth of a new logic or governance structure in the wider institutional field. The foundation of a voluntary

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[95] See Sections 3.2.2. and 3.2.3.

[96] For the sake of completeness, it is important to refer to the 'agency' and 'opportunity', which are central to institutional entrepreneurship theory (Dorado, 2005). Agency refers to the motivation and creativity of institutional entrepreneurs to distance themselves from institutional embeddedness, whereas opportunity refers to the enabling conditions for acting as an institutional entrepreneur. However, these aspects do not fall within the scope of this thesis, as they cover the initiation of institutional entrepreneurship *per se,* not the entrepreneurial action in the form of establishing voluntary sustainability initiatives itself. For a comprehensive review of agency and opportunity, see Dorado (2005) and Leca *et al.* (2008).

[97] Deliberate cognition as opposed to automatic cognition refers to explicit, verbalised, slow and deliberate communication. By contrast, automatic cognition is a routine that refers to implicit, unverbalised, rapid and automatic communication. It relies "*heavily and uncritically upon culturally available schemata*" – namely, institutions (DiMaggio, 1997: 269).

sustainability initiative for supply chains is such a new logic that specifies sustainable supply-chain practices for their member companies.[98]

After having established this proto-institution, a fragmented social situation with a range of competing institutional rationales including practices, competing authority structures and social networks may exist, which could be classified as 'friends' and 'enemies' to the voluntary sustainability initiative (Misangyi *et al.*, 2008: 755). Enemies of the voluntary sustainability initiative mainly comprise defenders of the institutional *status quo* (see Figure 13, left-hand side). The actors in this group are supported by the existing institutional logic and underlying resource structure. They attempt to use the resources available to them in order to maintain the *status quo.* At the same time, the institutional entrepreneur and its friends (the allies) have to exploit resources to engage in political and discursive processes (see Figure 13, right-hand side) in order to win the conflict over the identity and positioning claim in the institutional field (Bonardi & Keim, 2005; Fischlein & Smith, 2008; Misangyi *et al.*, 2008).

These processes are often similar to social movements (Fligstein, 1996; 2001; Rao, 1998) and include mobilising campaigns (Rao, 2001, cited from Hargrave & van de Ven, 2006). In this competition, the entrepreneur and its backers bargain for the initiative's acceptance by external constituencies (DiMaggio, 1988), as the support of important institutional actors determines the initiative's chances of survival (Baum & Oliver, 1991). This may result in a competition for different kinds of network ties, whereby the institutional entrepreneur aims to form alliances with partners that have the power and resources to enhance legitimacy and jointly effect institutional change (Dacin *et al.*, 2007; Rao *et al.*; 2000). In this vein, Hoffman (1999: 352) states that an organisational field is "*formed around the issues that become important to the interests and objectives of a specific collective of organisations, […] where multiple field constituents compete over the definition of issues and the form of institutions that will guide organisational behaviour.*" Thus, when forming organisational fields, the constituents compete through interacting, negotiating and influencing each other in the search for alternative rules, solutions or mechanisms and practices (Child *et al.*, 2007). Within this competition, institutional entrepreneurs take a leadership role ('field makers') in field formation (Child *et al.*, 2007).

[98] See Section 3.2.2.

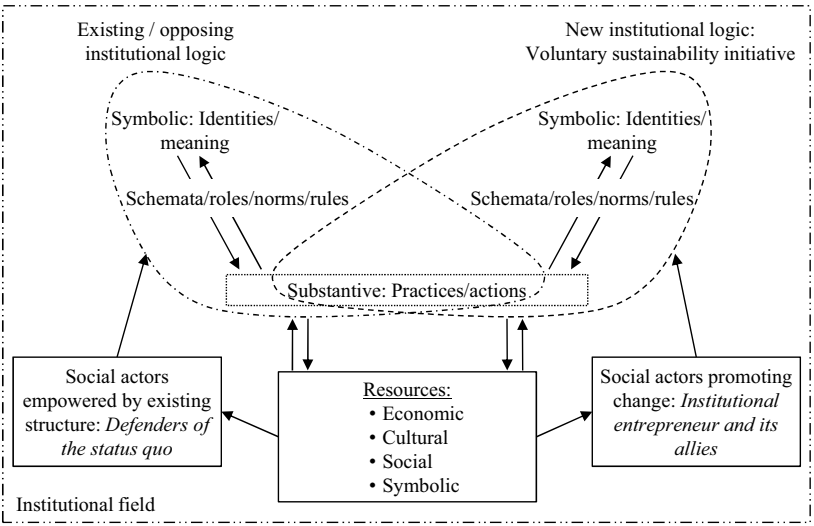

Figure 13: Competition of existing and emerging practices in the institutional-change process (with adaptations from Misangyi *et al.*, 2008: 756)

Once the institutional entrepreneur and its alliance partners are successful, the voluntary sustainability initiative's identity claim frames "*the manner in which resources become emphasised, prioritised, and deployed*" (Glynn, 2000: 295, cited from Misangyi *et al.*, 2008). This final phase of institutional entrepreneurship is called *institutional diffusion phase* (Hargrave & van de Ven, 2006). The dissemination of the new approach (the defined actions and practices within the initiative) within the wider institutional field consequently takes place through isomorphic processes;[99] residual institutional actors in the field have to accept the institutional entrepreneur's approach and become 'field takers' that comply with the new practices (Child *et al.*, 2007). Scott (2001) commented that this isomorphism process essentially amounts to dissolution and re-institutionalisation, whereby an existing logic or governance structure is replaced by a new logic or governance structure.

[99] See Section 3.2.1.

3.3.3. The need to specify key resources to design voluntary sustainability initiatives for supply chains

Scholars of institutional entrepreneurship have emphasised the role of the resources available to the institutional entrepreneur as being important in the propagation of new institutional rules, norms and cognitive schemata, as well as in the induction of institutional change (DiMaggio, 1988; Misangyi *et al.*, 2008; Leca *et al.*, 2008).

These resources can occur in several different forms (Misangyi *et al.*, 2008). They support the institutional entrepreneur and play a key role in changing organisational fields (Dorado, 2005; Hargrave & van de Ven, 2006; Leca *et al.*, 2006; 2008). Institutional entrepreneurs may leverage both tangible resources, such as financial support, and intangible resources, such as social capital; in some cases, even formal authority can be used in order to create new institutions or transforming existing ones (Child *et al.*, 2007; Dorado, 2005; Leca *et al.*, 2008; Maguire *et al.*, 2004). These resources are accessed or mobilised from the entrepreneur's position in the institutional field (Dorado, 2005). However, in cases in which the resources acquired within the organisation are not sufficient successfully to effect institutional change, organisations might also actively collaborate with other institutional actors (such as stakeholders and supply-chain partners) to gain access to further resources (Hargrave & van de Ven, 2006; Lawrence *et al.*, 2002; Peng, 2003; Wijen & Ansari, 2007).

Research in institutional entrepreneurship has looked at any kind of resource that has been used in institutional entrepreneurial action. In this context, resources are any input factors used by institutional entrepreneurs to influence institutional change (Dacin *et al.*, 2002; Lawrence, 1999), either alone or in collective alliance formations (Hargrave & van de Ven, 2006).

Several resources used by institutional entrepreneurs have been described so far, including economic, social, cognitive, symbolic and material factors. With reference to the review of scientific papers that apply institutional entrepreneurship (Table 3), these resources range from easily accessible input factors – such as financial and human capital – to highly complex resources such as alliance building and social capital.

Study	Resource	Method	Propositions and findings
Marcus & Anderson, 2008 *	Ability to educate stakeholders	Structural equation modelling	The study examines how institutional entrepreneurs institutionalise markets for energy efficiency and renewable energy products and services. One key finding of the study is that the entrepreneur' s actions in educating stakeholders do not just have implications for external stakeholders' commitment, but also has an important role in bolstering the entrepreneurs' ongoing commitment to the institutional field.
Misangyi *et al.*, 2008	Access to social resources like media access/ support	Theoretical	The authors develop a theory on the competition of institutional logics. They argue that institutional entrepreneurs, similarly to the defenders of the institutional *status quo*, build their practices on resources. In order to defeat the institutional competition, entrepreneurs have to steer the institutional definition of resources, as these determine the long-term survival of institutional logics. In this context, the authors suggest that access to social resources like media support helps to define the resources that are valid in the institutional field.
Oliver & Holzinger, 2008	Good relations with regulators	Theoretical	The authors derive several political strategies. Proactive strategies, which are very similar to institutional entrepreneurship, comprise actions to shape and control the way in which regulatory policies are defined. These strategies may require good relationships with regulators in order to convince them of the need of regulation.
Child *et al.*, 2007 *	Ability to communicate own superiority	Case study	The case of the development of China's environmental protection system (EPS) illustrates on a generic level how EPS achieved its taken-for-granted status in China. Starting with a jolt and the rather scientific and technical understanding, the case illustrates how the EPS gained more allies and thus legitimacy over time. Furthermore, the case study shows how the sophistication of the practices (capability development) and the communication of the initiative to the public contributed to the ultimate establishment of EPS as social responsibility.
Etzion & Ferraro, 2007 *	Discursive capabilities	Case study	The study investigates the case of the establishment of the Global Reporting Initiative (GRI) and its efforts deliberately to institutionalise sustainability-reporting practices. The study explores how a resource-constrained organisation created a new logic by using discursive capabilities. According to the study, 3 linguistic mechanisms provide a coherent rationale for institutionalisation: ambiguity reduction, discourse bridging and robust design.
Howard-Grenville *et al.*, 2007 *	Economic capital, Cultural capital, Social capital	Theoretical	Based on a literature review as well as illustrative examples in the field of sustainability, the authors derive different institutional field conditions and argue which kind of capital is needed by the institutional entrepreneur to effect an institutional change. They argue that an institutional entrepreneur must possess cultural capital (i.e., authority to define and defend expertise in a particular area of social life), economic capital (i.e., sufficient monetary or material resources) or social capital (i.e., position in the social network), depending on the conditions faced.
Khan *et al.*, 2007 *	Ability to build a powerful coalition	Case study	With the study the authors described how a coalition of entrepreneurs influenced institutional practices in a manufacturing cluster of the soccer-ball industry in Pakistan. The study shows how entrepreneurs built a coalition with powerful institutional actors and defined superficially responsible working standards. The paper emphasises the imperative for entrepreneurs to form alliances and points to the dark side of misusing institutional strategies.
Kim *et al.*, 2007	(Political) Power, Political skills	Case study	This longitudinal case study illustrates how specific actors in Korean universities replaced the conventional appointment logic with a new system of direct voting. The study suggests that the success of these agents was due to their ability to employ political power and skills to pursue their interests.
Perkman & Spicer, 2007	Political skills, Analytical skills, Cultural skills	Case study	The study investigates how EUREGIO established a new organisational form, the Euregion, which coordinates policies among different regions and across country borders. The study identified that EUREGIO itself served as a pilot project that built a reference point for further Euregions in the later process and also drove the establishment of the Association of European Border Regions, It was also found that the EUREGIO deployed a variety of skills. While EUREGIO's projects initially needed political skills, analytical and subsequently cultural skills were increasingly needed to disseminate the new organisational form.

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Study	Resource	Method	Propositions and findings
Phillips & Tracey, 2007	Ability to recognise field opportunities	Case study	This study focuses on the potential contribution of entrepreneurship to institutional theory. It emphasises entrepreneurial opportunity recognition as important to the institutional entrepreneur and refers to the ability to identify situations in which new goods, services, raw materials, markets and organising methods may be introduced through the "formation of new means, ends or means-ends relationships".
Wijen & Ansari, 2007 *	Access to media, Framing skills	Case study	The study presents a rough overview of the establishment of the Kyoto protocol and highlights aspects of collective institutional entrepreneurship ranging from the building of coalitions with supporting countries as well as media and NGOs, the framing of their aims in terms of shared visions and finally the implementation of the Kyoto protocol.
Zilber, 2007	Ability to execute a dual agenda, Use of stories	Case study	The study analyses the Israeli high-tech industry after the 'burst of the Bubble' and how institutional actors behave in order to influence the institutional order. By analysing statements of actors at an industry-wide annual conference, the study found that the conference was part of the actors' efforts to make sense of the crisis and to set the stage for a new institutional order. The study suggests that actors who were able to use stories that blame other actors were more successful in positioning themselves in the emerging institutional order.
Zott & Huy, 2007	Symbolic management skills	Case studies	Based on data from 26 ventures in the United Kingdom, the study shows that ventures that conduct symbolic, meaningful actions based on categories like personal credibility, professional organising, organisational achievement and the quality of stakeholder relationships are more likely to be accepted (i.e., legitimised) in the institutional field and thus more likely to acquire resources for new ventures.
Greenwood & Suddaby, 2006	Network position	Case studies	Based on cases of the Big Five accounting firms, this study derives a process model of institutional entrepreneurship, arguing that institutional-entrepreneurship action is motivated by contradictions and the resulting embeddedness of an institutional entrepreneur. Having decided to effect institutional change, the study found that central actors are more likely to succeed, as this status is associated with greater access to political, financial and organisational resources.
Hamprecht, 2006 *	Social capital	Case studies	The study explores how several focal firms engage in the development of sustainable purchasing strategies and generate codes of conduct for their products. Based on the case findings, the author suggests that organisations that possess sufficient social capital in terms of societal stakeholders and industry associations, are more likely to establish codes that are dependent on the support of an entire industry sector.
Maguire & Hardy, 2006 *	Discursive capabilities	Case study	The study explains the role that 'discourse of precaution' followed by the network consisting of EU and IPEN (e.g. WWF as a member) played in the emergence of the Stockholm Convention on Persistent Organic Pollutants (POPs). It is argued, that this discursive strategy gained acceptance by exploiting the variability and meaning in the discursive context and by citing and connecting to a range of other legitimised texts.
Demil & Bensédrine, 2005 *	(Financial) Power, Lobbying tactics	Case study	The paper sets up a theoretical framework to describe the power strategies used by institutional entrepreneurs to influence regulations. Empirically, this study describes how a group of French firms influenced public decision makers and other firms in the context of special industry waste (SIW). The study explained how organisations established the EPE (Enterprises pour l'Environnement), which consequently prevented public authorities from taxing SIW by means of financial power and lobbying tactics.
Dorado, 2005	Political skills, Ability to build coalitions	Theoretical	In their conceptual paper, the authors derive several norm strategies for institutional actors that intend to effect an institutional change. With respect to institutional entrepreneurship, they distinguish two strategies: leveraging refers to defining and running a concrete institutional project. The authors argue that in this kind of strategy, convincing other actors in the field by means of political skills is crucial for success. Slightly differently, convening is a strategy to solve complex social problems by activating collaborative initiatives. Convincing actors of the problem instead of the project, as well as building a strong network, is again seen as important for success.

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Study	Resource	Method	Propositions and findings
Lawrence *et al*., 2005	Domain-relevant expertise, Social skills, Power	Theoretical	The authors theorise a process by which institutional entrepreneurs individually explore new institutional logics, implement these approaches on the collective group level and finally institutionalise the approaches in the wider field. The authors suggest that these entrepreneurs draw on different resources throughout the process. More specifically, they argue that influence and power based on scare resources, domain-relevant expertise or culturally appropriate social skills, as well as formal authority, are prerequisites for institutional change.
Munir & Phillips, 2005	Discursive / Marketing capabilities	Case study	This study analyses how Kodak managed to transform photography from a highly specialised activity to one that became an integral part of everyday life. It shows how well-directed communication and marketing of roll-film cameras, in combination with fulfilling these promises with innovative products and services around the product, lead to the establishment of roll-film cameras as dominant technical (but also institutional) design.
Suddaby & Greenwood, 2005	Rhetorical skills	Case study	The study examines how big accounting firms in the 1970s began to expand their scope towards lawyer activities. The analysis showed that innovators overcame the institutional *status quo* and established a new institutional understanding of professionalism by drawing on rhetoric skills. More specifically, it emphasised that the use of institutional vocabularies and the theorisation of change was needed to question the existing practices of accounting firms and to overcome uncertainties implied by the innovative business model.
Anand & Watson, 2004	Ability to mobilize collective resources	Case study	The study shows how award ceremonial rituals like the Grammy Awards influence institutional field evolution. Based on their findings, the authors argue that the institutionalisation of specific music genres emerges when Award rituals mobilise alliances between institutional actors such as creative producers and retailers. They argue that the Grammy Awards serve as a platform to dispute, make sense of, and form marketing alliances that in turn collectively define what kind of music will be disseminated in the institutional field.
Bansal & Clelland, 2004 *	Communication capabilities	Regression analysis	This study explains how companies deliberately disseminate or withhold information on their environmental management policies. By selectively communicating their successes in a particular field of environmental management, the companies raise the demands of environmental watchdogs on their competitors in this particular field.
Déjan *et al.*, 2004 *	Financial resources	Case study	The study investigates how financial resources for CSR funds lead to the establishment of ARESE and a comprehensive French Social Responsible Investment Industry. The study identified how ARESE achieved a systematic power and leadership role in the industry through the standardisation of formerly very heterogeneous CSR definitions and the establishment of a complex quantitative measuring and scoring system for companies ("people with recognised skills in quantitative techniques are accorded the highest status in France").
Lawrence & Phillips, 2004	Alliances with competitors	Case study	This study analysed the establishment of commercial whale-watching on Canada's west coast with small speedboats instead of large tour boats. The study highlights the institutional development in society as well as the a characterisation of entrepreneurial strategies in this emerging market as a rapid recognition of opportunities followed by the rapid imitation of the institutional field instead of long-term planning. Also, the study highlights how complementary actors allied in the very beginning in order efficiently to ramp up the new business approach.
Maguire *et al.*, 2004 *	Profound technical know-how	Case study	This study investigated why some members of "Teta", an organisation that advocates for the rights of HIV-positive citizens in Canada, were more involved in lobbying pharmaceutical companies than others. Their research suggested that it was the members with training in the treatment of patients who were most effective in lobbying pharmaceutical companies, because they could frame their requests in a professional and technically-informed manner.

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Study	Resource	Method	Propositions and findings
Phillips *et al.*, 2004	Ability to produce texts that are widely consumed, Network position	Theoretical	The authors of this paper suggest that institutional logics or practices are institutionalised by an interplay of action and generating texts. They suggest that in order to come up with new institutional logics, entrepreneurs must generate texts that legitimise certain behaviours via sense-making (i.e., rationalising behaviour symbolically, in the form of narratives or metaphors) and a coherent and structured presentation of texts (genre). They further emphasise the importance of the initiator's central position in the network, which gives sufficient influence to them.
Levy & Egan, 2003 *	Financial resources, Ability to build powerful alliances	Case study	The study presents the case of climate-change strategies in the United States and describes how different alliances influence the institutional meaning of the appropriateness of climate-change strategies over the last decades. Considering the examples of the Global Climate coalition influencing the US debate over the Kyoto Protocol in 1997, as well as the Oil industry's efforts to influence the Bush administration to pull out of Kyoto in 2001, the study suggests that financial resources and building powerful alliances is a means of influencing public debate.
Rao *et al.*, 2003	Key (brokerage) position in the field	Regression analysis	The study analyses how the 'nouvelle cuisine' movement in France led elite chefs to abandon 'classical cuisine' during a certain period, highlighting the key positions of activists and the theorisation of 'nouvelle cuisine' as factors in the dissemination of the new approach. In particular, the use of brokerage mechanisms through influential culinary journalists and their approach to theorisation contributed significantly to the establishment of 'nouvelle cuisine'.
DeHolan & Phillips, 2002	Ability to combine institutional approaches	Case study	The study investigates the entrepreneurial role of MagoTaplan in Cuba. The company was able strategically to engage in market-oriented techniques in Cuba after the collapse the USSR and upcoming presence of a multifarious institutional field (communist Cuba and the market-oriented international market). The decoupling of market-oriented technical and organisational innovations and the institutional framing via communist repertories allowed MagoTaplan to establish an innovative organisational form in the traditional communist institutional field.
Garud *et al*., 2002	Political skills	Case study	This study describes how Sun actively influenced industry partners in order to establish Java as the software standard of Internet applications, presenting itself as a leader in driving the Internet revolution instead of Microsoft. Sun strategically gained support for Java by politically and discursively convincing key players (vendors and rivals) collectively to stand behind Java as the dominant Internet application standard.
Greenwood *et al.*, 2002	Framing skills, Powerful allies	Case study	This study examines the change of accounting firms as specialised actors to one-stop-shopping service providers. It highlights that framing included the specification of the failings of the existing practices as well how firms justified their new approaches. Furthermore, this study analyses the unique skills that allowed the Big Five to expand their service and helped them to resist. Finally, the analysis examines how powerful allies (professional associations) played an important role in theorising change.
Lawrence *et al*., 2002	Ability to build strategic network	Case study	This study describes the work of Mère et Enfant in Palestine. This case shows that collaboration and network structure can play a key role in the production of 'proto-institutions' by facilitating them and making them available inter-organisationally.
Sherer & Lee, 2002	Human resources, Framing skills, Prestige, Access to media	Regression analysis	The study analyses how innovation in human resource (HR) practices in law firms takes place and which factors facilitated the early adoption of these practices. The study suggests that human-resource scarcity in particular pressures organisations to rethink HR practices. Institutional entrepreneurs may consequently prepare an industry for innovation by assessing these resources to be scarce in the context of the existing standard. The data of this study suggest that this questioning was facilitated by the prestige and abilities of the top management of the innovators. These people used their prestige and access to the media in order to develop and disseminate technical rationales that facilitated the diffusion of new HR practices.

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Study	Resource	Method	Propositions and findings
Zilber, 2002	Political skills	Case study	The study analyses the political process of institutionalisation in the context of a Rape Crisis Centre in Israel. The study observes how feminists and therapeutically-oriented volunteers influenced the process of institutionalising practices by the use of political skills to combine the intended actions with meanings.
Hargadorn & Douglas, 2001	Ability to imitate existing institutions, Robust technical design	Case study	This case analyses how Edison succeeded in strategically defining the technological standard for lighting buildings and streets. From a resource perspective, he could rely on the robust design of his superior innovation. Furthermore, Edison was skilled in imitating existing arrangements: he "hobbled his innovation to fit cleanly within the technical roles currently given to gas". By mimicking the gas approach, Edison allowed his users to recognise the purpose of his innovation "at the outset and know without reflection how to use it in everyday lives".
Lounsbury & Glynn, 2001	Story-telling skills	Theoretical	The paper develops a framework arguing that the ability to tell persuasive stories helps entrepreneurs to craft new ventures with sufficient legitimacy in the institutional field (i.e., investors, competitors, consumers) and give the venture an identity, ultimately enabling the organisation to access organisational capital as well as intuitional capital in the form of new market opportunities.
Hardy & Phillips, 1999	Discursive capabilities	Case study	The study of the Canadian refugee system investigates the relationship between a broad discourse on the social level, tracked via a study of political cartoons, and the institutional field (regulators, NGOs and refugees). They suggest that the ability of actors to develop effective discursive strategies is influenced by the availability of discursive resources, not only within the field, but also at the societal level.
Lawrence, 1999	Institutional leadership, Control of information, Technical, legal, marketing, political experience	Case studies	This exploratory study derives propositions on how organisations succeed in institutional strategies that aim to change the nature of competition in an industry. The study suggests two strategies: in order to set rules of membership in institutional fields, an organisation must possess control of critical institutional information and be perceived as a leading organisation in the institutional field. These critical resources put the organisation in a position to dominate the process of how membership roles are defined. In order to set standards for practices, the authors emphasise the importance of the organisation's technical, legal, marketing and political experience, besides its reputation as leading organisation. An image of leadership or expertise might trigger other actors in the institutional field to assimilate the organisation's behaviour and applied practices.
Rao & Sivakumar, 1999	Access to social resources (activists and professionals)	Regression analysis	The study analyses the establishment and dissemination of investor relationship (IR) departments in the 'Fortune 500 Industrials'. This article suggests the roles of activists (investor rights activists) and professionals (financial analysts) as institutional entrepreneurs pushing organisations to set up an IR department.
Rao, 1998	Framing skills, Lobbying capabilities	Case study	This study of the creation of a non-profit consumer watchdog organisation examines how the boundaries of an organisational form and its cultural contents are shaped by politics. The case shows how competing approaches frame their ideologies differently, but both reconnect prevalent approaches already accepted in the field. Furthermore, it highlights how the different parties engaged in political processes to get support from government, the professions and other key players in the institutional field.
Fligstein, 1997	Social skills	Case study	This study analyses how the French minister Jacques Delors gained the support of politicians who were sceptical of a single European market. As a result, this study highlights social skills and brokerage as distinctive assets of institutional entrepreneurs like Jacques Delors.

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Study	Resource	Method	Propositions and findings
Suchman, 1995	Communication skills, Ability to build a powerful coalition	Theoretical	The paper conceptualises different organisational strategies to cope with legitimacy requirements. It is argued that in order to manipulate the way in which means for legitimacy are defined, an organisation must be able to advertise and communicate the superiority of the intended practices to important constituencies. According to the authors, legitimacy is further achieved through skilful impression management (e.g., by the selective release of indicators instead of communicating the practices themselves) and the building of coalitions among important players in the field.
Aldrich & Fiol, 1994	Ability to imitate existing institutions, Ability to build social capital	Theoretical	The authors of the paper suggest that entrepreneurs entering an institutional field are dependent on how they can mobilise support for their new and unknown practices and technologies. They suggest that actors who are able to connect their new approaches with existing institutional logics, as well as mobilise collective action, are more likely to gain legitimacy. They further suggest that entrepreneurs specifically benefit from third parties (e.g., trade communities, educational organisations) that promote their activities.
Leblebici *et al.*, 1991	Ability to identify and address complex social problems	Case study	This study of the US commercial broadcasting industry explains the transition of this specific institutional field by the action of many (initially) fringe network actors with sufficiently high levels of interest and resources (like the ability to frame the new approach via analogies), identifying complex social problems (such as pollution) and developing agreements with identifiable parties. In the long run, this dissemination to key constituents eroded the centrality of the established players, ultimately resulting in institutional change as intended by the entrepreneurs.
DiMaggio, 1988	Financial support from powerful & subsidiary actors	Theoretical	In his paper, the author introduces the concept of institutional entrepreneurs to literature. He considers literature and illustrative narratives, describing institutional entrepreneurs as actors with sufficient resources that start institutional projects. He argues that for the successful institutionalisation and dissemination of such projects, the institutional entrepreneur needs help from subsidiary actors and external constituencies, as these actors provide legitimacy to the new organisational form.

Table 3: A review of resources and input factors identified in institutional entrepreneurship. Note: studies in the field of sustainability are marked with a (*).

Resources – which are particularly necessary to establish voluntary sustainability initiatives and effect the intended institutional change – have not been analysed (Wright *et al.*, 2005; Hamprecht, 2006). In this context, the concept of '*key* resources' has been introduced (Barney, 1991).[100] Key resources are particularly important and enable institutional entrepreneurs to establish voluntary sustainability initiatives and ultimately defeat the competition of opposing existing and emerging institutional practices applied in supply chains (Hargrave & van de Ven, 2006; Misangyi *et al.*, 2008). In fact, the identification of such key resources still has to be conducted in institutional entrepreneurship (Hamprecht & Sharma, 2006), specifically in the context of voluntary sustainability initiatives for supply chains, which is characterised by high complexity, due to several intersecting performance dimensions (Bansal, 2005) and a confusing multiplicity of affected supply-chain partners' stakeholders (Hamprecht & Sharma, 2006). Furthermore, interdependencies between resources, such as complementarities, have not been addressed yet (Hamprecht & Sharma, 2006), leading to an incomplete understanding of how institutional entrepreneurs may implement institutional change more efficiently.

This is why scholars call for embellishing the idea of institutional entrepreneurship with considerations from resource-based theories (Hamprecht & Sharma, 2006; Meyer *et al.*, 2009). In the context of this thesis, this link is achieved by specifying resources that are critical to the successful implementation of competitive strategies.

[100]The concept of *key* resources has also been introduced in institutional entrepreneurship theory (Peters & Hofstetter, 2008; Peters *et al.*, *forthcoming*).

3.4. The resource-based view and its contribution to the design of voluntary sustainability initiatives for supply chains

The resource-based view of interconnected firms emphasises specific resources that explain the unique competitive advantage of firms and their alliance networks (Barney, 1991; Peteraf, 1993; Lavie, 2006). It also presents mechanisms that prevent competitors from acting in the same way (Barney, 1991; Dyer & Singh, 1998).

The first section will present a brief review of the conceptualisation of resources in the resource-based view (Section 3.4.1.). It will then present enhancements of the resource-based view of interconnected firms in order to cope with the network perspective in voluntary sustainability initiatives for supply chains (Section 3.4.2.). Finally, it will briefly review what resources have already been identified in the context of running corporate sustainability and voluntary sustainability initiatives for supply chains (Section 3.4.3.).

3.4.1. The resource-based view and the resources that enable voluntary sustainability initiatives for supply chains

Although the debate on the scientific status of the resource-based view is still ongoing (Barney, 2001a; 2001b; Freiling, 2001; Peteraf & Barney, 2003; Priem & Butler, 2001), the resource-based view plays a significant role in explaining how companies run their strategies in order to compete in markets (Acedo *et al.*, 2006).

Argumentation of the resource-based view

In the resource-based view, the main idea is that the competitive advantage of a firm derives from its firm-specific resources that are – relative to competing firms' resources – both scarce and superior (Peteraf & Barney, 2003).

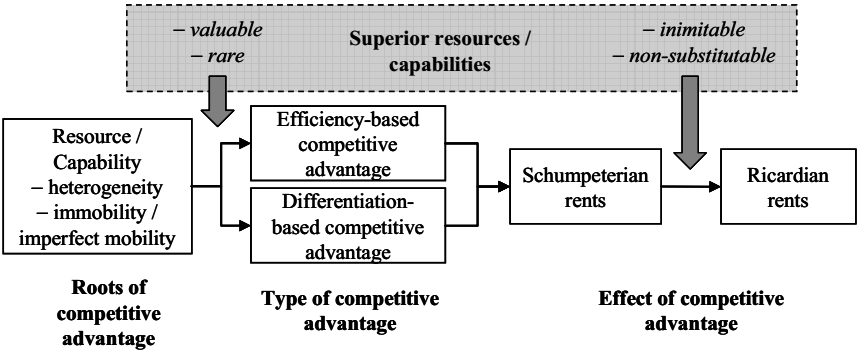

Figure 14: Argument of the resource-based view (according to Peteraf & Barney, 2003)

The key assumption and *sine qua non* of the resource-based view is that strategic resources are heterogeneously spread in the competitive market (Barney, 1991). It is further assumed that these differences last over time, because of resource immobility (e.g., idiosyncratic resources like reputation or customer loyalty) or imperfect mobility (the resource is tradable, but of more value to a specific company, due to the specificity associated with high switching or sunk costs, for example) (Peteraf & Barney, 2003).

A firm that possesses superior resources is able to achieve competitive advantage. In this context, competitive advantage is conceptualised as "*an indicator of a firm's potential to best its rivals in terms of rents, profitability, market share, and other outcomes of interest*" (Peteraf & Barney, 2003: 313, 314) and is achieved when a firm "*is able to create more economic value than the marginal (breakeven) competitor in its product market*". Quite similarly, Newbert (2008: 749) defines competitive advantage as "*the implementation of a strategy not currently being implemented by other firms that facilitates the reduction of costs, the exploitation of market opportunities, and/or the neutralisation of competitive threats*". Thus, a competitive advantage is about efficiency in terms of maximising benefits gained per Euro spent, and can be either 'efficiency-based' (providing the same benefits at a lower cost relative to the competitors) or 'differentiation-based' (providing greater benefits at the same cost relative to the competitors)[101].

'Rents' are created by means of competitive advantage (Barney, 1991) and cover the greater economic value the firm produces compared to its peers (Peteraf & Barney, 2003).[102] In this context, economic value is "*the difference between the perceived benefits gained by a purchaser of the good and the economic costs to the enterprise*" and covers the surpluses of both the producer and customer (Peteraf & Barney, 2003: 314). According to Peteraf & Barney (2003), a firm's rents are rather short-lived ('Schumpeterian' or entrepreneurial rents) – when it lacks rent-preservation mechanisms that prevent competitors from imitating or substituting the firm's competitive advantage – or long-term ('Ricardian' rents), when these mechanisms are in place. In the latter case, resource-based scholars speak of the 'sustained competitive advantage' that a firm possesses (Barney, 1991).

[101] Differentiation-based competitive advantage is based on the assumption that superior benefits enhance customer loyalty and perceived benefits, ultimately leading to increased sales at the same margin (i.e., parity price).

[102] Note that competitive advantage is only one means of achieving rents and economic performance. Resource-based scholars acknowledge the existence of exogenous factors that are further drivers of economic rents (e.g., Newbert, 2008).

Resources in resource-based theory

Companies compete in markets by following strategies that are based on superior, or *critical* resources, allowing a firm to participate in a product market relatively more efficiently and effectively (Barney, 1991). However, there is still a confusing variety of meanings that are associated with the concept of resources in the context of the resource-based view (Freiling, 2001).

In the original article, Barney (1991: 101) defines resources as "*all assets, capabilities, organisational processes, firm attributes, information, knowledge, etc. controlled by the firm that enable the firm to conceive and implement strategies that improve its efficiency and effectiveness*". Similarly, Hunt & Morgan (1995: 1) define resources as "*the tangible and intangible entities that enable the firm to produce efficiently and/or effectively a market offering that has value for some market segment or segments.*" Amit & Schoemaker (1993: 35) distinguish between resources and capabilities, referring to the latter as "*a firm's capacity to deploy resources*". In this understanding, resources can be tangible (e.g., equipment) or intangible (e.g., patents, brands, reputation, know-how) assets that are semi-permanently tied to the firm (see also Wernerfeld, 1984). In turn, capabilities are employed to utilise these resources (Grant, 1991). As such, capabilities are implicit processes enhancing the productivity of resources that a firm possesses (Makadok, 2001). Ultimately, all of these understandings show that resources and capabilities are inextricably bound (Newbert, 2008).

Resource-based scholars draw on a definition of attributes that requires resources and capabilities to be valuable, rare, inimitable and non-substitutable to contribute to sustained competitive advantage (Barney, 1991)[103] and, subsequently, to enable and strengthen the resource-rent relationship (Crook *et al.*, 2008). In the following, these attributes will be discussed separately:

- *Value*: the assessment of resource value is a central concern to resource-based investigations, because competitive advantage stems from implementing a 'value-creating strategy' (Barney, 1991: 102). This means that resource value is determined by the degree of efficiency that the company achieves due to the resources, either by producing more economically or by better satisfying the customers' wishes relative to the competitors.

[103] Besides the distinction between 'resources' (Barney, 1991) and 'capabilities' (Amit & Schoemaker, 1993), scholars of the resource-based view introduced the concepts of 'core competencies' (i.e., meta-capabilities that emerge through a process of accumulating and learning how to organise resources and capabilities that can be leveraged for many products and markets; see Prahalad & Hamel, 1990) and 'dynamic capabilities' (i.e., a firm's ability to integrate, build and reconfigure internal and external competences in rapidly changing environments; see Eisenhardt & Martin, 2000; Teece *et al.*,1997) of a business. In doing so, these scholars apply resource-based logic at different levels of analysis. Still, they typically use the four criteria of Barney (1991).

Although critics of the resource-based view assume the definition of resource value to be extrinsic to the theory (e.g., Bowman & Ambrosini, 2000; Priem & Butler, 2001), scholars of the resource-based view introduced some concepts that contribute to an enhanced resource value. '*Non-linearity*' refers to the diminishing total value of resources: more of the same resource will not necessarily lead to improved performance; rather, a non-linear relationship between the development of a resource and the resulting competitive advantage may exist (Nehrt, 1996; Slotegraaf *et al.*, 2003). Firstly, diminishing resource value might occur because the development of each of the multiple organisational resources may require the same means, such as financial resources or human information-processing capabilities, which are limited. The second mechanism is related to the concept of core rigidities: traditional resources, when intensively developed, can become 'core rigidities' in ways that can hinder the development of novel resources that draw on a competing logic (Leonard-Barton, 1992). Thus, possessing too many of these resources may preclude further increase of competitive advantage. Resource value through '*complementary resources*' specifies the value of inter-dependent resources and therefore the analysis of how a resource could increase the profit-generating potential of another resource (Teece, 1987).

