Higher Education Dynamics 47

Jetta Frost
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Multi-Level Governance in Universities

Strategy, Structure, Control

Springer

Higher Education Dynamics

Volume 47

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Multi-Level Governance in Universities: Strategy, Structure, Control

Jetta Frost, Fabian Hattke, and Markus Reihlen

1 Research Context and Approach

Current reforms of higher education in most Western countries have considerably transformed the governance of universities. This is reflected by a large body of higher education literature, yet this literature especially focuses on changes in the external *governance of universities*. An indication of this are numerous volumes in Springer's Higher Education Dynamic Series that are concerned with field-level dynamics and policy changes and have identified global trends in higher education (Gornitzka et al. 2005; Musselin and Teixeira 2004) by comparing the evolution of European higher education systems (Amaral et al. 2008; Kogan et al. 2006; Paradeise et al. 2009) or conducting in-depth studies of country-specific frameworks (Cloete et al. 2006; Kyvik 2009). Although there are considerable variations in the design of national higher education systems, there is a convergence towards a common template among early movers and latecomers conducting the transformation (Bleiklie and Lange 2010). The development of a competitive global knowledge economy, ideas of New Public Management (NPM), and the rise of the entrepreneurial university have shaped the discourse throughout national higher education systems. Scholars refer to this development as the emergence of "academic capitalism" (Münch 2011; Slaughter and Leslie 1997) or "managed education" (Reihlen and Wenzlaff 2014), which has been differently integrated with the national historical

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heritage of the higher education systems. Despite national differences, these systems all share a new organizational logic fostering marketization and a new managerialism in higher education.

The book at hand builds on these field-level studies but shifts the focus on organizations' internal characteristics, thus contributing to a deeper understanding of the changing *governance in universities*. The new responsiveness to markets implies stronger autonomy from the state and the capabilities to act collectively and strategically (Lynch and Baines 2004; Moses 2007; Salmi 2007). To account for this shift in power relationships, this book applies organization and management theories to investigate the changing patterns of governance. We explore how universities develop strategies in order to cope with changes in their institutional environment, how universities implement these strategies in their structures and processes, and how universities design mechanisms to control the behavior of organizational members. So far, comparably few efforts have been made to look into the organization of universities from a management perspective (e.g., Blaschke et al. 2014; Wollersheim et al. 2015).

The intention of the book is to advance higher education research by gathering distinguished scholars with an academic background in management and organization studies and a research interest in the dynamics of university governance. We have organized their contributions according to three levels of analysis: the macro level of field-level changes and strategies (Part I), the meso level of structures (Part II), and the micro level of controls (Part III). Each part provides three chapters: two chapters with in-depth analyses of respective phenomena, enriched by one chapter of critical reflection. The structure of the book follows exigent calls for getting "back to the heart of organization theory" (Greenwood and Miller 2010; Miller et al. 2009) when studying organizational change. The researchers have proposed to focus on strategies, structures, and control mechanisms as distinct but interrelated elements of organization designs (Greenwood and Miller 2010; Levy and Merry 1986; Miles et al. 1978; Miller 1986). Yet such an attempt also has to draw attention to the rich and structured context shaped by policy changes and field-level developments that set the boundaries for autonomous actions and trigger organizational responses.

2 Governance Logics: a Conceptual Framework

The concept of governance defines practices that frame how managers coordinate and control agents and how influencers reconcile and prioritize competing claims of organizational stakeholders. Nevertheless, these practices that ensure strategic capabilities, organize collective actions, and guide organizational behavior are enabled and constrained by governance structures and systems (Empson and Chapman 2006; Frost 2005; Harlacher and Reihlen 2014). Governance is concerned with the definition and implementation of strategies and structures for achieving organizational goals. It is shaped by distinct logics that are embedded in legal frameworks and statutory documents (Blaschke et al. 2014; de Boer et al. 2007). Contemporary universities are governed by a combination of partly competing logics that are differentiated along two dimensions. This is summarized in Fig. 1:

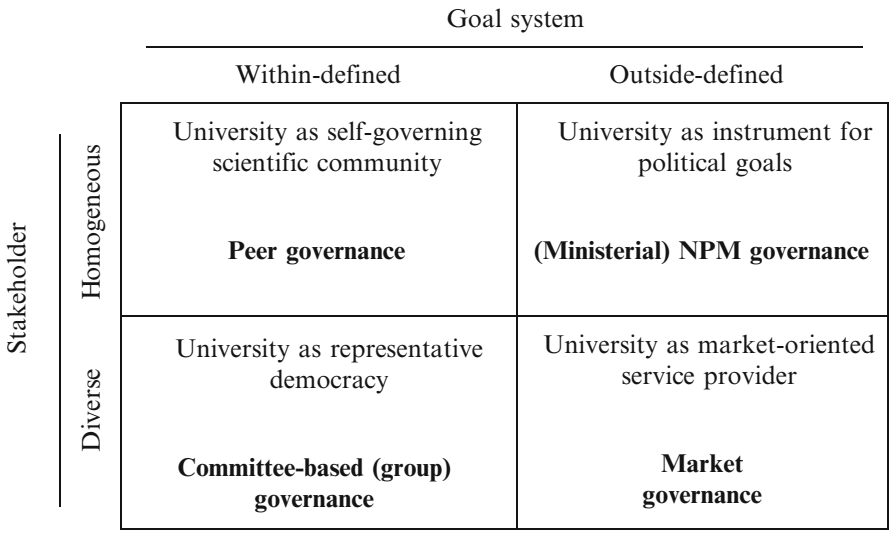

Fig. 1 Contemporary template of governance logics (Frost et al. 2015)

One axis defines the scope of participatory involvement of stakeholders and the other the major origin of the university's espoused goal system (Frost et al. 2015).

Figure 1 shows the resulting governance logics, which we term peer governance, committee-based (group) governance, (ministerial) NPM governance, and market governance. Each of the four ideal-type governance logics has been analyzed and discussed in the literature either to describe the status quo, to reconstruct the logic's history, or to criticize its implications.

University as a Self-Governing Scientific Community From a sociological view, science is a subsystem with a distinct governance logic embedded in a functionally differentiated society (Krohn and Küppers 1989; Luhmann 1990; Schimank 2012). The sociology of science examines how scientific communities discover, utilize, spread, and alter knowledge. While these scientific communities have a measure of autonomy, they still interact with and partly depend on their environment that not only provides resources such as funding, manpower, or legitimacy but also offers cognitive networks of orientation through which scientific practices are self-regulated. This self-governance of science is achieved through a complex set of collective actors, such as other scientific work groups, journals and publishing firms, associations, societal actors and funding agencies, and the public, that tolerate, hinder, or support scientific work. Following Polanyi (1962), the logic of self-governance of a community of scholars (Gläser 2006; Gläser and Lange 2007; Krohn and Küppers 1989; Polanyi 1962; Whitley 2000) is achieved by what he termed the principle of mutual control and reciprocal coordination. Under such a regime, the university as an organization is of secondary importance (Gläser and Lange 2007). Scholars are less committed to their university than to their peer group in the scientific community (Clark 1983; Humboldt 1809; Jaspers 1946; Polanyi 1962; Schelsky 1969; Weiherl and Frost 2016). Yet, especially in the German sys-

tem, the organizational counterpart is the "ordinaria" system, where the ordinarius (chaired professor) constitutes the "germ cell" of the university (Oppermann 2005; Rohstock 2009). As reflected later in chapter "Institutional Change of European Higher Education: The Case of Post-War Germany" (Reihlen and Wenzlaff 2016), this organizational structure has been repeatedly criticized for becoming an "academic oligarchy" (Clark 1977) that lacks participatory elements and shows considerable deficits regarding the democratization of society.

University as a Representative Democracy The governance logic of committee-based (group) governance was triggered by the protests of the 1968 movement when the call for political participation spread throughout society, including higher education (Nitsch 1983). Major issues in the debates on higher education reforms were the abolishment of elite education and the opening of higher education for wider parts of society as well as the implementation of participatory governance mechanisms of all status groups within the university (Habermas 1969; Nitsch et al. 1965; Schmidt and Thelen 1969; Teichler 1990; von Brentano 1967). Democratization of governance also led to a "politicization" of the university (Schelsky 1969), which was later discussed as the "left Humboldtian model" (Kraushaar 2005) and criticized for its "organized irresponsibility" (von Lüde 2010) and "garbage-can decision-making" (Cohen et al. 1972).

University as an Instrument for Political Goals Politicians soon included the values of the 1968 movement – equal opportunities and the human right for education – in their program (Dahrendorf 1965). However, the massification of higher education, which had already started in the early 1960s (Bockelmann 1962), progressively required a system of rational economic planning (Meier 2009; Picht 1968). For many universities around the globe, economic rationalities came along with an increase in public involvement and detailed external governance at the expense of professional and organizational autonomy (Reihlen and Wenzlaff 2014). Empirically, this governance regime reflecting the desire of the state to intervene either directly through detailed regulation or indirectly through NPM practices has always been blended with internal governance mechanisms, thus granting stakeholders different opportunities for participation (Reihlen and Wenzlaff 2014). Schimank (2008) regards this compromise between governing logics as constitutive of the continental European model of higher education governance.

University as a Market-Oriented Service Provider Economization of different spheres of society has also increasingly influenced higher education and governance of universities. This is reflected most clearly in public spending cuts, the quest for efficiency, and the new role of universities in the so-called knowledge society (Schimank and Volkmann 2008). According to the new governance logic, universities should become innovators and job creators in the sense of the "third mission" (Gulbrandsen and Slipersaeter 2007). Knowledge production is valued according to social utility and expressed in models such as the "mode 2 university" (Gibbons 1994; Nowotny et al. 2001), the "triple helix" (Etzkowitz 2003, 2008), or the "third-generation university" (Wissema 2009). Within this perspective, universities act

under market conditions, engage in a "reputation race with geo-political implications" (Hazelkorn 2015: 1), and have to quickly adapt their research, teaching, and university-industry relations to changing demands. Universities under this regime behave entrepreneurially by seeking opportunities for strategic development and focusing on the organization of knowledge creation and technology transfers (Grimaldi et al. 2011; O'Shea et al. 2005; Rothaermel et al. 2007). However, the rise of "academic capitalism" (Münch 2011; Rhoades and Slaughter 2004; Slaughter and Leslie 1997) has become an academic and political battlefield, raising the fundamental question of how responsive higher education should be designed when meeting changing market demands. The key issue at stake is the degree of autonomy of the scientific system from other sectors of society. The emerging discourse on "entrepreneurial" (Clark 1998) or "adaptive" (Sporn 2001) universities has expanded the focus beyond commercialization and economic value. For instance, the model of the "engaged university" (Fitzgerald et al. 2012) explicitly includes the contribution of universities to solving social issues, turning the university into a service provider for the civil society as a whole. The strongest form of "citizen science" (Irwin 1995) even blurs organizational boundaries and functional differentiation between these subsystems. In all variations, the governance logic of market orientation requires universities to become more autonomous actors with a stronger leadership, capable of developing and implementing strategies that help them to gain a competitive advantage in the higher education field (de Boer et al. 2007; Krücken and Meier 2006; Meier 2009; Schimank 2008). Yet these competitive strategies are reflections of changing market or societal needs.

Each of these governance logics emphasizes different aspects that entail a specific and internally consistent form of governance logic. However, there are certainly paradoxes between these logics. In fact, the "modus operandi" of universities cannot be reduced to one single governance logic as all of them are much too complex—this is particularly true for research-oriented universities covering a broad spectrum of academic disciplines. That is why this book takes a multi-level approach to governance in universities. Governance should ensure, on a macro level, a strategic approach to environmental uncertainties and ambiguities, on a meso level, coordination of work-sharing activities and of collaboration within the organizational structures, and, on a micro level, a goal-oriented management of behavior of the actors involved. These three levels are reflected in the structure of the book.

3 A Multi-level Approach to Governance in Universities

The new autonomy given by the state requires universities, first, to develop organizational capabilities and strategies to cope with challenges of their environment at the macro level, second, to create organizational structures and processes that implement these strategies at the meso level, and third, to introduce mechanisms that are suited to guide and control the behavior of organizational members at the micro level. However, such changes to the fundamental organizing principles of

universities are not discretionary. Studies suggest that, under similar environmental conditions, organizational characteristics coalesce into a small number of effective archetypes, also called "gestalts" or "generic types" (Miller 1986; Miller and Friesen 1980; Mintzberg 1980). This convergence is either caused by circles of variation and selection, as put forth by population ecology (Hannan and Freeman 1977), or by isomorphic pressures on legitimate action, as neo-institutionalism proposes (DiMaggio and Powell 1983). A deeper understanding of the changing *governance in universities* should be built on conceptually grounded, empirical investigations and critical reflections that shed light on how universities respond to the variety of governance logics. Such studies should be concerned with characteristics of strategies, structures, and controls of universities, the actors who are involved in or resist against the implementation of certain configurations as well as the consequences of specific types, both effective and dysfunctional.

3.1 Macro Level of Strategies

The first part of the book comprises chapters that investigate "how universities are embedded in field-level changes and how they respond to these changes by strategically managing their intellectual, symbolic, relational as well as financial resources." This involves responses to competitive funding programs, increased student enrollment, mobility, and engagement in emerging fields of action such as branding, internationalization, higher education marketing, student recruitment, or study program innovations.

Markus Reihlen and *Ferdinand Wenzlaff* explore how higher education systems in Western industrialized countries have been subject to remarkable institutional changes. The authors present a chronological and historical analysis of the German higher education field, starting with the postwar period until the more recent changes in the institutional environment. Germany can be regarded as a reference case of a continental European education system that has traditionally emphasized the Humboldtian ideal of education through science. The purpose of this chapter is to develop a better understanding of the societal and managerial issues associated with the macro-level changes and transition from an era of professional dominance to an era of managed education, which marks the institutional backdrop of the entrepreneurial university. The chapter ends with a critical reflection on the possibilities and limitations of the governing regime of managed education.

Marek Kwiek investigates the changing governance of universities and provides evidence from various European case studies. He integrates empirical findings from various case studies and links them to the emerging academic entrepreneurialism in theoretical and empirical higher education studies. He identifies the location of academic entrepreneurialism as a constitutive strategy in different parts of educational institutions. The chapter shows that academic entrepreneurialism turns out to be not only a theoretical slogan but the actual academic reality in many countries and various parts of numerous universities. The convergence of institutions indicates a

progressive loss of exceptionality of the university as one of the most important institutions of the modern world.

Mats Alvesson and *Mats Benner* critically discuss whether the expansion of higher education is a miracle or a mirage. They assess the notion of a knowledge society with growing expectations of the utility of education and research and the related rise of academic leadership. They argue that there are inflated expectations of the social value of education and research and criticize the rise of academic management and its tendency to reduce academic activities to external adaptation. The chapter ends with some suggestions on how to reinvigorate academic values in the strategic orientation of university governance.

3.2 Meso Level of Structures and Processes

The chapters in the second part of the book address the question of "how universities govern their structures and processes in order to organize collective action and implement strategic change." The focus is on organization designs that translate new strategies into structures and processes of universities. As loosely coupled systems with only limited potential for collective action, universities must undertake considerable efforts to implement strategic change.

Marie Boitier and *Anne Rivière's* study focuses on the professionalization of management control. The rise of "third space professionals" is closely linked to the professionalization of administrative processes in universities. The authors conducted a longitudinal qualitative case study in a French university between 2007 and 2012, based on in-depth interviews and biographical data. Findings show both a partial dissemination of the new managerial institutional logic within the university and signs of professionalization through the dynamic of interactions between different professional groups. They conclude that all professional groups are at least partially affected by this ongoing professionalization process.

Fabian Hattke, *Steffen Blaschke*, and *Jetta Frost* examine the relationship between voluntary collective action, organized collaboration, and the provision of public goods in German universities. They investigate whether specialized central support structures contribute to performance in three fields of action: the training of young scientists, internationalization, and gender diversity. Their findings indicate that organized collaboration may lead to improved performance in the fields of training of young scientists and gender diversity. Conversely, voluntary collective action enhances internationalization. The authors suggest that, depending on the field of action, voluntary collective action and organized collaboration are substitutes with regard to performance. Their study informs higher education research and policy on the effectiveness of new organizational designs based on centralized and specialized support structures at universities.

According to *J.-C. Spender*, the university administration's problems are rooted in the plurality of academic methods and the nature of the knowledge produced in different scientific disciplines. He argues that a one-size-fits-all logic cannot be

applied to universities with disciplines such diverse as the natural sciences and the humanities. In order to understand the nature of the governance problems, he proposes to first identify the goals of the various sciences. Taking business education and scholarship as an example, he concludes that the tensions between the university as a business and as an academic institution have been around a long time. But as long as business schools neither generate a science of management nor facilitate the generation of management as a profession nor grasp their role as schools of rhetoric, they will swing idly in the winds of administrative ambition.

3.3 Micro Level of Behavior Control

Adopting New Public Management in higher education implies a stronger reliance on performance management as an output control process. Today, performance management sets the tone in the university working context and seeks to increase the quality and quantity of scholars' output. The third part of the book therefore raises the question of "how performance management and output control affect work behaviors and how behaviors are shaped by academic and managerial practices." Core academic activities of research and teaching have always been subject to a number of different control practices; and the increasing demand for public accountability has brought up various new forms of performance measures: ratings, rankings, research assessment exercises, accreditations, etc.

Drawing on qualitative case material, *Julia Weiherl* and *Jetta Frost* demonstrate that output-based performance management can lead to unintended behavior on the part of individual employed scholars: It results in a loss of organizational commitment if performance management is perceived as judgmental. Scholars view themselves as being more committed to their disciplinary invisible college and thus to their profession. The chapter's findings indicate that universities would do well to understand the impacts of professional commitment oriented towards invisible colleges on performance management. Thus, performance management should be enhanced as a developmental type so that professional and organizational commitment can be aligned. The authors outline its characteristics and how universities can strengthen it.

Stefanie Ringelhan, *Jutta Stumpf-Wollersheim*, and *Isabell Welpe* rely on narrative interview data to provide empirically based recommendations on how to improve scholars' individual work motivation and work performance. Their analysis indicates the following major results: At the chair level, good leadership style and interpersonal acknowledgment may motivate and enhance performance, whereas, at the faculty level, conducive framework conditions and cooperation may increase motivation and performance. At the institutional level, appropriate organizational structures and leadership cultures may foster motivation and performance. The authors' analysis shows a variety of specific and practical feasible suggestions on how to improve the work situation when controlling individual scholars' behaviors.

Isabel Bögner, *Jessica Petersen*, and *Alfred Kieser* critically question whether it is possible to assess progress in science with the contemporary performance indicators in place. They find that especially citation-based rankings tend to impede the progress of science rather than to advance it. Their chapter elaborates how the creation of disciplines and sub-disciplines marks significant contributions to scientific progress. Based on a conceptual analysis, the chapter identifies prerequisites for a successful development of new (sub-)disciplines. These developmental stages have to be taken into account when attempting to develop "early" indicators for scientific progress. However, the authors conclude that an evaluation of the extent to which an institution contributes to scientific progress will ultimately have to remain a qualitative exercise.

4 Outlook: Managing the Paradoxes of University Governance

Governing universities is a multi-level as well as a highly paradoxical endeavor. While under the regime of "managed education," universities emerge into "state-subsidized entrepreneurs" (Slaughter and Leslie 2001: 154), who continuously explore opportunities for strategic profile development and expand their intellectual, symbolic, and financial capital stocks into competitive environments. However, this market governance does not simply ignore the "invisible" colleges as the scholarly reference group, the bargaining processes of the university's representative democracy, and the state interventions for implementing political goals and policies. The featured studies in this book critically examine the multifaceted repercussions of changing governance logics and show that neither one logic alone provides an adequate framework nor can it easily be combined with other logics to form a meta-logic. As universities are highly complex knowledge-based organizations, their modus operandi, i.e., their strategies, structures, and controls, needs to be responsive to a variety of pluralistic demands from both inside and outside the organization.

Nonetheless, how do universities manage the paradoxes of governance? Let us explore two destructive ends – the under-managed and the over-managed university. Traditionally, continental European universities lacking a professionalized management have been *under-managed*. Under these conditions, they are more likely to change into what Cohnen et al. (1972) called an *organized anarchy*. In organized anarchies, decision-making becomes arbitrary with respect to collective choices "looking for problems, issues and feelings looking for decision situations in which they might be aired, solutions looking for issues to which they might be an answer, and decision makers looking for work" (p. 1). Such garbage-can decision processes turn university governance into a regime of "organized irresponsibility" (von Lüde 2010: 14), in which individual self-interests, micropolitical warfare, or simply the preservation of the status quo become more important than the search for the

common good. Organized irresponsibility, however, has also been attributed to committee governance when the rights of participation are not combined with the duties of good democratic citizenship and actors enforce foolish decisions without being accountable for them.

Equally problematic is the *over-managed university* that simply replaces constructive stakeholder dialog and participation with hierarchical managerialism. While universities, especially in stages of transformation, may need stronger leadership that energizes the organization with new ideas and gives guidance through turbulent times (Frost et al. 2015), claiming authority and managerialism without intellectual substance might simply prioritize wrong ends without checks and balances. This is illustrated by Parker's (2014) own experience at a European business school. As he writes (p. 289),

> *The managerialization of the university does represent the most important threat to the distinctiveness of the university as an institution. If it is entirely constituted and legitimated on the basis of narrow key performance indicators, of predictably obedient economic actors managed by someone who assumes absolute authority, then in what sense is it capable of providing the sort of autonomous reflection which justifies the idea of a university as a different space for thought*?

Empson and Langley (2015: 163) therefore question the usefulness of the traditional distinction between leaders and followers in a professional setting. As they argue, the traditional hierarchical relationships "are replaced by more ambiguous and negotiated relationships" among various stakeholder groups such as professional peers, students, the state, or societal actors.

Managing the paradoxes between peer, committee, NPM, and market governance is not effectively resolved by rigidly prioritizing one logic over another. University governance has rather to be understood as a multidimensional matter, where relationships between internal or external quasi-autonomous communities are created and negotiated. University governance rests on the idea of pluralist decision-making organized along many strands – an idea which seeks to confront the rigidity and disproportionate concentration of power found in managerialist systems with a model which organizes the creative variety of a limited conflict between multiple stakeholders (e.g., academic peers, the state, internal status groups, or market actors). As such, the university as a polycentric organization, or following Kerr's (1963) idea of a multiversity, is better understood as a *negotiated system* (see especially Reihlen and Mone 2012) that allows a *flexible* buffering and decoupling but also a recoupling and prioritizing of one logic over another. For instance, political objectives negotiated with the state may be decoupled from the practices of scientific work to keep academic autonomy alive; or democratic majority decisions on new teaching programs may be misaligned with other stakeholder interests and may require a recoupling of internal decision-making with employability demands, ministry requirements, and external peer feedback. Managing the governance paradoxes is a balancing act between under-managing the university, which leads to a state of "non-governance" (Frost et al. 2015), and over-managing the university, which transforms it into an instrument of obedience and destroys its reflective capability.

In the final *outlook* chapter, *Fabian Hattke*, *Rick Vogel*, *and Hendrik Woiwode* address several aforementioned tensions between invisible colleges (i.e., scientific communities) and visible colleges (i.e., universities) in more detail: First, they argue that, at the macro level of strategies, a number of innovation dilemmas arise from the exploitation of pre-existing knowledge at the expense of exploration of new research fields. Second, at the meso level of structures, they point out struggles for organizational actorhood affecting scholars' ability for voluntary collective action. And third, identity conflicts refine scholars' identification with visible and invisible colleges at the micro level of control. The authors propose ambidexterity, hybridization, and identity work as mechanisms for balancing these tensions. The outlook stresses the need for further integration of higher education research and science studies which elaborate our understanding of the underlying mechanisms of mutual interdependence between the different logics of invisible and visible colleges.

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Part I
Strategy

Institutional Change of European Higher Education: The Case of Post-War Germany

Markus Reihlen and Ferdinand Wenzlaff

1 Introduction

Institutional changes of higher education systems in Western industrialized countries are remarkable. Within the last 60 years, the system of professional dominance inspired by the Humboldtian model of a rule-governed community of scholars (Olsen 2007; Scott 2006) based on values of free inquiry, academic autonomy, and self-regulation has gradually transformed to a new regime of managed education, sometimes referred to as academic capitalism (Münch 2014; Slaughter and Leslie 1997; Slaughter and Rhoades 2004). The general pattern of change appears most pronounced in the Anglo-American education systems and continental Europe with its more humanistic legacy is either following the Anglo-American footsteps or developing its own, more unique path to the emerging challenges of managed education. We chose to investigate the case of Germany as a reference case of a continental European education system that traditionally emphasized the Humboldtian ideal of education through science (Burtscheidt 2010; Lenzen 2015), though this ideal has also been critized as a myth (Ash 2006).

The existing literature on the German higher education system deals with a number of detailed developments on the macro-level such as the impact of Bologna reforms on German universities (Bührmann 2008; Hanft and Müskens 2005; Kellermann 2006; Nickel 2007), the Excellence Initiatives by the federal government (Bloch et al. 2008; Hartmann 2006; Hornbostel et al. 2008; Kehm and Pasternack 2008; Leibfried 2010; Münch 2006, 2007; Sieweke 2010), the emergence of New Public Management (Lange 2008; Lanzendorf and Pasternack 2009; Löffler

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2003; Meier 2009; Meier and Schimank 2009; Nickel 2007; Schmoch and Schubert 2010), or the change of governance of universities and research (Dobbins and Knill 2014; Jansen 2009; Schimank 2015; von Lüde 2010; Welpe et al. 2015).

There are some historical (Burtscheidt 2010; Oehler 1989; Pasternack and Wissel 2010) and discourse analytical studies (Ash 2008; Krücken and Meier 2006; Meier 2009), but very little research exists that synthesizes these existing findings into a broader, longitudinal analysis of the institutional changes that have unfolded during the postwar period. We argue that taking a historical-analytical perspective on institutional change is crucial for explaining the nature of the unique setting of the German higher education system, which has created a path-dependency with distinctive institutional pressures.

We present a chronological and historical analysis of the German higher education field, starting with the postwar period and going right up to the more recent changes in the institutional environment. The purpose of this research and our contribution is to develop a better understanding of the societal and managerial issues associated with the transition and change on the macro-level from an era of professional dominance to managed education affecting the micro-level, with its transition from the Humboldtian towards the entrepreneurial university.

The paper is structured as follows: first, we outline our theoretical orientation based on organizational institutionalism. The framework structures our analysis according to institutional logics, institutional actors, and governance systems. In the next section, we analyze and identify three eras of institutional change in the German system of higher education: we refer to the era of professional dominance, the era of federal involvement and democratization, and more recently the era of managed education. We conclude the paper by summarizing our main findings and outlining directions for future research.

2 Theoretical Orientation

2.1 Organizational Field of Higher Education: An Institutionalist Approach

Institutionalist approaches have increasingly been applied to analyze the educational field and have demonstrated their usefulness in understanding patterns of restructuring reflecting diverse institutional pressures (Gumport and Sporn 1999; Krücken and Röbken 2009; Leisyte and Dee 2012; Meyer and Rowan 2006; Meyer et al. 2007; Oplatka and Hemsley-Brown 2010; Tolbert 1985; Townley 1997). Since its foundations (DiMaggio and Powell 1983; Meyer and Rowan 1977; Zucker 1977), modern institutionalism has advanced to become a dominant approach to understanding organizations (Greenwood et al. 2008). A major theme in institutional theory is that organizations are influenced by their institutional environment. Following DiMaggio and Powell (1991: 2), institutional theory is concerned with

understanding "how social choices are shaped, mediated, and channelled by institutional arrangements". Institutionalists conceptualize the relevant social environment in which organizations compete and the appropriateness of organizational actions is evaluated as *organizational fields* (e.g., DiMaggio and Powell 1983; Scott 1991; Scott and Meyer 1983). Fields represent a mid-level social sphere that connects concrete organizational action with broader normative and social structures.

In order to explain the institutional change from the era of professional dominance to managed education and the transition from the Humboldtian to an entrepreneurial university, we build on earlier work by Scott et al. (2000) and adapt their framework to the organizational field of higher education. It is composed of three main components of particular importance for understanding institutional change: institutional logics, institutional actors, and governance systems.

2.2 Institutional Logics

The behavior of institutional actors like universities or the state is shaped by an institutional logic. By this we mean "the belief systems and associated practices that predominate in an organizational field" (Scott et al. 2000: 170). Institutional logics influence individual and organizational behavior by various mechanisms such as socialization and identity formation, social classification and categorization, or struggles for status and power (Thornton and Ocasio 2008). The identification of dominant logics in organizational fields and their shifts became an important topic of institutionalist empirical research (Lounsbury 2002; Scott et al. 2000; Suddaby and Greenwood 2005; Thornton 2002).

In the literature on professions, it has been widely suggested that more fundamental changes in institutional logics have taken place. A change from the traditional professional values of a "social trustee" to more business-oriented, "commercial" values has been observed along with organizational change in professional organizations to more "corporate" forms of governance (e.g., Cooper et al. 1996; Suddaby et al. 2009). This was accompanied by a changing definition of professionalism. Commercial professional values are based on the notion of expertise, rather than public service (Brint 1994; Greenwood 2007).

These changes in institutional logics are also reflected in the higher education field. Gumport (2000) argues that the idea of higher education as a social institution has gradually been replaced by the image of higher education as an industry. While the former logic sees the purpose of higher education in educating and socializing society as well as advancing knowledge through free inquiry, the latter logic perceives the education field from a market logic. Universities become opportunity-seeking service providers that compete for students, funding, top faculty, and legitimacy in contested markets and students become consumers who seek for the best human capital investments (Münch 2014). As Thornton and Ocasio (2008) stress, institutional logics can co-exist or compete and then become drivers of either change or inertia.

2.3 Institutional Actors

Academic knowledge constitutes the central "issue" (Hoffman 1999) of the higher education field. Its creation, dissemination, and application connect institutional actors like universities as producers of academic knowledge with the state as the main architect of the educational system, professional associations, publishing firms, funding agencies, private corporations, and the public, and outline a collective enterprise around which they can coalesce. Together, they form a "recognized area of institutional life" in the sense of DiMaggio and Powell's (1983: 148) field concept. Institutional actors, whether individual or collective, are involved in the creation and reproduction of specific institutional logics structuring the interactions of an organizational field (Scott et al. 2000). The emergence of new actors and changes in authority relations among the actors involve changes in institutional logics as well as governance systems.

2.4 Governance Systems

The third component comprises governance systems that are concerned with the formal and informal relationships between the organization (e.g. the university) and its constituents (e.g. academic and non-academic staff, the state, students), as well as the relationships between these constituent groups (see Fiss 2008). In particular, an institutionalist perspective of governance draws attention to "how coalitions of actors constitute 'moral orders' that determine the power structure of" an organization (Greenwood et al. 2008: 25). While many different models of governance have been proposed (for an overview see Harlacher and Reihlen 2014), we build on earlier work by Olsen (2007) that offers a useful typology of different governance regimes in the university setting. In brief, they are described as follows:

The Collegial Model Collegial governance is founded on the idea of professional autonomy and self-governance. Professional autonomy for research and teaching is protected by law and supported by proper funding from the state. Instead of being a servant of political agendas, this ensures that "scientific research is driven mainly by curiosity and the desire for peer recognition, and … is controlled by truth tests" (Bunge 1998: 253). Self-governance, on the other hand, is accomplished through elected leaders and a meritocratic culture that favors academic scholarship.

The Democratic Model Democratic governance is based on principles of political equality, competition for leadership, and effective participation in the struggle for power (Bunge 2008; Dahl 1998). While in the collegial model self-regulation is restricted to an elite group (academic scholars only), the democratic model includes all other interest groups in the democratic process as well, such as students, research and administrative staff. Power and interests are more dispersed in the democratic model, as all groups are represented on governing boards and councils. Decision-making is a political bargaining process with shifting coalitions and alliances.

The State Model In the state model, universities are viewed as instruments that reflect the political agenda of the day with educational objectives and policies of current political leaders. Research and education are contributions to national wealth creation and become instrumental for achieving national political ends. In contrast to the democratic model, leaders are not elected, but appointed by the state as servants of state interests, and their work is supported by a tighter system of authority, bureaucratic rules, and performance targets. Decision-making power is delegated to the university's executive board, and funding depends on achieving specific performance targets (Olsen 2007).

The Market Model Market governance differs profoundly from the previous types. This model of governance is founded on the attempt to maximize the entrepreneurialism of universities and their professional staff by creating incentives to capture the benefits of market opportunities, whether in research, teaching, or for the commercialization of academic knowledge. Viewing education and science from a market perspective shifts attention to a model of governance as a trading place, in which universities compete for students and funds and researchers produce commodities to be "sold" on scientific markets (Bunge 1998). The market model is reflected internally by replacing principles of professional autonomy and self-governance with managerial control and a more hierarchical decision-making style. The managerial structure should match the continuous need for change in search for market opportunities.

In practice, these ideal types (Weber 1922) are mixed into different forms of hybrid governance. Especially in the German case, in which higher education is a major political remit of the state, governance, whether following a collegial, democratic or market regime, has always been influenced by a degree of state intervention for the achievement of political objectives.

3 Institutional Change of the German Higher Education System

Institutional theory helps to identify and distinguish different institutional eras. The idea of an era is that the composition of actors, their interaction, and governance system is given coherence and orientation by an underlying institutional logic, which allows the production and reproduction of stable patterns of actions over time. We distinguish three eras of higher education systems in postwar Germany: professional dominance (1945–1968); federal involvement and democratization (1968–1998); managed education (from 1998) (see Oehler 1989; Webler 1983 for similar conceptions of German postwar eras until the 1980s) (see Fig. 1). Indeed universities have a far more ancient history in Germany, and historical ideals may still rule nowadays to some extent. Nevertheless in 1945 the governmental and higher education system reconstituted itself and therefore provides an adequate

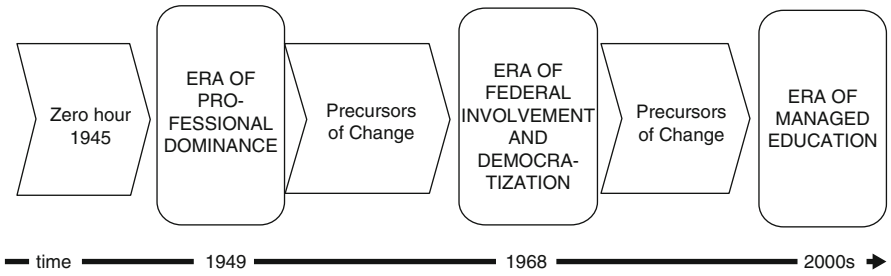

Fig. 1 Eras of the German higher education system

starting point for our analysis. For the three eras, we will not only describe the manifestations of the three elements (actors, logics, and governance systems), but also explain the institutional change from one era to another by identifying the main events or drivers of change.

3.1 The Era of Professional Dominance

3.1.1 "Zero Hour"

The German constitution organized the German Republic as a federation and responsibility for culture and education was transferred to the states. The victorious allies connected the emergence of the Nazi regime to the authoritarian education system and wanted to allow a re-education based on freedom and democracy by means of a decentralized higher education system (Burtscheidt 2010). In principle, universities were designed according to the Humboldtian ideal (Jessen 2010), and the higher education system of the Weimar Republic era preceding the Nazi regime was restored.

The centralization, politicization, and bureaucratization of higher education was avoided at the price of missing the opportunity to coordinate institutions across states and "two decades of non-reform" (Robinsohn and Kuhlmann 1967). A minimum coordination of educational policies was conducted voluntarily through the Conference of (State) Education Ministers (Kultusministerkonferenz) founded in 1949.

3.1.2 Institutional Logic

Following institutional theory we argue that each era has a distinct logic that organizes the interaction of institutional actors. The institutional logic of professional dominance is based on two general, but important ideas associated with the concept of professionalism (Freidson 1970, 2001) and the republic of science (Polanyi 1962). Professionalism means that academics enjoy a large degree of autonomy and

feel loyal to their discipline rather than to their university (Baldridge and Deal 1983; Clark 1983). The republic of science is based on the belief that scientific work is so specialized that it is inaccessible to those lacking the required training and experience. In addition, it is built upon the belief that this work involves fresh judgment and discretion that cannot be standardized, rationalized or commodified. Scientific expertise depends on a stock of academic knowledge, which accomplishes two basic functions (Abbott 1988). First, the academic stock of knowledge is subject to a considerable amount of research activity. It was Wilhelm von Humboldt's basic idea "to appoint the best intellects available, and to give them the freedom to carry on their research wherever it leads" (Scott 2006 op. cit. Fallon 1980: 19). The logic of professional dominance is modeled around the Humboldtian principles of (a) the unity of research and teaching, and (b) academic freedom involving *Lernfreiheit* (freedom to learn) and *Lehrfreiheit* (freedom to teach) (Scott 2006). Higher education was perceived as an activity of "human and personality building". In order to offer them choices for general education, students were given study programs that were less dense (Rektorenkonferenz 1961: 44). Finally, academic knowledge is a source of legitimacy of the scholar/scientist's claim of having esoteric knowledge (Veblen 1918) that goes beyond the ordinary and is, in a fundamental sense, the basis of scientific authority. In the service of free inquiry and scholarly based education, scientists should be autonomous; they should have full control over their work, and scientific ethics claims to be independent of any particular interest groups such as the state, private enterprise, or the general public (Freidson 2001; Polanyi 1962). As a consequence, the primary logic associated with professional dominance, corresponding to Brint's (1994) idea of the professionals as "social trustees", implies that research and teaching standards are exclusively determined by scholarly rules and norms.

3.1.3 Important Institutional Actors

Universities were organized according to the "ordinaria" system, where the ordinarius (full professor) constituted the "germ cell" of the university and enjoyed academic freedom and autonomy on a scale never reached before (Teichler and Bode 1990; see Pasternack and Wissel 2010 for a brief characterization and further references), but also reflected an elitism and personality cult (Burtscher and Pasqualoni 2004). He (there were hardly any female professors at the time) was in charge of a specific knowledge field, directed an "institute", and was supported by a number of academic and non-academic staff. Furthermore, the institute was directly funded by the ministry (Scott 2006).

State ministries of education were the main source of funding for science and scholarship. Academic associations determined scholarly standards and norms in various research fields; journals and books were the dominant outlets of scholarly work disseminated by academic publishers who perceived their work less as a business than as a profession (Thornton and Ocasio 1999).

In order to coordinate higher education, several actors emerged. Already in 1949 the Rectors' Conference (Westdeutsche Rektorenkonferenz) as a voluntary associa-

tion of universities was founded (Teichler 1990). On the federal level, in 1955 the Nuclear Ministry was established and in 1962 transformed into the Science Ministry (since 1998 Ministry of Science and Education). In 1957 the Science Council (Wissenschaftsrat) with representatives from politics, academia, and the public was founded as a advisory body in addition to the Conference of Education Ministers. The motive was to overcome the failures of decentralized planning and to enable coordination between governmental bodies and the universities across different states (Burtscheidt 2010; Scott 2006; Teichler 1990).

3.1.4 Governance System

After 1945, academics demanded the highest possible independence in order to avoid political instrumentalization. The autonomy and freedom of science and scholarship was codified in the new German constitution. Academics claimed a corporate autonomy through the legal form of the university as a public body, financial autonomy through having the senate drafting the budget (Haushaltsplan), as well as academic freedom in the sense of the power to make appointments (Burtscheidt 2010). To a great extent, the state embraced these demands and professors gained a degree of power never reached before (Teichler 1990). This was reflected in the governing structure, in which decision-making power was largely decentralized to the ordinaria who controlled each other's work through academic self-regulation basically following the collegial model. But the governance system remained a hybrid of autonomy and state control, since higher education was dependent on public funding (Burtscheidt 2010; Scott 2006; Teichler 1990).

3.1.5 Precursors of Change

Through the reconstitution of the principle of the ordinaria of the nineteenth century, the chance to restructure at "zero hour" was missed (Burtscheidt 2010). The emerging demands for democratization of society in general and university structures in particular led to student revolts in the late 1960s, with demands for equal access to higher education, the abolition of elites, and wide-ranging participation in academic matters (Teichler 1990). The movement reflected an extension of the social-democratic concept of a social state, in which capitalist interests were held in check by a democratic order, to the higher education field (Nitsch 1983).

A second driver for change was the continuously increasing number of student enrollments. A growing middle class was sending students to universities and industry demanded highly skilled labor (Oehler 1989). The rise of mass education itself was a phenomenon across developed countries at the time (Schofer and Meyer 2005). In Germany, the rise of mass education was encountered with regional expansion and hiring in existing universities, but funding was not sufficient, leading to a perceived decline in academic quality (Binswanger 2010; Burtscheidt 2010; Hödl and Zegelin 1999; Teichler 1990). Already in the late 1950s, the ideal of

universal education ("Bildung") had to give way to the idea of specialized academic training ("Ausbildung") in order to facilitate the "second industrial revolution" (Brandt 1957 cit. op. Jessen 2010: 263). The Humbodtian ideal of the unity of teaching and research could not be practiced with masses of students to be trained in highly specialized fields (Jarausch 1999). Students also became less interested in general education, but developed an "instrumental orientation" in search of an academic qualification that would raise their value on the labor market (Lullies 1996; Oehler 1989). It became more apparent that the existing logic of professional dominance with decentralization and academic self-organization could neither deal with the increasing "professional utilitarianism" (Jessen 2010) and massification, nor serve the new demands for democratic reforms. A new institutional logic surfaced in which the federal government stepped in and took an active role as planner and regulator of higher education at the cost of an emerging regime that coupled the university more tightly to the interests of the state, precisely what was feared by the victorious allies and academics when the system was first set up. Yet, this increasing role of the state was coupled with wide-ranging reforms for the democratization of universities.

3.2 The Era of Federal Involvement and Democratization

3.2.1 Institutional Logic

In the section on precursors of change we indicated two major forces of change, which correspond to two interacting logics characterizing the era of federal involvement and democratization. The first underlying institutional logic of this era was marked by a massive expansion in higher education financed by the government, equality of access to higher education was stressed, and the state played an increased regulatory role (Teichler 1990). This *logic of democratization* of higher education won over the incompatible logic of academic self-regulation and professorial collegiality, as now non-professorial academic staff and students took part in defining the quality of higher education. The second logic was guided by the idea of making higher education for the masses more effective by central coordination and planned development (Teichler 1990) and can be labeled as the *institutional logic of central planning or bureaucratic control.* Professional self-regulation seemed to be incompatible with democracy as well as with massification and was thus replaced by this new double-logic.

3.2.2 New Actors

The growing need to manage higher education for the masses in Germany was accompanied by a rapid proliferation of new federal and state agencies and commissions engaged in coordinating, planning, and controlling various aspects of the

higher education system. For instance, the Education Council (Bildungsrat 1966–1975), the Joint Commission of the States and the Federal Government for Education Planning (Bund-Länder-Kommission für Bildungsplanung 1970), and the Federal Ministry of Education and Science (1970) all served the primary purpose of a centrally coordinated system of higher education (Jessen 2010).

As a consequence of mass education, financial problems of the states, and pressures of the 68 movement, the federal government gained influence on state legislation by establishing framework legislative powers for itself in the field of higher education (Rahmengesetzgebungskompetenz) in 1969. Since then coordination in higher education has been anchored in the constitution and the transfer of far-reaching responsibilities to the federal level was legalized. The peak of centralized federal involvement was reached with the Higher Education Framework Law (Hochschulrahmengesetz) of 1976. The idea was to homogenize the diversity in the German higher education system by regulating in detail the structure of university personnel and committees as well as academic domains (study programs, course contents, exams).

In addition, new agencies were created to deal with the rising number of students. For instance, already in the 1960s the Rectors' Conference founded a central registry (Zentrale Registrierstelle) for allocating study places at medical schools based on school-leaving grades. In 1972 the successor agency (ZVS) of the registry was founded, which centrally distributed students, mainly on the basis of school-leaving grades, to universities for several subject areas including medicine, business administration, psychology, and law. With such a federal control agency, the supply of higher education programs was centrally coordinated with the demand for places. This marriage of federal control with mass education initiated the period of supply-oriented study programs (Witte and Stuckrad 2007).

Student associations have a long tradition in Europe, but the student movement that emerged in the late 1960s (for the history see Bauß 1977; Becker and Schröder 2000; Habermas 1969; Koch 2008; Schmitthenner 1986) was highly politicized, aiming at influencing university governance and thus becoming an important actor within the field. However the student revolts were not the cause of the higher education reform but an important catalyst of an existing societal consensus for a necessary reform of the ordinaria system (Rohstock 2009).

As a response to the massification of higher education and the increasing need of more practically trained graduates, in the 1960s and 1970s many Western European countries differentiated higher education institutions into universities (*Universitäten*) and universities of applied sciences (*Fachhochschulen*). Fachochschulen were created to focus on training requirements of professional occupations, applied research, and regional development. Yet, the higher teaching loads of professors and the lower research profile accompanied with the missing right to award doctorate degrees lead to a status deprivation of Fachhochschulen (Enders 2010).

3.2.3 Governance System

The governance system had an internal and an external dimension. Internally, democratization as well as homogenization was reflected by the following main structural changes (Teichler 1990). Despite objections to university democratization and fears of a negative impact on the freedom of teaching and research by professors (Schmidt and Thelen 1969), the ordinaria university was replaced by a new organizational type, the committee or group university (Gremien- or Gruppenuniversität) (see Pasternack and Wissel 2010 for a brief characterization and further references); academic careers were condensed and autonomous research was facilitated for academic staff that had not reached professorial rank; the rector's period of office was extended from 1–2 to 4–8 years; without strengthening the position of the dean of the faculty, some decision areas that addressed the interests of professors were transferred from ministerial to faculty level.

Besides the reorganization of the university's internal governance, the relationship to the state changed in the direction of more intensive financial and educational regulation and control. The reasoning behind this was to provide equal opportunities for university applicants and to cap costs. The newly created cost-containment regimes of the early 1970s were supply-driven. This is well represented by the capacity regulation (KapVO), which was a follow-up to a contract between the states and the federal government of 1972 (Seeliger 2005). The idea of the capacity regulation regime was to balance conflicting interests between university applicants and the scarcity of teaching capacity (Seeliger 2005). As a consequence, the number of admissions to a study program under the capacity regulation regime was standardized on the basis of the available teaching capacity. Universities were not allowed to set any admission restrictions or university-specific student-selection criteria. Since they were required to exhaust their capacity, which "froze" the number of incoming students, universities operated permanently at their limit and this weakened the position of state universities in an emerging higher-education market which now included domestic private and foreign public and private competitors (Kluth 2001). Furthermore, study programs/curricula (Witte and Stuckrad 2007) as well as budgeting were highly regulated and subject to a control philosophy (Nickel et al. 2009).

In this era, the state model of governance was strengthened by the new role of the state and especially by the federal role in regulating and coordinating higher education. At the same time, the call for more democracy shifted internal university governance from a collegial to a democratic model.

3.2.4 Precursors of Change

In 1977 the state launched a policy of "Opening Universities" (Öffnung der Hochschulen) as a response to the predicted baby boomer generation. This policy aimed at ensuring equal chances for higher education, albeit without committing the financial resources needed for an expansion in educational infrastructure. As a

result, universities had to overstretch their capacities, at least until the baby boomer generation graduated (Teichler 1990). The "crisis" of the German higher education system was driven by the burden of mass education coupled with chronically underfinanced universities and ineffective regulation and administration, resulting in a considerable decline in education quality (Hödl and Zegelin 1999).

Furthermore, study duration in Germany was considered excessive, and graduates were perceived as too old in comparison with other EU countries. Probably unparalleled in any other country, extension of studies beyond their regular duration had a long tradition and was regarded as an academic freedom. In 1986, the average graduate was 28 years old, and had been a student for more than 7 years, while for most study programs the regular study duration was 4–5 years, and dropout rates at that time were about 15 % (Teichler 1990). Additionally, due to long schooling, military service, and not least to rising unemployment, which motivated graduates to complete an apprenticeship before enrolling for a university program, the average entry age also rose considerably (Teichler 1990).

In addition, the bureaucratic governance relation between the state and the university and the "organized irresponsibility" (as the rector of Frankfurt University once described the committee governance regime within universities (Herrmann and Steinberg 2008)) became barriers for a progressive development of the higher education system. The often politicized internal governance accompanied by time and resource consuming struggles in committees, and the detailed regulation of academic and financial affairs by the state meant that universities stagnated, and were unable to improve the quality of research and teaching (Burtscheidt 2010; Hödl and Zegelin 1999).

The first amendment of the Higher Education Framework Law in 1985 initiated the first reforms aiming at deregulation. Nevertheless, reforms in the 1980s remained cautious and far less drastic than in earlier decades (Teichler 1990).

In addition, initiatives were launched that concentrated on the improvement of research. Until the early 1980s approximately only 20 % of all research activities were directly funded by external sources such as governmental funding programs (Förderprogramme) and funding agencies. Universities were required to compete for external funding for their research activities and engage in entrepreneurial activities in order to improve the quality, efficiency as well as the social and economic relevance of research (Teichler 1990).

In 1983 the Federal Ministry of Education and Science labeled the emerging changes in higher education with the slogan "Differentiation and Competition". In the following years, an increasing consensus emerged, namely that the competitiveness of educational institutions would be assessed based on rankings, reputation, and performance indicators of universities and their faculties (Teichler 1990).

In the mid-1990s an OECD study brought to light the deficits of the German higher education system, and the pressure for change rose. The OECD agenda was regarded as a main driver for the new definition of the role of universities as promoters of innovation and economic growth; accordingly, universities were elevated to the status of entrepreneurial actors in the worldwide competition for innovation (Münch 2014). These emerging trends made the contradictions of the era of federal

involvement and democratization more obvious. Universities that were considered as the central actors in the global competition for innovation had very little strategic choices to improve their own competitiveness. Attracting highly talented students was confined by the state-controlled supply plans, which made it difficult to develop a differentiated and attractive educational profile (for an overview of the discussion at the ending era of federal involvement see Meyer and Müller-Böling 1996). The situation was similar for attracting qualified academics who would contribute to a specific research and teaching profile; universities lacked the required financial autonomy to pay competitive and flexible salaries for highly qualified professors. In summary, the demand for competition and differentiation as new policy measures in the higher education field was incompatible with the centralized state control model of the era of federal involvement and democratization. Expected benefits of competition can only be harvested if universities are given greater autonomy in matters of resource allocation, student selection, hiring policies, educational program development, and strategic positioning. As the turning point into the new era of managed education, we chose the federal parliament's adoption of the amendment to the Framework Act in 1998, which abolishes the previous "immunity" of professors to external evaluation by providing the legal basis of deregulation, performance orientation, and incentive creation. Although some pilot projects of global budgets were launched in the early 1990s (Jensen and Neuvians 1994), the deregulation and autonomy of universities on a large scale had been mainly put in place by 1998.

3.3 The Era of Managed Education

3.3.1 The Global Context of Managed Education

Globalization, shifting demographics, the changes in the production regime towards knowledge-intensive work, growing competition from the private higher-education sector, and ongoing fiscal constraints have been drivers for the world-wide institutional change in higher education (Høstaker and Vabø 2005; Sporn 2001; Subotzky 1999). Since Europe intends to become the "most competitive and dynamic knowledge-based economy" (European Council 2000), Germany's higher education system was demanded to become more effective in producing useful knowledge and skilled labor to support the necessary innovations at company, regional, and national level (Warning 2007). Additionally, a more effective and efficient utilization of resources was requested that would allow cutting costs in higher education in order to meet fiscal constraints (Kluth 2001). What we recognize is an emerging world-wide structure of higher education which unfolds isomorphic forces. As an effect, academics, universities, and even countries are becoming more alike in the way they encourage, incentivize, and manage higher education.

The main properties of this global structure are at the same time the infusers of a different logic for managing education: global competition in science follows increasingly an economic rationale in which countries, universities, and researchers

compete on a global education market for reputation and market share. Germany was a late-mover in the use of indicators, evaluations and rankings (Weingart and Maasen 2007). The Anglo-American practices serve as an intellectual source for a market model of higher education by the German government and educational experts (Kühler 2006) in their attempts to gain stronger visibility by scoring higher in global benchmarks and moving up in global rankings. Reforms derive their legitimacy from the successful positions of Anglo-American universities in global rankings, despite the articulated critique of how these rankings are constructed (Münch 2014). In the search for a more competitive educational regime, the market model unfolds strong legitimacy for the restructuring of higher education. Interestingly, the marketization of the US higher education system was incremental and led by non-governmental initiatives, while in the case of the EU, the model is engineered by governments and the supranational organizations (Slaughter and Cantwell 2011).

Notably, the transformation of the system from professional dominance to democratization and federal involvement was carried out in the glare of publicity, whereas the institutional change to managed education was hardly noticed, at least in the early stages (Küpper 2009).

3.3.2 Institutional Logic

With the rise of managed education a new interpretive scheme based on three main pillars emerged. Firstly, the centralized planning approach to higher education invented in the 1970s was gradually replaced by a *market logic*. This move required new policy measures such as the increasing deregulation of higher education, especially granting universities greater autonomy in selecting their own students, hiring their own academic staff, and allocating their own financial resources for the development of a strategic profile in competitive educational markets. The role of students also changed gradually from socialized and cultivated learners to sovereign consumers in search of a human investment (Gumport 2000; Ritzer 2004). As Gumport (2000: 79) points out: "The conceptual shift elevates consumer interests as paramount considerations in the restructuring of academic programs and the reengineering of academic services."

The application of the market logic to research was facilitated by the emergence of research productivity indicators such as the social sciences citation index and various research rankings (Adler and Harzing 2009; Frey and Osterloh 2010; Münch 2007) that gradually formed the belief among university administrators and some educational experts that research output can be measured and reasonably quantified. This created the impression that even non-experts can access the quality and productivity of research by simply counting the number of publications, weighted, for instance, by the quality of the journal. The market logic turns the highly uncertain venture of research into a commodity. As Bunge (1998: 253) writes: from a market perspective "scientists produce commodities namely problems, concepts, hypotheses, data, and methods – that can be imputed shadow prices; that they trade these commodities among themselves; that they sell them to universities, business

firms, or governments; that every scientist attempts to maximize his utilities by producing the largest possible quantity of papers …; that scientific creativity is market-driven …".

Secondly, new *auditing practices* (Moldaschl 2005; Power 1997) became a prerequisite and a reinforcing mechanism of the new competitive regime of managed education. In order to organize higher education as a competition within quasi-markets (Bartlett and Le Grand 1993; Binswanger 2010), audits and evaluations serve as a substitute for purchase decisions in private goods markets (Meier and Schimank 2009). Audits and evaluations, whether of teaching or research, establish feedback mechanisms that aim to raise quality, but at the same time create "… a measure of uniformity and homogeneity" (Larson 1977: 40). As Power (1997: 14) argues, with the rise of the audit society auditing becomes a ritualized practice of verification whose technical efficacy is less clear than its role in the creation of organizational legitimacy.

