# Exploring Knowledge Governance

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## *Abstract*

Knowledge governance is characterized as a distinctive research subject, the understanding of which cuts across diverse fields in management. In particular, it represents an intersection of knowledge management, strategic management, and theories of the firm. Knowledge governance considers how deployment of governance mechanisms influences knowledge processes: sharing, retaining, and creating knowledge. We survey the papers in this volume of the special issue, and discuss the remaining research challenges.

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# EXPLORING KNOWLEDGE GOVERNANCE

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## Abstract

*Knowledge governance* is characterized as a distinctive research subject, the understanding of which cuts across diverse fields in management. In particular, it represents an intersection of knowledge management, strategic management, and theories of the firm. Knowledge governance considers how deployment of governance mechanisms influences knowledge processes: sharing, retaining, and creating knowledge. We survey the papers in this volume of the special issue, and discuss the remaining research challenges.

## WHAT IS "KNOWLEDGE GOVERNANCE?"

Knowledge governance concerns how processes of knowledge use, creation, retention, integration, and sharing are influenced through the deployment of governance mechanisms.[1] As a *subject* of management research, knowledge governance considers the interplay between knowledge processes and organizational processes. It concerns such issues as the organization of knowledge work, how HRM practices influence knowledge sharing and creation, the deployment of governance mechanisms in strategic alliances to reach shared knowledge-related goals, the design of reward systems to foster knowledge sharing and creation, and the choice of organizational structure to support knowledge creation. Seen as a distinct *field* in management research, knowledge governance represents the coalescing of a number of parallel developments, such as the convergence of organizational economics (transaction cost economics, property rights, and agency theory) and the knowledge-based view in strategic management, as well as the emerging interface between knowledge management and perspectives from organization theory and organizational behaviour (Foss, 2007).

These developments have emerged from the recognition that organizational structure and mechanisms (within and between firms) have been underemphasized in the knowledge-based view in strategic management and the broader knowledge management approach, respectively, and need much more attention as a subject of research. Knowledge governance research suggests that managers explicitly design organizational structure and governance mechanisms, such as incentives, authority, and information systems to further knowledge-based goals, such as improved knowledge sharing internally or between firms in strategic alliances (e.g., Osterloh and Frey, 2000). Accordingly, knowledge governance research tends to emphasize a rational, design-oriented approach, and is often indebted to the economizing logic of, notably, transaction cost economics (e.g., Nickerson and Zenger, 2004). An attempt

[1] The notion of "knowledge governance" seems to have been first coined by Grandori (1997).

is made in the following to further characterize knowledge governance research in terms of what it tries to explain and how it does so. We then briefly survey and discuss the contributions to this volume of the special issue on knowledge governance, and conclude by briefly discussing some unresolved issues.

## CHARACTERIZING THE KNOWLEDGE GOVERNANCE FIELD

### Background: Gaps in "Knowledge-Based" Management Research

During the last two decades a "knowledge movement" that cuts across traditionally separate disciplines in business administration has emerged (Eisenhardt and Santos, 2003). The strategy field has witnessed: a proliferation of approaches that all place knowledge assets center-stage (Grant, 1996); network ideas emphasizing connections between knowledge nodes (Kogut, 2000); and, "knowledge management," which has become not only a huge body of literature, but also a widespread organizational practice (Easterby-Smith and Lyles, 2003; Spender, 1996). These contributions emphasize knowledge assets -- notably "capabilities" -- as the main cause of sustained superior performance, and shapers of economic organization, notably the boundaries of the firm (Kogut and Zander, 1992). In spite of the many important insights this work has yielded, it has some deep explanatory difficulties that need to be resolved.

A common problem in both the knowledge-based view in strategic management and in knowledge management more generally, is that little attention is given to organization, particularly formal organization. Thus, in the knowledge-based view the distribution of capabilities (or other collective level knowledge constructs) across firms are often seen as somehow directly causing performance differences, seemingly irrespective of organization (i.e., taking capabilities as independent variables) (for evidence, see Volberda, Foss, and Lyles, 2010). This is a problem because there are strong reasons to hold that organization and capabilities are surely strongly intertwined. It therefore makes little sense to consider capabilities irrespective of the formal and informal organization that shape a firm's productive capability. In other words, the links from capabilities to superior performance are mediated by organization, specifically by such means as the deployment of information systems, incentive schemes, and allocations of decision rights ("authority").