This phenomenon is mainly explained by two mechanisms. Firstly, an organisation might strategically develop resources based on the same routines that can be leveraged across them (Madhok, 2002). Secondly, the efficiency effects of one resource might arise from the presence of another resource. For example, R&D capabilities might become even more efficient in the presence of marketing capabilities that steer R&D efficiently (Moorman & Slotegraaf, 1999). Furthermore, research suggests that '*contingencies*' in the business environment ('context'), such as uncertainty, munificence and complexity (Dess & Beard, 1984), help explain the value of a resource (Aragón-Correa & Sharma, 2003; Brush & Artz, 1999; Burt, 1997; Miller & Shamsie, 1996). Contingencies may cause some resources to be valuable in one context and not valuable in another.

- *Rarity*: rarity or scarcity is another central attribute of resources, since competitive advantage is achieved when a firm implements a strategy that is not simultaneously run by large numbers of other firms (Barney, 1991). By contrast, if resources are common, competitive parity exists and no firm is able to achieve competitive advantage. Thus, resources have to be rare; that is, the number of firms that possess the resource is lower than the number of firms needed to establish perfect competition dynamics in an industry in order to generate competitive advantage.
- *Inimitability*: this attribute ensures that competitors are not able to imitate the competitive advantage of a firm. Several characteristics of resources may contribute to

inimitability: 'path dependencies', also known as 'time compression diseconomies', refer to the specific development of an organisation over time (Teece *et al.*, 1997). A resource position is often shaped by the path that the organisation has travelled (Morgan & Hunt, 1996). Competitors are not able to imitate this path easily, as it is based on the internal steps taken, as well as on the environmental context in each respective step (Dierickx & Cool, 1989). 'Causal ambiguity' refers to the basic ambiguity of causal connections between actions and results (Lippman & Rumelt, 1982) and reflects situations in which the managers of a firm understand particular relationships better than their competitors. (Reed & deFilippi, 1990). Several drivers of causal ambiguity have been suggested so far: 'tacitness' refers to disorganised, informal, idiosyncratic knowledge that is hard to codify, even for skilled performers (Reed & deFilippi, 1990). In situations in which even replication is problematic, imitation by competitors is particularly improbable (Nelson & Winter, 1982). 'Complexity' arises from the large number of tangible and intangible input factors that constitute the resource or capability (Reed & deFilippi, 1990). If a resource is built on a complex system of interconnected input factors, few individuals, if any, will be able to gain an adequate overview of the overall package and imitate the resource (Dierickx & Cool, 1989). Asset or resource 'specificity' exists if durable investments are made to support a particular transaction (Williamson, 1985). If a resource is highly specific, the underlying relationships between the transaction partners, and their skills and resource deployments, may remain impenetrable to competitors and hinder imitation (Reed & deFilippi, 1990).

- *Non-substitutability*: imperfect mobility and inimitability are not sufficient to achieve sustained competitive advantage if competitors can bypass these superior resources by substitution (Barney, 1991). Substitution occurs when two or more resources are strategically equivalent and exploited separately in order to implement similar strategies. According to Barney (1991), two forms of substitution exist. Firstly, organisations can bypass resources by substituting the resource with similar resources (quasi-imitation with only small deviations from the original resource). Secondly, competitors achieve the same competitive position by drawing on different resources (e.g., a clear vision of the future can be achieved by a charismatic leader as well as with a systematic, company-wide planning process). Only resources that cannot be replaced can be sources of a firm's sustained competitive advantage.

Enhancements of the resource-based view for stakeholder and supply chain relationships and networks

The recent trend in the research across company boundaries to explain horizontal and vertical alliances as well as strategic networks has triggered a body of research enhancing the traditional resource-based view, acknowledging the difficulties for a single firm to possess all resources needed to sustain current competitive advantages while trying to develop new ones (Harrison *et al.*, 2001).

Drawing on traditional resource-based considerations, resource-based enhancements with regard to strategic relationships ('inter-firm alliances'[104]) and strategic networks[105] are introduced to explain relational or network resources as further sources of competitive advantage (Duschek, 2002; Dyer & Singh, 1998; Gulati, 1999; Lavie, 2006). They argue that critical resources might span firm boundaries in interconnected constellations. Thus, a firm could extract value – so-called 'relational' rents/performance and 'spillover' rents – from resources not fully owned by its internal organisation (Lavie, 2006; Mesquita *et al.*, 2008) as well as from its social position in the strategic network (Gulati, 1999). In this context, relational rents are defined as "*a common benefit that accrues to alliance partners through combination, exchange, and codevelopment of idiosyncratic resources*" (Lavie, 2006: 645). By contrast, inbound spillover rents are private benefits of the firm that are not intended by the partner organisation (Lavie, 2006). Rents resulting from the firm's network position are associated with informational and control advantages that the firm obtains from its relationships within strategic networks that channel valuable information (Burt, 1997; Gulati, 1999). Thus, network resources are defined as "*valuable knowledge acquired through the network*" (Dyer & Hatch, 2006: 702).

In order to distinguish relational and network resources from internal resources, the research emphasises common benefits based on these resources that cannot be generated separately by one alliance partner or network actor in isolation (Lavie, 2006). In this context, relational resources can be categorised into relation-specific assets, complementary resources, knowledge-sharing routines and effective governance mechanisms (Dyer & Singh, 1998; Mesquita *et al.*, 2008). On the (social) network level, resources are predominantly linked to the concept of social capital (Gulati, 1998). These concepts will be presented in the following:

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[104] An inter-firm alliance is defined as a "*voluntary agreement between firms involving exchange, sharing, or codevelopment of products, technologies, or services*" (Gulati, 1998: 293).

[105] Brass *et al.* (2004: 795) define networks as "*sets of nodes representing actors such as organisations and sets of ties representing relationships between the nodes*." According to Gulati *et al.* (2000: 203), "*strategic networks are composed of inter-organisational ties that are enduring, are of strategic significance for the firms entering them, and include strategic alliances, joint ventures, long-term buyer-supplier partnerships, and a host of similar ties.*" They "*potentially provide a firm with access to information, resources, markets, and technologies; with advantages from learning, scale, and scope economies; and allow firms to achieve strategic objectives, such as sharing risks and outsourcing value-chain stages and organisational functions.*"

- *Relation-specific assets*: relational rents may result from an extraordinary working relationship that is characterised by investments in assets that are specifically dedicated to the assets of the partner, in terms of site, physical or human assets (Dyer & Singh, 1998). As the investments are specific to the relationship, the value of these investments would be significantly lower if implemented in alternative uses, i.e. relational rents can be achieved.
- *Complementary resources*: complementarities are one of the most important determinants in the selection of strategic alliances (Hitt *et al.*, 2000). This is because significant relational rents may stem from the exchange and combination of complementary resources in a synergistic way (Madhok & Tallman, 1998), either by pooling effects (the combination of similar resources to achieve synergies in the form of economies of scale) or complementarities (the combination of dissimilar resources to achieve synergies)[106] (Lavie, 2006). Such synergies lead to new or stronger competitive positions than those achievable by the exchange partners when operating alone (Dyer & Singh, 1998; Ireland *et al.*, 2002).
- *Knowledge-sharing routines*: relational rents in the form of product and process innovations mainly originate from inter-organisational routines that stimulate knowledge exchange, as well as from the generation of new knowledge (Dyer & Nobeoka, 2000). The development and improvement of these inter-firm knowledge-sharing routines will be supported by the transparency in the relationship and the firm's absorptive capacity (learning capabilities that identify, evaluate, assimilate and exploit the partner's knowledge; see Lane & Lubatkin, 1998 and Lane *et al.*, 2001) as well as disseminative capabilities (teaching capabilities that improve knowledge transfer to the partner; see Oppat, 2008).
- *Effective governance mechanisms*: if the relationship partners implement informal, self-enforcing mechanisms, relational rents can be achieved because informal mechanisms may decrease transaction costs by helping avoid opportunistic behaviour and supporting the safeguard of the relationship-specific investments (Dyer & Singh, 1998). In this context, scholars suggest that trust is a powerful informal mechanism that helps to reduce co-ordination and monitoring efforts (Das & Teng, 2001), because it reflects the voluntary implementation of risky actions in the relationship, while simultaneously renouncing explicit safeguards against opportunistic behaviour. Specifically, social contracts have proven to be an effective informal governance

[106] Note that dissimilar resources are not the same as complementary resources (Das & Teng, 2000). However, complementarities with the potential of generating economies of scope or developing new resources or skills typically stem from the partners' dissimilar resources.

mechanism in relationships and preconditions of formal ones, such as monitoring (Heide *et al.*, 2007).

- *Social capital*: inequalities concerning the value of different network ties and partners lead to the concept of social capital in networks (Borgatti & Foster, 2003). An advantageous position in strategic networks allows the focal actor to exploit the central social network position that it either finds itself in or creates in order to maximise its competitive performance (Nahapiet & Ghoshal, 1998). An outstanding positioning is characterised by the actor's network connections, such as strong or weak ties to the network partners (Brass *et al.*, 2004), as well as on the network structure it finds itself in, such as network closure and structural holes bridging different groups (Zaheer & Bell, 2005), depending on the kind of competitive advantage the firm seeks (Tiwana, 2008).

To protect the value created by those resources, Dyer & Singh (1998) emphasise several rent-preservation mechanisms that lead to inimitability and non-substitutability, and supplement considerations of the traditional resource-based view like causal ambiguity and path dependence:

- *Asset interconnectedness*: relational rents stem from specific investments made by the partners. More specifically, partners may need to make several bundles of related specific investments in the partnership in order to realise the full potential of the partnership. An implementation of only a part of these investments might in some cases not be economically feasible (e.g., the implementation of just-in-sequence processes may demand *ex ante* investments in specific infrastructure). Competitors willing to imitate a specific investment may consequently have to make other investments in the relationship first.
- *Partner scarcity*: achieving relational rents and network benefits is extremely contingent on the firm's ability to find appropriate partners with which to build a relationship or network. Thus, the question of rent preservation often goes hand in hand with the number of remaining potential partners that possess complementary resources and that are able and willing to partner with a firm's competitors. If few potential partners are left, the ability to imitate the competitive advantage of the firm decreases. Hence this mechanism favours first movers and companies that are able quickly to identify and form an alliance with favourable partners.
- *Resource indivisibility*: partners in a relationship may combine resources to such a degree that the combination becomes idiosyncratic and irreducibly complex. Furthermore, the resources of the partnering firms may be combined and then co-evolve over time. In this time, the partners may build linkages to improve this co-

evolution and partnership. The result is that the co-evolving resources are subject to path dependencies and may become increasingly indivisible and socially complex. Thus, although competitors may eventually partner with the cooperating firm, they are unable to grasp, assimilate or take advantage of changes that occur in the course of the relationship (Lane & Lubatkin, 1998).

- *Institutional environment*: if relationships are built in institutional environments that foster trust between partners, these relationships are more likely to accrue relational benefits compared to relationships in more difficult environments where companies are not able to replicate the same benefits with partners. Consequently, the inimitability of relationships is constrained if competitors are not able to locate the partnership and the associated operations in the favourable institutional environment.

3.4.2. The need to specify the resources in the context of voluntary sustainability initiatives for supply chains and legitimacy

To date, little research has specifically examined the development of voluntary sustainability initiatives for supply chains. However, a broad corpus of research has already examined corporate sustainability and sustainable supply-chain practices from a resource-based perspective, including some of the proposed concepts enhancing the traditional resource-based view. This body of literature argues that a firm can enhance its competitive position (achieve competitive advantage) by allocating resources that increase the environmental (or social) performance of the organisation and its supply chain (Hart, 1995; Shrivastava, 1995c). This may save costs due to the increased efficiency of processes ('lean and green') (Shrivastava, 1995c) or decreased liabilities and risks (Sharfman & Fernando, 2008); it may also increase competitive pre-emption (gaining preferred or exclusive access to important and limited resources; Hart, 1995), enhance the company's reputation (Deephouse, 2000; Menon & Menon, 1997; Reinhardt, 1998) and enable a company to access new markets, such as a green customer segment (Orsato, 2006; Reinhardt, 1998) or promising markets at the bottom of the pyramid (Prahalad, 2005).

So far, several resources that were used in competitive environmental or CSR strategies have been described (see Table 4). These resources can be summarised as strategic proactivity, stakeholder involvement and relationships, (inter)organisational learning, process improvement, cross-functional collaboration, employee involvement, organisational slack, a shared vision as well as several supply chain management skills. Furthermore, it has been found that complementary intra- and inter-organisational resources may increase the competitive advantage of such strategies, and that non-linearity as well as contingencies in the business environment may affect the value of resources.

Study	Resource /	RBV concepts	Propositions and findings
Hart, 1995	Continuous improvement, Stakeholder integration, Shared vision	Traditional RBV	The study suggests that proactive environmental strategies are related to competitive advantage via the generation of organisational capabilities: 1. Continuous improvement allowing a firm to eliminate waste at its source (cost savings), 2. Stakeholder integration, which enables intense learning (differentiated products and value-chain linkages), 3. Shared vision, focusing employees on a long-term strategic intent of sustainability.
Shrivastava, 1995c	Environmental technologies	Traditional RBV	The study explores the link between environmental technology (including total environmental management, technology assessment, industrial ecology, manufacturing for environment as well as design for environment) and competitive advantage and suggests that these resources help organisations to succeed in the competitive landscape.
Klassen & McLaughin, 1996	Environmental technologies, Environmental management	Traditional RBV	The authors present one of the first theoretical models that suggest a positive relationship between products and technologies that lower environmental impact, as well as strong environmental management systems and the perceived financial performance of a firm.
Nehrt, 1996	Environmental technologies	Non-linearity	The study indicates a positive relationship between timing of investments in environmental technologies and profit growth. It is also shown that more intense investment patterns may lead to lower profit growth if not tempered by sufficient time to absorb the investments.
Russo & Fouts, 1997	Organisational commitment and learning, Cross-functional integration, Employee	Contingencies	The study finds that environmental strategies that are based on capabilities enhance a company's competitive position, and that this relationship is moderated by the industry growth rate.
Aragón-Correa, 1998	Strategic proactivity	Traditional RBV	The study finds that firms that maintain a 'prospector', posture in their entrepreneurial, engineering and administrative functions are more likely to develop proactive environmental approaches (that may enhance the competitive position).
Marcus & Geffen, 1998	Organisational learning (searching & evaluating external resources)	Traditional RBV	The study finds that firms with the capabilities of organisational learning in terms of searching for external sources of talent, technology and ideas (e.g., from suppliers) are more likely to acquire external capabilities that increase environmental performance.
Sharma & Vredenburg, 1998	Stakeholder integration, High-order learning, Continuous innovation	Traditional RBV	This study identifies stakeholder integration, higher-order learning and continuous innovation as organisational capabilities of firms with proactive environmental strategies in the Canadian oil industry.
Klassen & Whybark, 1999	Continuous improvement, Innovation, Total quality management	Traditional RBV	The study finds that the capability of developing and deploying manufacturing initiatives into an environmental technology portfolio would increase the firm's manufacturing and environmental performance simultaneously. The authors argue that this deployment involves continuous improvement, innovation, and the integration of total quality management into operations.
Christmann, 2000	Environmental management, Process innovation &	Complementarities	This study finds that organisational capabilities associated with pollution-prevention technologies lead to competitive advantage only if a firm also possesses complementary capabilities such as process innovation and implementation.
Geffen & Rothenberg, 2000	Environmental collaboration	Relationships	This study derives propositions on a positive relationship between integrative capabilities towards suppliers and the environmental performance of OEMs in the Automotive industry. The study argues that suppliers may provide environmental innovations, as they control an increasing part of the value creation.

The table continues on the next page.

Study	Resource /	RBV concepts	Propositions and findings
Bowen *et al.*, 2001	Supply-management capabilities	Traditional RBV	The study finds a positive relationship between organisational supply-management capabilities – namely, cross-functional integration, partnering with suppliers, understanding environmental issues, technical skills of purchasing personnel and detailed purchasing policies & procedures – and the development of product- as well as process-based green supply.
Carter & Jennings, 2002	Purchasing involvement in CSR, Trust in suppliers, Cooperation with supplier	Relational View	The study analyses the relationships between purchasing involvement in CSR and the performance of suppliers. The results indicate that there is a positive relationship between these two constructs, which is mediated by relational resources that facilitate the cooperation between the affected organisations.
Aragón-Correa & Sharma, 2003	Dynamic capabilities	Contingencies	This paper develops a theory of how variables in a firm's general business environment (uncertainty, complexity and hostility) moderate the deployment of dynamic capabilities that are the foundation of proactive environmental strategies.
Klassen & Vachon, 2003	Environmental collaboration	Relationships	The study finds that customer- as well as plant-initiated collaboration are positively related on the level and form of investments in environmental technologies for Canadian plants. Specifically, a significant relationship was found for customer-initiated collaboration and pollution prevention.
Black & Härtel, 2004	Public-affairs management, Stakeholder engagement and dialogue, Social management and reporting	Traditional RBV	Based on a factor analysis, the study identifies five capabilities that are all rooted in a company's public-relations and social-responsibility orientation. The paper suggests that these capabilities allow organisations to run their CSR strategies successfully.
Hart & Sharma, 2004	Engagement of fringe stakeholders	Traditional RBV	The paper describes how organisations may engage 'fringe' (poor, weak, isolated, non-legitimate, and even non-human) stakeholders in order to identify successful future competitive business models early.
King & Lenox, 2004	Absorptive capacity (Information provision, prior experiences)	Traditional RBV	Using the example of pollution prevention, the study analyses how the relationship between information provision within the company and prior experiences (as two specific aspects of absorptive capacity) help to explain the adoption of environmental-management practices.
Sharma *et al.*, 2004	Stakeholder integration, Organisational learning, Cross-functional integration, Continuous innovation,	Contingencies	The study analyses the link between capabilities and environmental strategies in ski resorts and finds that several capabilities are positively related to the development of proactive environmental strategies. The study further finds that managerial perceptions of uncertainty, complexity and hostility in the general business environment moderate this deployment.
Zhu & Sarkis, 2004	Green supply-chain management practices, Quality management, Just-in-Time	Relationships, Complementarities	The study examines the relationship between green supply-chain management practices and the organisational performance. The results show that these practices (environmental management, environmental collaboration, investment recovery, eco-design) are positively related to the organisational performance and moderated by quality-management and just-in-time supply skills.
Bansal, 2005	International experience, Working capital management, Organisational slack	Traditional RBV	The study operationalises corporate sustainable development and examines its organisational determinants (capabilities). The study identifies a positive relationship between organisational slack, international experience as well as working capital management and corporate sustainable development, as they allow the organisation to leverage the needed multiple knowledge and sufficient resources.
Carter, 2005	Purchasing involvement in CSR Organisational learning, Cooperation with supplier	Relationships, Complementarities	The study examines the relationship between purchasing involvement in CSR and costs. Interestingly, no direct relationship is found. However, organisational learning and supplier performance act as mediating variables between purchasing involvement in CSR and improved supplier performance (that results ultimately in reduced costs).

The table continues on the next page.

Study	Resource / Capability	RBV concepts	Propositions and findings
Claver-Cortés *et al.*, 2005	Environmental management, Total quality management	Complementarities	This meta-study compares studies of RBV that link environmental-management as well as quality-management skills with competitive advantage and suggests a complementary relationship between the two capabilities.
Handfield *et al.*, 2005	Environmental management systems	Traditional RBV	The article derives a model for environmentally friendly commodity supply chains that increase a firm's competitiveness, ultimately leading to traditional economic performance gains. The model suggests that environmental commodity supply-chain strategies are based on environmental management systems that allow the firm to steer the strategy process efficiently.
Rao & Holt, 2005	Greening inbound, Greening production, Greening outbound	Traditional RBV	The study finds that greening capabilities for the different processes in supply chains lead to integrated supply chains that improve competitiveness and economic performance. The study finds that the effect of greening inbound and in-house processes is mediated by greening the outbound processes (including marketing aspects).
Sharma, 2005	Gate keeping, Trust building, Stakeholder-interface management, Combinatorial capabilities	Traditional RBV	This paper derives several sub-capabilities that enable a company to execute stakeholder engagement and high-order learning. In this context, gate keeping, trust building and stakeholder-interface management are related to stakeholder engagement, whereas combinatorial capabilities (system, coordination, and socialisation capabilities) enable high-order learning.
Darnall & Edwards, 2006	Quality-based management systems, Inventory-control systems, Pollution prevention,	Complementarities	The study analyses the complementary role of internal and external capabilities in environmental-management-system adoption and identifies the internal capabilities of pollution prevention, quality-based and inventory-control systems as well as the external support of stakeholders as complementary resources.
Hamprecht, 2006	Exploratory capabilities, Exploitative capabilities	Complementarities, Contingencies	The study explores the capabilities that are used to increase the efficiency of establishing sustainable purchasing strategies. It suggests that exploratory and exploitative capabilities, as well as pressures from the institutional environment, mediate the relationship between a sustainable purchasing strategy and competitive advantage.
Katsoulakos & Katsoulacos, 2007	Exploratory capabilities, Relationships with external stakeholders	Relationships	The paper presents a framework integrating CSR, stakeholder management and strategic management and suggests that the exploration of advance-creating knowledge as well as stakeholder relations may enable a firm to achieve higher responsibility and financial performance.
Sharma *et al.*, 2007	Strategic proactivity, Continuous innovation, Stakeholder engagement	Contingencies	The study finds that the capabilities of strategic proactivity and continuous innovation are linked with proactive environmental strategies that may contribute to competitive advantage. It further finds that managerial perceptions of uncertainty in the general business environment moderate this relationship.
Simpson *et al.* (2007)	Relation-specific investments in supply chain relationships	Relationships	This study in the Australian automotive industry analyses the extent to which a supplier's environmental performance is influenced by its customer's environmental performance requirements when specific relationship investments, contracting and monitoring routines are installed . As result, suppliers were found to be more responsive to environmental requirements in case of high relationship-specific investments.
Vachon (2007	Collaboration with supply chain partners	Relationships	This study in the context of the Canadian and US package printing industry showed that relationships in the upstream supply chain helped to establish and adopt environmental strategies whereas downstream collaboration has very little impact on the design and implementation of such strategies.
Carter & Rogers, 2008	Supply-chain integration	Relationships	The authors derive propositions whereby capabilities that fulfil the premises of RBV enable a company to engage in sustainable supply-chain management and achieve higher economic performance. They suggest that vertical integration carries relational advantages in terms of improved sustainable development and that this may enable a firm to outperform competitors.

The table continues on the next page.

Study	Resource / Capability	RBV concepts	Propositions and findings
Darnall, Henriques *et al.*, 2008	Environmental-management systems	Contingencies	The study finds that the institutional environment affects the relationship between environmental-management systems and competitive advantage.
Darnall, Jolley *et al.*, 2008	Organisational commitment, Continuous improvement, Cross-functional integration, Employee involvement	Traditional RBV	The study suggests that the adoption of environmental-management systems as well as green supply-chain management practices both rely on the same set of organisational capabilities. Thus, an organisation may increase its efficiency and expand its focus beyond the company boarder, benefiting from synergies in using organisational resources.
Kuss & Hoffmann, 2008	Absorptive capacity (capabilities to acquire, assimilate, transform and exploit external knowledge)	Traditional RBV	Based on survey responses from 157 firms of the German chemical industry, the authors find that absorptive capacity based on capabilities to acquire, assimilate, transform and exploit external knowledge plays a significant role in the adoption of environmental strategies such as environmental reporting, regulatory proactivity, operational improvement and environmental partnerships.
Oliver & Holzinger, 2008	Internal capabilities, External capabilities	Relationships	Although not explicitly focusing on sustainability, the paper derives propositions on capabilities for political strategies. Based on examples from environmental management, the study argues for internal capabilities that allow the implementation of best practices in anticipation of new regulations, and for collaboration with regulators in case of lobbying strategies towards proactive environmental regulation.
Rueda-Manzanares *et al.*, 2008	Stakeholder integration	Contingencies	The study analyses the association between a firm's stakeholder-integration capability and its environmental strategy, and finds a positive relationship that is moderated by the degree of complexity, uncertainty and munificence of the business environment.
Vachon & Klassen, 2008	Environmental collaboration	Relationships	The study identifies a positive relationship between environmental collaboration (inter-organisational interactions between supply-chain members, including joint environmental goal setting, shared environmental planning and working together to reduce environmental impacts) on manufacturing performance. The effect of these practices was observed upstream towards suppliers as well as downstream towards customers.
Zhu *et al.*, 2008a	Environmental management, Green purchasing, Cooperation with customers, Eco-Design, Investment recovery	Relationships	The article reviews the relevant literature on sustainable supply-chain management practices and derives capabilities for implementing sustainable supply-chain strategies based on the literature and a factor analysis. Although not proposing any relationship between capabilities and dependent variables, a positive relationship is indicated by the literature covered in the review.

Table 4: A review of the resources and capabilities identified in resource-based work on corporate sustainability and sustainable supply chain management

However, this literature emphasises how these resources affect an organisation's competitive advantage in such a way as to increase environmental, social, and ultimately financial performance (Sharma & Aragón-Correa, 2005) rather than legitimacy.

As shown in Sections 3.3.3. and 3.4.3., both theories – institutional entrepreneurship and the resource-based view – contribute to the design of voluntary sustainability initiatives for supply chains by emphasising the need of resources. While institutional entrepreneurship in this context understands resources as any input factor by the entrepreneur and lacks a rigorous identification of key resources,[107] the resource-based view emphasises the characteristics of key resources, but not in the context of the institutionalisation of voluntary sustainability initiatives and legitimacy. The aim of this thesis is therefore to identify key resources in the context of institutional entrepreneurship leading to institutional change and ultimately legitimacy. This is why a framework integrating institutional entrepreneurship and theories of the resource-based view ('a resource-based view of institutional entrepreneurship') will be developed in the next chapter before propositions on the suggested relationships between organisational resources and the institutionalisation of a voluntary sustainability initiative can be derived in Chapter 5.

[107] See section 3.3.3.

4. Initial framework: a resource-based view of institutional entrepreneurship in the design of voluntary sustainability initiatives for supply chains

The last chapters outlined the conceptual and theoretical foundations of the research phenomenon at hand. After embedding the design of voluntary sustainability initiatives for supply chains and the need for legitimacy in a conceptual foundation (Chapter 2), relevant theoretical contributions were elaborated (Chapter 3).

Referring to the conception of stakeholder management, the design of voluntary sustainability initiatives for supply chains is needed in circumstances in which organisations lack sufficient legitimacy for successfully establishing proactive sustainability practices in their supply chains (Section 2.2). The establishment of voluntary sustainability initiatives allows organisations to include the relevant constituencies in the collective development of institutions, which consequently pressure participating supply-chain members to comply with the environmental and social rules, norms and standards defined, thereby inducing the acceptance of strategic external stakeholders that legitimise the initiative (Section 2.3).

The theories described refer to this core idea: analysing the relationship between the resources of the initiator of a voluntary sustainability initiative for supply chains (the institutional entrepreneur) and the success in the form of institutionalising an initiative that comprises normative, cognitive and coercive elements as well as being legitimised in the institutional field.

4.1. Summary of theoretical contributions to the design of voluntary sustainability initiatives for supply chains

Table 5 summarises the focus of the respective theories, their contributions to the successful (i.e., legitimised) design of voluntary sustainability initiatives for supply chains and the strength and weaknesses of the theory in explaining this phenomenon.

Theory	Focus of theory	Contributions to phenomenon	Strengths	Weaknesses
Institutional theory (IT)	• (Proto-) Institutions that steer organisational behaviour	• Addresses the core concern of designing initiatives (legitimacy) • Explains how initiatives as institutions function and what pressures they exert to steer isomorphism	• Defines elements that lead to isomorphism and legitimacy • Explains compliance with the norms and standards set by initiatives	• Focuses on the institutional field as the unit of analysis • Views organisations as reactive actors that passively comply with institutional pressures
Institutional entrepreneur-ship (IE)	• Actors that create or manipulate institutions	• Addresses the core process of this work (designing initiatives, competition of opposing practices, influencing institutional actors) • Provides factors that are used by initiating organisation	• Explains design of initiatives as institutional entrepreneurial strategy • Emphasises importance of the initiator's (institutional entrepreneur's) characteristics	• Mainly focuses on institutional field (but from a single-actor perspective) • No differentiation of resources / input factors • Lacks criteria with which to identify *key* resources that are specifically important
Resource-based view (RBV)	• Organisational resources that contribute to competitive advantage	• Provides framework to distinguish superior ('key') resources from input factors • Provides concepts to determine the value of key resources	• Focuses on company's strategies • Analysis of key resources and capabilities that are superior in use and mostly unavailable to competitors is nearly 1:1 transferable • Explains why resources are superior	• Exclusively focuses on intra-organisational resources • Focuses on economic performance as effect of competitive advantage • Legitimacy is not considered
RBV of interconnected firms	• Inter-organisational relationships as source of competitive advantage	• Provides framework to identify 'relational', 'network' resources • Bridges actor- and network-oriented theories	• Considers relationships with institutional actors as further source of success • Focuses on company's strategies	• Focuses on economic performance as effect of competitive advantage • Legitimacy is not considered

Table 5: Contributions of theories to the theoretical foundation

Institutional theory describes voluntary sustainability initiatives for supply chains as (proto-) institutions. Thus, it provides important aspects for the performance dimension of establishing voluntary sustainability initiatives – namely, the existence of normative, mimetic and coercive elements (as described in Section 3.2.2.) as well as participants' compliance and stakeholders' acceptance of supply-chain practices as a consequence of isomorphism.

Institutional entrepreneurship supplements these considerations by explaining the process of how organisations could actively create proto-institutions, such as voluntary sustainability initiatives, and gain support for these vehicles in the wider institutional field (see Section 3.3.2.). As outlined in Section 3.3.3., institutional entrepreneurship further stresses the importance of an initiator's resources and input factors in order to succeed in this process. However, institutional entrepreneurship does not provide a satisfactory explanation of which resources contribute to the efficient design of voluntary sustainability initiatives and their success in the institutional competition of various emerging and existing institutional practices.

The resource-based view (of interconnected firms) provides criteria with which to identify intra- and inter-organisational resources that are superior in competitive situations (see Sections 3.4.1. and 3.4.2.). Hence, resource-based theories complement institutional entrepreneurship by explaining the precursors of establishing voluntary sustainability initiatives. However, these theories commonly address economic rents as consequences of competitive advantage, instead of establishing institutions and legitimacy (Section 3.4.3.).

In summary, both theoretical streams – institutional entrepreneurship (including institutional theory) and resource-based theories (including enhancements towards interconnected firms) – provide guidance in the design of voluntary sustainability initiatives and the resources the initiator possesses. They are not devoid of redundancy, as they both focus on the actor that initiates the strategy. Institutional entrepreneurship, however, favours the institutional network as the main focus, whereas resource-based scholars concentrate more on the focal actor. The integration of the two schools of thought has therefore been suggested in order to provide a framework that aids focus and gives this work its analytical perspective. In doing so, we use institutional entrepreneurship to explain the dependent variables (the creation of a legitimised institution) and complement this theory with resource-based concepts to explain the independent variables (the *key* resources of the institutional entrepreneur).

4.2. Formulation of a resource-based view on institutional entrepreneurship in the context of the inter-organisational design of voluntary sustainability initiatives

Integrating resource-based considerations into institutional entrepreneurship logic, this dissertation argues that the resources of institutional entrepreneurs also have to be superior in use in order succeed in establishing institutions (in the research context, voluntary sustainability initiatives) and gaining legitimacy (see Figure 15). Thus, a firm can achieve competitive advantage in terms of being more effective in creating and disseminating the voluntary sustainability initiative relative to competing organisations and their network partners. In this kind of competition, performance is characterised through the institutionalisation itself. One specific outcome in this context is the establishment of a proto-institution that consists of normative, mimetic and coercive elements. These elements should have the potential to force parts of the institutional field (in this research context, the initiative's participants) to comply with the defined norms, standards and rules. Furthermore, institutionalisation is operationalised through the legitimacy (acceptance) that the proto-institution gets from actors in the institutional field. Thus, the initiative's legitimacy is characterised by the compliance of the institutional entrepreneur's backers (the initiative's participants) and by the support of further actors from the institutional field.

Superior resources are the basis of competitive advantage and successful institutionalisation in the form of broad legitimacy. In this context, several attributes of superior ('*key*') resources from the resource-based view are applied to institutional entrepreneurship theory.

The concept of resource value specifies the effectiveness of a resource in achieving competitive advantage in terms of realising the intended institutional change (establishing an institution that is legitimised). As in classic resource-based literature, this value can be influenced by several concepts. In a recent paper, Hamprecht & Sharma (2006) provided a theory for three of these concepts in the context of institutional entrepreneurship, which will now be incorporated into the research framework.

Firstly, the non-linearity of resource value in institutional entrepreneurship is proposed, because excessively high or low levels of developing resources may hinder the design of voluntary sustainability initiatives. There are two reasons for this phenomenon. On the one hand, it is argued that a certain momentum is needed to initiate institutional change (Garud *et al.*, 2002). For instance, a firm might be dependent on the number of relationships with allies who support its strategy before the approach is perceived as a standard that other institutional actors will follow. On the other hand, resources may be constrained by nature (Hamprecht & Sharma, 2006). An example would be the information-processing capacity of an organisation. If domain-relevant expertise as well as the ability to embed its own viewpoint in an ongoing discourse are required, an institutional entrepreneur might find it challenging to master both

tasks simultaneously – especially if information for the first resource is to be gathered in a different area than the one in which the discourse takes place.

Secondly, complementary resources may increase the value of a resource for institutional entrepreneurship. Again, there are two reasons for this. The first reason lies in synergies among resources (pooling of resources; see Lavie, 2006). For example, if the focal firm possesses good relationships with a societal stakeholder, it might leverage this asset into a relationship with another societal stakeholder or another relationship with the same societal stakeholder in the context of another initiative. The second reason for complementarities is that the presence of one resource may make the utilisation of another resource more efficient (pure complementarities of resources; see Lavie, 2006). For instance, the presence of relationships with trusted societal stakeholders like NGOs or regulators may help to embellish the social capital with economic stakeholders, such as investors (Hamprecht, 2006). Also, company-internal resources might steer the development of (inter-)organisational resources that are needed for institutional entrepreneurship.

Finally, the value of resources may be contingent upon the institutional environment. As Peng (2003) argues, institutional entrepreneurs might be more constrained in mature fields than in emerging fields, because higher institutional pressures may exist to follow a certain direction. Alternatively, resources that need information-processing between institutional actors might be more constrained in emerging fields, where the number and strength of formal and informal links between institutional actors are not as developed as in mature fields (Maguire *et al.*, 2004; Peng *et al.*, 2005). Also, the presence of multiple institutional orders within one field, or sudden jolts in the institutional field, might facilitate institutional entrepreneurial action and increase the value of the entrepreneur's resources (Leca *et al.*, 2008).

Besides being valuable, all resources simultaneously have to be rare, inimitable and non-substitutable in order to avert the competitive parity of different organisations and prevent defenders of the institutional *status quo* or further competing actors in the institutional field from achieving an institutional change in other directions. For example, the financial resources of an institutional entrepreneur might not be sufficient to enable institutional change, as competing actors might easily access a similar amount of capital. In preventing competitors from imitating the resources of the institutional entrepreneur, the literature addresses path dependencies, social complexity and causal ambiguity as preservation mechanisms.