Thirdly, the market model is combined with a *managerialist ideology* based on the belief that the external university relation to the state can best be managed by a New Public Management (NPM) approach. NPM was developed in the 1980s and became the dominant managerial model for public organizations (Gruening 2001; Lane 2000) based on the perceived lack of accountability and declining trust in the quality and efficiency of public services (Nixon 2004). The German version of NPM was formalized as the New Control Model (Neues Steuerungsmodell) by the newly founded institution of Municipal Association for Administration Management (KGSt 2012). A guiding idea of NPM is that decentralized decisions with organizational and financial freedom result in more effective outcomes and more efficient use of scarce resources than the former centralized planning approach of public administrations (Ziegele 2002). Instead of regulating processes, a main characteristic of the era of federal involvement, NPM defines educational policy missions and derives specific objectives for research and teaching that are further broken down to individual universities, faculties, and departments. The financial support of the state then depends largely on the attainment of negotiated objectives (Nickel 2007).

The internal dimension of the managerialist ideology is reflected in new roles and practices of academic managers. Principles of academic autonomy and self-governance have been perceived as less effective for adapting the academic enterprise to changing market needs (Wissema 2009). As in many other professions, more corporate models based on managerial authority and corporate control have attracted interest and have been legitimized as superior for the enterprising university (Clark 1998). The hallmarks of this new institutional logic are well summarized by Osterloh and Frey (2010: 3): "'More market' and 'strong leadership'".

3.3.3 New Actors

Besides the emergence of new actors, the new logic of centrally orchestrated competition, auditing and evaluation demands a transformation of existing actors. The new initiatives from federal and state agencies as well as the emerging global

competition in higher education showed that institutional actors "not only do things differently, but also increasingly do different things" (Scott et al. 2000: 349).

For all participating European countries, the Confederation of EU Rectors' Conferences became an influential actor after the Bologna Declaration in 2000. This new actor initiated restructuring processes for the development of higher education (Hanft and Müskens 2005; Nickel 2007). The general idea of the "action program" of the Confederation of EU Rectors' Conferences can be summarized as convergence, competition and international competitiveness, higher quality, and efficiency (Confederation of EU Rectors' Conferences 2000). The restructuring of higher education aims to "enhance the employability and mobility of citizens" and "to compete more resolutely than in the past for students, influence, prestige and money in the worldwide competition of universities" (Confederation of EU Rectors' Conferences 2000).

In 1994, the Centre for Higher Education (Centrum für Hochschulentwicklung CHE) was founded with a yearly budget of 3 million euros, funded half by the Bertelsmann Foundation (private) and half by the Foundation for the Promotion of the Rector's Conference (Stiftung zur Förderung der Hochschulrektorenkonferenz). The CHE was designed as a partner for ministries and higher education institutions to support restructuring projects and to offer training programs. The CHE is free from directives of its funding organizations, publishes ongoing studies, and since 1999 has developed a national university ranking.

Throughout all eras, publications, associations, and conferences have been the institutions of communication, exchange, and networking for academics. In the past, communication and quality control of publications were more or less decentralized in the hands of academics. Managed education is characterized by the emergence of central organizations as intermediaries between the state and academics to govern science and scholarship by allocating resources and reputation as well as controlling research agendas (Meier and Schimank 2010). The most important authorities are citation indices such as the Social Sciences Citation Index, the hegemony of American high-impact journals, and university rankings such as the Shanghai or Times Higher Education Ranking (Frey and Osterloh 2010; Münch 2014). The narrowing of publication preferences results in a devaluation of monographs, book chapters, research reports, policy recommendations, and so on. Consequently, academics are increasingly focusing on the journal article as the preferred publication type, and hunt for placements in high-impact journals, sometimes at the cost of originality, resulting from the limitations of the peer review process (Münch 2014).

Since study programs are no longer approved by ministries, a new type of actor has appeared in the German educational field: national and international accreditation agencies supervised by a national accreditation council founded in 1998 (Meyer 2010). These new actors became important players in the quality control of the university's teaching programs and may improve quality assurance and reduce the inefficiency of "traditional" state bureaucracy (Schwarz and Westerheijden 2004); however, the auditing practices of accreditation agencies may involve new problems such as a new bureaucratization of universities and an increasing standardization

and homogenization of teaching programs, as well as ignorance of non-measurable quality properties (Münch 2014). With the establishment of the European Consortium for Accreditation (ECA) in order to mutually recognize accreditation decisions, it seems that governmental bureaucratization is being reintroduced on a higher level.

The logic of managed education demands a division of labor on the lines of teaching, research, and management of academic affairs, and results in new groups or actors. In Germany this trend is becoming visible, even though Germany is still lagging behind in hiring professional full-time presidents or deans (Kirchgessner 2011), and some academics are critical about the division of teaching and research, since it contradicts the Humboldtian ideal of their unity (Meier and Schimank 2009; Münch 2009).

While we recognize different responses to managed education by German universities, the most wide-ranging response is the emergence of a new archetype – the entrepreneurial university. Entrepreneurial universities are opportunity-seeking and opportunity-exploiting regimes that respond strategically to challenges in their core domains of research, teaching, and commercialization of academic knowledge in order to fulfill their mission. The entrepreneurial university (Bronstein and Reihlen 2014; Guerrero-Cano and Urbano 2010) strives for the "capitalization and commercialization of knowledge" (Slaughter and Leslie 1997), the "contribution to local economic development" (Röpke 1998), and the "development of an entrepreneurial culture", both within and around the university (Clark 1998; Kirby 2005).

Moreover, the institutional differentiation into universities and universities of applied sciences which were established during the era of federal involvement and democratization is becoming blurred and politically contested (Science Council 2010a, b). Especially the Bologna Process accelerates the institutional assimilation and convergence between universities and universities of applied science (Reymann 2010; van Vught 2009: 29; Witte et al. 2008). Outside Germany, the debate of an "academic drift" already started in the late 1970s in the U.K. (Neave 1979). In Australia, the binary system has been formally abolished at the end of the 1980s (Meek 1991); similarly, in the U.K. former polytechnics were given university status based on the *Further and Higher Education Act* from 1992 (Williams 1997). However, most Western European countries maintain an institutional differentiation. Nevertheless, the logic of managed education fosters stratification of the higher education field beyond formal institutional differentiation.

3.3.4 Governance System

The changes in institutional logics were accompanied by a move from the state to the market model of governance. The new system of governance is reflected in an internal reorganization and managerialization (Blümel et al. 2011) of the university and new external relationships to the state and other actors in the field, such as intermediaries.

The internal governance system of universities has been changed by strengthening the rights of university administrators while reducing the participation rights of academic and non-academic members. The withdrawal of democratic rules was manifested in the following structures:

Shifting Power Structure: From a Rectoral to a Presidential Constitution The introduction of councils goes hand in hand – at least ideally – with a strengthening of the executive committee and a weakening of the senate by reducing the latter's competencies in academic matters (Kluth 2001; Meyer-Guckel et al. 2010).

Emergence of University Councils (Boards of Trustees) Behind the diversity of state laws of higher education, three commonalities can be identified: the council is an additional managing body to the traditional organs of rectorate and senate; in most states, the majority of its members or all of the trustees are to be non-university members, the idea being to make university leadership more sensitive and responsive to the broader demands of society; inspired by NPM, councils are taking over supervision and control functions, which had previously been performed by state bureaucrats; university managers should be more professionalized and take the managerial practices from the corporate world as an important reference point (Bogumil et al. 2007; Burtscheidt 2010; Kluth 2001; Meyer-Guckel et al. 2010).

Shifting Incentives In the past, professors could negotiate initial endowments and resources were fixed for the duration of their tenure (Burtscheidt 2010). In managed education, academics increasingly are paid for their performance in research, teaching, and other university-relevant domains, as measured by such indicators as the acquisition of external funding, number and quality of journal publications, as well as specific objectives that bring academics into line with the university's strategy (Osterloh and Frey 2008).

Mergers of Higher Education Institutions for Cost Efficiency and Strategic Profile Development Whereas mergers in higher education have been widespread in the U.S., U.K., Australia, and the Netherlands since the 1970s (Goedegebuure 1992; Harman and Harman 2003; Harman and Meek 1988; Skodvin 1999), in Germany mergers are a fairly new phenomenon. Motives for these mergers are profile development, quality improvement, raising visibility, economies of scale, and synergy effects to improve the position in competitive education markets (Battke and Cremer-Renz 2006; Pruisken 2012; Weber 2009). Empirically, the majority of the few mergers in Germany still reflect state-decreed cost-reduction policies (Pruisken 2012). The reforms of external governance were designed to increase the autonomy of universities and encourage competition among them.

Ambivalent Autonomy The fourth amendment to the HRG of 1998 was an important legal step towards achieving the universal desire for increased university autonomy by deregulating internal and external organization, administration, and the

budgeting process. Following NPM, input control was replaced by output control, i.e. funding was now related to outputs through goal attainments as well as controlling, reporting, and auditing systems based on performance indicators (Nickel 2007). However, the extent of the use of performance indicators and goal attainments varies by state (Leszczensky et al. 2004). Cameralism in the era of managed education was disappearing, to be replaced by global budgets, where the state only provides a few aggregated titles (in the extreme case two titles: investments and current expenditures). In practice, the degree of financial autonomy of universities varies by state law, and in most cases a "minimal cameralism" remains (Ziegele 2002). Generally, universities have gained a new degree of autonomy over their resources, especially financial resources, and they can allocate inputs themselves in order to accomplish specific outputs. These changes have brought universities an increasing autonomy, which is the necessary condition for creating profiles and striving for excellence by becoming entrepreneurial (Meier and Schimank 2010; Weingart 2010). However, in practice it has not stopped the states from cutting university funding (Behrens et al. 2006) and maintaining influence (Knobloch 2010).

Substitution of Basic Funding Through Competitive Funding Programs Funding agencies in the form of transnational organizations such as the World Bank or the European Union, national research foundations such as the Deutsche Forschungsgemeinschaft (DFG), Volkswagenstiftung, and programs offered by federal, state, and local government agencies are important actors in shaping research. In Germany, the percentage of total funding accounted for by so-called third-party funds is increasing continually (DESTATIS 2009). Funding agencies develop research programs ranging from the future of production (BMBF[1]) to Joint Ventures for Caucasian railways (EU). More recently, the most prominent of these competitive funding programs is the federal Excellence Initiative, which is having a considerable impact in restructuring the German higher education system into a competitive, incentive-driven, and demand-oriented service system (Bloch et al. 2008; Hartmann 2006; Kehm and Pasternack 2008; Münch 2006, 2007). Typically, these programs initiate interaction within the academic community and, depending on the program, even facilitate inter-disciplinary discourse. The institutional function of these programs is at least twofold. Firstly, they offer specific research services for the beneficiaries. Secondly, programs trigger innovations in the scientific system. As studies on the innovation problems of research groups show, research teams have a tendency to stabilize the status quo, and therefore demonstrate conservative behavior patterns (Krohn and Küppers 1989). Krohn and Küppers (1989: 89) argue that this situation leads to an interesting paradox. In those areas where science can be practiced autonomously, we can recognize a tendency of research groups to do the same thing over and over again; while in areas where they have to attract external funding, substantially greater innovation can be recognized. In this respect, funding agencies perform an important cognitive function for the scientific

[1] BMBF: Bundesministerium für Bildung und Forschung (German federal ministry of education and research).

community. These programs are constructions of future knowledge and considerably affect the cognitive orientation of researchers (Braun 1998). Competitive funding is also subject to criticism, for it restricts knowledge creation, especially in times when basic funding for independent research by professors is being reduced, leads to a stratification of universities (Münch 2009), and creates inefficient resource allocation because of declining economies of scale (Binswanger 2010; Münch 2014).

4 Conclusion

The key motivation for writing this chapter was the growing awareness that the higher education system in Germany and in most other Western countries is undergoing a fundamental institutional change. This change is redefining the rules of the game of science and scholarship; and hence the roles played by universities and scholars as well as the state within this emerging institutional context of managed education. While managed education is a far more tangible reality in the Anglo-Saxon world, it has also become the key reconfiguring force for the German system of higher education (Burtscheidt 2010; Münch 2007, 2014; Rhoades and Sporn 2002). However, the German version of managed education is not simply a transfer of practices that have been implemented elsewhere, especially in the U.K. and the U. S. It turns out to be a locally adapted form with substantial variations in actors and governance systems. Since all education systems have a history creating a path-dependency, our aim was not simply to reconstruct the current state of affairs of the German system of higher education. Rather, we wanted to understand how the institutional changes have unfolded over time and emerged into systems of beliefs, norms, and practices in the postwar period. As a result, we developed a typology of institutional eras composed of a unique interplay of logics, actors, and governance systems. The German system of higher education, we argue, departed in the postwar period from an era of professional dominance (1945–1968), which was replaced by an era of federal involvement and democratization (1968–1998) until more recently managerialism and marketization became guiding principles for the new archetype of managed education (since 1998). With managed education a new type of university – the entrepreneurial university – emerged as a strategic response to the new institutional pressures.

We argue that the evolution of the institutional system of higher education not only in Germany, but also in many other Western countries, swung like a pendulum between the two extreme system's designs: one fostering individual freedom of scientific autonomy and one emphasizing the instrumental character of science for national educational agendas. Both extremes describe a fundamental tension: Is the role of the education system geared towards the values and norms of the republic of science (Polanyi 1962) or is higher education designed to serve predetermined educational interests and goals of the state. As Olsen (2007) points out, "institutional change is often seen as driven by perceived failure" (p. 52), which undermines the legitimacy of institutions and is followed by processes of de-institutionalization

(Greenwood et al. 2002). The rise of the student movement and the desire of the federal government for central planning of the education system had led the higher education system to swing from one that emphasized scientific autonomy to the other extreme. Only during the third era of managed education the higher education system has started to return to a more balanced position. Yet, this new balance is a highly contested political battlefield, and we recognize movements in some German states like North-Rhine Westphalia to fall back to a regime of state controlled higher education (Frost et al. 2015).

In managed education policymakers orchestrate autonomy of research and teaching with the need to coordinate these decentralized policies by promoting cooperation and competition at different levels within and across universities and regions. Orchestrating the higher education system becomes a balancing act for policymakers. New public management and wide-ranging auditing and control practices can be applied to over-manage the system. The faith of policymakers in the use of quantitative goal attainments, evaluations, and rankings as control instruments of the higher education system can undermine professional self-regulation (Freidson 2001) and may even foster professional disintegration (Broadbent et al. 1997). On the contrary, fostering too much competition and relying predominantly on market forces facilitate the commodification of science (Bunge 1998). Some of the dysfunctional effects of the marketization of science, such as rising student consumerism (Gumport 2000; Riesmann 1998), intellectual prostitution (Frey 2003), the undermining of scientific creativity (Heinze et al. 2009), and a loss of intrinsic motivation (Binswanger 2010; Osterloh and Frey 2008) are well documented. Furthermore, under the regime of managed education we witness the tendencies towards a new bureaucratization (Binswanger 2003, 2010; Langfeldt et al. 2012; Münch 2007), the discouragement of transdisciplinary research and other forms of theory-praxis exchange (Münch 2014), and towards the institutional decoupling of teaching and research (Meier and Schimank 2009) are to be evaluated critically.

Still, the critics partly overlook that the precursor of managed education – the era of federal involvement – already created the seeds for the decline of higher education in the Humboldtian sense. Mass-education in largely underfunded universities combined with a centralized planning approach to higher education from the state, and the managerial problems associated with the committee governance system of universities made it more difficult to commit the education system to high scholarly standards. Despite the drawbacks of managed education as reported by its critics, universities have regained a degree of autonomy, which they lost during the era of federal involvement (Burtscheidt 2010). However, returning to the hierarchical culture of the Ordinaria system, which was rightly attacked by the 68 movement, is antiquated and demonstrates no attractive and sustainable alternative.

Managed education also has clear managerial implications. In response to competition and differentiation of the higher education system, universities have become more visible actors searching for a unique profile and have turned from collegially or politically administered organizations to strategically managed universities. Strategic management of universities is the continuous creation and exploitation of entrepreneurial opportunities for profile development in research, teaching, and

industry-university relations. As Münch (2011: 82, translation by authors) points out, the quintessence of strategic profile development is "the perpetual search for uniqueness, for the niche in which one does not compete with any other university in the world." Strategic profile development is translated into three types of strategies that emphasize different sources of uniqueness and competitive advantage (see Frost et al. 2015): (a) *institutional strategies* that represent the willingness and ability of an organization to actively shape the framework conditions under which universities operate (e.g., creation of the Lüneburg Innovation Incubator; OECD 2015); (b) *market strategies* that aim to position the university as a unique player in the higher education field, including the segmentation and differentiation of markets (e.g., student recruitment); and (c) *resource strategies* that guide the attraction, development, and bonding of strategic resources such as reputation, intellectual talents, cooperation partners, and funding streams.

Future research should therefore investigate in depth the consequences of managed education and different policy approaches. To this end we propose a multilevel analysis (Reihlen et al. 2007; Reihlen and Werr 2012, 2015). Such an analysis entails first the level of the higher education field, involving actors, logics, and governing systems, as well as processes of change; second the level of the university and its transformation processes; and third the level of the individual scholar, socialized and embedded in this new institutional setting. The guiding research question is: How does managed education affect the reconfiguration of the higher-education field, the strategic choices and structures especially of universities, and the motivation and behavior of scholars? Shedding more light on these issues and developing sustainable policy measures are crucial for the future governing practices of academia and consequently for its usefulness and relevance to society.

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Academic Entrepreneurialism and Changing Governance in Universities. Evidence from Empirical Studies

Marek Kwiek

1 Introduction

In this paper, I focus on a phenomenon widely discussed in European higher education research and policy communities, emergent in various geographical locations across the continent: academic entrepreneurialism – especially with regard to university governance and management. Entrepreneurial universities seem to be increasingly important points of reference for international and European-level policy discussions about the future of higher education and I combine theoretical insights about "academic entrepreneurialism" with recent empirical evidence coming from 27 universities located in seven European countries.

However, the very term "entrepreneurial" (popularized in higher education research first by Clark (1998) is not of critical importance; in recent research literature on university management and governance, "entrepreneurial" universities can also be termed "successful universities" and "self-reliant universities" (Michael Shattock), "enterprise universities" (Simon Marginson and Mark Considine), "enterprising universities" (Gareth Williams), "innovative universities" (Burton Clark), "adaptive universities" (Barbara Sporn) or "responsive universities" (William G. Tierney; see Shattock 2003, 2006, 2009a, b; Marginson and Considine 2000; Williams 2004b; Sporn 1999; Tierney 1998). The authors from various perspectives refer to parallel change processes taking place in Europe and beyond, especially in the USA and Australia.

So the term itself does not matter much – although it seems to capture ever growing public and academic attention, at both national and European levels. What actually matters is rather the novel ways of functioning of selected educational institutions – which increasingly differ from the functioning of their neighboring

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traditional educational institutions in the same national systems. Different authors approach new phenomena in university organization through different theoretical conceptualizations. For instance, Barbara Sporn discusses the change process through the lenses of five factors enhancing adaptation at specialized European universities, leading in five directions: externally focused mission, differentiated structure, collegial management, institutional autonomy, and diversified funding (Sporn 2001: 27). Michael Shattock, in turn, discusses six key notions highlighting the characteristics that "successful" universities have to demonstrate: these are competitiveness, opportunism, income generation and cost reduction, relevance, excellence, and reputation (Shattock 2000: 96–103). Burton Clark in his pioneering study analyzed five ("entrepreneurial", "innovative", "enterprising") European universities transforming themselves over the period of 10–15 years, within a common conceptual framework.

In brief, for Clark in his *Creating Entrepreneurial Universities* (1998) and *Sustaining Change in Universities* (2004), the entrepreneurial universities studied show five elements which make them different from others and which form what he terms an "irreducible minimum": a strengthened steering core, an expanded developmental periphery, a diversified funding base, the stimulated academic heartland, and an integrated entrepreneurial culture (Clark 1998: 5). Clark's criteria are organizational characteristics rather than definitions, though. The five elements, or generalized pathways of university transformations, "rise up from the realities of particular institutions to highlight features shared across a set of universities, but at the same time they still allow for local variation. […] Significant change in universities has definite organizational footing" (Clark 1998: 128).

The last element of the entrepreneurial university within Clark's analytical framework is the "entrepreneurial culture". "Enterprising universities […] develop a work culture that embraces change" (Clark 1998: 7). Organizational culture, seen as the realm of ideas, beliefs, and asserted values, is the symbolic side of the material components featured in the first four elements. It may start as a (relatively simple) institutional idea which is later elaborated into a set of beliefs, and finally becomes the culture of the institution. However, not all cultures fit all institutions. For instance, as numerous studies show (e.g., Kwiek 2008a, 2009a about Central Europe), it is hard to develop research-based entrepreneurialism in non-research intensive universities, for many reasons, including those related to academic infrastructure and those related directly to academic culture. As Shattock (2009b: 41) notes,

> *In research-intensive universities, research is driven by organizational culture and by internal competition and is facilitated by external reputation. Research-intensive universities have a research infrastructure that speeds up research outcomes and attracts large numbers of doctoral students and research manpower that can be deployed to create research teams. … These advantages are not so likely to be available at non-research-intensive universities, thereby making it more difficult for individual academics to get research off the ground and to sustain it.*

Entrepreneurial culture is a crucial component for entrepreneurial transformations. Also in research on entrepreneurship in a broad sense – not only in the sense of "academic entrepreneurialism" – the role of the "enterprise culture" or the "posi-

tive entrepreneurial climate" is crucial, alongside two other important factors – favorable regulatory conditions and well-designed government programs. As the OECD (1998: 12–13) argues:

> *Entrepreneurship is the result of three dimensions working together*: *conducive framework conditions*, *well-designed government programmes and supportive cultural attitudes*. […] *Supportive cultural attitudes also complement framework conditions. For instance*, *other things being equal*, *an environment in which entrepreneurship is esteemed*, *and in which stigma does not attach to business failure resulting from reasonable risk-taking*, *will almost certainly be conducive to entrepreneurship*.

High levels of entrepreneurial activity are often ascribed to "cultural attributes": a view often held by analysts of entrepreneurship is that "culture plays a critical role in determining the level of entrepreneurship. It is also a common view among practitioners and analysts dealing with entrepreneurship that cultural factors are important" (OECD 1998: 50). What happens when institutional culture is not favorable to academic entrepreneurialism, or legal frameworks are too restrictive, or university traditions do not encourage entrepreneurialism? Mora and Vieira (2009: 98–99) highlight two responses on the part of universities which they term entrepreneurialism "through satellites" and entrepreneurialism "through individuals". The former refers to universities which do not change their core but create institutional satellites around it; the latter refers to entrepreneurialism at the level of individual academics and small research units they create.

The league of entrepreneurial universities in Europe seems still relatively small. In recent years, though, the term has been widely popularized in research and policy literature in higher education, with a bulk of books and papers referring often to Burton Clark (in the tradition of higher education research) and Henry Etzkowitz (in the tradition of innovation and science policy studies, see Etzkowitz 2001 and Etzkowitz et al. 2008). The papers on "entrepreneurial universities" and "academic entrepreneurship" (or "academic entrepreneurialism") are currently being published in top academic higher education journals (*Higher Education* or *Higher Education Quarterly*) and top science policy, public policy, and technology transfer journals (*Science and Public Policy* or *Research Policy*).

Entrepreneurial universities, functionally similar although variously termed in different research traditions and different national contexts, currently seem a useful reference point in discussions about reforming higher education systems; and especially in discussions about a possible shift in financing higher education in Europe towards more financial self-reliance and in EU-level and OECD-level discussions about how to secure sustainable development of public universities in increasingly competitive financial environment with powerful intersectoral competition for public funding between higher education and other state-funded public services (see Kwiek 2013). The two leading discourse-producing and data-collecting institutions in higher education – the European Commission and the OECD – had recently a joint initiative of *HEInnovate*: they produced a Web-based tool to measure the degree of entrepreneurialism of academic units and universities along seven major dimensions, from "leadership and governance" to "organizational capacity, people

and incentives" to "entrepreneurship development in teaching and learning", with workshops how to use the tool available all over Europe, (see www.heinnovate.eu).

The entrepreneurial university is often viewed as a response to changing environments: regional, national, and global ones. And, specifically, it has often been identified as the solution to perceived problems, with the perceived crisis of European higher education in the forefront. The idea of the entrepreneurial university can also be seen as the result of an emergence of more globalized higher education sector (see Kwiek 2009b) where a more uniform idea of what the university should do and how it should be organized is ever more present (see, for instance, Pinheiro and Stensaker (2014: 501) who argue, following new institutionalism in organizational studies and analyzing the Danish case of Aarhus University, that the old organization archetype of the research university may be being gradually replaced by a new organizational archetype of the entrepreneurial university, the entrepreneurial university representing "a considerable departure from the traditional ways in which university structures and activities are organized"). In a European context of the recent economic crisis, an idea of self-reliant universities seeking non-state income (Williams 1992, 2009; Shattock 2004) or that of non-traditional stakeholders as new financing sources (Mainardes et al. 2014) is especially appealing, apart from the changed management and governance structures towards more corporate ones. If a widely disseminated global idea of financing public services more from private sources and less from public ones becomes more grounded, following the two decades of its proliferation as part of the New Public Management ideology, so becomes the idea of a stronger market orientation of public universities in Europe.

The wind of change in university funding might not only be towards more cost-sharing (as in all public services) in teaching (Johnstone 2006; Johnstone and Marcucci 2010) and more business funding in research and development (Williams 2009) – but also towards new funding from new university stakeholders such as employers, local communities, former students or business associations (Mainardes et al. 2014). Even though no decreases in the levels of public funding for universities in most European OECD member countries have been reported so far (see OECD 2014), the image of public universities turning more towards the market (and less towards the public purse) seems quite appealing to European policymakers. The idea of entrepreneurial universities, and especially its component of achieving strong financial self-reliance and seeking non-state income, seems again to be "an idea for its time", after its first appreciation in Clark's early formulations by the European Commission already in the early 2000s (see how attractive it was for the European Commission in Shattock 2010).

On top of that, knowledge production in European universities is undergoing a significant reconfiguration (Whitley 2010; Geuna and Martin 2003). The combination of ever-increasing costs of academic research and the decreasing willingness and/or ability of European governments to finance academic research from the public purse (Aghion et al. 2008) leads to the growing emphasis in policy thinking on seeking new revenue sources (Mazza et al. 2008; Alexander and Ehrenberg 2003). The inter-sectoral national competition for tax-based public funding has been on the rise in the last two decades (Powell and Hendricks 2009; Salter and Martin 2001;

Kwiek 2006). At the same time, both the ability and the willingness of national governments to fund growing costs of academic research may be reduced in the future, for reasons as diverse as a shrinking tax base (Tanzi 2011), escalating costs of maintaining the traditional European welfare state model and the challenges of global economic integration and the passage to knowledge-based capitalism (Florida and Cohen 1999), as well as the overall social climate in which the promises of science may be thought not to be met (Martin and Etzkowitz 2000; Guston 2000; Ziman 1994).

In the context of possibly growing financial austerity and the inter-sectoral competition for public funding, the global model of the entrepreneurial university may potentially open new opportunities (as well as new risks). It entails stronger links between universities and the world of business or stronger "university-enterprise partnerships" (see Mora et al. 2012). They may take a variety of forms but they are able to influence the core institutional culture of academic institutions (Maassen and Olsen 2007). Universities do evolve, following transformations in their environments, do redefine their norms and values, and in the last two or three decades, depending on a national context, they have been following new, highly economic arguments for receiving increased public funding for research. The link between universities and "the promise of economic growth" has become ever closer (Geiger and Sá 2008: 186–210). The emergence of the entrepreneurial university entails a gradual redefinition of academic cultures, norms and values towards accepting ever closer relationships between universities and their economic surroundings (Braunerhjelm 2007).

Higher education institutions are increasingly functioning in the "entrepreneurial society" (Audretsch 2007), and universities, firms and governments "each take the role of the other" in triple helix interactions (Etzkowitz 2008: 1; see Fayolle and Redford 2014); as Etzkowitz (2002) argued, some universities (such as the MIT) are becoming generators of spin-off enterprises and some academics are becoming entrepreneurs. At the same time, the adaptation of universities to changing environments occurs at the lower than institutional level, as the challenge is decentralized: "each department within the university will face different types and combinations of stakeholders with different levels of uncertainty and complexity" (Gibb and Haskins 2014: 46). In entrepreneurial universities, the traditional missions of teaching and research are intertwined with the third mission (Pinheiro and Stensaker 2014) and being entrepreneurial institutions depends on individuals and innovative ways of doing things. However, while the ongoing changes in university organization in Europe can be interpreted (following Pinheiro and Stensaker 2014: 501) as part and parcel of the global passage from the archetype of the research university to that of the entrepreneurial university – with such changes as a move from loose-coupling to tight coupling in terms of work integration, from a collegial and democratic to an executive governance model, from dependence on public support and funding to dependence on third stream funding, from multiple, conflicting goals to coherent institutional profiles and unitary organizational identities, from teaching and research to teaching, research and the third mission and, finally, from Mode-1 knowledge production to Mode-2 knowledge production – national filters on global

scripts and global models are still at work (Gornitzka and Maassen 2011). Different countries have different "imperatives, cultures, traditions, frameworks and public policy influences which will influence their view of the entrepreneurial higher education institution" (HEInnovate 2014: 10).

In this context, I analyze academic entrepreneurialism as emerging from recent European comparative (theoretical and empirical) studies in this area. In Sect. 2, academic entrepreneurialism is linked to risk management at European universities and legal and institutional conditions that favor its formation are studied. Increased risk is associated with an increase in uncertainty currently experienced by the vast majority of European higher education systems. In Sect. 3, I study a clash of traditional academic values with managerial values in the functioning of academic institutions, and I address the issue of academic entrepreneurialism in the context of traditional academic collegiality, various ways of minimization of tensions in the management of educational institutions in Sect. 4. And in Sect. 5, I discuss complex relationships between academic entrepreneurialism and centralization and decentralization in universities. In Sect. 6, I study the location of academic entrepreneurialism in different parts of educational institutions. Finally, conclusions are given.

2 Academic Entrepreneurialism and Risk Management

2.1 Academic Entrepreneurialism and Revenue Generation

Let me empirically focus on particular academic institutions from seven European countries: on the changes observed there and the trends these changes may be implicating. The theoretical context for further analysis is "academic entrepreneurialism" as defined by Michael Shattock (2009b: 4):

> *Entrepreneurialism in a university setting is not simply about generating resources – although it is an important element – it is also about generating activities, which may have to be funded in innovative ways either in response to anticipated and / or particular market needs or driven by the energy and imagination of individualism, which cumulatively establish a distinctive institutional profile. Entrepreneurialism is a reflection both of institutional adaptiveness to a changing environment and of the capacity of universities to produce innovation through research and new ideas.*

Academic entrepreneurialism thus concerns the generation of activities that define and establish a clear institutional profile (although these activities may "need to be financed in an innovative way", and that profile can be born in response to the "identifiable and specific market needs", Shattock and Temple 2006, 1–2). Entrepreneurship was defined in the *OECD's Fostering Entrepreneurship*: *The OECD Jobs Strategy* in a very similar way: through the concepts of innovation, adaptability and risk (OECD 1998: 11). "Entrepreneurs are agents of change and growth in a market economy and they can act to accelerate the generation, dissemination and application of innovative ideas. … Entrepreneurs not only seek out and identify potentially profitable economic opportunities but are also willing to take

risks to see if their hunches are right". In many respects, this description can be almost directly applied to "entrepreneurial universities" analyzed in this chapter. It is worthwhile to confront emerging theories of academic entrepreneurialism with economic and sociological research on entrepreneurship treated as a field of research (see, for example, such volumes as Lundström and Stevenson, *Entrepreneurship Policy*: *Theory and Practice*, 2005, *Handbook of Entrepreneurship Research*, Alvarez, Agarwal and Sorenson 2005, Lowe and Marriott's *Enterprise*: *Entrepreneurship and Innovation. Concepts*, *Contexts and Commercialization*, 2006, and numerous works over the years by David Audretsch and Zoltan Acs, for instance their *Handbook of Entrepreneurship Research. An Interdisciplinary Survey and Introduction*, 2010. See also a line of research developed by Scott Shane within his "general theory of entrepreneurship", Shane 2004, 2005).

The enterprising university, as Gareth Williams (2003) argues, is a useful generic name describing a multitude of changes occurring in the mission, management and funding that a number of European universities have been undergoing for 20 years. Williams argues for the following relationships between entrepreneurialism (including: academic entrepreneurialism), innovation, risk and financial dimension of functioning of the academic institution:

> *Entrepreneurialism is fundamentally about innovation and risk taking in the anticipation of subsequent benefits. Neither the innovations and risks nor the expected benefits need necessarily be financial, but it is rare for them to have no economic dimension. Finance is a key indicator and an important driver of entrepreneurial activity.* (Williams 2009: 9)

When can academic entrepreneurialism emerge in educational institutions, what favors its emergence, formation, and institutionalization, and what, in turn, makes it institutionally hard to institutionalize? Empirical research on European universities indicates that, in general, where funding is provided at an adequate level, academic entrepreneurialism occurs rarely. Two parallel factors are conducive to academic entrepreneurialism: financial shortfalls and financial opportunities that institutions and individuals can benefit from on a competitive basis; slight underfunding of universities but not large underfunding from basic public sources.[1]

2.2 *Collegial, Bureaucratic, and Entrepreneurial Management Styles in Higher Education*

In general terms, Williams distinguishes between three basic university management structures and styles: collegial, bureaucratic and entrepreneurial (Williams 2004a: 84–92, accompanied by collegial, bureaucratic, and market forms of resource

[1] As Williams (2009: 9) summarized his conclusions from EUEREK-studied institutions in seven countries: "any organization with an assured income at a level that is adequate in relations to its needs and aspirations has little motivation to undertake risky innovations. … Financial stringency and financial opportunities have been the main drivers of entrepreneurial activity in the case study institutions".

allocation in universities, Williams 1992: 135-1–40). Collegial management means that the academic staff or their representatives take all important decisions through a process of consensual decision making – until a broad agreement about the way forward is reached. The processes of consultation are inevitably time-consuming, and decision-making process is slow. In hard times of financial austerity, though, it is almost impossible to reach agreement about where cuts should be made (Kwiek 2012). Bureaucratic management, in turn, means a form of organization in which everyone in a management hierarchy has freedom to act within prescribed limits – decisions are taken quickly but a small number of individuals at the apex make final decisions and there is a 'we/they'-feeling of alienation in an institution. Finally, entrepreneurial forms of management are most likely to be found when the institution needs to generate income or to enhance its reputation in a variety of different ways – in order to prosper or to survive. As a UK EUEREK ("European Universities for Entrepreneurship – Their Role in the Europe of Knowledge") national report highlights,

> *Financial stringency, competition, and market responses require quick decisions and flexible implementation of them. Traditional consensual and collegial management structures were no longer considered to be effective. In a competitive environment, management needs to be geared towards performance: universities have had to streamline their decision-making processes, be more alert to income earning possibilities and be prepared to take some risks. … The diversification of funding sources led to strengthening of financial management. Transparent models of internal resource allocation were introduced that made it clear which departments were generating financial surpluses for the university and which deficits.* (*EUEREK national reports: the UK*)

Universities or departments which are able to keep any income they earn are most likely to behave entrepreneurially. According to Williams, "the key to entrepreneurial management styles is an understanding and management of risk. Managers who take risks and are successful are rewarded. Failure and passivity are penalized" (Williams 2004a: 86–87). The UK system is substantially more entrepreneurial than any other system studied in Europe.

The role of strong core administrators – accompanied by strong strategic committees – is emphasized in many EUEREK (and other) case studies of European universities. Managing structures and decision-making processes at a small private university (University of Buckingham in the UK) are substantially different from those at bigger institutions (such as University of Warwick and University of Nottingham in the UK or Twente University in the Netherlands). For example, each of the three schools at Buckingham is treated as three business divisions, and each division is responsible for maximizing its financial return (derived largely from teaching through fees). The decision process at Buckingham is simplified: as its Director of Finance stresses:

> *Buckingham has three academic Schools, and we look at them as three business divisions. Each is responsible for making the maximum financial return and growing their business. The decision-making process at the University is quick and comprises five people: the VC* [*vice-chancellor*], *his deputy and the three Deans. We meet every week for two to three*

hours, so we do make good progress and good academic decisions in that sense. We get on very well. (*EUEREK case studies*: *University of Buckingham, the UK*)[2]

2.3 The Crucial Role of Risk-Taking

Academic entrepreneurialism involves risk-taking (Shattock 2003; Williams 2009). In most EUEREK case studies, institutions have to deal with high levels of risk on a daily basis; in private institutions, the major risk studied is a financial one, related to student numbers (and student fees). But as Shattock explains, in universities "risks may be academic or reputational as well as financial" (Shattock 2004: 19). The Polish case study of a medium-sized, vocationally-oriented private institution (WSHIG – Academy of Hotel Management in Poznan) explains:

WSHIG has been operating under a constant risk in recent years. The major risk has been financial – will the income from student fees cover the expenditures, especially debt installments to the banks. WSHIG has been investing heavily in its infrastructure. (*EUEREK case studies*: *WSHIG, Poland, 15–16*)

At Buckingham, another private institution from the 27 European institutions studied, what is meant by risk is exactly the financial risk:

The most important risk to the University is financial. With a small research portfolio, academic risk is restricted to the student take up of degree programmes. In that sense the University is operating on a knife edge of risk. (*EUEREK case studies*: *University of Buckingham, the UK, 10*)

Competition leads to financial uncertainties experienced not only by private institutions, as in the above cases. The volatility of research and student markets influences public institutions as well. As an academic from London School of Hygiene and Tropical Medicine (LSHTM) in London puts it,

The School is very much influenced by external factors (e.g. more than half of our income comes from research grants and contracts which are short-term) and short-term fluctuations in policies. They transform your fortunes and suddenly make an area of research attractive. As the school is very research-active, it is also very dependent on research funding. … If suddenly students don't turn up, the School's financial stability is threatened. We are very dependent on student fee income and on attracting overseas full-fee paying students, and sometimes a student influx from a certain corner of the world will dry up and you don't know quite why. (*EUEREK case studies*: *LSHTM, the UK, 18*)

There are also other forms of risks involved in the case of the EUEREK institutions: the competition in the areas of studies between public and private institutions (most often, tax-based public institutions suddenly opening the same study programs or modifying the existing ones – and running them without charging student fees); changing state regulations, and academic prestige (or reputation). The role of risk management in entrepreneurial universities is crucial: what is stressed is the

[2] References to the case studies in this paper will have the following format: EUEREK case studies: the name of the institution, the country, page number

monitoring of performance at individual academic levels by heads of departments (and at the same time by members of strategic management teams); risk management focuses also on outside grants. Structured risk management, with respect to both finances and reputation, is often used (see EUEREK case studies: LSHTM, the UK, 23).

3 Academic and Managerial Values

In the UK, changes in funding in several universities seem to point the direction of steps not only already taken by British institutions but also those (at least considered) to be taken in major Continental higher education systems. As Shattock noted, "the UK public universities were already operating in a marketized system and generating substantial non-core income in 1994, while they have mostly grown their non-core income considerably, the growth has done no more to keep pace with the growth of core income. All the other countries, starting later, have begun to move rapidly in the direction the UK followed before 1994" (Shattock 2009b: 5–6). The changes in funding and governance and management go often hand in hand, and the UK is a good example. Nottingham's management structure is similar to that of Warwick's: a strong management board is accompanied by strategic committees. Committees deal with specific issues, day to day management operations are done by the management board; the role of the university council is reduced but consultations are performed through committees. There is a balance between bottom-up initiatives – and top-down strategic guidance. The role of strategic committees at Nottingham University is explained below:

> *In 1995 a new streamlined committee and management structure was introduced. Day to day management issues at the University are the responsibility of the Management Board, which meets weekly. This group also initiates strategy. It currently comprises the Vice-Chancellor, the six Pro-Vice Chancellors, the Chief Financial Officer and the Registrar.* […] *The Management Board is a sub-committee of the Strategy and Planning Committee, a committee of the University Council, which is legally responsible for all the strategic decisions of the University.* (*EUEREK case studies*: *University of Nottingham, the UK, 3*)

In general terms, (Clark's) "strengthened steering core" means the operationalized reconciliation of "new managerial values" and "older academic values". If these values are not reconciled, institutions feel tensions which require top management's (sometimes considerable) attention. The idea (operationalized e.g. at Manchester University) that heads of schools and deans are members of a senior management team at the central level brings academic units and their representatives closer to the central management. The tensions can be smaller as it is the job of deans and heads of schools to keep explaining actions taken at the senior administrative level (in Polish public universities, deans of faculties – but not heads of departments, lower-level academic units – form often a body of all deans at a central level, cooperating closely on a weekly basis with the rectorate, university's main

management body). As in an example below (from Nottingham), it is not easy to reconcile academic and managerial values:

> *However, managing university staff is a notoriously difficult exercise, especially when at least some aspects of marketing and entrepreneurial activities seem to conflict with deeply held academic values. Effective power in a university is intrinsically and inevitably deeply embedded in academic staff of the institution, because only they have the expertise to make it work. The pro-vice-chancellors at Nottingham devote a considerable amount of time in proselytizing within the institution.* (*EUEREK case studies*: *The University of Nottingham, the UK, 8–9*)

4 Academic Entrepreneurialism and Collegiality

4.1 Tensions: The Center and Base Academic Units

The case studies of entrepreneurial universities in Europe show three methods to minimize tensions between the center and base academic units (the third being used by both the first and the second one as well). The first method is to pursue a flat management structure, eliminating intermediate units (faculties), to minimize barriers between the center and the base units (departments): examples come from the University of Warwick, the University of Joensuu (Finland) or the vast majority of Polish private institutions (the case study of WSHIG in Poznan provides a good example: there is the rector and his small team of collaborators, strategic management team – and departments, without the intermediary level of faculties). There are no deans there; departments and research centers have direct contact with the center which consists of the vice-chancellor's office and a number of central interlocked (through some overlapping participation) committees – a perfect example of a successful flat management structure in Europe is Warwick. The second method to minimize tensions is through keeping three-level arrangements, increasing authority and responsibility of existing multiple levels (the center – faculties – departments) – examples comes from Twente University in Enschede (the Netherlands) and the Chalmers University of Technology (Sweden). There is s traditional basic structure in place there: a small central office headed by the rector, president or vice-chancellor; faculties headed by deans; and departments chaired by their heads. The difference from traditional collegial structures is the stronger personal authority in line positions and, at the same time, greater collegial authority in academic committees. This is thus the combination of stronger individual authority of rectors, deans and heads, combined with stronger collegial authority of committees and higher levels of professionalization of the university central administration. New bodies comprising the two increased authorities are "university management groups" or "university management teams". There are dangers that too much power given to the departments may lead to the gradual disintegration of the university as a whole (the university as increasingly merely an aggregate of entrepreneurial units and entrepreneurial individual academics). And the third method to minimize

tensions is the increasing professionalization of administration all along the line, and particularly at the center, as shown in entrepreneurial universities in Europe which have flat structures as well as those which keep the traditional three-level arrangements.

The professionalization of administration is crucial especially for the financial aspects of functioning of the university. Multiple non-academic tasks are increasingly being performed by well-paid experts and specialists, rather than amateurs recruited from among former or current academics in higher education (which leads to the development of the "diversifying workforce" and "changing academic and professional identities", Gordon and Whitchurch 2010; Whitchurch 2010): these units include especially finances, student affairs, alumni and fundraising affairs. More and more previously unknown administrative posts are being created: in the Polish case, units for EU structural funds, units for EU research programs, units for technology transfer, and university foundations to promote the university brand etc., are either increasing their size or are newly created (as the EUEEK Poznan University case study shows).

4.2 Academic Autonomy and Academic Collegiality

Most case studies available, both from Europe and the USA, indicate that academic autonomy and academic collegiality in managing entrepreneurial universities is not lost in most successful cases (Shattock 2009b; Clark 1998, 2004). There are many cases of excessive centralization and examples of getting rid of (sometimes remnants of) academic collegiality. The best examples of this trend come from Australia and New Zealand (for instance, the Monash panoramic case study by Simon Marginson 2000; *The Enterprise University* case studies reported by Marginson and Considine 2000; and case studies reported by Janice Newson and Jan Currie in *Globalization and the University*, Newson and Currie 1998). Certainly, the movement in general, in the overwhelming majority of public and private sector institutions, not merely entrepreneurial ones, is away from powerful senates and general academic assemblies and towards strengthened rector's/vice-chancellor's offices at the central level. In a single word: from academic oligarchy models (and state-centered governance models) to more managerial governance models (on the changing attractiveness of the academic profession in Europe, see Kwiek 2009c, and on the complexity of the academic enterprise in Europe, see Kwiek 2012).

Governance structures at Twente University, an example of an entrepreneurial *and* decentralized university, are 'flat': "Within this new organisational structure, a decision-making process was introduced in which the deans and the scientific directors form the university management team, together with the Executive Board. While the Executive Board is ultimately responsible, the UMT [university management team] sets out the strategic direction of the university. The result of all the changes is a 'flat' organization, which can respond directly and collectively to

developments in the social-cultural, political or economic environment of the university" (Arnold et al. 2006: 38–39).

In small private institutions, both governance and management structures and procedures can be simplified to the extreme. These simplified structures are often reported in new private institutions in European post-communist countries which had often appeared out of nowhere, with no international investments or public subsidies involved, and which in their first years of operation had been constantly in danger of a financial collapse (WSHIG in Poznan being a perfect example). The institutional culture of financial survival, as reported in Spain, Russia, Moldova, and Poland, has been very strong in these private institutions. The consequences of this dominant institutional culture for management styles and managerial practices are significant: decisions are often taken by up to five people, there is almost no spirit of academic collegiality and all major (and sometimes most minor) decisions are actually taken by rectors/owners/founders of these institutions (often the same persons). These simplified management structures seem to work only in relatively small institutions, with no major research ambitions and those which are relatively non-competitive work places for the staff. There are virtually no research funds available to these institutions (either from private and public sources), and consequently most academic decisions are relatively non-controversial and teaching-related. As in a Polish case of WSHIG:

> *All key decisions concerning WSHIG are taken by the rector. There is no Senate as the Academy is too small – but key academic decisions are confirmed by WSHIG's Scientific Board, meeting 3–4 times a year*. […] *The management team is small and very effective*; *it comprises rector and the three vice-rectors*. […] *In a small-size academic institution like WSHIG it is still possible for its rector to make all major decisions*; *and to make many minor decisions as well.* (*EUEREK case studies*: *WSHIG*, *Poland*, *15*)

The administration of entrepreneurial institutions studied managed to fuse new managerial values with traditional academic values; in no successful cases reported, the attempts to eradicate the traditional academic values and to replace them with managerial ones succeeded (a different story are "corporate universities", private for-profit institutions, active largely in very selected areas of studies and research, including computing, accounting, business law etc., see Breneman et al. 2006; Kinser and Levy 2006). Somehow surprisingly, this sector has been neglected in major case studies of entrepreneurial universities available on a European scale.

What do the agents of change/agents of transformation do – those leaders located in the strengthened managerial core of entrepreneurial universities? They (Clark 1998: 137–138) seek other patrons in funding, work to diversify income and enlarge the pool of discretionary money available to an institution; seek out new infrastructure units (academic and administrative alike) that reach across old university boundaries, and reach the outside world of firms and companies. They are necessary for the task of cross-subsidizing various fields and different degree levels, taxing richer programs and aiding those less fortunate (through top-slicing the profits). So they seek to subsidize new activities and try to enhance old valuable programs. The steering core is responsible for keeping the right balance between rich and poor departments.

5 Academic Entrepreneurialism, Centralization, and Decentralization

5.1 Top-Slicing Procedures

It is important to highlight the role of non-monetary dimensions of entrepreneurialism, such as the prestige (or reputation) of an institution.[3] An entrepreneurial university, as Williams (2004a: 86–87) argues, will "reward departments and individual members of staff according to their success in bringing resources or reputation into the institution. Activities that are unable to make a net surplus, in either income or institutional reputation, are discontinued". Again in general terms, as the case studies of entrepreneurial universities show (also the Russian case studies discussed in Shattock's edited volume on entrepreneurialism of Russian universities, Shattock 2004), there is always some degree of collegiality and some degree of bureaucracy – but the shift in managerial styles reported in Europe in the last 20 years is away both from collegiality and from bureaucracy, and towards entrepreneurial styles of management (Paradeise et al. 2009). In practice, the shift means e.g. that the vice-chancellor has acquired increased managerial powers; that he is now supported by a small but very powerful strategic management group that determines the strategic directions and ensures links between the vice-chancellor's office and the university staff. Universities introduce clear resource allocation models, supervised by these teams, which allocate the income of the university among the university units and determine what percentage of the commercial income shall be treated as indirect costs and what are the "top-slicing" procedures. Usually, a formula basis is used – but its exact components are constantly under review (and under inter-faculty discussion).

Financial formulas based on top-slicing revenues from the richest university units always raise institutional controversies – and these units almost always feel mistreated in some way. However, the problem of the level of institutional overheads is a key problem for the integration of an institution as a whole: the lowest overheads are reported in most disintegrated institutions (for example in Europe, it is the case in most post-Yugoslav systems in which the major thrust of internationally-supported reform programs is to achieve a higher degree of institutional integration). In disintegrated institutions, the authority of rectors, that is, of the central management level, is minimal because, among other things, departments are almost completely financially independent from the university as a whole, and the financial means that the rector has at his disposal are minimal.

[3] Institutions are able to attract and keep their staff for a variety of reasons, not only mercantile ones (the same arguments hold for technology transfer activities in universities, see a study by Lam (2011) on three types of motivations of academic scientists to engage in research commercialization: "gold", "ribbon", and "puzzle"). As Florida and Cohen (1999: 606) noted along similar lines, "smart people do not necessarily respond to monetary incentives alone; they want to be around other smart people".

Resource allocation models used in entrepreneurial universities studied have strategic implications for the nature of an institution: institutions become more centralized or more decentralized. Through resource allocation, some strategic decisions are followed to the detriment of other strategic decisions (and some priorities in the selection of study and research areas are followed rather than others), as Jarzabkowski (2002: 5) stresses. Hard choices between faculties, departments, centers and study programs have to be made, and they are often being made using allocation models. An example of strategic decisions is the route followed by University of Warwick between 1992 and 1998: "Warwick has consistently pursued goal-oriented actions related to research excellence, income-generation, capital expansion and growth of the Science Faculty" (Jarzabkowski 2002: 12). Of course, it was a strategic decision to develop science at the cost of other departments and academic disciplines (strategically selected). With resource allocation models, there are winners and losers but the selection is made more clear to the academic community.

5.2 Centralized, Decentralized, Overpersonalized

Effective entrepreneurial universities are neither extremely centralized nor decentralized; they are administratively strong at the top, the middle, and the bottom. The decentralized entrepreneurial university is certainly University of Warwick; the centralized one, on the other hand, is Twente University in the Netherlands (both analyzed in Clark's and others' case studies in the last decade and a half). They introduce professionalized clusters of change-oriented administrators at all levels – development officers, technology-transfer experts, finance officials, and sophisticated staff managers – to help raise income and establish better internal cost control. Entrepreneurial universities develop a "new bureaucracy of change" as a key component of their (entrepreneurial) character, far different from old bureaucracies. As Clark explains (2003: 108):

> *Diversifying sources of income requires new tools of implementation in the form of new administrative offices staffed by specialised experts. Every new connection to an income source requires an office, or new part of one, to tend to the focused flow of business. Thus, they multiply.* […] *In transforming universities, the bureaucracy grows. But it is based on a change orientation very different from the old rule-enforcing, state-mandated bureaucracy that gets left behind. The old bureaucracy looked to the prevention of error; the new bureaucracy looks for the stimulation of initiative.*

It is important to avoid the appeal of overpersonalized leadership, though: the European case studies of entrepreneurial universities clearly indicate that strong and devoted leadership is not enough to introduce, or sustain for the future, structural changes. The CEO type of managers, authoritarian personalities at the top, in most cases do not endure. As Clark (2004: 85) phrased it, based on his 14 global case studies, "enterprising universities … are characterized by collegial entrepreneurialism". Also none of the case studies of successful entrepreneurial universities in

Europe reported the crucial role of charismatic leaders in the long run; in the medium run, they were able to start transformations towards entrepreneurialism. Consequently, the case studies available tend to indicate the crucial role of strong "university management teams" (or bodies with similar names and functions) in Europe – which interact with both governing bodies above and academic bodies (departments, schools etc.) below where the daily routine academic work, and daily transformations, occur. University management teams, or senior management teams, report to governance boards or boards of management. The pivotal role of these strong teams was stressed at e.g. the London School of Hygiene and Tropical Medicine (LSHTM) in the UK, Twente University in the Netherlands, and WSHIG in Poland. As new governance structures are described at the LSHTM below:

> *The SMT* [*senior management team*] *is the major strategic driver in the School, though it consults widely. It has a separate research SMT that brings a wider spread of participation from around the School. … Above the SMT there is a Board of Management, a lay body "which stops us from becoming too introverted and instead looks at changes that might be coming up externally". The Board is also required to be accountable to the HEFCE as the governing body of the institution. Below, there is a School Senate, a reformed body from a previous Academic Board of which all professors and readers were ex-officio members.* (*EUEREK case studies*: *LSHTM*, *the UK*, *22*)

Similar transformations in management structures are reported in numerous case studies of most successful institutions – academically, reputational, and financially. Senior management teams are reported to be the decision-making bodies, responsible to governing bodies. The list of senior management team members is getting longer and may include, apart of the vice-chancellor, pro-vice-chancellors, registrar etc. – also research finance officers or research contracts officers. See a reflection on recent changes in governance at LSHTM below:

> *There is no doubt that the operation of the SMT, meeting weekly, lies at the heart of the successful management of the School. It conforms precisely to Clark's "strengthened steering core" mechanism, which he saw as an essential ingredient to his case studies of entrepreneurial universities* (Clark 1998); *it contains academics and administrators, it consults downwards and recommends upwards, it brings together academic, financial and property strategy, and controls resource allocation. A feature of the changes in management described above has been the School's flexibility and pro-activeness in responding to a changing external environment, and at each stage strengthening the management expertise to ensure the School was able to respond effectively to external pressures.* (*EUEREK case studies*: *LSHTM*, *the UK*, *20*)

As reported at Twente University, the decentralization of the university and its entrepreneurialization may be reaching its limits, though. As its former rector (Frans van Vught) highlights, an entrepreneurial university can become too entrepreneurial and too decentralized: the discretionary funding base can become substantive enough to allow the base units to follow their own course of action, without reference to the overall institution. The base units can become self-supporting groups that can act as individual entrepreneurs. Thus the "entrepreneurial university" should not become a "university of entrepreneurs" (Clark 2004: 40).