For example, the attempt to better utilize certain knowledge assets through knowledge sharing is typically implemented through various governance mechanisms. Responsibility for the operation may be delegated to a manager (allocation of decision rights), incentives for knowledge sharing may be set up, and monitoring mechanisms that make sure that knowledge is shared may be put into place. All of these mechanisms are costly, but surprisingly such costs are typically neglected in the knowledge-based research in management. Moreover, alternative mechanisms can be deployed to influence knowledge processes. However, the relevant alternatives are seldom confronted in modern knowledge-based management research. Transaction cost reasoning suggests that this blind spot in the research literature is partly because of the absence of an economizing logic grounded in individual maximizing logic.

A related problem has to do with taking capabilities as dependent variables. There is a tendency in the research literature to explain capability development in terms of prior related capabilities; for example, firm-level absorptive capacity at t+1 is explained in terms of absorptive capacity at time t. As Felin and Foss (2005) point out, however, this approach amounts to explaining an aggregate variable solely in terms of another aggregate variable, without incorporating in the explanation the role of individual and individual interaction, structured by organization. To the extent that organization does enter explanation in knowledge-based research, it is usually in an aggregate mode. For example, Brown and Duguid (1998) discuss the role of "communities of practice" for influencing knowledge management tasks, and focus on aggregate "alliance portfolio management capabilities."

Thus, we suggest that a number of explanatory problems beset knowledge-based research, notably a lack of attention to (particularly formal) organization and individuals and individual interaction; a predominant focus on aggregate levels and units of analysis (firm-level, capabilities); and no sustained attempt to systematically compare governance alternatives for knowledge processes in a discriminating manner.

**Precursors**

The call that knowledge governance research should examine the interplay between organizational and knowledge processes does not come entirely out of the blue: many have suggested that organization is responsive to knowledge and that in turn organization may shape knowledge. The information-processing emphasis in organization theory of the 1960s and 1970s illustrates the first causal relation, as does the point in the innovation management literature that role definition, team composition, and distribution of authority are responsive to the nature of the development effort. However, organization also shapes knowledge. As Loasby noted, an organizational structure "... not only determines where an organization's problems are worked on, but also helps to determine what problems they shall be, how they are defined, and what solutions will be attempted" (1976: 133). Thus, Clark and Fujimoto (1991) pointed out that building *integrating mechanisms*, such as stage-overlapping product development processes and embedding these organizationally would facilitate rich communications across departments. Other developments from the strategy and organization literatures may be mentioned, such as the recent proliferation of ideas on strategic alliances as vehicles for knowledge-building (Mowery, Oxley and Silverman, 1996), of high-performance HRM practices as driving innovation performance (Laursen and Foss, 2003), and on the "differentiated MNC" as a means of superior leverage of knowledge (Hedlund, 1994). These ideas all relate organization and knowledge issues on some level and to some extent. They are, however, very different and derived from different fields. It is not clear what unites them except a broad concern with how organizational and knowledge processes are intertwined.

**Knowledge Governance Ideas**

What we here characterize (or reconstruct) as a distinct emerging research stream is an attempt to go further and think about the intertwining of knowledge and organization in a more united and systematic way. A starting point is the convergence between organizational economics and the knowledge-based view in strategic management (Grandori, 2001; Foss, 2003; Nickerson and Zenger, 2004). Here are some themes that we see within knowledge governance research, and which characterize most of the contributions to this special issue.

***Examining the "deep structure" of knowledge processes:*** A decade ago, Argote and Ingram lamented that to the extent that there has been progress in studying knowledge as the basis of competitive advantage, "… it has been at the level of identifying consistencies in organizations' knowledge development paths and almost never at the level of human interactions that are the primary source of knowledge and knowledge transfer" (2000: 156). However, increasingly research has begun to examine individuals' motivations to use, share, build, and integrate knowledge considering how their behaviour and interaction in knowledge processes are shaped by, for example, where exactly they are placed in knowledge-sharing networks (Rothaermel and Hess, 2007). One may see the emphasis on such "micro-foundations" (Felin and Foss, 2005; Teece, 2007) as an attempt to meet the lacunae left in the knowledge movement by the overriding emphasis on collective constructs. However, it is characteristic that the main emphasis has been on informal organization, typically examined through network constructs.