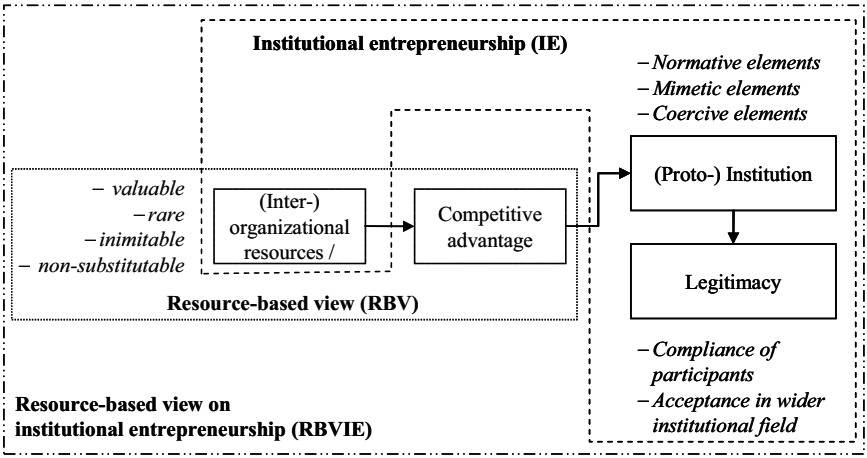

Figure 15: Initial framework: A resource-based view on institutional entrepreneurship

The creation and establishment of institutional arrangements typically involves the collective action of multiple organisations. Hence, the key resources of the institutional entrepreneur could span firm boundaries in inter-connected constellations, allowing the mobilisation of external resources or entire networks in order to achieve the intended change of institutional practices. Such key resources can be categorised into relation-specific assets, complementary resources, knowledge-sharing routines and effective governance mechanisms, as well as social capital on the network level. To protect the value created by those resources, the concepts-asset interconnectedness, partner scarcity and resource indivisibility as rent-preservation mechanisms are leveraged into institutional entrepreneurship, preventing other institutional entrepreneurs from imitating the superior relationships or networks.

Nevertheless, although several resources can be found in institutional entrepreneurship and the resource-based view[108], it remains unclear which specific key resources form the interface of the two theories in the specific context of the design of voluntary sustainability initiatives. Also, complementary, non-linear and contingent effects still have to be explored. In order to specify these key resources and their respective effects, and to build a comprehensive, testable research model as a next step, an exploratory study was carried out, which is described in the next chapter.

[108]See the tables in Sections 3.3.3. and 3.4.3.

5. An exploratory study of the institutional entrepreneur's resources in the design of legitimised voluntary sustainability initiatives for supply chains[109]

5.1. Research method applied: exploratory case study research

An inductive, exploratory case study was conducted due to the lack of prior research that addresses the research phenomenon and empirical evidence on key resources that enable companies to establish voluntary sustainability initiatives for supply chains (Eisenhardt & Graebner, 2007). Of the existing inductive research strategies, 'analytical induction' was chosen (Manning, 1982).

5.1.1. Case selection

To ensure external validity and to provide a stronger base for theory building compared to single-case studies, a setting of comparative case studies in different contexts was chosen (Gibbert *et al.*, 2008; Yin, 2003). In order to allow the generalisation of the findings, the study used a 'theoretical sampling logic' (Eisenhardt & Graebner, 2007). Cases were chosen for theoretical rather than statistical reasons, which facilitates the development of theory (Eisenhardt, 1989). Therefore, we selected examples of voluntary sustainability initiatives for supply chains that had already implemented the intended institutional change (the foundation of a proto-institution). However, the study also attempted to consider the failed institutionalisation of voluntary sustainability initiatives. While examples were found for both sides, the information on the successful cases was more plentiful. The reasons for this were two-fold. Firstly, unsuccessful initiatives were generally terminated at early stages. Secondly, companies tended to keep unsuccessful cases secret, or at least revealed as little information about the initiative as possible. While these complications hindered the analysis of completely failed initiatives, it is interesting to note that several successful cases went through phases of being considered unsuccessful before they turned into today's success (e.g., the neglected stakeholder integration in the Unilever case or the difficulties in framing the initiative in the Coop case). In these cases, rich data was obtained because interviewees happily talked about the past problems and how they successfully solved them. In this way the analysis of

[109] A substantial part of this chapter was submitted to the ***International Journal of Production Economics***: Peters *et al.* (*forthcoming*) "*Institutional entrepreneurship capabilities for inter-organisational sustainable supply chain strategies*". However, significant changes were made due to the progress of the research project (e.g., the role of complementary resources developed in Section 5.3.2.).

successful cases could be complemented by comparing causes of failure with causes of success for a given voluntary sustainability initiative.

In the study, the analysis of the chosen initiatives allowed the direct identification of the resources that are key for establishing voluntary sustainability initiatives, either because they were leveraged or missing in problematic phases of the institutionalisation of the initiative. A holistic view of the establishment of the initiatives provided rich data for the identification of propositions (Scholz & Tietje, 2002). However, propositions were formulated from the initiative-internal view of the focal institutional entrepreneur (Möller, 2006).

Construct validity was ensured by selecting cases that are suited to exemplifying the phenomenon in the focus of this study (Eisenhardt & Graebner, 2007) and by gathering and combining data from different parties and existing publications (Yin, 2003). At the beginning of the case-selection process, a long list of eighty voluntary sustainability initiatives for supply chains was created by conducting searches on the Internet, in databases and voluntary sustainability initiative-related research (e.g., Carmin *et al.,* 2003). The chosen criteria were then used to select the ones the study wanted to focus on. These criteria reflected the elements of voluntary sustainability initiatives as proto-institutions[110] as well as their legitimacy by participants and external stakeholders[111].

First, cases were only selected if the company had established an initiative that *included a broad range of stakeholders* and supply-chain partners. In this way the (inter-)organisational means of the collaborative establishment of the respective voluntary sustainability initiative could be analysed. Additionally, studying strategies and roundtables involving multiple stakeholders and supply-chain partners allowed access to many different sources of evidence.

Second, cases were selected that aimed at establishing a *governance structure and coordination mechanisms* between the participants, such as a network administrative organisation or regular meetings in the form of roundtables or other forms of stakeholder meetings. These have been shown to improve decision-making and facilitate a common understanding and action plan, and thus the commitment of the participants.

Third, only voluntary sustainability initiatives were chosen that aimed at the *codification of standards* and *enforcement mechanisms* (such as certification and external monitoring). These initiatives are more likely to achieve *common understanding* and consensus on the interpretation of the strategy among the participating organisations. Furthermore, they better contribute to the protection of natural and human resources, minimise the risk of free-riding

[110] See Sections 2.3.2. and 3.2.2.
[111] See Section 3.2.2.

by organisations with a poor sustainability performance and enhance acceptance by society (King & Lenox, 2000; Rivera & DeLeon, 2004; Terlaak, 2007).

Fourth, initiatives were selected that provided *communication benefits* (e.g., by product claims such as logos or certificates, memberships, or reports) for the participants, as they are more likely to achieve public recognition and satisfaction by the participants.

Finally, voluntary sustainability initiatives were included that were ultimately accepted by several stakeholders, since *broad acceptance* is the organisational source of legitimacy and our main indicator for the successful establishment of a voluntary sustainability initiative (Dacin *et al.*, 2007; Freeman, 1984; Hamprecht & Sharma, 2006)[112]. Acceptance was assessed by referring to the number of members in the initiatives and investigating publicly available statements by stakeholders. In this work, the study focused on strategic financial and societal stakeholders (i.e., stakeholders mainly interested in the environmental and social performance of a strategy), since tensions between these two groups have been highlighted (Hamprecht & Sharma, 2006), and also included supply-chain partners, as they are the focus of the analysis.

As a result of this stepwise selection process, seven voluntary sustainability initiatives were chosen and contacted, of which five replied positively and participated: the Roundtable on Sustainable Palm Oil (RSPO) triggered by the Swiss retailer Migros and the World Wide Fund For Nature (WWF) (Falck & Heblich, 2007; Hamprecht, 2006); the Tikhvin Chalna initiative launched by the German publishing house Axel Springer; the Roundtable on Responsible Soy (RTRS), which is based on the Basel Criteria defined by the Swiss retailer Coop and the World Wide Fund For Nature (WWF); the Marine Stewardship Council (MSC) initiated by Unilever; and the Sustainability Agriculture Initiative (SAI) co-founded by Nestlé. Table 6 provides the main characteristics of these initiatives. Further tables in the case-description sections provide some illustrative quotes showing the acceptance of these initiatives.

[112] See Section 3.2.2.

Table 6: Characteristics of the chosen voluntary sustainability initiatives for supply chains

Case	RSPO	Tikhvin Chalna	Basel Criteria & RTRS	MSC	SAI
Trigger of voluntary sustainability initiative	Emerging demands of NGOs	Emerging relevance of corporate social responsibility in society	Emerging demands of NGOs	Emerging pressure from NGOs & long-term supply of business-critical resource	Raising societal awareness of agricultural supply-chain practices by Max Harvelaar and the International Coffee Association
Aim of voluntary sustainability initiative	Promote the growth and use of sustainable palm oil (important vegetable oil in the food and non-food industries) by setting up criteria and certification schemes throughout the supply chain.	Improve social & environmental aspects of sustainability in international wood supply chains spanning from Russian forests to Western consumers by exploring and implementing best practices.	Act as forum to develop and promote criteria for the production of soy on an economically viable, socially equitable and environmentally sustainable basis.	To safeguard the world's seafood supply by promoting the best environmental choice	Act as a food industry platform to develop and communicate sustainable agricultural practices which are harmonized along the food chain through the involvement of all relevant stakeholders
Initiator	Migros/WWF	Axel Springer	Coop/WWF (Basel Criteria)	Unilever/WWF	Nestlé/Danone/Unilever
Coordination mechanisms	Board, Roundtables, working groups, stakeholder meetings	Roundtables, working groups, stakeholder meetings	Board, Roundtables, working groups, stakeholder meetings	Board, Roundtables, working groups, stakeholder meetings	Board, Roundtables, working groups, database on successful practices
Codification of standards, Enforcement mechanisms	Criteria for production as well as supply-chain processes are defined. 'RSPO Code of Conduct' and the certification sche me are published, 'RSPO Grievance' is founded to take up public complaints. Organisations need 3rd party certification & RSPO authorization for claiming the strategy.	Processes and criteria are defined and benchmarked continuously. The NGOs Transparency International and the Karelian Research Center monitor the project. Their experts critically review the project materials and results and provide recommendations for further improvements.	Members are encouraged to report annually on their activities in promoting sustainable soy production, processing and consumption, to the RTRS Secretariat. Initial criteria for production and supply-chain practices, a transparent certification & auditing scheme is developed.	'Criteria for sustainable fishing and supply-chain practices exist. Code of Conduct' and different certification schemes are published, Organisations need 3rd party certification and MSC-authorization for claiming the strategy.	Members are encouraged to report annually on their activities in promoting sustainable agricultural practices. A database exists codifying the strategy by objective statements, a description of the initiatives approach as well as illustrative case studies on sustainable agricultural practices applied by the members of SAI.
Communication	Communication of members efforts via initiative, product claim (logo and certificates)	Communication of members efforts via initiative	Communication of members efforts via initiative, product claim (logo and certificates)	Communication via initiative, Use of product claim (logo)	Communication of members efforts & cases via initiative
Participants	198 (February '08)	8	53 (February '08)	> 433 (Annual report 2007)	23 (February '08)
Involved stakeholders	10% NGOs, 4% banks/ investors, 61% supply-chain partners from all supply chain stages, 25% others	NGOs, [customers], suppliers and horizontal alliance partners (TetraPak, Time Inc., Random House UK)	NGOs, banks/investors, supply-chain partners from all supply chain stages	Financial support by US & UK Foundations, statutory, corporate members, NGOs > 433 business organisations supporting MSC-certification	23 actors of the downstream coffee supply chain, stakeholder dialogues with farmers, cooperation with industry-organisation

5.1.2. Data collection

Three case studies – RSPO, Tikhvin Chalna and RTRS – were conducted entirely using primary material (e.g., interviews) and secondary material. In the other two cases – MSC and SAI, two well-known initiatives – secondary data was reviewed (Constance & Bonanno, 2000; Fowler & Heap, 2006; Hamprecht *et al.*, 2005; Hamprecht, 2006; Porter & Kramer, 2006; Reinhardt, 2005; Nick *et al.*, 2006). This secondary data was complemented by additional interviews with representatives of the initiatives to include information that was missing in the secondary data in order to answer the research question.

In order to ensure construct validity, the study followed a standardised three-step process for collecting data from different sources for each case (Gibbert *et al.*, 2008). As a first step, texts published on the web pages of the voluntary sustainability initiative (and those of its initiator and its participants, such as regulators, industry associations, consultancies or NGOs) were consulted. These self-portraits and presentations, results from stakeholder workshops and other statements were analysed with respect to intra- and inter-organisational resources that contributed to the successful establishment of a voluntary sustainability initiative. Furthermore, databases like Factiva and Business Source Premier for newspaper articles that reported on the development of the initiative were searched.

In a second step, interviews with key players involved in the development and implementation of the voluntary sustainability initiative were conducted. It was started by interviewing senior corporate managers responsible for sustainability issues at the initiating company, as well as the managers responsible for the implementation of the specific sustainability initiative. The identification of further experts followed a snowball principle (Sharma & Vredenburg, 1998): during the interviews, relevant actors within or outside the company were identified and interviewed later. The respective interview partners verified each interview transcript for accuracy and the transcripts were analysed shortly after (Yin, 2003). Initial results were addressed in subsequent interviews. Follow-up talks were conducted with earlier interview partners in order to verify themes that emerged in subsequent interviews. Prior to each interview, a table of events was sent to the respondents. While no theory was communicated in advance, this table helped to structure the interviews and validate the data gathered in previous interviews (Maguire *et al.*, 2004).

In a third step, discrepancies were explored that emerged while comparing the narrative accounts of the interview partners with the data gathered previously in steps one and two. To settle these discrepancies, further company-internal and -external texts were consulted that addressed these conflicting issues. Consequently, this third step served as a further validation of the data collected during the interviews. This cross-referencing of several data sources

helped to gain the 'true story' of each case study, the description of the events and their relationships (Pentland, 1999).

For the three new cases, 21 semi-structured interviews of about 29 hours in total were conducted with the senior and middle management of the participating organisations in the voluntary sustainability initiative. For the two existing cases, the study involved three interviews of about six hours in total.[113]

5.1.3. Data analysis

During each of the three steps of data collection, the emerging concepts were categorised and constantly subjected to comparison (Eisenhardt, 1989). In this context, a specific emphasis was given to resources that were declared to be of particular importance to the establishment of voluntary sustainability initiatives and their acceptance by the different stakeholders involved. This causation was set via two mechanisms: firstly, explicit links between resources and the acceptance were identified, such as: "*The phase of establishing the international roundtable Migros contributed with their commitment to the 'Migros-criteria' on sustainable palm oil [supply chains] to the success of the first meetings… It was very important for us as NGO, but also for the business partners, that someone was able to present practicable [sic] criteria already implemented in its supply chain*". Secondly, capabilities could be linked with the acceptance of stakeholders and initiative partners indirectly.

Following each interview and the analysis of its set of documents, key quotes were summarised in data-analysis sheets and structured mind maps. The emergence of additional evidence for these concepts was verified in the analysis of further documents from other sources and in interviews with further partners. In order to ensure internal validity, the study explicitly reflected the theories contributing to the explanation of the research phenomenon by combining the initial review of existing concepts in the literature of institutional entrepreneurship, as well as of the resource-based view, with the empirical data gathered (Gibbert *et al.*, 2008). In this context in particular, constructs were investigated that were described in the corporate-sustainability literature. However, during the process of data analysis, the focus was widened to include stakeholder management, inter-organisational learning, innovation management and supply chain management, which discussed institutional entrepreneurship or the resource-based view and its enhancements of interconnected firms. Relevant (i.e., repeatedly identified) concepts were abstracted until we found a construct in the literature that could be used to model the concept (Sharma & Vredenburg, 1998).

[113] A detailed list of the interview partners can be found in the Appendix of this thesis.

In total, the abstraction of the data comprised three levels: quotes as identified in data sources ('first-order schemes'), summaries of related quotes ('second-order schemes') and links to the existing literature body ('Final schemes'). Abstraction and clustering of first-order schemes was needed for three reasons: firstly, to consider the logical connections between identified themes; secondly, to cope with the heterogeneity of the identified themes; and thirdly, to account for the different terms and descriptions used for the same theme. The abstraction to second-order schemes was achieved via the independent analysis of two researchers and a follow-up discussion if discrepancies occurred. While some of the emerging schemes suggested existing labels from resources mentioned in the resource-based-view and institutional entrepreneurship literature, other themes were abstracted to generic descriptive labels.

By following all the procedures and methodologies described above (Sections 5.1.1.-5.1.3.), the study ensured the fulfilment of the criteria that constitute a rigorous case study (Gibbert *et al.*, 2008). Table 7 summarises the methodological tactics that were followed and explains exactly how they were realised in the context of the study.

Quality criteria	Tactics	Explanation
Internal validity	Research framework	Causal relationships between capabilities and the initiative's acceptance were reflected and theory was refined by empirical data
	Pattern matching	Emerging patterns were compared with established ones from previous studies (i.e., capabilities identified in sustainability studies applying institutional entrepreneurship or the resource-based view)
	Theory triangulation	Findings were verified by adapting multiple perspectives (institutional entrepreneurship or the resource-based view)
Construct validity	Data triangulation	Data was gathered from interviews (on-site, telephone), public company and initiative information, information issued by the initiative's members and external stakeholders
	Chain of evidence	Traceability from raw case-study material to conclusions is ensured by interview transcripts, as well as databases and mind maps connecting empirical data with emerging themes
	Review of transcripts	Interview partners and external scientific peers reviewed and approved transcripts and conclusions
	Details on data collection	The circumstances of empirical data collection are clarified
	Details on analysis	The data analysis procedure is clarified
External validity	Cross case analysis	5 case studies of different organisations and different initiatives were compared
	Details on case selection	Explanation of why case studies fit with the research question and framework
	Details on case context	Detailed descriptions on the context of the initiative's design phase are given (existing institutional pressures in the field, content and rationale to establish initiative)
Reliability	Case-study protocol	The study describes details on how cases were conducted
	Case-study database	Detailed minutes, protocols, management summaries and case study reports were gathered so that the cases could easily be reproduced by other researchers

Table 7: Methodologies used to ensure rigorous case-study work (Gibbert *et al.*, 2008)

5.2. Presentation of the case studies: the design of voluntary sustainability initiatives for supply chains

In this section, the five cases of voluntary sustainability initiatives for supply chains are briefly described, along with their respective contexts. How the cases fit the theoretical framework is also explained. The resources that were found to be key to the establishment of those voluntary sustainability initiatives are then discussed.

5.2.1. Migros: The Roundtable on Sustainable Palm Oil (RSPO)

The initial project of Migros, a major Swiss retailer, to follow strict sustainability criteria for palm oil supply chains was triggered by a newspaper article that showed a link between the destruction of rain forest and the production of palm oil. This emerging normative demand stimulated Migros to contact NGOs proactively (among them the WWF) and devise a strategy on how to purchase sustainably-produced palm oil. Recognising that their own purchasing volumes were not sufficiently large to exert adequate pressure, and that the differentiation from traditional products did not allow extra revenues to be generated, Migros and WWF communicated the new supply-chain strategy and invited an international auditorium of companies and further stakeholders to participate. By establishing the International Roundtable on Sustainable Palm Oil (RSPO), Migros addressed the problem and urged competitors and further players in the palm oil supply chain to comply with stricter standards:

> *"Ten years from now, a sustainable production of palm oil should be business as usual. We want to achieve a worldwide change of palm oil production"* (Interview with the Head of Environmental and Ethical Projects of the Federation of Migros Cooperatives in 2005, taken from Hamprecht, 2006).

Stakeholder group	Representative quote
NGOs	WWF (co-founder of the RSPO): *"The WWF believes that sustainable palm oil production is the best way to meet the world's growing palm oil needs without further damaging forests and people. The ratification of the RSPO criteria is a crucial first step in the right direction."*[114] Friends of the Earth (FoE): *"Friends of the Earth wholeheartedly welcomes genuine steps being taken by the industry towards increased sustainability and wishes the delegates at the RSPO all best wishes [for the further development of the initiative]."*[115]
Governmental organisations	United Nations: *"Migros actively approached the WWF and developed criteria for the sustainable cultivation of palm oil. Now [in 2002] we have certified three suppliers covering the total demand of the production of Migros-manufactured products. For this project Migros received a UN award at the Johannesburg Summit of the United Nations in August 2002."*[116]
Banks	HSBC: *"As the demand for palm oil continues to grow and the industry expands, there is increasing concern over the sustainability of the methods used for production. The Round Table on Sustainable Palm Oil officially began in 2003 in an attempt to monitor the sustainability of production as well as to encourage and support companies, enabling them to produce in a sustainable manner."*[117] Rabobank: *"The Rabobank's activities in Indonesia include operating as a financier of oil palm plantations. In connection with continual reports on damage to the tropical rain forest due to the construction of plantations and the social unrest relating to certain plantations, the Rabobank now explicitly defined its policy for this sector [in consultation with experts and NGOs]."*[118]
Palm oil processors	Aarhus Karlshamn UK: *"We believe that production of palm oil and the creation of new plantations must be done in a sustainable manner based on economic, social and environmental viability. Towards this end, the RSPO is developing a credible definition of sustainable palm oil production and will be promoting the implementation of best management practices that comply with this definition."*[119]
Consumer goods manufacturers	Unilever: *"Unilever is one of the founding members of the RSPO. The RSPO is a unique platform aiming at the promotion of a sustainable production of palm oil through the collaboration of all supply-chain members and an open dialogue of partners from manufacturers, industry, retailing, investors and non-governmental organisations."*[120]

Table 8: Acceptance of RSPO by different stakeholder groups (illustrative quotes)

[114] http://www.rspo.org/PDF/Press/Criteria%20set%20for%20palm%20oil%20production,%20WWF%20says%20(28%20Nov%202005).pdf, retrieved on November 23rd, 2008.

[115] http://www.rspo.org/PDF/RT2/Presentations/Friends%20of%20the%20Earth%20Presentation%20(FoE).pdf, retrieved on November 23rd, 2008.

[116] http://www.migros.ch/DE/Ueber_die_Migros/Nachhaltigkeit/Publikationen/Documents/NHB_Migros_2006_e.pdf, retrieved on November 23rd, 2008.

[117] http://www.hsbc.com/1/2/sustainability/our-sustainable-approach-to-banking/sector-guidelines, retrieved on June 23rd, 2008.

[118] http://www.rabobank.com/content/images/palmoilcode_rabobank_tcm43-37342.pdf, retrieved on November 23rd, 2008.

[119] http://www.essential-trading.co.uk/palmfruitoil.htm, retrieved on November 23rd, 2008.

[120] http://www.unilever.com/sustainability/environment/agriculture/sustainablepalmoil/, retrieved on November 23rd, 2008.

5.2.2. Axel Springer Verlag: The Tikhvin Chalna project

Similarly, potential risks emerging from normative demands in the corporate social-responsibility debate prompted Axel Springer to rethink their supply-chain strategy for Russian wood. Being one of the first movers in corporate social responsibility in the publishing business, Axel Springer realised that current Russian practices in the logging sector could spark future public discussions that might put pressure on Axel Springer, a key player in these supply chains. In early 2002, Axel Springer and one of their main suppliers started a joint initiative to redesign the supply-chain processes in two of the major Russian logging regions to improve their social and environmental performance. Other major players in the publishing sector, as well as critical reviewers from several NGOs, were also invited to participate in the design of the new voluntary sustainability initiative.

> *"Fibre from Russia is a strategic resource for the paper industry. It is in the interest of the entire supply chain to stimulate the development of a sustainable and long-term forest industry in Russia. This is important to secure continuous reliable supply of wood through mitigating risks and to ensure that products do not lose their credibility to customers in one of the most demanding markets"* (taken from the end report of the 'Tikhvin Chalna project'; see www.tikhvinproject.ru[121]).

[121] Retrieved on January 15th, 2008.

Stakeholder group	Representative quote
NGOs	Transparency International: *"The project has certainly raised awareness on the issue of illegality and corruption in Russian supply chains and the idea that companies can do something about it"*[122] Karelian Research Institute: *"It can be said that the successfully-implemented project 'From Russia ... with Transparency' illustrates the potential of a joint effort by partners of an international wood and paper supply chain. The gained experience can be beneficial for future projects in enhancing sustainability."*[123]
Governmental organisations	World Bank: *"After a publication in a press conference in Helsinki in September 2005, we had a number of applications, which were companies and organisations who called us, saying we want to be part of this project – there was also the World Bank asking us if they could participate"*,[124]
Suppliers	StoraEnso: *"We had very positive results actually for all of the participants and maybe for the Russian forestry sector in general. There are not so many positive examples of this kind of multi-stakeholder approach to the wood supply chain from Russian forests in the Western markets. I think that people have been very interested in the development work that was done during this project and in our results as well. I've even heard some Russian authorities use the Tikhvin-Chalna project as reference when they need to give positive examples of development initiatives in Russian forest operations."*[125] Shuyales: *"At Shuyales, we are aware that our timber enters markets sensitive to environmental concerns. We understand that joining the project means a commitment to the project's priority areas of environmental and social responsibility. We are positive that it is necessary to improve technologies and increase the motivation for high-quality work."*[126]
Manufacturers	TetraPak: *"The major thing in this project was to see that we can actually combine different elements of the same value chain, different players or actors in the value chain in different areas and activities, and instead of getting one to put pressure on the other, working together, agree on the objectives and try to have a partnership so the achievements happen for everyone."*[127]

Table 9: Acceptance of Tikhvin Chalna by different stakeholder groups (illustrative quotes)

[122] Interview with Kenneth Rosenbaum (Expert Advisor, Forest Integrity Network of Transparency International), October 18th, 2007.

[123] http://www.storaenso.com/sustainability/stakeholders/Documents/tikhvin-project-report.pdf, retrieved on December 23rd, 2007.

[124] Interview with Florian Nehm (Corporate Sustainability Officer, Axel Springer AG) and Dr. Reinier de Man (Independent consultant), October 18th, 2007.

[125] Interview with Helena Jantunen (Sustainability Manager, Stora Enso), September 26th, 2007.

[126] http://www.storaenso.com/sustainability/stakeholders/Documents/tikhvin-project-report.pdf, retrieved on December 23rd, 2007.

[127] Interview with Mario Abreu (Director of Forestry and Recycling, Tetra Pak), October 12th, 2007.

5.2.3. Coop: Basel Criteria and the Roundtable on Responsible Soy (RTRS)

The International Roundtable on Responsible Soy (RTRS) goes back to the year 2004 when the Swiss retailer Coop and the WWF developed criteria for responsible soy supply chains. This collaboration, that also involved other NGOs, led to the definition of the 'Basel Criteria' for soy production. Recognising that the switch to sustainable soy according to the Basel Criteria would challenge the current configurations and infrastructure of Swiss supply chains, Coop and the WWF established a Swiss industry roundtable with the objective of getting all relevant Swiss retailers, manufacturers, mills and suppliers in the soy supply chain to comply with the new standard. Furthermore, this coalition decided to bring the topic to an international audience, which led to the foundation of the International Roundtable on Responsible Soy (RTRS) hosted by the WWF.

> *"The Round Table on Responsible Soy Association ... brings together those concerned with the impacts of the soy economy. It's working to define what is responsibly-grown and -processed soy and to promote the best available practices to mitigate negative impacts throughout the value chain"* (taken from the homepage of the RTRS, see www.responsiblesoy.org[128]).

[128] Retrieved on December 15th, 2008.

Stakeholder group	Representative quote
NGOs	WWF (co-founder of the RTRS): *"This first shipment, although small, is proof that soy can be produced and sourced in a way that respects both people and nature. The soy industry has no more excuses not to act more responsibly… Since consumers don't have to pay more for certified soy than for conventional GMO-free soy, it should be an easy decision to make [for soy buying companies to use Basel Criteria-certified soy] … We believe that the Basel Criteria will also encourage soy producers, agents, retailers and meat and dairy producers to commit to environment-friendly soy in the mid-term."*[129] Solaridad: *"Because of the controversy surrounding it, soy has rapidly become an important theme for Solidaridad. Solidaridad is working on several fronts to help find solutions, in terms of both large-scale and small-scale production: participating in the RTRS."*[130]
Banks	ABN AMRO: *"Of all agricultural commodities, soy attracted the highest level of attention from NGOs and consumers in 2006. Soy production and processing has many impacts, both positive and negative. With this in mind, ABN AMRO was the first bank to join an initiative called the Roundtable on Responsible Soy."*[131]
Suppliers	Cargill: *"As a member of the RTRS, Cargill is actively working with other key global organisations to help agree and put in place global criteria for a responsible and sustainable approach to soy production."*[132] fenaco: *"fenaco steht einem nachhaltigen Sojaanbau in Brasilien, wie er in den Basler Kriterien definiert ist, positiv gegenüber. fenaco unterstützt das Projekt, indem sie dem Import von nachhaltig produziertem und entsprechend zertifiziertem Soja den Vorzug gibt, ohne dabei die Wirtschaftlichkeit der nachgelagerten Stufen (z.B. Mischfutterhersteller, Tierhalter) aus den Augen zu verlieren."*[133] Imcopa: *"Brazilian harvest the innovative side has been expanded further to include an important new one making IMCOPA a pioneer in this specific area: ProTerra, a sustainability certification based on demands from industry, NGOs as well as from private consumers."*[134]
Manufacturers	Unilever: *"We are also members of the Roundtable on Responsible Soy, which seeks to establish agreed Principles and Criteria for responsible soya production. After thorough deliberation, in 2006 participants agreed on the key sustainability issues linked to soya production. They also agreed to formalise the Roundtable as a permanent organisation."*[135]

Table 10: Acceptance of RTRS by different stakeholder groups (illustrative quotes)

[129] http://www.wwf.org.uk/article_search_results.cfm?uNewsID=439, retrieved on June 23rd, 2008.
[130] http://www.solidaridad.nl, retrieved on June 23rd, 2008.
[131] http://www.abnamro.com/about/about.cfm, retrieved on June 23rd, 2008.
[132] http://www.cargill.com/commitments/pov/soy-production/global-criteria/index.jsp, retrieved on June 23rd, 2008.
[133] http://www.fenaco-gof.ch/deu/proforest_5298.html, retrieved on June 23rd, 2008.
[134] http://www.gmfreeireland.org/news/2007/jun.php, retrieved on June 23rd, 2008.
[135] http://www.unilever.com/sustainability/environment/agriculture/sustainablepalmoil/, retrieved on November 23rd, 2008.

5.2.4. Unilever: The Marine Stewardship Council (MSC)

Emerging normative demands from consumers, prominent public requests by Greenpeace to label all fish products with the precise location of the catch, and competitive risks of long-term fish supply motivated Unilever to change its supply-chain strategy for frozen fish products (Constance & Bonanno, 2000). In order to maintain its frozen-fish business, Unilever realised that the reconfiguration of their fish supply chains could not be implemented single-handedly, because the firm did not have sufficient purchasing power to force their fish suppliers (including fisheries) to comply with their new sustainability strategy (Fowler & Heap, 1998; Hamprecht, 2006; Nick *et al.*, 2006). Unilever therefore set up a roundtable, together with the WWF, that constituted the Marine Stewardship Council. In this case, several important stakeholders were also involved in the development of criteria for sustainable fish supply chains.

> *"Our mission is to use our ecolabel and fishery certification programme to contribute to the health of the world's oceans by recognising and rewarding sustainable fishing practises, influencing the choices people make when buying seafood, and working with our partners to transform the seafood market to a sustainable basis"* (see www.msc.org[136]).

Stakeholder group	Representative quote
NGOs	DOEN Foundation: *"We're very impressed by the wide-ranging impacts that the MSC achieves. This is a highly professional organisation that makes its promises come true."*[137] North Sea Foundation: *"The problems caused by fisheries to valuable marine ecosystems are enormous. Being involved in the Marine Stewardship Council makes you part of the solution. This creates a positive drive for change."*[138] WWF (co-founder of the MSC): *"To add further momentum to the MSC's work, in 2005 WWF established a Sustainable Seafood Choices project aimed at the retail and market end of the seafood industry."*[139]
Supply chain-partners	Aeon Co Ltd.: *"Six months after we launched the first MSC products, our customers had bought ten million items of MSC-labelled seafood. We feel the message on fishery resources is gradually but steadily penetrating into Japanese customers' awareness."*[140] METRO Group: *"As the largest fish retailer in Europe, we co-operate closely with the independent MSC to promote sustainable fishing. The MSC gives credibility and transparency to sustainable and well-managed fisheries."*[141] South West mackerel handline fishery: *"It is essential to continue promoting products carrying the MSC label, not only for the sake of my livelihood, but for the future of the entire fishing industry."*[142]

Table 11: Acceptance of MSC by different stakeholder groups (illustrative quotes)

[136] Retrieved on December 15th, 2008.

[137] http://www.msc.org/documents/annual-report-archive/MSC_Annual_report_2006-07_EN.pdf.

[138] http://www.msc.org/documents/annual-report-archive/MSC_Annual_report_2006-07_EN.pdf.

[139] http://www.panda.org/what_we_do/how_we_work/conservation/marine/our_solutions/sustainable_fishing/sustainable_seafood/, retrieved on June 23rd, 2008.

[140] http://www.msc.org/documents/annual-report-archive/MSC_Annual_report_2006-07_EN.pdf, retrieved on June 23rd, 2008.

[141] http://www.msc.org/documents/annual-report-archive/MSC_Annual_report_2006-07_EN.pdf, retrieved on June 23rd, 2008.

[142] http://www.msc.org/documents/get-certified/fisheries/MSC_Get_Certified_Leaflet.pdf, retrieved on June 23rd, 2008.

5.2.5. Nestlé: The Sustainability Agriculture Initiative (SAI)

When Fair Trade labels became publicly recognised, Nestlé intensified its engagement with corporate activities to improve the environmental and social performance of their agricultural supply chains (Hamprecht *et al.*, 2005; Hamprecht, 2006; Reinhardt, 2005). Nestlé started with an internal initiative called Sustainability Agriculture Initiative Nestlé (SAIN), which encourages its local operations to purchase directly from farmers and to help those farmers to establish farming operations that comply with defined sustainability requirements (Porter & Kramer, 2006; Reinhardt, 2005). Nestlé subsequently drove the establishment of the Sustainable Agriculture Initiative (SAI) to share its experiences from SAIN with other consumer-goods manufacturers and suppliers (Reinhardt, 2005).

> *"SAI Platform is an organisation created by the food industry to communicate worldwide and to actively support the development of sustainable agriculture involving the different stakeholders of the food [supply] chain. SAI Platform supports agricultural practices and agricultural production systems that preserve the future availability of current resources and enhance their efficiency. This increases agriculture's contribution to the optimal satisfaction of society's environmental, economic and social requirements"* (taken from the homepage of SAI, see www.saiplatform.org[143]).

Stakeholder group	Representative quote
NGOs	Rainforest Alliance: *Awarded responsible Nestlé manager for the establishment of SAI for his stance on the management and his contribution in developing SAI.*[144]
Investors	SAM: *"[SAI is an important step to] secure access to the top-grade raw materials in the area of multiple tainted food scandals, a ballooning world population and shrinking resources."*[145]
Supply-chain partners	Elders: *"[SAI is] a principle to which Elders also subscribes. Elders is a large, diverse agribusiness whose core focus is the provision of products and services for the nation's primary producers. As a company, we've been working alongside Australian farmers for almost 170 years. Elders' involvement in Australian agriculture doesn't end at the farm gate. In fact, our company is responsible for the establishment and development of successful long-term trading links between our primary producers and the global customers and end-users of their goods."*[146] Coca-Cola: *"In 2005, we joined the SAI, a food-industry group that engages stakeholders along the agricultural supply chain to share knowledge and support the development and implementation of internationally-accepted standards for sustainable agriculture. We participate in the SAI Platform Working Group on Fruits, which focuses on developing sustainable fruit production practices and improving environment and socio-economic conditions in fruit-growing communities."*[147]

Table 12: Acceptance of SAI by different stakeholder groups

[143] Retrieved on December 15th, 2008.

[144] http://www.agritrade.org/Publications/Newsletters/03July.pdf, retrieved on June 23rd, 2008.

[145] http://www.sam-group.com/htmld/main.cfm, retrieved on June 23rd, 2008.

[146] http://www.balmoralcorporate.com/news/20070502%20Elders%20takes%20lead%20in%20sustainable%20farming%20initiative.doc, retrieved on June 23rd, 2008.

[147] http://www.thecoca-colacompany.com/citizenship/sa_what_we_are_doing.html, retrieved on June 23rd, 2008.