The opposite direction – centralization – was taken in making the University of Warwick a major model of European academic entrepreneurialism: the core is

strong and centralized, and departments are basic units, there are no deans or faculties in between. It was at Warwick that Michael Shattock formulated an idea of "earned income" and then the long-term university policy was based on it as a response to hard times of budget cuts at the British universities in the Margaret Thatcher era. As Williams (1992: 38) noted while discussing "external income generation", "earned income can be a source of both profit and problem. Successful management of soft money means encouraging the establishment of systems and procedures that help to realize the profit and avoid the problems". An "Earned Income Group" at Warwick became the instrument for entrepreneurialism, working on adding new sources of university revenues (in short: companies should not give us money, we want to earn it; or as Shattock put it, quoted in Clark 1998: 16: "we had to find ways to generate funding from other sources; we did not see why people or companies would simply give us money so we decided to earn it"). The "earned income policy" worked in the following way: the group was "top-slicing" various incomes generated by various units, and it expected a "profit" from other units; professional managers were hired to run various academic units. Accounts were closely studied for current performance against set targets; successful performances and performers were praised. Several accounts e.g. student residences were expected to merely break-even but all the others had to operate under the dictate of earning income, according to the overall "earned income" university policy. The university committees were allocating sums to departments and were controlling faculty positions. Clark describes the committee system in operation at Warwick as follows:

> *Without extensive decentralization to faculty and departmental levels, Warwick has affected collegial steerage by means of these central committees in which senior officers, some lay members of the council, and faculty members share responsibilities. With faculty clearly involved, hard choices can be made in supporting new initiatives and realigning traditional allocations of resources. The core incorporates the academic heartland into the center. In this structure, a university can be entrepreneurial without the CEO (the chief executive officer), the vice-chancellor in this case, necessarily being entrepreneurial.* (Clark 1998: 23)

The innovative "flat management structure" introduced at Warwick has been very successful but it would not be possible to go forward towards more entrepreneurialism without a (somehow complementary) system of powerful centralized committees. Here is another description of the flat management structure, without reference to finances:

> *A strengthened administrative core … arguably is the most important of all the pathways taken to transform Warwick. In the balance between central control and departmental autonomy, this core is relatively centralized. … The institution prides itself on a "flat structure" of center and departments. Departments have remained the building blocks of the university and their chairs have a significant role. The chairs relate directly to the vice-chancellor and such senior administrative offices as the registrar and finance officer. They relate to a set of interrelated central committees, knitted together by overlapping membership, consisting of a small cadre of senior administrators together with a small group of professors elected by colleagues to play central roles. This web of interlocked central committees has become the heart of Warwick's capacity to steer itself.* (Clark 1998: 21)

How to achieve successful management? There are several ways described on the basis of case studies of entrepreneurial institutions. One method is to strengthen the role of vice-chancellors or principals; other ways include the creation of deputy vice-chancellors as full-time, permanent or fixed-term appointments. Additionally, directors of finance and human resources are now usually key members of the senior management team. The key corporate functions of planning, estates, finances, human resources, learning and information, corporate services are likely to be represented alongside with the academic functions of teaching and learning, research and enterprise (see Middlehurst 2004: 272–273).

Managing resource allocation in entrepreneurial universities studied is most often operationalized through committees: small and medium sized (see Sharma 2004: 112–113). An excellent example of financial management with respect to the earned income – a crucial component of the third stream of university income, perhaps most valuable to the university from the standpoint of its entrepreneurial character – is provided by the University of Warwick. The university, administered through the system of central committees, has a strong capacity to "top-slice" the profits and to "cross-subsidize" (for a variety of reasons) less financially successful departments which makes it possible to help those departments which cannot easily raise their money or to support new academic or administrative undertakings. As Shattock (2004: 225) explains the Warwick case: "The earned-income approach at Warwick is muscled by a strong capacity to 'top-slice and cross-subsidize'. This capacity is the backbone of the ability to come to the aid of departments (and specialties within them) that cannot readily raise money on their own and to back completely new ventures". The procedures related to the management of extra-university income require clarity, transparency and rationality – and they must be (re)negotiable. Otherwise it is difficult to keep the tendency of the most enterprising institutions to make full use of their abilities, which would not only be detrimental for them, but also, indirectly, for the whole university.[4]

As Shattock, a registrar at Warwick at the time, explained to European rectors in a 1994 conference, "some departments, e.g., the Business School and Engineering, are more obviously capable of generating external income than say Sociology or the History of Art but because, once the departmental share is separated off, the university's share [the top slice] is simply pooled with government funds and allocated on academic criteria, all departments benefit. It is accepted that it is to the university's advantage that those departments that can generate income should support those departments that are simply unable to do so [the cross-subsidy]'. Departments that regularly have monies taken away in this fashion are, of course, not always happy about it. The center then has to have the power and legitimacy to say 'it is accepted'

[4] Another, more fundamental, issue related to income generation was raised two decades ago (Williams 1992: 46–47): "dilemmas occur when staff are employed specifically for income generation as, for example, employees of academic companies. … If contract work is treated as being equivalent to the more traditional academic work this implies a recognition that the university as it has developed over the past century at least has irrevocably changed". And this is the point made by such different authors as Slaughter and Leslie 1997; Slaughter and Rhoades 2004; Marginson and Considine 2000; Marginson 2000, or, today almost historically, Newson and Buchbinder 1988.

because this is the way we build the university as a whole" (cited in Clark 1998: 24; see also Shattock on the "earned income" policy in Shattock 2004: 225–235).

6 Academic Entrepreneurialism Spread Across Institutions and the Teaching/Research-Focus

A frequent mistake made in attempts to transform universities to become more entrepreneurial is for a management team to proceed on its own, without involving faculty and their departments from the outset, Clark argues (2004). Some departments can and will move faster than others in understanding the benefits of entrepreneurial actions, their own as well as those located elsewhere in the university. Most social science and humanities departments may underestimate the role of new peripheral supporting units, and criticize their running costs (e.g. technology transfer units or contracts and grants offices). Generally, science and technology departments lead the change towards entrepreneurialism, enabled by sources of support directly available to them and prepared by their experience in administrating costly projects, labs, and equipment. Departments positioned to raise income should be encouraged to do so by other departments, and thereby to contribute to the welfare of the entire university as well as their own. It is then a second-order problem to work out who decides what share of the enhanced resources each gets. It is here that the whole complicated issue of "top-slicing" and "cross-subsidizing" appears, and may cause substantial tensions within an organization (Williams 1992). Both Clark's case studies and the EUEREK European case studies of entrepreneurial universities show that there is uneven spread of entrepreneurialism within institutions, with various speed of change, most often depending on external opportunities.

While in Western Europe and the USA, apparently the most enterprising parts of the traditional academia (Clark's "academic heartland") are in the science and technology areas, in most post-communist transition countries, as confirmed by case studies available, the most entrepreneurially-minded units, departments, institutions, as well as academics, are those in "soft" areas: economics, law and business, management, marketing, sociology, political sciences, and psychology. It is, however, academic entrepreneurialism which is specifically understood: it is related to (additional and separately paid) teaching rather than, as in the classic studies of academic entrepreneurialism, to research and third mission university activities (or, as in the U.S., to the "service to the society" mission, see Kwiek 2009a). These are the areas in which the largest part of private sector operates, and in which public sector runs its most enterprising study programs for fee-paying students (all Polish, Russian, and Moldavian EUEREK case studies confirm this tendency). In transition economies, "soft" disciplines, including especially economics and business and social sciences, are much more easily fundable through tuition fees in the nominally free public sector, and consequently are stronger agents of (teaching-related)

entrepreneurial changes in academic institutions than "hard" disciplines. (The picture has been gradually changing with the increase in competitive research funding: the bulk of "new" funding, often disbursed through newly created national research councils, leads to research-based academic entrepreneurialism in "hard" sciences; Poland with two new national grant-making councils is a good example in the region).

While the most important dimension of academic entrepreneurialism in Western European universities is innovative research (e.g., leading to the creation of new technologies, patents, spin-offs and spin-outs – most often through an additional, external funding), in Central Europe the public sector entrepreneurialism reminds the private sector entrepreneurialism: it is (usually quite innovative) training programs. The research dimension of academic entrepreneurialism in the region is marginal (and therefore marginal is its financial dimension, traditionally studied in academic entrepreneurialism analyses). The division between research-oriented academic entrepreneurialism in public universities (Western Europe) and teaching-oriented academic entrepreneurialism (new EU member countries) in the private and the public sectors is crucial for understanding the specificity of these two types of education systems. Simplifying, from the perspective of research-intensive universities in Western Europe, Central European research- and innovation-oriented academic entrepreneurialism still almost does not exist, while its academic entrepreneurialism focused on (paid) teaching has no counterpart there. Shattock (2009b) does not limit academic entrepreneurialism to research activities, although links it to innovation, as well as financial and reputational academic risks. He presents a long catalogue of entrepreneurial activities:

> *We should not see entrepreneurialism simply or even necessarily in relation to research, or in the exploitation of research findings. …* [*E*]*ntrepreneurialism involving innovation and academic and financial risk can be found in regional outreach programmes, in economic regeneration activities, and in distance learning ventures, as well as in investment in spin out companies, the investment of overseas campuses and the creation of holding companies to house different sets of income-generating activities. For many universities, entrepreneurialism can be found in various innovative forms of teaching either to new clientele at home or embodied in programmes for internationalization* (*themselves often involving both financial and reputational academic risks*). (Shattock 2009b: 4–5)

7 Conclusions

The case studies of academic entrepreneurialism in European universities confirm the pivotal role of changing governance at most entrepreneurially-oriented universities. They confirm what the European Commission (EC) highlighted in its communications about the role of transformations of management and governance structures in universities, although they do not confirm the need for immediate, profound and radical changes in their functioning. As the EC stressed, "European universities have enormous potential, much of which unfortunately goes untapped because of various rigidities and hindrances. Freeing up the substantial reservoir of

knowledge, talent, and energy requires *immediate*, *in-depth and coordinated change*: from the way in which systems are regulated and managed, to the ways in which universities are governed" (EC 2006: 1, emphasis in original).

The European systems are believed to need profound changes which have already been spotted in the most entrepreneurial (mostly UK) universities: more institutional accountability, funding more closely linked to academic performance (e.g. a balance between core, competitive, and performance-based funding; more competition-based funding in research and more output-related funding in teaching) and a wider use of market (or quasi-market) mechanisms in both teaching and research missions (Temple 2009). These changes require new governance and management systems, often already tested in selected European institutions. The determination of the EC to implement the "modernization agenda" of European universities can be confirmed by emphatic references to other sectors where reforms have been seen, with various degrees of success, as unavoidable: the steel industry and agriculture. The European Union is now believed to face "the imperative to modernize its 'knowledge industry' and in particular its universities" (EC 2005: 10).

Case studies of selected European institutions show that the modernization processes in question (and their emphasis on academic entrepreneurialism widely understood) have already been in progress in numerous institutions in different systems across Europe. Academic entrepreneurialism in Europe turns out to be not only a theoretical slogan, to be discussed in a similar theoretical manner, but the actual academic reality in many countries and in numerous universities. The theoretical (and ideological) "modernization agenda" of European universities consistently promoted by the Commission can be already combined with selected institutional transformations in selected European institutions currently taking place. The Commission' somewhat intuitive, and commonsense-based rather than research-based understanding of the changes taking place in European universities may be quite right about the future changes in the university sector (see Kwiek 2015a on the role of internationalization in European research and Kwiek 2015b, c on the role of top research performers, both from a cross-national comparative perspective of 11 European countries). But its most important insights about future changes (as in EC 2005, 2006) come from broader and more economic intuitions about the future environment of universities rather than from intuitions referring to the university sector itself. The convergence of intuitions about the possible evolution of universities in the future and about the possible evolution of their environments merely indicates, on a different plane, a progressive loss of exceptionality of the university as one of the most important institutions of the modern world. The university, increasingly, both in Europe and globally, is under powerful pressures to turn from being an "institution" to being an "organization" (Krücken and Meier 2006; Brunsson and Sahlin-Andersson 2000). This is a fundamental, qualitative change which may require higher education research to search its further analytical

tools in organizational studies. The combination of the two traditions can be highly fruitful for both areas of social inquiry – but it is a different story.[5]

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[5] The EUEREK case studies included 27 universities from 7 European countries (Spain, the United Kingdom, Finland, Sweden Poland, Moldova, and Russia) and they were prepared within the project "European Universities for Entrepreneurship – Their Role in the Europe of Knowledge" (2004–2007), coordinated by the Institute of Education, University of London (Michael Shattock, Gareth Williams, and Paul Temple). The 27 case study institutions were the following: Helsinki School of Economics, University of Lapland, and University of Tampere in Finland; Balti State University, Academy of Economic Studies of Moldova, Moldova State University and Trade Cooperative University of Moldova in Moldova; Adam Mickiewicz University in Poznan, Academy of Hotel Management and Catering Industry in Poznan, and Poznan University of Economics in Poland; Baikal Institute of Business and International Management of Irkutsk University, Higher School of Economics, Moscow, and Institute of Programming Systems of the Russian Academy of Sciences, University of Pereslavl in Russia; Cardenal Herrera University, Miguel Hernandez University, Technical University of Valencia, University of Alicante, University Jaume I of Castellon, and University of Valencia in Spain; Lund University, Jönköping University, Umea University, and Royal Institute of Technology in Sweden; London School of Hygiene and Tropical Medicine, University of Buckingham, University of Nottingham, and University of Plymouth in the United Kingdom. The authors of case studies were: Jenni Koivula for Finland, Petru Gaugash and Stefan Tiron for Moldova, Marek Kwiek for Poland, Stefan Filonovich for Russia, the Valencia CEGES team led by José-Ginés Mora for Spain, Bruce H. Lambert, Aljona Sandgren, and Gorel Stromquist for Sweden, and Gareth Williams, Michael Shattock, Rosa Becker and Paul Temple for the United Kingdom. I would like to express his gratitude to the whole international EUEREK research team; the responsibility for all limitations and mistakes of this paper rests entirely with him. This paper draws from Chapter 5 of my book *Knowledge Production in European Universities. States, Markets, and Academic Entrepreneurialism* (Frankfurt am Main and New York: Peter Lang, 2013).

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Higher Education in the Knowledge Society: Miracle or Mirage?

Mats Alvesson and Mats Benner

1 Introduction

Of the many facets of "our time", the rise of higher education is among the most prominent. Traditionally a mechanism primarily for professional training and for the reproduction of social elites (Bourdieu and Passeron 1964), higher education has exploded and become a core part in contemporary society and in the life course of virtually all citizens in the developed – and to a growing extent also developing – world. The centrality of higher education has had an immense effect for individuals and groups in society, propelling career expectations and future outlooks. The effects show also at the political level, where education has emerged as a perceived critical underpinning of national greatness, prosperity and welfare. The expansion of higher education is closely linked to the political ambition to become a leading knowledge-intensive nation. The tendency is clearly visible in the US – still the global dominant in higher education – but also in China, where higher education is on a continuous path of expansion since the late 1990s, and in Europe, where the unification of European educational systems via the Bologna process, is part of the ambition to foster the "world's most competitive knowledge-based economy" (as it was stated in the 2001 Lisbon strategy).

Hence, higher education has become a signifier of progress, wealth and welfare, and a concern not merely for small elite but for (virtually) all citizens. But what is the background of this steeply rising interest and engagement with high education? Can the expectations on higher education be sustained? Will it create a culture of disappointment, weakened institutions and increasingly hollow expectations on education (and research) in society? In this article, we set out to delineate the foundations of these beliefs and their impact on students, teachers and universities. We

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do so, on the basis of an overview of the role of higher education in society, in politics and in its institutional setting, the universities. The chapter is primarily a think piece based on a wide array of sources on various facets of higher education, ranging from policy statements to student experience and managerial practices.

2 Some Basic Assumptions

We should begin by stating some basic assumptions underlying this chapter. First, we are less sanguine than the common orthodoxy of the virtues of high education. The strong – arguably almost blind – belief in higher education as a way of increasing economic growth, making the population intelligent, and solving a wide range of societal and individual problems, is farfetched and does not resonate with a more profound analysis of the role and impact of higher education in comparison with other forms of learning.

Second, we are skeptical of the consequences of the expansion of higher education for the university system. The university sector hosts ever increasing numbers of young people into an ever-widening spectrum of education, throughout the world. This is matched with a proliferation of the number of university teachers – who should hold a PhD and be active scholars to ensure that teaching is research-based – but of course also a constant expansion of the higher education sector as such with growing number of institutions worldwide. These all have an interest and a stake in the expansion of higher education and increasingly behave as actors on a market for higher education, peddling their goods as necessary and essential to successful careers, and tailoring working conditions and leadership styles to meet the expectations of their customers.

Third, we believe that there is a certain degree of individual self-deception in operation as well. Given that education is "sold" on the premise of its strategic importance on a knowledge-intensive labor market, individuals internalize the belief in higher education as the most significant path towards success. This belief reveals as much as it conceals about the role and function of education in society. Higher education falsely emerges as a win-win game where everybody gains: the individual gets empowered, society more intelligent and richer, while economies move up the value ladder and universities may continue to expand and may continue to recruit ever more university teachers with ever expanding opportunities to cultivate their talents in education and research.

This is unsustainable. Promising higher education for half the population – as is the case in many countries – and proclaiming that this is essential in a knowledge-intensive society kindles fantasies and ambitions which, in most instances, are difficult to be fulfilled. It also leads to a string of quality challenges. Given that higher education remains publicly funded in most countries, growing numbers of students trigger cutbacks in resources. Expansion in student intake may lead to considerable variations in motivation and study ability. Competition between universities for students leads to a focus on student satisfaction rather than to serious reflection. A

political emphasis on growth and expansion of higher education risks draining labor markets of necessary competencies outside the confines of academic work, and may also create a "university bubble" where the number (and size) of higher education may become overblown, triggering serious and detrimental cutbacks.

Fourth, we believe that educational fundamentalism is heavily imbued with the contemporary phenomenon of grandiosity (Alvesson 2013), i.e. increase status and creating a positive image despite a wide discrepancy between this and "substance" (qualities, accomplishments), including the promotion of various vocational training institutions to university status; efforts to make professions more impressive by aligning them with research; and the association of an expanded higher education with the knowledge society.

Fifth, and finally, a correction of the inflated belief in the miraculous impact of higher education is not something that can be entrusted to individuals and politicians that are enmeshed in educational evangelism, or to universities for that matter as they are positioned to gain from ever increasing educational expansion. It instead calls for a re-professionalization of higher education and a moratorium on some of the most excessive expressions of educational evangelism.

3 The Misunderstood Economic Impact of Education

A cornerstone of all arguments is that education drives economic growth and that more education – especially higher education – is therefore a societal good. Not only is increased education accompanied by a high economic return, but it also fosters better democratic institutions, higher quality of life, greater environmental awareness, less crime, and better health. This is probably true as a general historical tendency, but this does not means that it is an eternal truth.

The value of expanded higher education in many countries may be questioned. As Wolf (2004) points out, some wealthy countries, like Switzerland, make less investment in higher education than less economically successful countries. Some developing countries that have devoted considerable resources to higher education also have low levels of economic output, and have sometimes also been inclined to "expand state bureaucracy in order to create jobs for otherwise unemployed graduates from their expanding universities" (Wolf 2004: 322). Thus, there is no easy way to establish a causal relationship between increased investment in higher education and economic growth.

What education does to the economy – or to society in general – cannot be reduced to simple relations. It is not a homogenous product or input into the economy with simple, constant returns. The impact of education depends instead on its quality and its composition. More years in education and more degrees do not necessarily imply an increase in human capital. Sometimes, appropriate expertise may be achieved in other equally good or better ways, for example on-the-job training. In addition, if education is to be economically relevant, there must be an alignment between the technological level of a society, the labor market, the jobs available,

and the possible learning and qualifications acquired as a result of higher education. Just increasing the length of education may not bring any positive results in its own.

A first trait in this mirage is the economic consequences of higher education. Longer education is generally viewed as increasing the income of individuals. There is some truth to this. People with a higher degree tend to earn more than those with a shorter education. Education may therefore be viewed as a good investment. Similarly, as people with higher education tend to have a lower unemployment rate and are doing better, it may be argued that higher education functions as a prophylactic against poverty, unemployment, poor health and other social ills.

But the point is, of course, that education is a positional matter (Alvesson 2013; Hirsch 1976). Turning a very large part of the population into scientists, lawyers, and physicians would lead to a drop in the earnings, job conditions, and a steady rise in unemployment for those with such an educational background. Hence, there is a level beyond which more education has diminishing impact on individuals, economies and societies (cf. Teitelbaum 2014). There is even increased unemployment also among those with a doctoral degree. In Sweden, both in 2004 and 2010, about 5 % of those with a PhD were unemployed (Sydsvenska Dagbladet, 20 August 2010), this proportion being particularly high in the natural sciences. More than 100,000 PhDs were awarded in the United States between 2005 and 2007 and 15,800 new assistant professorships were created. Many of the 85 % who did not get a job in higher education probably obtained relevant positions in R&D-based firms, as consultants or as analysts in the government sector, but presumably many of the 100,000 PhDs felt over-educated when faced with the possible jobs available for them.

Higher education and the associated payoff are often regarded as indicating an increase in the human capital or ability of the person concerned. Pay is regarded as a proxy for the productive capacity and contribution of such a person. There are several complications here and the correlation between longer education and high income (and generally access to more prestigious and attractive jobs) may be explained by the signal factor of the education or its value as a credential. Education as a signal system means that the ability of the individual is indicated by their educational status. It is not the learning or the qualifications acquired that matter but rather the completion of an education as a proxy for intellectual capacity.

If the higher education sorting mechanism works, then there is a signal value of a degree (in general or from a specific institution). There are good reasons for regarding the signaling aspect as an important factor in why higher education pays off and, within the overall higher education sector, why a degree from an elite institution is better rewarded than a degree from somewhere else, and, within a non-elite category, etc.

A successful education system cannot operate with just quantitative measures of success – with more people getting an education, the university system growing and credentials being more widely distributed. That will hollow out not only the value of education itself but also the institutional mechanisms of higher education – universities become grade awarders rather than centers of learning, and university teachers become service-minded student coaches rather than autonomous academics.

Labor markets become increasingly inefficient when traditional sorting mechanisms no longer hold. And governments become increasingly enmeshed into an ever expanding game of educational expansion rather than a guarantor of the qualities and standard of the higher education system.

There is a clear risk of a hollowing-out of educational credentials with the expansion, especially if the expansion is not matched and tamed with rigorous quality standards. If a degree and grades give employers – and also students – information about knowledge and personal capacity it will reduce the cost of recruitment, selection, and employment. It also gives the individual indications of his/her ability and an appropriate choice of occupation. If on the other hand an education program provides little information of this nature, due to lowered quality of education, this leads to considerable additional costs and problems. Hence, expansion without careful measures of quality may have serious consequences.

4 The Surrender of Universities?

Another question concerns the lack of a direction of an expanded higher education. Governments worldwide have deregulated educational planning, devolving the responsibility for educational policy to the universities themselves, where it operates in tandem with student demand. With growing insecurity on the labor market, and the ever-rising supply of educational programs, this has triggered an expansion of distinctively 'light-weight' courses, sometimes epitomized in the concept of "McUniversity" (Ritzer 2004). But this is only one of many facets of the deregulated university and its approach to higher education. Its primary impact, seen especially in countries like Sweden, the UK, the US and Australia where universities determine their own study programs and are subject only to government funding quotas, is that universities become increasingly prone to lower quality standards to ensure that output goals are met. Universities that are too stern and stiff are punished, as outputs have become the gold standard for educational success. This is also reflected in the governance and leadership of universities, where the task of teaching is increasingly relegated to professional teachers with limited research activities, whereas researchers on the other hand are encouraged to specialize in research rather than aligning the two core tasks of teaching and researching (Geschwind and Broström 2015). For university leadership, the impact is clear, namely that leaders focus on cultivating brands and mechanically meeting the standards of external accreditation that supposedly reinforce their competitive position, even to the extent that accreditation agencies themselves worry about their impact on the long-term sustainability of higher education (Pettigrew et al. 2014).

A key question is the role and function of higher education, especially the university, in contemporary society. Is it primarily a vehicle for the improvement of knowledge and intellectual qualifications? Does it mean anything particular or is it just a label intended to trigger positive responses and then work as an umbrella for all kinds of activities that are deemed attractive to stakeholders of various kinds?

This raises the question of to what extent the university sector in itself can be viewed as an illusion and as a core part in a society which primarily promotes and rewards "good appearance" rather than fundamental impact (Alvesson 2013).

Part of the challenge seems to reside in how universities are positioning themselves. What they seem to offer is credentials: a diploma that signals employability but with uncertain information value.

Hence, universities operate in markets for credentials and trigger the search behavior of students also operating in markets of credentials. Every market is prone to manipulation, and one strong incentive is to boost the brand of a higher education institution and to increase its attractiveness, irrespective of the consequences on the core activities and the long-term sustainability of the operation.

This also creates a market for institutional titles and competition for attractiveness as part of the denomination of a higher education institution. Hence the inflation in the university title which is another international trend, which reflects the sometimes desperate search for a competitive edge also among higher education institutions low on the reputational ladder (cf. Stensaker and Benner 2013). One problem is that these "new universities" typically focus on vocational training and have a delimited research function.

The problem of inflation means that the value of being a university is reduced, where status becomes blurred and unstable, while the sector as a whole risk losing attractiveness and influence – or at least be exposed to challenges regarding its credibility and capacity to prepare for the tasks it promises. Whether this is good or bad, the point must be taken into consideration, along with the risk of an imbalance between the different types of qualification routes and content in education, practical or vocational elements being marginalized. These issues are less significant when practical education is marketed under a university brand, providing a possibly misleading image and making it possible for politicians and others to show favorable statistics on university graduates indicating how progressive and successful the country is.

4.1 The Inflated Politics of Higher Education

The difficulty resides not only in universities but first and foremost in politics. Higher education has become a political floating signifier, an indication of progress with only scant underpinning evidence where expansion and growth are seen as positive in themselves rather than as linkages between individuals, institutions and society at large. One problem in this area is the grandiosity implications and positive connotations of higher education. Wolf (2004) writes: "Everyone believes education is a good thing, and there are no interest groups who will visibly be harmed by expansion, or will mobilize in opposition" (p. 330). Feedback mechanisms are weak. Students are scattered after education and most employers meet too few students from specific universities to get a clear impression of their capacities. During the first years after education many receive fairly unqualified jobs and here the

shortcomings of a poor education are not so obvious. The 'non-accomplishments' of a failing educational system may thus be undetected. Few have a strong reason to reveal fundamental problem. Described by Collins (2002) as a hidden welfare system, higher education, thus, risks functioning as a warehouse or parking place for young people. It then fails to work as general qualification mechanism capable to improving society on the large scale. For politicians required to reduce unemployment in the short term the warehouse function may be more important.

The political logic of higher education expansion has shaped political agendas in Europe and North America since, at least, the 1960s. However, two things stand out in current politics of higher education: first the ambition to cater to at least half of the population – a goal first emanating in the US and now, in the aftermath of the financial crisis, also to Europe. Mass education in the context of the 1960s meant that higher education would reach 10–15 % of the population (Kerr 1963); the current ambition is to reach virtually all citizens in one way or another. The second trend is that education should follow a market logic: the interests and capacities of students and universities should intersect without detailed state intervention. (This stands in stark contrast to the expansionary politics of the 1960s, where careful planning of labor market demand and university teaching competence framed the ambitions). This means that students are expected to find their own way through the educational systems and that universities should tailor their supply accordingly (Maassen and Stensaker 2003). This means that the system's growth dynamics becomes more unpredictable and that measures of moderation are lacking. Instead, both students and universities are enticed to uphold ever increasing expectation of the value of higher education – irrespective of the real impact and utility. This puts the limelight on how students act in contemporary higher education.

4.2 Students: The Weakest Link of the Chain?

One of the major problems in higher education is the wide range of study ability and interest in studying. With the massive hike in student numbers, an increasing proportion of students have weak prior knowledge, no particular aptitude for studies, and are only mildly interested (Arum and Roksa 2011). The great problem today in university teaching is the demands and expectations of the outside world – and also extreme variations in the student mass, that is to say their prerequisites, motivation and requirements. This makes omnipotent demands on university teachers and, in view of the way these demands are defined (Handal 2003: 18). According to Arum and Roksa (2011), a very large number of students starting higher education studies in the USA are not prepared for it. They cite a survey according to which 40 % of the college faculty agrees with the statement "Most of the students I teach lack the basic skills for college level work" (p. 86).

Arum and Roksa followed 2,200 US students over their college years, using tests designed to investigate critical thinking, analytical reasoning, problem solving, and writing. The study indicates that some 45 % of students in the sample had made no

effective progress in critical thinking, complex reasoning, and writing in their first 2 years and 37 % did not improve after 4 years – the periods covered by the study. According to Arum and Roksa, "an astounding proportion of students are progressing through higher education today without measurable gains in general skills" (p. 36). Such skills are what higher education institutions broadly emphasize as their major contribution, making contemporary US higher education appear unsuccessful. Those majoring in the liberal arts fields – humanities and social sciences, natural sciences and mathematics – outperformed those studying business, communications, and other new, practically oriented majors. Nowadays the liberal arts attract a far smaller proportion of students than they did two generations ago.

A key problem is the lack of student motivation. Many commentators stress the low level of motivation and the limited study input for many students (e.g. Piereson 2011). According to Arum and Roksa (2011), the majority of students come to university with no particular interest in their courses, and no sense of how these might prepare them for future careers. Many students spend modest time studying. This is a broadly shared perception of many university teachers.

Clearly, many students have a high degree of commitment, as least in the classic university subjects, but modest motivation is hardly a marginal phenomenon. Limited requirements and a low degree of motivation are to some extent linked to a market- and consumer-oriented higher education field, reflecting, on the one hand, a greater consumption focus and, on the other, a greater public provision of services. The market approach is more widespread (Barnett 2004), while the idea that one is to be regarded as a customer, even in supposedly strictly non-commercial contexts, has become increasingly common (du Gay and Salaman 1992).

4.3 Business Schools: A Critical Case

Of course, there is considerable variation across countries, universities and disciplines. Even though there seem to be some overall trends, well resourced, attractive subjects and universities probably perform better. In Arum and Roksa's (2011) students in traditional academic fields scored better in terms of the improvements of students' generic skills. One of the worst performing subjects was business studies, with a relatively small part of all students improving intellectually during their studies.

One may assume that that business students benefit more strongly through practical skills, but this remains to be shown. A study of an MBA (Master of Business Administration) program in Britain reinforces the picture. In a subsequent follow-up 5 years later, none of the participants could point to having used any aspect of the program in practice, although they thought they had gained something in the form of a general understanding of the area (a helicopter view), and improved self-confidence and social contacts. No doubt, they had some benefits that they could not report in concrete terms, but nonetheless this study suggests a meagre outcome in terms of practical consequences (Sturdy et al. 2006).

Management education has expanded heavily and is now the largest part of higher education at many universities. It is often taught in business schools. These have expanded heavily. In the UK, the number of business schools has increased from 2 to 50 over a couple of decades. They are all competing for favorable positions in the various ongoing ranking exercises. While this may be case broadly, it is more salient in business studies, as the competition for fee-paying foreign students is a significant part of the operating logic. This is as follows: in order for an institution to look good, it recruits top researchers, pays them a great deal of money with a minimal teaching load, and hires part-time, cheap people to teach as much as possible. This may lead to a good ranking, as research output is central here. This makes it possible to recruit good or – and more important – many students and charge high fees which are used to pay the research-star academics who they rarely see and who often teach courses more adapted to their research projects than to student needs or interests.

All this indicates questionable value for money in terms of educational quality, but due to the ranking effect and the value of the positional good acquired – a CV that enables one to move further up in the job applicant queue compared to those who attended institutions with an inferior ranking – there may nonetheless be some payoff. Of course, there is some substance associated with this – a highly ranked institute may have a better education. Some excellent researchers may be good and inspiring teachers – especially for intellectually interested students – and the overall logic means that fellow students may be good (and rich!), which is good for learning and network building. Elite universities and colleges are particularly important for the "coalescence of privileged identities, group boundaries and social networks" (Stevens et al. 2008: 132). Access to a valuable network is another positional good derived from higher education – going to a good school allows one to establish a career-building network of contacts that is clearly more valuable than that formed by people going to colleges with – from a career point of view – inferior networks.

Many universities appear to downplay ambitions to contribute to good knowledge and mainly hire researchers capable of producing a high output of articles, boosting the ranking and status of the school, even if these are not necessarily regarded as the best in terms of producing innovative, interesting, and valuable knowledge – the latter being more risky, time-consuming, and therefore, to some extent, at odds with a high level of productivity (Alvesson and Sandberg 2013).

One important trend shaping the landscape for business schools is the increased focus on accreditation. With the massive expansion of management education and the growth in the number of business schools, a market for accreditation has emerged. The idea of accreditation is that the better schools can use it in order to distinguish themselves from the rest. Getting the accreditation involves three significant costs:

1. The financial cost of paying the accreditation institute and of doing the necessary internal work (e.g., producing the required documents);

2. The increased bureaucracy and standardization of operations required to satisfy the institute that the 'right' modes of operating are in place (this presumably reduces creativity and originality); and
3. The moral costs of faking when developing illusionary tricks so that everything looks good in the eyes of the accreditation committee.

These are all significant quality-decreasing ingredients but, apparently, most business schools consider them worth paying. There may be an element of scrutiny, learning and improvement associated with accreditations, but this is hardly why accreditations are so popular. The main driving force seems to be the urge to distinguish oneself from non-accredited institutions and not be seen as secondary to those with accreditation. Substantive benefits are small, costs are high but seen as compensated for by the advantages in terms of branding.

European business schools are, of course, not unique in partly sacrificing their original purpose and integrity for the benefit of scoring well in the rankings, thereby maximizing their visibility and status. In many places in the world, including the USA, the ratio of teaching and administrative staff has changed significantly, and there are many posts that focus exclusively on facilitating students' careers (Piereson 2011). The focus on ranking and careers may be functional from the viewpoint of the students, who instrumentally benefit from this, but it means manipulating in order to improve rankings, boosting the students' CVs, and preparing for job interviews only mean that someone may get a better place than others in the job applicants' queue. All this contributes nothing to what higher education is supposed to accomplish: people who can contribute via their intellectual skills and knowledge to their lives, jobs, and society as whole, as good citizens. It only means that positional goods competition takes a purely 'non-productive' turn, aiming to maximize self-interest. When rankings and credentials are based on 'true' performances, which are contingent upon the number of resources that have been used for teaching, salaries tend to be a better reflection of capacity.

A degree from a specific institution then provides considerable information about the knowledge and intellectual quality of a graduate and fulfills a productive and valuable role. Position competition based on 'true quality' is often valuable. Ambitious rankings that do not look at easily manipulated and misleading criteria, but that rather look at gained qualifications, can be a productive force that improves teaching. But there are plenty of examples of clear deviations from this, leading to pure zero-sum games.

5 Governing Universities: From Authority to Anomie

A critical issue for the "educational society" concerns the leadership and management of higher education institutions. Academic leadership is a fast-growing industry, showcased in a wide array of managerial techniques, consultancy services, handbooks, but also a fair share of academic studies. The impact and significance of

academic leadership is a contested issue. Some argue that the contradictions of the educational expansion may be resolved by more articulated leadership models and practices (Shattock 2003), and it has been embraced by international organizations such as the EU, the OECD and the World Bank as a critical element in aligning different demands in a multi-level governance system (Salmi 2009). But the boom in academic leadership has also been subjected to harsh criticism, as a dumbing-down substitution of academic virtues for leadership platitudes (Readings 1996) or authoritatively intervening and work with numbers in order to produce favorable metrics (Parker 2014).

Historically, management and leadership have been marginal in higher education (Clark 1983). With framework conditions rigorously defined by the state (including hiring procedures, wage-setting, resource allocation, and examination forms), the daily life of academics was relatively unhindered by managerial steering. There were notable exceptions, especially in the US context where market forces played a much more important role for the development of universities with a concomitant stronger role of leaders vis-à-vis the collegiate (Lowen 1997) and in the communist countries where academics were subject to stringent political control (Graham 1993). But overall, governing higher education was shaped by the polarity of state steering and collegial autonomy, with a certain emphasis on the latter – the academic profession could to a large extent shape its own destiny and exercise quality control according to its own prerogatives (Ben-David 1971).

What has happened since is a combination of several processes, not all of which are aligned. The higher education system has expanded rapidly, creating a (perceived) need for niches in the higher education system – thereby propelling the need for managerial techniques (Clark 1998). The globalization of higher education and research – with convergence in curricula and publishing patterns (Drori et al. 2003) – has been accompanied by a variety of metrics and assessment systems to classify and categorize student and faculty performance to make sense of a proliferating system (Moed 2006). The global rise of higher education (and research) have furthermore been underpinned by various attempts to spread best practices, through consultancy activities and accreditation processes, the latter particularly important for business schools (Augier and March 2007). In addition, a stakeholder ideology has permeated university governance and diminished the role of the collegiate in decision-making, embedding it in a mixture of external expectations in the governance of higher education (Paradeise et al. 2009).

The management practice in contemporary higher education is therefore shaped by the multitude of forces, where a relatively clear-cut authority structure based on academic reputation and professional autonomy has been replaced by an anomic cornucopia of goals and interests. Managers are still expected to respond to their peers – academic reputation is a key element behind successful academic position (Goodall 2009). However, the contemporary academic leader must also respond to expectations of utility, student satisfaction, rankings and accreditation procedures, and to match and meet the interests of stakeholders, student representatives and other groups – in addition to supporting and sustaining performance in the collegiate.

In leadership practice this plays out as a curious mixture of adaptations to global standards and local conditions.

What do contemporary academic leaders do and how do they manage the multifarious demands? It depends on the context and general observations on leadership roles are difficult to make (cf. Musselin 2010). Caveats aside, our own experience indicates that academic leadership is pursuing a combination of internal autism and external adaptation, in a state of organizational anomie, where norms and ideals as expressed by academic leaders are fluid, responding pragmatically to several different forces and expectations at the same time, often in a highly disjointed manner. "Followers" are seldom impressed, although they often respond to incentives.

As an expression of internal autism, academic leadership has adopted conditional collegiality – there is a rampant tendency to demand documentation and verification of academic activities but only limited engagement in more genuine leadership issues (identity, influencing values and meanings, dealing with sensitive issues through affecting beliefs and understandings). Contemporary academic leaders – perhaps in the majority of all cases best described as managers or administrators – have an insatiable appetite for reports but neither the time nor the inclination to engage with the collegiate – to praise it or to challenge it (Tuchman 2011). We see evidence of this is the annual reports from faculty, where everything from student supervision to international prizes shall be reported and measured, and somehow processed into incentives. This shows also in practices among academic leaders/managers, where performance is measured and compared, and those academic managers which score highly in such processes are rewarded and praised, whereas those who fail in similar exercises are marginalized. Universities increasingly think in terms of quantitative and measurable tokens of success (our own universities repeatedly point at its size as "Scandinavia's largest research university", with the "highest research income", and the largest number of paying foreign students without necessarily connecting this to qualitative goals).

In its external adaptation, contemporary leadership is characterized by a mounting openness to expectations and demands expressed by the non-collegiate (business, students, social stakeholders but also research funders, government regulators and accreditation agencies). Academic managers respond strongly to these expectations as they provide signposts and beacons for management practice (Rhoades and Slaughter 2004). The end-result is an academic management model which pays intense interest in what others do and think of them, but only little on conditions and work modes of the collegiate. Using the terms of David Riesman and colleagues (1950), academic leadership has been overtaken by hollow women and men, who are excessively outer-directed, (over-)sensitive to the demands of others and eager to adjust. We have witnessed this in particular in the form of accreditation procedures, where university management is incessantly focused on meeting the demands of the accreditation agencies, irrespective of how these may (or may not) fit with the overall direction of their work. While accreditation gives management/leadership a certain identity and guidance, it simultaneously detaches it from the collegiate.

The multitude of expectations on academic leaders has been accompanied by a fragmentation of quality standards, where the recruitment procedures of academic

leaders vary from time to time (cf. Goodall 2009). In particular, the role of accreditation and rankings are taken onboard rather uncritically and seen as necessary adaptations. Instead of viewing rankings and accreditations as outcomes, they are seen as starting-points, and as mandates for academic leaders. This has prompted ranking and accreditation agencies to caution universities and to use their own judgment rather than blindly reflect external inputs (van Raan et al. 2011; Pettigrew et al. 2014). Instead of viewing the educational boom as an opportunity to enhance variety and niches, it seems instead to have fostered convergence and imitation: university management/leadership tends to absorb all expectations at the same time, leading to a detrimental combination of paralysis and hyperactivity – in short, a state of anomie where moral standards and expectations are excessively fluid. Hence, academic leadership as such is no antidote to the propelling emptiness of the educational boom but rather an epiphenomenon of it. As said, what is often presented as academic leadership is in most cases much better seen as management.

6 What Is to Be Done?

In order to provide a better match between an individual's qualifications and the labor market, we need (1) an education that means and guarantees real qualification and gives clear feedback to students (rather than letting students pass despite modest or even low effort and ability), and (2) a more varied qualification system where some go to university while others undergo a more practically oriented education and/or apprenticeship, meeting teachers and institutional arrangements that are adapted to the needs (which is not necessarily PhDs devoted to research as much or more as teaching). A problem with the latter is that it is not so glamorous and tends to be represented as inferior to universities, even though a less academic content is often well in line with students' interests.

Universities have to some extent moved from being a temple of knowledge to a factory for the production of credentials, and higher education has changed into a mass-market phenomenon. A very large and increasing number of institutions and students cannot easily claim qualities such as cultivating and certifying a high level of intellectual competence, and few students are actually inclined to choose topics associated with this quality or are willing to work hard with intellectually demanding courses in order to improve their cognitive capacities to a significant degree (Arum and Roksa 2011). The more universities, the larger the higher education sector, and the more students who graduate, the less status and market value an academic job or a degree has.

There is a strong counteracting tendency, and that is to (re-)introduce rankings and other hierarchical exercises to guide the ignorant observer to the qualities of specific higher education institutions. Differentiation is the key factor, and most countries have rather clear, well-known distinctions and status differences. Sometimes there are bifurcations, sometimes there are three or four tiers, sometimes there is a distribution without any clear, strong divide – more like a continuum

(Marginson 2006). Expansion necessarily leads to an increased focus on such differentiation. Previously, with fewer universities and students, the dividing line between them and the rest was clear and those within the system fairly relaxed; now status anxieties and worries are driving most higher education institutions, in particular where there are official or semi-official publicly available rankings.

Rankings and status are a certain proxy for institutional quality and competition, and a good reputation is correlated with certain fundamental qualities. But even if rankings lead to performance improvements, in particular in research, it is not necessarily clear that education quality benefits from this (Sauder and Espeland 2009). Research and student orientation are instead often negatively correlated (Arum and Roksa 2011). Research universities are not necessarily the best at offering an excellent education (Marginson 2006: 3). The key factor for the elite institutions is therefore maintaining and improving status, and doing it by compartmentalizing research and education – producing high-status research with one hand and high-status credentials with the other.

High-impact research and good teaching clearly play a part in this process, but often not as significantly as one might assume. Of course, rankings also push institutions and people to improvements and the achievement of better visible performances, so they are far from purely destructive. But the risk of goal displacement from the rankings as a valuable support for healthy substance-enhancing initiatives, to ranking position becoming an end in itself, encourages from a societal point of view non-constructive zero-sum games.

All this implies that we should work for the improvement of higher education institutions rather than abandoning hopes of a more satisfactory system. This calls for realistic claims, substance in operations (intellectual qualifications), non-positional goods (knowledge that provides positive contributions to society and life rather than better CVs), fruitful competition, and an emphasis on core activities (rather than branding, customer satisfaction, and student services). It would be particularly important and fruitful to focus on the results of such operations. Different institutions and programs could be compared by means of tests of generic skills (ability to understand texts, critical thinking) assessing students when they start and having completed a program (Arum and Roksa 2011). Or one could rely on external examination of all or sample of examinations, using lecturers from other institutions to examine students (Björnsson et al. 2015). Less ambitiously could be do so only of Master's thesis projects and other end outcomes of learning. Institutions with poor results could either be "named and shamed" or simply lose funding. Presumably they should have problems in recruiting students for good reasons, not simply because of poor marketing or high demands.

This would encourage an emphasis on quality and increased qualifications and, in some cases, reductions in the number of students with poor motivation and ability, and programs that include more vocational training than (traditional) university education. All this would not, of course, remove the inherent problems of zero-sum games and the limitations of access to attractive education and jobs, but it could encourage people to engage in productive rather than unproductive zero-games playing. In more productive competitions, rankings become less of an object for

manipulation and more of an indicator of performance. There is, of course, no easy way to solve or even reduce the problems raised in this book, but there is considerable scope for improvement.

For research, the most urgent matter is to restore a culture of creativity and curiosity, and rescue it from the double-bind of financial success (grantsmanship) and high-volume paper production (Bishop 2015; Alvesson and Sandberg 2013; Öquist and Benner 2012). University research cannot be reduced to indicators that elevate the status of an institution. While funding is a necessary requisite for much research, and the production of highly cited papers is a proxy of scientific impact, they cannot substitute for the careful examination of which issues to be studied and which methods to be deployed. Funding is a precondition and papers an outcome, but the real qualities in research reside in the outcomes of the process on society outside the exclusively intra-academic, and this should continue to be the main focus of both scholars, funders and university administrators. Everything else risks turning the attention of scholars to elevating their positional competitiveness for funding and for impact. It may else lead them to decrease their interest in education, hence further propelling the decoupling of higher education and learning.

There is also a question of intellectual leadership. Universities and other higher education institutions increasingly tailor and staff their leadership to meet external expectations and struggle to secure and elevate their positions in rankings and other hierarchical exercises, ignoring the qualities that underlie their "performance". Intellectual leadership has waned and has been substituted by generic competencies as "academic leaders", disregarding the intrinsic qualities of higher education and research and the specificities of universities, subjects, teachers and students (Goodall 2009). A cadre of professional managers have invaded universities and inserted the language and logic of corporate strategy into the veins of academic work. Partly, this reflects the ever increasing multifaceted roles and expectations of universities, partly the (purported) need for surveillance and control in a growing system. Partly, it reflects the idea that knowledge in higher education and research can be produced, transmitted and sold as any other commodity, and that leadership (really management) is about enhancing the control over the work process. Universities should have be the first to protest when their capabilities and functions are being reduced to indicators – but tend rather to function as vanguards in the process of commodifying knowledge. The war over the future of knowledge is too important to be left to the current generals.

Notes

For a clarification and discussion of the difference between leadership and management, see e.g. Alvesson et al. (2016).

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Part II
Structure

Changing Professions? The Professionalization of Management in Universities

Marie Boitier and Anne Rivière

1 Introduction

The doctrines of public accountability, effectiveness, and efficiency associated with New Public Management (Hood 1991) have entered higher education politics in many OECD countries. A new model of well-organized and efficiently managed universities has thus been defined by political reforms and soft law tools (Ramirez and Christensen 2013) fostering the development of new management practices. Management systems have thus acquired a central position in universities seeking efficient resource management of partly conditional funding linked with performance criteria. While governments have granted autonomy to universities, they expect them, in return, to be accountable for their results and *auditable* (Power 1997). Academics and administrators are therefore required to adopt this new managerial approach to running universities. In particular, they have to formally define their goals and are held to account by various assessments involving multiple performance indicators (Boitier and Rivière 2013). Some actors are concerned about the managerial logic that would be imposed on scholars and could change the meaning of their professional activities, leading to the *managerialization* or *corporatization* of universities (Guthrie and Neumann 2007; Parker 2011).

All these changes in the field of higher education led us to question the professionalization of management within universities and its consequences. This is a complex issue, primarily, due to the multiple meanings of the term 'professionalization.' It relates, first, to managerial professionalism (Evetts 2011) which changes professionals' conditions of work. This professionalism deals with the paradigm of autonomy and responsibility embraced by the liberal economy, which has driven many states to seek to develop a results-oriented culture in the public sector

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(Townley 1997; Czarniawska and Genell 2002; Modell 2005; Guthrie and Neumann 2007). Second, 'professionalization' refers to the actual process of social interactions between professional groups concerned with institutional change, which alter professional occupations (redefining job content, values, identities, and sources of recognition).

Many questions can then be raised, such as: who carries out management duties within the university (elected officials, academics, administrators), using which systems, and what are the competences required? Is the managerial logic in line with the values and identity of the academic profession? Are administrators supportive and are they legitimate supporters of the new managerial logic? Each question may involve conflicts within and between professional groups, and there are several possible scenarios for the professionalization of management taking place in universities.

The aim of this chapter is to analyze the extent to which the emerging adoption of new management systems associated with New Public Management can be regarded as the professionalization of management in universities. This research is based on a detailed case study conducted in a French university between 2007 and 2012. We first present the theoretical frameworks. Then we describe our case study method and present our results. We show a partial dissemination of the new managerial institutional logic and signs of professionalization of management altering some dimensions of the existing professions in the universities.

2 Theoretical Frameworks

Two theoretical frameworks seem relevant to understand the process of management professionalization within universities. First, this professionalization is associated with a major institutional change provoking potential conflicts of logics in the steering of organizations. Second, professionalization can be analyzed as a redefinition of the professional identities and groups due to the introduction of new managerial systems.

2.1 Institutional Changes and Conflict of Logics

Changes in the field of higher education can be usefully analyzed through the sociological institutionalism, which puts institutional and organizational levels into perspective to analyze processual changes (Barley and Tolbert 1997; Lounsbury 2007). New institutionalism outlines how a new context of governance (formal regulatory and administrative structures) as well as new values enable changes and define new areas of control and autonomy. However, beyond the formal dimension of changes, it enables us to examine in greater depth the normative pressures exerted on universities and their actors by comparing the different logics existing in the institutional field (DiMaggio and Powell 1983; Thornton et al. 2012).

The concept of institutional logics leads us to consider society as a set of separate spheres with their own immanent values, norms and obligations and giving rise to different patterns of action (Friedland and Alford 1991). In this context, major institutional changes affect at the same time formal structures, practices, meanings, and values in interaction relationships. The analysis of institutional logics seeks to clarify the links between the institutional context (the set of rules and standards, systems of meaning, and the balance of power) and the actual organizational and individual practices (Ezzamel et al. 2012). When a new logic is introduced into a field, actors select certain reference frameworks that give meaning to their actions and construct specific institutional orders (Thornton et al. 2012). Organizations and actors may adapt their practices in line with a new logic. However, conflicts between logics often arise, potentially leading to the coexistence of competing logics in the same field (Reay and Hinings 2009; Lounsbury 2007) and sometimes to the persistence of older logics (Oakes et al. 1998; Townley 2002). Individual actors may also react to competing logics with institutional work, i.e., purposive actions "aimed at creating, maintaining and disrupting institutions" (Lawrence and Suddaby 2006). Conflicting logics can therefore be a source of heterogeneity in the way change happens within organizations (Powell and Colyvas 2008; Thornton et al. 2012).

Most empirical studies of the dissemination of the new managerial logic have examined how a professional group reacts to the new logic promoted by another group (Townley 2002; Reay and Hinings 2009). Most of the time, the managerial logic is facing one preexisting professional logic (health-care logic *vs* business-like health care, editorial *vs* market logic, for examples), and professionals oppose the managerial logic. Very few studies have examined the dissemination of the managerial logic among multiple professional groups of one organization and how the managerial logic spreads among interactions within and between groups. That is one of the purposes of this chapter.

The managerial logic driven by the 'doctrinal' puzzle of New Public Management (Hood 1991) at the macro level is intended to guide the actual practices of universities in terms of management and decision-making (Boitier and Rivière 2013). However, it is conflicting with other existing logics, particularly those of the academic or administrative professions. The exploration of these different logics is worth pursuing in terms of their cognitive, normative, and political dimensions and on an intra-organizational level (Powell and Colyvas 2008; Ezzamel et al. 2012) in order to better understand the process of managerial professionalization. In particular, we will analyze interactions between professional groups originally inspired by different logics but all affected by the new managerial logic.

2.2 Professions and Professionalization Within Universities

As the issue of professionalization of management concerns the professional groups of universities in different ways, we first define what is regarded as a profession in these organizations. Then we consider more specifically the developments of professions, especially those associated with managerial techniques.

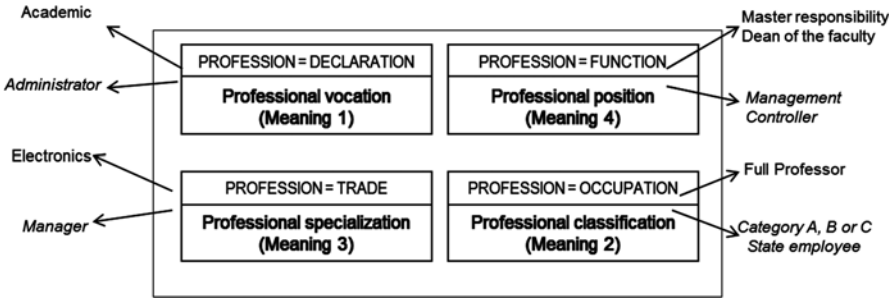

Fig. 1 Four meanings of 'profession': four points of view (From Dubar et al. 2011)

2.2.1 Professions at Universities

The French definition of the term 'profession' is broader than that of the Anglo-Saxon founders of the sociology of professions who limit its use to a few specific groups[1]. This definition allows us to embrace all the professional groups working in universities instead of focusing mainly on academics. It encompasses four meanings (Dubar et al. 2011). First, the profession relates to the idea of a vocation (meaning 1). Next, the profession is "the occupation by which one earns a living" (meaning 2). The third meaning recognizes the existence of the 'professional group' with its specific expertise and values. The profession is composed of "all persons engaged in the same trade and recognized as such." Lastly, the fourth meaning completes this representation by the position held by the professional in relation to the structural position depicted in an organization chart. This analysis grid thus offers complementary points of view on what constitutes professional identity (Fig. 1) and allows us to grasp its complexity. To illustrate how the four dimensions shape the professions, we take the example of two types of university professionals: the academic and the administrator.

The academic announces a vocation for teaching and research (meaning 1). A possible segmentation of this professional group can be perceived between those who emphasize either the research or teaching dimension of their activity, and those who insist on the complementarities of teaching and research. The administrator (meaning 1) belongs to an extremely heterogeneous professional group since secretaries, computer specialists, and managers are all referred to as administrators. The administrator group does however have a certain unitary professional identity at the university due to the divide between academics and non-academics (Musselin 2008).

The classification allows professions to be analyzed in terms of how professional identity is affected by status and hierarchical relationships (meaning 2) (non-tenured

[1] Members of the *professions* are granted specific rights, such as that of forming associations recognized by the state, organizing or controlling training and having the power to refuse access to the profession. These members have great individual responsibilities (such as doctors or lawyers, etc.) and altruistic motivations (Carr-Saunders and Wilson 1933).

teaching and research staff, lecturer or professor for academics; civil servants or contract workers for administrators).

The representation of each of these professions can then be segmented according to the trade (meaning 3) by relating either to the academic discipline or to the administrator's skills (manager, computer specialist, librarian, etc.). Electronics academics do not share the same trade with sociologists. But even among sociologists, epistemological positions may also lead to differentiated professional practices. Economics or management sciences lecturers might be more open to the managerial logic than others. Administrator managers may also have very different insights of their trade, depending on their training, skills, and careers.

Lastly, the functional criterion (meaning 4) completes this representation of what constitutes and could constitute a profession at the universities. The responsibilities of professors in charge of diploma courses, the dean of faculty, representatives elected to the board of administrators, members of the presidential team, or laboratory directors are likely to structure the academics professional group.

Differentiating the professions by these four dimensions allows us to highlight the importance of the concept of professional segments derived from interactionist sociology. A profession is not only a group whose members "claim the exclusive right to practice, within a trade, the art they profess to know, and to provide the type of advice that has its source in their specialized knowledge" (Hughes 1996: 108). It is also "a conglomerate of competing segments undergoing continual restructuring" (Bucher and Strauss 1961). Each segment has its own definition of what constitutes the center of its professional life; and differences in definition are fundamental to professional identities. The university can therefore be regarded as a place where a *negotiated order* (Strauss 1992) is established between interacting professional segments, a confluence of individual and collective destinies, professional careers, a relational space producing formal and informal rules.