***Alternative units of analysis:*** Knowledge-based research has typically focused on rather aggregate units of analysis, such as routines (Nelson and Winter, 1982), (dynamic) capabilities (Teece, Pisano and Shuen, 1997). Often such constructs are claimed to be somehow hierarchically arranged, “meta-routines” (at various levels) influencing “routines” (Winter, 2003). It is seldom clear how such constructs are related to individual behavior, not to mention individual motivation, preferences, and expectations. In contrast, knowledge governance research tends to relate knowledge-related units of analysis directly to choice behaviour. Thus, Heimann and Nickerson (2002) recommend focusing on the knowledge transaction, and Nickerson and Zenger (2004) take the “problem” as their unit of analysis. While there may be strong reasons to remain agnostic on the precise nature of the unit of analysis (because this depends on what is the purpose of the analysis), there are strong reasons to counsel that the unit of analysis be related to individual choice behavior.

***Dimensionalizing the unit of analysis***: So far knowledge-based management research has not identified generally-accepted dimensions for a unit of analysis (compare, e.g., transaction cost economics, Williamson, 1996). Winter (1987) may come closest with its distinctions between tacitness vs. explicitness, system-quality vs. stand-alone, teachability vs. non-teachability, and complexity vs. non-complexity. These distinctions have been the basis for substantial subsequent empirical work (e.g., Birkinshaw, Nobel and Ridderstråle, 2002; Kogut and Zander 1993).

***Transactional problems:*** Given a characterization and dimensionalization of the unit of analysis in terms of knowledge, the scene is set for an examination of the transactional problems that knowledge produces. Knowledge processes have a number of salient features that are particularly challenging such as: (i) the significant elements of “team production” (Alchian and Demsetz 1972; Lindenberg 2003) that make it difficult to measure the marginal product of each participant in the processes of creating and sharing knowledge; (ii) difficulties of ascertaining the outcome; (iii) problems of asymmetric information, which are particularly severe because much of the relevant knowledge is tacit so that it may be particularly challenging to design mechanisms for eliciting such knowledge; and (iv) detailed contingent plans for knowledge processes may be extremely costly to draft.

***Knowledge governance:*** As a practical and normative enterprise, knowledge governance means deploying mechanisms that mitigate costs of creating and sharing knowledge owing to the above characteristics of knowledge (Heiman and Nickerson 2002). Knowledge governance thus means choosing governance structures (e.g., markets, hybrids, hierarchies) and governance and coordination mechanisms (e.g., contracts, directives, reward schemes, incentives, trust, management styles, and organizational culture), so as to maximize the net benefits from processes of transferring, sharing, and creating knowledge. Governance structures and governance mechanisms are important because they define the incentives and coordinate the actions of organizational members in knowledge processes.

## THE PAPERS IN THIS ISSUE

The first paper by Bo Nielsen links knowledge management processes to the effective management of strategic alliances. A focus is placed on the *interaction* between firm-specific factors and task-related knowledge management processes during the exploitative- and the explorative- phases of a strategic alliance relationship. The proposed model considers knowledge: (a) perception; (b) development; (c) absorption; and (d) utilization, for explaining strategic alliance formation, exchange-partner selection, governance, and alliance performance.

The next paper by Mellewigt and Das examines empirically how firm resources influence governance structure choices in strategic alliances. Results within the context of the German telecommunications industry indicate that governance structure choices are influenced by knowledge based resources. Empirical evidence corroborates that exchange-partner firms use equity as an economic safeguard for their knowledge-based resources in order to attenuate opportunistic behavior and unintended transfer of these resources. This empirical study of strategic alliances suggests the need for more empirical work on knowledge governance that joins the resource- (and knowledge-) based view with transaction costs theory on governance structures.

The third paper by Heimeriks also examines empirically strategic alliances and finds that micro-level learning mechanisms contribute to successful alliance portfolios. In particular, using data from 192 companies worldwide, which reported over 3,400 strategic alliances, this study finds that the learning that takes place in prior strategic alliances can be leveraged across a firm's entire alliance portfolio. Furthermore, *integrating mechanisms* (e.g., training, diffusion of best practices), which enable shared understanding that facilitates coherent practices within a group, are shown to significantly improve the performance of the alliance portfolio. These empirical results provide important insights on knowledge governance that enhances strategic alliance capabilities and alliance portfolio performance.

The following paper by Frost and Morner provides a framework in which governance mechanisms are developed and evaluated according to public-good characteristics of knowledge resources (i.e., non-rivalry and non-excludability). Three knowledge dilemmas are identified: (a) pure public resources -- characterized by both non-excludability and non-rivalry in consumption; (b) pool resources -- which are rival in consumption, but non-excludable; and (c) withheld resources – characterized by excludability and a low degree of rival consumption. Overcoming these three different knowledge dilemmas calls for procedural-based and self-organizing knowledge governance, which can channel individual interests of firm members and business units, and can positively influence processes of creating, sharing, and utilizing know-ledge. A case study of a large European corporate group in the service and telecommunication industry is used to illustrate the developed knowledge governance framework. Two key action-oriented variables identified are: (i) the building of mutual understanding (cognitive proximity); and (ii) integrative negotiated agreements among heterogeneous interests (procedural adherence).