5.3. The design of voluntary sustainability initiatives for supply chains and the institutional entrepreneur's resources

The case studies exhibit several unifying themes. Each initiator had access to a set of specific resources that were used to establish the respective voluntary sustainability initiative. Interviewees frequently expressed the particular importance of specific resources that were either owned by the initiating company or derived from its relationships with other institutional actors, describing them as critical to the successful establishment of voluntary sustainability initiatives. This identified pattern supports the institutional entrepreneurship theory, which argues that institutional entrepreneurs rely on resources to change an existing institutional field or create a new one. Scholars of institutional entrepreneurship argue that such organisations try to form alliances with partners if their own resources are not sufficient to effect the institutional change. The pattern also supports the resource-based view, since the interview partners described key intra- and inter-organisational factors that specifically enabled the establishment of the voluntary sustainability initiative.[148]

The analysis of the interview data led to the identification of the following capabilities, being either key resources for the institutionalisation of the voluntary sustainability initiative (5.3.1.) or complementarities that increase the value of the identified key resources (5.3.2.). Non-linear and contingent effects on the value of key resources could not be identified in the exploratory study.

5.3.1. Resources leading to legitimised designs of a voluntary sustainability initiative

External-stakeholder integration

In the majority of our case studies, the initiating organisations explored their proactive inter-organisational sustainable supply-chain strategies in close collaboration with external stakeholders such as NGOs. For example, in order to develop the criteria for sustainable palm oil supply chains, Migros sought discussions with the WWF and ProForest. The identification of competent and credible NGOs and the consequent relationship allowed Migros to explore specific knowledge in sustainability and certification systems. In addition, it ensured the legitimacy of the new strategy in society:

> *"The WWF could teach us all that is necessary for a profound sustainable forest management while we could tell them what was realistic from a supply-chain point of view. This led to a first idea for a list of criteria on how to produce palm oil in an ecological and social manner and being economically realisable. … The criteria were discussed with local NGOs for the domestic interpretation.*

[148] See Section 3.4. and the research framework presented in Section 4.2.

> *This is not only important because of their know-how. It also shows that regional differences are taken seriously, which then reduces the risk of project failure."* (Interview with the Senior R&D Manager of the Federation of Migros Cooperatives in 2007). *"Being seen as the partner of the WWF is worth gold if you are talking about the credibility of such a project"* (Interview with the Senior R&D Manager of the Federation of Migros Cooperatives in 2003 taken from Hamprecht, 2006: 88).

A similar relationship could be observed in the Unilever case, while the NGO played a more consultant-like role in the Tikhvin Chalna initiative of Axel Springer. The Unilever case (MSC) also shows the effect of neglecting the involvement of other strategic stakeholders, such as suppliers. Not having been invited to promote their point of view before initiating the international roundtable, these fishermen initially felt under-represented in the development of the sustainable fishing criteria (Hamprecht, 2006). As a consequence of the initial lack of support from fish suppliers, prominent NGOs like Greenpeace expressed their doubts about the overall legitimacy of the new strategy. These criticisms only subsided with the certification of two large fisheries almost eight years later (Nick *et al.*, 2006). In all case studies, existing stakeholder relationships were based on strong 'competence trust' and 'goodwill trust' (*sensu* Das & Teng, 2001), shared values towards a market-driven strategy and frequent informal as well as formal communication. These relationships were difficult to set up and required a long and involved process. They were also rare, because only a limited number of solution-oriented NGOs were willing and able to build such relationships. However, once established, they allowed a constructive development of the sustainability criteria for the supply chains that gained acceptance within the internal organisation, the supply-chain partners and ultimately in the entire industry.

First-order schemes	Second-order schemes	Final schemes
→ Ability to sense societal concerns early	→ Ability to identify relevant strategic stakeholders	External-stakeholder integration (Sharma & Vredenburg, 1998)
→ Ability to identify best-fitting stakeholder partner	→ Ability to integrate strategic stakeholders in the development of strategies	
→ Ability to evaluate and select stakeholders by complementary resources as knowledge, image and credibility	→ Ability to build relationships with strategic stakeholders	
→ Ability to "flirt" with NGOs	→ Tacit-knowledge sharing with strategic stakeholders	
→ Ability to solve the problem jointly with strategic stakeholders	→ Trust of strategic stakeholders	
→ Ability to establish dialogue with stakeholders		
→ Ability to share knowledge with strategic stakeholder		
→ Ability to maintain frequent collaboration and communication with business partners		
→ Stakeholders' trust in the initiator's willingness to solve environmental problem		
→ Stakeholders' trust in the initiator's competence to solve environmental problem		

Table 13: Theme analysis: 'External-stakeholder integration'

Based on the case-study findings, *external-stakeholder integration* can be defined according to Sharma & Vredenburg (1998) as the involvement of external stakeholders in the design of a company's strategies, contributing with their knowledge and reputation. As shown in the case studies, external-stakeholder integration allows organisations to identify relevant external stakeholders that need to be involved and communicate with them (Mitchell *et al.*, 1997; Sharma & Henriques, 2005). They allow the establishment of trustful relationships with selected strategic external stakeholders (Katsoulakos & Katsoulacos, 2007; Kuss & Hoffmann, 2008; Oliver & Holzinger, 2008) in order to explore those stakeholders' knowledge (Delmas, 2001; Lavie & Rosenkopf, 2006; Nonaka, 1991; Rothaermel & Deeds, 2004; Sharma, 2005) and network position (Howard-Grenville *et al.*, 2007).

The case findings support the existing theories of the resource-based and institutional-entrepreneurship scholars, which argue that the ability to integrate stakeholders is positively related to the formulation and design of proactive sustainability strategies (Hart, 1995; Sharma & Vredenburg, 1998) and that social capital involving powerful stakeholders can facilitate institutional change (Hamprecht, 2006; Howard-Grenville *et al.*, 2007).[149] For example, Sharma & Vredenburg (1998) showed that the capacity for stakeholder involvement explained the creation and adoption of proactive environmental strategies in the Canadian oil and gas industry, which may serve as an institutional prototype. In a further study, Sharma & colleagues (2004) showed that the capacity for stakeholder integration – among other competencies – leads to the development of proactive environmental strategies in ski resorts.

In a much more abstract study of the information and communication technology industry, Lenox & King (2004) showed that the ability to integrate external knowledge might lead to the development of environmental management systems. Similarly, Kuss & Hoffmann (2008) showed that skills to integrate external stakeholder knowledge explain the development and adoption of different environmental strategies in the chemical industry. The same effect is described by Darnall & Edwards (2006); they found that relationships with external stakeholders such as consultants or governmental organisations helped companies to define environmental management systems. Mamic (2005) found that the intensive discussions with external stakeholders like unions enabled companies in the global footwear industry to design supply-chain-related codes of conduct. Hart & Sharma (2004) suggest that the capability of involving fringe stakeholders might enable companies to establish bottom-of-pyramid (BOP) strategies. Argenti (2004) and Perez-Aleman & Sandilands (2008) support this view with the case of Starbucks' supply-chain strategy, by showing that it is important to be able to include local NGOs and communities in order to consider all necessary information with which to establish norms and standards that suit the needs of small-scale BOP enterprises.

[149] See also the tables in Sections 3.3.3. and 3.4.3.

On a wider institutional level of analysis, Oliver & Holzinger (2008) argue that the ability to exert institutional influence and to define norms, standards and beliefs is based on relational competencies that allow a company to penetrate social networks that they can mobilise and influence. Also, Misangyi *et al.* (2008) suggest that good relationships with social stakeholders will support the emergence of institutions and the survival of the institutional competition. An empirical example is given by Buysee & Verbeke (2003); they demonstrate that the alliance with Greenpeace enabled the Swedish retailer IKEA to reshape the institutional definition of sustainable sourcing norms and practices. Similarly, Khan *et al.* (2007) showed how coalitions with powerful institutional actors helped entrepreneurs in the soccer-ball industry to define the norms and standards of sustainable manufacturing in regional clusters and establish these clusters as dominant practice in Pakistan. Demil & Bensédrine (2003) support this argument by explaining the institutional entrepreneurs' successes in establishing an institutional solution for special industry waste, which was based on lobbying and relationships with important stakeholders in the French industry. Similarly, in their case study, Lawrence *et al.* (2002) described the work of Mère et Enfant, a small NGO, and found that collaborating with a broad range of organisations helped the organisation to institutionalise the practice of providing nutritional services to women and children in Palestine. Wijen & Ansari (2007) show that coalitions of institutional entrepreneurs with media and NGOs helped to lobby for the design and establishment of the Kyoto Protocol successfully.

On the basis of these arguments, the following proposition is made:

Proposition P_1: *The capability of external-stakeholder integration is positively related to the effective design of a voluntary sustainability initiative.*

Managing loosely-coupled business units

In all case studies, the interviewees repeatedly highlighted the importance of having the departments or teams that are in charge of developing the sustainable-supply-chain criteria, processes and technologies separated and shielded from the operative functions. For example, Coop's Natura Plan Fund, a business unit operationally independent from the parent company, provided financial resources and substantial freedom to draw the initial draft of the Basel Criteria together with the WWF. In this organisational unit, the partners that established the voluntary sustainability initiative were able to develop the sustainability criteria, but were also able to take up and address operational concerns without specific expectations or reservations from top management. Similarly, Axel Springer's Corporate Environmental Management department, a department not involved in daily operations, was able to observe current supply-chain practices from fresh angles and advocate new ideas for sustainability practices

without any fear of addressing issues concerning social or environmental problems arising from current supply-chain operations. The department became a testing environment and a hub for the growing knowledge on sustainability in Axel Springer's supply-chain processes, from which the new sustainability practices spread throughout the organisation.

At Migros, a project team with its own budget defined the initial criteria for the new inter-organisational sustainable supply-chain strategy in a separate project. This organisational quasi-separation allowed an open discussion of critical issues with the WWF and addressed implementation concerns of the production departments at an early stage. In this way, they developed a business case that was accepted by both NGOs and Migros' operations even before Migros' top management made the decision to follow the new standards. In the context of SAIN, Nestlé operated organisationally-separate coffee research centres with their own staff and budgets. These centres designed resistant seedlings and varieties of coffee plants to fit local conditions in different geographical areas (Hamprecht, 2006) that were partly provided to farmers free of charge. These practices, which were independent of the main agricultural business of Nestlé, increased productivity and reduced poverty at the farm level. They consequently contributed to the acceptance of Nestlé's efforts in establishing sustainable agricultural practices by farmers and NGOs.

First-order schemes	Second-order schemes	Final schemes
→ Own budget for project	→ Ability to access financial resources for the development of radical new supply-chain practices	Managing loosely-coupled business units
→ Ability to take a long-term view of experimental actions in the separate project	→ Ability to explore new strategies without immediate pay-off or reservations from top management	
→ Being free from top management involvement	→ Ability to access human resources (experts) for the development of radical new supply-chain practices	
→ Ability to develop a strategy without concrete expectations from top management	→ Ability to integrate emerging innovations into traditional business and supply-chain practices	
→ Ability to explore sustainable supply-chain practices in separate research centres		
→ Ability to access financial resources for a project with highly uncertain outcomes		
→ Ability to centralise relevant experts for inventing the new strategy		
→ Ability to transfer emerging strategy to implementation project		
→ Central storage for emerging knowledge on sustainability		

Table 14: Theme analysis: 'Managing loosely-coupled business units'

In these case studies, managing (quasi-)loosely-coupled business units challenged the managers of the respective organisational units to balance the exploration of radically innovative strategies in the separate business unit and the fine-tuning and operative roll-out within the company. This required certain tacit capabilities of senior management to shield the

department or teams from routine operational activities while at the same time integrating the explored inventions into the concrete development of new products and processes. Interview partners explained the detailed processes of managing loosely-coupled business units to be rare and very specific to the respective organisation and unique in their respective market.

The capability of managing loosely-coupled business units has not been explicitly analysed in the context of sustainability strategies yet. This study defines the capability of *managing loosely-coupled business units* based on our case studies and on the literature of innovation management as the establishment and management of structurally ambidextrous organisational designs that allow a balanced separation and integration of exploratory innovation efforts and continuous, incremental improvements (Benner & Tushman, 2003; Ettlie *et al.*, 1984; Hamprecht, 2006). As such, it could inform organisations and their partners in the establishment of voluntary sustainability initiatives to access organisational slack in the form of human and financial resources (Bansal, 2005) and addressing problematic issues without fearing sanctions from the operations units (Morrison & Milliken, 2000). Furthermore, a concentration of specialists could be identified who have the freedom to experiment for radical innovations such as fundamentally new inter-organisational sustainable supply-chain strategies (Mauser, 2001). Also, the management of such a department allows advocating for the respective social and environmental issues more effectively (Hamprecht, 2006).

On the basis of the foregoing arguments, the following proposition is made:

Proposition P_2: *The capability of managing loosely-coupled business units is positively related to the effective design of a voluntary sustainability initiative.*

Supply-chain implementation

In the majority of the case studies, the implementation of the developed criteria, instruments and methods within the initiator's supply chains were crucial for the design of the initiative and its acceptance by societal and economic stakeholders. Migros, for example, started the implementation of its criteria on sustainable palm oil supply chains by building a fair relationship with a strategic supplier who committed itself to taking part in a joint development process for its own operations. Furthermore, Migros established a chain-of-custody monitoring and evaluation system, enabling them to recommend the segregation of sustainable palm oil in its own highly-integrated production network and establish segregation via directives issued to freight forwarders and controls of shipping papers. When the international roundtable was established, Migros was able to present its already-implemented criteria to the broad audience:

> *"In the phase of establishing the international roundtable, Migros contributed with their commitment to the 'Migros criteria' on sustainable palm oil [supply chains] to the success of the first meetings… It was very important for us as a NGO, but also for the business partners, that someone was already able to present practicable [sic] criteria already implemented in its supply chain… Also, the Malaysian actors were deeply impressed by their demonstrated willingness."* (Interview with the Head of International Projects at WWF Switzerland in 2007)

Similarly, the ongoing implementation and practical use of sustainable agricultural practices by Nestlé in their supply chains were mentioned as a key success factor for establishing SAI in the industry. Nestlé's engagement in the reconfiguration of its supply chain and its activities to build strong ties with its suppliers gave the company direct access to the suppliers' local operations (Reinhardt, 2005). This allowed Nestlé to implement sustainable practices in its supply chain in a hands-on fashion (e.g., via supplier development in 'coffee-training centres' and weekly radio shows). Based on this experience and the results hitherto achieved, the company then started a broadened roundtable with other fast-moving consumer-goods manufacturers to share their implementation experiences. In 2002, the international NGO Oxfam acknowledged Nestlé's efforts in the direct purchasing of coffee from farmers when they rated Nestlé as the second-best roaster in terms of managing sustainability (Hamprecht, 2006). Axel Springer followed a different path, as it used the suppliers' dependence on Axel Springer as an important customer in Western Europe – as well as other market mechanisms – to motivate its direct suppliers to participate in the project. The company invited several suppliers to assess the proposal on the voluntary sustainability initiative and apply to become their main partner. After choosing StoraEnso, a Finnish wood supplier, Axel Springer started to build a very close relationship with them. StoraEnso became ultimately responsible for the supply-chain implementation within its Russian supply network through directives issued to their local subsidiaries and the development of the local logging companies.

First-order schemes	Second-order schemes	Final schemes
→ Ability to handle new approach operationally within the supply chain → Ability to switch to new approach rapidly due to a high degree of supply-chain integration → Direct relations with supply network of 'problematic' commodity → Ability to develop suppliers' performance according to the sustainability strategy → Ability to teach suppliers the benefits of implementing the sustainability strategy → Ability to select willing and capable supply-chain partners → Ability to direct suppliers to comply with new strategy → Ability to use suppliers' dependence to implement strategy (inviting bids) → Building purchasing power to implement supply-chain strategy (multiple sourcing; collaborative buying) → Ability to separate sustainable commodity within supply chain → Ability to install monitoring for segregation of sustainable commodity supply chain at each level	→ Ability to implement the sustainability strategy by collaborating with suppliers → Ability to implement the sustainability strategy by means of purchasing power, supplier dependence and directives (competitive mechanisms) → Ability to prove implementation of strategy (e.g., via a chain-of-custody system)	Supply-chain implementation

Table 15: Theme analysis: 'Supply-chain implementation'

The study showed the roles of supply-chain partner scarcity and relationship specificity (Hunt & Davis, 2008). StoraEnso was the only one of three large suppliers of Russian wood that implemented chain-of-custody mechanisms. Similarly, Migros is a unique retailer, being highly integrated with its own production facilities. The inimitability of Nestlé's efforts stems from a long history of negotiating and building direct relationships with local farmers.

Although early resource-based investigations in the field of sustainability addressed multiple specific supply chain management skills (e.g., Rao & Holt, 2005), supply-chain implementation is conceptualised more generally. *Supply-chain implementation* is defined as the ability to implement the lead company's strategy into the operations of the involved supply-chain members by using market or collaborative approaches. Furthermore, it includes the transparency and proof (i.e., monitoring and evaluation) of the implementation by the lead organisation.[150]

[150]It is important to note that alternative definitions for supply-chain implementation exist in literature (e.g., Heusler, 2004; Stölzle & Heusler, 2004), however these definitions rather address the comprehensive intra-organisational tasks which the focal firm has to conduct in order to implement supply chain management within the company.

As seen in the case studies, the demonstration of the lead company's willingness and ability to use the new sustainability criteria increases innovation and cooperation within the network, especially in large supply-chain networks (Das & Teng, 2002; Suarez, 2005) and helps to design effective voluntary sustainability initiatives for supply chains.

The findings are supported by existing studies in the field of resource-based theories and institutional entrepreneurship.[151] For instance, Hart (1995) showed that BMW's relationships with important supply-chain partners enabled the company to establish and adopt an institutional prototype for the automotive industry's "design for environment" (DfE) strategy and leverage its own approach as the German national standard. With respect to supply-chain codes of conduct, Roberts (2003) argues that the effective design of such codes will be dependent upon the purchasing departments' skills to implement sustainability practices in complex supply-chain networks. More precisely, Jiang (2009) suggests that the design and effectiveness of supply-chain codes of conduct are explained by the indirect, market approaches as well as the collaborative supply-chain relationships that firms possess. With respect to collaborative implementation approaches, Geffen & Rothenberg (2000) found that environmental collaboration with suppliers might lead to environmental innovations in the supply chain. Similarly, Klassen & Vachon (2003) showed that customer-initiated environmental collaboration in supply chains might help the establishment of pollution-prevention approaches. The authors further showed that strong partnerships are helpful in order to establish green projects in supply chains (Vachon & Klassen, 2006b). Simpson *et al.* (2007) found that relationship-specific investments in supply-chain relationships enable companies to design comprehensive environmental-management systems for their supply chains. Relating to the Canadian and US package printing industry Vachon (2007) showed that relationships in the upstream supply chain helped to establish and adopt environmental strategies whereas downstream collaboration has very little impact on the design and implementation of such strategies.

With respect to institutional entrepreneurship theory and the wider institutional field, Marcus & Anderson (2008) found that the ability to educate suppliers (i.e., making specific investments in these relationships) explains the emergence of a joint institutional understanding (i.e., norm) and greater commitment to this emerging institutional approach. Similarly, Boyd *et al.* (2007) suggest that companies need to assist suppliers in order to establish norms for socially-oriented sustainability, which, in turn, ensure supply-chain-internal compliance. The same phenomenon is observed by Perez-Aleman & Sandilands (2008), who argued that long-term contracts with suppliers as a specific form of relationship-specific investment (see e.g., Dyer & Singh, 1998) explained the successful design of

[151] See also the tables in sections 3.3.3. as well as 3.4.3.

Starbucks' supply-chain-related voluntary sustainability initiatives in bottom-of-pyramid (BOP) markets. On the basis of the foregoing arguments, the following proposition is made:

> *Proposition P_3:* *The capability of supply-chain implementation is positively related to the effective design of a voluntary sustainability initiative.*

Cultural framing

All interview partners highlighted the importance of their communication efforts with important societal actors as well as consumers and further supply-chain partners. Specifically, Migros framed its new sustainable palm-oil criteria with a broad range of TV spots and campaigns, starting with taking part as the best-practice example in sustainable palm-oil practices in a prominent WWF campaign on the link between deforestation and Swiss business. Migros published its own ads that explained the link between everyday products and the environmental problem.

> *"We brush our teeth and the Orang-Utan dies. We enjoy an ice cream for dessert and the Sumatran tiger is deprived of its habitat. We rub cream onto our skin and lead elephants and rhinoceroses to misery…"* (Annual Report 2002, Federation of Migros Cooperatives: 118)

In following its campaigns, Migros built upon these educational ads and, analytically as well as emotionally, showed its consumers how their new supply-chain strategy helps to solve the problem and why alternative approaches may fail. This communication allowed Migros to draw strategic value out of the new strategy, and put other Swiss businesses, including competitors, under pressure to join its strategy. In the Coop case, interviewees explained the importance of linking end products with environmental problems (Gilley *et al.*, 2000) in a similar way to get the acceptance of end consumers and to motivate other consumer-good businesses and retailers also to invest in similar supply-chain practices. Likewise, Unilever made use of the WWF brand and its communication skills to establish the Marine Stewardship Council. While the WWF framed the initiative as ethically desirable, Unilever justified its new supply-chain strategy scientific-analytically (i.e., by citing objective studies, figures, etc.) as well as economically (by showing benefits to the bottom line). The case of the Tikhvin Chalna initiative shows the importance of a comprehensive communication concept in general. Having started with a well-defined case, Axel Springer planned the development of the voluntary sustainability initiative from a communication point of view and addressed the benefits for business partners in general (such as decreased reputational risks) and for potential suppliers in particular (such as the differentiation opportunities towards European customers). This enabled the company to co-opt large companies of the publishing sector,

wood suppliers capable of implementing the strategy, and NGOs willing to take part in the project and confer legitimacy to it.

> *"First you need a good case. A good case is often easier to find if you analyse it not starting in the forest but starting at the press conference; in the communication with media and society, it is important what can you communicate, how can you [sic] transmit your commitments and this tangible quality of your product to the larger public, the media, NGOs and the larger public."* (Interview with Corporate Sustainability Officer at Axel Springer in 2007)

Finally, all interview partners mentioned their successes in framing their initiatives in a neutral way without being prominently mentioned as the inventor of the respective initiative. Rather, the joint efforts were highlighted by interview partners as central to the development of the initiative and stakeholder acceptance. While Axel Springer and Migros engaged independent consultants to moderate the process of integrating further stakeholders, Coop neutrally called their initial criteria on sustainable soy supply chains 'Basel Criteria'.

First-order schemes	Second-order schemes	Final schemes
→ Ability to communicate problem to stakeholders → Ability to link products to environmental problem → Ability to highlight contributions / superiority of own strategy to sustainability problem known in society → Ability to show superiority of the new supply-chain strategy to stakeholders (environmental, social and financial performance) → Ability to show economic and societal feasibility- / problem-solving capacity of the new strategy → Ability to explain challenges / opportunities of own supply chain approaches to industry players → Ability to call for joint action on the problem → Ability to show willingness to stakeholders → Ability to understand frames of stakeholders → Ability to communicate new strategy differently to different stakeholder groups → Ability to engage independent moderator for strategy → Ability to establish independent host of the initiative	→ Ability to campaign for own supply-chain strategy together with stakeholder partners → Ability to clarify the environmental, social and economic need for the new supply-chain strategy in public → Ability to show problem-solving capacity and superiority of the new supply-chain strategy → Ability adequately to shape the advertisements of the new supply chain targeted for the different strategic stakeholder groups → Ability to frame strategy in a neutral way	Cultural framing (Howard-Grenville & Hoffman, 2003)

Table 16: Theme analysis: 'Cultural framing'

The rarity and inimitability of this capability can be illustrated by several examples. The initiators of the voluntary sustainability initiatives, all having a reputation for sustainability leadership, were able to frame their strategies in such a way that society could trust their intent (Wicki & Kaaji, 2007). This is both rare and path-dependent, since there are only a limited number of organisations with a long-documented and publicly-recognised history of sustainability practices. Furthermore, cultural framing is a complex interaction of terms,

rewards, structure and protocols, all being meaningful to different stakeholder groups. Thus, the capability required socially-complex experiences in, understanding of, and interaction in diverse stakeholder relationships.

Based on the findings, and in accordance with the literature on institutional entrepreneurship, *cultural framing* is defined as processes by which organisations integrate their strategic initiatives into the specific cultural frames of the legitimising stakeholder groups (Howard-Grenville & Hoffman, 2003). With this, organisations strategically question the meaning of specific issues in society in order to show that their own strategies are valid, reliable and useful (Phillips *et al.*, 2004). With this definition, already-described resources of institutional entrepreneurs such as cultural capital (Howard-Grenville *et al.*, 2007) and the ability to write acknowledged texts (Munir & Phillips, 2005) as well as symbolic actions (Lounsbury & Glynn, 2001; Zott & Huy, 2007) are reflected. Companies establishing voluntary sustainability initiatives interpret the relationships with their stakeholders, segment these stakeholders based on their different cultures and mindsets, and frame their strategies accordingly towards these segments – either alone or in campaigns carried out with allies (Hargrave & van de Ven, 2006). As described in the institutional-entrepreneurship literature, framing addresses discursive processes at the target group (Phillips *et al.*, 2004), such as diagnostic, prognostic and motivational framing. Diagnostic framing refers to the explicit definition of institutional problems, such as bad environmental practices, that the new approach should solve. Prognostic framing includes the articulation of possible solutions and strategies, and how to realise them. Motivational framing is the motivating emotional 'call to arms' to allied parties in the institutional field (Benford & Snow, 2000).

The results of the case studies are consistent with previous sustainability studies that applied the resource-based view or institutional entrepreneurship. For instance, the study of Bansal & Clelland (2004) suggests that the communication of a company's environmental-management efforts to society might be a key factor that enables companies to set norms in the institutional field that then inspire environmental 'watchdogs' to put competitors under pressure. Maignan *et al.*' (2004) findings suggest an effect of directed marketing activities towards stakeholders on the resources granted by them to an organisation's sustainability strategies. Maguire *et al.* (2004) showed that 'Teta', an organisation that advocates for the rights of HIV-positive citizens in Canada, was most effective in lobbying pharmaceutical companies and establishing norms on the rights of HIV-positive citizens because they could frame their requests in a professional and technically-informed manner. More generally, in the case of the development of China's Environmental Protection System (EPS), Child *et al.* (2007) explained how the communication of the initiative to the public contributed to the ultimate establishment of the EPS as an act of social responsibility. Several studies on the effects of cultural framing highlight the strategic questioning of societal issues and show how the ability to succeed in

the institutional discourse (framing their strategies as valid, reliable and useful) enable entrepreneurs to establish institutions. For instance, Maguire & Hardy (2006) showed that the institutional entrepreneurs' ability to master the institutional discourse by citing and connecting their own approach (i.e., incorporating an interpretation of the precaution principle 'precaution of potential risks' instead of the existing paradigm 'proof of danger via sound science') to a range of other already-legitimised texts issued by the United Nations Environment Programme's (UNEP) Intergovernmental Negotiating Committee (INC) played a significant role in the emergence of the Stockholm Convention on Persistent Organic Pollutants (POPs). Similarly, Etzion & Ferraro (2007) describe the efforts of the Global Reporting Initiative (GRI) in establishing norms for sustainability reporting, arguing that the success of GRI can be traced back to linguistic capabilities such as ambiguity reduction, discourse bridging and robust design, which in turn provide a coherent rationale for the institutionalisation of GRI norms. In different contexts, such as the establishment of a new technology, Munir & Phillips (2005) demonstrated how Eastman Kodak Company developed photography from a highly specialised activity to one that became an integral part of everyday life by well-directed communication and action, combining the possibilities of the new technology with customer's existing mental models in order to establish and rationalise a new market (i.e., institutional approach). More precisely, Eastman Kodak was able to translate the use of technology into easy understandable frames for consumers by managing the meaning of photography with messages embedding technology in existing practices ('*A holiday without a Kodak is a holiday wasted*'), creating new roles for stakeholders ('*Kodak Girl*') and finally creating new institutions ('*Kodak Album*'). Slightly differently, Greenwood *et al.* (2002) found that the theorisation of institutional change (the theorisation of institutional failure and possible solutions) helped professional associations to steer the emergence and evolution of chartered accountants as a dominant institutional practice. Garud *et al.* (2002) showed that the frames used by Sun Microsystems enabled the company to establish Java as the dominant standard within an institution. Through problem-oriented communication of Java's '*write-once, run-anywhere*' capacity and the slogan '*the network is the computer,*' Sun emphasised the intuitive appeal for users such as programmers and helped to gain support from a broad range of actors involved in the computer supply chain.

On the basis of the foregoing arguments, the following assumption is made:

Proposition P_4: *The capability of cultural framing is positively related to the effective design of a voluntary sustainability initiative.*

5.3.2. Complementarities increasing the potential of resources for legitimised designs of voluntary sustainability initiatives

Besides (inter-)organisational resources that could be identified as direct drivers of the design of voluntary sustainability initiatives as well as of participants' and stakeholders' acceptance, this study could identify several capabilities that have indirect effects on the performance dimensions (i.e., legitimacy). These indirect effects enable or increase the potential of the capabilities derived above, which is consistent with the resource-based theories' argument that complementary resources exist that increase the profit-generating potential of other resources and thus increase the efficiency of the strategies pursued by the focal company.[152]

Gate keeping

The existence of a central gatekeeper in the organisation was frequently mentioned as an important aspect when setting up the voluntary sustainability initiative. However, it could be observed that this capability did not directly affect the initiative's design and acceptance, but enabled the potential of several other resources that had direct effects on these performance dimensions.

As could be observed in the case studies, gate keeping allows the control of the coordination and communication of the initiative within the organisation as well as with external parties, resulting in a superior understanding and ultimately a better acceptance among the members of the voluntary sustainability initiative. For example, Axel Springer appointed a skilled environmental officer who was responsible for detecting societal concerns as well as opportunities to improve their sustainability performance and convert these ideas into project proposals for the internal process owners. The Tikhvin Chalna initiative is such a project proposal, where the gatekeeper aligned societal (i.e., the external stakeholders') as well as supply-chain partners' interests with the appropriate business functional interests. Similarly, the acceptance of Migros' sustainable palm-oil supply-chains strategy can be traced back to the officers of Migros and its subsidiary Mifa, the manufacturer of food (e.g., margarine), purifiers and detergents. These officers were able to detect external stakeholder statements early and understand what these statements meant for Migros' business. More specifically, they were able to understand the relevance of the problems of palm oil production to its own products, even though the link between their own operations and the use of palm oil had not been established at the time. It therefore became clearer to Mifa which specific problems and understandings of the palm oil issue existed, making it possible to select appropriate internal as well as external collaboration partners.

[152] See Section 3.4. and the research framework presented in Section 4.2.

Similarly, Unilever's manager in charge of the fish business quickly recognised the problem of the over-fishing of the oceans for the company's long-term competitiveness and discussed initial ideas with organisation-external as well as -internal partners. These efforts allowed Unilever to orchestrate the internal functions and to work out initial concepts on how to approach the issue before getting into discussions with NGOs. This proactive approach lead to reputational benefits and the early acceptance of Migros' and Unilever's strategies by the NGOs involved. Another point that was frequently mentioned was the establishment of central project management that understood both the involved external (stakeholders) as well as internal (business functions) partners and was thus able to steer the collaboration efficiently.

First-order schemes	Second-order schemes	Final schemes
→ Ability to understand key stakeholder pressures → Ability to understand the stakeholder perspectives of the operations → Ability to understand what corporate functions and supply-chain partners are affected by stakeholder interests → Ability to steer the societal collaboration process → Central project management for sustainability projects	→ Gate-keeping function bridging corporate functions internally and to external stakeholders → Gate-keeping function that steers collaborative projects with external stakeholders	Gate keeping (Sharma, 2005)

Table 17: Theme analysis: 'Gate keeping'

The rarity and inimitability of this capacity can be illustrated by the case studies. The rarity of gatekeepers (managers in charge of gate keeping) is due to the requisite specific training and understanding of the sustainability issues. More specifically, the interview partners emphasised that highly skilled gatekeepers are very hard to find in the market and that an appropriate education system has not been widely established yet. Referring to the inimitability of gate keeping, interview partners emphasised that the processes of gate keeping were tailored to the specific structures between the organisational functions and the external stakeholders. Gate keeping was consequently described as a causally ambiguous and socially complex interaction between the constituencies. Furthermore, interview partners highlighted the tacit knowledge that was captured by these processes and stressed the path that gatekeepers had to go through (education, specific and rare experiences, and building know-how from coordinating these kinds of projects).

According to the case findings and Sharma (2005), *gate keeping* can be defined as the ability to monitor the objectives and influences of external stakeholders and translate this information for the organisation-internal constituents of the firm. As such, the case findings support resource-based investigations in the field of corporate sustainability that treat organisational gatekeepers as an important resource in the interaction with external

stakeholders. As seen in the case studies, gatekeepers use differences in perspectives and mindsets (Clarke & Roome, 1999) in order to understand stakeholder pressures and their impact on the firm's operations and business functions (Sharma, 2005). The case studies further show that gate keeping allows discussion with external stakeholders even if they are critical or adversarial, and also promotes the efficient management of the interaction between the internal and external constituencies involved. As gatekeepers are, by definition, the interface between corporate functions and external stakeholders, they enable the integration of the external constituencies and the respective external knowledge (Cohen & Levinthal, 1990). Sharma (2005) has pointed out that the existence of a central gatekeeper is a sub-capability of stakeholder engagement (i.e., external-stakeholder integration) and thus very helpful in order to identify which external stakeholders are worth being integrated. With respect to innovations, Tushman & Katz (1980) found that the existence of gatekeepers enabled the integration of external knowledge into R&D projects. Similarly, in a review of several studies of innovation management, Verona (1999) found that gatekeepers play a significant role in enabling the profit-generating potential of external integrative capabilities.

On the basis of the foregoing arguments, the following assumption is made:

Proposition P_{5a}: *The capability of gate keeping is positively related to the capability of external-stakeholder integration.*

The case findings also suggest that gatekeepers perform a liaison role in project tasks by not only mediating external information, but also by facilitating the external communication of their local (i.e., internal) project colleagues. In this context, Brown & Eisenhardt (1995) have further shown that, in addition to facilitating external-stakeholder integration, gate keeping allows the communication to be steered towards external stakeholders, as it supports cross-functional integration within the organisation. Verona (1999) found that gatekeepers play a significant role in accessing the profit-generating potential of internal integrative capabilities.

Consequently, the following proposition is made:

Proposition P_{5b}: *The capability of gate keeping is positively related to the capability of cross-functional integration.*

Finally, the case studies showed that besides integrating external stakeholders, gate keeping impacts the potential of stakeholder-specific marketing and communication efforts. This view is supported by several studies cited by Verona (1999), who argues that gatekeepers explain how companies access the potential of marketing skills. As a reason for this effect, the author refers to literature that argues that only the ability properly to support strategic decisions such as market segmentation and product differentiation can positively affect the way customers' (and further stakeholders') perceptions of a product's ability to fit with their needs.

Gate keeping is consequently proposed to be a precursor of cultural framing:

Proposition P_{5c}: *The capability of gate keeping is positively related to the capability of cultural framing.*

Cross-functional integration

Many interview partners mentioned that it was important to integrate the affected functional departments and people in cross-functional teams during the establishment of the voluntary sustainability initiative. However, no direct effect on the initiative's acceptance could be identified. Instead, it was emphasised that this capability helped to implement the initiative's objectives and to ensure the overall feasibility of the new strategy, ultimately leading to increased acceptance among all affected parties.

For example, Migros integrated the affected functions in the development of the new Migros criteria on sustainable palm oil supply chains – namely, the purchasing department, the social compliance department and corporate communications. This allocation of diverse knowledge and interests allowed Migros to work out and continuously improve an economically and technically feasible solution to the environmental problem that could be implemented within the supply chain without any major conflicts. Specifically, the integration of the purchasing department allowed Migros and some of its allies in the RSPO to address challenges of current supply-chain configurations more effectively, so that alternative supply-chain implementations were accepted by societal stakeholders. Similarly, the Coop project management for the development of the voluntary sustainability initiative soon decided to share implementation responsibility with the purchasing department. This allowed Coop to prove its commitment to the initiative, thereby facilitating negotiations with other stakeholders. Also, the environmental officer at Axel Springer integrated the affected process owners from operations. This was important to assess the internal operations and to obtain their commitment to the Tikhvin Chalna initiative's implementation. As a consequence, numerous affected functions continuously contributed their specific knowledge to the development of the new sustainable supply-chain criteria.