As the institutional and organizational context tends to disseminate a new managerial logic, it could lead to a restructuring of professions at universities and a new negotiated order between professional segments according to the choices made with respect to the new logic.

2.2.2 Professionalization of Management Within Universities

In the introduction, we have identified multiple meanings of the term 'profession'. Indeed, the professionalization of management in universities can be considered first, in the sense of the functionalist paradigm, as a collective organizational qualification. In this context, French universities have become professionalized in terms of management, because they have acquired broader responsibilities and competences through new regulations and, as such, are recognized as having competence and expertise in management. However, this collective professionalization demands the development of individual professionalization, i.e., the development of individual competences associated with greater efficiency and managerial skills. Indeed, a policy decided 'at the top' (collective professionalization in universities) does not

necessarily imply either an aspiration or a spontaneous aptitude 'at the bottom' (individual professionalization); nor does the development of individual competences guarantee collective professionalization. Professionalization should therefore be seen as a 'dialectical process' (Dubar et al. 2011) involving many actors: the workers concerned, who are keen to have their professionalism acknowledged, and a group of other actors (colleagues, students, external members of the board and other groups), who express other professionalism requirements, i.e. idea of what the work should be like. In our study, we therefore adopt this view of the professionalization process: changes of management practices adopted by different groups of actors involved in the dissemination of the new underlying managerial logic.

The way institutional changes have given rise to new professional practices has been partly demonstrated concerning academics (Musselin 2008) and elected officials in charge of governing institutions (Mignot-Gérard 2006). Today, the activities of academics include many tasks that were previously regarded as marginal and whose influence has increased (both in terms of time spent and with respect to the role of academics). This concerns developing relations with companies, negotiating internships, personalized supervision of students, designing and managing courses (classroom or distance learning), recruiting and supervising external and temporary staff, etc. The managerial side of the activity has become more important to the extent that it now involves optimizing models of training by taking into account the limited human and financial resources. This implies making choices that can be described as managerial as well as academic and that aim at efficiency as well as effectiveness. Concerning research activities, a lot of time is now devoted to responding to calls for tenders, negotiating contracts, filing patents, etc. Researchers are therefore supposed to be involved in obtaining the resources necessary for their activity and become 'research entrepreneurs' performing within a competitive knowledge economy. What should be added to these extensive teaching and research activities are more decision-making responsibilities, (such as strategic planning, organizational design changes and cost-cutting programs) for academics involved in managing their institutions (Musselin 2008).

Mignot-Gérard (2006) has shown how university presidents developed proactive discourses on the adoption of the new managerial logic in the late 1990s. However, they continued to lead their institutions in the collegial framework specific to professional bureaucracies. Although managerial changes in university governance were taking effect, the simple fact of giving greater powers to university managers (presidents, deans) did not turn them into line managers organizing work. Nevertheless, when analyzing the possible impact of the managerialization of universities, Musselin (2008) considers that delegating the management of positions and staff to universities transforms the relationship between the scholars and their university. It comes closer to an employer-employee relationship establishing a link based more on pay than identity. This is reinforced by performance-based assessment and funding systems. Therefore, the institutional changes that took place in France between 2007 and 2012 are likely to have changed the behavior of university leaders. It has potentially transformed them into seasoned managers accountable for the performance of their institutions.

In this regard, in many countries, there has been a professionalization of university presidents and faculty deans who embark on careers as university managers, temporarily or permanently leaving their purely academic career (Broadbent 2011). In the American context, the development in universities of these professions and tools of management and audit leads, according to Tuchman (2009), to a form of de-professionalization of all academics partly deprived of their autonomy and transformed into 'managed professionals' (Rhoades 1998). More generally, new higher education professionals emerge, referred to as 'third space professionals' (Whitchurch 2010; Schneijderberg and Merkator 2013). Their identity is neither purely academic nor purely administrative, but they play an increasing role in higher education institutions. This varied group of professionals is however characterized by its expertise in the field of higher education and the main functions of universities. It is made up of former academics that have developed more administrative functions and administrators with significant experience in higher education. The functions they hold are diverse in nature, as, for example, chief of staff to the dean, research projects coordinator, head of accreditation or international partnerships, etc. This identification of a new category of professionals, mainly present at American, British, Australian, and Scandinavian institutions (Schneijderberg and Merkator 2013), leads us to presume the possible emergence of such professionals in French universities, following institutional changes with a certain time lag.

3 The Challenging Process of Professionalization

To analyze the multifaceted process of managerial professionalization, we conducted a detailed case study. We first present the case study conducted in a multidisciplinary French university, anonymized as UNI, and our research methodology. We then show the partial and incomplete dissemination of the managerial logic within UNI. Finally, we consider the issue of the professionalization of management within this university.

3.1 An In-Depth Case Study

UNI is a relatively large multidisciplinary French university with approximately 28,000 students, 1500 academics, and 1800 administrative staff. It has several campuses scattered across its region and a fairly long tradition of decentralization of decisions in its academic departments. Our case study was conducted from 2007 to 2012, a period of intense change at all levels.

At the national level, the process of change was based on three pillars (Boitier and Rivière 2013): starting from 2006 the new state budgetary structure assigned objectives and indicators to each state mission; the new role of assessment and funding entrusted to independent agencies; and the LRU Act (loi relative aux libertés et responsabilités des universités) of 2007. The LRU sought to give universities greater

autonomy and responsibility for strategic, financial, and human resources management, but their action was still guided by the State through performance criteria and partial conditional funding. Besides, the rise of higher education regional centers (Pôles de recherche et d'enseignement supérieur, PRES) and the excellence initiatives has intensified competition between the newly autonomous universities.

UNI became autonomous in 2010, in midterm of the incumbent presidential team (2008–2012) which contributed actively to configuring the governance of the local PRES with a strong focus on "scientific excellence." Changes implemented in UNI involved a change of logics and professional practices related to the formal adoption of the managerial logic by the presidential team during this period. However, a new presidential team has been elected in spring 2012 on a program denouncing the 'opacity' of the previous team's decision-making processes and challenging the adoption of the managerial logic.

To analyze these changes, we conducted a longitudinal case study (2007–2012), relying on both documents issued by the university (press releases, organization charts, records and reports) and interviews with actors of UNI. These actors belonged to different professional groups: elected academics who were most directly concerned with steering issues (referred to below as "politicians"), administrators of central departments involved in management and finance ("administrators"), and academics with different levels of responsibility ("academics").

The first interviews focused on information about our interviewees' biographies and the areas of change in their university since the autonomy had been acquired (see Table 1). As academics not connected to UNI, we were seen as both outsiders and insiders because of our professional affiliation to our community of academics and of our disciplinary connection to management. This played a contrasting role, depending on whether or not our interviewees were hostile to the managerial logic. During our first interviews, we therefore systematically explained our very broad view of management as well as our interest in each individual's career path.

Through these research interviews incorporating biographical information from the actors, we were attempting to identify different steps of their working life. It

Table 1 Excerpts from the interview guide

1.	Interviewee's background: training, vocation, career path (how long have you been at the university?), personal commitments (cultural, in associations, etc.)
2.	What is your current function in the university: position as academic, discipline, administrative responsibility, elected position…?
3.	Your university made the transition to autonomy on January 1, 2010. These new competences under the LRU Act are meant to develop the steering of universities (definition of a strategy, performance objectives and monitoring of indicators). How was it implemented in your university? Breakdown of objectives and indicators by faculty, by diploma, etc.? What do you think about that?
4.	With regard to your work, do you think your missions are clearly defined (teaching, research, administration, new assignments)? What resources have you been given (human, teaching hours per student, financial resources, training…)? Do you have any new responsibilities? Has your job changed?

included their arrival in the job, the progression of their work and any possible 'turning points' (Hughes 1996), thereby revealing the biographical processes that influence the development of a profession. The choice of different categories of actors within the same organization enabled us to show both the mechanisms of interaction between the different professional groups and the dynamics of each group. These groups' dynamics depend on their members' biographical trajectories, which themselves have been influenced by the interactions between them and their environment (Dubar et al. 2011).

We then conducted regular in-depth interviews with some of the key actors every 6 months in a fairly open manner to discuss changes in the organization, in their activities, and in their perception of these changes. We thus worked on meanings related to the professionalization of management in its organizational, technical, and human dimensions.

All 17 selected interviews, each one lasting between 1 and 3 h, were transcribed and analyzed thematically to highlight not only the information about the biographical history and any changes in the actors' professional activity but also any information relating to the mobilized institutional logics. Finally, we observed meetings and held informal discussions with actors working in UNI. This empirical approach was designed to shed light on the complex relationships between changes in work activities, meanings and social representations related to management, organizational dynamics, and individual career paths that cannot amount to a normative pattern of professionalization (Dubar et al. 2011).

This research method enabled us first to show the partial dissemination of the new managerial logic in UNI and then to query the professionalization of management within professional groups and at the individual level.

3.2 Organization Facing the New Managerial Logic: Barriers of Professionalization

The institutional changes associated with New Public Management in the field of higher education have led to the development of a managerial logic based on new management practices deployed through UNI. This is reflected in the development of assessment systems (performance indicators required by assessment agencies and Ministry of Higher Education), the emergence of a contractual logic (with the aim to implement objectives and means contracts between the university and its departments) and the improvement in formal budget processes. In UNI, depending on the position of the actors interviewed, the adoption of this managerial logic by new practices and meanings was expressed in very different ways, sometimes even within the same professional group. Some actors rejected the new logic and its values giving preeminence to economic considerations. They also opposed external controls undermining the academic autonomy which was traditionally dominant in the academic logic. Others felt unskilled or did not want to devote their time to

management, considering it as an ungrateful activity. Few pointed out some inconsistencies of new managerial tools. Thus, there were numerous obstacles to the diffusion of the managerial logic and hence to the professionalization of management within UNI and, in particular, at the level of the presidential team.

The interviewed administrators, whose role was to assist directly with university steering and to implement forecasting and budgetary control, recognized that appropriating management systems promoted by the Ministry of Higher Education was not straightforward for the politicians:

> *The LRU starts to become an imperative for them, and you switch to something else… but even now, it is still difficult for them to adopt the tools*. (*Administrator 2*)

The contractual logic of project funding raised difficulties since the presidential team might not feel bound by the agreement signed by the last term's team. When potential savings had to be made due to State budget allocation lower than forecasted, the pre-eminence of research budgets became apparent in the decision processes. Finally, cost reductions seemed systematically impossible. Research pre-eminence was based both on collective values with respect to the main missions of a university and on individual vocations of academics. In fact, research was an activity that most politicians claimed to maintain during their mandate, whereas they gave up teaching:

> *I try to continue doing my research*; *I do it less than before*, *but I think that this is what constitutes whether or not you are an academic*, *you do research or you don't*, *in my opinion*. (*Politician 3*)

Among the academics, there were mixed reactions to the managerial logic of developing objectives and indicators for governing the university. Some emphasized a basic opposition to the logic of the LRU and had a critical view of the new performance indicators:

> *Autonomy is the opposite of independence*, *because we've got something you know all about*: *indicators of excellence*, *of performance to achieve*, *all that*, *and the more coercive this thing is*, *the less relevance it has*, *of course*, *because we are trying to get it to fit the mold*. (*Academic 3*)

Others had more mixed feelings. While the forecasting approach was intellectually appealing, the potentially fake nature of certain indicators was highlighted:

> *It is something appealing because it gives the impression that we can get a better idea of where we are going*, *that we can better define the objectives. And at the same time*, *it was a bit of a fiction because we were asked for indicators that we don't really have or that are not very reliable*. (*Academic 1*)

Others, more openly convinced of the managerial logic, nevertheless pointed out inconsistencies in UNI's implementation of the strategic objectives:

> *The university is currently announcing some excellent objectives*, *but in terms of methodology*, *there's neither knowledge nor resources* (…) *You have to be efficient*; *and being efficient requires a great amount of energy to study the system in place*, *to switch from one system to another… this is why we see that we want to achieve objectives*, *but there are implementation projects that are contradictory*, *that clash all the time*; *and progress is very slow*. (*Academic 2*)

Between 2009 and 2011, the presidential team developed a management approach based on a university 'scorecard', then produced a global strategic project designed as an amalgamation of medium-term projects proposed by the different faculties of UNI. UNI then commissioned a consulting firm to provide methodological support for the tools and the coordination of this project approach, an action that was not universally popular within the university. The president justified this assistance as follows:

> *We are academics, or staff, in principle, we don't know how to do this. We need to be supported and assisted, which is what happens in the ministries, in universities, and in large organizations. We need help, because we have some great ideas, but in order to bring these ideas together and work effectively, we need help.* (*President of UNI, General Assembly*)

One of the politicians emphasized the difficulty of communicating with their peers and conveying this managerial logic:

> *The term steering or management control… is not understood. When I talk to my colleagues about it, I see that my explanations are not clear enough to help them understand, so I'm a bad pedagogue, so that means that I haven't yet got an overall, detached view of the subject.* (*Politician 1*)

While some politicians accepted the managerial logic, especially the notion of efficiency, this was not at the expense of a strong commitment to research. The managerial logic was challenged unanimously with regard to the increasingly conditional funding of research (calls for tenders for short-term projects but also for long-term projects for excellence laboratories). Elsewhere, the assessment and grading of laboratories were relatively well accepted. The issue of teaching was generally described in less detail in interviews with politicians, whereas academics, when asked about their definition of a university's performance, talked about "doing good research" and also "training enough students well" (Academic 1).

Finally, the conditions of implementation of the management tools and some organs of governance were criticized by the union alliance that supported a new presidential team in 2012. However, its program did not challenge every dimension of the managerial logic. For instance, objectives and means contract (COM) for academic departments were still adopted following a strategic approach. The managerial logic has therefore been disseminated to varying degrees, depending on the professional groups and equally depending on individual experiences within these groups. The analysis of career paths and of the interactions between actors and groups has allowed us to shed a new light on the process of management professionalization.

3.3 Professional Biographies and Professionalization

The three professional groups of our study are not affected in the same way by the professionalization of management; and within each group, each individual career path differs too. However, analyzing the interactions within a group and between groups helps to understand the dynamics of the professionalization of management

Table 2 Biographical information – administrators

	Administrator 1	Administrator 2	Administrator 3
Education	Master of Philosophy Civil service exams	Postgraduate diploma in law, civil service exams	Business school and postgraduate diploma in management
Career	Manager and accountant, then 10 years of experience in adult education, creating training courses	Manager and accountant Then training for financial function	15 years of experience in a public company that became private, before joining UNI through a public-sector mobility program
Recruitment date	2003	2006	2006
Illustrative citation	"*I am very interested in the organization of companies, the network of SMEs, and after a while I returned to my core job*"	"*I did a year of training, where our courses were supplemented slightly, very briefly, with some information on management, but it was very brief. In my career I have worked in several institutions, always for the national education system*"	"*I arrived at the university with the slightly strange feeling that I was going back to the beginning of my career, regarding these constraints that were being implemented: preparations for setting objectives, monitoring the achievement of objectives and certainly one day – this is where we're heading – implementing optimized resources to achieve these objectives, thus ending up with a performance-oriented approach*"

in UNI. We will therefore present the career paths of the key-actors we have interviewed in our three groups (Tables 2, 3 and 4).

The administrators chosen for analyzing more precisely individual processes of professionalization joined UNI shortly before the interviews. Administrator 3, who spent part of his career in a large, formerly publicly-owned company, is the most experienced in terms of management and control. While the 'Finance and Management Control' department was created during a reorganization of central departments in 2006, administrators "had a clear feeling that nobody knew what management control was" (Administrator 2).

The creation of this department as well as the subsequent recruitment of two additional team members were signs of professionalization by individual skills of the management function within the central departments of UNI.

The managerial professionalization of academics that did not necessarily interact directly with the central administrators grows along with the level of responsibility they had within the faculty. Indeed, the managerial responsibilities led potentially to an increase in reporting requests concerning various aspects of their work: quantitative

Table 3 Biographical information – academics

	Academic 1	Academic 2	Academic 3
Education and career	Doctorate at a major Parisian university, post-doc in a prestigious US university;	Doctorate at UNI	Doctorate at UNI
	Joined UNI as lecturer in 2001, professor since 2007	Lecturer at an Institute of technology; joined UNI as professor in 1997	Early career at a Parisian university; joined UNI as lecturer in 2000
Responsibilities	Responsibility for a diploma degree program	Responsibility for a diploma degree program, Head of Department, Director of a large training and research unit for the past 5 years	Deputy UFR Director for 6 months (resigned during the 2009 protests)
	Elected regularly to the Council of his laboratory and member of his department's Board		Joined a trade union in 2011
Involvement in organizational change	Supports research projects; Actor not directly involved in organizational changes	Involved in the proposed merger of faculties into a single faculty; Actor directly involved in organizational changes for the period 2008–2012	Unionized elected official of the council for the new faculty; Actor directly involved in organizational changes from 2012
Illustrative citation	"*I think we still hope that it will end up being a little more orderly. Because I feel like I'm working in a highly disorganized environment. And so my motivation for this* (*the managerial logic*) *is that I hope it will help me… that it will help make things a little more organized. So there it is*, *just that I haven't yet lost hope*"	"*What is perhaps missing now at the university*, *if I can give my point of view about UNI*, *it's lacking all this synchronization*, *I mean that there are actions left*, *right and center*, *there are objectives announced and everything*, *but it has to become a concept*, *at the moment it is not a concept*"	"*We need someone who bangs his fist on the table with regard to the administration*, *the administration is important*, *but to each his own task*! (…) *The administrative position is*: '*I don't discuss policy with professors*' (…) *There are various levels of problems*, *there are people problems*, *cronyism*, *and also a way of handling things that is full of good intentions*, *but way off the mark*, *and we're up against a wall dealing with this*, *it requires a huge amount of effort*"

Table 4 Biographical information – politicians

	Politician 1	Politician 2	Politician 3
Education and career	All three had their doctorates from UNI and pursued their career entirely at UNI		
Previous responsibilities	Responsible for a diploma course; 10 years of participation in the budget commission; elected to the Board of administrators	Laboratory Director	Department Director
		Dean; President of the national college of his discipline	Laboratory Director
			Elected to the Board of administrators
	Career was pursued in collaboration with a company for 20 years		
Illustrative citation	"*No previous responsibility can help you understand how a budget works, what it is for. So, we are faced with a problem of understanding this tool, understanding in details the practices of each of its components. That is why there are so few of us, who want to do this exceedingly ungrateful task*"	"*Management by definition is scary. And you always have to increase pressure, improve the result, boost the efficiency. So all this is still very unpopular, getting someone to accept all this, working more with fewer resources is never popular. And with greater constraints and more to deliver, it is not very attractive as a message. Nevertheless, we try to create enthusiasm, motivation, ambition – well, it's not easy*"	"*Administration, I've done relatively little, even as laboratory director I was doing very little, I had a very good secretary (laughs). Now I do it, and even now, I get by… well I am still a politician in the academic sense of the word: whenever there is administration to be done, I send it to Administration*"

indicators for research contracts, employability rate of students after diploma, calculation of training costs, etc. Moreover, the intensity of their interactions with the other professional groups determined the degree to which their professionalism was modified. This concerned simultaneously the adoption of the managerial logic as a value, changes in the content of their job, and the development of managerial skills.

Being given managerial responsibilities for a diploma course may have created a need for indicators, whose meanings needed to be clarified:

> *It's true that I feel I need to understand this aspect, but first to have something that works and that doesn't take more time than it saves and second to reach agreement on the objectives. That's not clear for the moment.* (*Academic 1*)

> *The indicators, in the end I'm not against them; you can add indicators, they show things, but we mustn't make them express what they don't say, quite simply.* (*Academic 3*)

The use of indicators that have been defined and mastered by both academics and administrators was emphasized as being essential for effective steering:

> *You have to be careful with* [*the choice of*] *the tools*, *i.e*., *the tools should not be the instruments defined by the administrator*. (…) *If he doesn't see the consequences and he can't see them*, *and if he goes and works in his corner like that*, *and he's the only one who understands the tools*, *we're heading for disaster*. (*Academic 2*)

The election of the new presidential team in 2008 offered an opportunity for various steering projects, accentuated by the newly acquired autonomy of the university: a university scorecard, a global strategic project for UNI, and objectives and means contracts (COM) with the main departments. To implement these projects, the president of UNI asked each politician to work in tandem with an administrator in order to improve communication between these two professional groups.

> *For six months it was complicated*, *we didn't understand each other. It was neither their fault nor ours*: *we didn't have the same view*, *the same goal*; *we were far apart on many things. And in the end*, *it didn't work out so badly*. (*Politician 2*)

During the 4 years of their mandate, politicians therefore interacted very directly and frequently with administrators, which could lead to changes in their professional identity and a form of professionalization related to management. However, the influence of these interactions on politicians varied greatly according to their career paths (Table 4). While these three politicians have had important responsibilities before joining the presidential team, they have been involved to different degrees in genuine management, regarded as unrewarding and time-consuming. One of these actors still had a very 'political' view of the practice of university management, challenged by the others:

> *Frankly*, *we didn't really know what we were doing… because* [*ironic pontificating tone*] '*we are all professors there*'; *the institution has trouble trusting administrators who really understand the job. And engaging in politics here*, *this means … not paying attention to current economic realities. Engaging in politics*, *this could also mean voting for an unbalanced budget*. (*Politician 1*)

For two of these politicians, working in tandem with administrators and interacting with external members of the Board contributed to a change in their professional identity. It led them to a form of adoption of the managerial logic. External members were seen as "a source of creative ideas from the point of view of real life" (Politician 1). Among the external members, the director of the regional hospital had a strong influence on two major politicians as one of them came from a faculty of health and the other was receptive to the example "of a model that works."

Finally, the support provided by a consulting firm for some projects also involved a training program in project management for the presidential team. Even after this support ceased in 2011, it led to a form of adoption of this managerial approach by some of the politicians. The management of projects was pursued internally and supported by a steering unit that was created to track the university's various projects. In particular, this steering unit continued to coordinate the COM process. Throughout the interviews, one of the politicians directly involved in these steering projects took the habits and role of the manager, one of these "third space

professionals." Being in charge of the main steering projects (university project and scorecard, developed together with the consulting firm) and in tandem with the most experienced administrator, he told us a few months before the end of his mandate:

> *I still have 20 years of my career left*; *I made a choice*, *which is risky*, *very risky*; *because*, *fundamentally*, *this is not my job at all*, *I have left my core job*. (…) *I'm managing faculty merger projects in Paris*, *so suddenly I am a project manager of this project in Paris. So*, *the abilities I have gained here*, *I can use elsewhere. I'm capitalizing on the managerial skills I have had for 4 years. But*, *overall*, *I don't know what will happen tomorrow… because it is not planned in our careers. The experience I've gained in the organization*, *I don't know what I will do with it in the future. Should I return to a teaching and research mission*? *Maybe*, *I don't know… that might be a bit of a shame considering the progress I've made*, *I really don't know*. (*Politician 2*)

This actor was convinced of the need for managerial professionals in universities and embraced the professionalization of management:

> *There is a huge need for new skills*; *there is a need to reorganize it all differently*, *depending on the governance*, *so we have highly specific skills that we didn't have at the university*, *that need to be developed* (…). *Everything relating to management is a typical example*, *when you really start to apply the quality approach. This is typical*, *we've been talking about it for four years* (…) *in the university everyone crowed about ensuring quality*, *but nobody knew what it was. So*, *we had to recruit people from outside to give training in that area*, *who had worked in companies in that area and who provided the knowledge we didn't have. And from their own perspective*, *they were trying to tell us*: '*Actually you are already doing it*, *but it is there*', '*this is how it should be…*' *It's a completely different organization*: *it's a different definition of the objective*, *it's a new organization that needs to be set up*, *compared with what was already being done*. (*Politician 2*)

In this politician's professional group, there was a very broad spectrum of individual professionalization in management. In one case, the managerial logic seemed to have no influence on the politician, who remained rooted in a classical political view of his function, delegating other concerns to the administrators. In the other two cases, the influence is much greater: politicians recognized the competences and skills of administrators, external board members, and consultants, in the design and implementation of steering tools and processes. From this, we can consider that a collective professionalization of management is well underway: individual and collective competences in management are developed, the respective responsibilities of politicians and administrators are delineated, and mutually recognized.

4 Discussion and Conclusion

Our case study has shed light on the complex process of interactions between the different professional groups. These groups had been initially inspired by different logics but were then faced with a new managerial logic and its associated management technologies. This logic had an impact on the professions, not only by the creation of new specializations such as management controller but also by the way it alters some of the four dimensions of the existing professions—namely position,

occupation, job content and vocation. The creation of new positions has changed the negotiated order (Strauss 1992) inside universities in favor of administrators, but, still, the dissemination of the managerial logic appeared to be heterogeneous within the professional groups.

Academics, even those openly opposed by vocation to the ideology of New Public Management, recognized the need for performance indicators to make decisions within the organization. It was not so much the managerial logic that was rejected but a bureaucratic use of indicators and management systems. They might also pretend to adopt the managerial logic with a certain amount of decoupling (Meyer and Rowan 1977) whether the reporting indicators required are obviously unreliable. As emphasized by Czarniawska and Genell (2002), in conforming to the organizational model and legitimate language of performance, universities might try to maintain a loose coupling between the operational reality and the image and the verification rituals they want to display. But this loose coupling often ends in colonization (Power 1997), creating new organizational practices over time. Within UNI, the global strategic project involved approximately 200 people and hence contributed to a partial colonization of the organization by the establishment of objectives and action plans, and scattering seeds of this logic throughout the organization. For academics, the ongoing professionalization of management was mainly modifying occupation and position: responsibilities came along with more reporting requirements and more managerial work (position), and the new environment had extensively modified the content of the work due to frequent quantitative assessments (occupation).

The politicians who were the most concerned with issues of budget and management and were interacting greatly with the administrators in charge of these subjects internalized more deeply the new managerial logic and the need of efficiency when financial resources decreased. Even the politician who seemed to remain resistant to the managerial logic by vocation adhered to some parts of the managerial discourse on the search for excellence and competition. As for academics, the professionalization of management affected both position and occupation, giving the role of "top managers" to presidential teams. Nevertheless, in our case, the presidential term of office of 4 years seems to be an obstacle to the process of professionalization of management. Indeed, the changes observed reflected a strengthening of the management teams and a professionalization of this function both in the administrators' professional group and in part of the politicians' group. But this change has been suddenly interrupted by the election of the new presidential team. According to the political logic, projects supported by the previous team had to be replaced by new ones in 2012, including those of the steering tools, in order to rebuild a *strategy based on academic values*. For the administrators supportive of the professionalization of management, it is time for new adaptation strategies. Their renewed strategy implied to convince the new team of the relevance of the steering tools without using the managerial vocabulary that was banned by their president. The professionalization of management in effect involves an adoption of the language and linguistic skills capable of describing the shape and structure of the decision-making

processes (Oakes et al. 1998). This process, in turn, contributes to the modification of the meanings associated by actors with their profession.

Finally, our case shows the emergence of a 'third space' professional (Whitchurch 2010; Schneijderberg and Merkator 2013) in the French context. The politician in charge of steering issues was at a 'turning point' during our study period (Hughes 1996), because he was interacting repeatedly with administrators, external members of the board, and consultants supportive of the managerial logic. Already favorable to the dynamics of change in the field of higher education, he decided to capitalize on his new managerial skills to significantly change the trajectory of his future career (occupation, position and vocation) despite the uncertainty entailed. He thus demonstrated his firm belief that universities need qualified personnel at both academic and management levels. He was also at a point in his career where it was possible to project 20 years ahead, which also differentiated him from the 'historical' politician of our sample.

While the dynamics of interactions between the professional groups studied shows signs of professionalization of management, this did neither de-professionalize academics nor transform them into 'managed professionals' within the meaning of Rhoades (1998), because they maintained significant power and decision-making autonomy with regard to their institution's strategy and ensured their freedom as academics.

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From Voluntary Collective Action to Organized Collaboration? The Provision of Public Goods in Pluralistic Organizations

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1 Introduction

Individuals or groups' lack of voluntary contributions to public goods are a broadly studied problem in economics (Musgrave 1969; Samuelson 1954; Ostrom 1997, 2003). Without the right implicit or explicit sets of norms, standards, rules, and regulations, common goods suffer undersupply (Kollock 1998), exploitation (Hardin 1998), or limited access (Buchanan and Yoon 2000). In recent years, the commons concept has gained increasing attention from organization and management scholars, for example, in studies on industry reputation (Fauchart and Cowan 2014), alliances (Monge et al. 1998), and corporate management (Frost and Morner 2005). These studies focus on different forms of coordination that facilitate, or hinder, collective action to achieve common goals. They address the question of how to implement structures and processes that enhance the creation and usage of specific commons by means of soft norms and standards that guide voluntary collective action, or by means of tight coordination and control that ensures collaboration (Frost and Morner 2010; Jia 2014; Vining 2003).

How to coordinate collectives is a specific problem in pluralistic organizations (Denis et al. 2007). Multiple actors with diverse objectives "linked together in fluid and ambiguous power relationships" constitute pluralistic organizations (Denis

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et al. 2001: 809). Owing to their highly-trained employees' multiple and potentially conflicting values (Morrison and Milliken 2000; Weed 1977), pluralistic organizations offer a great deal of individual autonomy, while their structures and processes are only loosely coupled to each other (Orton and Weick 1990). Consequently, these organizations face severe problems with implementing tight control; instead, their professions' norms and values coordinate them (DiMaggio and Powel 1983). Their coordination problem therefore differs fundamentally from that of industrial organizations. Well-known examples of pluralistic organizations are health care providers and hospitals, accounting and law firms, public service providers, as well as (higher) education organizations (Denis et al. 2001).

There have been various attempts to make pluralistic organizations more manageable (Cardinal 2001; Harlacher and Reihlen 2014; Hattke et al. 2014). The global trend towards assessing and quantifying social interactions — vividly described as the audit society (Power 1999) — has also reached pluralistic organizations. A number of indicators condense relevant information on knowledge-based processes and provide different kinds of actors with evidence of individual behavior and collective performance. Simultaneously, pluralistic organizations try to tighten their loosely coupled structures and processes (Lutz 1982). They use specialized central support structures to coordinate the creation and use of organization-internal public goods (Frost and Hattke 2013).

We argue that this constitutes a shift from voluntary collective action, based on trust, norms, and public value orientation, towards organized collaboration, based on centralization and monitoring, which support specialization. In other words, regulative public value institutions are replacing associative and cultural cognitive public value institutions (Feeney and Welch 2012). Economies of scale, standardization, and consistent decision-making, but also unresponsiveness, rigidity, and complexity characterize centralized systems (Coggburn 2005). In addition, professional norms and values might be in conflict with managerial rules and regulations and, therefore, counteract their positive effects (Greenwood et al. 2011). Consequently, the overall effects of organized collaboration remain unclear. Our research addresses this gap by providing a theoretical framework to evaluate the effectiveness of centralized support structures.

Using German higher education as a context, we adopt a multivariate contingency approach (Pugh et al. 1968, 1969) to study the extent to which voluntary collective action and organized collaboration contribute to a university's performance in three fields of action: the training of young scientists, internationalization, and gender diversity. Besides universities' main purpose — undertaking research and offering teaching — these secondary functions are of major importance to create public value: They cultivate individuals capable of providing public services in academia (Schofer and Meyer 2005), and condition publicly desired behavior by facilitating international exchange and globalization (Altbach and Knight 2007; Qiang 2003), as well as promote gender equality (Gurin et al. 2002). We develop three hypotheses with two sub-hypotheses each, which we then test on a comprehensive dataset of public German universities. Our findings indicate that organized collaboration may lead to improved performance in the training of young scientists and gender diversity fields. Conversely, voluntary collective action enhances

internationalization. We thus propose that, depending on the field of action, voluntary collective action and organized collaboration are substitutes with respect to performance. Our study contributes to the literature on collective action in pluralistic organizations and informs higher education policy on the recent trend towards new forms of organizing in universities.

2 Theoretical Background and Hypotheses

2.1 Social Dilemmas in Pluralistic Organizations: The Case of Higher Education

Universities are a well-known example of pluralistic organizations (Denis et al. 2001; Kezar 2000). They have to respond to the multiple demands of diverse internal status groups and external stakeholders, such as their employees, (potential) students, global scientific communities, governments, accreditation agencies, and regional industries. Universities serve important public values and shape the development of societies by creating new knowledge and by providing professional and civic education (Feeney and Welch 2012). The outcomes depend on contributions by autonomous scholars, who engage in interdependent and mostly voluntary social interactions (Mora 2001; Moses 2007; Weick 1976). These scholars' extensive individual autonomy is grounded in practical, i.e. different, academic cultures (Pickering 1992); in technological, i.e. unclear, production technologies (Cohen et al. 1972); and in normative reasons, i.e. preventing specific political or economic influences (Enders et al. 2013). This publicness, plurality, and autonomy could subject universities to social dilemmas (Ostrom 1997; Kollock 1998): it is nearly impossible to specify all facets of scholarly performance, least of all verifying the precise percentage that a single person contributes to the overall common goods.

Social dilemmas are a widely studied phenomenon and refer to "a large number of situations in which individuals make independent choices in an interdependent situation" (Ostrom 1997: 3). Such free-riding behavior occurs when the costs of contributing to a common goal are perceived as higher than the investment in immediate individual benefits (Kollock 1998). In sum, however, individual benefits are smaller than that which full cooperation can collectively achieve. Overcoming these social dilemmas requires some form of organizing that enforces appropriate behavior and/or inhibits free-riding and social loafing (Ostrom 1997). Our study contrasts two different forms, which we call voluntary collective action and organized collaboration.

Voluntary Collective Action Guided by Professional Norms and Values Universities traditionally operate under a professional logic that provides norms and values to guide appropriate behavior for collective action (Enders et al. 2013). Collective action refers to different actors' voluntary involvement towards a common interest (Meinzen-Dick et al. 2004). It is a "system of interaction among organizational members and collectives" towards a common goal (Morgeson and Hofmann 1999: 251). Collective action is associated with cultural-cognitive (e.g.,

academic culture) and associative (e.g., orientation towards the community) public values (Feeney and Welch 2012). Academia is largely based on voluntary collective action, of which peer review is an example, as scholars assess working papers and research proposals, often without any immediate compensation. Without voluntary collective action to create public values, universities may not overcome their social dilemmas (Hellström 2004; Olson 1965).

Organized Collaboration Based on Specialization and Centralization In recent years, a new institutional logic of managed education has gradually replaced professional dominance in higher education, particularly in Germany (Reihlen and Wenzlaff 2014). Universities increasingly rely on regulative institutions (e.g., rule-based interactions and economic controls) and organize collaborations to overcome social dilemmas (Feeney and Welch 2012; Frost and Hattke 2013). They specialize, i.e. functionally differentiate, their support structures, as well as supply, coordinate, and control their activities through central units (e.g., Boardman and Corley 2008; Gornitzka and Larsen 2004; Kitagawa 2010; Locker-Grütjen 2009). Organized collaboration by means of specialization and centralization comprises a variety of functions that aim to align activities with various organizational or public goals (Coggburn 2005). Offices for marketing, quality management, personnel development, internationalization, and gender diversity, as well as units for lifelong education, career centers, and graduate schools are examples of the increasingly institutionalized division of labor. By extending their organized collaboration, universities try to "tighten up the loose coupling" (Lutz 1982) in their organizations; they attempt to make voluntary collective action manageable and thereby overcome social dilemmas.

We assume that voluntary collective action and organized collaboration are independent, but complementary, with respect to organizational performance for the following reasons. First, collective action is a relatively persistent capability that organized collaboration cannot easily replace (Pandza 2011). As "actions of individuals […] meet in space and time, resulting in interpersonal interaction [and] as interaction occurs within larger groups of individuals, a structure of collective action emerges that transcends the individuals who constitute the collective" (Morgeson and Hofmann 1999: 252). In other words, the existing structure of interdependent actions is a capability that can solve social dilemmas by defining collective action's mutual conditions, which provide cohesion in future interactions (Davis and Thompson 1994; Teece 2007; Teece et al. 1997). Second, organized collaboration does not entirely solve social dilemmas (Vining 2003). Beside the direct costs of coordination, the interdependencies between the local and central units, i.e. between scholars and administrators, may become subject to exploitation (over-use) and political power games (under-use). Individuals may thus try to avoid costs when benefiting from pooled resources, or strategically use their assets for empire building (Frost and Morner 2005, 2010). A capability for voluntary collective action may also help overcome these two dilemmas inherent in organized collaboration.

2.2 *Enhancing University Performance Through Voluntary Collective Action and Organized Collaboration: Hypotheses Regarding Three Action Fields*

In response to internal and external stakeholders' various demands, universities are engaged in many fields of action besides their core activities of teaching and research (Blaschke et al. 2014). For example, they provide the scientific community with services by training young scientists according to their professional values; they contribute to global understanding and international networking through student and scholar exchanges; and they engage in social equality issues by promoting gender diversity. Our study focuses on these three secondary functions: the training of young scientists, internationalization, and gender diversity. We do so for the following reasons:

First, beside the differences in academic cultures and unclear production technologies, which cause pluralism in research and teaching — the academic heartland —, the multiplicity of stakeholder demands and fields of action makes scholarship a pluralistic endeavor of public interest (Aguinis et al. 2014). Global scientific communities, regional industries, employees, (potential) students, accreditation and funding agencies, as well as governments demand that their issues should be on the academic agenda. Denis and colleagues (2007: 183) see this multiplicity of demands as the central defining condition for pluralistic organizations, which are "characterized by the co-existence of a variety of logics or rationalities which are legitimated by stakeholders inside and outside the organization." Each of our fields of action simultaneously relate to different types of stakeholders: The training of young scientists addresses scientific communities, industrial research organizations, and postgraduate students; scientific communities, students (both, undergraduate and postgraduate), and governments are related to the field of internationalization; governments and women's rights movements promote gender diversity issues.

Second, these secondary functions probably face severe social dilemmas. Although scholars may gain individual benefits from engagement in the respective action fields, universities and public stakeholders probably have overreaching goals that exceed individual scholars' self-interest. In our case, the discrepancy might be especially salient since secondary activities of public interest are of minor relevance for scholars' individual career considerations compared to core activities like publishing research articles, preferably in highly ranked journals (Kieser 2010). This multiple-tasking effect is a well-studied phenomenon (Holmstrom and Milgrom 1994). It probably only occurs when by performance evaluations measure and incentivize a few aspects of complex actions and, thereby, enforce social dilemmas in unassessed fields.

We rely on traditional management theory (Kieser and Kubicek 1992; Pugh et al. 1968, 1969; Staehle 1976) to postulate the causal relations between voluntary collective action, organized collaboration, and organizational performance under consideration of contingencies. Accordingly, performance depends on the fit between the objective situation and the chosen form of organizing (Doty et al. 1993). In our

case, the capability for voluntary collective action and the degree of organized collaboration (independent variables) between other contingencies (control variables) influence the performance in the training of young scientists, internationalization, and gender diversity fields (dependent variables). This leads to the following hypotheses:

Performance in the Training of Young Scientists Professors largely decide how many post-graduate students they wish to take on and under which circumstances they will grant them academic degrees. Awarding a PhD to a scientist might well be in the awarding professor's self-interest, but there is a collective interest in educating as many promising students as possible, which, in turn, probably exceeds the professors' individual preferences and capabilities. Accordingly, voluntary collective action that transcends team and department structures enhances educating the next generation of scientists, for example, through knowledge transfers in informal meetings, research colloquia, and method workshops. In addition, organized collaborations through graduate schools, personnel development offices, and units for lifelong education and training may institutionalize support for young scientists and, therefore, facilitate their performance. Specialized central support for research and teaching may therefore create spill-over effects that also benefit the younger generation. Based on these arguments, we argue:

H1: A higher level of voluntary collective action and organized collaboration increases performance in the training of young scientists.

Performance in the Field of Internationalization The international exchange of students and scientists is of major importance for universities. As much as the decision to go abroad is based on individual considerations, students, and scholars need at least a minimum of organizational support. If the workload of a departing scientist cannot be shifted to another professor, or if a study path provides no slack for a semester in another country, the individual costs may be too high. Similarly, visiting scholars may choose to stay with a specific scientist, but they may also consider the university's overall reputation, the provided technical infrastructure, and their colleagues at the host department. Thus, voluntary collective action to encourage and support international exchange should enhance performance in the respective field of action. Further, international offices and personnel development bureaus' specialized central support, as well as organized teaching and research collaboration may facilitate performance in the field of internationalization. Thus, we argue that:

H2: A higher capability for voluntary collective action and organized collaboration increases performance in the internationalization field.

Performance in the Field of Gender Diversity The increasing gender diversity in scientific positions signals adherence to equality values and therefore legitimizes the university as an actor in and for society. However, to promote young female scientists and to grant them tenured professorships is largely a decision that committees — not individuals — make. Besides, balancing family and work is still a

salient problem for many young mothers. Some departments therefore provide support by offering child care, or flexible working hours, which may also benefit other departments in respect of hiring faculty, because they might offer similar conditions without actually initially doing so. On the whole, gender diversity is an issue that may be subject to social dilemmas and requires voluntary collective action. Specialized central units for personnel development and gender diversity, graduate schools, and units for lifelong education are likely to coordinate their gender equality efforts and thus enforce the political agenda. In addition, female professors and scientists might also benefit from support for the core teaching and research issues. This leads us to the following hypothesis:

H3: A higher capability for voluntary collective action and organized collaboration increases performance in the gender diversity field.

3 Empirical Analysis

3.1 Data Sources and Measurements

Our dataset is based on online database research (ISI Web of Knowledge, ICELand), on secondary data from existing surveys (e.g., DFG 2010; DAAD 2012; Humboldt 2012; Löther 2013), on a comprehensive document analysis (e.g., organization charts, annual reports), and on Internet research (e.g., personnel and financial records) to complement the existing databases and surveys. The data was gathered between 2011 and 2014 and contains information ranging from 2007 to 2011. Beside for pragmatic data availability reasons, we tried to model a longitudinal design that fits our theoretical argument. Independent and control measures should describe conditions prior to those of the dependent variables. However, since formal university structures change rather slowly and path-dependently, rather than spontaneously and dynamically, we expect only minor changes to have occurred during the span of the investigation. The dataset encompasses all 80 public German universities with promotion and habilitation rights. We excluded five specialized pedagogic universities and arts colleges to keep the observations homogeneous, and excluded two universities where no measures could be found. In total, our study covers 73 universities, or 91.25 % of the total population. Table 1 displays the data.

Dependent Variables First, performance in the field of promoting young scientists is commonly measured by the number of dissertations (PhDs granted). Habilitations are a higher academic degree in Germany that allows appointment as a full professor. Although junior professors have recently been established as an alternative career path, the majority of young scientists still follow the traditional habilitation path (Bäker 2015). The numbers of dissertations (Model 1a) and habilitations (Model 1b) are thus appropriate proxies to measure young scientists' promotion.

Table 1 Data description

		Mean	SD	Min	Max
Performance (dependent variables)	Training of young scientists				
	Dissertations	1086	886	0	3718
	Habilitations	66	62	2	350
	Internationalization				
	Rank incoming Humboldt scholars	37	21	1	79
	Erasmus funds for outgoings (in €)	370810	250772	1200	907669
	Gender diversity				
	Share of female professors	0.189	0.069	0.045	0.41
	Share of female scientists	0.369	0.083	0.2	0.656
Form of organizing (independent variables)	Organized collaboration				
	Support for research	0.4658	0.5023	0	1
	Support for teaching	1.2466	0.5721	0	2
	Lifelong education & training	0.1918	0.3964	0	1
	Personnel development	0.9863	0.1170	0	1
	Graduate schools	1.1918	1.7373	0	9
	International office	0.4658	0.5548	0	2
	Gender diversity office	0.0822	0.2766	0	1
	Voluntary collective action				
	Share of collective funding	0.432	0.164	0	0.756
Objective situation (control variables)	Organizational size				
	Students	18626	11215	2369	51216
	Professors	296	168	52	733
	Administrative staff	3113	2918	202	10127
	Scientists	2400	1693	275	6800
	Organizational age (in years)	192	194	11	628
	Academic diversification	4.2	1.3	1	6
	Span of control	8.7	4.4	1	21

We use a study that the GESIS institute published (Löther 2013), as well as information from the universities' homepages to determine their performance in the field of promoting young scientists.

Second, performance in the field of internationalization is commonly measured by the number of incoming and outgoing students and scientists. We use the Humboldt (2012) ranking to measure the attractiveness of this for incoming scientists. The Humboldt foundation funds excellent foreign scientists' long-term stays at German universities. The variable is reverse coded with the lowest rank indicating the highest performance (Model 2a). To assess the number of outgoing students and scientists at each university, we use the amount of funding they are allocated by the Erasmus programs as conveyed in the annual report of the German Academic Exchange Council (DAAD 2012; Model 2b). Although Erasmus only funds exchanges between European countries, it provides German universities with almost 50 million Euro per year and is thus the largest program supporting outgoing students and personnel (DAAD 2012).

Third, gender diversity is an important political issue in Germany. Equal opportunities for men and women in academia are commonly assessed by measuring the share of women in scientific positions. Again, we use Löther's (2013) study and information from the universities' homepages to assess their share of female professors (Model 3a) and researchers (Model 3b).

Independent Variables Organized collaboration is indicated by the number of specialized central units, i.e., functionally differentiated and on the highest level of structural hierarchy (Frost and Hattke 2013). We use organization charts, annual reports, and homepages to code the number of specialized central units dedicated to facilitating performance in the training of young scientists, internationalization, and gender diversity. We count the number of central graduate schools, international offices, gender diversity offices, units for lifelong education and training, and personnel development, as well as specialized central support for research and teaching, such as research promotion, or offices for study services.

We assess the capability for voluntary collective action by the share of cooperative projects and programs that the German Research Foundation funds (DFG 2012a). The German Research Foundation is the most important source of research-related third-party funding for public universities in Germany. The funding ranges from individual research projects to long-term support for whole research areas in the Foundation's excellence initiative. We code the DFG funds granted to each university as follows: Grants for special research areas, graduate programs, and excellence initiatives require a high internal capability for collective action. Such applications include concepts for the training of young scientists, as well as strategies for international visibility and gender diversity (DFG 2010, 2012b). In other words, the grants are used to create temporary structures embedded in the public values of interest in our study. In contrast, grants for individual scholars, focal programs, and research groups require little to no internal capability for collective action. The DFG is the primary institution that provides money for such large-scale projects in Germany (DFG 2012a) and it accounts for over ten percent of German public universities' total funding. Consequently, the share of high DFG funding serves as a proxy to determine a university's capability for voluntary collective action (1).

$$VCA = \frac{Collectivefunding}{Totalfunding} \quad [0;1] \tag{1}$$

Control Variables In addition, we consider the objective situation's characteristics to specify the context in which collective action and organized collaboration take place, namely, a university's size and age, the degree of academic diversification (i.e., the number of scientific disciplines), and the span of control (i.e., the number of faculties). We measure size by the number of employed professors, scientists, and administrators, as well as the number of enrolled students. Scientific disciplines are grouped into six categories: humanities, human sciences, medicine, natural sciences, social sciences, and engineering. We rely on the same data sources as for the variables for organized collaboration. Other structural characteristics (e.g., incentive systems, general production technologies and transformation processes, and monitoring techniques) and external contingencies (political turbulence, industry-level specifics, etc.) remain unobserved to keep the model consistent with our theoretical argument. We do not expect them to explain much variance, because German universities' observed population is rather homogeneous and they employ similar incentive systems, monitoring techniques, and face similar environmental conditions as other pluralistic organizations and industries.

3.2 Method

We employ multiple linear regression analysis (see Chatterjee and Simonoff 2013, for detailed information on regression analysis and the concepts referenced below) to test our hypotheses within the theoretical framework. Specifically, we model each hypothesis as the relationship between the respective independent (i.e., collective action, organized collaboration) and dependent variables (i.e., performance), while controlling for a common set of variables (e.g., organizational size). We check for multicollinearity between the independent and control variables. The elevated variance inflation factors (i.e., above 2) for the number of professors, academic and administrative staff, and students cautioned us to exclude these proxies for organizational size. Instead, we control for organizational size by means of the number of science disciplines and faculties at the university, which does not suffer from multicollinearity. The objective situation may, of course, affect the form of organizing. This contingency is, however, not part of our analysis. Instead we check our results' robustness by using the bootstrap method (Efron 1979; Efron and Tibshirani 1993) to calculate all six models with and without the control variables. In a rather small population, as in our dataset, outliers may impact the results disproportionately highly. Bootstrap re-sampling allows us to estimate a robust empirical distribution of randomly drawn observations (Benner and Waldfogel 2008; Henderson et al. 2012; McWilliams and Siegel 1997). By running the regression model many times (we simulated 1000 populations with a confidence interval of .95), bootstrapping provides a very accurate picture of the extent to which our results are robust.

3.3 Results

Table 2 summarizes the results of six regressions, one per sub-hypothesis, investigating the effect of voluntary collective action and organized collaboration on performance. Across the models, the estimated impacts from either voluntary collective action, or organized collaboration, support the proposed hypotheses. Simultaneously, however, voluntary collective action and organized collaboration do not enhance performance in any of the models. Thus, the assumption that the two constructs are complements in respect of organizational performance is not supported.

Organized collaboration enhances the performance in models 1a, 1b, 3a, and 3b. In other words, the training of young scientists and gender diversity may benefit from graduate schools and gender diversity offices. Personnel development has positive effects in model 1a, while, surprisingly, model 3a indicates a negative relationship between centralized personnel development and gender equality. Why such structures are associated with fewer female professors remains unclear, since they are especially dedicated to enhancing gender diversity. As models 1a, 2a, and 2b indicate, support for the core research issue creates positive spill-overs and facilitates performance in the promoting of young scientists and internationalization fields. Support for the core teaching issue, as well as centralized lifelong education and training, shows no significant effects in any of the models.

Models 2a and 2b suggest that organized collaboration aimed at supporting internationalization is not effective. Instead, the capability for voluntary collective action facilitates international student and scientist exchanges (the estimates are negative in model 2a, but the ranking is reverse coded). Model 2a indicates positive spill-over effects from organized collaboration for the core research issue, while model 2b does so from personnel development.

Furthermore, we observe important contingency factors across all the models. Diversified universities with many scientific disciplines and a high span of control are positively associated with performance, except in model 3a. Although both variables show no significant auto-correlation with the size of universities, they are still a proxy for size-related effects. Models 1a, 1b, 2a, and 2b may specifically be subject to such economies of scale. In addition, older universities show better performance in models 1a, 1b, and 2b. They promote more young scientists than younger institutions, and they are better connected to other institutions through their outgoing students and scientists. The results of model 3a and 3b show an interesting pattern: The older a university, the lower the share of female professors (model 3a), but the more untenured female scientists (model 3b) they employ. It seems that, to date, younger reform universities provide female scientists with better opportunities to reach tenured positions. Models 1a, 1b, 2a, 2b explain over half the variance of measured performance (adjusted R^2 of 0.5 or above). Meanwhile, models 3a and 3b account for only 15 or 13 % of the total variance in gender diversity. Thus, in contrast to the training of young scientists and internationalization, our models do not explain the main factors influencing the degree of gender diversity.

Table 2 Regression results

	Estimate	Std. Error	t value	Pr(>|t|)	Estimate	Std. Error	t value	Pr(>|t|)
Hypothesis 1	**(a): Dissertations**				**(b): Habilitations**			
Support for research	386.639	143.259	2.699	0.009***	14.979	12.288	1.219	0.227***
Support for teaching	−153.951	116.49	−1.322	0.191***	−13.078	9.992	−1.309	0.195***
Lifelong education & training	163.863	157.579	1.04	0.302***	−0.291	13.516	−0.022	0.983***
Personnel development	1084.951	540.951	2.006	0.049***	61.394	46.4	1.323	0.191***
Graduate school	150.239	45.536	3.299	0.002***	11.268	3.906	2.885	0.005***
Voluntary collective action	83.655	497.758	0.168	0.867***	27.374	42.695	0.641	0.524***
Organizational age	1.158	0.353	3.284	0.002***	0.1	0.03	3.319	0.002***
Academic diversification	236.657	55.368	4.274	0.000***	10.318	4.749	2.173	0.034***
Span of control	33.953	15.581	2.179	0.033***	1.532	1.336	1.146	0.256***
	F(9.63)	*Prob > P*	R^2	R^2 *(Adj.)*	*F(9, 63)*	*Prob > P*	R^2	R^2 *(Adj.)*
	16.71	*0*	*0,705*	*0,663*	*8,961*	*0*	*0,561*	*0,499*
Hypothesis 2	**(a): Humboldt (incoming) [rev.]**				**(b): Erasmus (outgoing)**			
Support for research	−13.206	3.537	−3.734	0.000***	100396.228	47467.575	2.115	0.038***
Support for teaching	−0.791	2.959	−0.267	0.790***	12218.154	39710.12	0.308	0.759***
Personnel development	−14.277	13.99	−1.02	0.311***	−62433.946	187769.207	−0.333	0.741***
International office	0.928	2.953	0.314	0.754***	−10397.599	39638.108	−0.262	0.794***
Voluntary collective action	−44.573	11.106	−4.014	0.000***	452428.555	149053.713	3.035	0.003***
Organizational age	−0.004	0.009	−0.471	0.639***	348.489	123.349	2.825	0.006***
Academic diversification	−5.579	1.43	−3.902	0.000***	38945.346	19192.033	2.029	0.047***
Span of control	−0.971	0.397	−2.448	0.017***	10184.78	5324.782	1.913	0.060***
	F(8.64)	*Prob > P*	R^2	R^2 *(Adj.)*	*F(8, 64)*	*Prob > P*	R^2	R^2 *(Adj.)*
	15.992	*0*	*0,667*	*0,625*	*9,896*	*0*	*0,553*	*0,497*

Hypothesis 3	**(a): Gender Diversity Tenured Faculty**				**(b): Gender Diversity Academic Staff**			
Support for research	−0.017	0.018	−0.951	0.345***	−0.027	0.022	−1.25	0.216***
Support for teaching	0.017	0.015	1.183	0.241***	0.02	0.018	1.12	0.267***
Lifelong education & training	0.006	0.02	0.286	0.776***	−0.026	0.024	−1.076	0.286***
Personnel development	−0.153	0.067	−2.281	0.026***	−0.11	0.081	−1.352	0.181***
Gender diversity	0.089	0.029	3.061	0.003***	0.067	0.035	1.89	0.063***
Graduate schools	0.011	0.006	1.808	0.075***	0.003	0.007	0.436	0.665***
Voluntary collective action	−0.019	0.063	−0.304	0.762***	0.058	0.077	0.757	0.452***
Organizational age	0	0	−2.125	0.038***	0	0	2.115	0.038***
Academic diversification	0	0.007	−0.055	0.956***	−0.013	0.008	−1.619	0.110***
Span of control	0.002	0.002	0.855	0.396***	0.004	0.002	1.801	0.077***
	F(10.62)	*Prob > P*	R^2	R^2 *(Adj.)*	*F(10, 62)*	*Prob > P*	R^2	R^2 *(Adj.)*
	2.246	*0.026*	*0.266*	*0.148*	*2.07*	*0.041*	*0.25*	*0.129*

Signif. codes: 0.001***; 0.01**; 0.1* | n = 73

Hierarchical bootstrap calculation results show that the above results are robust with and without control variables (Table 3). Throughout the simulated populations, only a few contingencies vary with regard to their significance for performance. Model 1a shows that central offices for personnel development ($p<0.05$ reduced; $p<0.01$ complete) and graduate schools ($p<0.05$ reduced; $p<0.01$ complete) significantly enhance the number of successful promotions. Centralized support for research activities also leads to positive spill-overs ($p<0.05$ reduced; $p<0.05$ complete). Age ($p<0.01$ complete) and academic diversification ($p<0.01$ complete) are also positively related. The number of habilitations (model 1b) also increases when personnel development offices ($p<0.05$ reduced; $p<0.05$ complete) and graduate schools ($p<0.05$ reduced; $p<0.05$ complete) are centralized. Organizational age is the only significant contingency ($p<0.05$ complete) relevant for habilitations. The hypothesized relations between the organization design, i.e., organized collaboration and voluntary collective action, explain the majority of the variances in performance measures, except for those in model 3b. Thus, in terms of the share of female scientists, the contingencies of organizational age, academic diversification, and span of control are more important than the chosen organization design; further, these contingencies more than double the adjusted R^2. In this case, organized collaboration efforts only marginally affect universities' performance.