The next paper by Minbaeva and Pedersen maintains that the knowledge governance approach needs to build micro-foundations that are grounded in individual actions. Individual knowledge-sharing behavior is explained by attitudes toward knowledge sharing, subjective norms, and perceived behavioral control. Governance mechanisms are examined that can influence knowledge-sharing behavior. In particular, LISREL analysis indicates that the use of rewards negatively affects attitudes toward knowledge sharing, while the use of reciprocal schemes and communication mechanisms have a positive effect on subjective norms and perceived behavioral control.

The final paper of this volume by Martynov and Zhao maintains that knowledge creation and sharing is the key mediating process between human resource practice and firm performance. This paper examines how various aspects of high-performance work practices influence intrinsic and extrinsic motivation for knowledge creation. Specifically, the use of work teams, job rotation, employee empowerment and continuous training leads to higher levels of knowledge creation due to better coordination of the process. Further, the use of job rotation, work teams, and employee empowerment, leads to increased intrinsic motivation to create knowledge, the use of compensation contingent on firm performance and job security lead to increased extrinsic motivation to create knowledge.

## CONCLUDING THOUGHTS

Viewed as a subject in management research, knowledge governance has a long history. Thus, the information-processing perspective in organization of the 1960s and early 1970s emphasized the link between organizational structure variables and information-processing (Kmetz 1998), and most theory of the multinational corporation is predicated on the (supposedly) superior knowledge management capabilities of this particular organizational form (Hedlund 1994). However, management research has only recently and incrementally moved to a conceptualization of knowledge governance as a distinct research subject that cuts across a number of diverse fields in management, and which may even warrant its own specialized field of research.

The purpose of this special issue is to showcase a number of exemplars of knowledge governance research. The papers all grapple successfully with different aspects of knowledge governance understood as an important subject of management research, notably in the context of strategic alliances (Nielsen; Mellewigt and Das; Heimeriks), intra-firm knowledge processes (Frost and Morner) and knowledge sharing (Minbaeva and Pedersen; Martynov and Zhao). Collectively, they also fill a number of theoretical lacunae in extant management research as well as in the emerging knowledge governance field. For example, in their excellent paper, Morner and Frost take important steps toward *dimensionalizing knowledge* in terms of public good theory and linking knowledge characteristics systematically to the choice of governance mechanisms. Minbaeva and Pedersen significantly add to our understanding of the *microfoundations* of knowledge governance, and Martynov and Zhao build a sophisticated *multi-level* argument, showing how knowledge processes mediate between HRM practices and firm performance. The three strategic alliance papers (Nielsen; Mellewigt and Das; Heimeriks) provide an identification of the governance mechanisms that are relevant in the context of managing knowledge processes in the context of this specific governance structure.

Although these papers collectively make significant strides forward with respect to addressing key knowledge governance issues, many issues remain open. For example, we have just begun to uncover the complex multilevel issues in knowledge governance, and much remains to be done here with respect to understanding the nature of the moderating and mediating influences of governance mechanisms as well as how knowledge related behaviours add up to organizational outcomes. That being said, the level of individuals is deserving of more sustained inquiry. Motivational psychology, particularly self-determination theory (Deci and Ryan, 1985), has proved extremely useful in both theoretical and empirical work dealing with knowledge-related behaviors (Cabrera, Collins and Salgado, 2006). Improved foundations for knowledge governance may well imply the need for greater attention to the organizational behaviour literature in terms of relying more on psychology-based research examining micro issues concerning motivations for knowledge-related behaviours (Epple, Argote & Murphy, 1996). Still, most such work is uni-level, and accordingly does not systematically consider how, for example, autonomous behavior may be called forth, guided in certain directions rather than others, by the deployment of certain kinds of HR policies, and the exercise of certain management styles. These issues clearly call for multi-level research Thus, while ultimately there are strong philosophical reasons for beginning analysis at the micro-level (Felin & Foss, 2005), knowledge governance must show novel consequences for aggregate phenomena. In fact, in this way, knowledge governance may emerge as an important part of those management fields, such as strategic management and international business, which locate most of their explanatory interest at the firm level.

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