First-order schemes	Second-order schemes	Final schemes
→ Ability to integrate affected corporate functions into the development of the new approach → Ability to access knowledge of different organisational functions in the development of the supply-chain strategy (e.g., to avoid pitfalls) → Ability to distribute information internally to affected process owners and top management → Ability to empower affected functions in the further development and implementation of the strategy → Ability to integrate affected functions in project evaluation	→ Ability to integrate affected business functions early in the development of the new supply-chain practices → Ability to coordinate the implementation of the new strategy between the affected business functions / units	Cross-functional integration (Verona, 1999)

Table 18: Theme analysis: 'Cross-functional integration'

Although cross-functional teams as such are generally becoming standard practice (Grant, 1996), interview partners emphasised that the underlying processes and management systems were explicitly tailored to the specific intra- and inter-organisational structures. This allowed the teams to capture tacit knowledge by means of social exchange instead of relying exclusively on explicit knowledge. They describe this capability as causally ambiguous and socially complex, involving different functions and employees in co-ordinated action.

Cross-functional integration has gained limited attention in the literature on institutional entrepreneurship and resource-based work in the field of corporate sustainability. In the general resource-based literature, *cross-functional integration* is linked to product-development processes and can be defined as a capability that "*acts as adhesive by absorbing critical knowledge from external sources and by blending the different technical [and further] competencies developed in various company departments*" (Verona, 1999: 134). As seen in the case studies, this capability typically entails the participation of affected corporate functions in and the coordination of cross-functional teams that bring together different sources of expertise (Brown & Eisenhardt, 1995; Eisenhardt & Martin, 2000), both leading to development-process efficiency and the effectiveness of the voluntary sustainability initiative in terms of the fit between its implementation in the supply chain and the institutional demands (Verona, 1999). Also, recent studies in the field of sustainable supply-chain management (SSCM) have suggested that complementarities exist between internal (i.e., intra-organisational) supply chain management capabilities such as cross-functional integration and external (i.e., inter-organisational) supply chain management capabilities such as collaboration with customers or suppliers (e.g., Darnall *et al.*, 2008; Zhu *et al.*, 2008a;

2008b).[153,154] In this context, previous research has suggested that these internal capabilities might advance external SSCM practices, such as product-stewardship goals (Darnall *et al.*, 2008). Handfield *et al.* (2001) found that the cross-functional integration of organisation-internal departments is essential to the maintenance of robust SSCM practices with external supply-chain partners. For example, if an organisation advertises its efforts in pollution prevention, it must coordinate its R&D unit with its purchasing department in an effort to minimise waste and environmental impact in the upstream supply chain as well.

Considering the empirical findings as well as the review of existing literature, this study proposes a relationship between the internal supply chain management capability of 'cross-functional integration' and the external supply chain management skill of 'supply-chain integration':

Proposition P_6: *The capability of cross-functional integration is positively related to the capability of supply-chain implementation.*

Process improvement

In all case studies, interviewees reported that their efforts in continuously optimising the economic and environmental performance of their supply-chain processes were central for implementing the voluntary sustainability initiative's objectives and obligations, as well as facilitating the integration of strategic stakeholders.

For example, Axel Springer's profound qualified knowledge of its supply-chain processes and their environmental performance allowed them to steer the further development and implementation of the Tikhvin Chalna initiative. Having already gone through various green supply-chain assessments and product lifecycle analyses with supply-chain partners, Axel Springer was able to propose reasonable initial criteria to its business and supply-chain partners that were then developed into policies in a joint endeavour. Similarly, Migros built upon a structured and monitored supplier-development process to ensure the technical feasibility of the new social and environmental supply-chain criteria. In order to increase the economic feasibility, Migros also assessed its supply chains and thereby understood the opportunities offered by the implementation of a certificate-trading system for sustainable palm oil. These insights allowed Migros and some of its peers successfully to lobby for the so-called 'Book@Claim' approach, whereby organisations can buy certain certificates directly from palm oil producers instead of securing the segregation within the entire supply chain.

[153] The distinction between internal and external supply-chain practices is consistent with the traditional literature stream of supply-chain management, which splits internal and external coordination/cooperation (Burgess *et al.*, 2006; Hillebrand & Biemans, 2004); see Section 2.1.3.

[154] These suggestions emerged as a result of former studies' mixed results on the effects of SSCM practices, which show that these practices do not always lead to increased performance (Zhu *et al.*, 2005; Zhu *et al.*, 2007).

Nestlé's functional line managers developed structured quality-improvement and -assurance programs for suppliers to improve the traceability of raw materials. To ensure a technically reliable supply of sustainable raw materials, they attempted to plan more systematically for possible expansions and new suppliers. Also, they tried to help farmers to improve their processes and to achieve the defined implementation steps. In this way, Nestlé assisted farmers in the creation and capture of additional economic value (Reinhardt, 2005), thereby obtaining public recognition, such as the reward from the international NGO Oxfam (Hamprecht, 2006).

> *"SAIN is a business-improvement approach that seeks to find and eliminate causes of inefficiencies or defects in business processes by focusing on outputs that are of critical importance to manufacturing and consumers in the upstream supply chain. … On the technical side [of SAIN], the focus is on enhancing process performance (improving the average level of performance and reducing variation in raw-material quality and unit costs), using process-benchmarking methods, and a disciplined and focused process-improvement methodology which has four key stages: measure, analyse, improve and control."* (Interview with Corporate Head of Agriculture at Nestlé in 2004, taken from Reinhardt, 2005).

First-order schemes	Second-order schemes	Final schemes
→ Ability to map and assess own supply-chain operations and judge the effects of the new strategy (costs, feasibility) → Ability to assess different supply-chain options → Ability to generate (economically and technically) feasible solutions to the environmental problem → Ability to understand and optimise new supply-chain processes → Ability to define specific process steps for implementation approach → Ability to optimise technical & economic feasibility strategy → Use of structured processes to improve supply-chain performance (e.g., via supplier-development) → Experiences in process-management schemes (life-cycle-assessments, environmental / social-certification schemes)	→ Ability to map own [supply-chain] processes → Ability to assess current [supply-chain] practices and processes in terms of their environmental footprint → Ability to improve [supply-chain] processes in a structured manner → Ability to adhere to defined [supply-chain] process-improvement steps → Experiences in process-management standards	Process improvement (Benner & Tushman, 2003)

Table 19: Theme analysis: 'Process improvement'

The rarity of the process-improvement techniques enhancing supply-chain processes in terms of technical, environmental and social performance can be illustrated by the Axel Springer

case. At the time when the Tikhvin Chalna initiative was established, Axel Springer was the only company in the publishing sector sourcing Russian wood that had profound experience in running lifecycle analyses of their wood supply chains. The inimitability is shown in the sophisticated adaptive learning routines of all process improvements described in the case studies. Interview partners emphasised that the capability revealed tacit inter-organisational routines and made them explicit (Brown & Duguid, 1991). Ultimately, this leads to richer cognitive models of the supply-chain processes and the activities applied within these processes. Furthermore, it improved the environmental, social and economic performance of the entire supply chain (Repenning, 1999).

The case findings support the resource-based literature on corporate sustainability, arguing that continuous (process) improvement techniques are positively related to the formulation and optimisation of proactive sustainability strategies (Christmann, 2000; Hart, 1995). *Process improvement* is defined, according to the resource-based innovation-management literature, as a capability to identify, analyse and improve existing business and supply-chain processes to meet defined goals and objectives (Benner & Tushman, 2003). As shown in the case studies, process-improvement techniques drive radical as well as incremental innovation, which can lead to substantial performance gains (Benner & Tushman, 2003; Hart, 1995, Christmann, 2000). They comprise techniques to map and assess the existing supply-chain processes, provide instruments in order to improve these processes, offer systems that control the adherence to the defined improvement steps (Benner & Tushman, 2003; Neto *et al.*, 2008), and allow organisations successfully to carry out the implementation of environmental or social supply-chain strategies (Boyd *et al.*, 2007; Handfield *et al.*, 2005).

Similarly to the empirical findings, recent studies in the field of sustainable supply chain management (SSCM) show complementarities between the intra-organisational capability of (environmental) process improvement and the inter-organisational capability of supply chain-implementation (e.g., Darnall *et al.*, 2008; Zhu *et al.*, 2008a; 2008b). More specifically, several studies found that these internal practices are often precursors of external SSCM practices and have thus been adopted on a much greater scale in business practice (e.g., Zhu & Sarkis, 2004; Zhu *et al.*, 2005). For instance, if organisations possess certified environmental-management systems such as ISO14001 in-house, they are more likely to broaden the scope of environmental strategies and systems towards their suppliers (Gonzalez *et al.*, 2008; Handfield *et al.*, 2005). Additionally, when organisations conduct external SSCM practices, they may leverage internal skills such as continuous improvement processes in order to reduce the impact of suppliers' inputs on the final product (Preuss, 2005). Thus, adopters of environmental-management systems may have greater ease during external SSCM adoption, as they possess the internal tacit knowledge and management structure that is needed to manage the environmental or social impacts of their supply chain (Darnall *et al.*, 2008).

On the basis of the foregoing arguments, the following assumption is made:

Proposition P_{7a}: *The capability of process improvement is positively related to the capability of supply-chain implementation.*

Very similarly to the discussion above, the case findings support existing studies that argue that process-improvement skills may further enable external-stakeholder integration. For example, Hart (1995) argued that only if companies are able to optimise environmental-management processes will they be able to engage in more sophisticated environmental-management concepts like product stewardship, integrating affected stakeholders in the environmentally-conscious design of products and processes. For example, he shows that organisations have to be able to set up and optimise processes of reverse logistics before they may engage in designing take-back programs with customers and local communities.

Based on the case findings and the literature, a relationship between 'process improvement' and 'supply-chain implementation' is assumed:

Proposition P_{7b}: *The capability of process improvement is positively related to the capability of external-stakeholder integration.*

6. Development of the research model: resources, the design of voluntary sustainability initiatives for supply chains, and legitimacy

The preceding chapters developed several elements (i.e., theories and empirics) that must be integrated into a comprehensive research model. Hence, this chapter will recapitulate these theories as well as empirics and develop hypotheses on the relationships between the relevant concepts (see Section 6.1.). While aspects of the design of the voluntary sustainability initiative for supply chains as well as legitimacy effects will be developed based on the initial theoretical framework, hypotheses on key resources and complementarities will be directly adopted from the first empirical study of this thesis.[155] As no effects concerning the non-linearity of resource value and contingencies could be identified in the exploratory study, these effects will not be considered in the research model. In order to provide a good basis for theory-testing, all hypotheses will be summarised in the form of a table and path diagram (see Section 6.2.).

6.1. Model of designing voluntary sustainability initiatives for supply chains and formulation of hypotheses

The recapitulation of relevant elements will be conducted in the sequence of this thesis. In the first subsection (6.1.1.), the performance effects of the focal construct 'design of voluntary sustainability initiatives for supply chains' (see Sections 3.2. and 4.2.) will be discussed and hypotheses will be derived. Following in subsection 6.1.2., hypotheses on the resources of an institutional entrepreneur will be formulated. Here, the resources and complementary resources fulfilling the criteria of the resource-based view (see Section 4.2.) will be taken from the empirical findings described in Chapter 5.

[155] See Sections 5.3.1. and 5.3.2.

6.1.1. Legitimacy in the context of designing voluntary sustainability initiatives for supply chains

As shown in Section 3.2., as well as in the framework in Section 4.2., the ultimate goal in the design of voluntary sustainability initiatives for supply chains is a broad legitimisation of the initiatives by all relevant institutional actors (i.e., stakeholders in the institutional field, including supply-chain partners). However, in the section of institutional entrepreneurial action, it was shown that in order to establish these widely-accepted designs, an entrepreneur must run through a tedious process of institution creation and diffusion.[156] It was also shown that two distinctive process steps have to be taken: the creation of an institutional prototype (i.e., the initiative itself) and its dissemination in the wider institutional field.

The first distinctive step is the creation of a proto-institution. At the end of this step, the entrepreneur (the focal firm) succeeds in building an institution that incorporates normative, mimetic and coercive mechanisms that push the participants towards compliance. Institutional theory has shown that the more of these mechanisms exist – or the stronger they are – the stronger the pressures become on the participants.[157] In the context of the design of voluntary sustainability initiatives, the establishment of a proto-institution is the construction of the initiative itself, and the participants are the actors (the stakeholders) that were involved by the entrepreneur. These involved stakeholders will comply if the initiative incorporates strong normative, mimetic and coercive elements in the form of a shared understanding and values, coordination mechanisms and codified standards, as well as an enforcement mechanism such as a punishment or reward.[158]

On the basis of the foregoing summary, the following hypothesis is made:

Hypothesis H_1: *The effective design of a voluntary sustainability initiative is positively related to the compliance of the initiative's participants.*

The second distinctive step is the dissemination of the proto-institution in the wider institutional field.[159] As shown in this phase, the entrepreneur and his backers in the voluntary sustainability initiative aim at initiative-external legitimacy, which is commonly operationalised in the form of external-stakeholder acceptance.[160] These stakeholders assess

[156] See Section 3.3.2.
[157] See Section 3.2.1.
[158] See Section 3.2.2.
[159] See Section 3.2.3.
[160] See Chapter 3, page 57 and Chapter 5, page 94.

the initiative and its characteristics and decide whether to give their legitimacy and support to the entrepreneur's voluntary sustainability initiative, or if they prefer to oppose the supply-chain strategies instead.[161] Thus, a good design of the voluntary sustainability initiative also affects the acceptance of initiative-external stakeholders.

On the basis of the foregoing summary, the following hypothesis is made:

Hypothesis H_2: *The effective design of a voluntary sustainability initiative is positively related to the acceptance of initiative-external stakeholders.*

6.1.2. Resources and complementarities that enable the design of voluntary sustainability initiatives for supply chains

As explored in the analytical induction study, several capabilities were identified. These capabilities fulfil the criteria that characterise them as *key* resources in institutional entrepreneurship.[162] These resources are proposed to have direct effects on the design of the initiative (i.e., they are valuable in enabling institution creation and diffusion; rare; inimitable; and non-substitutable). Three further resources that were identified have complementary, indirect effects on the design of the initiative. They increase the value of the capabilities with direct effects (i.e., the key resources) on the effective design of voluntary sustainability initiatives.

Resources with direct effects on the design of voluntary sustainability initiatives

Firstly, the capability of external-stakeholder integration was found positively to influence the design of a voluntary sustainability initiative, mainly because the transfer of knowledge enabled the design of a technically superior solution, buy-in effects and the credibility of the involved partners in the wider institutional field.[163]

On the basis of the foregoing summary, the following hypothesis is made:

Hypothesis H_3: *The capability of external-stakeholder integration is positively related to the effective design of a voluntary sustainability initiative.*

[161] See Section 2.3.2. and 3.2.3.
[162] See Sections 5.3.1. and 5.3.2.
[163] See pages 107-110.

Secondly, the capability of managing loosely-coupled business units was found to positively influence the design of a voluntary sustainability initiative.[164] As shown, being able to access organisational slack, concentrate experts and have the freedom to experiment enabled the companies and their backers to develop a superior and more radically sustainable solution that was more accepted by all institutional actors.

The following hypothesis is therefore made:

Hypothesis H_4: *The capability of managing loosely-coupled business units is positively related to the effective design of a voluntary sustainability initiative.*

Thirdly, the capability of supply-chain implementation units was proposed positively to influence the design of a voluntary sustainability initiative.[165] As shown in the exploratory study, supply-chain implementation increased the environmental, social and operational performance of the supply-chain processes, leading to more feasible values, standards and rules within the initiative and the demonstrated willingness of the focal firm to implement the initiative's objectives and obligations, which was appreciated by several institutional actors.

Hence the following hypothesis is made:

Hypothesis H_5: *The capability of supply-chain implementation is positively related to the effective design of a voluntary sustainability initiative.*

Finally, the capability of cultural framing was suggested positively to influence the design of a voluntary sustainability initiative.[166] The exploratory case studies and the literature showed that this capability helped the focal firm to steer the creation of the initiative in a meaningful and acceptable way for the actors being involved and/or affected.

On the basis of this summary, the following hypothesis is made:

Hypothesis H_6: *The capability of cultural framing is positively related to the effective design of a voluntary sustainability initiative.*

[164] See pages 110-112.
[165] See pages 112-115.
[166] See pages 115-119.

Complementary resources with indirect effects on the design of voluntary sustainability initiatives

Firstly, it was shown that the capability of gate keeping might increase the value of external-stakeholder integration, cross-functional integration and cultural framing.[167] The reason for this phenomenon is the interfacing function of gatekeepers facilitating the information transfer (including marketing or framing activities) between internal corporate functions and the external stakeholders – regardless of whether they are involved in the design of the initiative or whether they remain external to the initiative.

Hence the following hypotheses are made:

Hypothesis H_{7a}: *The capability of gate keeping is positively related to the capability of external-stakeholder integration.*

Hypothesis H_{7b}: *The capability of gate keeping is positively related to the capability of cross-functional integration.*

Hypothesis H_{7c}: *The capability of gate keeping is positively related to the capability of cultural framing.*

Secondly, the previous study suggested a positive relationship between the capability of cross-functional integration and the capability of supply-chain implementation, because the collaboration of corporate functions such as purchasing and logistics or R&D facilitates integrating external supply-chain partners and the subsequent environmental or social sophistication of their supply-chain practices.[168]

On the basis of this summary, the following hypothesis is made:

Hypothesis H_8: *The capability of cross-functional integration is positively related to the capability of supply-chain implementation.*

Thirdly, the analytical induction study has demonstrated that the capability of process improvement is complementary to the capability of supply-chain implementation and to the capability of external-stakeholder integration.[169] This is because the sophistication of processes involving other stakeholders or supply-chain partners will be more efficient if the focal firm is able to leverage organisational process-improvement techniques into the

[167] See pages 120-122.
[168] See pages 123-124.
[169] See pages 125-127.

relationships with these external actors (e.g., into supplier-development activities or the development of process-certification schemes with external stakeholders).

The following hypothesis is therefore made:

Hypothesis H_{9a}: *The capability of process improvement is positively related to the capability of supply-chain implementation.*

Hypothesis H_{9b}: *The capability of process improvement is positively related to the capability of external-stakeholder integration.*

6.2. Summary of hypotheses on the legitimised design of voluntary sustainability initiatives

Based on Section 6.1., several hypotheses can be summarised in Table 20. A path diagram (see Figure 16) can then be drawn that builds the basis for the confirmatory study in the next chapter. In the diagram, the two hypotheses from Section 6.1.1. relate the central construct of the study (i.e., the voluntary sustainability initiative) to the legitimacy (right-hand side of the path diagram). On the left of the central construct, two layers can be found according to the hypotheses derived in the previous section (6.1.2.). Firstly, four hypotheses exist that suggest the direct effects of resources on the design of the initiatives. Secondly, six hypotheses on the precursors (i.e., complementarities) of the direct resource-design relationships are formulated. The precursors can be found on the right-hand side of the path diagram.

Hypothesis	Description of hypothesis	Relationship
H_1	The effective design of a voluntary sustainability initiative is positively related to the compliance of the initiative's participants.	VSI → (+) ICOM
H_2	The effective design of a voluntary sustainability initiative is positively related to the acceptance of initiative-external stakeholders.	VSI → (+) EACC
H_3	The capability of external-stakeholder integration is positively related to the effective design of a voluntary sustainability initiative.	ESI → (+) VSI
H_4	The capability of managing loosely-coupled business units is positively related to effective design of a voluntary sustainability initiative.	LCB → (+) VSI
H_5	The capability of supply-chain implementation is positively related to the effective design of a voluntary sustainability initiative.	SCI → (+) VSI
H_6	The capability of cultural framing is positively related to the effective design of a voluntary sustainability initiative.	CFR → (+) VSI
H_{7a}	The capability of gate keeping is positively related to the capability of external-stakeholder integration.	GAT → (+) ESI
H_{7b}	The capability of gate keeping is positively related to the capability of cross-functional integration.	GAT → (+) CFI
H_{7c}	The capability of gate keeping is positively related to the capability of cultural framing.	GAT → (+) CFR
H_8	The capability of cross-functional integration is positively related to the capability of supply-chain implementation.	CFI → (+) SCI
H_{9a}	The capability of process improvement is positively related to the capability of supply-chain implementation	PIM → (+) SCI
H_{9b}	The capability of process improvement is positively related to the capability of external-stakeholder integration	PIM → (+) ESI

Table 20: Summary of hypotheses derived via analytical induction

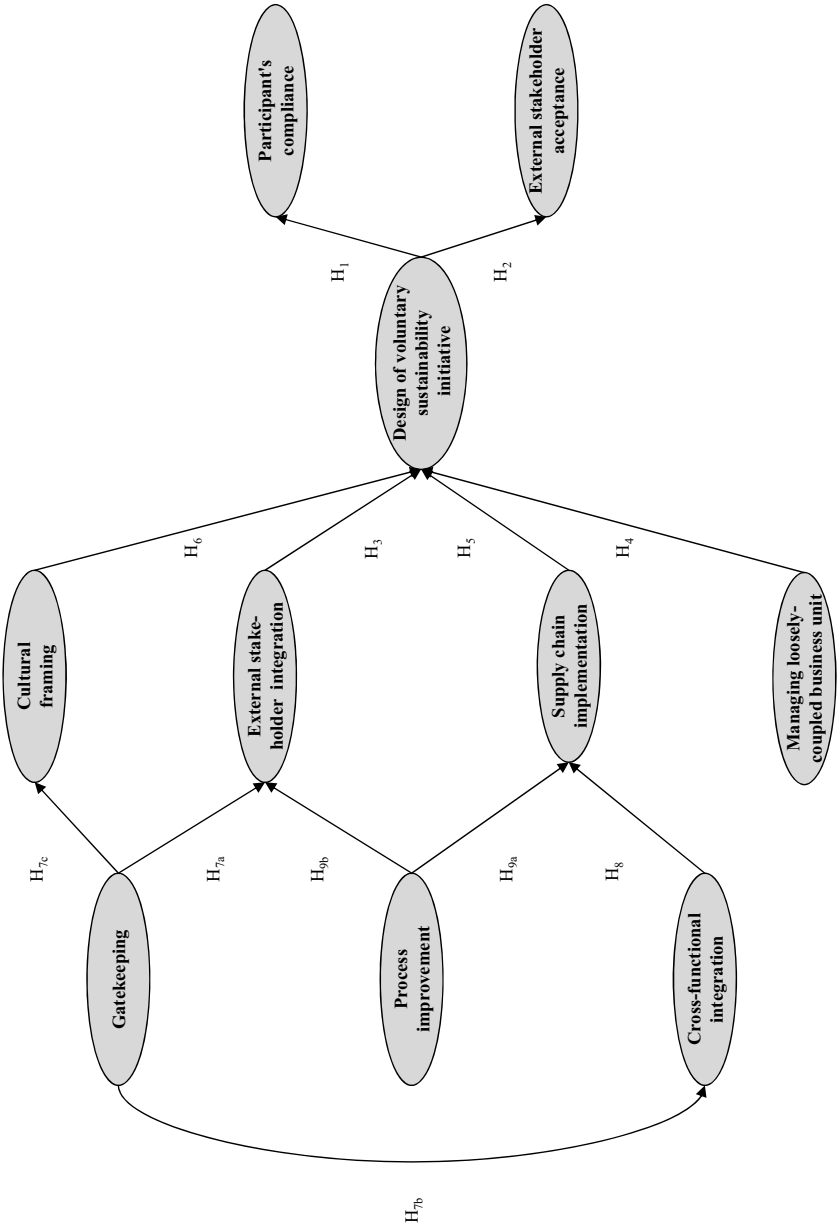

Figure 16: Initial research model of the inter-organisational design of voluntary sustainability initiatives

7. A confirmatory study of the institutional entrepreneur's resources in the design of legitimised voluntary sustainability initiatives for supply chains

Having developed a comprehensive research model in Chapter 6, the next step of the thesis involves the testing and confirmation of the derived hypotheses in a large-scale quantitative study. In order to gather quantitative data, the study followed the lead of recent resource-based investigations of interconnected firms (e.g., Gulati *et al.*, 2005; Kale & Singh, 2007; Mesquita & Brush, 2008; Mesquita & Lazzarini, 2008; Mesquita *et al.*, 2008) as well as of Marcus & Anderson's (2008) work in the field of institutional entrepreneurship and data collection with a survey instrument. Following the call of Boyd *et al.* (2005), the study used multi-item scales. After the data gathering, the data was analysed via the Structural Equation Method (SEM).

This chapter is structured as follows: firstly, the development of the measurement model (i.e., survey questions) will be described. Secondly, the research setting will be presented in detail. Thirdly, the validation of the measurement model will be outlined, as required by the SEM (e.g., Anderson & Gerbing, 1988). Finally, the results of the model testing will be presented.

7.1. Development of the measurement model of the legitimised design of voluntary sustainability initiatives

In order to operationalise the study in the form of a measurement model and survey, the study turned to resource-based and institutional entrepreneurship research done in the field of sustainability, innovation management and supply-chain management. The constructs from earlier research were therefore applied to the study whenever possible, ultimately being subject to minor modifications. When no such construct existed, new constructs were formed based on the findings of the analytical-induction research phase.[170]

The developed questionnaire was then pre-tested in interviews with three academics from strategic-management and sustainability research and seven experts from business practice (Zhu *et al.*, 2008a).[171] These pilot tests aimed to identify whether each measurement item

[170] See Chapter 5.

[171] Thanks to Alberto Aragón-Correa (University of Granada), Volker Hoffmann (ETH Zürich) and Mike Russo (University of Oregon), as well as Nanda Bergstein (Corporate Responsibility Manager, Tchibo GmbH), Anna Bexell (Cotton Global Co-Ordinator, IKEA Supply AG), Jens Hamprecht (Head of Global Business Management Biodegradable Polymers, BASF S.E.), Hans Jöhr (Corporate Head of Agriculture, Nestlé S.A.), Anna-Liisa Myllynen (Director Forest Environment Wood Supply Europe, Stora Enso), Christine Weidmann

would be fully understood by the respondents and if more measurement items would have to be included. Each interview lasted about 2-3 hours. Resulting suggestions from interviewees lead to minor modifications of the formulations of the survey questions.

Measurements for all suggested variables and sub-constructs were then built accordingly. These measurements are described in the following, according to their dimension in the research model.

7.1.1. Measures for key resources and complementarities

The multi-item measurements for the (inter-)organisational capabilities are listed below. They were measured through a 7-point Likert scale, where 1 represented 'not at all' and 7 'to the fullest extent'. In cases in which a measurement was adopted, the original Cronbach's α is provided in order to indicate the measurement's quality (recommended by Boyd *et al.*, 2005).

External-stakeholder integration (ESI)

Based on the definition given in Chapter 5, a review of several sources that provide measures for the integration of external organisations into joint business activities such as sustainability strategies was conducted (e.g., Bucklin & Sengupta, 1993; Li & Atuahene-Gima, 2001).[172] Subsequently, the indicators for measuring external-stakeholder integration were adapted from Sharma & Vredenburg (1998, Cronbach's α = .80). While admittedly not addressing the specific activities of integrating external stakeholders, this measurement analyses how intensively the focal firm collaborated with external stakeholders in the field of sustainability, ranging from strong relationships like R&D cooperation to consultative counsels or education programs.The measurement implicitly covers the ability and experiences of the focal firm to integrate stakeholders and exploit these relationships, as proposed in the exploratory study.

Variable	Item (indicator)	Likert scale	Item code	Adopted / *Inspired*
External-stakeholder integration	To what extent has your company established the partnerships mentioned below to reduce environmental or social impact before the chosen initiative?			Sharma & Vredenburg (1998), α = .80
	→ Technology and research alliances with other companies	1-7	ESI_1	
	→ Agreements with companies for joint operations (e.g., process waste)	1-7	ESI_2	
	→ Partnerships with external stakeholders to establish sustainability standards for products, processes, operations, or materials	1-7	ESI_3	
	→ Consultative councils with local communities, governments, and non-governmental organisations	1-7	ESI_4	
	→ Education programs (e.g., to reduce wasteful consumption, increase labour safety, or reduce corruption)	1-7	ESI_5	

Table 21: Summary of measures for the key resource 'external-stakeholder integration'

(Director Procurement Development, Beiersdorf AG) and Peter Erik Ywema (SAI Platform Manager, Sustainability Agriculture Initiative) for their support in pre-testing the questionnaire.

[172] See 109.

Gate keeping (GAT)

According to the definition derived in Chapter 5, the multi-item scale of gate keeping measures whether the focal firm possesses an organisational structure that allows the interaction with external stakeholders.[173] Based on the literature of sustainability and stakeholder management (e.g., Aragón-Correa *et al.*, 2004; Clarke & Roome, 1999; Hart & Sharma, 2004), Sharma (2005) specifies the capability of gate keeping as being the interface between external stakeholders and corporate internal functions. His definition is similar to the results of the exploratory study at hand. Based on his description, measures were developed according to the aforementioned elements and aspects of gate keeping, such as the ability to understand stakeholder perspectives of the company's or supply chain's operations or vice versa. However, these elements have not been tested in a quantitative survey yet.

Variable	Item (indicator)	Likert scale	Item code	Adopted / *Inspired*
Gate keeping	In order to interact with external stakeholders or the public our company involves specifically qualified people who …			*Sharma (2005)*
	→ understand the relevance of different stakeholder perspectives on our company's operations.	1-7	GAT_1	
	→ understand the impact of our company's operations on external stakeholders' objectives.	1-7	GAT_2	
	→ are able to engage adversarial stakeholders.	1-7	GAT_3	
	→ understand environmental and social issues emerging in society.	1-7	GAT_4	
	→ are trained to understand different stakeholder mindsets (i.e. insider).	1-7	GAT_5	
	→ distribute information from stakeholders into our company.	1-7	GAT_6	

Table 22: Summary of measures for the complementary resource 'gate keeping'

Cross-functional integration (CFI)

Referring to Chapter 5, cross-functional integration covers the participation and coordination of different corporate departments in the development of strategies.[174] This variable has been tested in several resource-based investigations – mostly in the field of new product development – and a variety of different scales already exist (e.g., Denison *et al.*, 1996; diBenedetto, 1999; Li & Calantone, 1998; Tan & Tracey, 2007). This study adapts the multi-item scale of deLuca & Atauhene-Gima (2007, Cronbach's $\alpha = .75$; built upon the scale of Li & Calantone, 1998, Cronbach's $\alpha = .95$) because it is a generic measurement on how different organisational functions cooperate in the exploration, design and evaluation of strategies that could be easily tailored to strategic initiatives such as voluntary sustainability initiatives. Also, comparably good construct reliability could be observed in these previous studies.

[173] See page 121.
[174] See page 124.

Variable	Item (indicator)	Likert scale	Item code	Adopted / *Inspired*
Cross-functional integration	In our organisation different departments …			deLuca & Atauhene-Gima (2007), α = .75; Li&Calantone (1998), α = .95
	→ fully cooperate in generating or screening new ideas for strategic initiatives.	1-7	CFI_1	
	→ are adequately represented in our strategic initiatives.	1-7	CFI_2	
	→ fully cooperate in establishing goals or priorities for our strategic initiatives.	1-7	CFI_3	
	→ regularly communicate in the development of our strategic initiatives.	1-7	CFI_4	
	→ fully cooperate in evaluating or refining our strategic initiatives.	1-7	CFI_5	
	→ fully integrate their respective knowledge in the development of our strategic initiatives.	1-7	CFI_6	

Table 23: Summary of measures for the complementary resource 'cross-functional integration'

Managing loosely-coupled business units (LBU)

The measurement for managing loosely-coupled business units is based on the findings of the exploratory study presented in Chapter 5[175] and is inspired by the literature on innovation management. This literature emphasises how companies explore and implement radical innovations in separate ('loosely-coupled') business units, also called 'ambidextrous organisations' (O'Reilly & Tushman, 2004; Tushman & O'Reilly, 1996; Tushman *et al.*, 2006), before they reintegrate these business or supply-chain approaches and practices into their traditional organisation (Benner & Tushman, 2003). A review of these sources lead to the definition of five indicators that cover the separation of the business unit that takes up major strategic initiatives, such as the design of voluntary sustainability initiatives. As reported in the literature, the separation reflects the organisational division, the dedicated resources (such as equipment and staff) and processes, as well as the opportunities to deviate from traditional business practices. Furthermore, the respondents were asked whether the separate business unit is integrated (i.e., loosely-coupled) into the rest of the company via senior management.

Variable	Item (indicator)	Likert scale	Item code	Adopted / *Inspired*
Managing loosely-coupled business units (*)	In general, the respective part of our company that takes up a major strategic initiative …			*Benner & Tushman (2003); O'Reilly & Tushman (2004); Tushman & O'Reilly (1996); Tushman et al. (2006)*
	→ is organisationally separate from our company's traditional business. (*)	1-7	LBU_1	
	→ has its own dedicated resources and staff. (*)	1-7	LBU_2	
	→ is headed by a dedicated manager who has the freedom to design his/her team with distinct competencies, cultures and processes. (*)	1-7	LBU_3	
	→ is allowed to deviate from corporate principles or approaches (thinking and acting). (*)	1-7	LBU_4	
	→ is integrated into the rest of our company via senior management. (*)	1-7	LBU_5	

Table 24: Summary of measures for the key resource 'managing loosely-coupled business units'
(*): Items deleted before the SEM measure-validation procedure (see 7.2.2.)

[175] See pages 111-112.

Supply-chain implementation (SCI)

In accordance with Albers & Götz (2006),[176] this study applied a second-order construct in order to cope with the different aspects of the supply-chain implementation capability, which was defined in Chapter 5[177]. Thus, the implementation of the initiative in the supply chain by means of either collaborative approaches (i.e., supply-chain integration) or market mechanisms (i.e., indirect approach using competitive pressures), as well as the transparency about the implementation progress, are operationalised in three sub-constructs, each scale covering one aspect of supply-chain implementation and consisting of multiple items.

However, in order to decrease the number of parameters in the research model, the second-order construct was downsized using factor scores for the three first-order constructs:

- **Collaborative approach** via supply-chain integration **(COL):** for the measurement of supply-chain integration, this study adapted the scale of Gulati *et al.* (2005, Cronbach's $\alpha = .72$). Similarly to the findings of the exploratory study, this scale explicitly focuses on the adaptation of strategies via integrative supply-chain relationships, including relation-specific assets and relational governance aspects (Dyer & Singh, 1998).
- **Market approach (MAR):** as shown in the exploratory study, supply-chain implementation can be achieved via indirect implementation approaches like market mechanisms (e.g., buying power or a multiplicity of available sources) (e.g., Krause *et al.*, 2000).[178] In order to operationalise this aspect, this study adopted the buyer-dependence measurement of the study on inter-organisational relationships by Heide (1994, Cronbach's $\alpha = .79$). In measuring how dependent the focal firm is on its suppliers, this study implicitly analyses the firm's power to pressure suppliers to adopt the initiative's objectives without compromising its supply. In other words, if the company is not dependent on one single source, it is easier to demand the adoption of sustainability criteria from its suppliers, upon pain of a supplier switch (e.g., Kirst, 2008).

[176] Albers & Götz (2006) argue that second-order constructs should be developed in the structural equation method (SEM) in order to cope with the different facets or dimensions that constitute a construct.

[177] See page 114.

[178] However, it has been proposed that the economic and operational effects of direct involvement (e.g., in supplier development) are much higher in technologically and competitively challenging circumstances than in the case of indirect mechanisms (Krause *et al.*, 1998).

- **Supply-chain transparency (STR):** the third aspect of supply-chain implementation is the supply-chain transparency, which is achieved by evaluating and monitoring whether the sustainability criteria have been adopted throughout the affected supply chain.[179] In this context, the concept of 'chain of custody' in particular has received broad attention in business practice, covering the transparency of all defined supply-chain practices from the point of origin of the raw material to the finished end product. While research on chain-of-custody concepts is a very young discipline and no measurement exists so far, this study defined a multi-item measurement based on practice-oriented studies. Respondents were therefore asked about the persistence of their supply-chain documentation, ranging from raw materials' points of origin, upstream processing, in-house processing and downstream processing (e.g., Dykstra *et al.*, 2002).