4 Discussion

Our results show that performance in the tested action fields is not a simple question of organized collaboration to overcome free-rider problems. While organized collaboration sometimes leads to an increase in measured performance, the need for voluntary collective action remains important in other cases, despite efforts to create centralized and specialized organizational support. In the following, we discuss two propositions derived from our findings vis-à-vis existing literature. First, performance effects vary between action fields, not within them. Second, voluntary collective action and organized collaboration are substitutes with regard to performance.

4.1 Proposition One: Performance Effects Vary Between Fields of Action, Not Within Them

Although we have tested two models for each action field, the explained variance in performance (adjusted R^2) varies stronger between the action fields than within them. This observation is in line with classic management theory's general assumption (Staehle 1976): The effects of organizational attributes on performance depend on certain contingencies.

Table 3 Bootstrap results

	Estimate	Std. Error	t-value	Pr(>|t|)	Estimate	Std. Error	t-value	**Pr(>|t|)**
Model 1(a): Promotion	**t1(a) reduced**				**1(a) complete**			
Support for research	439.139	203.086	2.332	0.048	383.283	163.328	2.550	0.027
Support for teaching	−119.683	158.565	−0.767	0.465	−162.513	118.588	−1.418	0.184
Lifel. education & training	187.161	240.978	0.822	0.435	175.005	171.863	1.062	0.311
Personnel development	786.408	221.174	3.085	0.015	1039.591	181.524	4.025	0.002
Graduate school	179.664	81.211	2.572	0.033	155.460	48.019	3.789	0.003
Voluntary collective action	1075.546	631.717	1.847	0.102	20.433	491.516	0.022	0.983
Organizational age					1.112	0.376	3.231	0.008
Academic diversification					231.539	56.591	3.789	0.003
Span of control					34.891	18.326	3.393	0.060
	R^2 (Adj.) = 0.385; F = 6.637; df = 6; k = 1000 samples				*R^2 (Adj.) = 0.655; F = 13.436; df = 9; k = 1000 samples*			
Model 1(b): Habilitation	**1(b) reduced**				**1(b) complete**			
Support for research	19.535	12.018	1.735	0.121	14.166	11.019	1.373	0.197
Support for teaching	−13.727	10.744	−1.284	0.235	−13.877	9.115	−1.641	0.129
Lifel. education & training	2.473	17.195	0.151	0.884	1.495	13.589	0.121	0.906
Personnel development	38.541	13.108	2.535	0.035	60.191	14.575	3.110	0.010
Graduate school	13.511	6.623	2.553	0.034	11.928	5.425	2.691	0.021

(continued)

Table 3 (continued)

	Estimate	Std. Error	t-value	Pr(>|t|)	Estimate	Std. Error	t-value	**Pr(>|t|)**
Voluntary collective action	75.555	44.007	1.965	0.085	20.443	39.551	0.513	0.618
Organizational age					0.099	0.036	2.691	0.021
Academic diversification					10.220	5.107	2.140	0.056
Span of control					1.538	1.817	0.877	0.399
	R^2 (Adj.) = 0.302; F = 4.892; df = 6; k = 1000 samples				*R^2 (Adj.) = 0.486; F = 7.188; df = 9; k = 1000 samples*			
Model 2(a): Humboldt	**2(a) reduced [rev. coded]**				**2(a) complete [rev. coded]**			
Support for research	−13.631	3.962	−4.785	0.002	−13.409	3.455	−4.144	0.002
Support for teaching	−2.802	4.276	−0.669	0.525	-0.933	3.640	−0.243	0.813
Personnel development	−13.036	4.517	−2.467	0.043	−14.260	4.973	−2.359	0.040
International office	−1.769	3.487	−0.546	0.602	0.423	2.953	−0.126	0.902
Voluntary collective action	−70.167	12.833	−4.785	0.002	−45.215	12.132	−4.144	0.002
Organizational age					-0.004	0.009	−0.498	0.629
Academic diversification					−5.618	1.588	−3.892	0.003
Span of control					-0.965	0.436	−2.490	0.032
	R^2 (Adj.) = 0.453; F = 9.522; df = 5; k = 1000 samples				*R^2 (Adj.) = 0.620; F = 12.731; df = 8; k = 1000 samples*			
Model 2(b): Erasmus	**2(b) reduced**				**2(b) complete**			
Support for research	123241.756	58942.706	2.500	0.041	103708.259	51502.725	2.216	0.051
Support for teaching	10447.231	48207.814	0.214	0.837	6669.666	40295.726	0.176	0.864
Personnel development	−134532.376	69730.930	−1.617	0.150	−66116.324	70982.508	−0.763	0.463

International office	28769.882	58092.089	0.481	0.645	–7971.029	46574.276	–0.194	0.850
Voluntary collective action	715628.678	168818.471	4.785	0.002	434615.749	166070.678	2.735	0.021
Organizational age					345.260	134.690	2.972	0.014
Academic diversification					39420.533	22323.582	1.904	0.086
Span of control					10093.623	5761.570	1.971	0.077
	R^2 (Adj.) = 0.310; F = 5.631; df = 5; k = 1000 samples				*R^2 (Adj.) = 0.493; F = 7.995; df = 8; k = 1000 samples*			
Model 3(a): Gender tenure	**3(a) reduced**				**3(a) complete**			
Support for research	–0.025	0.018	–1.489	0.180	–0.017	0.019	–0.860	0.410
Support for teaching	0.021	0.017	1.367	0.214	0.017	0.016	1.076	0.307
Lifel. education & training	0.005	0.019	0.282	0.786	0.006	0.019	0.314	0.760
Personnel development	–0.132	0.017	–4.785	0.002	–0.153	0.019	–4.144	0.002
Gender diversity	0.088	0.042	2.534	0.039	0.089	0.043	2.634	0.025
Graduate schools	0.010	0.008	1.598	0.154	0.010	0.007	1.555	0.151
Voluntary collective action	–0.027	0.059	–0.472	0.651	–0.018	0.056	–0.384	0.709
Organizational age					0.000	0.000	2.825	0.018
Academic diversification					0.000	0.006	0.050	0.961
Span of control					0.002	0.002	1.037	0.324
	R^2 (Adj.) = 0.119; F = 2.387; df = 7; k = 1000 samples				*R^2 (Adj.) = 0.147; F = 2.245; df = 10; k = 1000 samples*			

(continued)

Table 3 (continued)

	Estimate	Std. Error	t-value	Pr(>|t|)	Estimate	Std. Error	t-value	**Pr(>|t|)**
Model 3(b): Gender staff	**3(b) reduced**				**3(b) complete**			
Support for research	–0.029	0.018	–2.156	0.120	–0.027	0.019	–1.510	0.162
Support for teaching	0.015	0.017	1.070	0.363	0.020	0.017	1.290	0.226
Lifel. education & training	-0.024	0.024	–1.137	0.338	–0.026	0.025	–1.110	0.294
Personnel development	–0.116	0.019	–10.215	0.002	–0.110	0.021	–3.581	0.005
Gender diversity	0.069	0.025	6.064	0.009	0.067	0.036	2.265	0.047
Graduate schools	0.007	0.006	1.633	0.201	0.003	0.007	0.485	0.638
Voluntary collective action	0.071	0.068	1.253	0.299	0.060	0.077	0.790	0.448
Organizational age					0.000	0.000	2.825	0.018
Academic diversification					–0.013	0.012	–1.191	0.261
Span of control					0.004	0.003	1.135	0.218
	R^2 (Adj.) = 0.047; F = 5.550; df = 7; k = 1000 samples				*R^2 (Adj.) = 0.130; F = 2.075; df = 10; k = 1000 samples*			

A contingency logic suggests that each field of action has different production technologies and involves different actors (Kieser and Kubicek 1992; Mohr 1971). In other words, each field exhibits a certain level of complexity and is therefore more or less suitable for a specific form of organizing. Management research discusses the optimal degree of organization as a trade-off between coordination costs and the costs of autonomy (Frese et al. 2012: 126; Young and Tavares 2004). Sophisticated coordination mechanisms might be advantageous in highly complex tasks environments, but they may cause unnecessarily high administrative costs if tasks are less complex. Vice versa, the costs of autonomy might be low if less complex tasks are less coordinated. But autonomy comes at a high price if complex tasks remain under-organized. In our case, voluntary collective action should be advantageous in less complex settings, while organized collaboration should enhance performance in more complex task environments.

Although our analysis is confined to three action fields that are all linked to universities' secondary functions, they exhibit slight differences regarding their task complexity. The training of young scientists is the most complex task. The production process of dissertations and habilitations is disruptive, discontinuous, and suffers from serendipity effects. Promotion and habilitation committees comprising up to nine senior faculty members make decisions to grant higher academic degrees. Facilitating gender diversity in academic positions is also a very complex endeavor. Ascertaining the skills of potential colleagues is a very vague and ambiguous task. Further, placement and tenure decisions are subject to multi-staged processes that involve various committees, administrators, and other officials. Although still complex with regard to planning and application processes, internationalization is the least complex of the three action fields. It is based on individual, or, at best, bilateral decisions with only minor internal coordination efforts and without committees' mandatory involvement. Thus, internationalization is less advantageous for organized collaboration and, simultaneously, most suited for voluntary collective action.

Collective action theory provides another explanation for our results. Voluntary collective action is more salient if goals are commonly accepted and internalized (Ostrom 1997). Davis and Thompson (1994: 164) state that "homogeneous interests and dense social networks increase a group's capacity to mobilize its resources." Thus, if scholars identify themselves with their universities, voluntary collective action is more likely to be effective (Pandza 2011).

This seems to be the case in respect of internationalization with voluntary collective action showing positive effects on performance. International exchange experiences and openness to foreign discourses are strongly embedded in professional logics (Parker and Weik 2013; Teichler 2004). In contrast, the mere number of dissertations and habilitations might not comply with professional standards. Indeed, the indicator is often criticized as an inappropriate measure for asserting the quality of a university's training of young scientists (Frost and Brockmann 2014). The share of female scientists might also be problematic from this perspective. Although gender diversity is of public value in western societies, it is not embedded in the professional logic that restricts employment and tenure criteria to quality standards. Thus, from a professional point of view, gender should simply not matter.

The conflict between associative, or cultural, cognitive and regulative institutions regarding serving pluralistic public interests might be the reason for voluntary collective action showing no significant effects on performance in the training of young scientists and in gender diversity and, in turn, has a significantly positive effect on internationalization.

4.2 Proposition Two: Voluntary Collective Action and Organized Collaboration Are Substitutes with Regard to Performance

Collective action research already suggests a relationship between voluntary collective action and organized collaboration. Centralization and specialization constitute pool and club resources, although these do not entirely solve the problem of university commons (Frost and Hattke 2013; Frost and Morner 2010). Thus, we expected a complementary relationship between voluntary collective action and organized collaboration with regard to performance. Other empirical studies support this argument (Jia 2014).

However, our results indicate that either voluntary collective action, or organized collaboration, has positive effects on performance, but not both simultaneously. We interpret these findings in the light of motivational effects that result from the shift in institutional logics and their related forms of organizing. The professional logic is not only based on norms and voluntary collective action, but also on the logic that managed education strengthens organized collaboration (Reihlen and Wenzlaff 2014). In the former logic, the "republic of science" (Polanyi 1969), internalizing the values of their professional communities motivates scholars intrinsically, while in the latter logic of "new public management" (Schimank 2005) incentives and control motivate scholars extrinsically (Osterloh and Frey 2014).

There is ample empirical evidence that neither form of motivation is independent, but that they reinforce, or reduce, each other (Frey and Jegen 2001; Frey and Oberholzer-Gee 1997; Squazzoni et al. 2013; Weibel et al. 2010). The introduction of regulative pressures might displace individual researchers' intrinsic motivation to engage in voluntary collective action and motivating them to achieve the measured goals and comply with the regulative system (Holmstrom and Milgrom 1994). This effect might be even stronger if individual scholars perceive organized collaboration as controlling instead of supporting (Deci et al. 1989). For example, if efforts to increase gender diversity are restricted to personnel recruitment quotas and do not include childcare offers, or flexible working hours, organized collaboration on gender diversity might not be perceived as supportive. The perceived reduction in individual autonomy might be especially high when indicators are in conflict with professional values and, therefore, are not internalized. As outlined above, this might be the case in respect of the mere number of dissertations and habilitations. Under these circumstances, extrinsic motivation might crowd out intrinsic motiva-

tion for collective action, with organized collaboration, in turn, further enhancing extrinsic motivation (Deci and Ryan 2000).

5 Conclusion

5.1 Contribution

The aim of this study was to examine the relationship between voluntary collective action, organized collaboration, and the creation of public value in pluralistic organizations. First and foremost, it contributes to management research on collective action in the creation of public goods (e.g., Frost and Morner 2005; Hargrave and Van de Ven 2006). While other studies indicate that voluntary collective action and organized collaboration are complementary, our findings suggest that they are substitutes with regard to performance. The crowding-out effects between extrinsic and intrinsic motivation, indicating that regulative public value institutions jeopardize associative and cultural-cognitive public value institutions, might explain our findings.

The paper also contributes to the stream of research on organizations operating under multiple institutional logics (e.g., Greenwood et al. 2011; Hattke et al. 2016; Kraatz and Block 2008). It is a useful illustration of how conflicts between different logics determine the effectiveness of the chosen organizational designs. It seems that conflicts on the field level cascade down and continue on the organizational level, causing the same organizational designs to be effective in some cases and of no value in others. This expands our understanding of the "internal dynamics of organizational responses to conflicting institutional demands" (Pache and Santos 2010), which is a major issue in contemporary institutionalism.

Finally, our study informs higher education research and policy on the recent trend towards centralized and specialized support structures at universities in order to create public value (e.g., Frost and Hattke 2013; Kitagawa 2010). To the best of our knowledge, it is the first comprehensive quantitative study on such organized collaboration at German universities. Scholars and practitioners might further elaborate the mechanisms behind these effects in the light of the given discussion.

5.2 Limitations

This study was conducted in the specific setting of higher education; consequently, its generalizability to other pluralistic organizations, or public values in other countries, has yet to be established. The conflict between professional and managerial logics might be salient in other professions than academia, but the forms of

organizing and the action fields might be very different. In a similar vein, our data suggests that voluntary collective action and organized collaboration are substitutes with regard to performance, but further research is needed to establish whether these propositions also hold true for other pluralistic organizations or public values.

Also, our measures may be questionable, as there are methodological problems when quality is equated with quantity (Frost and Brockmann 2014). Specifically, the number of dissertations provides no information on the quality of young scientists' academic work. A growing body of literature is concerned with problems of accuracy in determining scholarly performance (e.g., Baum 2011; Espeland and Sauder 2007; Kieser 2010; Osterloh 2010), and their problematic motivational effects (Ringelhan et al. 2013; Wilkesmann 2013). In addition, the operationalization of voluntary collective action to generate public value could be enlarged. For example, the informal provision of postgraduate education, family-friendly work arrangements, and international association memberships could further detail voluntary collective action and clarify their effects on performance.

Last, our aim was to create a homogeneous sample to reduce the variance between contingencies, which led us to exclude universities of applied sciences, private universities, pedagogy and arts colleges, and universities owned by churches from our analysis. Owing to the homogeneous sample, we also excluded many contingencies from our empirical analysis (e.g., production technologies, monitoring systems, and the benefits received for compliant behavior; see Ostrom (1997)). However, on a more detailed level, such contingencies might differ between the 73 observations.

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Universities, Governance, and Business Schools

J.-C. Spender

1 Introduction

There is considerable literature on the administrative and pedagogical challenges facing higher education (HE) just as there are many questions about higher education's duties and impact on society (Crow and Dabars 2015; Gregorian 2005; Hersh and Merrow 2005; Newman et al. 2004; Reuben 1996; Washburn 2005). Is HE's current structure and practice emancipatory, propelling new possibilities, collective or individual, or prisoner to the same forces that are widening the gaps of wealth, health, and opportunity (Berg 2003)? Refashioning Piketty's thesis, does the rising cost of education ensure inherited wealth will overpower education-induced social opportunity (Aghion et al. 2008; Lambert and Butler 2006; Wilshire 1990)? HE is also part of the national debate at a time of economic upheaval when, given its past history of state support, all manner of public funding is under fresh scrutiny. For two centuries HE has been regarded as too central an aspect of social governance to be fully privatized and allowed free rein, to pursue whatever goals it might choose. But neither are universities an arm of state, indeed western universities' most fundamental working assumption is independence of thought and educational practice, the pursuit of knowledge for its own sake irrespective of its measured economic or social benefits. The principle is enshrined as 'academic freedom', albeit a relatively recent legal notion in the US, but reflecting a long history as a legally supported resistance by the professoriate to over-eager university administrators, and by university administrators to State direction (Courtenay 1989; Fuchs 1963; Metzger 1990).

The university administration's problems come in many flavors; funding, faculty protest, regulation, institutional history of racial or other discrimination, changing

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(or disappearing) student career opportunities, and so on. But these are also unusual, given the interplay of institutional governance and academic freedom (Lockwood and Davies 1985). One anxiety is that academic freedoms are crumbling and the universities are being re-shaped by economic and market forces, forced to treat academic knowledge as a commodity or product for sale, the traditional type of academic knowledge being displaced by something rather different and maybe less desirable (Bailey and Freedman 2011; Bok 2003, 2013; Côté and Allahar 2011; Kirp 2003; Kwiek 2008). Though university governance been widely discussed since Veblen's time, unpacking it is not easy (Couturier 2005; Slaughter and Rhoades 2004; Sowell 1969; Veblen 1918; Vidich 1994). Universities are creatures of curious contexts in which unfamiliar goals come together with processes unfamiliar to those studying politics, private organizations, or market behavior. But identifying goals can help us towards outlining the nature of the governance problems to be addressed.

Readers who identify with business schools might think this chapter back to front. Instead of berating university administrations for bleeding their Business Schools (BSchools) and holding them back, as some probably do, this analysis begins at the other end. Universities are complicated organizations, maybe more so than large commercial organizations. But the analysis must begin with a sense of what makes university governance difficult. BSchool professors have seldom given this much attention (Hattke et al. 2014). While the BSchool faculty recognizes their own school as tricky to administer, they presume their university should be run more rationally – even as a business. But over-simplification is no help. So the early parts of this chapter scaffold a discussion of university administration within which business schools can be placed. The focus is on 'managing knowledge' and its special nature and place in universities. The chapter's later parts explore whether BSchools present the administration with governance problems unlike those presented by other parts of the university, especially their professional schools. After considering some historical details, the conclusion is that BSchools are indeed peculiar and can seriously disrupt a university's business, raising questions about whether it is appropriate to have them, just as many universities are questioning the role of their sports teams. Both, in the end, may be ungovernable.

2 What Is to Be Analyzed?

Ultimately the meaning of 'university' hinges on how we understand knowledge and its relevance to the human condition. The university, some say, is where and how society's knowledge is passed from the past into the future. But knowledge is a strange and demanding concept. Indeed, we might say it is the most puzzling of concepts; all others must fit within it; and about the rest we must be silent. In today's Knowledge Age the term comes quickly into the conversation – but what does it mean for our practice, and what are its administrative implications? The first point is that if the university is to be defined as a 'knowledge community' engaged in

'knowledge-generation and knowledge-distribution', its administration, needs, practices, achievements, and sense of social duty all hinge on specific interpretations of the notion of knowledge. For instance, dogma and myth are excluded. The analyst must surface knowledge's specifics to separate the university as a specific type of organization from others such as a business or a government agency. Simply claiming universities generate and distribute knowledge gets us nowhere. Unlike a business, measured by profit, or an agency, measured by its success in implementing policy, the university is evaluated by discipline-wide discussion about its research and teaching, and its impact beyond. Much of the evaluation takes place in the social and political arenas, and in the discipline's literature – all beyond the university's boundaries. Other types of organization often have less problematic boundaries and performance metrics.

The university is embedded in a 'critical' disciplinary community where knowledge is contested and, we presume, grows during the disciplined to-and-fro that comprises the academic discipline. In spite of natural science's claims to certainty and Truth, there is no unproblematic touchstone against which knowledge can be measured, so knowledge growth is communal, institutional, and partially 'socially constructed' (Gross 1990). It might seem useful to talk about a market for ideas, but we lack the robust notions of property, title, and exchange that make the term 'market' useful. In fact, 'knowledge' is a non-rivalrous resource so an academic discipline's activity cannot be understood using mainstream economics. However, economic and market notions certainly do apply where 'knowledge' has been transformed into rivalrous property by bringing it into an intellectual property regime. Inasmuch as knowledge is important to a business's growth such property-ization is crucial, pointing to a tension between the academic notion of a discipline as a context in which the free flow of knowledge promotes knowledge growth versus the economic notion of scarcity and the business notion of important knowledge as private property that can lead to economic growth.

Once a university gets involved with business-type knowledge management the tensions become a major governance issue,[1] exacerbated by the ways in which the different parts of the university feel and deal with financial pressure. Business schools have a remarkably low-cost business model or method of knowledge production and distribution; a nascent science without laboratories perhaps. Coupled with their ability to charge high fees, they are often able to move beyond being constrained by central budgeting as the university's principal governance instrument. Indeed, when the BSchool has significant business-sector support, philanthropic perhaps, the tail may get to wag the dog. Escaping the university's budgeting and revenue net may become many a business school Dean's primary goal, effectively privatizing its knowledge. All this is widely understood.

But is the problem of university governance no more than finding ways to deal with such centrifugal capabilities, with the business and medical schools leading? Is the distinction between knowledge as private or public good an effective route to

[1] See the Special Issue on The American Research University, *Daedalus, Journal of the American Academy of Arts and Sciences*, Fall 1993.

surfacing the unique governance issues business schools present to their host universities? This chapter argues other issues may matter more, most particularly those turning on the differences between the university's and the business school's notions of 'knowledge'. Even without much analysis we see there are many types of knowledge; scientific theory, of course, and publicly available data, but also proprietary commercial knowledge protected by the patents, trademarks, and so on that reflect the specific nation's laws and its knowledge-management institutions and policies that lead to patents and regulation. Some important bodies of knowledge, such as State secrets and insider-traders' knowledge, or the machinations of a-societal groups such as Freemasons, are normally beyond the university's purview. But any body of knowledge's boundaries are fuzzy, contested, and shift over time. The knowledge 'in the air' that Marshall saw as characterizing industrial communities is obviously an appropriate topic for business schools, just as sports medicine is for the medical school. The last centuries have shown Western universities' persistent colonizing tendencies, their desire to expand their boundaries and the range of subjects over which they claim some expertise or ownership. These tendencies are especially marked since the 1960s, to the point there are university-level courses and credentials covering practically every line of work, profit-oriented or otherwise (Thomas et al. 2013, 2014). Many universities have set up 'knowledge transfer' organizations to both protect and profit from the knowledge they own.

The resulting shift from elitist notions of ivory-tower scholarship to knowledge about contemporary society's functioning opened universities up to knowledge that is measurable and results-based and thus, in our capitalist society, profit-related. Knowledge for knowledge's sake is tricky to evaluate as an investment project – especially when taxpayers are paying the bills. But the knowledge that can be measured in capitalist terms may well be unlike the knowledge academics are used to developing, exchanging, and distributing. Consequently, the professional schools, business schools especially, are suspected of leading what academic reactionaries see as a sell-out of their fundamental notions of knowledge, accelerating the universities' transformation from places of cloistered reflection to instrumental facility-generating machines striving to serve commercial and political interests, even Mammon. Though Veblen laid out these arguments over a century ago the more reactionary discussion revolves around protecting and updating the Humboldt or Newman notions of the university (Pelikan 1992; Sowell 1969; Veblen 1918). Many call for new modes of administrative thinking, believing times and society have changed and that all social institutions in a capitalist democracy are inherently economic and have to represent voters and taxpayers. This begins, inevitably, with reconceiving the university as a social, academic, and economic organization to be made measureable and rationally administrable – in contrast to the Humboldtian concept of a loose self-managing scholarly community engaged in mining the endless frontiers of human ideas. All of which suggests the governance issues are around melding new knowledges with ancient, and with implementing business's more efficient methods while protecting some kinds of academic freedom.

But myths about universities' past give us little traction with the challenges of the present. First, there is a methodological problem. Absent a comprehensive and

rigorous theory of society – 'just', 'rational', 'efficient', or whatever – we cannot accept education's fundamental part in it and think we can arrive at a comprehensive 'theory of the university'. To put another way, starting out from our contemporary 'rationalist' position and presuming we can posit or identify the university's purpose as utilitarian is to ignore the tangled debate about today's challenges at the outset. Putting this yet another way, to presume there was ever a time at which a university could be satisfactorily coordinated by the notion of self-organizing scholarship is to deny history and separate oneself from the reality of today's possibilities and threats. University scholarship is always an aspect of the immediate socio-political context (Veblen 1918). This is never self-organizing, for without an ordered society there can be no ordered notion of the university to engage the society's pluralistic and contested social processes at a basic level. The underlying challenge is not to protect the university as an institution and insulate it from change but to create and protect an academically productive infrastructure and sound knowledge-generating processes that (a) eventually integrate into our society, and (b) underpin a politics of governance by free informed debate rather than by an un-critiqued exercise of force – be that military, legal, religious, ideological, or economic. By extension, university-type knowledge is a public or social good and the university has a central place in refashioning at least some 'private knowledge' to bring it into the public domain – without trampling inappropriately on the knowledge's owners' rights. Which is not to deny the right of private groups, such as Apple Inc. or McDonalds to set up their own proprietary knowledge activities and institutionalize them as Apple or Hamburger University. The main point being that the lay notion of the university arises from the public-ness of its knowledge agenda.

A bureaucracy is based on knowledge that is explicit, administered centrally, and thus hierarchical and inherently private. The knowledge being brought to bear can be logically deconstructed or 'exploded' from the organizational goal, as in a bill-of-materials. Entry and exit of personnel and the knowledge to be applied can be tightly policed. Performance can be measured objectively against explicit targets. A university is different. While entry may be heavily policed, based on detailed examination of the aspirant's academic credentials – such as publications and scholarly reputation – universities (though not by definition) typically have at least two 'purposes' and thus conjoin two distinct activities – teaching and research. The entry conditions vary. There are 'teaching universities' that do not engage in research but this does not mean they are natural bureaucracies, delivering an established body of knowledge. The knowledge applied in teaching is always changing, sometimes because society is changing, sometimes being shaped by research processes beyond the university. The knowledge teaching requires is not logically deducible or 'explode-able' from the university's goals or mission statement.

Though a research university's teaching activity may be thoroughly bureaucratized and goal-oriented, an academic institution's mark is that its members' research is organized differently, by their discipline rather than by the university (Cole et al. 1994). Academic research is defined as contribution to a discipline, measured in terms of discernible changes to the discipline's shared body of knowledge (though we know publications and citations may not be good metrics). Fundamental contributions

may lie 'hidden', not influencing the discipline until their time arrives. Many cite Semmelweis's work as a classic, or William Petty's statistics, or Ronald Coase's micro economics. Bureaucracies do not handle such 'hidden' advances well. Just as markets demand everything be priced, a bureaucracy demands everything be measured explicitly against its goals. Thus much academic knowledge, being still 'out there', is not only beyond being transformed into property and governed on an economic or bureaucratic basis, but may also be 'hidden' to the discipline. Darwin's work lay hidden in the bottom drawer for years. The gap between the isolated researcher and the discipline may be like that between an impoverished painter and her/his public, absence of acclaim being no reason to conclude a lack of achievement. A university's administrators, albeit wise but not members of every discipline covered within their university, may not be able to undertake their governance duties by asking the department's members about a particular scholar's research achievement, or even by asking other experts in the discipline (those infamous 'outside letters').

Once the university traffics in knowledge that has commercial value, different governance criteria are available and different governance challenges arise. While much commercial knowledge is 'hidden' to the firms that 'own' it, such as R&D not yet materialized as products or services, presenting the firm's managers with resource allocation problems, the modes of hiding and their consequences differ from those in academe. Loosely speaking, the professional schools traffic in knowledge that is significantly more commercially visible than the rest of the university's. The resulting tensions lead on to my second main point; the first being that universities are a unique type of organization with highly specific governance problems. The second that universities are heterogeneous in ways unlike other types of organization and, further, the governance of the professional schools is fundamentally unlike governing what we take to be the rest of the university, especially the liberal arts. It follows that these schools' 'governance problem' must be disaggregated if we are to think methodically about what university administrators do.

The problem is not usefully framed bureaucratically as if from a University President's 'throne', thinking of administering the university as a whole with a clear mission statement, communication channels, operational metrics, transparent incentive and reward systems, and so on. This might be easy to write about but denies the complexity of a socially engaged knowledge-institution in a pluralistic society (Smith 2000; Zemsky et al. 2005). The task of governance hinges on developing methods of appreciating and clarifying the situation's heterogeneous complexities and bringing them into a tolerable working relationship with the deep complexities of education as a curious system of production. A century after Dewey, Piaget, and Vygotsky we still have no widely accepted theory of educational 'production'. While the implications are generally pushed under the carpet, especially in the professional schools, most teachers remain uneasy about their methods, especially about the tension between 'theory' and 'practice', between classroom performance and professional competence. As soon as we dismiss the possibility of an all-encompassing formula of academic governance the problem becomes one of bringing the university's various activities together in the specific university's

specific situation. There is a significant 'division of academic labor' whose resolution into effective institutional practice is far from obvious; business has it far easier. The inventory of a university's activities is always a product of its history, even when government intervenes and, as in the UK, controls through Royal Charter and research rating, or, as in China, through various Ministries. The point is that talking about the university as a whole presupposes its governance problem already solved and that only external relations are being analyzed. While these are generally important they cannot be crucial, for the university must have been shaped into a functioning entity before it can develop 'external relations'; even though the overall governance problem is sometimes parsed between 'inside' and 'outside' contexts whose differing practices must be brought together.

3 What Makes University Governance Difficult?

To assume, as many do, that business knows how to solve its governance problems, indeed specializes in doing so, and that its methods are therefore relevant to the university, is to presume the business people have worked out how to overcome what is difficult about governance in the business context. Alas, even as many BSchool teachers presume management is essentially simple and that rationalist methods can provide workable solutions, their claims are unproven. The reality, the elephant standing in the business school's well-appointed common-room, is that BSchoolers have little useful to say to practicing managers – or to administrators in universities. Few BSchool faculty become university presidents. It seems the university governance problem is not usefully addressed by presuming it is a business – not because the university is doing something businesses do not do, a favored line of complaint, but because presuming so brings no clarification. We do not know enough of either to tell whether they are the same or different; indeed, it might be more fruitful to regard a business as a university, a knowledge generation and application system. In both the focus must be on what makes governance difficult. The difficulty cannot be assumed away by presuming either type of organization is an inherently rational mechanism whose activities can usefully be measured objectively and used to guide administrators' strategic decision-making. Without doubt, as Porter's work reveals, one of the reasons why the Newmanesque university is no more is that Western society has adopted an ideology and politics of metrication; numbers are its preferred rhetoric, squeezing out other modes of debate (Porter 1986, 1995). As Lord Kelvin argued, what cannot be measured is irrelevant. While historians and social scientists labor to extend what can be measured with notions like human and social capital, it seems clear that even if the knowledge boundaries of the university can be more or less sketched, much within its pale remains beyond measurement.

When we presume universities should respond 'isomorphically' to their particular contexts we drift towards denying the possibility of saying anything 'in general' on these matters. Regions and times differ. Community colleges – a size-able portion

of the educational complex – differ from research universities. Which leads to a third point, that the challenges of university governance probably cannot be addressed with the methods of positivistic science for these are specifically designed to produce forms of knowing that are 'general' or 'universal'. Theory is about universals and the point above is that absent a theory of the society served, there can be no universal 'theory' of university governance, nor of business governance either. But we can discuss why governance is difficult, and a knowledge-oriented discussion is especially powerful here. Within the knowledge-management community many focus on 'knowledge-sharing', presuming governance problems arise primarily from inadequate sharing or individuals' tendency to impede or resist the free flow of knowledge. But the implication that an organization's knowledge should be shared until everyone knows everything is both ridiculous and a denial of one of the few things we know for sure about organizations – that they survive by exploiting a division of labor. Bureaucracy stands on a division of labor; management is its direction and coordination. If the division of labor was not their source of advantage organizations would not exist; in the economists' language, all activity could be organized via markets. But the division of labor also entails a division of knowledge, explicit in the case of a bureaucracy, partially tacit in real organizations. Adam Smith's argument for adopting a division of labor is that it facilitates the creation of knowledge by dividing up the overall task into 'human-sized' elements that respond to an individual's imagination and judgment (Münsterberg 1913). No division of labor, no learning. In a university the most fundamental fact about its knowledge is the division of academic labor that begins with each field's axiom-ization. Human knowledge is heterogeneous by definition, shaped as much by what is 'not-known' as it by what is known. Academic axioms differ, resulting in separate fields and disciplines in which the not-knowns or 'knowledge-absences' become the discipline's problematics. As Kuhn pointed out, these change from time to time, influenced by the discipline's institutional dynamics and progress.

The essence of governance for all types of organization lies in ensuring, as far as possible, that the consequences of its division of knowledge are beneficial and productive rather than inhibitory or destructive, that there is collaboration and knowledge-synthesis rather than conflict. The means of influence fall into categories that turn on the kinds of organizing power available in that context. Bureaucracies especially but businesses in general see clear specification of the organizational goal as crucial to their governance, they leverage reason. Top management's instructions or leadership should be unambiguous. In contrast the emphasis might be on punishments for 'mis-behavior' as measured by low or negative contributions to the organization's goal. Business firms are 'power regimes' and managerial power can be exercised in many ways (French and Raven 1959). The classical typology is coercion, calculation (incentives leveraging from self-interest), or acculturation (persuading people to confirm to the leaders' directions). Once academic freedom is in place the power equation is radically different. A university administrators' inventory of power instruments is very different from that available to business managers, even more so when faculty members are tenured or protected by their discipline.

Nonetheless many regard the removal of these differences as the 'best way forward' for universities.

The deeper issue is that in our pluralistic political condition the university's knowledge is not and cannot ever be under the bureaucratic control of a university's administration, absent which business-like modes of governance not really relevant. Or, turning this around, if the university is re-fashioned as a business, as Veblen feared, then bureaucratic modes of governance become relevant and the university's nature has been changed significantly. As an academic institution the university's knowledge is unavoidably fragmented, and may be contradictory and lack coherence as a consequence of the differing axiomatization of the different academic fields and the plurality of the society it serves. Even within a discipline knowledge will be fragmented by the interplay of individual scholars as they critique established views in the process of making a contribution and ensuring the discipline's dynamism. Such control over this as exists arises primarily through the particular field's institutional processes rather than through any exercise of bureaucratic power within the university. Publication counts are useful to university administrators precisely because they indicate something of a scholar's interaction with and acceptance by their discipline, but the information is of limited value. Presuming that the governance of knowledge-production and knowledge-use can hinge on the kind of direct control that marks business organizations mis-characterizes the issues. Instead, those administering the university might turn to the power being exercised by others beyond the university, through the discipline. This may prove more effective than any power they can exert.

3.1 A History of the Western University

The Newman-esque notion of the university is often considered a summary of the Western university's history, its golden age. Such mythology makes for an unfortunate start; rather a historical sense of the university is vital (Engwall and Zamagni 1998; Jarausch 1982; Thelin 2011). The liberal arts are a relatively modern phenomenon. Ironically, the European universities that came together in the medieval era were actually professional schools intended to train priests, lawyers, and sometimes the military, and always shaped by the prevailing notions of knowledge. Knowledge, of course, is an aspect of philosophy, so universities typically include philosophers who, inter alia, try to guide the activities of their colleagues. We can shortcut a full analysis of the history of the law or of church teaching in Europe by appreciating that the history of philosophy as also a history of the notion of knowledge – and then bring that into the contemporary situation, clarifying the university's various notions of knowledge and knowledge control.

Philosophers are inclined to think of 'ages' in which different types of knowledge dominated (e.g., Ferry 2011). The demarcations are unavoidably loose, given the huge range of philosophers' activity, but handy. The Greek age is especially important because of the thoroughness of the Greeks' enquiry and their ideas'

continuing relevance even as our world is unlike theirs. The Christian age followed. Knowledge's target was completely redefined. While Greek knowledge was about the world and the challenge to articulate what was immanent within it as we shared that essence, Christian knowledge was focused on what lay beyond us 'in God's realm'. The medievalists carried over the Greeks' interest in human reason, but belief through 'revelation' was primary. For centuries reason and belief battled as two incommensurable modes of knowing. Saint Augustine's enormous impact arose because he argued for an interplay of reason and belief; there is no understanding what is not believed but our understanding of what is believed must be shaped by the exercise of our reason. This created an opening for the re-emergence of science (articulated earlier by Arab, Indian, and Chinese philosophers). Bacon became an important articulator of this new way of thinking by adding (a) that empirical observation might be as important a justification for belief as revelation, and (b) that mathematics should be taken as the model of disciplined reasoning. The post-Christian Enlightenment period brought science to the fore and while not denying religious belief made it possible for those believing in the truths of empirical observation to ignore revelation. Nonetheless echoes of the medieval epistemological conflicts between science and religion continue such as the debate over Creationism (Gilson 1938). The point here is that some universities have an explicitly religious nature or position, providing further trans-disciplinary control over its knowledge activities. Those universities that eschew a religious position are equally likely to have some overarching notion of purpose, what their activities are for, appealing to a secular metaphysics. Once we recognize the pervasiveness of Cartesian 'radical doubt', realize we cannot know anything 'for sure', and that our knowledge is only important to us because of our awareness of knowledge-absence, there is no null metaphysical place. To know means we have to believe in something that, as an academic, must then be doubted.

If this was the end of the history of Western philosophy we could frame the university governance problem as (a) dealing with the heterogeneity of disciplinary axiomatizations, (b) intervening in the heterogeneous patterns of power over the resulting bodies of knowledge and (c) agreeing methods of academic knowledge-generation. We can imagine a parliamentary body such as a university senate, resolving the tensions in democratic debate and agreeing organizational actions. There are some problems with this. First, those at senate may not properly represent the scholars in their departments, given the heterogeneity that keeps a discipline dynamic. Which is to say academic activity cannot be administered to take place only between homogeneous departments in disagreeing universities – one type of sociology at Harvard, another at the Sorbonne, and another in Tokyo, and three debating teams. Second, the nature of the debate may be unclear, indeed disputed. If the university is seen as a political community the debate will be about its distribution of power, rewards, and punishments. Anyone taking part in senate knows much of the process is 'political' in the small 'p' sense; there are tangible rewards to be garnered and woe-betide the inattentive. But the university has a deeper underlying nature; the politics are ultimately contingent on the nature of its knowledge. So the debate is also about the relative power, challenges, and benefits of the types

of knowledge being engaged. The university's charter implies boundaries that make some forms of knowledge more powerful than others. In a technology college science is prioritized over the humanities. In a medical school the Hippocratic oath prioritizes effective professional practice over laboratory science, and so on. These external disciplinary constraints also hinder the university from re-inventing itself as a political system might through internal revolution alone. Universities are bound externally by what counts as knowledge beyond its boundaries.

Deeper still are issues of method; in the end the academics' special capacity is their knowledge-creating methods. Method is the academic's hallmark and contribution, not the knowledge possessed; non-academics often have superior knowledge. The history of philosophy shows heterogeneity in scholars' methods. The present prioritization of quantification and positivist methods has done much to de-legitimate all others. This might be constructive if the university decided to de-legitimate all non-positivistic modes of knowing. Ironically, of course, the 'scientistic' argument for doing this cannot itself be positivistic so the notion is self-contradicting. Positivist bodies of knowledge cannot avoid standing on non-positivist assumptions or axioms that the discipline then takes for granted – without rigorous justification (Cartwright 1983). The governance issues follow from the axioms' heterogeneity, leading to a recognition that the university is a place of knowledge growth precisely and only because it is embedded in a critical multi-axiomed community, made so as one body of knowledge provides openings and support for the critique of another. Absent critique there is only dogma, a church rather than a university. Beneath the heterogeneity of axioms and disciplines lie questions of academic method, and here are the most fundamental challenges to university governance. Method embraces critique just as it did in the medieval Trivium (Robinson 2013). The senate debate is a method, but is often prisoner of what the participants take to be appropriate methods of knowledge making and assessment. One person may dismiss the knowledge-claims of another, as micro economists are wont to dismiss historians. Even as the senate votes and arrives at what seems a completely internal conclusion, their process draws on external authorities. Thus parties' stake bets on various types of knowledge and on a variety of academic methods. Precisely because radical doubt leaves us without any external touchstone of 'right method', debates over academic method are often divisive rather than mutually informing. Easy talk of 'multi-disciplinarity' denies the chasms between differently axiomatized disciplines. Without reciting the history of medieval struggles over method, the relatively recent history of the Methodenstreit – the faculty wars in economics in Germany at the end of the nineteenth century – remind us that debates over academic method are always beyond reasoned resolution; they are matters of philosophical ideology and are often deeply destructive.

Which leads to the conclusion that the most demarcating aspect of academic activity is not 'knowledge about' but 'method' – be that of knowledge creation, discovery, validation, or delivery. Given radical doubt, familiar to us as 'Knightian uncertainty' (Knight 1921) or 'bounded rationality',[2] there can be no single

[2] These are almost certainly related (Spender 2013).

overarching method. Knowledge is always contested; hiding tacitly agreed and institutionalized knowledge-absences. Google reminds us that good search techniques easily overpower memorization, creating a problem for those who think universities are places to learn the facts Google makes readily available. Alternatively, we can see universities as places to learn methods for handling types of knowledge that cannot be coded into Google's algorithms. Any discipline that gives up or fails to grasp whatever Google cannot handle gives up its birthright. Despite the reach of math and logic universities depend on disciplines that lie beyond logic's reach. In the post-Christian scientific era, articulated through the emergence of and widespread commitment to empiricism and positivist methods, the Western university community was challenged existentially to identify topics and types of important knowledge that those methods could not handle. The attention to the liberal arts is one result. But the history of philosophy does not stop with positivism. Most notably the work of Kant, Nietzsche, and others led towards 'phenomenology' and its very different notions of knowledge and academic method.

Instead of knowledge's target being the objective Reality 'out there' known with certainty, perhaps, to God but certainly not us, the focus shifted onto the Self. Knowledge is then a profoundly human artifact, codifying human experience, rather than an exact reflection of a God-made Reality that is independent of us, how think, and how we experience. It is what conscious but boundedly rational beings create to help them deal with what they experience as lying inchoate and chaotic beyond the Self. The differences in the resulting types of knowledge generated are less tractable than those arising from the modest differences within positivist methodology. Instead of thinking of different axiomizations – such as positivist economists might feel discomfiting when debating positivist political scientists or psychologists – the differences go far deeper, revealing deep disagreements about the nature of thinking itself. The recent 'faculty wars' around feminism, affirmative action, neoliberal economics, or global warming remind us that academe is deeply contested terrain – without which knowledge drifts into dogma. Ironically, the importance of knowledge is the consequence in our lives of not knowing.

3.2 The Business School as a University Governance Challenge

The sections above sketch some reasons to think academic administration unlike administration in other contexts, especially business corporations. The most fundamental challenges arise from (a) the different notions of knowledge or knowing, and (b) the different research methods institutionalized into the various disciplines. Within schools and departments there is heterogeneity too. The differences fan out into multitudinous related problems: managing faculty recruitment and promotion, student recruitment, teaching, the place of ethics in the curriculum, examinations, credentialing, and so on. The rigor and relevance issues are but a small part. Even

when disciplinary differences are ignored there are plenty of problems arising because the university administration lacks sufficient knowledge of what academic quality, performance, and achievement mean in the different departments.

Business schools present universities with special challenges that go beyond the financial and management control issues that induce the centrifugal tendencies mentioned earlier. In 1967 Herbert Simon published an important paper titled "The Business School as a Problem in Organizational Design" (Simon 1967). While often cited its lessons are seldom examined (Khurana and Spender 2012). Simon's discussion is characteristically subtle but makes much of one matter, that business schools deal with managerial behavior under uncertainty and this divides the faculty methodologically into two cohorts pulled together variously by their commitment to (a) scientific rigor or (b) effective practice. These are very different, so Simon's 'design problem' is to contain the tension between the groups. HIs conclusion is that the BSchool's Dean must harness the tension to drive productive activity forward rather than let it fester into internecine strife and disciplinary dog-fights. The paper reflected his considerable personal experience of building a school (GSIA or Graduate School of Industrial Administration, now the Tepper School), dealing with a host university (Carnegie Tech that became Carnegie-Mellon), and a wide range of external power nodes (including RAND and the Cowles, Ford, and Carnegie Foundations). But there is little about his paper that is specific to business school administration, it could apply equally to any professional school concerned with effective practice and, indeed, to most academic departments as they debate research practice. There may seem to be less friction in the liberal arts or pure science departments but it would be unwise to assume so; every discipline is energized by critical dispute and the energy raised can run amok; faculty wars have arisen in most disciplines.

But BSchools clearly have something peculiar about them. They are part of a spectacular educational development that, covering undergraduate, graduate and doctoral levels, has expanded globally, more rapidly and more profitably than any other discipline. BSchools have been good for the university, though they often engender tensions, jealousies, and many misunderstandings (Morsing and Sauquet 2011). These are often exacerbated by business schools' successful fund-raising in the business community – leading to named buildings that may seem glittering temples to Mammon given they contain nothing more remarkable than mahogany-lined case-rooms. Classes can probably be taught equally well without PowerPoint sitting on the lawn. Fine appointment has little to do with a business schools' uniqueness or success. The BSchool rankings exacerbate the tensions because they have such an impact on student recruitment yet are so arbitrary and disputed, a largely student-generated source of influence over which the administration, the faculty, and their disciplines have little control (Lahiri and Kumar 2011; Özbilgin 2009). Note the community has moved to have the ranking publicly policed and audited, given the possibilities of fudging the numbers. But the real questions are always around who or what body is controlling the knowledge being purveyed. As the philosophical story indicates, from the medieval era on the universities' knowledge was being shaped by forces and practices beyond its walls, ivory or otherwise, the faculty was

seldom acting alone. From the time of the Royal Society's formation the natural sciences were managed through the discipline's attention to repeatable empirical tests. Inasmuch as the knowledge had social significance, so part of the social sciences, it was constantly disputed, town-versus-gown, one discipline against another, State versus academics (often left wing), etc.

However, the business schools are also unique in that the external forces, pressures, or constraints acting on their body of knowledge are poorly related to the processes they claim to model – the economy and business activity. Indeed the irrelevance of the business schools' knowledge is a glaring and much remarked open secret (Hambrick 1994). It is particularly important to see how the true professional schools – medicine, engineering, journalism, education, accounting, law, architecture, dentistry, veterinary science, social work, etc. – constantly embrace and interact with the profession's practitioners, irritating (in Niklas Luhmann's sense), driving, but also containing the dynamic tensions Simon noted between theory and practice, between knowledge and method. The truly unique aspect of the business school is that there is neither a science exposed to coherent disciplinary pressure from a discipline nor a body of practice feeling pressure from business practitioners as a profession. There is no professional body to harness and deliver such pressure. The periodic involvement of business individuals – Wharton, Fayol, or Welch – is not the same thing and, as the history of management education shows, has had little effect. Wharton's history is interesting in that Joseph Wharton's politically-motivated attempt to control his school's knowledge-base and faculty failed (Sass 1982; Sass and Copperman 1980).

Executive education interaction is one way for business people to make their views known to academics, but this is not at all like the systematic pressures the true professions bring to bear on the schools that claim to train their members. Some argue business management is in a pre-professional state and that it will eventually achieve true professionalism. But these arguments seem strange to those who know anything of the long history of business and the attempts to teach it. Business has been practiced globally for many centuries – Florence in the time of Pacioli, the founding of Baghdad in 762 CE, and centuries before that in India and China. Many of the instruments we take as characteristic of business – bookkeeping, pooled debts, and credit instruments – were in widespread use long before the evolution of the first modern European economy in the Dutch Republic around 1600 (de Vries and van der Woude 1997). Rather than business being novel the more historically informed arguments suggest that while business may well have changed in extent, complexity, and degree of technological penetration over the last centuries it has not changed its fundamental nature. A weakness in this argument is that, in fact, we do not know this nature and so cannot know whether it has changed, a point famously made by Ronald Coase in 1937 (Coase 1937). But the very fact that business's essential nature is not known, while ensuring there is no body of business knowledge to underpin business management as a profession, leads to an economically and politically significant 'knowledge-vacuum'. The implications of which have become increasingly important, nationally as well as to university administrators, as business has moved to the center of the political discourse and the business school

business has expanded. Today almost one in five US students is studying some form of 'business studies', and the educational 'opportunity cost' is considerable (Thomas et al. 2013).

This chapter's argument is that the business school is unique in the university because of (a) the lack of external controls – disciplinary or professional – and (b) the way management educators have attempted to fill this knowledge-vacuum. Whether or not they have done so effectively is secondary to the problems their process has created for university administrators. On the one hand the administrators do not control the business school's body of knowledge – but in this respect the business school is little different from any other university department. But on the other hand it is unclear where the administration can find other sources of influence over that knowledge. As noted, the university's other departments are either under the influence of an established discipline, as in the liberal arts, or the institutional processes of a profession, as in the truly professional schools; medicine, engineering, etc. Remarkably, the knowledge vacuum in business schools has, for the most part, been filled by the business schools' faculty members themselves, the very people the university administrators would expect to see being policed externally by a discipline or profession. Thus the business schools' body of knowledge is largely whatever the faculty agree about what it is, so there is evident potential for tautology, ideology, and vicious circularity. The normal scholarly criteria do not apply. Thus university administrators have considerable problems judging the school's quality, whether its work is aligned with the university's aesthetic and policies, whether the school is competitive against other business schools, or whether it is delivering real value to students and the business community. The risks here are unmatched by any other school, academic or professional.

3.3 What Do Business Schools Teach and Why?

There are many crosscurrents and complexities in the history of business schools. A common line of complaint is that under the press of science and over-quantification, especially after the 1959 Foundation Reports (Gordon and Howell 1959; Pierson et al. 1959), business education evolved into a subset of mathematical economics. If so, economics and statistics would be the schools' grounding disciplines. From the end of the nineteenth century on there has been ongoing debate about the relationship between business schools and economics departments (Hotchkiss 1920; Khurana 2007; Marshall 1913). Some economics always seemed necessary but seldom sufficient. Today's questions are whether economics should dominate and whether there is a fundamental distinction between schools of economics and of business. Undergraduate business programs require substantial non-business credits from courses in other disciplines, achieving some separation. Plus, most BSchool faculty feel managing involves more than rigorous resource allocation and that, as a result, the MBA program should be balanced between analyzing resources and people. A great deal of effort goes into re-fashioning the curriculum, many schools touting

unique adaptation to today's business conditions – such as globalization or the need for innovation – or to today's deeper socioeconomic challenges – sustainability, ethics, eco-friendliness, etc.; note, however, that social inequality has yet to make an appearance. While the curriculum's details change it may be that its core does not. The sections above sketch a tentative 'knowledge-based theory' of the university or 'theory of the managed university', and focus on what is difficult about university administration – informed by Simon's 1967 paper as it sketches a similar 'theory of the managed business school' (Spender 2014b, c). Simon's paper is almost unique in exploring these issues, but falls short because it fails to surface the logic or practice that eventually brings coherence as the school's management bring analysis and synthesis together. Simon had a specific theory of the firm in mind and its logic was explored in Administrative Behavior (Simon 1947). Today, especially given our community's inattention to Simon's paper, the question remains "What theory of the firm can or should underpin the business school curriculum?" One reason why the debates seem so inconclusive is that the underlying theory of the firm is seldom made explicit, if ever – and there is a history here (Spender and Khurana 2013).

Neoclassical economists illustrate their theory of the firm with Marshall's scissors; the firm is a rational production function that bridges input and output markets. Managing is setting price and output accordingly. But this seems an anemic model of managerial practice. Even BSchools cover taxes, bonds, stock market behavior, portfolio management, derivatives, currency arbitrage, and so on, all going far beyond perfect markets for homogenous products. Within the BSchool the most familiar theory of the firm is bureaucracy, a rationally administered arrangement of the division of labor, a productive mechanism comprising people and resources. Its logic is 'functional'; different people and different parts of the organization do different things and must be coordinated rationally, economically, and productively. Yet because the firm comprises people, not only financial resources, psychology and politics enter, indeed will strike many as the more important and difficult aspects of managing. Economics does not handle psychology and politics well. While economics' problematics have evolved since Marshall's time history shows no great concern with flesh-and-blood firms; we know the neoclassical theory of the firm is about market behavior and not much to do with managing. One glaring exception being Coase's 1937 paper about the 'nature of the firm' (Coase 1937). This posed four profound question: why do firms exist, why are the firm's boundaries where they are, why are their internal arrangements as they are, and why is their performance so varied? In this formulation, managing is answering these 'killer questions'. Indeed, if answers were known, the BSchool curriculum would follow directly. There are many economists among the business faculty but they have not been able to answer Coase's questions, and no matter how interesting neoclassical or equilibrium economics might be, it has yet to provide a notion of managing that practicing managers find compelling. Barnard's pluralistic complexity remains the closest management theorists have come to characterizing managers' process. In contrast neoclassical economics' rising influence leads to oversimplifications that widen the rigor-relevance gap rather than close it.

Given this muddled background it seems important to know where the BSchool curriculum comes from, and why the US curriculum has become so adopted around the world. Rather than dredge through faculty meeting minutes in multiple schools, or probe the policies of USAID after WW2, searching for the curriculum's underlying theory of the firm seems more tractable. As Khurana shows, when the modern business schools were being founded around the turn of the twentieth century there was little agreement about what the curriculum should comprise, there were no touchstones, disciplinary, methodological, or religious. There were strong echoes from the German and Austrian Cameralist schools and from the Portuguese and French schools of administration but little grasp of the differences between the public and private sectors and thus of essential nature of private business as distinct from State service (Jarausch 1982; Light 1983). Following the rapid growth, and political and legal promotion, of the US private sector in the nineteenth century US educators found themselves leading the development of private sector management education worldwide. The American 'system of manufactures' Joseph Whitworth reported to the House of Commons in 1854 evolved into the American System of Managing that so impressed Winston Churchill almost a century later. One impulse came from US universities themselves; like most institutions they were hungry to expand. Having gathered in the nation's professional schools of law, medicine, and engineering they began to bring management education in from the large number of private commercial schools already existing in the US. These were founded during the early years of the nineteenth century to support the rising opportunities for commercial careers – the alternative to a legal, military, or priestly career so celebrated by Horatio Alger.