Variable	Item (indicator)	Likert scale	Item code	Adopted / *Inspired*
Collaborative approach for implementation	Our suppliers have adapted their organisation and management methods to work effectively with our organisation.	1-7	COL_1	Gulati *et al.* (2005), α = .72
	Negotiations between us and our suppliers over sharing the burden of costs are easy when we request changes.	1-7	COL_2	
	Negotiations between us and our suppliers over sharing the burden of costs are easy when suppliers' (raw) material costs increase due to requested changes.	1-7	COL_3	
	Problems that arise in the course of our relationships with suppliers are treated as joint rather than individual responsibilities.	1-7	COL_4	
Market approach for implementation	In general, if we decided to stop purchasing from our suppliers, we could easily replace their volumes with purchases from other suppliers.	1-7	MAR_1	Heide (1994), α = .79
	There are many competitive suppliers for whatever we purchase.	1-7	MAR_2	
	Our production system can be easily adapted to using purchases from new suppliers.	1-7	MAR_3	
	Dealing with new suppliers would only require a limited redesign and development effort on our part.	1-7	MAR_4	
Supply-chain transparency	We have a persistent documentation throughout our entire supply chain on …			*Dykstra et al. (2002)*
	→ point of origin of raw materials.	1-7	STR_1	
	→ upstream processing (supply side).	1-7	STR_2	
	→ in-house processing.	1-7	STR_3	
	→ downstream processing (distribution side). (*)	1-7	STR_4	

Table 25: Summary of measures for the key resource 'supply-chain implementation'
(*): Items deleted before the SEM measure-validation procedure (see 7.2.2.)

[179] See Sections 2.1.3. and 5.3.1.

Process improvement (PIM)

According to the definition given in Chapter 5, process improvement measures the identification, analysis and improvement of existing business and supply-chain processes, as well as the adherence to the defined goals and objectives.[180] These elements and respective measurements are well represented in the literature on product-innovation management, but also in the rich body of literature on the resource-based view and the environment (e.g., Darnall & Edwards, 2006). Most existing scales measure process improvement indirectly, by asking for the existence of (environmental) process-improvement techniques and industry standards such as just-in-time delivery, materials accounting, total quality management (TQM) or ISO 9000,[181] as well as with the environmental-management techniques such as life-cycle analyses or environmental / social management systems like ISO 14001[182], SA 8000 or OHSAS 18000[183]. By contrast, this study preferred to measure this capability by asking for the elements of process improvement directly. Thus, a multi-item measurement was defined on the basis of Benner & Tushman's (2003) description of process-management activities – namely, the mapping of processes, streamlining of processes and adhering to improved processes. However, as reference to the indirect measurements for process improvement, one item was added asking if the firm is identifying and documenting its processes according to the industry standards.

Variable	Item (indicator)	Likert scale	Item code	Adopted / *Inspired*
Process improvement	We have identified and documented our business processes according to industry standards (e.g., ISO 9000 certification).	1-7	PIM_1	*Benner & Tushman (2003); Darnall & Edwards (2006)*
	We have measured and evaluated our business processes.	1-7	PIM_2	
	We continuously streamline our business processes.	1-7	PIM_3	
	We ensure ongoing adherence to the resulting mapped and improved business processes.	1-7	PIM_4	

Table 26: Summary of measures for the complementary resource 'process improvement'

[180] See page 126.

[181] ISO 9000 is a family of standards for quality-management systems, including: a set of procedures that cover all key processes in the business; monitoring processes to ensure they are effective; keeping adequate records; checking output for defects, with appropriate and corrective action where necessary; regularly reviewing individual processes and the quality system itself for effectiveness; and facilitating continual improvement.

[182] ISO 14001 is the international specification for an environmental management system (EMS). It specifies requirements for establishing an environmental policy, determining environmental aspects and impacts of products/activities/services, planning environmental objectives and measurable targets, the implementation and operation of programs to meet objectives and targets, checking and corrective action, and management review.

[183] SA8000 and OHSAS 18000 are global social-accountability standards for decent working conditions, covering child labour, forced labour, workplace health & safety, freedom of association, discrimination, discipline, working hours, remuneration and management systems.

Cultural framing (CFR)

The degree to which the focal firm frames its strategy towards different stakeholder groups (cf., the definition given in Chapter 5[184]) is measured with a multi-item construct that reflects both the ability to segment stakeholders and the ability to frame the strategy accordingly (Howard-Grenville & Hoffman, 2003). For the segmentation of stakeholders, this study adapted a measurement from the resource-based marketing literature (Slater & Olson, 2001, Cronbach's $\alpha = .91$) and widened its focus to include the multiplicity of different stakeholders instead of consumers only. Hence we asked whether stakeholders are segmented, and if stakeholder-specific marketing is conducted. Further items were added based on the literature covering framing and discourse in institutional entrepreneurship (Benford & Snow, 2000; Phillips *et al.*, 2004). In this context, the study specifically selected aspects such as relating the strategy to institutional challenges and proposing its own strategy as the superior solution, and translated these aspects into survey questions.

Variable	Item (indicator)	Likert scale	Item code	Adopted / *Inspired*
Cultural framing	We segment our stakeholders based on specific criteria.	1-7	CFR_1	Slater & Olson (2001), $\alpha = .91$; *Howard-Grenville & Hoffman (2003)*
	We systematically evaluate which stakeholders to consider for our strategic initiatives.	1-7	CFR_2	
	We run targeted marketing and communication activities about our strategic initiatives for each relevant stakeholder segment.	1-7	CFR_3	
	When starting a strategic initiative… → we clearly communicate the problem and its causes to stakeholders.	1-7	CFR_4	*Benford & Snow (2000); Phillips (2004)*
	→ we generally propose an approach to solve the problem.	1-7	CFR_5	
	→ we invite external stakeholders to join our discussion.	1-7	CFR_6	

Table 27: Summary of measures for the independent variable 'cultural framing'

7.1.2. Measures for voluntary sustainability initiative design (VSI)

In order to capture all three facets of institutions presented in Chapter 3, the design of voluntary sustainability initiatives was measured with a second-order construct (Albers & Götz, 2006), but also using factor scores for the first-order constructs in the analysis.

According to theory, normative, mimetic and coercive elements were operationalised separately, taking existing studies of voluntary sustainability initiatives for supply chains into consideration. Specifically, these three categories, which were characterised in the context of voluntary sustainability initiatives by King & Lenox (2000) and by Terlaak (2007), were used to define the voluntary-sustainability-initiative variable.

[184] See page 117.

- **Normative elements (NOR):** according to the definition given in Chapter 3, normative elements specify typically unwritten, legitimate means by which to achieve valued ends (i.e., norms or values), and may have a powerful influence on a firm's intrinsic behaviour.[185] King & Lenox (2000) and Terlaak (2007) developed elements of how norms emerge in the context of voluntary sustainability initiatives. These explanations were the basis of a multi-item measurement assessing whether such elements were achieved by sharing a common understanding of the environmental or societal problem and each other's positions. Furthermore, participants were asked if they agreed on a definition of the *status quo* and a generic, unwritten view on which direction the initiative is going to develop in. These measures reflect the findings of Weiss (2000), who found that norms would be ineffective in case of a lacking consensus on the interpretation of means and ends.
- **Mimetic elements (MIM):** based on the definition in Chapter 3, mimetic elements emerge in the form of standards that are taken for granted by firms. In the context of voluntary sustainability initiatives, these elements usually emerge in the form of codified standards (King & Lenox, 2000).[186] A review of the literature on sustainability standards (e.g., Kolk *et al.*, 1999; Majumdar & Marcus, 2001; Rivera, 2002; Rivera *et al.,* 2006; Terlaak, 2007) and selected standards existing in practice[187] lead to the definition of several survey questions. On the one hand, participants were asked about defined standards such as clear measures, concrete limits or even process recommendations that firms could follow (Majumdar & Marcus, 2001; Rivera, 2002; Rivera *et al.,* 2006). Respondents were also asked if the participants had agreed on a governance structure with which to interact and manage the transfer of standards (Terlaak, 2007).
- **Coercive elements (COE):** according to the definition given in Chapter 3, coercive elements allow the sanctioning by participating firms' non-compliance and rewarding of their compliance.[188] Following Terlaak (2007), in the context of voluntary sustainability initiatives, these elements split into aspects that allow evaluating the individual participant's compliance, as well as aspects that allow subsequent punishment or reward. A review of the literature on sustainability-certification schemes (e.g., Terlaak, 2007) and further voluntary initiatives (e.g., Arora & Cason, 1996; King & Lennox, 2000; Rivera, 2002; Rivera & deLeon, 2004), as well as the

[185] See Section 3.2.2.
[186] See Section 3.2.2.
[187] The standards that were analysed are described in Chapter 5.
[188] See Section 3.2.2.

analysis of selected standards existing in practice,[189] lead to the selection of the following aspects, which were operationalised into survey questions – namely, monitoring, reporting and certification of participants compliance (i.e., evaluation), sanctioning mechanisms as well as rewarding, such as the use of a label (i.e., differentiation and public recognition).

The multi-item measurements listed below were measured through a 7-point Likert scale, where 1 represented 'not at all' and 7 'to the fullest extent'.

Aspect of variable	**Item (indicator)**	**Likert scale**	**Item code**	**Adopted from/ *Inspired by***
Normative elements	Each participant of the sustainability initiative …			*King & Lenox (2000); Terlaak (2007); Weiss (2000)*
	→ discussed and understood the issues addressed by this sustainability initiative.	1-7	NOR_1	
	→ discussed and understood the other participants' positions.	1-7	NOR_2	
	Within the sustainability initiative the participants jointly …			
	→ developed a definition of the current situation and this initiative's objectives.	1-7	NOR_3	
	→ defined a way in which this initiative goes forward to achieve its objectives.	1-7	NOR_4	
Standard / mimetic elements	To establish efficient collaboration among the participants of this sustainability initiative we…			*King & Lenox (2000); Kolk et al.,(1999); Majumdar & Marcus (2001); Rivera (2002); Rivera et al. (2006); Terlaak (2007)*
	→ defined a clear governance structure (e.g. steering committees, advisory boards, project managers, reporting formats …).	1-7	MIM_1	
	The participants of the initiative translated decisions taken within the sustainability initiative into …			
	→ clear measures to control environmental or social performance.	1-7	MIM_2	
	→ concrete limits for business operations (e.g. limits for dispersion of toxics or emissions).	1-7	MIM_3	
	→ process recommendations.	1-7	MIM_4	
Coercive elements	In the sustainability initiative we established enforcement mechanisms in order to ensure compliance with the defined limits and procedures:			*Arora & Cason (1996); King & Lenox (2000); Terlaak (2007); Rivera (2000); Rivera & deLeon (2004)*
	→ Participants must have established a monitoring system (e.g. tracking of specific criteria or key performance indicators like CO_2 emissions).	1-7	COE_1	
	→ Participants must have established a public reporting system (e.g. public Internet platform, sustainability report).	1-7	COE_2	
	→ Participants must obtain regular certifications by neutral third parties (e.g. non-governmental organisations, auditors, scientific institutions…).	1-7	COE_3	
	→ In case of misbehaviour, participants will be sanctioned by the initiative (e.g. financial penalties, exclusion).	1-7	COE_4	
	→ Participants complying are rewarded by the initiative (e.g. use of initiative label).	1-7	COE_5	

Table 28: Summary of measures for the design of voluntary sustainability initiatives

[189] The standards that were analysed are described in Chapter 5.

7.1.3. Measures for legitimacy

As outlined in Chapter 6, legitimacy splits into the acceptance of the participants of the initiative as well as initiative-external stakeholders in the wider institutional field.[190] Both of these legitimacy dimensions were operationalised into perceptual multi-item measurements, which are listed below.[191] The measurements were measured through a 7-point Likert scale, where 1 represented 'not at all' and 7 'to the fullest extent'.

Compliance of the initiative's participants (ICOM)

The measurement of participants' compliance (i.e., conformity) with the voluntary sustainability initiative is associated with the instrumental commitment of the participants requiring some form of tangible investment to the initiative (e.g., Hunt & Morgan, 1994; Gundlach *et al.*, 1995) and showing the desire of the participants to maintain the valued relationships within the initiative (McDonough, 2000: 226; Moorman *et al.*, 1992: 316). In other words, if participants technically adopt the codes of conduct, management systems or certification schemes that were defined in the initiative, they show their instrumental commitment and comply with the initiative's objectives (Marcus & Anderson, 2008). The measurement therefore expresses the commitment to the limits and process recommendations defined in the initiative, covering the participants' intention to adopt the initiative's objectives (single item inspired from Gundlach *et al.* (1995) – measurement of commitment inputs), their actual implementation (Bäckstrand, 2006; Witte *et al.*, 2003), the continuous evaluation of the adoption process and the overall compliance with the initiative itself (Bäckstrand, 2006; Witte *et al.*, 2003).

Variable	Item (indicator)	Likert scale	Item code	Adopted from/ *Inspired by*
Compliance of initiative's participants	In their own company / supply chain, the participants of the selected initiative ...			*Bäckstrand (2006); Gundlach et al. (1995);Marcus & Anderson (2008); Witte et al. (2003)*
	→ planned the adoption of the defined limits and process recommendations.	1-7	$ICOM_1$	
	→ adopted the defined limits and process recommendations.	1-7	$ICOM_2$	
	→ continuously checked the progress of the adoption.	1-7	$ICOM_3$	
	→ complied with the defined limits and process recommendations.	1-7	$ICOM_4$	

Table 29: Summary of the measures for the compliance of the initiatives' participants (legitimacy)

Acceptance by initiative-external stakeholders (EACC)

[190] See Chapter 3.

[191] Reference is made to Ketokivi & Schroeder (2004), who advocate the use of perceptual measurements for dependent variables.

In the literature of institutional theory, typical measurements for acceptance are the company's rank in indices like the Fortune's rankings, favourable ratings in newspapers or the Dow Jones Sustainability Index (e.g., Deephouse, 2000; Deephouse & Carter, 2005; Fombrun, 1998; Márquez & Fombrun, 2005). However, these measures are inappropriate in the context of this thesis, as they are proxies for the acceptance and reputation of a specific firm, and not for the collective acceptance of the firm's strategies such as the design of a voluntary sustainability initiative. This study therefore adopted a multi-item measurement that directly assesses the acceptance of the initiative by different stakeholders from Choi & Shepherd (2004, Cronbach's α = n/a). However, in order to measure the acceptance of the initiative instead of the focal firm itself, the wording of the questions had to be adapted. Hence the items measure the acceptance of the initiative by external stakeholder groups such as the constituencies identified by Freeman (1984) and other theorists of stakeholder management and institutional theory (e.g., Campbell, 2007; Maignan *et al.*, 2005).

Variable	Item (indicator)	Likert scale	Item code	Adopted from/ *Inspired by*
External stakeholder acceptance	The sustainability initiative gets high support from non-participants, such as …			Choi & Shepherd (2004), α = n/a
	→ non-governmental organisations (NGOs)	1-7	$EACC_1$	
	→ governmental bodies	1-7	$EACC_2$	
	→ industry organisations / associations	1-7	$EACC_3$	
	→ competitors	1-7	$EACC_4$	
	→ suppliers	1-7	$EACC_5$	
	→ customers	1-7	$EACC_6$	
	→ financial stakeholders (such as investors, creditors, banks)	1-7	$EACC_7$	
	→ scientific institutions	1-7	$EACC_8$	
	→ media	1-7	$EACC_9$	

Table 30: Summary of the measures for initiative-external stakeholder acceptance (legitimacy)

7.1.4. Selection of control variables

While this study analyses the relationships between resources, the voluntary sustainability initiative design and legitimacy, it also accounts for other alternative factors that may influence the legitimacy of voluntary sustainability initiatives. Thus, it controlled for alternative variables in order to ensure that the results are not unjustifiably affected by them. The control variables were operationalised as survey questions and respondents' answers were checked via Thompson One Banker whenever possible.

- **Firm size (EMP):** This variable was chosen because larger firms and their strategies tend to be more visible and attract more stakeholder scrutiny (Bansal, 2005). They might therefore attract higher levels of legitimisation than smaller companies (Fombrun, 1996; Sharfman & Fernando, 2008; Suchman, 1995). Furthermore, larger

companies may have more organisational slack that allows them to pursue sustainability strategies more intensively than smaller companies (Bowen, 2002). While most studies use the value of assets as a proxy for firm size (e.g., Bansal, 2005; Sharfman & Fernando, 2008), this study measures the influence of firm size by the number of employees (e.g., Darnall, 2007; Darnall & Edwards, 2006).

- **Financial power (ROE):** Financial power was taken into consideration because prior research has shown positive and negative relationships between corporate sustainability and financial performance (e.g., Margolis & Walch, 2003). Furthermore, financial power might allow companies to conduct more investments in sustainability and advertisement than less financially-powerful companies. In accordance with Bansal (2005), this study measured the financial power of the firm by return on equity (ROE).
- **R&D intensity**: R&D intensity was taken into account because the rich body of innovation-management literature has shown positive impacts of R&D strength on new product and process outcomes (for a review of the literature, see Li & Calantone, 1998). Thus, the investments made in R&D might also affect the outcome of the design of voluntary sustainability initiatives, because these institutions commonly set innovations in the form of more sustainable products or supply-chain processes. R&D intensity was measured by the ratio of investment in R&D to the firm's profit.

Control variable	**Measurement**	**Code**	**Adopted from / *Inspired by***
Firm size	My company's number of employees [full-time equivalent]: _____	EMP	*Darnall & Edwards (2006)*
Financial power	Return on equity (ROE) in the last period (ROE = net income/total equity): _____ %	ROE	Bansal (2005)
R&D intensity	Ratio of your company's investment in research and development compared to your company's profit ("R&D intensity", in the last period): _____ %	R&D	*Li & Calantone (1998)*

Table 31: Summary of the measures for control variables

7.2. Research setting: online survey with structural equation modelling

In this section, the selection of the research setting will be described in detail. Firstly, the unit of analysis will be specified in the context of the survey (7.2.1.). Secondly, how the data was selected and how biases in the data collection process were controlled will be described (7.2.2.). Finally, the quantitative research approach will be introduced (7.2.3.).

7.2.1. Unit of analysis

Based on the research objectives and the analyses conducted earlier, the unit of analysis is the inter-organisational design of a voluntary sustainability initiative for supply chains from the initiating focal actor's point of view.

The constituent elements of proactive sustainable supply-chain strategies[192] were defined as the minimum requirements for voluntary sustainability initiatives that respondents could include in the study. Furthermore, it was required that respondents choose an initiative in which at least one external organisation (i.e., external stakeholder or supply-chain partner) had to be involved in the design of the initiative.[193] Hence the study looked at company-initiated, inter-organisational, voluntary (i.e., proactive) sustainability initiatives for supply chains, including a variety of sustainability initiatives that range from multi-stakeholder approaches to smaller initiatives involving a single external stakeholder. In order to focus on institutional entrepreneurship strategies, the requirement that the initiative must have established an institutional proto-institution (such as the formulation and definition of policies, guidelines, codes of conduct, certification schemes, or management systems) was explicitly highlighted. Additionally, a wide range of possible examples was given in order to guide the respondent's choice.

[192] See Section 2.1., pages 30, 31.

[193] This request relaxes the understanding of voluntary sustainability initiatives for supply chains that emerge in the form of networks, including multiple stakeholders. See Section 2.2. and 2.3.

For the following questionnaire please choose one specific initiative of your company that must:

… aim at reducing negative environmental or social impact of your operations, products, or services,

… have established policies, guidelines, codes of conduct, certification schemes, or management systems,

… be collaborative, going beyond company borders and involving at least one external organization (e.g. suppliers, non-governmental organizations, associations, industry peers),

… be innovative going beyond complying with existing regulation, industry norms or standards,

… have been initiated voluntarily by your company.

Examples of possible initiatives which the questionnaire aims for:

→ Establishing guidelines or policies for suppliers (e.g., for workplace health & safety).

→ Establishing certification schemes and product labels / seals with non-governmental organization (NGO) claiming that the ingredients are produced in an environmental and social responsible manner.

→ Establishing environmental management systems that improve the environmental performance of your suppliers' operations (e.g. less emissions, waste, toxics).

→ Establishing codes of conduct (criteria) that request from your suppliers to behave in an environmental and social responsible manner (e.g. not to employ children / forced labor).

→ Establishing an industry-roundtable that defines standards and criteria for environmental responsible operations or supply chain practices ("industry code of conduct").

→ Establishing certification schemes for your supply chains in order to ensure tracking of certified raw material from its point of origin to the finished final product ("chain of custody").

→ Establishing best practice sharing of environmental and social responsible production processes and management systems.

Figure 17: Guidance for respondents for choosing an appropriate voluntary sustainability initiative

7.2.2. Data collection procedure, description of sample, key-informant, common-method and non-response biases

Data collection procedure

In order to obtain contacts for the study, a collaboration was established with two associations, the 'Sustainability Agriculture Initiative (SAI)-Platform' and the German 'Bundesverband für Materialwirtschaft, Logistik und Einkauf (BME)'. Furthermore, several contacts of multinational companies (MNCs) were identified on the Internet or with telephone calls and contacted in order to avoid potential bias from convenience sampling (Zhu *et al.*, 2008). In order to include actors in the upstream supply chain, several MNCs and large retailers were approached as well, to include some of their suppliers worldwide. The selection of the cooperation partners was based on considerations concerning the public exposure of

certain industries to supply-chain sustainability issues. Upstream actors in the chemical, pharmaceutical, apparel and food/beverage supply chain were thereby identified and invited to participate in the study.[194] However, it was guaranteed to these suppliers that company-specific data would not be given to their customers, in order to ensure unbiased answers.

Description of sample

In total, 2395 firms were identified worldwide and successfully contacted via email. Out of these invitations, 270 complete responses were received (response rate: 11.27 %). The distribution of these responses in terms of company size (number of employees, turnover), industry sector and supply-chain level is shown in Figure 18. To summarise, the sample includes initiators of voluntary sustainability initiatives from a broad range of different industry sectors and supply-chain levels. Also, these organisations range from rather small companies to large multinational companies.

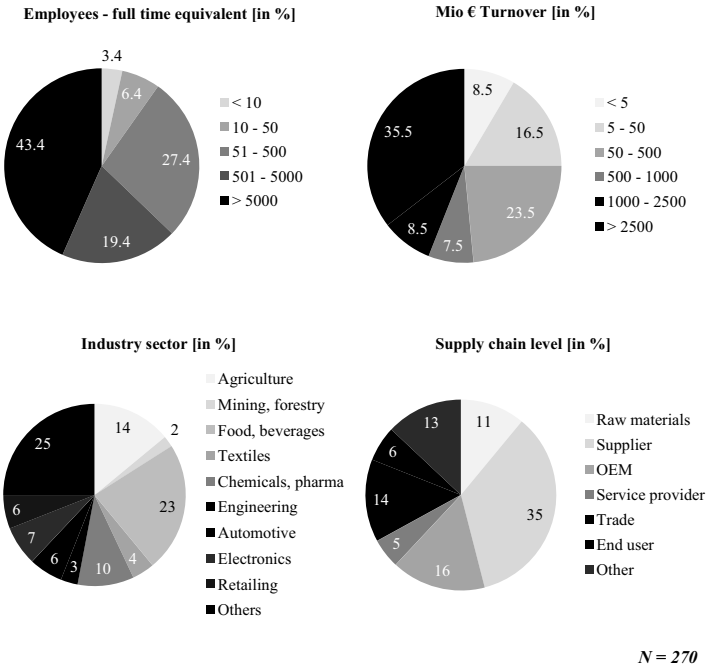

Figure 18: Distribution of sample

[194] Thanks to Barilla S.p.A., Beiersdorf AG, Charles Vögele Group, Coop Switzerland, Emmi Schweiz AG, Nestlé S.A., NTUC Fairprice, Puma AG for inviting their suppliers and local purchasing managers to participate in the study.

Furthermore, this data geographically splits into 65.9 % of responses gathered from European-based companies, 14.4 % from companies located in Asia, 11.5 % from North-American companies, 1.5 % from South-American companies, 1.1 % from African companies, 0.7 % from companies located in Australia and 4.8 % with the location of the company's headquarters omitted.

The voluntary sustainability initiatives included in the sample are characterised as follows: of all initiatives, 66.7% focus on improvements of the environmental performance of the company and its supply chain; 48.1% of all responses state that the initiatives target improvements of social performance. These targets are operationalised in the form codes of conduct, certification schemes and management systems (see Figure 19, left-hand side).

The initiatives are characterised by a moderate degree of stakeholder involvement (see Figure 19, right-hand side). However, the involvement of suppliers, customers, industry organisations and NGOs is comparatively high; only a few companies involved direct competitors in the design of their voluntary sustainability initiatives.

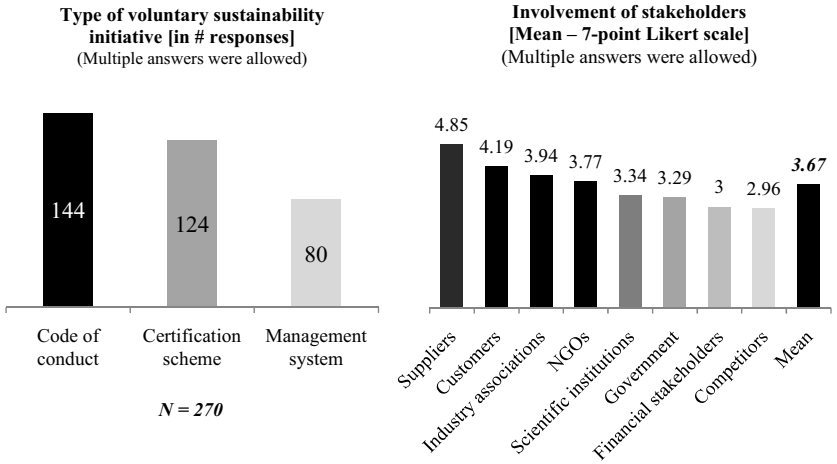

Figure 19: Characterisation of voluntary sustainability initiatives in the sample

The proactive nature of the initiatives included in the sample is presented in Figure 20. As the distribution shows (7-point Likert-scale), the degree of innovativeness of the focal firm's internal supply chain is on average very high. Specifically, the initiatives demanded significant changes in the company's processes and culture. Additionally, external supply-chain activities are subject to a high degree of innovation (7-point Likert-scale). Similarly to

the internal activities, the external supply-chain processes and culture had to change to a higher degree compared to the product characteristics and technology (e.g., infrastructure, assets).

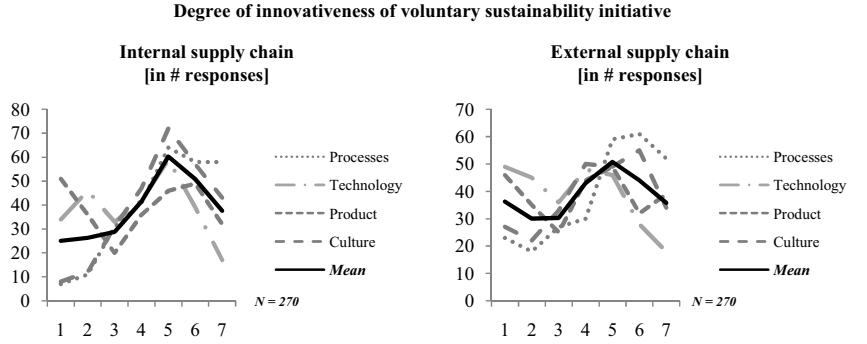

Figure 20: Degree of internal and external supply-chain innovation of voluntary sustainability initiatives in the sample

Treatment of data

The dataset that was gathered included little missing data. Each indicator and construct was therefore checked individually in order to check whether patterns existed that suggested underlying reasons for this. While no pattern could be identified, missing data was replaced by an estimation-maximisation procedure (Little & Rubin, 2002: 166-168).

Furthermore, the study probed whether multivariate normality could be assumed (Backhaus *et al.*, 2006). In this context, it is important to note that data from 7-point Likert scales are intrinsically *not* normally distributed (Malthouse, 2001). However, while looking at the descriptive statistics, it was found that most indicators were approximately normally distributed (Hulland *et al.*, 1996), with a skew level well below the threshold of 3 and a kurtosis well below the threshold of 10 (Kline, 2005: 50). Indicators for which graphs and statistics showed extreme non-normality and could not be transformed to a sufficiently good statistic were taken out of the measurement model. Two control variables (ROE and R&D intensity) therefore had to be transformed by a logarithmic function (Daniel & Wood, 1980: 65). Furthermore, some indicators had to be taken out because of rectangular distribution.[195]

In order to minimise key-informant, common-method and non-response biases, several tactics were followed in the data-collection procedure.

[195]Marked with (*) in the presentation of the survey questions in Section 7.1.1.

Key-informant bias

Key-informant bias was minimised by asking only the most knowledgeable informant in the respective voluntary sustainability initiative to fill out the questionnaire (Kumar *et al.*, 1993; Phillips, 1981). Senior purchasing and sustainability managers were therefore invited and asked to forward the online-survey to the project manager of the respective initiative. Accordingly, nearly all respondents were senior representatives of the company in charge of the respective initiative. Additionally, it was suggested that key informants might answer the survey together with further knowledgeable persons who were involved in the design of the initiative. We therefore adopted the self-assessment of knowledge levels, as suggested by Kumar *et al.* (1993). As result, most respondents perceived themselves as above average in their level of knowledge, which is indicated by mode 5 on a 7-point Likert scale (Li & Calantone, 1998). Furthermore, only 16 % of all respondents answered that their knowledge was below average (< 4 on the 7-point Likert scale). The questionnaires were filled out on average by 1.58 persons each (standard error of mean: 0.068). Asking respondents to qualify their experience further allowed controlling biased responses due to different levels of experiences (Artz & Brush, 2000).

Common-method bias

In order to minimise common-method bias from the outset, respondents were asked for the contact details of two further project partners. In cases where this information was obtained, these additional contacts were invited to fill out a separate questionnaire covering the dependent variables (Podsakoff *et al.*, 2003; Podsakoff & Organ, 1986). The answers of both groups of respondents were then grouped and the respective distribution of the dependent variables was compared by performing a Chi-Square (χ^2)-test with Cramér's phi (φ)[196]. No significant difference between the data of the two groups could be found. In order to control common-method bias *post facto*, statistical procedures were followed as recommended by Podsakoff & Organ (1986). Firstly, Harman's (1967) single-factor test was performed.[197] Unrotated factor analysis using the eigenvalue-greater-than-one criterion revealed that the first factor explains 29.91 % of the variance in the data, which indicates that the data is not subject to common-method bias (criterion: < 50 %).

[196] Cramer's phi (φ) is a statistical measure of the strength of an association or dependence between two nominal categorical variables. The closer its value is to 0, the smaller is the association between the variables. Being close to 1 indicates a strong association between the variables.

[197] Harman's (1967) single-factor test analyses whether a significant amount of common-method bias exists in the data. If this bias exists, a factor analysis of all the variables in the model would generate a single factor accounting for most of the variance.

Non-respondent bias

Non-respondent bias was assessed by conducting t-tests comparing early with late respondents (Armstrong & Overton, 1977). In order to assess whether significant differences between early and late respondents exist, a variable was defined measuring the date of the respondent's survey completion. Regressions between this variable and all individual variables analysed in the study were then performed. As a result, the t-tests did not show any significant differences between the data of early and late respondents (see Table 32).[198] As non-respondent bias is often similar to late-respondent, bias it can be concluded that the non-respondent bias is small (Diller, 2006).

Regression variable → 'Survey accomplishment'	t-value	Significance (two tailed)
Early supplier involvement (ESI)	-1.141	.255 (not significant)
Gate keeping (GAT)	-.127	.899 (not significant)
Cross-functional integration (CFI)	-.745	.457 (not significant)
Process improvement (PIM)	.533	.595 (not significant)
Supply-chain implementation (SCI)	-1.157	.248 (not significant)
Cultural framing (CFR)	-.931	.353 (not significant)
Participant's compliance (ICOM)	-.966	.335 (not significant)
Stakeholder acceptance (EACC)	-1.094	.275 (not significant)
Design of voluntary sustainability initiative (VSI)	-1.388	.166 (not significant)

Table 32: Assessment of non-respondent bias via t-tests analysing the influence of the date of respondents' survey completion

7.2.3. Two-step approach of structural equation method

In order to analyse the research model, the structural equation method (SEM) was chosen. This data-analysis technique is a hybrid form of factor and path analysis (Anderson & Gerbing, 1988) and is well suited to the research context at hand for several reasons (e.g., Iacobucci *et al.*, 2007; Mesquita *et al.*, 2008). Firstly, the study's core variables (constructs) are multi-dimensional, and the relationships among them are rather complex (Hardy & Bryman, 2004; Shook *et al.*, 2004), allowing the capture of intangible (unobservable) latent variables that are central to resource-based investigations (Godfrey & Hill, 1995).[199] With respect to this aspect, Anderson & Gerbing (1988) and Bentler (1990) state that SEM integrates factor analysis in the computation and incorporates the measurement error of these variables in the model, thereby enabling the achievement of unbiased parameter estimates (Iacobucci *et al.*, 2007). Secondly, in SEM, the fit of an integrated set of dependent links is

[198] This analysis was performed in SPSS Statistical Software, Version 17.

[199] Prominent examples in this context are the studies of Hult & Ketchen (2001) or Hult *et al.* (2002), testing latent variables like the resources market orientation, organisational culture or knowledge development.

tested simultaneously instead of testing coefficients in individual equations, allowing the analysis of complex model configurations, such as path analysis. Thirdly, SEM allows confirmatory tests of structures of covariances as intended with the research model at hand (Echambadi *et al.*, 2006; Herrmann *et al.*, 2006).

In order to implement SEM, the 'two-step approach' of Anderson & Gerbing (1988) was followed. The first step, covering the measurement model, was tested via the confirmatory factor analysis of its ability to explain what it claims to explain (see Section 7.3.). In the second stage, the basic research model was computed, based on the measurement model analysed previously (see Section 7.4.).

7.3. Testing the measurement model of the legitimised design of voluntary sustainability initiatives

According to the two-step approach of Anderson & Gerbing (1988) presented above, the initial step of the structural equation method (SEM) is to test the measurement model. Accordingly, the following sections each describe the approach applied to test the ability of the developed measurement model, as well as the respective results of this confirmatory study. This section ends with a short summary of the results.

As suggested by Byrne (1998) and Herrmann *et al.* (2006), this study mainly used LISREL Statistical Software (Version 8.8) for the validation of the measurement model, because of the existence of reflexive variables and the possibility to perform stringent tests of testing validity, uni-dimensionality and reliability (Boyd *et al.*, 2005).[200]

7.3.1. Testing content and substantive validity

In this study, construct validity was ensured by testing content and substantive validity (Anderson & Gerbing, 1988; Gerbing & Anderson, 1988). Content validity, also called face validity, is determined by the degree to which the indicators represent the domain of meaning of the concept. Statistically, it refers to the correlation between the construct (variable) and its indicators (Homburg & Giering, 1996). Substantive validity describes the theoretical linkage between the concept and each individual indicator (Dunn *et al.*, 1994).

[200]However, LISREL analyses were complemented by analyses in SPSS Statistical Software (Version 17) as well as Excel when LISREL did not provide sufficient functionalities.

Estimation of content and substantive validity

This test was not performed with statistical software, because testing content and substantive validity can only be determined in the presence of theoretical considerations. Thus, testing content and substantive validity requires the researcher's knowledge to evaluate the conceptual nature of the concept within the chosen theory (Garver & Mentzer, 1999).

Results of the thesis' confirmatory study

- Content and substantive validity of the measures were ensured while the measurements were developed for each construct (see Section 7.1.) and confirmed by academic experts.[201] If items were taken out, whether the variable was still sufficiently described with the remaining indicators was checked. As a result, no indicator was taken out that affected the content validity of the variable.

7.3.2. Testing uni-dimensionality

In the context of SEM, uni-dimensionality is defined as the existence of one construct (variable) that underlies a set of indicators (items) and is determined by the degree to which the indicators represent the underlying variable only (Anderson *et al.*, 1987).

Estimation of uni-dimensionality

Uni-dimensionality of the overall measurement model was tested by confirmatory factor analysis (Anderson *et al.*, 1987; Anderson & Gerbing, 1988). In this context, several indices exist, which were analysed in order to assess the goodness of the measurement model:

- The *chi-square* (χ^2) tests the correspondence between the model and the underlying data and compares the actual observed matrix with the estimated matrix of covariances. A good fit (i.e., both matrices do not differ significantly) is indicated if the test is non-significant. However, it is widely recognised that this statistical test is sensitive to sample size (Arbuckle & Wothke, 1999).
- The *goodness of fit index (GFI)* indicates how much of the sum of squares of the measured covariances has been accounted for by the estimated model (Jöreskog & Sörbom, 1989).
- The *adjusted goodness of fit index (AGFI)* builds upon the GFI, but takes into account the degrees of freedom available for testing the model (Baumgartner & Homburg, 1996).

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[201] Thanks to Jens Hamprecht (ETH Zürich), Volker Hoffmann (ETH Zürich), Joerg Hofstetter (University of St.Gallen), Matthias Kuss (ETH Zürich) and Mike Russo (University of Oregon).

- The *comparative fit index (CFI)* is a non-centrality parameter-based index that was invented to overcome the limitations of sample-size effects (Bentler, 1990). This index accounts for the degrees of freedom that the measurement model incorporates and refines less restrictive models with an adjustment. However, its interpretation is very similar to GFI or AGFI.
- The *normed fit index* (*NFI*; Bentler & Bonnett, 1980) is defined as the percentage of observed-measure covariation that is explained by a given measurement that solely accounts for the observed-measure variance (Anderson & Gerbing, 1988). Thus, the NFI compares the improvement in the minimum discrepancy for the specified measurement model to the discrepancy for the independence model.
- The *non-normed fit index (NNFI)*, also known as *Tucker-Lewis coefficient* (*TLI*; Bollen, 1989) is defined very similarly to NFI (Bentler & Bonnett, 1980). However, it is often considered superior to NFI, since it has proven to be more robust in reflecting model fit, regardless of sample size (Anderson & Gerbing, 1988).
- Similarly to NNFI, the *incremental fit index (IFI*; Bollen, 1989) adjusts the NFI with respect to sample size and is thus not as overly pessimistic (in the case of small sample sizes). It further takes into consideration the degrees of freedom, decreasing the risk of bias against more parsimonious models (in NFI an over-parameterised model will always have a better value than models that are nested within this model; see Bollen, 1989).
- The *root mean squared error of approximation (RMSEA)* measures the discrepancy between the observed covariance matrix and the estimated covariance matrix per degree of freedom (df) (Steiger & Lind, 1980; Steiger, 1990). It considers the error of approximation in the population instead of in the sample itself. Its value is therefore expected to approximate the population better (regardless of sample size). Moreover, the RMSEA takes into account potential artificial inflation due to the estimation of too many parameters.

Table 33 presents the commonly-accepted ranges for these indices (Baumgartner & Homburg, 1996; Cudeck & Browne, 1983; Hatcher, 1998; Marsh & Hocevar, 1985; Wheaton *et al.*, 1977). Although all of these criteria are valid indicators in the analysis of a measurement model on their own, this study followed scholars who suggest testing for several of these indices. This is because only testing selected indices might lead to misleading interpretations. For example, Hu & Bentler (1998) propose not to test GFI ad AGFI alone, because they are sensitive to the sample size. These two indices decrease in value if they are applied to more complex models, eventually leading to the unjust rejection of models (Anderson & Gerbing, 1988). Similarly, Homburg & Klarmann (2006) state that RMSEA, CFI and NNFI provide a better indication of uni-dimensionality and the goodness of the measurement model in

comparison to GFI and AGFI. Also, the use of χ^2 as a single indicator has received criticism in terms of assuming an unrealistic null hypothesis H_0 (because a research model is mostly a simplification and not a perfect representation of the real world; see e.g., Homburg & Klarmann, 2006). Jöreskog & Sörbom (1989) therefore suggest treating χ^2 as a general goodness of fit index, but not as a statistical test in a strict sense.

Index	χ^2	GFI	AGFI	CFI	NFI	NNFI	IFI	RMSEA
Criterion	≤3*df	≥.90	≥.90	≥.90	≥.90	≥.90	≥.90	≤.08[202]

Table 33: Commonly-accepted criteria for measurement-model-fit indices

As suggested by Steenkamp & van Trijp (1991), this study also examined the direction, magnitude and statistical significance of the parameter estimates between the indicators and the variables in order to ensure that the variable is uni-dimensional. Accordingly, the study checked whether the direction (+ or -) of the parameter estimates was consistent with the theory, and whether it corresponded to the rest of the indicators designed to measure that specific variable. Furthermore, the magnitude of these standardised parameter estimates was evaluated. According to Hulland *et al.* (1996), the standardised parameter estimates for the measurement model should be around .70 to ensure the uni-dimensionality of the variable. However, as Homburg & Klarmann (2006) state, this criterion is less important compared to the content validity of an indicator. In other words, if the standardised parameter estimate was below .70 but the item was needed for content validity, it was kept. Finally, each parameter estimate was tested for statistical significance ($\alpha \leq .05$, corresponding to t-value ≥ 1.96). Moreover, the traditional item-to-scale correlation analysis[203] was performed, arguing that item-to-scale correlations should be above .50 (e.g., Li & Calantone, 1998).

In addition, an analysis of the standardised residuals was performed because acceptable, uni-dimensional models should reveal relatively small standardised residuals but substantial and significant parameter estimates between indicators and variables (Anderson & Gerbing, 1988). In examining standardised residuals, patterns of large residuals were checked. In this context, residuals above 2.58 were considered large (Jöreskog & Sörbom, 1989). Large (positive) standardised residuals that are associated with a subset of indicators used to measure the same variable indicate that these subset indicators are likely to represent their own uni-dimensional factor. By contrast, indicators showing large negative standardised

[202] Cudeck & Browne (1983) state that a RMSEA of .08 means a reasonable fit of the measurement model. A RMSEA of less than .05 means a very good fit of the model.

[203] The item-to-scale correlation analysis was performed in SPSS Statistical Software (Version 17).

residuals with their *a priori* defined indicators and large positive standardised residuals with other indicators from their 'correct' factor are deemed to indicate the 'wrong' factor and re-inspected. When the indicators cross-load (have large residuals with different indicators from different factors or corresponded to more than one factor) they are deleted.

Results of the thesis' confirmatory study

- The confirmatory factor analysis assessing the overall measurement model fit lead to the following results: most relevant indicators are much higher than the minimum requirements for a good fit. The results from confirmatory factor analysis indicate a good fit of the overall measurement model. The χ^2/df-ratio is 2691.39/1100 = 2.446 and thus well below the recommended value of 3. Also, the fit indices suggest a good fit of the model with IFI = .951, CFI = .951, NFI = .922 and NNFI = .948. The RMSEA is with .0733, below the recommended .08, and indicates a reasonable fit of the measurement model. Only GFI = .708 and AGFI = .675 are below the recommended .90; however, as this study tests a rather complex model, these two indicators are less appropriate for this study compared to the other indicators (Homburg & Klarmann, 2006; Hu & Bentler, 1998).
- On the level of the single measurements, the testing also lead to good indicators concerning uni-dimensionality (see Table 35). The majority of factor loadings are above .70 and parameter estimates of the indicators are all significant at a significance level of $p < .001$, and item-to-scale correlations are all around the requested .50.
- No problematic standardised error was observed and no modification had to be made.

7.3.3. Testing scale reliability

Reliability is the consistency (not accuracy) of the measurement and is the part of a measure that is free of purely random error (Bollen, 1989). Reliable scales possess indicators that measure one and the same uni-dimensional variable and vary together statistically.[204]

Estimation of scale reliability

Scale reliability was tested on the indicator side as well as on the construct level itself. A coefficient to evaluate the goodness of the linear relation between an indicator and a variable is the *squared multiple correlation coefficient* R^2, which measures the magnitude of the direct correlations that all indicators have with the variable (Bollen, 1989; Netemeyer *et al.*, 2003). The threshold for R^2 is typically defined at a level of .40 or .50. However, Homburg &

[204]Because tests for reliability assume uni-dimensionality, uni-dimensionality must be achieved first (Anderson *et al.*, 1987).

Klarmann (2006) suggest that indicators with minor indicator reliability may serve as good indicators in case they constitute a variable, and if the deletion of these indicators would decrease the content validity of the variable. This is why even in A-list peer-reviewed journals, such as the Strategic Management Journal, R^2 values of .20 can be found (e.g., Anderson *et al.*, 2002).

On the construct level, scale reliability refers to a scale's internal consistency in the measurement of a variable (Cronbach & Meehl, 1955). Traditionally, scale reliability is evaluated with Cronbach's alpha; however, more recent concepts are construct reliability and variance extracted (Fornell & Larcker, 1981; Hildebrandt & Temme, 2006).

- *Cronbach's alpha (α)* scores are obtained from a scale that is split in half and correlated to the other half of the indicators intended to measure the same construct (Cronbach & Meehl, 1955). As a precondition, a minimum of three indicators for each uni-dimensional variable is needed in order to perform Cronbach's α correctly (Peter, 1979). However, several limitations have been reported with respect to Cronbach's α. Firstly, Cronbach's α often indicates the lower bound of reliability (Hulland *et al.*, 1996; Baumgartner & Homburg, 1996). Secondly, Cronbach's α tends to become artificially exaggerated if the scale has a large number of indicators. This may lead to mistakenly retaining or adding indicators to increase the reliability of the variable artificially (Bollen, 1989; Dunn *et al.*, 1994; Peter, 1979). Thirdly, Cronbach's α is based on the assumption that all indicators have equal reliabilities, which is rarely the case (Bollen, 1989; Cronbach & Meehl, 1955).
- *Composite reliability (CR)* is measured for each variable with the procedures outlined by Fornell & Larcker (1981):
  $CR = (\Sigma\lambda)^2/[(\Sigma\lambda)^2+\Sigma(1-\lambda_j^2)]$
  According to this formula, the numerator equals the standardised parameter estimates (i.e., standardised regression weights (λ) between a variable and its indicators) summed and squared. The denominator equals the numerator plus the summed measurement error ($1-\lambda_j^2$) for each indicator. The measurement error is 1 minus the square of the indicator's standardised parameter estimate.
- *Average variance extracted (AVE)* is a complementary measure to construct reliability (Bagozzi & Yi, 1988) and measures the total amount of variance in the indicators accounted for by the variable. It is calculated with the following formula given by Garver & Mentzer (1999):
  $AVE = \Sigma\lambda^2/[\Sigma\lambda^2+\Sigma(1-\lambda_j^2)]$

In keeping with previous studies and suggestions, this study tested all indicators and applied the measure thresholds, which are shown in Table 34 (e.g., Bagozzi & Yi, 1988; Fornell & Larcker, 1981; Netemeyer *et al.*, 2003; Nunally, 1978).

Concept	R^2	Cronbach's α	CR	AVE
Criterion	*Ideal:* ≥.50, ≤.90	≥.70	≥.60	≥.50

Table 34: Suggested criteria for testing scale reliability

Results of the thesis' confirmatory study

- As shown in Table 35, all indicators and variables show good reliability values. The reliability of the indicators is pointed out by the majority of variances explained (R^2) with values around .40. In cases where R^2 values were below this recommended threshold, indicators had to be kept, otherwise the content validity of the variable would have been reduced (Homburg & Klarmann, 2006). Similarly, testing scale reliability showed good results with Cronbach's alpha and composite reliability values of around .70 for all variables. Also, the average variance extracted was around .50 for all variables, except for supply-chain integration, indicating good scale reliability.

Variable	Item	Mean	s.d.	Item-to-scale correlation	Factor loading	t-values	R^2	α	CR	AVE
Early stakeholder involvement (ESI)	ESI_1	3.973	1.886	.541	.64	*fixed*	.411	.793	.798	.443
	ESI_2	4.007	1.891	.588	.64	8.64^{***}	.411			
	ESI_3	4.489	1.743	.660	.78	9.93^{***}	.606			
	ESI_4	3.926	1.985	.543	.63	8.55^{***}	.400			
	ESI_5	4.561	1.866	.525	.62	8.43^{***}	.386			
Gate keeping (GAT)	GAT_1	4.907	1.691	.822	.89	*fixed*	.787	.933	.936	.710
	GAT_2	4.906	1.647	.840	.90	21.96^{***}	.808			
	GAT_3	4.483	1.803	.817	.85	19.32^{***}	.717			
	GAT_4	5.123	1.672	.790	.82	17.99^{***}	.666			
	GAT_5	4.313	1.739	.749	.76	15.80^{***}	.576			
	GAT_6	4.757	1.714	.797	.82	18.28^{***}	.678			
Cross-functional integration (CFI)	CFI_1	4.933	1.444	.813	.82	*fixed*	.678	.952	.954	.775
	CFI_2	4.999	1.484	.841	.85	17.39^{***}	.730			
	CFI_3	4.980	1.439	.859	.90	18.77^{***}	.802			
	CFI_4	4.929	1.479	.855	.89	18.75^{***}	.800			
	CFI_5	4.846	1.465	.882	.93	19.89^{***}	.857			
	CFI_6	5.028	1.412	.859	.88	18.37^{***}	.781			
Supply-chain implementation (SCI)	COL	4.184	1.079	.428	.75	*fixed*	.561	.952	.540	.303
	MAR	3.884	1.346	.272	.32	4.24^{***}	.103			
	STR	5.379	1.531	.370	.48	5.95^{***}	.234			
Process improvement (PIM)	PIM_1	5.429	1.969	.500	.51	*fixed*	.264	.824	.835	.569
	PIM_2	5.583	1.415	.660	.67	7.74^{***}	.452			
	PIM_3	5.378	1.333	.539	.87	8.70^{***}	.753			
	PIM_4	5.430	1.262	.568	.91	8.78^{***}	.822			
Criterion	**n/a**	**n/a**	**n/a**	**≥.50**	**≥.70**	**min.** *	**≥.50, ≤.90**	**≥.70**	**≥.60**	**≥.50**

Parameter estimates (t-values) significant at p-level: *** p<.001, ** p<.01, *p<.05, † p<.1

The table continues on the next page.

Table 35: Uni-dimensionality and scale reliability of latent variables

Variable	Item	Mean	s.d.	Item-to-scale correlation	Factor loading	t-values	R^2	α	CR	AVE
Cultural framing (CFR)	CFR_1	4.396	1.710	.776	.86	*fixed*	.738	.895	.895	.589
	CFR_2	4.531	1.600	.790	.87	18.45***	.765			
	CFR_3	4.162	1.759	.724	.78	15.50***	.616			
	CFR_4	4.780	1.542	.718	.72	13.65***	.519			
	CFR_6	5.089	1.446	.628	.61	10.96***	.376			
	CFR_7	4.390	1.641	.673	.71	13.37***	.505			
Voluntary sustainability initiative (VSI)	NOR	5.258	1.246	.523	.73	*fixed*	.530	.733	.725	.471
	MIM	4.858	1.349	.670	.75	11.10***	.566			
	COE	4.259	1.502	.483	.57	8.61***	.330			
Stakeholder acceptance (EACC)	$EACC_1$	3.823	2.182	.635	.73	*fixed*	.538	.876	.881	.455
	$EACC_2$	3.975	2.033	.638	.72	11.38***	.513			
	$EACC_3$	4.321	1.911	.740	.81	12.83***	.649			
	$EACC_4$	3.478	2.034	.558	.65	10.30***	.423			
	$EACC_5$	4.379	1.746	.546	.56	8.76***	.309			
	$EACC_6$	4.884	1.863	.564	.57	9.02***	.327			
	$EACC_7$	4.092	1.990	.605	.62	9.86***	.389			
	$EACC_8$	3.866	2.097	.655	.69	10.96***	.478			
	$EACC_9$	3.804	1.984	.604	.69	10.86***	.469			
Participant's compliance (ICOM)	$ICOM_1$	5.013	1.584	.834	.87	*fixed*	.753	.938	.937	.787
	$ICOM_2$	4.822	1.591	.883	.92	21.58***	.842			
	$ICOM_3$	4.990	1.606	.840	.88	19.80***	.771			
	$ICOM_4$	4.785	1.606	.849	.89	20.23***	.789			
Criterion	**n/a**	**n/a**	**n/a**	**≥.50**	**≥.70**	**min.** *	**≥.50, ≤.90**	**≥.70**	**≥.60**	**≥.50**

Parameter estimates (t-values) significant at p-level: *** p<.001, ** p<.01, * p<.05, † p<.1

7.3.4. Testing convergent validity

Convergent validity determines how the variable correlates with indicators designed to measure that same variable (Anderson & Gerbing, 1988; Gerbing & Anderson, 1988).

Estimation of convergent validity

In this study, convergent validity was tested by determining whether the indicators in a scale converge or load together on a single variable in the measurement model. Thus, testing for convergent validity was performed while testing uni-dimensionality (i.e., by examining the direction, magnitude and statistical significance of the parameter estimates between indicators and variables).

Results of the thesis' confirmatory study

- Convergent validity was tested similarly to uni-dimensionality in this study. Thus, convergent validity can be assumed, as all indicators show good results.

7.3.5. Testing discriminant validity

Discriminant validity is characterised by the extent to which a variable discriminates from other variables; the presence of discriminant validity is indicated by relatively low correlations between the variables (Mentzer & Flint, 1997). Thus, indicators from one scale should not load or converge too closely with indicators from a different scale. In other words, different variables correlating too highly with each other may indeed measure the same variable rather than different variables.

Estimation of discriminant validity

This study tested for discriminant validity by examining the correlations between the variables and checking whether they are significantly below 1.00 with $p < .001$ (Bagozzi, 1980). Furthermore, the covariance's phi-matrix (ϕ) was checked to determine whether the correlation between any variable plus/minus twice the standard error did not equal 1.00 (Anderson & Gerbing, 1988). Moreover, the squared correlation coefficient was calculated between all possible pairs of variables in order to verify that these correlations are lower than the average variance extracted for the individual variables (Fornell & Larcker, 1981).

Results of the thesis' confirmatory study

- The covariance's phi-matrix (ϕ) does not include any correlations plus/minus twice the standard error containing 1.00, indicating that the independent variables are mutually discriminant.

- The results from testing discriminant validity with the procedure recommended by Fornell & Larcker (1981) are shown in Table 36. As recommended, squared correlation coefficients of all variables are below the respective average variance extracted.

Variable	Measure	1	2	3	4	5	6	7	8	9
1 ESI	R^2		.22	.21	.31	.13	.04	.22	.08	.20
	AVE		.44	.44	.44	.44	.44	.44	.44	.44
2 CFR	R^2	.22		.33	.30	.12	.19	.29	.21	.25
	AVE	.59		.59	.59	.59	.59	.59	.59	.59
3 CFI	R^2	.21	.33		.33	.20	.17	.29	.16	.13
	AVE	.78	.78		.78	.78	.78	.78	.78	.78
4 GAT	R^2	.31	.30	.33		.05	.07	.27	.12	.29
	AVE	.71	.71	.71		.71	.71	.71	.71	.71
5 PIM	R^2	.13	.12	.20	.05		.16	.14	.20	.06
	AVE	.57	.57	.57	.57		.57	.57	.57	.57
6 SCI	R^2	.04	.19	.17	.07	.16		.18	.17	.20
	AVE	.30	.30	.30	.30	.30		.30	.30	.30
7 VSI	R^2	.22	.29	.29	.27	.14	.18		.46	.20
	AVE	.47	.47	.47	.47	.47	.47		.47	.47
8 ICOM	R^2	.08	.21	.16	.12	.20	.17	.46		.18
	AVE	.79	.79	.79	.79	.79	.79	.79		.79
9 EACC	R^2	.20	.25	.13	.29	.06	.20	.20	.18	
	AVE	.46	.46	.46	.46	.46	.46	.46	.46	

Table 36: Results of the procedure recommended by Fornell & Larcker (1981)

- As indicated in the correlation matrix, which is also suggested by Homburg & Klarmann (2006), all correlations between variables are significantly below 1.00 (see Table 37).

7.3.6. Testing predictive validity

Predictive validity determines whether the variable of interest predicts the variables that it is supposed to predict (Dunn *et al.*, 1994).

Estimation of predictive validity

This study analysed predictive validity by testing whether variables correlate to other variables that they supposedly predict.

Results of the thesis' confirmatory study

- Predictive validity covers the testing of the hypothesised relationships and is thus subject to Section 7.4.

Variable	Mean	s.d.	1	2	3	4	5	6	7	8	9
1 VSI	4.792	1.103	1								
2 ICOM	4.374	1.308	.778	1							
3 EACC	2.607	.914	.543	.413	1						
4 SCI	4.482	.947	.606	.490	.340	1					
5 ESI	3.029	1.130	.545	.396	.459	.200	1				
6 CFR	4.205	1.239	.580	.414	.447	.435	.524	1			
7 CFI	1.709	.373	.439	.300	.410	.464	.434	.392	1		
8 GAT	2.718	.895	.524	.338	.589	.360	.682	.615	.637	1	
9 PIM	3.980	.867	.347	.360	.228	.398	.358	.215	.222	.349	1

Table 37: Means, standard deviations and correlations of latent variables

7.3.7. Summary of measurement model testing

The testing and refinement of the measurement model was performed according to the procedures specified in the previous sections.

Prior to the analysis of the measurement model, several items had to be discarded because of non-normality as well as bad loading on the dedicated factors or cross-loadings with other factors.[205]

Additionally, an entire variable ('managing loosely-coupled business units') had to be taken out of the analysis because its indicators strongly violated the assumption of multivariate normality. Several reasons might explain why this variable did not sufficiently fit the preconditions of SEM. Firstly, it is a new construct that has only recently been introduced to strategic management research. Secondly, there are empirical indications that only few companies possess loosely-coupled business units for the purposes of exploring innovative business approaches, even if they broaden the scope in favour of traditional innovations (Tushman *et al.*, 2006). Among others, these two reasons may have led to situations in which respondents did not properly understand what was meant in the questionnaire.

However, for the remaining model, the results of the subsequent measure-validation process indicate a good validity and reliability of the measurement model (see Sections 7.3.1. - 7.3.6.). Only two constructs – the design of voluntary sustainability initiatives and the participant's compliance – show statistical similarities in one testing procedure concerning discriminant validity. However, the face validity shows that both constructs are clearly distinct from each other; one construct concerns the characteristics of the voluntary sustainability initiative, whereas the other concerns the implementation activities that are suggested to be the result of the characteristics of the initiative.

[205] All deleted indicators are marked with (*) in the tables displayed in 7.1.

The results are summarised in the following table:

Criterion	Testing approach	Testing results
Content and substantive validity	• No statistical test, but researcher's knowledge in designing the measurement model • Consultation of academic experts	→ Content and substantive validity were ensured by theoretical considerations → Confirmations by further researchers
Uni-dimensionality	• Overall measurement model: Confirmatory factor analysis	→ Confirmatory factor analysis (χ^2/df-ratio, CFI, NFI, NNFI, IFI, RMSEA) showed good results except for GFI and AGFI, which are less appropriate in the measurement model at hand
	• Components of measurement model: analysing the direction, magnitude and statistical significance of the parameter estimates, item-to-scale analysis, analysis of standardised residuals	→ All standardised parameters positive, around .70 and statistically significant ($p<.001$), item-to-scale correlations all around the recommended .50, no problematic residuals
Reliability	• Scale reliability: Analysing Cronbach's α, construct reliability (CR) and average variance extracted (AVE)	→ The analyses showed good scale reliability with all $\alpha > .70$, all CR around .60 and all AVE above .50 except for supply-chain implementation (AVE = .30)
	• Indicator reliability: analysing variances explained (R^2)	→ R^2 predominantly above .50, indicators with lower reliability had to be kept because of content validity
Convergent validity	• Analysing direction, magnitude and statistical significance of the parameter estimates, item-to-scale analysis	→ All standardised parameter positive, around .70 and statistically significant ($p<.001$), item-to-scale correlations all around the recommended .50
Discriminant validity	• Check of correlations between all pairs of variables	→ All correlations significant below 1.00
	• Check of covariance's phi-matrix (ϕ)	→ No correlations in ϕ plus/minus twice the standard error containing 1.00
	• Procedure comparing R^2 between variables with respective AVEs	→ All AVEs higher than R^2 between variables
Predictive validity	• Testing the structural model	→ See Section 7.4.

Table 38: Summary of the results of testing the measurement model

7.4. Hypothesis testing and results: an institutional entrepreneur's resources and the design of voluntary sustainability initiatives for supply chains

In the second stage of the structural equation method (SEM), the structural model (i.e., the theoretical relationships between the underlying constructs) was examined based on the measurement model analysed in the first stage (Anderson & Gerbing, 1988). As in the first stage of the SEM, the analysis was performed with LISREL Statistical Software (Version 8.80), applying the maximum likelihood estimation procedure, similarly to most existing SEM studies in management and social sciences (Ping, 1996).

7.4.1. Testing the research model

The testing part of the study involved the examination of the estimated coefficients' significance. In this context, SEM provided – besides the estimated coefficients – the respective standard errors and t-values for each coefficient. The results of the LISREL estimation procedure are shown in Table 39.

Hypothesis	Relationship	Coefficient ß (t-value)	Result
H_1	VSI → (+) ICOM	.80 (9.04)***	Supported
H_2	VSI → (+) EACC	.33 (4.19)***	Supported
H_3	ESI → (+) VSI	.35 (4.31)***	Supported
H_4	LCB → (+) VSI	*Not possible*	*No result*
H_5	SCI → (+) VSI	.45 (4.75)***	Supported
H_6	CFR → (+) VSI	.20 (2.45)*	Supported
H_{7a}	GAT → (+) ESI	.63 (8.09)***	Supported
H_{7b}	GAT → (+) CFI	.64 (10.25)***	Supported
H_{7c}	GAT → (+) CFR	.61 (10.56)***	Supported
H_8	CFI → (+) SCI	.40 (5.38)***	Supported
H_{9a}	PIM → (+) SCI	.31 (3.87)***	Supported
H_{9b}	PIM → (+) ESI	.14 (2.19)*	Supported
$Control_{1a}$	EMP → (+) ICOM	-.20 (-1.90)†	Supported
$Control_{1b}$	EMP → (+) EACC	.41 (3.04)**	Supported
$Control_{2a}$	ROE → (+) ICOM	-.18 (-1.71)†	Supported
$Control_{2b}$	ROE → (+) EACC	- .22 (-1.40)	Not supported
$Control_{3a}$	R&D → (+) ICOM	.01 (.22)	Not supported
$Control_{3b}$	R&D → (+) EACC	-.01 (-.39)	Not supported

Parameter estimates (t-values) significant at p-level: *** p<.001, ** p<.01, *p<.05, † p<.1

Table 39: Parameter estimates for the structural equation model

In detail, the results are as follows, and also shown in the path diagram (Figure 21):

- **Effects of the design of voluntary sustainability initiatives on legitimacy:** all hypotheses associated with the legitimising effects of the effective design of voluntary sustainability initiatives show a statistically significant relationship. *Hypothesis H_1* (that the effective design of voluntary sustainability initiatives is positively associated with the compliance of the initiative's participants) is strongly supported. The respective path coefficient is positive and statistically significant (standardised coefficient ß = .80; t-value = 9.04; p < .001). *Hypothesis H_2* (that the effective design of voluntary sustainability initiatives is positively associated with their acceptance by initiative-external stakeholders) is strongly supported, with a positive path coefficient and statistical significance (standardised coefficient ß = .33; t-value = 4.19; p < .001).

- **Effects of key resources on the design of voluntary sustainability initiatives:** all hypotheses related to the direct effects of resources on the effective design of voluntary sustainability initiatives are statistically significant. *Hypothesis H_3* (that external-stakeholder integration is positively related with the effective design of voluntary sustainability initiatives) is strongly supported (standardised coefficient ß = .35; t-value = 4.31; p < .001). *Hypothesis H_4* (that managing loosely-coupled business units is positively related to the effective design of voluntary sustainability initiatives) could not be analysed in the structural equation model. As outlined in the previous section, the indicators of this variable strongly violate the assumption of normal distribution. *Hypothesis H_5* (that supply-chain implementation is positively related to the effective design of voluntary sustainability initiatives) receives strong statistical support (standardised coefficient ß = .45; t-value = 4.75; p < .001). *Hypothesis H_6* (that cultural framing is positively related to the effective design of voluntary sustainability initiatives) is statistically supported by the data (standardised coefficient ß = .20; t-value = 2.45; p < .05).

- **Effects of complementary resources on key resources:** all hypotheses concerning complementarities show statistical significance. *Hypothesis H_{7a}* (that gate keeping is positively related to external-stakeholder integration) receives comparatively strong statistical support (standardised coefficient ß = .63; t-value = 8.09; p < .001). *Hypothesis H_{7b}* (that gate keeping is positively related to cross-functional integration) receives statistical support (standardised coefficient ß = .64; t-value = 10.56; p < .001). *Hypothesis H_{7c}* (that gate keeping is positively related to cultural framing) is strongly statistically supported by our data (standardised coefficient ß = .61; t-value = 10.56; p < .001). *Hypothesis H_8* (that cross-functional integration is positively related to

supply-chain implementation) has strong statistical support (standardised coefficient ß = .40; t-value = 5.38; p < .001). *Hypothesis* H_{9a} (that process improvement is positively related to supply-chain implementation) is strongly supported by the statistical analysis (standardised coefficient ß = .31; t-value = 3.87; p < .001). *Hypothesis* H_{9b} (that process improvement is positively related to external-stakeholder integration) has statistical support (standardised coefficient ß = .14; t-value = 2.19; p < .05).

- **Effects of control variables:** the testing of the predicted control variables led to predominantly insignificant results. As indicated in the table, most control variables do not help to explain the institutional-performance dimensions of participants' compliance and external stakeholders' acceptance, except for a few effects. More specifically, firm size strongly influences the initiative's acceptance by external stakeholders. Counter-intuitively, the results show that the covariates for the initiator's organisational size and its financial power both have a little negative effect (p < .1) on the participants' compliance with the initiative.

Figure 21: Results of the structural equation model in the path diagram

7.4.2. Tests for mediation effects

While the complementary resources are hypothesised to be precursors of key resources in the research model, these hypotheses imply mediations in the structural model (i.e., that the complementarities have only indirect effects on the comprehensiveness of the design of a voluntary sustainability initiative). In order to ensure a rigorous analysis of the effects of the complementary resources, the study also checked for the mediation effects. In this context, several techniques exist that allow mediation effects to be tested (MacKinnon *et al.*, 2002), from which the causal-step testing procedure recommended by Baron & Kenny (1986; see also Judd & Kenny, 1981) was chosen (see Figure 22).[206] The testing of the mediations was conducted in a separate SEM analysis. However, this separate analysis incorporated all suggested mediation effects on complementary resources simultaneously, which is a valid approach for the Baron & Kenny (1986) procedure (MacKinnon *et al.*, 2007).[207]

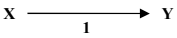
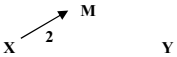
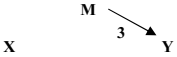
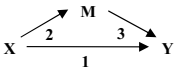
Step	Analysis	Visualization
Step 1:		
Shows if an effect exists between the predictor and the criterion variable which can be influenced by a moderator	Testing the significance of path 1 between a predictor X and a criterion variable Y (Regression analysis) $Y = a + b_1*X + e$	
Step 2:		
Shows if an effect exists between the predictor and the mediator	Testing the significance of path 2 between a predictor X and a mediator M (Regression analysis) $M = a + b_2*X + e$	
Step 3:		
Shows if an effect exists between the mediator and the criterion variable	Testing the significance of path 3 between a predictor X and a mediator M (Regression analysis) $Y = a + b_3*M + e$	
Step 4:		
Shows if the effect between the predictor and the criterion variable is influenced in the presence of the mediator	Testing the significance of path 1 and path 3 and analysis of path 3 (Multiple regression analysis) $Y = a + b_1*X + b_3*M + e$ if b_1 insignificant → Full mediation if b_1 significant → Partial mediation	

Figure 22: Causal-step testing procedure for testing mediations (according to Baron & Kenny, 1986)

[206] Note that the procedure was originally invented for multiple regression analysis. However, as Kenny argues on his homepage, the steps are the same as in SEM. http://davidakenny.net/cm/mediate.htm.

[207] The path diagram of Step 1 of the procedure of Baron & Kenny (1986) is shown in the Appendix of this thesisthesis.

As result of Baron & Kenny's (1986) procedure, all separate analyses indicate statistical mediation effects. In detail, the results are the following (also shown in the path diagrams in Figure 23):

- With reference to hypotheses H_{9a} and H_{9b} (i.e., *indirect effect of process improvement*), we found that the direct effect of process improvement on the design of voluntary sustainability initiatives (standardised coefficient = .22; t-value = 3.24; $p < .01$) in the absence of supply-chain implementation and/or external-stakeholder integration was reduced to an insignificant relationship when supply-chain implementation and/or external-stakeholder integration were introduced to the structural model (standardised coefficient = .08; t-value = 1.05; $p > .1$). Thus, we can see a full mediation effect that supports our hypothesis that process improvement is a complementary resource, and is only valuable for institutional performance when combined with supply-chain implementation and process improvement.

- With reference to hypotheses H_{7a} and H_{7c} (i.e., *indirect effect of gate keeping*), we found that the direct effect of gate keeping on the design of voluntary sustainability initiatives (standardised coefficient = .41; t-value = 5.01; $p < .001$) in the absence of the external-stakeholder integration and/or cultural framing was reduced to a less significant relationship when one or both mediator variables were introduced to the structural model (standardised coefficient = .28; t-value = 2.66; $p > .01$). We consequently assume a partial mediation effect, which supports our hypothesis on the antecedent function of gate keeping on external-stakeholder integration. However, this complementary resource still has a direct effect on the effective design of voluntary sustainability initiatives.

- With reference to hypothesis H_8 (i.e., *indirect effect of cross-functional integration*), we found that a direct effect of cross-functional integration on the comprehensiveness of the design of voluntary sustainability initiatives (standardised coefficient = .22; t-value = 2.97; $p < .01$) in the absence of supply-chain implementation was reduced to an insignificant relationship when supply-chain implementation was introduced to the structural model (standardised coefficient = .00; t-value = .02; $p > .1$). We consequently assume a full mediation effect, which supports our hypothesis on the antecedent function of cross-functional integration.

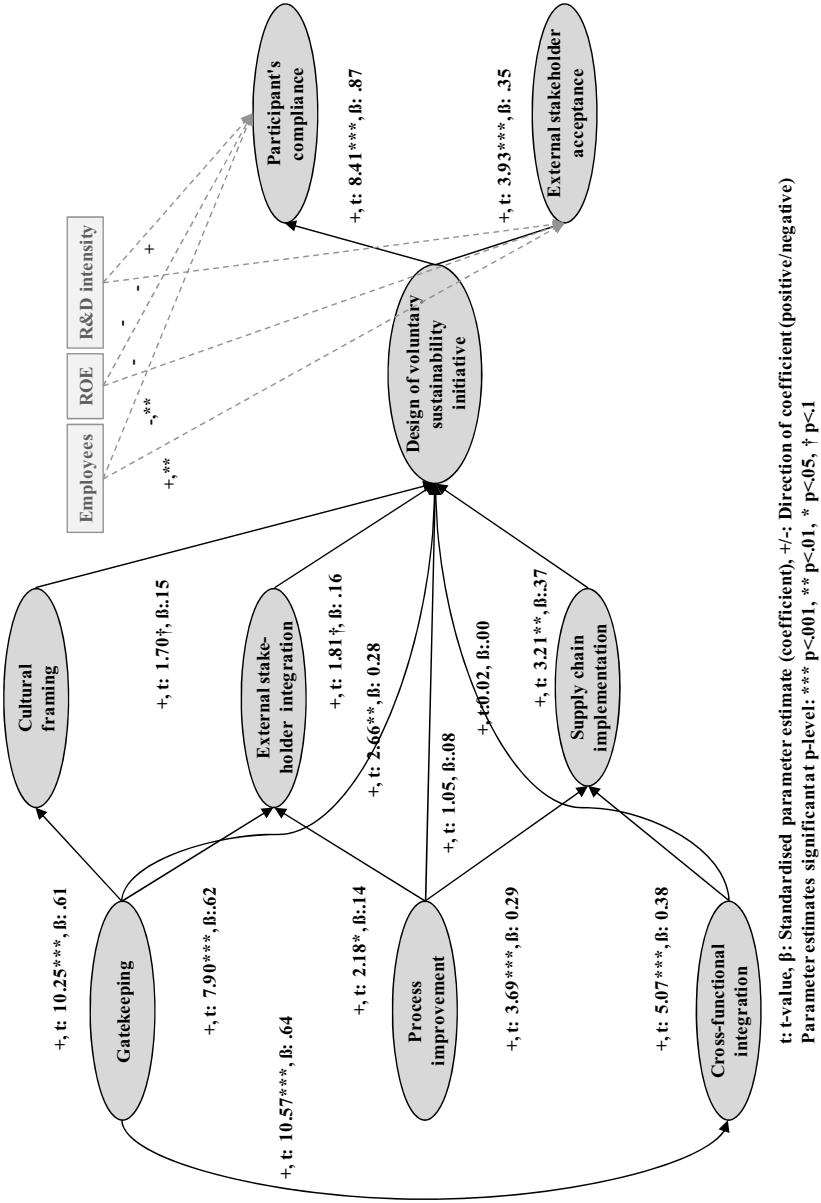


Figure 23: Results of mediation testing (according to Baron & Kenny, 1986 - Step 3&4)

8. Conclusion, further research and implications for business practice

8.1. Conclusion

In the following section, conclusions will be drawn from the results of this thesis with reference to the respective research questions. The primary research question (i.e., ***RQ:*** *Which key resources does an institutional entrepreneur (the focal firm) require to design a voluntary sustainability initiative for supply chains that is legitimised by both participants and external stakeholders?*) will be answered implicitly by the sequential answering process of the secondary research questions, rather than explicitly (i.e., the result of RQ is given by answering RQ_5).