But the international situation was also affecting US political and business thinking, the startling rise of German industrial and military might. In the 1880s few forecast WW1 and the US's involvement, but there was widespread concern about how German and French competition would inhibit the growth of America's international trade. The declaration of the Monroe Doctrine in 1832 solidified US expansionist attitudes to international trade, making it permanently central to US politics in spite of periodic bouts of isolationism. The American Empire would be industrial and economic rather than military. In the 1880s, against the threatening international background the American Banking Association recruited Edmund James to visit Europe, survey its management education establishments, and provide it with some guiding ideas (James 1893, 1898). There was wide agreement that Germany had overcome its relative deficit in natural resources by developing an effective form of education for those entering industry (Kinley 1920; Person 1907; Shadwell 1909; Vanderlip 1920). Superior knowledge would overcome resource constraints, a theme taken up theoretically by Machlup and Penrose (Penrose 1995). Meanwhile the US, with a bounty of natural resources and massive immigration of unskilled labor, had institutionalized business methods that were certainly aggressive but grossly inefficient. The ABA and others also felt the US's resource advantages were being exhausted and that international competition must be met with an improved system of industrial education that would foster smarter modes of management. Efficiency became the watchword (Shaw 1923).

Khurana's notion of a social duty-driven national 'professionalization project' captures some of this, but perhaps the real driver behind the explosive growth of US management schools was international industrial and military competition. The European schools' curricula were carefully researched to provide US schools with an initial set of educational objectives and methods. Driven by the same impulse the US was also establishing 'research universities' along the lines of the German universities, Johns Hopkins being the first, founded in 1876. Research became a key part of the university mix. Prior to this time, US scholars had to go to Europe, Germany especially, to get research degrees. Both James and Edwin Gay, Harvard Business School's first Dean, had German PhDs. Meanwhile one of the most influential US industrialists, Joseph Wharton, a chemist and metallurgist who had studied French and German, visited Germany in the 1870s. He was much impressed by Prussian modes of agricultural and industrial administration and had seen their education system up close. He also studied macroeconomics, and wrote and presented papers inter alia on the business cycles in lead, zinc, and nickel that underpinned his fortune (Joseph and Deborah Wharton also helped found Swarthmore College in 1864). In 1881 after rescuing the University of Pennsylvania from financial ruin, Wharton founded his School of Business, personally selected its faculty and set up its first curriculum (Sass 1982). This did not turn out very well, so in 1883 James was hired to straighten things out (in 1893 James moved on to the Chicago, became President of Northwestern, and later of the University of Illinois).

The German model came in two principal varieties (Khurana 2007). One 'functional', structured according to the disciplines being taught in the German universities, such as finance, accounting, mathematics, statistics, business law, psychology, economics, economic history, and international trade. The other 'sectoral', focused on specific industries such as mining, banking, or insurance, though typically supported by functional courses, the latter model reflecting the data-intensive 'historical' economics of Gustave Schmoller. While some German universities were teaching public administration from the 1750s on, Weber's classic formulation of bureaucracy was still in the future. Today's fallback model of the firm as a Weberian bureaucracy was not available to US educators until after WW1, especially Talcott Parsons's translation (Parsons 1968), but military notions of quasi-rational organization were plentiful. Many businessmen proposed the military-type bureaucratic functionalist models already evident in late nineteenth century management textbooks (Hine 1916). They typically separated accounting, marketing, purchasing, manufacturing, and so on, the different 'functions' of a business. But there is no strong connection between the disciplinary separations in the German 'functional theorizing' model and those in a firm's various 'functional practices' – and in this gap doubts about the implicit theory of the firm flourish. Put another way, if the practice of one of the business's 'functions' was indeed adequately defined by the theory taught in a 'functional' course, then there would be no theory-practice gap. If accounting was fully informed by accounting theory, all would be well. But it does not; accounting is a practice that leaves crucially important space for 'creative accounting'. Whatever gaps exist between theory and practice in the quantitative parts of the syllabus will greatly increase in the non-quantitative areas.

Considerable theory-practice gaps existed at the turn of the century and persist today in spite of the clamor about the rigor-relevance gap. Notwithstanding, the US schools rapidly adopted one or other German curriculum model, Wharton inclining to the first, HBS to the second. Following the development of Scientific Management in the US and elsewhere, management educators added further functional nuances such as complex wage-payment systems and shop-floor production control controls (Bornemann 1961). Frederick Taylor's international reputation was actually earned more through his consulting practice than his 'pig iron' experiments (Spender and Kijne 1996). It focused on accountability in business and led to the development and widespread adoption of 'management accounting'. Partly provoked by bitter disputes around Scientific Management methods, there was an influential 'course correction' when the Depression encouraged academic interest in human relations, such as the psychologist Elton Mayo initiated, arriving at Harvard Business School in 1926 after a spell at Wharton. There was additional US concern about workplace politics after the Russian revolution in 1917 and the Wobbly-era industrial disputes throughout the developed world, often pressed by Marxist or 'critical' theorists characterizing capitalist business as a locus of exploitation and contested power. There were also the wider post-Tammany Hall style political tensions between business and social interests noted by Veblen (1965) and later made famous in Berle and Means's discussion of the division of ownership and control Berle (Berle and Means 1968). These 'course corrections' left management thought in considerable confusion and methodological schizophrenia, focused alternately on national crisis, social duty, efficiency, profit, and workplace psychology. The most significant attempt to make sense of this ideological, disciplinary, and methodological heterogeneity was, and remains, Barnard's 1938 book that also helped introduce 'systems thinking' into the curriculum (Barnard 1938). While having considerable influence over Simon's thinking, Barnard's deeper intuitions have yet to be carried into the curriculum (Simon 1947).

The point here is that the early BSchool curriculum's implicit theory of the firm was not dismissive of economics but was not greatly shaped by it either. Rather the 'theory' was an untidy mash-up of ideas covering bureaucratic arrangement, leadership, social norms, finance and accounting, methods of production, purchasing, marketing, business law, macroeconomics, and so on. Its elements were derived by US academics from the German schools rather than from US business practice. Reflecting the German historical school's thinking, the heterogeneity of the economy was recognized, railroading presumed to differ from banking or shoemaking or insurance. Management was not presumed to be generic. At the same time economics was in a state of transition, microeconomics being formalized and separated from macroeconomics, but also, as a result of late nineteenth century political anxiety about trusts and monopolies, separation between neoclassical and institutional economics. Progressive economists such as Ely, Veblen, and Clark explored ideas brought to some fruition in John Commons's institutional economics and what we now label 'industrial organization'. While the neoclassical theory of the firm may well be rigorous, it does little to inform managing, but an institutional theory of the firm, while promising to many, has yet to be formulated or have much impact on the

BSchool syllabus. Both classical and non-classical economic theories of the firm might be viable alternatives to the military-based mash-up adopted by the early BSchools. Plus West Point played a considerable role in establishing notions of US management practice in railroading and the other nineteenth century US industries (McMaster 1951).

Beyond these three tentative models – neoclassical, institutional, and military – there is evidence in our literature of two further 'theories of the firm', one turning to psychology as its underlying discipline, the other towards political theory. In one the firm is a context of psychological power and interaction, in the other a contested political community; both models often invoked with the term 'leadership'. Unfortunately, neither distinguishes firms clearly from other kinds of social organization, so treating all forms of leadership as similar. Thereby managing is made generic, covering sports teams, religious organizations, private firms, and nations. The psychological and political models have not been formalized in ways that provide disciplinary underpinning to the business syllabus. In summary, then, the early BSchools were profoundly unsure about the theory of the firm used to underpin their curriculum. There was little 'professional influence' from practicing managers. Has the situation improved? Do we have a viable theory of the firm driven by either theory or practice? Coase's questions have still not been answered. Indeed, it seems as if the implicit theory of the firm has changed little in the last century, and that BSchool academics have decided or conspired to attend to other questions. But this circumstance clearly presents university administrations with grave risks, unable to distinguish management education from consulting quackery, just as if they were not able to separate astronomy, which they may want to see taught, from astrology, which they probably do not.

Aside from questions about where the now hegemonic US curriculum actually comes from, the history of modern business schools shows some evolution of their sense of purpose and thus of the types of knowledge that might enable them to deliver against their promise to train practitioners. Khurana's analysis suggests business schools adapted in three phases marked by turn of the century 'social duty', then by Taylorist 'managerial capitalism' (efficiency being its focus) and finally by the contemporary 'investor capitalism' (shareholder return becoming the key metric) (Khurana 2007). The BSchools focused initially on helping students appreciate managing as an ethically burdened activity in a capitalist democracy, a balance of personal gain against social consequence, the private sector against the public. Yet Khurana's social duty view needs to be embedded in deeper pre-WW1 concerns about international industrial/military competition, especially with Germany and France. In his second post-WW2 phase the nature of business clearly changed with a switch towards investor capitalism, diminishing if not denying attention to business's social impact. But these changes do not approach a new theory of the firm, more a shift towards new objectives and a different aesthetic. The mash-up theory survives.

Khurana's phases can also be re-interpreted in the light of the history of Western philosophy as it moved from Christian realism to secular positivist realism (Ferry 2011). In the nineteenth century much of the social duty talk among business people

was in religiously informed language; the values implied being social virtues rather than the market's (Freedley 1879; Guillén 1994). In their first phase business schools sought academic legitimacy as a social science, accepted in the university after considerable struggle as the study of bettering society. In the second post-WW2 phase business schools sought legitimacy as a natural science, research being directed towards revealing the universal mechanisms that shape economic activity, leaving religious notions behind. But neither developed answers to Coase's questions. The increasingly scientific approach opened the early curriculum to neoclassical economics' formal methods and, in many schools, economics and business studies were in the same department, firming up economic theories of the firm. In Khurana's third 'investor capitalism' phase many business schools moved further towards science while radically simplifying management performance criteria into maximizing shareholder value (MSV). The Chicago School of Economics was instrumental in formulating this development in economics, most famously in Friedman's analysis of the private firm's objectives (Van Horn et al. 2011). But the economists' inability to address Coase's questions meant the curriculum was moving steadily further from managers' concerns. Perhaps the most crucial point being that aside from being unable to explain why firms exist, economists stopped looking for an explanation of 'real profit' and how firms create economic value and grow. Yet the omission became a crucial Kuhnian anomaly after the development of transaction cost economics and the realization that all economic activity is costly and if firms are to persist value must be created to overcome such 'frictions'. While new theories of the firm have been suggested none have been formalized sufficiently for a curriculum.

Given the widespread concern and literature of complaint about the post-Foundation Report curriculum developments there are two points to note. First, universities have centuries of experience administering professional schools, especially law schools, and the military, medical, and engineering schools as they evolved rapidly after the methodological turn to science in the nineteenth century. This shows science and quantitative methods are not 'the problem' many authors claim and arguing against them is a-historical and fruitless. Key is the level of practitioner influence, considerable in the case of the true professional schools, marginal for the BSchools. These moved away from practitioners by adopting the German curriculum even though it was already being criticized as overly theoretical. It seems universities should influence their BSchools as best they can to avoid the path of least effort, of seeking only the most immediate benefits from instituting a business school – more students, more revenue, extended reputation, and new access to business donors. But as Veblen's critique showed already in 1918 there is a wide gap between Newman-esque ideals and what actually happens in universities. The administration's temptation to grow and empire-build proves irresistible. Along these lines some have suggested parallels between BSchools and sports teams – so long as they are highly visible winners, the university administration is not going to try and influence them. Head Coaches are often paid more than University Presidents or Deans. There seem to be surprisingly few cases of university administrative intervention into BSchools, though there is little data. Given the number of BSchools has

expanded exponentially since WW2, there must be many horror stories, as there are with collegiate sports. Overall, perhaps, despite the high-flown rhetoric about knowledge and social betterment, universities are vehicles of their administrators' ambition. Administrations expand relentlessly, administrative officers are hired to serve these goals, and BSchools are irresistibly tempting. But can they be administered? Can the university administration afford to leave the BSchool to itself? Will that lead to disaster?

In the middle of the interaction between the university, the business community, the BSchool, and its students is the American Association of Collegiate School of Business (AACSB). Khurana shows that as the business school movement was gathering momentum faculty were fully conscious of the knowledge-vacuum and curriculum problem (Khurana 2007). While they looked to the European schools what was offered was not entirely appropriate to US private sector managers. In 1916 a group of 16 Deans gathered to set up a 'professional body' that could lay out principles, a syllabus, begin to fill the vacuum, control access and bring some order to the rapidly growing industry. Throughout his book Khurana lambasts the AACSB for failing to keep BSchool to their original 'higher aims'. But the AACSB may have failed in other ways as well. First, it was never clear that such a small body, without either political or financial power, could successfully legislate the business education business as the American Medical Association (AMA founded in 1847) shapes US medicine or the American Society of Mechanical Engineers (ASME founded in 1880) shapes US engineering practice. While the AACSB maintained its initial policing strategy for many years, obliging aspiring members to adopt its standardized curriculum and faculty quality tests, and, after the 1959 Foundation Reports, a standardized form of faculty training, it ultimately yielded to the diversity of global business pressures. In 2003 new standards enable it to complete a switch, begun in 1991, from a policing role to a consulting role of helping BSchools become 'the best that they could be'. The name was changed to the Association to Advance Collegiate Schools of Business, a global branding. In spite of initially attempting to outline a body of professional knowledge based on the early mash-up curriculum, it finally acceded to the administrators' goals, fully subordinating the academic ones to those of global business growth. A proliferation of new campuses in cash-rich locations followed.

There are several questions here. First, why almost a century of BSchool research failed to generate a viable replacement to the 1916 curriculum, as is evident for all the real professions since WW2. Second, why over a century after the project to transform managing into a profession began business practitioners remain little interested in what BSchools or the AACSB is up to (Skapinker 2011). The implicit theory of the firm remains unchanged, the original mash-up is still in place and neither management nor economics research has done anything much to advance beyond it. Coase's questions remain unanswered. There is no theory of economic value-creation, no theory of creative business practice. Second, while the mash-up curriculum has been somewhat reshaped by the drift towards neoclassical rigor, it still strikes business people as not worthy of serious attention. Meanwhile the business 'airport literature' is vigorously shaped by consultants' nostrums. Even when

these are based on experience and observation there is little evidence of science or academics' methodological inputs. Most of the well-funded and professional research done by consultancies such as McKinsey, Bain, or BCG is neither disseminated nor published. Meanwhile the scholarly A-journals that are clogged with research that is seldom cited and has little managerial or academic relevance. The AACSB has failed to address these matters. To the contrary, it has handed evaluating the knowledge making to the business school administrators. Which leads to a third question, why and how, given the failure to develop a knowledge-base for the profession of managing, management education has itself become a profession, tightly policed by a raft of institutional bodies and processes. The AACSB played a part in this deformation of its initial intent. Yet the failure ultimately hinges on (a) the lack of academic success in finding a managerially relevant theory of the firm to displace the mash-up, and (b) on failing to marshal business's interest in management education in ways that would significantly influence BSchool administrations. It follows directly that having no external forces to deal with, the management education profession has succumbed to the temptation to become narcissistic, perhaps viciously so, attending mostly to its own survival and rituals and paying little attention to those beyond its boundaries.

4 Concluding Comments

But all is not lost. Given the lack of significant theoretical progress towards understanding what managers actually do since the 1959 Foundation Reports, it seems clear that BSchools' have not been well served by uncritically embracing natural science's positivist methods. No doubt economics and quantitative methods should be in the curriculum but at best they support a value-creating agenda they alone can never supply. Alternative methodologies exist and are needed. At the same time there has to be an empirically validated explanation of the business education industry's staggering success. The need for this explanation – not yet available – becomes more pressing, not only with our industry's global expansion, the rising fees, salaries, and student debt loads, but also with business's part in extending rather than reducing social inequity. The recent decline in law school enrollments has presented university administrations with serious fiscal and structural challenges. If business education proves to be a similar bubble, the consequences will be serious for many universities.

Much of the discussion about BSchools' future is empty rhetoric about 'revolution', with no clarity about what is to be delivered beyond 'more of the same but better' (Chowfla 2015; Freeman and Thomas 2015; Smith 2000). In contrast this chapter focuses on the methodological, philosophical, and epistemological underpinnings of management education precisely because examining them offers new ways forward. We see developments beyond positivism into what can be broadly labeled 'phenomenology', embracing a plurality of views that center on a view of the Self and on what it means to be conscious and agentic rather than centering on

the dictates of an external Real that determines our behavior. Instead of responding rationally to external variables, the emphasis shifts onto managers' agentic choosing under uncertainty. They are leaders that make a difference. Plus, we can see Knight's critique of economic theorizing as an epistemological critique of any positivist thinking that is unable to explain firms' existence or the core notion of economic value-creation. Business schools have yet to show much interest in post-positivist thinking. Yet it offers a path to other ways of thinking, so university administrators might do well to consider the implications of pressing BSchools to go beyond the notion of a science of management. Administrations might also pay attention to the recent shift in BSchool students' interests. While there is a dependable stream of students dazzled by the staggering riches available in 'financial services', there is an increasing number interested in entrepreneurship, leadership, sustainability, and other studies that step out of the convention formed in past decades. All of these notions hinge on a greater awareness of the Self and of social change (Standing 2011).

It seems obvious that management education aspires to a better understanding of the world and techniques for dealing with it, as does physics or astronomy, but it surely also tries to help students develop a new sense of Self. Even when BSchools' fail to explain how the world of business works, their teaching has an undeniable impact on the students' sense of Self. The industry's vast expansion can be explained this way, that recruiters hire graduates because they have been refashioned, or persuaded and equipped to refashion themselves into 'business people'. The clearest evidence of this is the students' ability to 'talk the talk' of business, rattle off terms like ROI, EPS, market share, product life-cycle, risk, and yield. In addition to the personal drive and discipline a student needs to successfully engage the BSchool process, the talk enables them to enter into business practice quickly, even if the precise meaning of all terms is contingent on the particular firm or industry they enter.

It should be no surprise that the key to BSchools' impact on recruitment is rhetorical rather than theoretical. Rhetorical training was at the core of university education for future leaders for centuries, only excised as a result of science's rise in the nineteenth century (Scott and Howard 1928). Management is a talking game and it is not clear that it has all that much to do with rational decision-making. In our post-enlightenment age rhetorical training goes beyond the shaping of others that is the target of classical rhetoric. It embraces the active shaping of Self. This is widely sensed and is at the core of the inspirational movements that appear so frequently in the lay management literature. More interesting, of course, is that the majority of students regard the experience of being transformed into a foot-soldier of capitalism as highly positive – "I gained a great deal of confidence". Few talk about learning anything substantive. Rather they recognize they have been inducted into a powerful socioeconomic and cultural club whose members have a high degree of mutual attraction – even when competing with each other.

If there is to be a viable theory of value-creation, answers at last to Coase's questions, and a managerially relevant curriculum, they promise to emerge from the post-positivist thinking demanded by theories of entrepreneurship, leadership, and

strategy – as Veblen, Coase, Schumpeter, and many others indicated. These fields are beginning to split off from the conventional BSchool curriculum and merge into a study of human creativity in the socioeconomic milieu, framing management as an economic art. Key is to recognize the implications of Knight's insights into the centrality of uncertainty in any explanation of profit (Spender 2014a). Keynes agreed, as did Coase, in spite of his disagreements with Knight (Coase 1937). So long as rational man economics, reinforced by a flow of Nobel Prizes, persists, BSchools will continue to struggle to create a positivist science. Yet it remains unable to address value-creation. If management is a science, then administering the BSchool will be similar to managing any of the natural science schools. Those disciplines have ways of evaluating a school's research and teaching. But those institutionalized processes do not seem applicable to BSchools precisely because no theories are advanced, no empirical tests undertaken, no falsifications. If management is an art, other criteria come into play. These are driven by the alumni's progress in changing the art form. There has been surprisingly little research into the entrepreneurial impact of BSchool alums, even though it would provide university administrators with a useful but slow-evolving metric of the school's quality.

The best case for BSchools seems to be that they train students into the languages, behaviors, culture, and mores of the business community. The implication is that management is not a science, nor an individualist art form. It is more like politics in that it depends on persuasion within a specific and historically contingent cultural context. The manager's challenge is to persuade others to act in ways that produce economic value. This makes it a creature of a situated rhetoric. Wise university administrations, seeking to protect their BSchool's rhetorical activity will ensure real academic distance between schools of business and those of economics who march to a different drummer. The BSchool can further protect itself from economists critique by adding ethics, globalization, sustainability, and similar ancient but under-theorized courses that lead towards a broader mash-up (Morsing and Sauquet 2011). At the same time, given the AACSB's disinterest in pressing BSchools to develop a body of professional knowledge (Fernandes 2005), the way is open for some of them to pay more attention to post-positivist thinking. The confusion about the BSchool's purposes and raisons d'être make it extremely difficult for university administrators to evaluate their impact and justify locating them within the university universities. There can be no secure management of the risks to which they expose the university so long as the BSchools' objectives can be more effectively and profitably met in a corporate framework.

In summary, the tensions between the university as a business and as an academic institution have been around a long time. They come 'with the territory' – but are unlike those faced by private firms or public organizations. Academic institutions are defined by (a) their academics' methods and (b) the public nature of their knowledge. The natural sciences can often generate marketable knowledge and universities have been moving to capitalize more on this. But the natural sciences also often require (a) the complex and capital-intensive equipment that only a large institution can bring together, and (b) extremely long-sustained research programs. Universities are good places for natural science research on both grounds – even if

it is an arrangement of convenience between government funding, military needs, and public knowledge. The social sciences and humanities are different, often an expression of the public's belief in the long-term return to an 'ivory tower' that supports and protects reflection and medieval scholarship; perhaps the hope of a more educated citizenry and a better society. Universities are a means to share the knowledge generated, facilitating the evolution of the professions and the economy. But so long as we do not understand the kinds of knowledge that BSchools generate, there will be serious questions about their place in society. What are they for? Who benefits? So long as they neither generate a science of management nor facilitate the generation of management as a profession nor grasp their role as schools of rhetoric, they will swing idly in the winds of administrative ambition (Metcalf 1927). Under-administered they present the university and the whole educational apparatus with major 'systemic' risks.

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Part III
Control

Professional and Organizational Commitment in Universities: from Judgmental to Developmental Performance Management

Julia Weiherl and Jetta Frost

1 Introduction

Since the introduction of New Public Management practices, the pressure to apply performance management as a process of output control has become more established in university governance (Bleiklie and Lange 2010; Hattke et al. 2016a; Olssen and Peters 2005; Schimank 2005). As representative of managerialism (Hood 1991; Pollitt 1993), such performance management seeks to change the work context in universities in order to make judgments about the quality of academics' output and productivity (Deem 1998; Smeenk et al. 2009). Universities and their academic staff experience external pressure of accountability and a continuous cycle of performance monitoring and quality audits. Performance management is used to motivate scholars to achieve high performance and to preset goals. Research on organizational commitment as well as public management literature has identified organizational commitment as an indispensable element for increasing organizational productivity and scholars' performance (e.g., Balfour and Wechsler 1991; Moon 2000; Mowday et al. 1982). Such commitment occurs when employed scholars internalize the university's values. Organizational members who accept and value organizational goals feel strongly committed to their organization (Sharpe 2000). Commitment is defined as a relative strength of an individual's identification with and involvement in an organization (Allen and Meyer 1990; Mowday et al. 1979).

Owing to universities' organizational design, identification with the employing university is particularly challenging for scholars, since universities are professional as well as knowledge-intensive organizations (Czarniavska and Genell 2002; Hattke et al. 2016b; Vakkuri and Meklin 2003). Academic staff in professional and

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knowledge-intensive organizations have distinct professional values, which they have internalized during their disciplinary scientific education and academic socialization. This professional commitment is characterized by a psychological attachment to and identification with the profession of an academic in a specific research field. Thus, performance management can only foster organizational commitment if its underlying managerial values do not collide with scholars' professional values. A conflict may lead to decreasing organizational commitment (Smeenk et al. 2006, 2009). In this case, performance management can lead to unintended behavior on the part of an employed academic. We argue that performance measurement results in a decrease of organizational commitment if it is perceived as judgmental. Drawing on qualitative case material, we demonstrate that scholars view themselves as being more committed to their disciplinary invisible college, and thus to their profession, than to the employing organization. They tend to identity with peers of their invisible colleges. Invisible colleges are defined as communication networks linking academic collaborators who share an interest in a specific research field and a particular type of humane relationship to knowledge (Crane 1972; Vogel 2012).

Our findings indicate that universities would do well to understand the impacts of professional commitment oriented towards invisible colleges on performance management and organizational commitment. Professional commitment "reflects a commitment to work values and a desire to contribute to the development of the discipline, which leads to greater productivity" (Jauch et al. 1978: 90). Our paper discusses performance management in higher education by taking the view that the formal university structures as visible colleges must match the structure of invisible colleges. We argue that this can be done by aligning professional and organizational commitment. Our paper is organized as follows: Sect. 2 begins with a brief review of intended objectives of performance management that are influenced by New Public Management practices increasingly adopted in higher education. We argue that the prevalent performance management is a judgmental type of performance measures. In Sect. 3, we illustrate the impacts of using the judgmental type of performance management on scholars' commitment. Drawing on qualitative case material of 30 narrative interviews with full professors, we explore the relationship between invisible colleges as academic communities and universities as visible colleges and its consequences for organizational and professional commitment. Finally, in Sect. 4, we characterize the developmental type of performance management that seeks to align organizational and professional commitment.

2 New Public Management and Performance Management in Universities

New Public Management (NPM) has become one of the most widespread trends in governing higher education institutions over the past two decades (e.g., Clark 2001; Hood 2005; Jacobsen and Andersen 2014; Khalifa and Quattrone 2008). A great

number of conceptual papers as well as empirical studies have been published on the introduction of NPM in public sector organizations (Diefenbach 2009). Although they have dealt with many different organizational types and different aspects of the concept, they share some basic assumptions that, together, serve as a frame of reference in the evaluation of public sector organizations (Verbeeten and Spekle 2015): the introduction of economic rationality and efficiency as well as a strong emphasis on performance management and measurement (Frey et al. 2013).

Adopting New Public Management in higher education implies a shift from the traditional academic, self-managed republic of science (Polanyi 1962) towards the entrepreneurial logic of managerialism with an increasing role of professional managers and administrators (Clark 2001). Within the logic of the republic of science, academic employees have the freedom to set their own goals and priorities according to criteria set by their specific disciplines rather than by the institutional needs of their employing university (Decramer 2012; Harley et al. 2004). In contrast, managerialism is a universal mechanism for rationally coordinating and controlling collective action in universities (Deem et al. 2007: 6; Townley 2002). This logic views universities as being engaged in a competitive market, competing for scarce financial resources, competing for high reputation, and competing for able faculties and students (Dill 1982). Universities are required to demonstrate "their proper and adequate manner" of spending their publically funded financial resources (Townley 1997: 264). This stems from a greater demand for external visibility and accountability and results in higher dependency on external legitimization. Centralized resources with limited alternatives are distributed according to organizational and individual performance efforts (Clark 2001). Government funding is contingent on universities' research and teaching (e.g., Martin and Whitley 2010).

The core idea is that bureaucratic and behavior-based forms of control at universities are superseded by output control, which is applied by setting performance standards, defining the dimensions of desired results, and measuring how well output aligns with objectives (Cardinal et al. 2010). As a result, performance measurement sets the tone in the university work context. It implies policies and processes of auditing and evaluation. Scholars' behaviors are judged by university managers who seek to control and coordinate them towards organizational objectives (Townley 1997). Thus, attention is shifted from qualitative performance managements to measurable quantifiable output indicators that measure single scholars (Olssen and Peters 2005; Smith 1993). Typical indicators include the number of publications in high-ranking journals, the amount of third-party funding, and the number of supervised students. It must be noted that individual performance is measured quantitatively as much as possible and that it is the basis for promotion and remuneration. Performance measurement "places the organization's concerns with control and a centrally coordinated information system to the center" (Townley 1997: 267). This approach is known as the judgmental type of performance management (Ter Bogt and Scapens 2012; Townley 1997), since it is used for organizational resource allocation and individual promotions. It aims to evaluate and compare scholars.

However, years after the introduction of New Public Management reforms, judgmental performance management's impacts in higher education institutions have

remained controversial (Frost and Brockmann 2014). On the one hand, according to the OECD (1994, 1997, 2002), there seemed to be good reasons for introducing judgmental performance management. It was argued that systematic performance control and measurement would have positive consequences such as increased efficiency. A basic assumption was that linking performance with financial rewards or remuneration would encourage and motivate scholars to higher performance and productivity (Rothstein 2010). Studies that tested the effects of incentives in public service organizations found out that output indicators and incentives spur performance (e.g., Boyne and Chen 2006; Heinrich 2002; Swiss 2005). Another argument for judgmental performance management was that output indicators would allow to reduce the discretionary power of professional managers and thus increase objectivity. Professional administrators do not need research-specific expertise or transformational knowledge in order to judge and measure scholars' performance. Instead, outcome indicators that measure the signalling power of, for instance, high-ranking journals or third-party funders are applied to judge the performance of employed scholars. This ensures transparency and increases verifiability. On the other hand, performance management and output control in the public service produces negative outcomes, which have been discussed extensively (e.g., Alvesson and Sandberg 2013; Frey et al. 2013; Frost and Brockmann 2014; Ter Bogt and Scapens 2012; Weibel et al. 2009). The following explores why judgmental performance management in universities, in particular, can lead to unintended behavior on the part of employed scholars.

3 Judgmental Performance Management and Scholars' Commitment

What calls for further study is the observation that applying a judgmental type of performance management in higher education institutions brings forward scholars that do not identify with the associated tendency to equate qualitative work with quantitative productivity. Rational-economic managerial values dominate in universities. We explore scholars' increasing perceptions that their employing universities do not sufficiently align with scientific norms and values of producing new and unpredictable knowledge. Scholars told us in interviews that they tended to be more committed to their disciplinary communities and thus to their profession, in which they had been socialized, than to their employing university. This may lead to the assumption that performance management with its underlying judgmental approach to performance appraisal expands the gap between scholars' professional and organizational commitment. Accordingly, scholars' organizational commitment decreases, while they view themselves as being more committed to their invisible disciplinary college.

3.1 Research Design: Method and Data

Our study of German higher education is based on a single-case design with multiple units of analysis (Yin 2009: 46). It serves as "rich, empirical descriptions of particular instances of a phenomenon that [is] typically based on a variety of data sources" (2007: 25). We also provide suggestions for further conceptual differentiations and help to identify a specific topic's relevance. This methodological approach provides insights into the process of redefining theoretical concepts by elaborating the circumstances that offer or do not offer potential for explanation (Vaughan 1992). We seek to gain further knowledge about the unintended behavior on the part of scholars after the implementation of judgmental performance management in universities. The increasing orientation of employed scholars towards the norms and values of their specific communities at the expense of norms of being measured by the employing university has led to the deduction that scholars' commitment is characterized by two different value systems: professional commitment and organizational commitment. This was based on qualitative interview material of 30 narrative interviews with German full professors in business and economics. We also used the data from the German Academic Association for Business Research to identify possible cases. We then selected relevant cases by criteria such as gender, university, entry year, position, and former employment status at another university. We were especially interested in scholars that were paid on the basis of a W-salary grade scheme, because it included pay-for-performance elements and was therefore characteristic of judgmental performance management. The narrative interviews lasted from 60 to 90 min. We perceived each interviewee as an "informant rather than a respondent" (Yin 2009: 107). We carried out an inductively shaped content analysis of the interviews (Mayring 2008). To overcome the disadvantages of content analysis, we followed Scott's (1990) recommendation and assessed our documents in terms of authenticity, credibility, and representativeness. We used MAXQDA to code the transcribed interviews.

3.2 The Nature of Universities as Visible Colleges and Academic Communities as Invisible Colleges

When analyzing our empirical material in terms of the question of how judgmental performance management affects scholars' behavior, it became evident that the focus needed be on a differentiation between the nature of universities as visible colleges and academic communities as invisible colleges. Most scholars agreed and emphasized repeatedly that the values of their subject-specific communities were the guidelines they followed concerning research and teaching. Professional peer recognition and respect were more important to them than fulfilling quantitative measures set by the employing university.

I have never really committed myself to my employing university. […] I did not really fight with my university colleagues. I was not interested in them […]. For the most part, I thought that I am not up to fight with my university colleagues just to improve any process or achieve any goal set by my university. (LS_P21)

It was striking that the more distinct scholars perceived judgmental performance management to be, the more they tended to withdraw from their employing university and competition with other colleagues at that university, focusing their attention instead on their scientific communities and self-defined peers.

If I played the game of science at my university (e.g., supervising PhD students in order to receive third-party funding from different industries), I would have no standing within my community and couldn't go on doing research, because I'd need to attend to my external PhD candidates. I wouldn't participate in conferences or apply for new positions at other universities, as nobody would accept my application. In this case, I would feel like a prisoner in my university. (PS_L8)

The difference between the employing university and scientific networks of communities is represented by the concept of visible and invisible colleges (Crane 1972). It states that scholars are members of two different groups: The first group is defined as the visible college and relates to scholars employed at a university. Accordingly, the boundaries of this visible college are the boundaries of the university. Owing to universities' organizational design, identification with the employing university is particularly complex, since universities are professional and knowledge-intensive organizations (Czarniavska and Genell 2002; Vakkuri and Meklin 2003). Scholars employed in professional and knowledge-intensive organizations have distinct professional values, which they have internalized during their disciplinary scientific education and academic socialization. They are primarily shaped by the second group, the invisible colleges. Following Vogel, an invisible college "is a network of communication relations among scholars who share an interest in a particular area of research" (2012: 1017). They represent different academic fields that differ in terms of characteristics of subject matter, socialization processes, and the state of development of their knowledge base. Neumann and Finaly-Neumann (1990) argue that all these contextual differences influence scholars' work environment in their visible colleges and their attitudes and behavior. Scholars position themselves as members of these specific scientific communities with their own disciplinary culture (Dill 1982), focusing on a rigorous and scholarly integrity in the creation and transmission of knowledge rather than the maximization of quantitative indicators. Thus, invisible colleges represent "informal groups" that "meet regularly at conferences and workshops, circulate manuscripts among colleagues to gather friendly review, publish in much the same journals […]" (Vogel 2012: 1015–1016). These scholars feel free to communicate and exchange ideas outside their employing university without fear of sanction. Vogel (2012: 1015) highlights the significance of these communities in terms of their "role in the social-cognitive structuring and development of all scientific fields." Informal groups are particularly important to scholars, since they develop a feeling of affiliation or a sense of identification with communities outside their university.

Applying judgmental performance management in universities, especially if it is linked with pay-for-performance practices, may have the effect that scholars experience their visible college as being increasingly competitive. The supremacy or superiority of the self increases. In contrast, they may perceive the invisible college as a collaborative environment with a subservience of the ego, despite its high and rigorous standards. Our case material illustrated that, owing to judgmental performance management, scholars tended to feel more committed to their invisible college than to their visible college. This resulted from performance indicators that seek to compare scholars of different scientific disciplines, thereby neglecting scholars' individual values.

> *You can already tell from my situation that the faculty has a different set of norms than I do. The things I'm good at and the things that are scientifically relevant to me do not have an important role in our university. This is why I have the impression that the university doesn't really value my commitment. (LS_P8)*

3.3 Scholars' Organizational and Professional Commitment

There has been extensive research on commitment for many years (e.g., Buchanan 1974; Dunham et al. 1994; Meyer and Allen 1991; Meyer et al. 2004; Meyer and Herscovith 2001), and this has increasingly come to the attention of research into the public sector (e.g., Jung and Ritz 2014; Moon 2000; Weiherl and Masal 2016; Wright and Isett 2011), including higher education (Lawrence et al. 2012; Neumann and Finaly-Neumann 1990; O'Meara 2015; Smeenk et al. 2009). Many studies, especially in organizational behavior research, were based on the Organizational Commitment Questionnaire (OCQ), developed by Mowday et al. (1979). Accordingly, commitment is "the binding of the individual to behavioral acts" (Salancik 1977: 4). This definition encompasses commitment both as an important variable in understanding an individual's behavior in working settings and as an attitude taken when an individual identifies with or wishes to maintain a relationship with an organization (Mowday et al. 1979). The focus is on the organization as a whole rather than on specific job satisfaction (Mowday et al. 1982). Commitment has been identified as an influence on important work-related outcomes such as turnover, turnover intentions, performance, job satisfaction, pro-social behavior, absenteeism, and tardiness (e.g., Cohen 1999; Herscovitch and Meyer 2002; Meyer and Allen 1991; Meyer et al. 2004). Today, commitment research emphasizes the importance of analyzing the different foci and bases of commitment. Foci of commitment can be specific individuals or groups. Bases of commitment are the motives for sustaining attachment (Becker 1992). Some researchers argue that a multivariate approach to work commitment helps one to better understand work-related outcomes such as performance (Becker 1992; Cohen 1999). Therefore, we also adopted such a multivariate approach. In our university context, we discuss scholars' commitment as a twofold commitment: Organizational commitment implies that scholars are committed to their employing university. It is about the organization as a

work setting. Professional commitment implies that scholars are committed to their scientific community. The focus is on the scholar's attitude towards his or her profession. Scholars are committed to maintaining the skills and values of the profession, of their research field (Tuma and Grimes 1981).

Organizational commitment focuses on the "devotion and loyalty to one's employing firm" (Morrow 1983: 488); it is defined as "a force that binds an individual to a course of action that is of relevance to a particular target" (Herscovitch and Meyer 2002: 475). Behavioral intentions of organizational commitment include a willingness to exert effort, a desire or willingness to remain in the organization, and the extent to which an individual believes and accepts the organization's values and goals (Aranya and Ferris 1984; Morrow 1983). The extent to which an individual feels bound to his or her organization can vary (Meyer et al. 2006). Particular organizational commitment targets can be jobs, goals, programs, or change initiatives (Cohen 1999; Meyer et al. 2006). Organizational commitment can also occur owing to different foci, including the desire to remain in the organization (affective commitment), perceived costs of leaving the organization (continuance commitment), or the obligation to stay in the organization (normative commitment). Each of these factors can have different effects on an individual's work behavior (e.g., performance, job satisfaction) (Meyer and Allen 1991). Organizational commitment describes a process in which individuals evaluate their relationships with their organizations. These evaluations include considerations of the extent to which an individual's values and goals are aligned with those of the organization (Meyer and Allen 1991). For instance, high commitment to an organization indicates that individuals accept the organization's goals and objectives (Siders et al. 2001). In the context of higher education, we define scholars' organizational commitment as a commitment to the employing university.

Professional commitment, on the other hand, is defined as the "relative strength of identification with or involvement in a particular profession, as well as the willingness to exert effort on behalf of the profession and the desire to maintain membership in it" (Aranya and Ferris 1984: 4). It serves to overcome burdensome rules and bureaucratic organizational structures that exist within organizations (Baugh and Roberts 1994). In higher education, professionals such as scholars have distinct professional values, which they have internalized during their disciplinary scientific education and academic socialization. Usually, in public sector research, professionals are differentiated by six characteristics of the profession they feel committed to (Kearney and Mill 1988): full-time occupation, membership that involves adherence to a set of normative and behavioral expectations, a professional organization that enhances and protects, specialized knowledge based on education and training of exceptional duration, service orientation, and high autonomy in decision-making by virtue of their specialized knowledge but restricted by responsibility. These characteristics enable scholars to perform their job tasks autonomously.

Professionally committed scholars consider the content of their work and their peers as very important. As members of their professional community, they are oriented to success (Chang and Choi 2007). Scholars are professionals with special privileges. They have been appointed by a professional association and not by

self-selection (Noordegraaf 2007). Professionalism has its own control mechanisms. Owing to their specialized knowledge, professionals can be controlled only by a professional association; or as Fournier (1999) puts it: "to be professional is to be a part of professional fields with boundaries, closed off or sheltered from outside worlds" (derived from Noordegraaf 2007: 767). Professionals "have rational drivers that establish more effective problem solving, better service delivery, and improved case management" (Noordegraaf 2007: 767f.), which highlights the importance of self-governed working environments.

3.4 Judgmental Performance Management and Scholars' Commitments

Judgmental performance management is a unprecedented challenge for scholars as professionals, since it runs counter to their autonomy, to the validity of an ethical view of their vocation, and especially "to the legitimacy of their claims to expertise based on exclusive possession of specialized knowledge" (Beck and Young 2005: 183). Lawler and Walker (1980: 104) note: "Commitment requires the act of commitment to be voluntary and revocable (…)." Judgmental performance management makes scholars reassess their individual investments in their employing university. They feel constrained by performance indicators that very often comprise multiple, competing and sometimes alienating goals, such as the demand to cooperate with department colleagues:

> *[…] they want us to collaborate with our colleagues. However, this seems artificial. And in the end, you have done things with other people with whom you usually would never collaborate. (LS_P2)*

Imposed goals lead scholars to individually prioritize them according to their specific disciplinary scientific education and their academic socialization. For scholars, the legitimacy of control and performance management practices applied within visible colleges is determined by their consistency with the values of an academic, notably the pursuit of truth and the acquisition of knowledge for its own sake (Satow 1975). Our respondents argued that the imposed performance indicators diminished their feeling of being supported by their employing university. This might indicate that they did not feel integrated in their visible college:

> *My university forces me to devote my energies to raising third-party funds. They don't make effective use of my capabilities. I think I'm an excellent writer and publisher. However, as far as I see it, the university makes ineffective use of me as a resource. (LS_P8)*

Previous studies have revealed that individuals who perceive their organization as being supportive and who are treated favorably are more committed to it (e.g., Aubé et al. 2007; Rhoades et al. 2001). Judgmental performance management, however, fosters "knowledge commercialization" (Zucker et al. 2002) and "intellectual

prostitution" (Frey 2003). Interviewed scholars perceived quantitative performance indicators as a sign of mistrust and dishonor.

> *I perceive performance indicators as dishonorable. I blame the state rather than the university management. I am the sort of person who values trust. Trust motivates me to perform. Performance measurement systems are a good example of a culture without trust. (LS_P16)*

Public management reforms, and particularly the introduction of output-based performance management, influence researchers' active involvement in how and according to which criteria researchers' performance is assessed. Researchers are granted no autonomy concerning influencing performance indicators. Thus, they are faced with pay-for-performance practices that are meant to prevent scholars from being "rational, calculative, opportunistic and self-seeking" (Berg 2006: 561). Reforms constrain professionals via "capitalist pressures and consumerist tendencies that resist autonomous closed-off occupational spheres" (Noordegraaf 2007: 763) and by defining specific performance objectives that must be met. Scholars are restricted in making their own decisions on how to contribute and how to perform specific tasks that support the university in achieving its objectives.

> *I had to fight and negotiate for my performance objectives. But in the end, the university managers did not understand my argumentation. I wanted to say frankly: If I start working here, I'm not going to apply for positions at other universities. But I want to be compensated for this, because I commit myself to this university for the next five years. (LS_P2)*

If professional commitment to such values conflicts with quantitative performance indicators, Dill (1982: 308) argues, priority is given to the invisible college ideology. Our qualitative data confirmed that judgmental performance management tended to create a conflict between organizational and professional commitment and resulted in what is referred to as a commitment dilemma (Chang and Choi 2007; Gunz and Gunz 1994), where scholars usually feel more attached to their profession than to their employing university.

There may be two explanations for why this dilemma arises: first, differences between the existing value systems of someone's profession and that of someone's organization (Wallace 1993). Higher education institutions that follow an entrepreneurial logic rely on a value system that transfers private sector planning and control models into an academic context. Scholars are forced to internalize outcome-related performance indicators and quantitative measurement systems. These indicators increasingly act as standardized schemes that contribute to defining the quality and relevance of academic performance (Frost and Brockmann 2014). However, the professional value system emphasizes professional autonomy, conformity to professional standards and ethics, and collegial authority. Behavioral scientists have long been interested in the relationship between organizations and their professional employees (e.g., Aranya and Ferris 1984; Baugh and Roberts 1994; Wallace 1993), specifically the relationship between an individual's professional and organizational commitment. Professionals regard this relationship as conflicting owing to "inherently incompatible" (Aranya and Ferris 1984: 1) norms and values.

The second explanation for the commitment dilemma is based on Schneider's (1987) attraction-selection-attrition framework, which states that individuals select

themselves into and out of organizations. It has also been argued that organizational commitment depends on shared values and expectations of an individual's value system and his or her employing organization (Vandenberg and Scarpello 1994). Researchers' value systems are a result of their socialization and education, which influences the choice of the community or communities to which they feel committed. Accordingly, organizationally committed researchers select themselves into and out of their visible college or their scientific communities, i.e. invisible colleges.

In summary, we observed that scholars were more committed to their disciplinary invisible colleges and thus to their profession. Judgmental performance management seems to damage universities' academic character, since it harms the underlying nature of an explorative society (Townley 1997) and emphasizes controlling and coordinating scholars' outputs. It is therefore vulnerable to inaccuracy and falsity of individuals' information outputs (Townley 1997). It further induces quantitative performance indicators that tend to override professional priorities (Ackroyd et al. 2007). Our findings indicate that universities would do well to understand the impacts of professional commitment oriented to invisible colleges on performance management. Performance management can only foster organizational commitment if its underlying managerial values do not collide with scholars' professional values. We therefore argue that performance objectives need to be aligned with an individual scholar's community to prevent "destructive conflicts, loss of professional morale and personal alienation" (Dill 1982: 304). Thus, performance management should be designed as a developmental type of performance management so that professional and organizational commitment can be aligned and the organization-profession conflict – the commitment dilemma – can be resolved.

4 Aligning Professional and Organizational Commitment: Towards a Developmental Type of Performance Management

The challenge of being committed to both visible and invisible colleges has been addressed by Dill (1982: 303) in his classic work on managing academic culture: "We are members of academic communities, but we manage academic organizations." He criticizes performance measures and techniques that do not sufficiently increase the commitment and loyalty of academic staff in academic organizations. Indeed, they might even clash substantially with the core ideologies of academic life (Dill 1982: 319).

Performance management in higher education institutions should take into account that the formal structures of universities as visible colleges have to match the structure of invisible colleges. From our case material, we deduce that scholars are primarily committed to values that are in line with their scientific socialization in specific invisible colleges. This represents high professional commitment.

However, the dominant quantitative orientation of judgmental performance measures applied in visible colleges is increasingly counteracting the academic values of being engaged in invisible colleges. Scholars criticized the "narrowness" of measures that only consider particular aspects of their work. Many intangibles aspects of their work had not been tracked by the performance radar (Diefenbach 2009; Frost and Brockmann 2014). The more pronounced the judgmental performance management was, the more the employed scholars felt undervalued and dispirited and suffered from an increasing loss of empathy for their university's goals (Bocock and Watson 1994). They did not respond positively to attempts that eroded their social bonds with a community of scholars (Henkel and Kogan 1998). This lowered their organizational commitment. Thus, we interpret our findings that high professional commitment without high organizational commitment might lead to a stronger perception of performance measures as obstacles in the employing university. It is more likely that scholars with a lower organizational commitment but higher commitment to their invisible colleges report more performance measures problems than those with high organizational commitment. This is because the latter have internalized the objectives of their visible college to a greater extent. Previous research has shown that "employees who are more committed to their profession and its goals are less likely to be highly committed to the organization" (Wallace 1993: 333). This has also been called a "zero-sum game," since "an increase in one form of commitment results in a decrease of another form" (Wallace 1993: 333).

Numerous empirical studies have investigated the dilemma or compatibility between organizational and professional commitment (e.g., Baugh and Roberts 1994; Chang and Choi 2007). While organizational commitment is related positively to overall job satisfaction, professional commitment is considered a key factor in providing intrinsic job satisfaction. Professionals demonstrating strong professional commitment but low organizational commitment tend to be more sensitive to bureaucratic obstacles, which may result in lower job satisfaction. Research has identified that professionals who are only committed to their profession report the largest number of job problems and blame bureaucratic structures for interfering with professional performance (Baugh and Roberts 1994). It has also been discussed that displaying strong professional commitment combined with low organizational commitment results in high-quality work. However, these studies did not necessarily focus on the needs of visible colleges.

To overcome the organizational-professional commitment dilemma, performance management must align and balance these two commitment types. We therefore argue for a developmental type of performance management. The focus is on "enhancing employee performance by identifying opportunities for employee growth and marshalling organizational resources to support that growth" (Reinke 2003: 23). Emphasis shifts relatively from measuring quantified outcomes – viewed as a judgmental evaluation function – towards guiding and coaching employees as well as identifying their development needs. The developmental approach seeks to identify individuals' "strengths and weaknesses and developing skills and abilities" (Townley 1997: 267). It is "concerned with enriching attitudes, experiences, and skills, which in turn will improve employee effectiveness" (Boswell and Boudreau

1999: 392). Entering the work situation, scholars invest in and contribute to their employing university. It is expected by scholars to provide a supportive environment that facilitates the effective exploitation of their skills and abilities.

It is essential that performance management does not depend on a set of standards or fixed indicators to which personal outcomes can be compared and are rewarded with pecuniary incentives by the university management. Instead, it should utilize flexible professional peer evaluations based on shared values and beliefs. Universities have to provide a supportive environment that appreciates invisible colleges' value systems and developmental performance management, which "facilitate[s] the flow of information, and reduce mistrust" (Townley 1997: 267). Those values can foster perceptions of fairness and justice to such an extent that scholars perceive developmental performance management as legitimate (Cawley et al. 1998; Kim and Holzer 2014). Since evaluations are usually used to debate and justify innovative ideas, developmental performance management takes an exploratory role (Frey et al. 2013; Speklé and Verbeeten 2014). In contrast to judgmental performance management, which emphasizes past behavior and outcomes, developmental performance management pays attention to and puts effort into the future and novel ideas (Roberts 2003).

Further research is needed to theoretically and empirically examine how developmental performance management can be effective when trying to simultaneously induce organizational commitment and professional commitment. As a first indication, we outline the role of participation. Research on participation refers to it as the 'purest' form of collegiality, implying that scholars should be encouraged to fully participate in decision-making processes (Macfarlane 2005). In a meta-analysis of 27 studies on participation in performance management processes, performance management participation was strongly associated with higher levels of acceptance and management satisfaction (Cawley et al. 1998). Roberts (2003: 90) used these results to discuss a conceptual foundation that supports the efficacy of performance management. This approach can be adopted for visible colleges. Accordingly, participation should provide a framework that gives scholars a voice within the goal development processes in their visible colleges, firstly. In this way, scholars are empowered to rebut ranking indicators and narrow quantitative measures that they disagree with. Second, it must be recognized that, owing to their membership in specific invisible colleges, scholars can contribute valid knowledge and unique information to this process. They have gained insights that are usually unavailable to and verifiable for the university management. Third, scholars gain ownership over a process carried out within visible colleges. Roberts (2003) emphasizes that goal-setting should be part of this process. If scholars have autonomy and resource support, they often set higher performance goals than the management. They accept these organizational objectives and feel committed to their achievement. This is a way to strengthen organizational commitment.

Two empirical studies in higher education universities support the important role of participation. In her study on faculty commitment – including nearly 5000 scholars – Fjortoft (1993) found evidence for the importance and the power of scholars' perceived influence on policy in predicting commitment to their employing

university. She concluded that to increase scholars' organizational commitment, it is important to strive for participatory policy decision-making. This is much more than just participation in meetings. It is about the perceived influence, the means to see how scholars' actions and recommendations impact their employing university. A study on law scholars' commitment to their employing university, conducted by Wallace (1995), also confirmed that greater participation in decision-making processes results in greater commitment to the organization. Participation enables scholars to integrate their individual strengths and weaknesses and thus to develop skills and abilities that form a basis for developmental performance management. In return, this increases scholars' trust in performance management and stabilizes their organizational commitment.

A participative performance objective development process draws scholars to their employing universities. This is of significance as numerous studies of universities have consistently identified differences between scholars' and administrators' perceptions of their institutions as regards academic purpose, institutional culture, organizational and administrative climate (e.g., Peterson and White 1992). Scholars and administrators have different implicit models of how their employing universities function. If the latter hold a more hierarchical, centralized rational model, they may assume that judgmental performance management enhances scholars' organizational commitment. On the other hand, scholars have a more professional collegial model. They assume "that peer agreement (consensual power) and recognition (professional status) may enhance their commitment" (Peterson and White 1992: 178). This is exactly what they experience in their invisible colleges: Here, they exchange knowledge, support each other with friendly reviews, and look for opportunities to collaborate (Vogel 2012). Simultaneously, they gain recognition and a reputation. This strengthens their perceived efficacy, because they feel valued and supported by their scientific peers in the invisible colleges. As knowledge-based organizations, universities are grounded in expert processes. An alignment between professional and organizational commitment can in fact be achieved if the objectives and expertise, which are valued in invisible colleges, are integrated into the visible colleges. In this case, emphasis is put on development instead of evaluation (Kim and Holzer 2014). Thus, the developmental type is rather regarded as "devices for structuring attention than the exact systems for verifying outputs and outcomes of scientific work" (Vakkuri and Meklin 2003: 754). Contextual premises for making appropriate choices come to the fore. What remains to be the main challenge is to comprehend the complexity of scientific work as it is constitutive for invisible colleges within visible colleges, i.e., the university organization.

5 Conclusion

Adopting New Public Management in higher education implicates a stronger reliance on performance management as an output control process. Performance management is used to motivate scholars to achieve high performance. They are

evaluated and compared. This judgmental performance management shifts attention from qualitative performance managements to measurable quantifiable output indicators that measure single scholars. Research on organizational commitment as well as public management literature has identified organizational commitment as an indispensable element for increasing organizational productivity and an organizational member's performance. Accordingly, scholars' organizational commitment has important implications for the employing university: "Universities need dedicated faculty members who not only join their university but continue to remain actively involved in innovative research activities; prepare new materials and approaches for teaching; build, assess, and reform academic programs; maintain high levels of academic standards; participate in academic decision-making; and work closely and actively with their students" (Neumann and Finaly-Neumann 1990: 77). Thus, gaining clarity about how performance management enables universities to develop and maintain organizational commitment has significant implications for organizational effectiveness and viability.

Our study has taken a tentative first step towards an understanding of the role of performance management in the commitment – organizational and professional commitment – of employed scholars. It makes a varied contribution.

First, with the rise of New Public Management practices in higher education, especially performance management as an output control process, we demonstrated that performance measurement focusing on quantitative outcomes can initiate unintended behavior on the part of individual employed scholars. It results in a loss of organizational commitment if it is perceived as judgmental. This, however, does not mean that scholars are not at all committed to their universities but rather oriented towards values and norms of their specific communities. It is noteworthy that organizational commitment is conceptually distinct from professional commitment.

Second, we enrich higher education research by analyzing the differentiation between the nature of universities as visible colleges and that of academic communities as invisible colleges having an effect on scholars' commitment. While organizational commitment focuses on visible colleges, that is to say, on universities as a work setting, professional commitment is oriented towards scholars' attitudes. Our respondents tended to feel more committed to their invisible college and thus to their profession than to their visible college. This stems from performance indicators that seek to compare scholars of different scientific disciplines while, however, neglecting their individual values.

Our third contribution is to provide interesting insights into the dynamics between professional commitment and organizational commitment created by performance management. To overcome unintended behavioral consequences arising from judgmental performance management, we argue for developmental performance management that is able to align high professional commitment with high organizational commitment. Emphasis is shifted from measuring quantified outcomes towards guiding and coaching scholars, as well as identifying their development needs. In this sense, this developmental type takes paying attention into consideration and therefore puts more emphasis on contextual premises for making appropriate choices.

Drawing on exploratory, qualitative case material, this study has some limitations. First, organizational commitment can vary across different academic career stages (e.g., Neumann and Finaly-Neumann 1990). We solely interviewed scholars of research universities in a mid-career stage, who had been up for tenure and promoted to full professorship. Second, all interviewed scholars belonged to the same academic field of research and teaching: business administration. Representatives of the natural sciences were not included. Consequently, we did not explore whether organizational commitment may indeed differ between hard and soft sciences and between pure and applied fields of research. Obviously, more research is required to examine, first, the interaction between organizational commitment and professional commitment. Second, strategies for how to align both forms of commitment have not yet received the research attention they deserve.

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Current Developments at Higher Education Institutions and Interview-Based Recommendations to Foster Work Motivation and Work Performance

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1 Introduction

Investigating how scholars' work motivation and work performance may be fostered at different organizational levels of higher education institutions is relevant for several reasons. First, such knowledge is essential to properly adjust the introduced governance mechanisms in, for example, German higher education institutions (i.e., New Public Management, output control) at different institutional levels (chair, faculty, institution). Second, it is important to examine how scholars' work motivation and work performance may be enhanced because scientific achievements can strengthen knowledge-based industries and economies through networks connecting science and industry (Luo et al. 2009; Rosenkopf and Almeida 2003). Scientific and creative knowledge is considered a key resource of knowledge-based global economies (Altbach and Teichler 2001; Cooke 2002). By fostering innovation potential through interlinking science and industry, knowledge-based industries and economies may gain a competitive advantage (Cooke 2002; European Commission 2010), which, in turn, may lead to economic growth and social progress, i.e., the third mission of higher education institutions (Brennan 2008; Roper and Hirth 2005).

To derive informed recommendations on how to foster work motivation and work performance in higher education institutions, knowledge on current developments in higher education institutions is required. Previous literature has indicated undesired developments in higher education research (Binswanger 2011; DORA 2012; Osterloh et al. 2015; The Economist 2013). For example, recently, The Economist (2013) published an article titled "How science goes wrong." The undesired developments in higher education are (at least in part) claimed to be a result of

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New Public Management (Osterloh et al. 2015). New Public Management was widely introduced in many higher education institutions worldwide to increase, among other things, efficiency (Geuna and Martin 2003; Lange 2008; Melo et al. 2010; Wissenschaftsrat 2014) in reaching higher education institutions' characteristic strategic goals, for example, excellence in research and teaching (Franceschini and Turina 2011; Rabovsky 2014). Increased efficiency is sought by transferring existing performance management tools, such as performance-based payment, competition and target agreements (Binswanger 2011; Hicks 2012; Jaeger 2006a, b; Wissenschaftsrat 2014), from business organizations to higher education institutions (Miner 2003; Ringelhan et al. 2013; Wilkesmann and Würmseer 2009).

Previous literature investigated determinants of research performance (Bland et al. 2005; Gu et al. 2011; Ringelhan et al. 2013) and raised the concern that scholars' work motivation and, thus, work performance may be crowded-out or over justified by extrinsic incentives (Deci 1971; Osterloh 2010). Now, many years after the introduction of New Public Management to higher education institutions, it is important to evaluate the specific effects of this strategic managerial change (Schimank 2005) on scholars' work motivation and work performance. Previous literature in this regard has revealed that the performance management of higher education institutions is confronted with serious problems (Osterloh et al. 2015; Ringelhan et al. 2015), which could, however, be resolved in different ways. For example, prior work has suggested resolving the current problems by concentrating on input control (Kieser 2010; Osterloh and Frey 2011; Ouchi 1977, 1979) and by trusting in scholars' intrinsic work motivation (Ringelhan et al. 2013), especially in the recruiting phase, or by relying on informal-interpersonal acknowledgment (Ringelhan et al. 2015; Wollersheim et al. 2014). Until now, however, to the best of our knowledge, there have been no empirical studies that relied on an open-ended answer method to assess and compare (1) current (undesired) developments at higher education institutions from the perspective of different individuals working in higher education institutions and (2) the interviewees' recommendations on how to foster scholars' work motivation and work performance at different organizational levels. In this article, we pursue the objective of addressing this particular research gap. In particular, our explorative research questions are (1) what the largest current undesired developments are in higher education institutions and (2) what can be done to foster work motivation and work performance at different organizational levels of higher education institutions.

It is essential to address these research questions by relying on the different perspectives of individuals working in higher education and research institutions because judgments can vary depending on the perspective and experiences of the individual. Thus, integrating information sources from different perspectives adds information value. Internal information about potential problems in higher education institutions represents a fundamental basis for recommendations about how to adjust the governance of higher education institutions on each organizational level such that the aim of (efficiently) increasing performance is actually met and is not undermined. Additionally, it appears to be an important prerequisite for a participative management style to consider different perspectives. A participative management

style aims at increasing communication in all directions in an institution and offers members of the institution the opportunity to participate in decision making (Pouliakas and Theodossiou 2012; Somech 2005). A participative management style may be essential for successfully adjusting the governance mechanisms that were introduced in the course of New Public Management because highly educated employees usually strive for autonomy and some sort of control over the work that they do (Dilger 2010; McCormack et al. 2014; Melo et al. 2010; Minssen and Wilkesmann 2003). The strive for control is similar to the aim of procedural justice, which is perceived when one receives the opportunity to voice one's opinion in the process of decision making. Procedural justice has been shown to be an important factor for accepting decisions that affect oneself (De Cremer 2006; Thibaut and Walker 1975; Van den Bos and Spruijt 2002).

We address our research questions by conducting a qualitative exploratory study. Specifically, to gain in-depth knowledge, we conducted semi-structured interviews with twelve experienced individuals working in different positions in higher education and research institutions. Based on our interview data, we first extract undesirable developments at higher education institutions. Second, we shed light on factors that motivate and foster the performance of scientific staff. In particular, we highlight potential actions that chairs, faculties, or institutions can take to foster scholars' work motivation and work performance. We thereby contribute to the literature on the prevailing governance of higher education institutions.

The remainder of our paper is structured as follows: in the next section, we present the relevant theory for our study, i.e., we elaborate on developments in higher education institutions and existing recommendations to foster work motivation and work performance in higher education. In section three, we describe the research method. In section four, we report our interview findings. In the concluding section five, we discuss the results and their implications and recommendations for action.

2 Theoretical Background

2.1 Current Developments at Higher Education Institutions

The effects of New Public Management have been discussed in recent literature (Kieser 2010; Lange 2008; Whitley 2011). For example, it has been argued that output measures such as rankings are detrimental for the intrinsic motivation of scholars (Kieser 2010) and that New Public Management leads to tensions between managerial control and traditional professional autonomy (Lapworth 2004); however, such research addresses the topic from a theoretical perspective and does not assess empirical data.

Prior work has also considered New Public Management from an empirical perspective. First, in an interview study based on scholars from economics departments, Schneider and Sadowski (2010) investigated how New Public Management

affects Ph.D. education. The authors found that different governance mechanisms can be effective, e.g., the increased competition for resources leads to successful Ph.D. education. Second, Holyoke et al. (2012) reported in their survey of American faculty members a trend to hire non-tenured faculty, which has the effect of greater turnover among these scholars, for example, when budgets are cut and because of transient work force norms that may lower job commitment. Third, Wilkesmann and Schmid (2012) reported survey results concerning the influence that New Public Management had on academic teaching in Germany. Based on a sample of professors from different disciplines, the authors observed no direct influences of the new incentives (e.g., merit pay, performance-related budgeting, Management by Objectives, teaching awards) on teaching performance. Fourth, Melo et al. (2010) interviewed internal stakeholders of higher education institutions in the United Kingdom (i.e., academics, non-academic staff, students, and lay members) on how performance has been measured in the central activities of employees and customers and in the service and financing of higher education institutions since the introduction of New Public Management. Additionally, the interviews assessed current developments. The authors observed that the interviewees were highly concerned with finding appropriate job candidates. Furthermore, the interviewed academics reported that they fear having lost autonomy and decision making power to some degree. In addition, non-academic staff voiced the concern of increasing top-down management. At the same time, the interviewed non-academic staff reported that they work closely with academics to ensure that the academics were committed to the managerial decisions of the institution. With respect to positive developments, the authors further noted that students' opinions seem to be increasingly considered in higher education institutions. Fifth, in an Australian survey by Fredman and Doughney (2012), academics reported lower job satisfaction than was found in a survey that the authors had conducted two years previously. The authors found that the low job satisfaction primarily resulted from the management culture (i.e., organizational and managerial practices) and from concerns about the workload; in contrast, autonomy and personal development opportunities were positively related to job satisfaction. In the literature, scholars' increasing workloads have been associated with the reduced government funding of universities (Harman 2003) and have been named as a problematic issue for faculty members in empirical studies (Yan et al. 2015). Additionally, in a study of Chinese faculty members, Yan et al. (2015) observed that pressure stemming from evaluation and promotion pressure, in addition to many trivialities that are unrelated to academic work, represent problems at universities.

Although the mentioned empirical studies provide valuable insights regarding the effects of New Public Management and current developments in academia, they are limited for several reasons. Some studies, for example, only consider effects on certain major tasks of higher education institutions (e.g., Ph.D. education) and neglect other major tasks or interview only professors, thus disregarding individuals who hold other positions in higher education institutions (and not including and

comparing their concerns). None of the previous studies provide empirically informed recommendations on how to improve work motivation and work performance in higher education institutions.

2.2 *Possibilities to Foster Work Motivation and Work Performance in Higher Education Institutions*

There are theoretical articles that discuss factors influencing scholars' work motivation (Rowley 1996) or provide recommendations on what needs to be changed at the institutional level to restore public trust in higher education institutions (Schimank 2005).

Additionally, there are empirical studies on the topic (Hakala 2009; Wollersheim et al. 2015). For example, Wollersheim et al. (2015) showed that when a university was involved in the German excellence initiative, highly extrinsically motivated scholars performed worse than highly extrinsically motivated scholars working at universities not involved in the excellence initiative. In an American survey, Bland et al. (2005) observed that the appointment type (e.g., tenure-track faculty) can influence research performance in terms of the number of high-level publications. In particular, the authors found that tenure-track faculty members were more productive than faculty members who held another position. In addition, the study by Bland et al. (2005) indicated the importance of fostering external networks, which have been shown to be positively associated with high research performance. Likewise, in the study by Gu et al. (2011), the importance of social networking was noted as an essential factor for Ph.D. students' research performance. According to this survey, the status of the academic origin of the Ph.D. student, the status of the advisor and the advisor's scientific experience and allocated energy (i.e., the time and energy spent) are strongly associated with Ph.D. students' research performance. However, some of these factors (e.g., the academic origin and status of the advisor) are hardly or not influenceable and, thus, not really useful as a tool to increase motivation and performance of Ph.D. students. Lam (2011) investigated what motivates scholars from the United Kingdom in research commercialization and suggested relying on the reputational and intrinsic motivation of scholars. Similarly, based on a survey, Ringelhan et al. (2013) showed that intrinsic work motivation and job satisfaction are associated and positively related to self-reported research performance (while extrinsic work motivation had a direct effect on self-reported research performance). Furthermore, interviews with young scholars in the areas of regional studies, health science, electronics, and biomaterial science revealed that the usefulness and applicability of research results, which represent a central characteristic of creativity next to novelty (Amabile 1983; Hennessey and Amabile 2010), strongly motivate young scholars at work (Hackett 1990).

To the best of our knowledge, however, there are no empirical studies that have assessed and compared recommendations from different individuals working in

higher education and research institutions on how to foster work motivation and work performance on different organizational levels: the chair, the faculty and the institution. Thus, our study pursues the objective of providing empirically informed recommendations on how to foster scholars' work motivation and work performance at these three different organizational levels. The current undesired developments at higher education institutions, which we empirically assess in a first step, serve as a basis for deriving empirically informed recommendations.

3 Methodology

3.1 Data and Sample

We conducted twelve semi-structured telephone and face-to-face interviews on the topic of "factors influencing the performance of researchers and lecturers." Semi-structured interviews have "the advantage of being reasonably objective while still permitting a more thorough understanding of the respondent's opinions and the reason behind them" (Borg and Gall 1983: 442). In other words, the semi-structured interviews allowed us to collect broad information, and the previously determined interview questions ensured some degree of objectivity. The assessment of our interview data allowed us to investigate the explorative research questions and to shed more light on *current* (undesired) developments in higher education institutions seen from the perspective of individuals working in different positions. Results of previous studies are incomplete, because they disregard individuals with different positions. Due to the timeliness of the topic, due to the incompleteness of previous studies and due to the fact that findings in this field are highly system and region specific, solely relying on factors observed in previous research might not be adequate. Thus, we feel confident that qualitative interviews represent a highly appropriate research method to address our research questions.

Our interviewees were individuals working in higher education and research institutions in the German-speaking area and held different job positions: three of our interviewees were professors, three were postdocs, three were Ph.D. students and three interviewees indicated another position (e.g., research assistant). We chose our interviewees according to judgment sampling (Blumberg et al. 2005). Specifically, we selected interviewees who worked in different higher education and research institutions[1] (seven interviewees were working at a university; three were at other institutions, such as a non-university research institution; one interviewee

[1] We included interviewees from research institutions in our sample because they can provide valuable information about the current developments and factors that influence scientific working just as interviewees from higher education institutions. Thus, including them in the sample enriches our sample and provides a broader overview of the current situation for all individuals working in the area of science and what could be done to improve working conditions.

was self-employed[2]; and one was working at a university of applied sciences). The interviewees were working in the field of business and economics (eight interviewees) or the field of social sciences and sociology (four interviewees) and thus had in-depth knowledge on working in a (higher education) research context and professional experience in the field. Depth of experience is named as an important selection criterion for qualitative samples in the literature (Hill et al. 1997); another important criterion is an evenly distributed cell size, with each cell having several cases (Mayer 2009). Thus, we ensured that the number of cases for each job position was equally distributed (here, three cases per position) and that the number of males and females in our sample was evenly distributed. Six of our interviewees were female, and six were male, with the ages ranging from 31 to 56 and a mean age of 38.33 years ($SD = 7.61$).

We conducted the semi-structured interviews between July 2013 and August 2014 at the Technische Universität München, Germany, and at the 18th International Conference on Science and Technology Indicators in September 2013 in Berlin, Germany. The interviews lasted between 15 and 83 min ($M = 41.08$ min; $SD = 17.64$). The research team that conducted the interviews consisted of one to two researchers, one of whom was in charge of asking the questions and was, at times, assisted by another researcher who was responsible for taking minutes in addition to a voice recorder. Based on our minutes and the recordings, we systematized the interviewees' answers in a protocol that was—if requested—provided to the interviewees afterwards so they could check whether the meaning of their answers was maintained.

In each interview, we asked the following questions (among other questions): (1) Currently, what are the largest undesirable developments at higher education institutions? (2) What can a chair, a faculty and a higher education institution do to foster motivation and performance? (3) Which incentives from the industry (e.g., target agreements, (quantitative) performance evaluations, performance-based payment) should definitely be transferred to science? (4) How motivating would a reduction in teaching load be for you personally on a scale ranging from 0 (*not at all motivating*) to 6 (*highly motivating*)? (5) How motivating would the opportunity to hire further employees be for you personally on a scale ranging from 0 (*not at all motivating*) to 6 (*highly motivating*)?

3.2 Analyses

We based our data analyses on the consensual qualitative research approach (Hill et al. 1997). Specifically, a coding scheme was created and then jointly revised based on the first eight interviews by two coders and an auditor (who conducts research in the field). Next, the two coders separately categorized the data that were collected via the semi-structured interviews based on the jointly created coding

[2] Note that the self-employed interviewee worked for a higher education or research institution for many years before leaving to work for themselves.

scheme. Subsequently, the independent auditor critically reviewed the inconsistent categorizations of the two coders and determined how to categorize these inconsistent categorizations.

4 Results

4.1 Current Undesirable Developments at Higher Education Institutions

Interviewees most frequently named deficient funding ($f=7$) as the largest current undesirable development in higher education institutions (Fig. 1). The interviewees gave several examples for deficient funding, including temporary contracts, third-party funding dependency, stronger financing pressure, and scarce financial resources. The following quote of a Ph.D. student in our sample exemplifies funding problems:

> *[…] for research associates the situation of further employment is, of course, always a topic, especially if one is employed in third-party funded projects […] one always has to obtain further funding and the security for one's further life planning is missing to a certain degree, because one does not know what will happen in three years when the contract expires; is my contact being extended or will there be a new project?*[3]

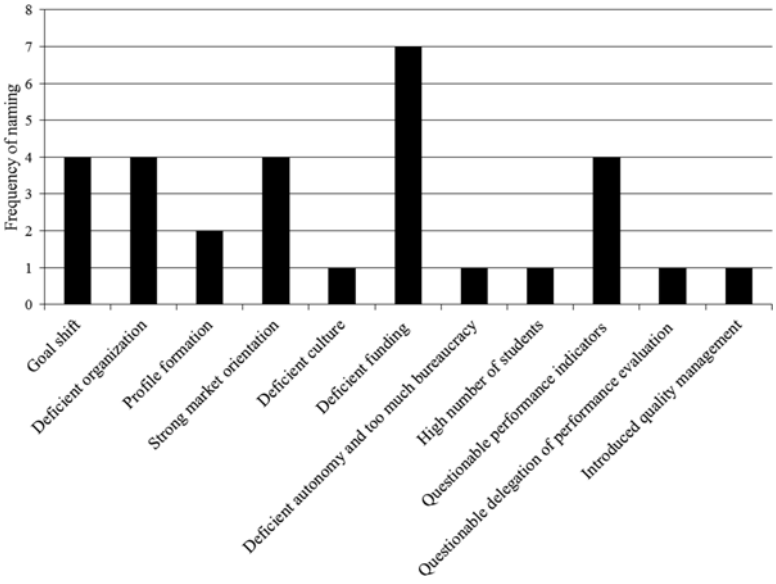

Fig. 1 Frequency of named current largest undesirable developments at higher education institutions

[3] All interview quotes were translated from German to English.

A closer examination of this interview question showed that deficient funding was cited most often by Ph.D. students ($f=3$), followed by interviewees with another position ($f=2$), postdocs ($f=1$) and professors ($f=1$). It is noteworthy that the answers of postdocs, professors and interviewees with other job positions were quite diverse. Postdocs most often named a goal shift ($f=2$) and questionable performance indicators ($f=2$) as undesired developments at higher education institutions. Professors most often named ($f=2$) deficient organization, whereas interviewees with other job positions named questionable performance indicators most often ($f=2$), coupled with deficient funding ($f=2$).

4.2 Recommendations for Action at Higher Education Institutions

In this paragraph, we report what, based on our interviewees, a chair, a faculty and a higher education institution can do to foster motivation and performance. First, we present the results for the chair level, followed by the faculty and institution levels.

With respect to the question on how motivation and performance can be fostered at the chair level, our interviewees noted that in particular, an adequate leadership style could be chosen ($f=7$), for example, by communicating clearly, building trust, providing reliability, giving constructive feedback, and creating a good team climate. This finding is exemplified well in the following quote by a postdoc:

> *In part, very vivid results of miscellaneous studies show that more or less professional leadership behavior of chair holders can be very influential. This [influence] is not really related to incentive systems; rather it points to what is called informational justice with regard to performance in the organizational justice research […]. In other words, it indicates that people are also informed about everything that affects themselves […]. Thus, any incentive system cannot function when the basis is not established […].*

In addition, the interviewees mentioned that at the chair level, interpersonal acknowledgment can be shown ($f=5$), e.g., by praise and appraisal, to foster motivation and performance (Fig. 2).

A more differentiated analysis of these results revealed that an adequate leadership style was most often stated by postdocs ($f=3$) and interviewees with other positions ($f=3$), whereas it was only cited once by professors ($f=1$) and was not at all cited by Ph.D. students ($f=0$). Interpersonal acknowledgment was most often named by Ph.D. students ($f=2$) and postdocs ($f=2$) and was mentioned by professors ($f=1$) but was not named by interviewees with other positions ($f=0$).

Possibilities to foster motivation and performance at the chair level that have, contrary to our expectations, not been named at all by our interviewees were monetary incentives (such as performance-based payment) and formal acknowledgment.

With respect to the question concerning how faculties can foster motivation and performance, our interviewees noted that a faculty could provide conducive framework conditions ($f=5$), for example, by handling coordination processes in

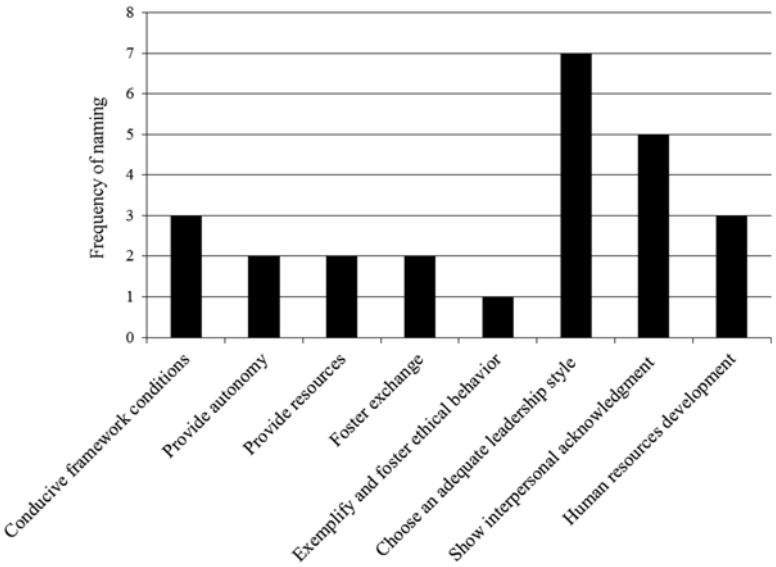

Fig. 2 Frequency of named possible actions that a chair can take to foster motivation and performance

teaching or by providing laboratories. A professor stated with regard to beneficial framework conditions:

> *Depending on the funding of a faculty or department, one could actually work with additional employees; I could imagine that because [faculties or departments] are largely the ones deciding about the application of funds or also obviously about technical means […] and laboratories.*

Furthermore, they noted that faculty members may foster exchange ($f=5$) between researchers, chairs or faculties (Fig. 3), which, as reported, could be achieved by incentives for cooperation, for example. An interviewed postdoc said in this regard:

> *I also think that for the faculty an exchange is important; this [exchange] could take place in the form of seminars, or research seminars, where one presents one's work.*

A more fine-grained investigation of these findings showed that conducive framework conditions were most often stated by postdocs ($f=2$) and professors ($f=2$), whereas they were only named once by interviewees with other positions ($f=1$) and were not named at all by Ph.D. students ($f=0$). The possibility of fostering exchange was cited most often by Ph.D. students ($f=2$) and postdocs ($f=2$), followed by one mention by professors ($f=1$) and no mentions by interviewees with other positions ($f=0$).

Constructs that have, contrary to our expectations, not been named by our interviewees concerning how faculties can foster motivation and performance were culture (such as ethical behavior, general principles or mission statements) and improving the planning ability (due to the nature of the job position).

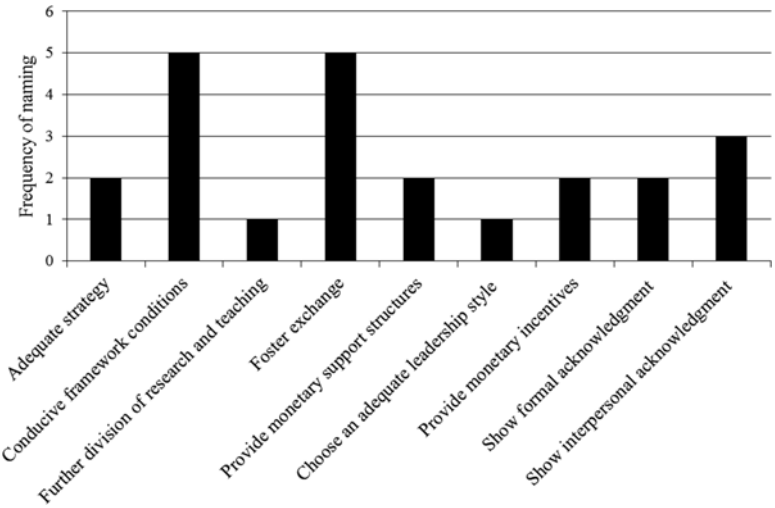

Fig. 3 Frequency of named possible actions that faculty can take to foster motivation and performance

With respect to the question concerning how *higher education institutions* can foster motivation and performance, our interviewees noted that a higher education institution can organize itself adequately ($f=6$), for example, by giving structure to faculties, providing services to scholars, strengthening decentralized responsibilities and providing autonomy to scholars. The following statement by a Ph.D. student exemplifies the need for proper organizational structures implemented at the institutional level in higher education:

[..] they, of course, have to provide the structures, the opportunities.

In addition, a higher education institution could initiate a good leadership culture ($f=4$), for example, by founding culture, creating trust, providing reliability, or creating a mission statement (Fig. 4).

A closer investigation of these findings revealed that the adequate organization of the higher education institution was most often cited by Ph.D. students ($f=2$) and interviewees with other positions ($f=2$) but that it was only named once by professors ($f=1$) and postdocs ($f=1$). A good leadership culture was cited most often by interviewees with other positions ($f=2$), whereas it was mentioned once by postdocs ($f=1$) and professors ($f=1$) and was not mentioned by Ph.D. students ($f=0$).

One construct that has, contrary to our expectations, not been named by our interviewees concerning how higher education institutions can foster motivation and performance is improving the planning ability with regard to one's job position.

Furthermore, interviewees responded to the question of which incentives from the industry should definitely be transferred to science. Their answers reveal that some of these incentives are considered appropriate for science. Among the most frequently named incentives that should be transferred to science are target

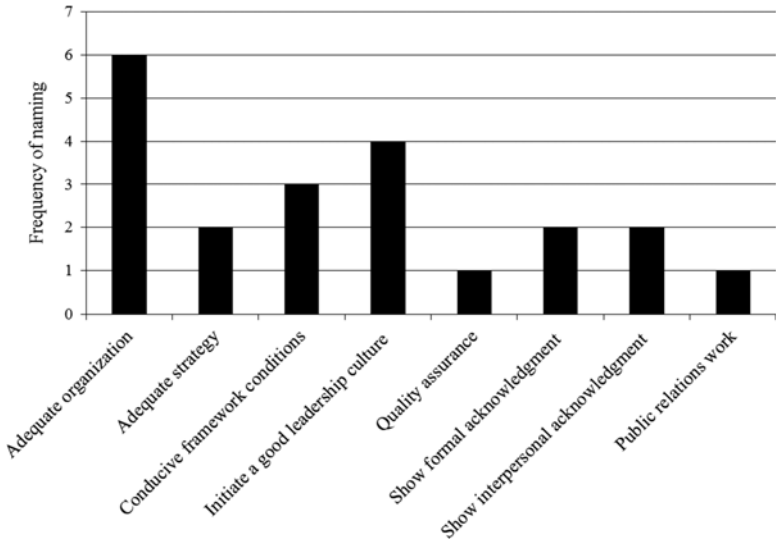

Fig. 4 Frequency of named possible actions that a higher education institution can take to foster motivation and performance

agreements ($f=7$) and monetary incentives ($f=7$), followed by (quantitative) performance evaluations ($f=6$) (Fig. 5). An interviewee working in another position said:

> *I have written down a couple [of incentives] that I think make sense. One of them is target agreements, just because of the negotiation character, because one can take part in deciding how one's performance is measured and what one should do. That is exactly the point of self-designing that has a motivating facet and, thus, target agreements are ranked first.*

An interviewee at the professor level named monetary incentives as an incentive that should be transferred from industry to science by saying:

> *Now, of course, I actually think about something like a performance-based compensation regulation [Leistungsbezügeordnung] consisting of several criteria which, of course, have positive impacts insofar as I can align them with the strategy of the higher education institution […].*

While performance-based monetary incentives are in general positively seen by some of our interviewees, concerns about them were also raised by our interviewees with regard to the measurability of performance in the higher education context; a postdoc stated:

> *I think the performance evaluation, i.e., the performance-based compensation, is important and I would also think of it as a good thing. However, then I notice immediately the problem […] how is performance actually measured, because then all the unfair things are present again, of course. Then, the employee is supposed to be compensated according to his or her performance, but no one knows how to assess the performance. I see this problem, but generally speaking I think that this would be a good thing.*

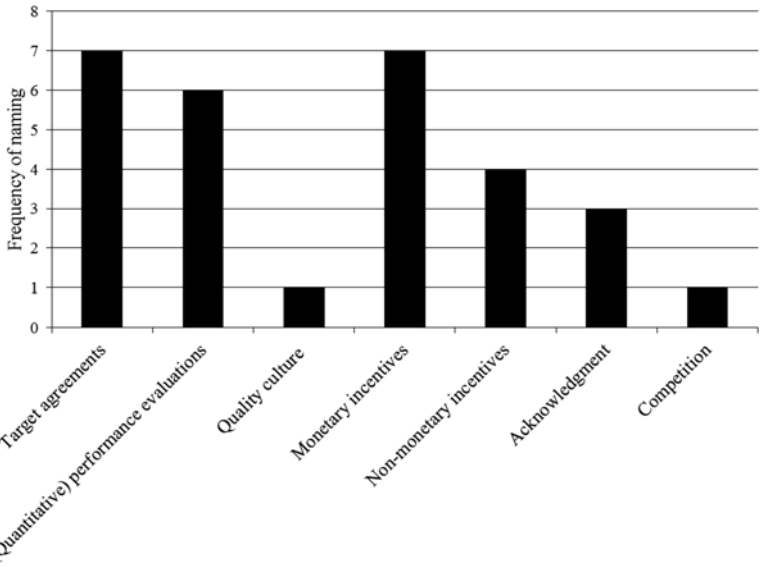

Fig. 5 Frequency of named incentives that should be transferred from industry to science

Taking a closer look at the results of this interview question, we found that Ph.D. students ($f=3$) and interviewees with other positions ($f=3$) most often cited that target agreements should be transferred to science, whereas postdocs named target agreements only once ($f=1$) and professors did not name target agreements ($f=0$) at all. Monetary incentives were most often named by postdocs ($f=2$), professors ($f=2$) and interviewees with other positions ($f=2$), whereas monetary incentives were cited only once by Ph.D. students ($f=1$).

Regarding the motivational potential of a teaching load reduction, our interview data reveal that a reduction in teaching load would have diverse motivational effects for our assessed interviewees: some interviewees reported that it would not motivate them, whereas others reported it would strongly motivate them ($M=3.00$, $SD=1.76$, $Min=1$, $Max=5$). A professor who ascribed a low motivational effect of a teaching load reduction said:

> *Well, I have to say that I have a heavy teaching load reduction at the moment […], however, I actually regularly carry out about seven to eight [teaching hours per week during the semester], I would say, because […] one has chosen a job on purpose, that is called professor [Hochschullehrer, i.e., lecturer at a higher education institution], which implies very specific activities.*

When conducting further analyses for each job position, we observed that in our sample,[4] the potential for a reduced teaching load was rated most motivational by

[4]The sample size encompasses only one person for this question and position because the other two interviewees with other positions stated that this question does not apply to them; they were thus excluded from this analysis.

interviewees with other positions ($M = 5.00$), followed by Ph.D. students ($M = 3.33$), postdocs ($M = 3.00$) and professors ($M = 2.00$).

Our interview data further revealed that the opportunity to hire additional employees would be more motivating to our interviewees compared with a reduced teaching load ($M = 4.58$, $SD = 1.00$, $Min = 3$, $Max = 6$). This finding is nicely depicted by an interviewee with another position:

> *Definitely rather on the motivating side […] on the grounds that it brings a clear relief effect; to be able to delegate things and to work together with other people, who maybe also have an own interest; […] an exchange emerges and one entrains each other […].*

There were some concerns raised that lowered the motivation potential of the opportunity to hire additional employees for some of our interviewees. A professor figuratively describes that further employees usually imply not only more working force but usually come together with further work and responsibilities:

> *[…] I take the middle there because it always depends on what additional tasks, what additional obligations, what additional agreements are connected with it and most of the time it is said, you assume responsibility for task XY and in return you also get an employee and I think that at some point a management-to-staff ratio or span of control [..] is eventually exhausted and then one moves on from an occupation as a professor [i.e., higher education lecturer] directly as a researcher to a science management [position] […].*

When conducting further analyses for each job position, we observed that all interviewee groups rated the opportunity to hire additional employees as more motivating than a teaching load reduction. The opportunity to hire additional employees was rated highest by Ph.D. students ($M = 4.67$), postdocs ($M = 4.67$) and interviewees with other positions ($M = 4.67$), followed by professors ($M = 4.33$).

5 Discussion

Our semi-structured interviews reveal that our interviewees (particularly Ph.D. students) perceive deficient funding to be the most significant current undesirable development in higher education institutions. Our interviewees cited temporary contracts, third-party funding dependency, stronger financing pressures and scarce financial resources as examples. Ph.D. students in particular cited temporary contracts, which stem partially from third-party funded projects in which many Ph.D. students are employed, as well as a shortage in resources due to public funding shortages. This undesirable development may at least in part be caused by New Public Management of higher education institutions, which attempts to increase competition among institutions and scholars and, thus, affects the human resources at higher education institutions (e.g., Ph.D. students). With respect to the criticism of temporary contracts, our interviewees noted that the dependence on third-party funding is too strong and undermines sustainable professional behavior (e.g., research ideas that might require a longitudinal design will not or less often be pursued due to the uncertainty of being able to complete the study and obtain proper

funding). This finding is in line with discussions in the literature (Whitley 2011). In addition, the nature of third-party funded projects, which often span 3 years, leads to the aim and necessity of producing research output in the time frame of the funded project. While the output per se may be increased, entire potentially valuable research streams are disregarded, which may hinder advancements in science (i.e., the most meaningful ways to address research gaps may not be pursued in each case, which might decrease the quality of research). Furthermore, with regard to short-term contracts, it has been noted (in accordance with statements in the literature (Marder 2013)) that these complicate the ability to plan work and one's personal life.

Based on our results and the findings in the literature, competition in higher education institutions seems to be a double-edged sword with possible negative and positive effects. While Schneider and Sadowski (2010) reported that an increased competition for resources leads to successful Ph.D. education, our interviewees yet raised the issue that market incentives are not working (as they should) in each context (e.g., in basic research).

Regarding the question of what a chair, faculty and a higher education institution can do to improve the situation and at least partially counteract these undesired developments, our results show that different incentives are useful to enhance individual work motivation and work performance, depending on the organizational level. At the chair level, a good leadership style and motivation through interpersonal acknowledgment are recommended. The importance of acknowledgment has been reported in the literature as a major motivator of scholars (Ahsan et al. 2009; Lam 2011) and has been reported as a central motivator at the chair level, especially by the supervising professor, in a survey of young scholars (Wollersheim et al. 2014). Our interviews indicate that acknowledgment per se is not valuable at the chair level, because interpersonal acknowledgment was often named by our interviewees, while formal acknowledgment has not been named at all. Additionally, monetary incentives such as performance-based payment were not named as possibilities to foster motivation and performance at the chair level. These results may imply that interpersonal non-monetary performance management and the provision of a sufficient basic working surrounding is most crucial at the chair level to foster motivation and performance. A formal acknowledgment at the chair level may not be highly valued, as these acknowledgments may not be known outside the chair and thus may not provide any significant wide-reaching reputational and career effects.

At the faculty level, beneficial framework conditions and cooperation (exchange) are requested, whereas at the institutional level, good organizational structures and mission statements are called for. With regard to the importance of cooperation (exchange), our interviews support findings in the literature (Bland et al. 2005; Gu et al. 2011). Our results add further insights to the literature by revealing on which level exchange should be fostered: interviewees named most often that exchange should be fostered by the faculty rather than by other organizational levels. However, our results indicate that culture (such as ethical behavior, general principles or mission statements) is a topic that should be addressed at the institutional level rather

than at the faculty level. Interestingly, our interviewees seldom named monetary incentives when answering the question on what can be done to foster motivation and performance and did so only as a motivation and performance-enhancing factor at the faculty level. Although monetary incentives received few mentions in this interview question, our interviewees surprisingly stated that monetary incentives, as well as target agreements and (quantitative) performance evaluations, should be transferred from industry to science. At the same time, some of the interviewees who generally supported performance-based monetary incentives raised the problem of measuring performance in higher education. Nevertheless, the results appear to be contradictory initially because monetary incentives were seldom mentioned when interviewees were asked about motivation and performance-enhancing factors, though they simultaneously stated that among other things, monetary incentives should be transferred to science. Drawing on the theory of Herzberg et al. (1967), however, the results become plausible in that monetary incentives in science resemble rather a hygiene than a motivation factor; in other words, monetary incentives do not really enhance motivation and performance but do seem to play a role in meeting scholars' basic needs and satisfaction. In turn, highly satisfied scholars may also show a higher work performance than less satisfied scholars (Ringelhan et al. 2013). In line with this pattern of results, interviewees stated in another interview question that non-monetary incentives in research and teaching were central factors for work motivation (referring to the interview question of which three factors are most motivating in teaching and research), whereas they did not report monetary incentives as central factors for work motivation. These results further emphasize the importance of distinguishing between motivation and hygiene factors in incentives in science according to the Herzberg theory (Herzberg et al. 1967), i.e., if funding is perceived as lacking or deficient by scholars, this may lead to dissatisfaction, whereas if funding is perceived to be sufficient, it may not necessarily motivate them further in their work. The fact that the ability to plan one's future life (based on the conditions of one's job contract) was not named at the faculty and institutional level as motivation and performance enhancing, supports this argumentation. The result may indicate that while it might be dissatisfying to worry about one's job position and uncertain plans for the future, the ability to plan one's future life seems to be unimportant as a motivation and performance enhancing factor.

5.1 Theoretical and Practical Contributions

This study contributes to the existing literature by highlighting current undesired developments in higher education institutions from the perspectives of different individuals working in higher education and research institutions in the German-speaking area. Our findings suggest a clear area of shortcomings, namely deficient

funding, and highlight the importance of considering employees of different job positions to fulfill their special needs. Furthermore, our findings add value to the application of Herzberg's theory (Herzberg et al. 1967) in the scientific working context in that monetary incentives may dissatisfy when not present in a sufficient manner, however their presence may also not really motivate for high performance. Finally, a theoretical contribution is that different levels of management at higher education institutions should take different actions to foster work motivation and work performance. The outcomes suggest that New Public Management must be adjusted to ensure that the goal of high research output is met. In particular, the high competition for funding may harm research and young scholars' job satisfaction as well as their ability to plan their lives. Our interview-based approach contributes to the existing literature by revealing, among other things, the importance to distinguish between formal and interpersonal acknowledgment at the chair level (with interpersonal acknowledgment obviously being the more crucial type of acknowledgment at the chair level). Furthermore, the results revealed that exchange and cooperation should be fostered by the faculty rather than other organizational levels.

The findings reported above make important practical contributions because they allow for the derivation of specific practical recommendations. First, funding seems to be an important factor, especially for Ph.D. students, and should not be neglected when seeking satisfied scholars. According to our interview data, solid funding seems to matter to scholars. Second, simultaneously, monetary incentives do not really motivate performance according to our interviewees. Third, to motivate performance, potential starting points are a good leadership style and acknowledgment (chair level), fostering cooperation and conducive framework conditions (faculty level), and a mission statement and good organizational structures (institutional level). Another starting point for increasing motivation in higher education seems to be giving scholars opportunity to hire additional employees. According to our interviewees, the opportunity to hire further employees would represent a more suitable performance management tool than would a reduction in teaching load. However, this performance management tool is only effective if (1) the benefits of hiring further employees (i.e., an increased work force) outweighs further work and responsibilities that often go along and (2) it does not reach a stage where one turns into a science manager rather than a university teacher and researcher. Thus, New Public Management requires an adjustment to ensure the aim of a high research output; for example, the time frame of third-party projects could be prolonged or young scholars' existing funding could be supplemented by additional non-third party positions with a long-term focus. As reported in our interviews, such measures would also positively affect the currently perceived misallocated working time of scholars (inefficient use of highly educated human resources), which arises from the fact that scholars must devote a large amount of time to administrative and bureaucratic tasks rather than investing it in research, which is one of the main tasks of higher education institutions (Melo et al. 2010).

5.2 Limitations and Future Research

Our study is limited with regard to the following aspects. First, our study relies on a sample of 12 interviews, which appears to be small at first sight; however, the existing literature recommends a sample size of eight to 15 interviewees (Hill et al. 1997, 2005). In a review of 27 consensual qualitative research publications (which is a method characterized by semi-structured interviews with open-ended questions, several coders and at least one auditor who checks the ratings), a sample size of seven to 19 interviewees was reported (Hill et al. 2005). Because our sample size lies well within the range of the suggested sample sizes reported in the literature, we are confident that our sample size of twelve interviews meets standard requirements and can be considered sufficient. Nevertheless, our sample may not be large enough for analyses of subsamples because such analyses may be better when they are based on larger sample sizes (i.e., more than 12 interviewees). However, Hill et al. (2005) were themselves reluctant to recommend large sample sizes because of the time-consuming nature of conducting, transcribing and analyzing interviews. Second, our study may be limited with regard to the experience of our interviewees to answer the interview question which incentives from the industry should definitely be transferred to science. We do not know whether or how much experience all of our interviewees had with incentives from industry and thus, we do not know whether our interviewees were able to assess whether incentives from the industry are suitable for science. Nevertheless, at least one of our interviewees had practical experience through working in industry for several years. Additionally, our interviewees might have (to varying degrees) theoretical knowledge as most of them were management and organization scholars. In addition, none of the interviewees named that they lack knowledge to answer this question. Last, it is recommended in the literature to interview individuals of the target population (Hill et al. 2005); because we wanted to gain knowledge in adequate incentives in science, it is advisable to interview individuals working in higher education research institutions rather than in industry. Future studies might assess the degree of practical knowledge about incentives in industry and the years of practical experience in industry. Third, our study may be limited with regard to the generalizability of our findings to other countries and scientific systems because our interviewees are from a German-speaking area. Therefore, the situation for scholars in other countries and scientific systems may differ to varying degrees, depending on how similar the scientific system is to the German scientific system. Similarly, our results cannot be generalized to other scientific disciplines because we only assessed individuals working in higher education and research institutions from the fields of business and management and social sciences and sociology. Fourth, our data do not allow causal conclusions; thus, we cannot claim with certainty that the reported current undesired developments are caused by New Public Management. They may also be caused by other factors or may even have existed before the introduction of New Public Management.

Future research avenues should therefore broaden this investigation by (1) conducting interviews across scientific systems or contrasting these findings with scientific systems where New Public Management was introduced earlier than in Germany, for example, in the United Kingdom (Melo et al. 2010); (2) conducting interviews in other scientific disciplines (e.g., Biology) to contrast these findings with our findings from the fields of business and management and social sciences and sociology; and (3) conducting interviews that compare the recommendations from individuals working in higher education institutions versus research institutions or universities of applied sciences.

5.3 Conclusion

In sum, this qualitative study points to specific and practical feasible suggestions on how to improve the work situation and foster individual work motivation and work performance in science to tackle existing challenges and undesired developments in higher education. Our interview data indicates that deficient funding seems to be a concern of especially Ph.D. students. To foster motivation and performance, a good leadership style and interpersonal acknowledgment of the chair holder (i.e., professor) may motivate and enhance performance, whereas at the faculty level beneficial framework conditions and cooperation (i.e., exchange), and at the institutional level good organizational structures and a good leadership culture may foster motivation and performance.

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Is It Possible to Assess Progress in Science?

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1 Introduction

Nowadays, many university administrators and government officials in charge of higher education are obsessed with rankings. They use rankings as indicators of research quality and, based on these rankings, they assign resources to scientific fields, they select applicants for positions, and they remunerate the performance of researchers. They are convinced that the information that rankings provide efficiently supports their efforts to improve the quality of research. They maintain this opinion, even though there is broad agreement among researchers, based on evidence and convincing arguments, that rankings produce misleading information. Thus, rankings are said to damage the system of science, which for a long time guaranteed scientific progress on the basis of self-administration under the absence of intervention from university or state administrators (Münch 2007, 2011a, b). In particular, critics agree that rankings hinder progress of science (Adler and Harzing 2009; Baum 2011; Willmott 2011).

Nonetheless, rankings are widely used as indicators of research performance since they represent a convenient method of research evaluation: They reduce the complexity of research performance by asserting to offer objectivity, comparability and precision through quantification. Thus, rankings seemingly enable people not familiar with the respective theories and methods to distinguish world-class research from provincial research efforts (Lo and Bao 2016). Shore and Wright (2000: 57) point to an increasing "coercive accountability" in academic research production. Burrows (2012: 368–369) notes that "we are forced to use the language of statistical

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measures whether we want to or not; […] even when on occasion we may attempt to resist we know that not playing the 'numbers game' will have implications for us and our colleagues: 'play' or 'be played'."

In this paper, we focus on exploring processes of scientific progress with the aim to identify preconditions that have to be met to achieve progress in science. We hold that processes of creating new disciplines or subdisciplines are particularly important in this respect: The creation of a new discipline or subdiscipline is an invitation for researchers in the respective scientific area to join this new arena and to test new theories and/or new methods in an effort to create new knowledge that solves hitherto unsolved – and unrecognized – scientific problems. This development is often triggered by the formation of invisible colleges, i.e. research groups that do not yet operate in an institutionalized environment. Therefore, invisible colleges might take on a crucial role – a role unconstrained by scientific conventions – in the process of creating (sub-)disciplines and thereby take on a catalyst function for scientific progress. However, as invisible colleges represent informal research groups pursuing a new research avenue with a rather uncertain future, rankings predominantly registering publication successes within established research fields do not capture successes of invisible colleges in attracting new members for experimentations with new concepts. By concentrating on impacts of established approaches, the use of journal rankings in research evaluation rather impairs the institutionalization process of invisible colleges towards a (sub-)discipline. By overlooking the emergence of paradigmatic changes or new (sub-)disciplines, the usual rankings suggest that invisible colleges do not contribute to scientific progress. Hence, one of the central questions is whether conditions can be identified that reveal promising efforts of invisible college towards establishing new (sub-)disciplines and, thereby, towards promoting scientific progress.

Our paper is structured as follows: At first, we discuss whether there is progress in science and, if there is, which forms it takes. Then, we examine how the creation of disciplines and subdisciplines – a process that is frequently driven by invisible colleges – contributes to the progress of science. Finally, we discuss prerequisites that invisible colleges have to meet in order to make their initiatives to create new (sub-)disciplines successful.

2 Does Science Progress?

One of the early theories of progress of science was developed in the nineteenth century by Auguste Comte. He was convinced that a hierarchy of the sciences exists. Accordingly, sciences atop this hierarchy are characterized by highly developed theories, by extensive use of formal, i.e. mathematical language, by higher levels of consensus among scientists on the relevance of theories and methods, by the significance of contributions to the state of the art, by the existence of more verifiable predictions, by faster obsolescence of research, and by relatively fast progress (Cole 1983). Natural sciences like physics, chemistry, or biology were regarded to

belong to the top of this hierarchy. Other sciences imitated and still imitate the natural sciences with the intention of thus being able to replicate – or at least producing the impression of replicating – their mode of achieving progress (see e.g. Mayo-Smith 1888).

In the natural sciences, progress is seen as resulting from the inner dynamics of the scientists' work organization. For example, according to Popper (1962), the norms of the scientific community guide researchers to focus their research on problems the solution of which particularly seems to contribute to scientific progress. In this process, false knowledge is replaced by correct knowledge, and science progresses. For Kuhn (2012), to refer to the most popular theorist of scientific progress, scientific progress is achieved through a process that alternates between phases of 'normal science' and 'scientific revolutions'. In phases of 'normal science', scientists engage in 'puzzle solving': They apply familiar concepts and methods in their attempts "to force nature into the preformed and relatively inflexible box that the paradigm supplies" (Kuhn 2012: 24). Scientists are convinced that the paradigm will assist them in solving scientific puzzles (Kuhn 2012). However, with more and more puzzles being solved, researchers see themselves increasingly confronted with observations – "anomalies" – that they cannot account for on the basis of the existing paradigm. The resulting crisis encourages researchers to develop a new paradigm that promises the solution of problems the old paradigm was not able to cope with. For Kuhn (2012: 25), progress in science is achieved by discoveries initiated in crises that enable scientists "to account for a wider range of natural phenomena or to account with greater precision for some of those previously known." Though Kuhn (2012) developed the concept within the context of the natural sciences, scholars adopt the concept to analyze progress in the social sciences too (Barnes 1982; Overington 1977; Polsby 1998).

As stated above, it seems that, paradoxically, systems for the evaluation of research, in particular rankings like those based on the impact factor (Garfield 1994, 2006), do not promote but rather impede scientific progress. In particular, the following effects of rankings (that hinder scientific progress) have been observed:

(1) *Rankings reduce the innovative potential of science and, thereby, scientific progress.* Seeking orientation through rankings, scientists increasingly follow the paths of mainstream research instead of experimenting with new approaches. They tend to play it safe, i.e. to vary what has been successful in the past rather than take risks by submitting highly innovative papers that confront reviewers with the challenge of having to evaluate a paper that presents an approach for which a general assessment tendency is not yet identifiable in the scientific community (Alvesson and Sandberg 2014; Bedeian 2004; De Rond and Miller 2005; Goodall 2008; Grey 2010; Lindsey 1989; Oswick et al. 2011). If researchers really produce innovative research, they risk that reviewers of their submissions will fail to link their findings to findings they are familiar with and will therefore be inclined to reject them. A number of Nobel Price laureates suffered this fate (Campanario 1996; Gans and Shepherd 1994).

(2) *Rankings impair interdisciplinary research.* Interdisciplinary research is said to generate inspiration from fields outside one's own (sub-)discipline (Alvesson and Sandberg 2014), creating innovations through 'cross-fertilization' among diverse disciplines (Stirling 1998), speeding up scientific progress in a particular discipline by making use of advances in many other research fields and disciplines (Parkhe 1993). This is considered a source of intellectual stimulation (Rafols et al. 2012; Rinia et al. 2001). In contrast, contemporary rankings exhibit a bias in favor of mono-disciplinary research. This bias might be caused by reviewers' preference for this type of research, which they might find easier to evaluate (Laudel and Origgi 2006; Rafols et al. 2012). Also, interdisciplinary research is often not attributable to disciplines, which might prevent researchers from engaging in such research (Goodall 2008; Mingers and Willmott 2013).

3 The Role of Invisible Colleges in the Process of Differentiation and the Creation of (Sub-)Disciplines as a Source of Scientific Progress

3.1 Invisible Colleges and Scientific Progress

"[O]ne of the most interesting features of modern science is exactly that it gains an almost unlimited capacity for *self-activation* through its internal differentiation", which is "the basis for the dynamics of modern science" (Stichweh 1992: 12). Differentiation increases the number of problems that can be dealt with (Blute 1972) and thus provides impulses and stimulations for research (Stichweh 1979). This requires that a form of integration enables mutual stimulation between (sub-)disciplines with disciplines being the primary unit of internal differentiation of science. Invisible colleges can represent such an integrative mechanism through linking researchers from different (sub-)disciplines. At the same time, invisible colleges are, paradoxically, by themselves a form of internal differentiation as they constitute new, small fragments (Stichweh 1979, 1992). These new fragments, invisible colleges, may span disciplinary boundaries and represent starting points of a novel research direction. In so doing, invisible colleges have the potential to foster scientific progress.

The term 'invisible college' can be traced back to the foundation of the Royal Society of London in 1668 whose like-minded members – scientists of nature affiliated with disparate colleges – aimed for the establishment of a natural science based on experimental knowledge (Hall 2002; Paisley 1972). Disciplinary boundaries hardly existed at that time (Wagner 2008); scientists felt united by their shared research mission. They competed in terms of scientific leadership with nearby visible colleges, such as Oxford or Cambridge, but were not kept together by a formal institution. Ultimately, they became known as "The Invisible College." In order to enhance communication, researchers who jointly pursued a new research direction

formed a discussion group that met informally and regularly to exchange ideas, craft methods and to share experimental findings. Eventually, they became a formal organization by founding the Royal Society of London (Paisley 1972; Wagner 2008; see also De Solla Price and Beaver 1966).

Nowadays, the term 'invisible college' is used to refer to "a network of communication relations among scholars who share an interest in a particular area of research" (Vogel 2012: 1017), or to "co-citation networks" (Gmür 2003: 27), with the latter emphasizing the aspect of formal communication amongst scholars through scientific publications. Cronin (1982: 232) puts it aptly by describing the invisible college as "a simple yet complex bush telegraph system serving the needs of the scientific community." Formal as well as informal information exchange plays a crucial role in scientific growth and discipline development (Crane 1972; Cronin 1982; De Solla Price and Beaver 1966). Moreover, invisible colleges do not stop at the disciplinary or institutional boundaries that exist in visible colleges. The emergence of an invisible college and the related search for new insights is rather driven by a shared interest of like-minded researchers and their curiosity instead of being constrained by any institutional or disciplinary specifications (Paisley 1972; see also Habermas 1970). Thus, invisible colleges can enable a breakout of deadlocked thought and work patterns or even paradigmatic restrictions that hinder scientific progress (Kuhn 2012).

Invisible colleges represent global networks based on scientific self-organization (Leydesdorff et al. 2013; Wagner 2008). They promote the circulation of ideas and information *beyond* national borders so that knowledge accumulation advances more effectively and efficiently (Nahapiet and Ghoshal 1998; Wagner 2008; Zuccala 2006). New modes of transport have made physical contact easier while, at the same time, advances in communication technology have made physical contact dispensable (March 2004).

By considering invisible colleges as information systems that accelerate and enhance communication between scholars with different disciplinary backgrounds from all over the world (Lievrouw 1989; Zaltman 1974) and that facilitate the management of the flood of scientific information (Vogel 2012), their relevance for the formation of new (sub-)disciplines becomes clear: Invisible colleges represent a promising starting point for the establishment of a new (sub-)discipline. The evolutionary process starting with an invisible college that eventually grows up into a new (sub-)discipline established at a visible college, i.e. a university or a part of it, is speeded up through new media and communication via electronic systems. Technological progress has increased the probability that like-minded scholars striving for a similar research aim find each other and start exchanging ideas. The rate of speed with which new linkages emerge has significantly increased (see e.g. Verspagen and Werker 2004; Hummon and Carley 1993). Although many of these linkages do not last long, but dissolve after a certain time (Crane 1969), "science is now a contact sport" (Wagner 2008: 5).

Stichweh (1979) distinguishes between two types of invisible colleges – interdisciplinary and disciplinary: *The first type*, an invisible college that includes scientists from different disciplines, prepares the ground for scientific innovations and fulfills

the integrative function mentioned above. Usually, only elite scientists have cross-disciplinary contacts at their disposal and possess the necessary scientific competence of communicating across disciplinary boundaries while the 'normal scientist' does not enter such a barely institutionalized field of research until 'normal science' has become possible (Stichweh 1979; see also Kuhn 2012). Notably, scientists entering a new field of research "prefer to attach themselves to highly reputable existing members of the network" (Verspagen and Werker 2004: 1419). This phenomenon is called "preferential attachment" – apparently a further manifestation of the Matthew Effect (Merton 1968), as researchers who already have acquired a high level of reputation find it easier to attract followers who support and share their innovative research idea. Hence, existing elite or highly reputable members of an invisible college foster the attraction of new members and thereby the growth of an invisible college. *The second type* of invisible colleges emerges in well institutionalized disciplines that encompass a relatively large scientific community. In this case, the invisible college especially fulfills the function of controlling research activities via informal communication (Stichweh 1979), i.e. identifying research areas requiring specific efforts.