> ***RQ_1:*** *Which contexts qualify for the focal firm to design voluntary sustainability initiatives for supply chains and which elements constitute such initiatives?*

As shown in Chapter 2, specific contexts in which proactive sustainability strategies for supply chains lack the legitimisation of key societal or economic stakeholders (including supply-chain partners) qualify for the focal firm to establish voluntary sustainability initiatives. In such cases, the lead company (focal firm) needs to involve these stakeholders and create (multi-)stakeholder networks that cooperate in the design of the intended sustainability strategies for supply chains – called voluntary sustainability initiatives for supply chains.[208] By doing so, the focal firm establishes an institution, applying several legitimising elements that can be categorised into the three constituent pillars of institutions. More precisely, the company designs normative (i.e., the common understanding and agreement that guides the involved stakeholders' behaviour to achieve a valued target), mimetic (i.e. the standards and coordination mechanisms that clearly specify the intended behaviour for the involved stakeholders) and coercive institutional pillars (i.e., the enforcement mechanisms that assess the involved stakeholders' behaviour and subsequently punishes non-compliance or rewards compliance) that influence all actors to behave according to the intended sustainable supply-chain practices.[209]

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[208] For a more detailed discussion of the context of designing voluntary sustainability initiatives for supply chains, see Sections 2.2.-2.4.

[209] For more details on the constituent elements of voluntary sustainability initiatives as a specific form of a proto-institution, see Section 3.2.2.

RQ$_2$: *How can the effective design of voluntary sustainability initiatives for supply chains be operationalised and systemised according to institutional entrepreneurship and resource-based theories?*

The effective design of voluntary sustainability initiatives for supply chains can be operationalised as the creation of (proto-)institutions (integrating salient stakeholders and supply-chain partners) that the focal company subsequently disseminates in the wider institutional field (i.e., the societal and economic stakeholders affected by the initiative). In this context, institutional entrepreneurship systemises the process that a focal firm has to go through in order to design such initiatives; this theory also provides explanations of the focal firm's resources that play a key role in carrying out this creation and dissemination of institutions. Early studies described resources being used by institutional entrepreneurs. Nevertheless, the structured identification of *key* resources that contribute to an institutional change still remains weak in institutional entrepreneurship. Accordingly, the operationalisation and systemisation of the design of voluntary sustainability initiatives for supply chains is complemented by resource-based theories. These theories explain which specific *key* resources enable the focal firm to create and disseminate voluntary sustainability initiatives. While many scholars have made use of resource-based arguments concerning the characteristics of strategic (key) resources in the context of the adoption and financial success of sustainability strategies for supply chains[210], little research has extended these applications to institutional entrepreneurship and legitimacy. The thesis at hand applied the concept of *key* (inter-)organisational resources beyond its traditional focus and specifies the characteristics of key resources that are valuable in institutional entrepreneurship and enable the entrepreneur to create and disseminate voluntary sustainability initiatives for supply chains. Moreover, the thesis applies concepts of these theories that emphasise how an entrepreneur may win the institutional competition against existing and opposing supply-chain practices by reducing the risk that other organisations draw on similar resources and mount an opposition to the change in the institutional environment. By connecting institutional entrepreneurship and resource-based theories, this thesis opened the discussion on how to leverage these proven concepts of resource-based theories into institutional entrepreneurship, and provided theoretical arguments for how institutional entrepreneurs pursue their strategies in the specific context of designing voluntary sustainability initiatives for supply chains.[211]

[210] For a detailed review, see Section 3.4.2.
[211] For a detailed description of the theoretical research framework, see Chapter 4.

RQ$_3$: *What key resources of the focal firm can be explored that ensure the voluntary sustainability initiative's acceptance by participants as well as external stakeholders, which in turn affects the initiative's effectiveness?*

Using analytical induction and comparative case studies in the context of the design of leading voluntary sustainability initiatives for supply chains, this thesis explored four key resources that enabled the effective design of voluntary sustainability initiatives – namely, external-stakeholder integration, managing loosely-coupled business units, supply-chain implementation and cultural framing. In this context, early stakeholder integration is the involvement of external stakeholders in the design of the company's strategies. Managing loosely-coupled business units involves the establishment and management of structurally-ambidextrous organisational designs that allow the balanced separation and (re-)integration of exploratory innovation efforts and continuous, incremental improvements. Supply-chain implementation represents the ability to implement the lead company's strategy into the operations of the involved supply-chain members by use of market or collaborative approaches. Finally, cultural framing is an organisational process by which organisations strategically question the meaning of specific issues in society in order to show that their strategies are valid, reliable and useful, and by which they integrate their strategies into the specific cultural frames of the legitimising stakeholder groups.[212] All of these key resources were supported with literature that deals with aspects of institutional entrepreneurship or the resource-based view in the fields of corporate sustainability, innovation management and supply-chain management. Furthermore, whether these resources fulfil the prerequisites of the resource-based view (i.e., being valuable in terms of institutionalisation and legitimacy, rare, inimitable and non-substitutable) was discussed.

RQ$_4$: *What further relationships can be explored that reduce the focal firm's key resource demand for working on the voluntary sustainability initiative, thereby increasing the efficiency in designing the initiative?*

In the analytical induction part, the thesis found several resources that have complementary effects on the key resources identified previously. More specifically, the capabilities of gate keeping, cross-functional integration and process improvement increase the value of the identified key resources of external-stakeholder integration, supply-chain implementation and

[212] For a detailed discussion of the exploratory study's results concerning the identified resources, see Section 5.3.1.

cultural framing. In this context, cross-functional integration entails the participation and coordination of affected corporate functions that bring together different sources of expertise in the design of product and processes. The thesis explored this capability's improvement of supply-chain implementation, because the strategies designed were optimised according to the value/supply-chain needs beforehand. Process improvement is the capability to identify, analyse and improve existing business and supply-chain processes to meet defined goals and objectives. In the case studies, it became evident that this capability helped to implement the new strategy in the supply chains by improving the processes according to the intended performance. Also, this capability enhanced the integration of external stakeholders involved in the value-creating activities and supporting processes affected by the strategy. Gate keeping is the interface between external stakeholders and internal business functions, and is defined as the ability to monitor the objectives and influences of external stakeholders and translate this information for the organisation-internal constituents of the company. The case studies showed that this capability facilitated the interaction with external stakeholders both in involving these actors in the strategy design and in addressing them with appropriate messages concerning the designed strategies. Also, as an interface, it facilitated the distribution of information among the internal corporate functions.[213] Furthermore, the case studies were analysed according to further concepts of the resource-based view that drive the efficiency of institutional entrepreneurship strategies – namely, non-linearity and contingencies.[214] However, in contrast to the identification of complementarities, the thesis was not able to derive propositions concerning non-linearity and contingencies.

> ***RQ$_5$:*** *Do the explored relationships between key resources and the successful design of voluntary sustainability initiatives for supply chains hold up in a large-scale quantitative analysis?*

The results of the quantitative SEM study confirm all hypotheses on the relationships between the identified key resources, complementary resources and the effective design of voluntary sustainability initiatives for supply chains. Furthermore, the results confirm the hypotheses that the effective design of voluntary sustainability initiatives for supply chains leads to broad legitimisation, in terms of both the initiative participants' compliance and the acceptance by initiative-external stakeholders.[215]

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[213] For a detailed discussion of the exploratory study's results concerning the identified complementary resources, see Section 5.3.2.

[214] For the integration of these concepts into institutional entrepreneurship theory, see Section 4.2.

[215] For details of the confirmatory study, see Section 7.4.

The main theoretical contributions of these findings are three-fold:

Firstly, the results of the confirmatory study and thesis at hand support the initial findings of the institutional entrepreneurship literature concerning the resources used by entrepreneurs, but in the specific context of designing voluntary sustainability initiatives for supply chains. For example, it was found that integrating external stakeholders (i.e., building social capital) as well as cultural capital to frame the voluntary sustainability initiative for specific stakeholder segments is positively related to the effective design and legitimisation of an institution.[216] More importantly, in this specific research context, the study added a new capability as a key resource in institutional entrepreneurship – namely, supply-chain implementation. Although institutional theorists have emphasised the importance of collaborative relationships to supply-chain members in order to teach them the necessity of strategy implementation (Marcus & Anderson, 2008), they did not focus on the implementation of supply-chain-related institutional strategies, which can also be implemented via indirect approaches such as the use of competitive pressures. Also, institutional entrepreneurship had not yet considered that monitoring the implementation progress is a crucial aspect of steering the implementation – regardless of whether the implementation is conducted via integrative or competitive approaches.

Secondly, all identified complementary resources and related effects are consistent with current resource-based research on proactive corporate sustainability and sustainable supply chain management, arguing that complementarities increase the value of key resources.[217] However, with this thesis, these existing findings could be leveraged in the specific context of the effective design of voluntary sustainability initiatives and institutional entrepreneurship. As suggested by theory, this study was further able statistically to confirm that these complementary resources predominantly have indirect consequences on the effective design of voluntary sustainability initiatives by showing full and strong partial mediation of the relationship by the identified key resources.

Thirdly, the study showed the legitimising effects of a comprehensive design of voluntary sustainability initiatives for supply chains incorporating normative elements (i.e., norms and values), mimetic elements (i.e., standards) and coercive elements (i.e., rules). While all three effects have been subject to many studies in the field of institutional theory and single aspects have been analysed in the context of voluntary sustainability initiatives,[218] this study is one of the first to show that these effects comprehensively integrate all three facets and divide legitimacy in terms of legitimacy among participants of the initiative and initiative-external

[216] See also the review in Section 3.3.3. and the discussions of complementarities in Section 5.3.2.
[217] See also the review in Section 3.4.2. and the discussions of complementarities in Section 5.3.2.
[218] See also Sections 2.3.2. and 3.2.2.

acceptance. More specifically, the study confirmed that the creation of these elements pressures participating organisations in the proto-institution to comply with the norms, standards and rules, and lead to the acceptance of the initiative within the wider institutional field by external stakeholders.

Additionally, this confirmatory study developed new measures for supply-chain implementation, cultural framing, gate keeping and process improvement that can be used in further studies applying key resources – either in traditional resource-based logic and economic rents or in the context of institutional entrepreneurship and legitimacy – and made the first operationalisation of the institutional pillars of the design of voluntary sustainability initiatives in the form of multi-item measurements.

8.2. Limitations and further research

This thesis was able to identify capabilities in several case studies of leading company-driven voluntary sustainability initiatives and test them accordingly with the structural equation method (SEM). However, several important limitations and research gaps of this thesis can be highlighted.

Firstly, a well-known limitation of SEM is the possible existence of alternative, equivalent models (Shook *et al.*, 2004). This means that other models based on alternative theories and hypotheses may provide an equal or even better model fit. The model proposed in this thesis might therefore receive stronger support if competing models are tested that estimate other theoretically-plausible relationships between the constructs, and if subsequent analyses are made that examine which model explains the data best. In this thesis, the primary goal in using SEM was to test the basic adequacy of a model that simultaneously incorporates multiple dependent relationships that were theoretically developed, rather than to explore *ex post* the best-fitting model that had not been theoretically proposed *ex ante.* However, it is likely that other interesting relationships may exist among these variables and relationships. For example, further research might test the existence of non-linear or moderating effects. Although the cases in this thesis did not provide indications of the non-linear value of the capabilities (e.g., is the value of stakeholder relationships in the development of strategies constrained because the organisation is not able efficiently to detect and process valuable knowledge of too many partners? See Hill & Rothearmel, 2003) or contingencies (i.e., which circumstances influence the value of the activities and underlying capabilities), in resource-based investigations of corporate sustainability it is emphasised that these concepts strongly influence the value of resources. This is why further studies of key resources in institutional entrepreneurship in the context voluntary sustainability initiatives might take these

enhancements of the resource-based view into consideration.[219] For example, how do contingencies (e.g., Aragón-Correa & Sharma, 2003) or non-linearity of resource value (e.g., Nehrt, 1996; Barnett & Salomon, 2006) affect the effective design of voluntary sustainability initiatives?

A second limitation is related to practical considerations. Like other large-scale quantitative studies of inter-organisational phenomena using a survey tool, this research also predominantly has responses for all variables (i.e., both dependent and independent variables) from the initiating company of the voluntary sustainability initiative (e.g., Kale *et al.*, 2000; Mesquita *et al.*, 2008). Although this study was able to receive several answers from further persons involved in the design of the initiative, ideally it would be beneficial to get an assessment from all actors on different aspects of the initiative, the participants' compliance as well as the acceptance of the initiative by external constituencies.

Thirdly, this study heavily relied on perceptual measures to assess participants' compliance and stakeholders' acceptance. In future studies of the institutional effects of designing voluntary sustainability initiatives, it would be beneficial to establish alternative measurements for these dependent variables and draw on more objective data (e.g., measuring acceptance of public and media by evaluating published articles on the initiative; see Deephouse, 2000; Deephouse & Carter, 2005). Also, improvements and refinements of some of the measurements used could be subject to further studies. As this study is one of the few that try to examine and measure the institutionalisation and legitimisation of the design of voluntary sustainability initiatives, these dimensions in the measurement model are predominantly based on self-developed measurements. While most measurements have very good reliability, they still have potential for further improvements.

Finally, in the study at hand, the measurement of managing loosely-coupled business units did not allow any analysis in SEM.[220] This is why future studies might in particular take into consideration this capability, trying to develop a more favourable measurement and test it in the context of designing voluntary sustainability initiatives.

[219] See the research framework in Section 4.2.
[220] See Section 7.2.3.

8.3. Implications for business practice

Companies that wish to set up voluntary sustainability initiatives can draw on the thesis' results, which identify the key capabilities and elements necessary for the effective design of a voluntary sustainability initiative by a lead organisation.

In the following, implications for all the identified elements will be derived separately:

- **'Effective (i.e., legitimised) design of voluntary sustainability initiatives':** the effective (widely accepted) design of voluntary sustainability initiatives for supply chains incorporates normative, mimetic and coercive elements. Companies wishing to design such initiatives for their supply chains should therefore be aware of all of these facets of institutions. More precisely, companies should establish norms and values that guide the affected participants' behaviour and inspire external stakeholders. Moreover, standard elements should provide the participants of the initiative with a more concrete guidance concerning the intended practices for the affected supply-chain practices and will allow external partners to evaluate the superiority of the initiative better. In this context, the exploratory study showed that successful initiatives predominantly establish process- and outcome- (i.e., performance-) based standards and define a clear governance structure in the form of boards, committees and working groups. Standard elements are most likely complemented with coercive elements that force the participants to comply and ensure the reliability of the initiative to external observers. Thus, companies should establish monitoring and reporting systems in order to evaluate compliance and to detect non-compliance, as well as subsequent punishment and reward elements. For instance, several large initiatives established claims such as product logos, which allow participants to differentiate from non-members.

- **Capability of 'External-stakeholder integration':** one recommendation that can be drawn from this thesis with respect to capabilities is the need for external-stakeholder integration in the design of voluntary sustainability initiatives. Thus, companies willing to design such initiatives should integrate these external constituencies, which range from supply-chain members to further stakeholders like non-governmental organisations, regulators or investors, in order to achieve credibility, specific knowledge and buy-in-effects. Specifically, the inclusion of credible partners such as Greenpeace or the WWF has shown significant benefits in terms of public acceptance. On the one hand, the initiative's objectives received more credibility in society; on the other, it was emphasised that the network and knowledge of these constituencies enabled companies critically to reflect the affected supply-chain practices and sophisticate the environmental and social performance of these processes.

Furthermore, it was emphasised that the inclusion of a neutral partner (i.e., not operationally involved in the affected supply-chain processes) was extremely beneficial in order to achieve consensus and sustainability innovations in supply chains. In the words of Florian Nehm, sustainability officer at Axel Springer AG: "*It is extremely important for the success of such a project to have someone neutral – an 'iron fist', if you will – but diplomatic moderator [sic], asking all these uncomfortable questions, such as why are you in this project, and what is the benefit to be expected out of this project and so on*".[221]

- **Capability of 'Managing loosely-coupled business units':** successful companies in the exploratory-research phase of the thesis showed that the capability of managing loosely-coupled business units positively affects the design of voluntary sustainability initiatives. In this context, managing loosely-coupled business units does not mean that companies developed the initiative in separate R&D units. Instead, it covers the development and operational testing of the intended sustainable supply-chain practices separately from their core supply-chain processes before finally transferring these innovations into their core processes. As such, the capability allows companies willing to establish accepted sustainability initiatives in their supply chains openly to discuss and develop more radical environmental and social solutions, without burdening the discussion with concerns from day-to-day supply-chain practices.

- **Capability of 'Cultural framing':** a capability often mentioned in the exploratory case studies was cultural framing. With respect to this capability, the thesis observed that one crucial aspect of gaining broad acceptance of the voluntary sustainability initiative is the understanding of the problem and the initiative's contributions by strategic stakeholders. For companies who are willing to establish an initiative, this means accessibly communicating the social or environmental problem (e.g., 'Global warming', 'Deforestation of rain forests', 'Over-fishing of the oceans', 'Human rights') that hinders the continuity of the current supply-chain practices. Furthermore, it needs to propose a solution that is acceptable to the respective stakeholder segment. For instance, similarly to the 'Shared values' communication strategy of Nestlé, the strikingly effective communication of Migros palm oil sourcing strategy to consumers and financial stakeholders helped the retailer accessibly to communicate the need to invest in such a strategy. However, a stakeholder-specific marketing of the strategy requires new approaches in corporate communications and marketing, widening the segmentation of the specific stakeholder-group customers to further external

[221] Interview on the Tikhvin Chalna initiative, October 18th, 2007.

stakeholders. In this context, already-sophisticated segmentation approaches exist; for instance, differentiating and mapping non-governmental organisations according to their main focus area (such as rainforests), influence and credibility as well as willingness to cooperate (Credit Suisse, 2006).

- **Complementary capability of 'Gate keeping':** an important organisation-internal capability that was identified in the studies was the existence of so-called gate keepers in the initiating companies, who enable the coordination and information flow between corporate functions and the affected stakeholders in the design phase of the voluntary sustainability initiative. Most likely, this bridging function builds a separate unit in multinational companies. However, in the specific context of voluntary sustainability initiatives that specify new practices for supply chains, this function may also enrich the profile of supplier-relationship managers and/or customer-relationship managers in future. These functions already perform a liaison function between the organisation and the affected supply-chain members, and thus may take over the specific inter-organisational coordination and communication with these partners. However, in future, they must also be able to identify and detect further stakeholders such as non-governmental organisations, regulators or local communities that are affected by the sustainability initiatives – either by internally cooperating with a separate gate-keeping unit for stakeholders or by taking over these responsibilities. In any case, this might require organisations to develop their respective purchasing and/or sales managers with new skills and knowledge concerning the upcoming challenges and trends of sustainability.

- **Capability of 'Supply-chain implementation':** the thesis also proved that the implementation of the initiative in the company's own supply chain is a crucial element in order to design specific elements of voluntary sustainability initiatives, such as technically and economically feasible standards or reliable product claims, and to effect acceptance among external stakeholders such as non-governmental organisations or customers. For companies willing to design voluntary sustainability initiatives in future, both direct implementation approaches via vertical integration as well as indirect approaches via competitive pressures on the affected supply-chain members could be advantageous. The advantages of the indirect approach can be best illustrated with the Axel Springer case, which showed that the search and information cost could be significantly reduced by the setting of purchasing requirements in the form of requests for bids. In this way the company was able quickly to find the most interested suppliers willing and able to develop and implement the strategy with Axel Springer. Also, significant purchasing/channel power might increase the application of

indirect approaches, pressuring supply-chain members to implement the intended practices. However, indirect implementation approaches are only appropriate when the dependence of the initiator on the supply-chain partners is relatively low, and if sufficient alternatives exist. This is why collaborative approaches seem to be more effective in the implementation of environmental or social supply-chain practices. As shown in the Nestlé and Axel Springer cases, this approach will enable companies to build the required technical knowledge in the supply chain, as well as to educate suppliers in developing or emerging markets as to the (end) customer's wishes and the institutional requirements set by developed countries. Finally, an accepted design of future sustainability initiatives will require transparency about the affected supply-chain practices as well as the implementation progress. The reason for this need is well illustrated by the following quote: "*The motivation [of supply-chain transparency] is fitness for debate, and no-one should know more about the details of our supply chain than us [the initiator]*."[222]

- **Complementary capability of 'Cross-functional integration':** in order to be able to implement the objectives of future initiatives in the affected supply chains, companies will need to orchestrate the affected corporate functions, ranging from the operationally-affected actors to the supporting functions like R&D, environmental management, marketing or corporate communications. Even though this capability seems to be standard practice in most companies' product-design efforts, the thesis nevertheless showed that this integration mostly lacks the joint consideration of environmental and social aspects of supply-chain practices. Thus, future supply-chain managers' roles might have to be widened to cover these new trends, taking the lead in coordinating the affected corporate functions in sustainability projects.

- **Complementary capability of 'Process improvement':** as the thesis results show, the capability of process improvement is strongly connected with the focal firm's ability to integrate external stakeholders in the design of the voluntary sustainability initiative and the transparent implementation of the initiative's objectives in the affected supply chain. Thus, companies willing to design and implement such initiatives must be able to improve business and supply-chain processes involving process mapping, analysing, streamlining and adhering to the defined improvement steps in order to improve the environmental, social and operational performance of its supply-chain processes. As became very clear in the progress of this thesis, only if

[222] Interview with Florian Nehm (Sustainability Officer at Axel Springer AG) on the Tikhvin Chalna initiative, October 18th, 2007.

companies achieve process improvements in terms of environmental, social and operational improvements will the initiative become sustainable and improve the supply-chain practices and acceptance of the relevant and affected stakeholders on a long-term horizon. This effect is well described by Dr. Hans Jöhr, head of agricultural sustainable products, who points out that companies must increase both 'tangible quality' (i.e., the tangible characteristics of products and their availability) and 'perceived quality' (i.e., the pure ethical value of products) instead of blindly focusing on the latter if they wish to achieve a broad acceptance from a variety of stakeholders (Jöhr, 2003).

To summarise, companies should actively integrate strategic stakeholders in the societal as well as economic domain in the development of emerging voluntary sustainability initiatives in order to access their specific knowledge and obtain their support. They should manage these activities in separate business units, which allow a critical debate of current practices and emerging strategies with partners and within the company itself. They should also integrate the affected process owners in the company, as well as external supply-chain partners, in the development and implementation of the new strategy, and continuously optimise the strategy by drawing on process-improvement techniques. This increases the technical and economic feasibility, as well as the acceptance of the new supply-chain strategy. Ultimately this puts companies in the position to move their supply chains towards sustainability, communicate their superiority to society, and accordingly fulfil the promise made.

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Appendix

List of interviews (Chapter 5)

RSPO / Migros case study:

- Johann Züblin (Head of Standards and Social Compliance, Migros Switzerland), August 2nd, 2007
- Dr. Robert Keller (Head of Research & Development Food, Mifa), October 2nd, 2007
- Dr. Matthias Diemer (Head International Projects, WWF Switzerland), December 18th, 2007
- Dr. Reinier de Man (Independent consultant), November 19th, 2007
- Dr. Markus Rehm (West LB), July 25th, 2007

Tikhvin Chalna initiative / Axel Springer case study:

- Anna-Liisa Myllynen (Director of Forest Environment and Wood Supply, Stora Enso), August 29th, 2007
- Helena Jantunen (Sustainability Manager, Stora Enso), September 26th, 2007
- Mario Abreu (Director of Forestry and Recycling, Tetra Pak), October 12th, 2007
- Dr. Reinier de Man (Independent consultant), October 18th, 2007
- Florian Nehm (Corporate Sustainability Officer, Axel Springer AG), October 18th, 2007
- Kenneth Rosenbaum (Expert Advisor, Forest Integrity Network of Transparency International), October 18th, 2007
- David Refkin (Director of Sustainable Development, Time Inc.), October 26th, 2007
- Teppo Alvoittu (Regional Manager of Karelian Region, Stora Enso), November 8th, 2007
- Helena Jantunen (Sustainability Manager, Stora Enso), November 8th, 2007
- Florian Nehm (Corporate Sustainability Officer, Axel Springer AG), November 8th, 2007
- Anna-Liisa Myllynen (Director of Forest Environment and Wood Supply, Stora Enso), September 14th, 2007

RTRS / Coop case study:

- Birgit Hofer (Project Manager Economic Policy / Sustainability, Coop Switzerland), December 7th, 2007
- Renato Isella (Head of Purchasing Bakery, Diary, Cheese, Eggs, Frozen Products, Coop Switzerland), January 3rd, 2008
- Dieter Egli (Project Manager Public Relations, Coop Switzerland), January 11th, 2008
- Paul Klemenz (Project Manager Feed Protein, fenaco), March 19th, 2008
- Dr. Matthias Diemer (Head International Projects, WWF Switzerland), April 17th, 2008

MSC/ Unilever case study:

- Dr. Matthias Diemer (Head International Projects, WWF Switzerland), December 18th, 2007
- Caroline Whitfield (Category Manager Frozen Fish, Unilever plc), August 21st, 2007

SAI / Nestlé case study:

- Dr. Hans Jöhr (Corporate Head of Agriculture, Nestlé S.A.), September 5th, 2008

LISREL code of final model (Section 7.4.1.)

```
! NI (Number variables in data set) NO (Sample size) KM (Correlation matrix)
DA NI=118 NO=270 MA=KM
RA FI='D:\ 13_SEM\Daten\Data270_ImpEM_MeanEACC_TrafoROE_RD.psf'

! SE (Inclusion of items in sequence - count)
SE

! Following: Items of dependent variables

! Items ‘Design of voluntary sustainability initiative (VSI)’ factor scores: NOR 1 MIM 2 COE 3
VSI_1 VSI_2 VSI_3

! Items ‘Compliance by participants of initiative (ICOM)’ 4-7
v_67i1 v_67i2 v_67i3 v_67i5

! Items ‘Acceptance of external stakeholders (EACC)’ 8-16
v_92i1 v_92i2 v_92i3 v_92i4 v_92i5 v_92i6 v_92i7 v_92i8 v_92i9

! Items ‘Supply-chain implementation (SCI)’ factor scores: COL 17 MAR 18 TRA 19
SCI_1 SCI_2 SCI_3

! Items ‘External stakeholder integration (ESI)’ 20-24
v_130i1 v_130i2 v_130i3 v_130i9 v_130i10

! Items ‘Cultural framing (CFR)’ 25-30
v_153i1 v_153i2 v_153i3 v_154i1 v_154i3 v_154i4

! Items ‘Cross functional integration (CFI)’ 31-36
v_75i1 v_75i3 v_75i2 v_75i4 v_75i5 v_75i6

! Following: Items of independent variables

! Items ‘Gate keeping (GAT)’ 1-6
v_70i1 v_70i2 v_70i3 v_70i4 v_70i5 v_70i6

! Items ‘Process improvement (PIM)’ 7-10
v_74i1 v_74i2 v_74i4 v_74i5

! Items of covariates ‘Employees (EMP)’ 11 ‘Return on equity (ROE)’ 12 ‘R&D intensity (RD)’ 13
v_191i1 v_129i1 v_129i4 /

! NY (# items dependent var.) NE (# dependent var.) NX (# items independent var.) NK (# independent var.)
MO NY=36 NE=7 NX=13 NK=5 LX=FU,FI LY=FU,FI GA=FU,FI BE=FU,FI C
TD=FU,FI PH=SY,FR PS=FU,FI TE=FU,FI TH=FU,FI

! Naming of dependent variables: ETA (Names in sequence - count)
LE
VSI ICOM EACC SCI ESI CFR CFI

! Naming of independent variables KSI (Names in sequence - count)
LK
GAT PIM EMP ROE RD

! Definition of dependent variables - Items & variance

! Items to VSI (assignment of variance VA 1)
VA 1 LY(1,1)
FR LY(2,1) LY(3,1)

! Items to ICOM (assignment of variance VA 1)
VA 1 LY(4,2)
FR LY(5,2) LY(6,2) LY(7,2)

! Items to EACC (assignment of variance VA 1)
VA 1 LY(8,3)
FR LY(9,3) LY(10,3) LY(11,3) LY(12,3) LY(13,3) ly(14,3) LY(15,3) LY(16,3)

! Items to SCI (assignment of variance VA 1)
VA 1 LY(17,4)
FR LY(18,4) LY(19,4)
```

```
! Items to ESI (assignment of variance VA 1)
VA 1 LY(20,5)
FR LY(21,5) LY(22,5) LY(23,5) LY(24,5)

! Items to CFR (assignment of variance VA 1)
VA 1 LY(25,6)
FR LY (26,6) LY(27,6) LY(28,6) LY(29,6) LY(30,6)

! Items to CFI (assignment of variance VA 1)
VA 1 LY(31,7)
FR LY(32,7) LY(33,7) LY(34,7) LY(35,7) LY(36,7)

! Definition of independent variables - Items and variance

! Items to GAT (assignment of variance VA 1)
VA 1 LX(1,1)
FR LX(2,1) LX(3,1) LX(4,1) LX(5,1) LX(6,1)

! Items to PIM (assignment of variance VA 1)
VA 1 LX(7,2)
FR LX(8,2) LX(9,2) LX(10,2)

! Items to covariates EMP ROE RD (assignment of variance VA 1)
VA 1 LX(11,3) LX(12,4) LX(13,5)


! Structural model ETA to KSI (CFI-GAT; SCI-PIM; ESI-PIM; ESI - GAT, CFR - GAT)
FR GA(7,1)
FR GA(4,2)
FR GA(5,2)
FR GA(5,1)
FR GA(6,1)

! Structural model ETA to ETA (VSI-SCI, VSI-ESI, VSI-CFR, SCI-CFI)
FR BE(1,4)
FR BE(1,5)
FR BE(1,6)
FR BE(4,7)

! Structural model ETA to ETA (ICOM-VSI, EACC-VSI)
FR BE(2,1)
FR BE(3,1)

! Structural model ETA to KSI (Covariates ICOM/EACC-EMP/ROE/RD)
FR GA(2,3) GA(3,3) GA(2,4) GA(3,4) GA(2,5) GA(3,5)

! Residuals THETA DELTA Diagonale
FR TD(1,1) TD(2,2) TD(3,3) TD(4,4) TD(5,5) TD(6,6) TD(7,7) TD(8,8) TD(9,9) TD(10,10)
VA 1 TD(11,11)
VA 1 TD(12,12)
VA 1 TD(13,13)

! Modification indices THETA DELTA (not defined)

! Residuals THETA ETA Diagonale
FR TE(1,1) TE(2,2) TE(3,3) TE(4,4) TE(5,5) TE(6,6) TE(7,7) TE(8,8) TE(9,9) TE(10,10)
FR TE(11,11) TE(12,12) TE(13,13) TE(14,14) TE(15,15) TE(16,16) TE(17,17) TE(18,18) TE(19,19) TE(20,20)
FR TE(21,21) TE(22,22) TE(23,23) TE(24,24) TE(25,25) TE(26,26) TE(27,27) TE(28,28) TE(29,29) TE(30,30)
FR TE(31,31) TE(32,32) TE(33,33) TE(34,34) TE(35,35) TE(36,36)

! Modification indices THETA ETA (not defined)

! Residuals PSI Diagonale
FR PS(1,1) PS(2,2) PS(3,3) PS(4,4) PS(5,5) PS(6,6) PS(7,7)

! Residuals of all three mediators SCI, ESI and CFR with each other (Recommendation Mark Heitmann)
FR PS(4,5) PS(4,6) PS(5,6)

! Test of convergence - set starting value ST .5 ALL

PD
! ML (Maximum Likelihood Method) CS (y- and x-standardised) FS (factor scores)
OU MA=KM ME=ML ND=3 ALL AD=OFF
```

Path diagram of Step 1 of the mediation testing procedure (Section 7.4.2.)

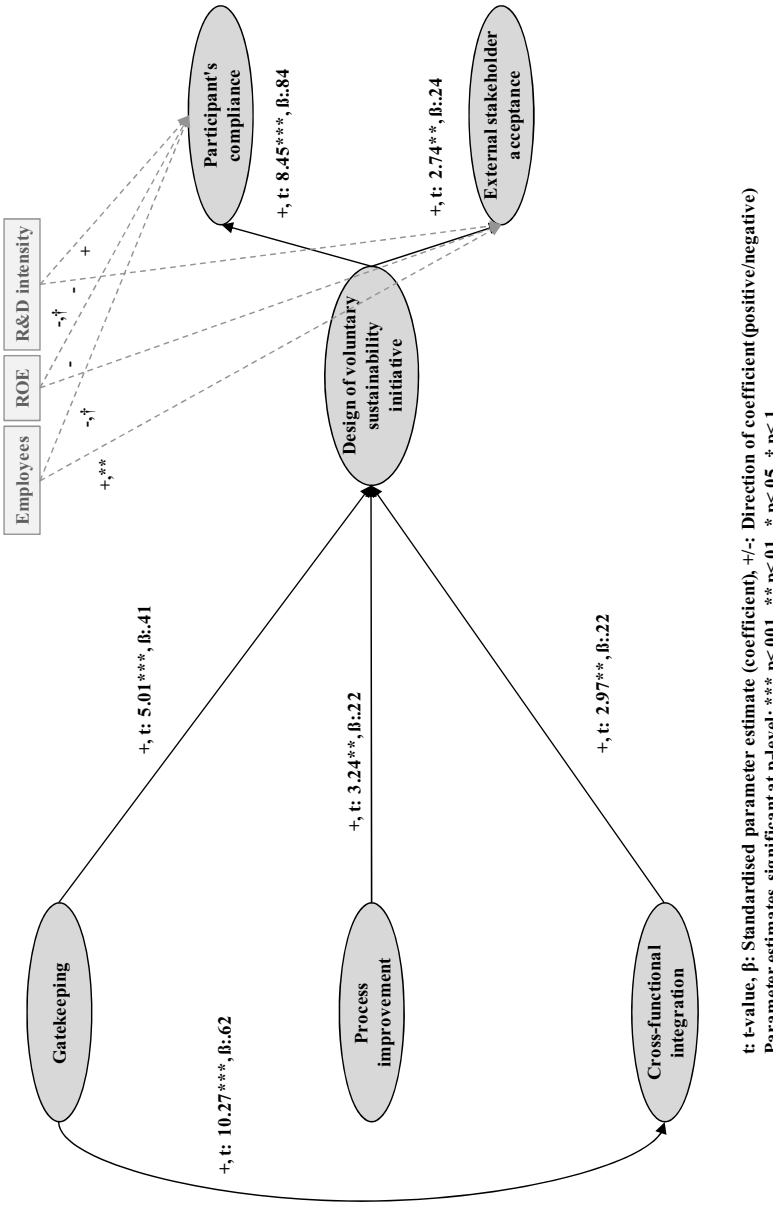

Figure: Results of the Baron & Kenny (1986) procedure - Step 1