3.2 How Invisible Colleges Institutionalize into Disciplines

As indicated above, the creation of an invisible college often marks the beginning of an institutionalization process towards the establishment of a new (sub-)discipline. Fully established disciplines or subdisciplines share the following characteristics (1) a sufficiently homogenous social communication between researchers - a "scientific community", (2) a corpus of scientific knowledge represented in textbooks and thereby codification, acceptance, and teachability, (3) a collection of current problematic research questions, (4) a "set" of research methods and paradigmatic problem solutions, (5) a discipline-specific career structure and institutionalized socialization processes, which serve to select and to "indoctrinate" young researchers (Stichweh 1979: 83).

The establishment of a new (sub-)discipline can be described as an evolutionary process with an uncertain outcome (March 2004; Whitley 1984). Success, i.e. the establishment of a (sub-)discipline, depends on the acceptance of the suggested new field of research within the scientific community. Does it attract the interest of researchers? Does it spark a lively discussion? And first and foremost, does it trigger a process of institutionalization that contributes to the visibility of the new research field? The emergence and initial development of an invisible college usually takes the form of a trial-and-error-process. Researchers with different backgrounds, sometimes different disciplinary backgrounds, different theoretical and methodological preferences experiment with knowledge recombinations. As March (2004: 8) puts it: "Exploration […] involves the examination of numerous possibilities, many of them dubious. It thrives on diversity and deviance." Thus, the future of an invisible college is always uncertain, but, simultaneously, it bears the potential of

discovering promising paths for the progress of science (March 2004; Feyerabend 1993). Institutionalization transforms an invisible college by integrating it into a visible college.

Following Saßmannshausen and Volkmann (2013: 11), the institutionalization process towards the establishment of a new (sub-)discipline that starts with the emergence of an invisible college encompasses seven major steps – not necessarily in the given order:

(1) *New specialized journals are founded.*
(2) *Research articles dealing with the new research area are accepted by leading journals that are not thematically focused on the new research area.*
(3) *Edited volumes and monographs dealing with the new research area are published.*
(4) *New conference tracks and workshops within existing conferences are established leading to accordant contributions in conference proceedings.*
(5) *Teaching materials such as textbooks or cases conveying the new research field to a broader audience are produced.*
(6) *Professorships, chairs, institutes, or research centers for the new research field are created.*
(7) *The new research field is included in accredited curricula as well as in extracurricular teaching activities.*

By completing these steps, an invisible college gradually turns into a (sub-)discipline officially pursued at visible colleges.

The institutionalization process makes the invisible college visible and thus creates exploitation potential (March 1991). Researchers become aware of the new field and start considering possibilities for collaboration. The process of scientific progress is driven by an interplay of exploration (through invisible colleges, particularly of *the first type*) and exploitation (through collaboration with visible colleges). The first activity unlocks innovative potential while the latter ascertains resources and legitimacy within the wider community (Hambrick and Chen 2008). The invisible and the visible college are dependent on each other: Invisible colleges tap resources from the visible colleges that facilitate "exploration"; the visible colleges gain innovative research input from the invisible colleges enabling scientific progress (Hattke et al. 2016; March 2004).

Unfortunately, rankings do not honor the contributions of invisible colleges to scientific progress. Incentives to form invisible colleges cannot be expected from rankings, which encourage exploitation at the expense of exploration (Hattke et al. 2016) and therefore inhibit scientific innovations: New journals, for example, have to wait for three years until they are included in the ISI Social Science Citation Index, and then they have to wait for another three years until an impact factor is computed for them (Adler and Harzing 2009). Likewise, monographs and edited volumes are not considered in popular rankings such as the Journal Citation Reports® by Thomson Reuters. However, both publication media constitute important outlets for early results of invisible colleges' research efforts. For the individual researcher, joining an invisible college and participating in research that explores a new field

represents a greater risk with regard to publication opportunities than engaging in mainstream research. In this regard, journal editors are accused of rejecting "articles on narrow or unpopular subjects in favor of papers dealing with subjects appealing to a wider audience, because the latter will receive more citations" (Togia and Tsigilis 2006: 367).

3.3 Different Modes of Creating (Sub-)Disciplines

Disciplines are formed around problem areas or fields characterized by phenomena (Stichweh 1979). As stated above, the identification of new problems or phenomena and, accordingly, the emergence of a new research initiative – which may involve the formation of an invisible college – can finally result in the emergence of a new (sub-)discipline. The positional origin of a new problem area plays a crucial role in the process of establishing a new (sub-)discipline. It influences the speed and smoothness of the institutionalization process and also indicates the innovative potential of the respective research initiative (Stichweh 1979). Two cases can be distinguished: a new problem area emerges close to the core of a discipline (involving the formation of an invisible college of *the second type*) or a new problem area emerges at the boundary of a discipline, where intersections with other disciplines or subdisciplines are likely to be encountered (involving the formation of an invisible college of *the first type*).

Problem areas emerging near the nucleus of a discipline, i.e. near its basic paradigm, can generally be assumed to be paradigm conform. An invisible college that forms around such a problem area falls into the category of an invisible college of *the second type*, as described above. A paradigm is defined as "a consensus or shared worldview among researchers in a scientific discipline that guides research, experimentation and training of students" (Markóczy and Deeds 2009: 1078). It represents the consensus of scientists in terms of theories, assumptions, constructs, claims and methodology and thus is equal to a discipline's self-concept (Zahra and Newey 2009). Upcoming invisible colleges dealing with such problem areas enjoy high recognition and easily attract researchers who are able to apply generally approved methods and theories. Their research receives attention and acceptance. Prominent researchers act as gatekeepers and thus take a crucial role in securing important resources (Fagerberg and Verspagen 2009). In this case, it is likely that the process of institutionalization sets in fast, leading to a relatively speedy establishment of a subdiscipline.

Examples for such a fast establishment of subdisciplines are observable in phases of 'normal science' (Kuhn 2012). They confirm the theoretical paradigm and reinforce its coherence. This leads to the establishment of strong theories, methods, models and techniques (Markóczy and Deeds 2009; Pfeffer 1993). Through the growth of knowledge, the nucleus is strengthened and the "scientific credibility of disciplines versus other disciplines" (Zahra and Newey 2009: 1063) is increased.

However, in a discipline, problems may arise that cannot be solved on the basis of the established methods and theories the paradigm provides. Such new problems can trigger the formation of an invisible college of *the first type*, as described above. To solve those problems, interdisciplinary research is required – i.e. "a mode of research that transgresses traditional disciplinary boundaries" (Siedlok and Hibbert 2014: 197). As stated above, interdisciplinary research provides opportunities to find inspiration and intellectual stimulation outside one's own disciplinary boundaries (Alvesson and Sandberg 2013; Rafols et al. 2012) and enables creative innovations through "cross-fertilization" (Stirling 1998; Zahra and Newey 2009). According to Stichweh (1992: 12), "something might happen at any time in another discipline that may be of great importance for one's own discipline and result in far-reaching cognitive innovations." Cognitive innovations are "articulations of differences in a broader setting of consensus" (Stichweh 1979: 96). Usually, revolutionary cognitive innovations fundamentally violate expectations shaped by the current state of research and the prevalent problem awareness (Kuhn 2012). They provoke resistance and run the risk of not being able to settle within a discipline. Differentiation then serves the purpose of detracting from the system of social control within a discipline (Stichweh 1979). According to Stichweh (1979), these revolutionary innovations are more likely to happen when methods of one discipline are applied to research questions of another discipline.

Transferring methods, models or theories from "hard science" to "soft science" in order to benefit from the hard sciences' higher prestige has become a popular strategy in the social sciences (Stichweh 1979: 91). An example for a hybrid discipline that resulted from this strategy is neuromarketing. Human behavior is difficult to capture because mental states are "elusive" (Glimcher et al. 2013: xxi). Thus, applying methods of a natural, "hard" science to predict consumer behavior from a brain perspective raises the perceived validity of research outcomes.

One of the most spectacular cases of the creation of a new discipline through interdisciplinary research is molecular biology, which resulted from integrating large parts of chemistry and biology. Molecular biology is concerned with the molecular basis of biological activity between the various systems of a cell, including the interactions between the different types of DNA, RNA and proteins and their biosynthesis. It also encompasses studies on the regulations of these interactions. Intellectual as well as social activities are of crucial importance in the process of creating a new discipline, in particular in advancing the institutionalization process. The intellectual activities encompass (1) paradigm development; (2) problem success (i.e. early success in solving tricky problems, which provides motivation) and (3) "puzzle solving". Activities in the second, social, category extend to (4) communication; (5) co-authorship; (6) colleagueship and (7) apprenticeship (Mullins 1972).

"Paradigm development occurs when a group of researchers, either together or separately, experience a 'Gestalt shift' which changes their perception of the topic or topics they are analyzing" (Mullins 1972: 51). A steadily growing group of researchers with fluid membership worked on the decipherment of the mechanisms by which genetic information is transferred. From 1935 to 1966, this group, roughly

comparable to an invisible college, went through different phases, i.e. paradigm development, success and puzzle-solving. For the success of the group it was essential that

> *known scientists were working in it and were accessible to students who could, in turn, teach and pass the'trade' along, providing means for effective communication and a distinctive culture and normative structure. These actors acted as a'glue' for the group, through which a tremendous number of workers passed within a relatively short period. The "glue" was effective enough to hold more scientists than it lost. Solidarity reinforced solidarity.* (Mullins 1972: 78)

For Mullins (1972: 79) "leadership and charisma may be the most important factors [for success in creating the new discipline molecular biology], much more important, for example, than accuracy in intellectual judgment."

4 Prerequisites for the Success of Invisible Colleges in Trying to Establish New (Sub-)Disciplines

In order to determine to what extent an institute contributes to scientific progress, information is required on its involvement with invisible colleges that aim at establishing paradigmatic innovations that possibly lead to the emergence of new (sub-) disciplines. It is possible to receive this information through analyses of publications and documents and through interviews with members of the respective institute. First, the institutes (institutes not belonging to the university that houses the respective institute) need to be identified with which the institute collaborates or has collaborated with. In most cases, collaborations are documented in joint publications. If publications are available, they do not only inform about the partners the institute has collaborated with but also about the nature of the collaboration – aiming at a new (sub-)discipline through paradigmatic innovation or not, at the hub of the central paradigm or at its periphery. Interviews would have to provide information on current collaborations that have not yet generated publications.

Second, the success of the invisible college or – for ongoing collaborations – the chances of success need to be assessed. For ongoing projects, this task requires knowledge about factors critical for achieving paradigmatic breakthroughs. Bornmann and Marx (2012) developed a concept that includes such critical factors; however, it deals with paradigmatic breakthroughs in the natural sciences. It is called "Anna Karenina concept", which means that all identified essential factors or prerequisites have to be fulfilled to make a breakthrough attempt successful.[1] An over-fulfillment of one prerequisite cannot compensate for the non-fulfillment of another prerequisite.

[1] Tolstoy's novel Anna Karenina starts with the sentence: „Happy families are all alike; every unhappy family is unhappy in its own way." The implication being that to succeed in their striving for happiness, a family has to fulfill all preconditions. If one precondition, e.g. financial security, is not met, the likelihood for unhappiness is very high.

The following list contains the prerequisites for the success of attempts at paradigmatic breakthroughs in social science, which we have identified by applying the concept by Bornmann and Marx to the social sciences:

(1) The members of the scientific community are convinced of the appropriateness of the suggested paradigm change. Once the proposal for a paradigmatic change has been published, the reactions to it are overwhelmingly positive. Researchers who apply the modified paradigm in their research largely find the results satisfying or encouraging. An example for such a successful paradigmatic change is Cohen, March and Olsen's "garbage can concept" (Cohen et al. 1972; March and Olsen 1986). The reaction from the scientific community to the first publication of the concept was strongly positive. Many researchers positively referred to this new theoretical concept and reported that they had successfully used it in their own research (see e.g. Gibbons 2003; Levitt and Nass 1989). Negative comments were rare (see e.g. Bendor et al. 2001; Nobuyuki 2015) and did not trigger a broader critical discussion. The "garbage can concept" represents a paradigmatic change that did not lead to a new discipline or subdiscipline. It could be argued, however, that a number of interdependent paradigmatic changes generating concepts like "limited rationality", "organizational learning", "quasi-resolution of conflict" or "organizational learning", which were published in a number of articles before they were integrated into three books – Herbert A. Simon "Administrative Behavior" (1976), James G. March and Herbert A. Simon "Organizations" (1958) and Richard M. Cyert and James G. March "A Behavioral Theory of the Firm" (1963) – created a new subdiscipline – Behavioral Organization Theory. This new discipline was not added to existing subdisciplines in management studies; it simply replaced a subdiscipline, i.e. "organization theory", which disappeared with the emergence of "behavioral organization theory". A number of articles provide insights into the activities of visible and invisible colleges in bringing about this new subdiscipline (Augier 2013; Augier et al. 2000; Augier et al. 2005; Augier and Prietula 2007).
(2) Interest is generated among colleagues who adopt the new ideas. If an invisible college succeeds in setting up a special track for presenting and discussing the paradigmatic change at a conference or even at several conferences, in organizing workshops on the new issue, or in getting first conceptual ideas published, it shows that the ideas of the invisible college fall on fertile ground.
(3) Positive responses do not only come from groups that are closely linked to the invisible college, e.g. through earlier collaborations, but also from independent groups. The "garbage can concept" was, for example, readily adopted by political scientists (see e.g. Keohane 2002; Sager and Rielle 2013; Stone 2007; Teasley and Harrell 1996).
(4) The paradigm change proves compatible with other widespread paradigms. Referring to our example, it has been shown that the "garbage can concept" integrates well, for example, with neo-institutional theory (Levitt and Nass 1989).

(5) Suitable methods are developed to apply the paradigmatic change to the study of phenomena. Early applications of the "garbage can concept" included simulation (Cohen et al. 1972) and case studies (Mezias and Scarselletta 1994) providing researchers with inspiration on how to use the modified paradigm.
(6) Study results provide plausible explanations of empirical phenomena. Evaluations of the concept come to the conclusion that it supported empirical analyses of decisions that are characterized by different rationalities (see reviews of the concept in Lomi and Harrison 2012).
(7) The new paradigm is simple and elegant. This criterion also applies to the "garbage can concept." It offers an efficient explanation as to why, in many cases, the intentions of the participants in organizational decision making processes can only explain a small fraction of the actual outcomes of organizational decisions.
(8) The new paradigm has great explanatory power. The "garbage can concept" focuses less on how people behave in decision situations than on how decision situations are constructed through temporal intersections of streams of people, issues, and alternatives. According to Padgett (2013: 473), Cohen, March, and Olsen's basic insight is that the dependent variable to explain these flows is "'temporal order' – namely, patterns of simultaneity in time, not patterns of authority in networks, or patterns of consequentiality in causation. This is as arresting and radical a vision of organizations today as it was forty years ago." And, in our view, the "garbage can concept" also is a concept of great explanatory power.
(9) The leading researcher has stubbornness in thinking and maintains networks with the influential colleagues in the field. Attesting Jim March stubbornness would certainly be somewhat misleading. However, he is a charismatic personality who knows how to present his ideas in a most appealing way. At the time when the article on the "garbage can concept" appeared, he was a faculty member of Stanford University and he had already enjoyed a great scientific reputation. His network included the leading figures in organization theory worldwide.

5 Conclusion

We observed that existing rankings impede rather than foster progress of science. We discussed how the creation of disciplines and subdisciplines contributes to scientific progress. The usual approach to creating a new discipline or subdiscipline is to build up a network of researchers who are interested in specific research issues – an invisible college. Over time, the invisible college develops ideas and puts these ideas on paper. These studies outline how a favorable approach to solve known problems by applying new theoretical concepts or new methods could be initiated. Advances in communication technology and the increasing density of international networks of scientists significantly facilitate the formation of invisible colleges.

If the initial group succeeds in attracting a sufficient number of colleagues, the invisible college can pass through the different stages of formalization, transferring the invisible college into part of a visible college. These activities contribute to scientific progress in so far as they motivate researchers to communicate with other researchers about possibilities to produce research results within the frames laid out by the emerging paradigms of new disciplines or subdisciplines.

We discussed preconditions for success with regard to the attempts of invisible colleges to establish new disciplines or subdisciplines. We found that it is possible to collect the information that is needed to assess whether a particular invisible college has met the different prerequisites in order to gain acceptance for the proposal of a paradigmatic innovation that could eventually lead to the emergence of a new discipline or subdiscipline. However, an evaluation of the extent to which an institute contributed and contributes to scientific progress will ultimately have to remain a qualitative exercise.

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Part IV
Outlook

When Professional and Organizational Logics Collide: Balancing Invisible and Visible Colleges in Institutional Complexity

Fabian Hattke, Rick Vogel, and Hendrik Woiwode

1 Introduction

The history and sociology of science has consistently emphasized the crucial role of professional groups for the social and intellectual development of scholarly fields. Various concepts have been coined for scholars who work in the same field of interest, pursue similar research agendas and have a common sense of how to solve problems appropriately. The most prominent notions in this tradition are "scientific communities" (Kuhn 1970), "theory groups" (Mullins 1973), "epistemic communities" (Knorr-Cetina 1981), "academic tribes" (Becher 1989) and "invisible colleges" (Crane 1972), to name but a few.

Invisible colleges can be defined as social groups of scholars who share an interest in, and communicate about, related problems in the same research area (Crane 1972). Although these and similar other concepts vary to some extent in their meaning, they all agree on the tremendous role of peer control for the evolution of specialist domains, disciplines and the overall strive of scholarship towards innovation. The communitarian organization has been referred to as the "republic of science" (Polanyi 1962), where researchers make their own choice of problems and mutually adjust their efforts in the light of a common endeavor. Without membership in invisible colleges, scholars are excluded from the coordination of research activities and have limited access to the reputational capital awarded by their colleagues. This implies that scholarship beyond the peer control of invisible colleges is hardly possible at all.

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At the same time, scholars are also members of more visible colleges, i.e. universities and research institutes. The membership in formal organizations is no less important, since formal organizations of higher education provide scholars with resources that are required for the pursuit of research activities but that are not controlled by invisible colleges. Although visible and invisible colleges may have some overlaps in terms of membership, they represent different social layers with largely incongruent boundaries. Accordingly, just as in other professions, scholars conduct their work in two very different frames of reference (Denis et al. 2001; Pache and Santos 2013a; Zilber 2011). Although the professional logics of invisible colleges and the organizational logics of visible colleges do not necessarily collide, they (also) bear potential conflicts that may surface in daily academic work.

The organizational logics of visible colleges in higher education have recently undergone profound changes. In almost all developed countries, New Public Management (NPM) has entered higher education from other subfields of the public sector and brought about new approaches to performance measurement and management (Bleiklie and Lange 2010; de Boer et al. 2007a; Shattock 1999; Mora 2001). While traditional logics of visible colleges rely on process control, democratic participation, and state intervention, reforms aim to shift emphasis to output control, to inject entrepreneurial spirit into higher education organizations and to hold them more accountable to policy-makers and the general public (Reihlen and Wenzlaff 2014). This agenda alters the traditional logics of visible colleges and creates new complexity for individual scholars, higher education managers and policy-makers alike. As a consequence, tensions and imbalances may arise not only within the different organizational logics of visible colleges, but also between the organizational logics of visible and the professional logics of invisible colleges (Schimank 2005). Multiple logics, however, may also create new opportunities for the alignment of visible and invisible colleges, which have yet to be studied.

This article discusses the consequences of the new institutional complexity in higher education systems for the balance of visible and invisible colleges and, thus, for scientific development and innovation in general. In section two, we draw on institutional theory to conceptually elaborate on the professional logics of invisible colleges and the shifting organizational logics of visible colleges. We identify the grand institutional logics to which contemporary scholarship adheres, define their normative base and characterize their organizational control mechanisms. In the third section, we theorize on how these logics may collide and bring visible and invisible colleges in or out of balance. The consequences of recent higher education reforms are discussed at three levels: At the level of (national) systems of innovation, innovation dilemmas arise from the exploitation of pre-existing knowledge at the expense of exploration into new fields. At the organizational level, a struggle for organizational actorhood affects scholars' ability for voluntary collective action. And at the level of the individual scientist, new identity conflicts arise and refine scholars' identification with visible and invisible colleges. We propose ambidexterity, hybridization, and identity work as strategies for balancing these conflicting institutional demands. The article concludes with an outlook on further research on the interplay of professional and organizational logics in scholarly fields.

2 Institutional Logics and Modes of Control in Invisible and Visible Colleges

Practices and structures in invisible and visible colleges are embedded in different institutional logics. Institutional logics consist of rules, standards, and values that shape conditions of rational, mindful behavior (Greenwood et al. 2010; Thornton et al. 2012). In other words, they define demands that actors in the field adhere to. Thereby, institutional logics create isomorphic pressures that, if one logic dominates the field, ultimately enforce similarity of practices and structures (DiMaggio and Powel 1983; Meyer and Rowan 1977). Higher education and research, however, is a complex field where multiple logics coexist, constituting diverse and sometimes even conflicting demands (Greenwood et al. 2011). Both professional and organizational logics influence scholars' behaviors – with organizational logics shifting from bureaucratic to market modes of control.

Table 1 summarizes characteristics of institutional logics embodied in invisible and visible colleges, integrating sociological institutionalism (DiMaggio and Powel 1983; Meyer and Rowan 1977) and research on management control (Ouchi 1979, 1980). Scott (2001: 52) proposes a similar three-fold classification that puts cultural-cognitive elements at the center of mimetic pressures. However, uncertainty is a necessary precondition for voluntary imitation and mimetic behavior, and uncertainty is especially salient when autonomous actors are coordinated via market mechanisms (Lee and Pennings 2002). Table 1 resembles Clarks' (1983) "triangle of coordination", which proposes the interplay of academe, states, and markets at the heart of university governance.

Table 1 Institutional logics and modes of control in invisible and visible colleges

	Invisible colleges	Visible colleges	
Institutional logics	Professional logics	Organizational logics	
Mode of control	Clans	Bureaucracies	Markets
Control mechanisms	Peer control, collegial governance, intellectual loyalty	Process control, democratic participation, state intervention	Output control, entrepreneurial spirit, autonomy and accountability
Mechanisms are based on…	Reciprocity (transformation), legitimate authority (skills), common values (republic of science)	Reciprocity (procedural justice), legitimate authority (ex officio)	Reciprocity (transaction)
Information is embedded in…	Traditions: ceremonies, awards, titles etc.	Rules: policies, programs, regulations etc.	Prices: evaluations, indicators, rankings etc.
Institutional pressures	Normative isomorphism: socialization	Coercive isomorphism: compliance	Mimetic isomorphism: imitation

The typology follows a Luhmannian notion of social systems (Luhmann 1995) in the sense that modes of control are constitutive of (in)visible colleges (Luhmann 2003) and that each logic is autopoietic (i.e. it cannot process information from other logics without transforming them into their own forms of communication; see Luhmann 1986). Thus, the ideal types are of conceptual nature. As an analytical tool, they help to understand differences in the logics that underlie higher education (Doty and Glick 1994; Greenwood and Hinings 1993; Weber 1904).

As members of invisible colleges, scholars are committed to the logics of their profession. Professions are occupational groups, characterized by an occupation-specific knowledge base that is formed by both intense education and vocational training (Evetts 2003; Larson 1977). These "clans" are devoted to a strong work ethos that guides their members' actions (Ouchi 1980). Academia is among the oldest professions, indeed. Embedded in professional logics, scholars coordinate their activities by means of peer control, collegial governance, and intellectual loyalty (Reihlen and Wenzlaff 2014; Suddaby and Greenwood 2005). Common values and beliefs about quality standards as well as authority legitimized by seniority and academic accomplishment serve to control academic clans (Ouchi 1979; Olsen 2007). Reciprocity is based on the transformation of preferences when the best argument prevails in academic discourse (Frost et al. 2010). New members of invisible colleges are socialized into appropriate ways to conduct research while traditions condense into rituals and ceremonies that stabilize the meaning of activities over time (Meyer and Rowan 2006; Ouchi 1980). Artefacts, such as academic titles, awards, and certificates signal individual skills and, consequently, distinguish membership status in professional groups. Professional logics create normative isomorphism by establishing common cognitive values that legitimize occupational idiosyncrasies (DiMaggio and Powel 1983).

At the same time, scholars are embedded in the organizational logics of their visible colleges. Without an organizational affiliation, scholars are excluded from the allocation of tangible resources, such as facilities, laboratories, technical equipment, libraries, and human resources. In that sense, the work of scientists is institution-bound (Scott 2005). Traditionally, bureaucratic logics, based on process control, democratic participation, and state intervention, define the conditions of activity coordination in visible colleges (Fusarelli 2002; Ouchi 1980). These conditions are codified in policies, programs, rules, and regulations, which create coercive isomorphism. Scholars legitimize their actions by procedural fairness and compliance with legal frameworks enforced by the state (DiMaggio and Powel 1983; Ouchi 1979). According to bureaucratic organizational logics, decision-making in democratically elected bodies provides authority 'ex officio' to engage in rule-changing action at all layers of hierarchy (Blaschke et al. 2014; Bradshaw and Fredette 2009): faculties (e.g. when issuing examination regulations in academic councils), universities (e.g. when passing statutory documents in academic senates), and the state (e.g. when devising employment edicts for public officials in parliament).

Although professional and bureaucratic logics differ strongly in terms of control, norms and symbols, they are not necessarily at odds with each other. This can best

be illustrated with the ideal type of the research university which, as the name suggests, puts pre-emphasis on research activities and reputation (Graham 2013). Perhaps the historical example that comes closest to this ideal type was the University of Berlin created by William von Humboldt. By its founding mission, the university was intended for prestigious scholars who were almost exclusively devoted to intellectual inquiry without special emphasis on educational value or social impact. Accordingly, members of this elitist circle were selected primarily on the basis of their intellectual brilliance and exceptionality, with all other qualifications being secondary. Of course, the academic life at the university was also subject to a bureaucratic logic. But as far as research was concerned, the core activities were not trapped in the 'iron cage' of bureaucracy. Professional logics of invisible colleges remained largely unaffected by bureaucratic procedures, if not even protected from direct external interference (Luhmann 1992). It is thus difficult to identify any conflicts between the organizational logics of research universities and the professional logics of invisible colleges as they do not differ substantially in the priority they give to peer-controlled research. If universities pursue the mission of research and adhere to the norm of academic freedom, professional and organizational logics may well be aligned. This applies to the ideal type of a pure research university.

However, neither is research the only mission of visible colleges nor do their organizational logics remain stable over time. The proliferation of new public management has brought about new ways of coordinating higher education and research (Reihlen and Wenzlaff 2014). On the one hand, institutional logics of marketization alter the way in which visible colleges are led and managed. Output control, entrepreneurial spirit, as well as autonomy from and accountability to the state and the general public constitute new "rationality myths" (Meyer and Rowan 1977) of managed education: evaluations, performance indicators, and rankings (Broadbent 2007; Moses 2007; Rauhvargers 2014; Shin et al. 2011). Similar to markets, where information on goods and services is aggregated into prices (Ouchi 1979), indicators shall condense academic behavior into objective, quantifiable, and comparable measures. Transactional reciprocity is the basic coordination mechanism underlying the institutional logics of markets (Frost et al. 2010; Ouchi 1980). Due to the high uncertainty inherent in market-based coordination, autonomous actors imitate successful behavior of others, which ultimately enforces a mimetic isomorphism (DiMaggio and Powel 1983). Since bureaucratic logics are still in place in most visible colleges (more prevalent in many continental European higher education systems such as France, Germany, or Switzerland; less dominant in Anglo-Saxon systems of the U.S. or Great Britain), the transition towards marketization likely creates conflicting demands from coercive and mimetic pressures in visible colleges (de Boer et al. 2007a).

Institutional logics of marketization do not only redefine practices and structures in visible colleges but also reshape mutual interdependencies with invisible colleges and, thereby, interact with professional logics. These relations are of major importance for scholarship, as invisible colleges are crucial for the academic heartland of teaching and research. Thus, mimetic pressures may create ambiguities and contradictions with normative demands from professional norms and values

(Greenwood et al. 2011). Accordingly, many studies critically discuss NPM-reforms in visible colleges, pointing out unintended effects for academic practices (Gumport 2000; Parker and Jary 1995). However, as Powell and Colyvas (2008: 287) state, overall effects cannot clearly be determined: "The organizational ambiguity attached to definitions of inventor and invention, and procedures associated with commercializing science such as royalty distribution, provided multiple opportunities for generating disparate meanings and practices." Besides, the implementation of NPM remains incomplete in most countries; and professional, bureaucratic, and market logics coexist simultaneously in what can be described as a managed professional public organization (de Boer et al. 2007b).

3 Balancing Invisible and Visible Colleges in Institutional Complexity

Institutional complexity that results from the simultaneous deployment of contradictory modes of control from different institutional logics creates tensions. It might even lead to a phenomenon that we call 'non-governance', when peer, process, and output-control prescribe conflicting goals that may not be pursued simultaneously. At the same time, institutional complexity provides the scope for creative ways to rebalance the relationships between invisible and visible colleges.

3.1 Tensions Between Invisible and Visible Colleges

3.1.1 Innovation Dilemmas

> *To incentivize the acquisition of third party funds is not bad in general. But the effect is frustrating. (…) The procedure is highly bureaucratic and is absolutely not promoting innovations. (Medical superintendent at a university hospital, 2014)*

The proliferation of market logics has implications for the drivers and modes of innovation in higher education systems. The raison d'être of research is the expansion of the human stock of knowledge by exploring previously unknown realms of experience. Invisible colleges are important facilitators and catalysts of this exploration. The function of these groups is to engage their members in communication about similar subject matters in pursuit of a common research agenda (Crane 1972; Price 1963). This communication is not only for being kept informed about the work of colleagues, but also for evaluating the latest achievements in the field and acknowledging priorities of discovery. In other words, invisible colleges exert reputational control on the processes and results of exploration and thus both enable and constrain innovation in a certain field of inquiry. As this control is peer-based and guided by professional standards of the community, it primarily drives research for its own sake without accounting for the usefulness of knowledge outside academia.

Of course, research outcomes, once they have been made available to the public, may yield societal benefits and practical relevance, but since this relevance cannot be predicted at the initial stage of exploration, the utilization of knowledge is not an internal driver of doing research in invisible colleges.

Research without the purpose of immediate exploitation for societal and economic benefits has always been, and continues to be, a core mission of visible colleges, too. However, the extent to which research is pursued and prevails over the other missions of universities (i.e. education and service) varies both over time and across various types of universities. In particular, large universities often subscribe to all three missions and claim to do research for its own sake while at the same time offering mass education for undergraduates and supplying useful knowledge for economy and society. This requires visible colleges to combine different yet complementary processes: the production of knowledge (i.e. exploration) according to the professional standards of invisible colleges and the utilization of knowledge (i.e. exploitation) in order to meet the demands of economic and societal stakeholders. This multiple imperative is not without contradictions and pitfalls. Most obviously, exploration and exploitation compete for scarce time and resources, but the tension is much greater than this (Graham 2013). The aspiration for academic excellence, student education, and social relevance is based on different values that are hard to reconcile and integrate. The question of how to balance the core activities of universities is thus more than a simple arithmetical issue of prioritizing tasks and allocating resources (Biesta 2013).

The market logic that has been penetrating higher education systems for more than three decades exacerbates the unresolved tensions between exploration and exploitation embodied in modern universities. Increased marketization transforms the demands on academic education and service in a way that facilitates the imperative of exploitation at the expense of exploration. With regard to higher education, the market logic surfaces in the notion of the student as a customer (Graham 2013). The demand of students for qualifications and the demand of employers for skills has driven the differentiation of the higher education market at all levels, including undergraduate, graduate, and executive programs (Cooke and Kitagawa 2013; Jongbloed 2013; Lynch 2006). By paying tuition fees or redeeming vouchers, students turn into customers for whom universities strongly compete in their pursuit of external funding. One of the main drivers of this transformation has been the 'massification' of higher education in the course of the last 50 years. While universities once were accessible only for small elites, today on average more than 50 % of each cohort in OECD-countries enroll for degree programs at universities (OECD 2013). This development implies that only a very small minority of students will ever pursue a career in academia, while the vast majority of graduates enter other labor markets. Accordingly, research-driven curricula that are primarily designed for the training and education of aspirant scholars and scientists are subject to growing legitimacy threats by the public. Universities respond to this pressure with increasing vocationalism, but the ceremonial emphasis on practical relevance of education is often a mere lip service. The tension between research and teaching persists under the surface and is aggravated with increasing emphasis on the usefulness of higher

education in terms of skills that are transferable to occupations and thus advance individual careers.

With regard to the service mission of universities, the market-driven shift towards exploitation is symbolized in the metaphor of "the state as social entrepreneur" (Graham 2013). This trend fosters the model of the technical university as a place where knowledge is generated and taught that is of practical value and social relevance. The increasing endeavor of universities to achieve social and economic impact is reflected in concepts such as "triple helix" (Etzkowitz and Leydesdorff 1997) or "mode 2" (Gibbons et al. 1994), which elaborate on the close involvement of universities with external stakeholders in business, administration and civil society. The "Third Mission" of academic research is to contribute actively to regional development and national competitiveness by knowledge transfer and outreach activities. Again, new funding schemes that are based on market mechanisms drive this development (Cooke and Kitagawa 2013). As a consequence, the production and transfer of knowledge becomes increasingly constrained by the imperative of revenue increase and channeled by external drivers.

Taken together, the market logic elevates the exploitation of scholarly knowledge both through education and service. However, not only the priorities among, and the scale of, the three basic missions of universities are currently shifting, but also the character of education and service is profoundly changing because the priorities and activities of contemporary universities increasingly adapt to private needs and benefits (Biesta 2013). It is increasingly external stakeholders such as students, companies, or government agencies who define usefulness of academic knowledge in terms of how much it satisfies their specific needs. Universities relate to these stakeholders in market-like transactions in which the 'customers' already know what they want and the providers compete on price and quality. The transition of higher education towards a market model shifts emphasis from exploration to exploitation of academic knowledge and changes the rationale of exploitation from a supply-driven to a demand-driven transfer of knowledge. These tendencies limit the magnitude of innovation and reinforce a fundamental dilemma, i.e. the trade-off between exploration and exploitation (March 1991). While an overemphasis on exploration runs the risk of producing new knowledge without realizing its societal and economic benefits, excessive exploitation facilitates short-term success but disregards the capability to renew the stock of knowledge in the long run. Exploration and exploitation do not only compete for scarce time and resources, but they also flourish under very different conditions in terms of organizational structures, professional qualifications and underlying values. The marketization of higher education makes it even more difficult to integrate and reconcile these conflicting requirements because demand-driven innovations, which are economically exchanged with external stakeholders, widen the gap between the production of knowledge according to the professional standards of academic freedom and significance, one the one hand, and the utilization of knowledge for the satisfaction of private needs, on the other hand.

3.1.2 Actorhood Struggles

> *How manageable is our university? Let me put it metaphorically. Our university is a flotilla, with its speedboats tied to few big tankers while the captain sits in a sailboat… somewhere far away. (President of a university, 2011)*

Universities are often characterized as "organized anarchies" (Cohen et al. 1972), as "loosely coupled systems" (Weick 1976) that are rather an "agglomeration of intellectual entrepreneurs" (Engwall 2008: 13) than an integrated organization. The complexity of knowledge-intensive work makes it indeed difficult to manage visible colleges. Research and teaching rely on unclear production technologies (Cohen et al. 1972). Both the establishment of academic priorities and the assessment of scholarly results are subject to ongoing discourse in invisible colleges (Whitley 2008). Historically, the state and private donors provided funding without significantly interfering with academic issues (Capano 2011; Freidson 2001). De Boer and colleagues (2007b: 30) summarize, "it is the academic professionals who act, rather than the university as an organization."

In the second half of the twentieth century, however, visible colleges had to respond to the political call for the expansion of higher education (Alvesson and Benner 2016). In most European countries, state agencies began to exercise control over resources and determined employment policies (Whitley 2012). Public bodies allocate financial and personnel resources through administrative hierarchies of visible colleges, setting rules and regulations for their disposal. Universities in such systems are "hollow" (Whitley 2008), or "partial" organizations (Ahrne and Brunsson 2011) with only limited capabilities for autonomous action. Following democratic principles in resource-allocation decisions led to an egalitarian vision of research and teaching in visible colleges (Peterson 2007): Universities were neither supposed to differentiate horizontally (i.e. with regard to the range of disciplines) nor vertically (i.e. with regard to performance). Krücken and Meier (2006: 242) conclude, "between the academic profession and the state, there [was] not much legitimate space for institutional management."

The ongoing expansion of higher education was, however, not met by an increase of resources due to public budget constraints. In order to achieve synergies in higher education systems, the division of labor (specialization and collaboration) between universities replaced the notion of egalitarian higher education systems by the end of the twentieth century. The introduction of market logics requires autonomous visible colleges that are capable of collective 'actorhood' through 'tight' internal coordination and control (Lutz 1982; Whitley 2008). Actorhood is based on organizational accountability, autonomous definition of distinct organizational goals, expansion of formal technical structures around these goals, and professional administrative employees (Krücken and Meier 2006). Interdisciplinary research centers, managed collaborations with local industry, and training of young scientists in specialized graduate schools are vivid examples of profile building and specialization (Frost and Hattke 2013; Hattke et al. 2016). Presidents and deans are endowed with considerable discretion in decision-making to implement these changes (Blaschke et al. 2014). At the same time, elaborated monitoring techniques

enable them to make informed decisions. In other words, market-oriented universities are more 'complete' organizations than previous downstream authorities (de Boer et al. 2007b).

Tenure appointments are a good example for the increased autonomy of visible colleges from the state. For Whitley (2012: 497), the "capacity to control the conditions under which academic staff are recruited, assessed and rewarded" is the most crucial aspect of organizational actorhood. The market logic suggests using 'objective' and quantifiable measures to monitor academic performance. Indicators are mostly publication-based, such as the H-Index or Journal Impact Factor, or measure competitive funding (Bögner et al. 2016). These measures refer to preferences of the members of invisible colleges. Managers in visible colleges are, thus, able to make decisions that incorporate professional judgment without having the respective academic expertise themselves. However, these indicators limit the scope of action for managers of visible colleges. "The delegation of research direction and evaluation to extra-university intellectual communities is reinforced by the growth of project-based research funding allocated by peer review" (Whitley 2008: 34). Indeed, this is a paradox: by strengthening organizational actorhood of visible colleges, invisible colleges become more powerful.

However, there are many problems associated with the actorhood of visible colleges. A widespread notion is that if universities become more managed, they are likely to become less academic (Birnbaum 2004). If opportunities for the participation of scholars diminish and are transferred to professional managers, efficiency may replace academic norms of free inquiry and expertise (Olsen 2007). Indeed, studies indicate that universities are more productive if managers are not professional managers but good researchers themselves (Goodall 2009). In addition, there are severe limitations to governing visible colleges by numbers (Osterloh 2010). Since resources are provided in universities, decisions by professional managers who are only informed by flawed metrics will likely have negative effects for the innovative potential of invisible colleges. Individual rational strategies such as cherry picking (Lukka 2010), gap-spotting (Alvesson and Sandberg 2013), and mainstream research (Merchant 2010) potentially undermine truth-finding as the overall collective goal in academia.

As a consequence, actorhood of visible colleges is heavily contested by both the organizational logics of state intervention due to the diminishing influence of the state and the professional logics of invisible colleges due to the inaccuracy of management tools and their potentially negative effects on academic behavior. The management of visible colleges still cannot control financial resources autonomously since there are few alternatives to public funding – at least for most universities around the world (Engwall 2008). More often than not, struggles to introduce actorhood lead to a simultaneous deployment of clan, bureaucratic, and market modes of control, legitimizing different behaviors and mapping tensions and contradictions into the organization (Scott 2001). Invisible colleges are still based on professional logics but their members are now accountable to both, i.e. to the state and to the market (Salmi 2007).

3.1.3 Identity Conflicts

> *Of course I am looking for job alternatives. I often think: What else could I do if the demands of my organization are too much for me? And, of course, I start a little rebellion every now and then, when I see the opportunity to do so. (Scholar, 2015)*

The professional behavior of scholars is essentially controlled by scientific peers. The standards for adequate behavior and narratives about the logic of established academic practices are cultivated in scientific communities (van Maanen 2010). The scholarly profession provides a distinct ethos and "a certain set of understandings of what is appropriate and natural" (Alvesson 2000: 1105). Even though universities provide considerable autonomy for scholars to cultivate their professional identities, they are also constituted by a utilitarian value system that is characterized by political and economic rationalities. Due to the coexistence of these seemingly incompatible value systems, universities are characterized as multiple identity organizations (Foreman and Whetten 2002).

Membership in the academic profession is part of a scholar's social identity, i.e. that "part of an individual's self-concept which derives from knowledge of his or her membership in a social group (or groups) together with the value and emotional significance attached to that membership" (Tajfel 1978: 63). The social identity of an individual shapes attitudes and behaviors that are characteristic for the (multiple) groups it belongs to (Roccas and Brewer 2002). The relation between a scholar's professional identities and the identity of his or her organization, i.e. the current character of the organization, is an important antecedent in the constitution of organizational identification. Organizational identification is defined as "the degree to which a member defines himself or herself by the same attributes that he or she believes define the organization" (Dutton et al. 1994: 239). A strong organizational identification of scholars generates beneficial behaviors towards their visible college that can hardly be enforced through coercive mechanisms (Alvesson 2000). Among these are organizational commitment, citizenship behaviors, and, most important, the intention to stay in the organization (Alvesson and Willmott 2002; Johnson et al. 2006).

Organizational identification is constituted through an ongoing comparison between individual expectations about an ideal organizational identity and the perceived organizational identity (Dutton et al. 1994). Foreman and Whetten (2002) propose that organizational identification will diminish if the cognitive comparison between expectations about the ideal and the perceived organizational identity yields an "identity gap", i.e. the distance between the two is perceived as large. Identity gaps may become identity threats, if the characteristics of visible colleges are "indicating potential harm to the value, meanings, or enactment" (Petriglieri 2011: 641) of scholars' professional identities.

The relation between scholars' professional identities and the demands from visible colleges has been subject to many studies, most of which indicate an identity gap. Of course, professional and organizational identities may also be in line with each other, leading to a strong organizational identification of scholars (Colyvas and Powell 2007). For instance, an organizational identity evoked by bureaucratic logics

may converge with a scholar's professional identity if democratic participation facilitates professional self-governance. Market logics may converge with professional logics if managerial decisions are based on professional and not on economic value judgements.

Nonetheless, there is scant evidence for such an alignment. The professional-bureaucratic conflict model (Wallace 1995), for instance, relates to the cognitive and evaluative consequences of professional identities. It proposes an inherent potential of conflict between the values and goals of professions and organizations and regards professional self-control as diametrically opposed to bureaucratic control (Corwin 1961; Sorensen and Sorensen 1974). Demands of visible colleges are especially at odds with scholars' professional identities if the red tape of bureaucracy limits the possibility to pursue research activities that are fostered in a scholar's invisible college. In a similar way, current research suggests an exclusive orientation to either the academic profession or the market logic. Winter (2009), for example, asserts that an identity shift takes place from an autonomy-seeking "managed academic", whose actions are grounded in ideological beliefs, towards an "academic manager" who coordinates his or her subordinates in order to increase performance. As a result of the market logic, the norms of scholarship and inquiry are replaced by a new identity of "academic performers" promoting the "attitude of 'whatever it takes to get published'" (Gendron 2008: 104). The market logic in visible colleges especially conflicts with scholars' identities if the criteria used in output-controls enforce value judgements that are based on political goals and/or economic criteria. Scholars, for example, may have good reasons not to join the current political mainstream, which assumes that the expansion of higher education is always beneficial (Alvesson and Benner 2016). Thus, to use the number of graduates as a performance indicator might conflict with professional identities. The same applies to funding raised from industry collaborations, which is a valued criterion in universities of technology. Some invisible colleges, however, may not approve of an orientation towards the applied sciences. Yet, in times of austerity, scholars might have to revert to this practice in order to retain their employment. In this case, the market logic creates an intense conflict between professional and organizational identities (Weiherl and Frost 2016).

3.2 Balancing Tensions from Institutional Complexity

Innovation dilemmas, actorhood struggles, and identity conflicts emphasize the need for balancing the diverse and sometimes contradictory demands of professional and organizational logics at different levels (Greenwood et al. 2011). Institutional logics compete, demanding to accomplish both, exploration and exploitation, based on collective as well as on individually autonomous actions that protect professional self-identities and enhance organizational identification at the same time. Institutional theory has repeatedly and consistently shown that "decoupling" is a ubiquitous organizational response when environmental demands are in

conflict with organizational goals and operations (Meyer and Rowan 1977; Pache and Santos 2013a). Rather than bringing about substantial changes below the surface, organizations conform to normative expectations by displaying structures and practices which are socially defined as desirable and appropriate. Through these rituals and ceremonies, a gap is created and maintained between official policies and the actual operations of an organization. This does not exclude the possibility that operational practices change to some extent, but they significantly limit the extent of actual changes. Decoupling is thus not a substitute for but rather a complement to another strategy of coping with institutional complexity, i.e. "compromising" (Pache and Santos 2013a). When universities engage in this strategy, they partially adopt market logics but enact them in a modified and (somewhat) diluted form. Both decoupling and compromising are defensive strategies and try to avoid the more substantial changes intended by many contemporary policies. It is questionable as to whether they can achieve a sustainable balance between the different institutional logics and their implied modes of control. A third strategy of coping with institutional complexity is "combining" competing logics, in which organizations and individuals develop creative solutions for balancing tensions from different logics (Friedland and Alford 1991; Pache and Santos 2010, 2013a; Seo and Creed 2002).

3.2.1 Balancing Innovation Dilemmas Through Ambidexterity

Innovation dilemmas arise from a shift of emphasis from exploration to exploitation of academic knowledge, particularly through higher education and community services. This is not only a shift in priorities but also in the triggers of knowledge transfer (i.e. from supply-driven to demand-driven). The literature on organizational learning suggests that there are different ways of combining exploration and exploitation which may facilitate ambidexterity (i.e. the capability to both explore and exploit successfully). These approaches are not limited to the organizational level but may also achieve a balance across organizations in an ambidextrous system, such as an organizational field (March 1991). However, system-level ambidexterity may also emerge from organization-level ambidexterity if a field is composed of organizations each of which has explorative and exploitative capabilities. In this case, *contextual ambidexterity* is promoted because the single units of the system (i.e. organizations) are able to both explore and exploit and thus can vary between these modes depending on contextual requirements (Lavie et al. 2010). Many contemporary policies in higher education attempt to build this distributed kind of ambidexterity into national systems of innovation. For example, the differences between universities and polytechnics are increasingly levelled out, with universities becoming more exploitative and polytechnics more explorative. Some ways in which market logics invade universities and align them with demand-driven utility have been outlined above. The other way round, state-funded programs aim to facilitate research at polytechnics, and an increasing number of them have been authorized to grant doctoral degrees. Moreover, the master and bachelor degrees of

universities and polytechnics are legally equivalent once they are accredited. This balancing strategy aims to reconcile the creation and utilization of knowledge within the same organizations which, in turn, converge to an increasing extent.

One of the core lessons of research on organizational learning, however, is that exploitation tends to be self-reinforcing and then to trade off exploration (Levinthal and March 1993). This tendency makes a strong case for buffering the professional logics of knowledge creation from the market logics of knowledge utilization. When a system is in this way homogenous within its units but heterogeneous across them, exploration and exploitation are balanced through *structural ambidexterity* (Lavie et al. 2010). In this case, some universities or institutes are exclusively or primarily devoted to research in accordance with professional logics, while others follow market logics with a predominant focus on teaching or services. This creates tension between institutional logics because each organization gives priority to a specific logic. The balance is not achieved at the organizational but at the systems level through a portfolio of differently specialized organizations. Although never applied in a pure form, structural ambidexterity has long been built into many national systems of innovation. Historically, this balance can be traced back to the founding missions of modern universities which differed considerably in their foci on research, education or service (Graham 2013). With an increasing shift from structural to contextual ambidexterity, a de-differentiation between exploration and exploitation takes place at the organizational level. However, without a buffer between the creation and utilization of knowledge, there is high risk of unleashing exploitation at the expense of exploration due to the self-reinforcing tendency of exploitation.

3.2.2 Balancing Actorhood Struggles Through Hybridization

The struggle for organizational actorhood is a widespread phenomenon in pluralistic organizations. Denis et al. (2007: 182) found that "individual autonomy is often associated with collective paralysis, […] participative strategizing produces inflationary consensus, [and] diffuse power and divergent objectives produce dilution in strategic change initiatives." These conditions restrict the ability of visible colleges to act strategically and to implement comprehensive organizational change towards the market logic. Senge (1990: 88) asserts, "whenever there is 'resistance to change', you can count on there being one or more 'hidden' balancing processes." Indeed, recent studies on universities found different forms of balancing by hybridization that are caused by resistances against organizational actorhood of universities (Rivière et al. 2014). Such hybrid organizational responses aim to balance pluralistic demands of multiple logics by combining 'pure' responses that enact a single institutional logic. Coping with resistances, universities selectively enact and recombine existing elements, each prescribed by a different logic (Battilana and Lee 2014).

An ideal-type "professional bureaucracy" (Mintzberg 1980), for example, is a hybrid that balances professional and bureaucratic logics. Elements of both logics

are "selectively coupled" (Pache and Santos 2013b). The operative core of universities, i.e. autonomous scholars who are guided by the professional logics of their invisible colleges, is balanced by extensive support structures, i.e. administrative employees who are coordinated by bureaucratic logics of their visible college. The introduction of market logics to such a hybrid configuration, however, creates resistances that challenge the formation of universities as unified collective actors. However, collective action is a precondition for a university's effectiveness to acquire strategically important resources, such as competitive funding in coordinated programs that require multiple cooperating partners. Torn between preserving the stability a professional bureaucracy provides and the need to adjust to the market logic, visible colleges struggle for an adequate degree of organizational actorhood.

As a consequence, organizational change towards the market logic unfolds in dynamic sequences, oscillating back and forth between preservation and renewal, moving forward in interwoven cycles (Hattke et al. 2014). Professional dominance takes turns with bureaucratic and market-oriented forms of governance, which is reflected in complementary patterns in order to promote change (Blaschke et al. 2014). During this process, market-based elements are 'blended' into existing structures and processes (Rivière et al. 2014). For example, universities introduce pay-for-performance systems with performance criteria linked to professional value judgements of invisible colleges (e.g., number of peer-reviewed articles, funding granted based on peer-review). At the same time, visible colleges maintain a certain degree of public budget allocation and process control, preserving political influence and democratic participation. Such hybridization balances tensions by concurrently mapping contradictory prescriptions from different institutional logics into the organization design of visible colleges.

3.2.3 Balancing Identity Conflicts Through Identity Work

Scholars are exposed to conflicts between their multiple social identities and, mostly, possess an overall low degree of organizational identification. However, different social identities might also enhance each other or even integrate with one another, as recent studies indicate (for an overview, see Ramarajan 2014). The meaning of group-specific identity narratives and the value attached to them is responsive to features in the institutional context (Haslam and Turner 1992; Petriglieri 2011). This institutional context, in turn, is enacted and renewed in continuous interactions, constantly redefining social relations (Alvesson et al. 2008; Pache and Santos 2013a; Petriglieri 2011). Thus, the relationship between identities prescribed by organizational logics and scholars' perceptions "of who and what they are" (Lok 2010) is mediated by active responses to the dynamic institutional context (Snow and Anderson 1987). This mediation is called "identity work" and indicates a process of negotiating an optimal balance between the different identities (Kreiner et al. 2006). Thus, identity work can be seen as "the micro-level experience of institutional logics" (Meyer and Hammerschmid 2006).

Scholars may integrate contradictory professional and organizational demands by actively modifying their identity narratives without completely abandoning one or the other. Then, competing institutional demands that put tensions on scholars' professional identities may even enforce organizational identification (Kraatz and Block 2008). For example, Powell and Colyvas (2008) vividly demonstrate how meanings that scholars ascribed to their professional identity changed as they were increasingly exposed to entrepreneurial activities that previously conflicted with their professional norms and values. As a result of the changing institutional demands, the meaning of scholars' identities as university scientists transformed (Powell and Colyvas 2008). Maintaining a strong organizational identification, they reframed the value attached to certain identity narratives in order to integrate their identities. During this process, scholars also transform the logics of visible colleges through purposive actions that are "aimed at creating, maintaining and disrupting institutions" (Lawrence et al. 2010: 52). Several studies show how such purposive interactions may change institutional logics. Reay and Hinings (2009), for example, illustrated how physicians manage the coexistence of the professional logic and the demands of a business-like logic through the creation of new organizational structures at local levels. In her typology, Oliver (1991) proposed strategic responses to institutional pressures ranging from rather passive acquiescence strategies to more proactive responses like defiance and manipulation strategies that are intended to change institutional demands and expectations. If scholars are able to shape the visible college, via democratic participation for example, they may establish structures and processes that are consistent with their professional ethos and organizational identification increases.

4 Conclusion

This article detailed innovation dilemmas, actorhood struggles, and identity conflicts as consequences of institutional complexity that is caused by simultaneous deployment of different logics and modes of control in invisible and visible colleges. As we argued, organizations and individuals may respond to these tensions not only by decoupling or compromising, but also by combining the contradictory logics in creative ways, yielding ambidextrous higher education systems, promoting hybrid organizations, and stimulating individuals to engage in identity work. Our conceptual reasoning suggests that the degree of involvement in manipulating institutional logics increases on lower levels of analysis. On the field-level, innovation dilemmas are primarily balanced by separating strategies. On the organizational level, peer, process, and output control are blended in hybrid responses. On the micro-level, individuals actively engage in maintaining and adjusting their social identities in order to balance the tensions between professional and organizational identities. Future studies could address this phenomenon empirically and provide a micro-foundation of institutional theory in the context of higher education.

Further research also needs to focus on the interplay of professional and organizational logics on multiple levels of analysis and its consequences for the functioning of invisible colleges as a ubiquitous form of academic exchange. As we discussed, non-governance is caused by incommensurable combinations of different modes of control that might encourage individuals and organizations to exploit the ambiguities and contradictions in creative ways. But non-governance may also be dysfunctional, if clans, bureaucracies, and markets demand the pursuit of incompatible goals and, thereby, constrain capabilities for strategic actions. Visible colleges might hinder invisible colleges from evolving dynamically and autonomously, leading to paralysis and inertia. We need to understand this multitude of consequences for national systems of research and education, for universities, and individual scholars' behaviors in order to inform politicians and higher education managers on the effects of their reform agendas. This calls for a deeper integration of higher education research (on visible colleges) and science studies (on invisible colleges). Especially the effects of output controls and (bibliometric) measures on innovation strategies, collective action, and professional identities represent promising lines of future research.

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