Chapter 3
Knowledge Transfer in or Through Clusters: Outline of a Situated Approach

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1 Introduction

Clusters usually assume a dynamic of innovation at the crossroad between proximity and distance. On the one hand, proximity triggers trust and a sense of common understanding between members that allow for the transfer of knowledge, especially its tacit components. But, at the same time, the innovativeness of the cluster also depends on distance: participants from different organizations with different skills, objectives, and interests interact in a joint network. It creates a complex context for knowledge sharing, full of creative tensions and power issues.

While insights from economic clusters (Porter 1998) or National (Lundvall 1992; Nelson 1993) and Regional Innovation Systems (Cooke et al. 1998; Asheim 2003) allow grasping the rationale behind the promotion of the innovation clusters, an important gap subsists in the understanding of the learning processes that are triggered, especially their political dimension. To make sure that such relationships keep their promises, it is important to understand what kinds of learning mechanisms are at stake and how partners ensure that the newly created knowledge is of interest for their parent organizations or themselves.

Nevertheless, power issues and their impact on knowledge transfers have not been studied yet in the context of innovation clusters. One potential reason is the scarce use of frameworks that adequately manipulate such research objects. The goal of this chapter is therefore to outline a research approach for studying interorganizational knowledge transfers in clusters as a situated, political process.

Especially, I use the Structuration Theory developed by Anthony Giddens (1984) as a conceptual framework for conducting a situated approach. Theoretical and methodological implications are discussed and illustrated with examples from

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in-depth longitudinal case studies. The cases are university–industry (U–I) R&D projects launched in the context of the Competitiveness Clusters of Wallonia, the French-speaking part of Belgium. They were conducted from June 2007 to August 2010 as part of my doctoral work (Hermans 2011). Drawing on them, I explore how power interactions shape the processes of knowledge creation and exchange between partners. The empirical material comprises data collected through semi-structured interviews, documentation, and observation. Events of power exercise—which I call "critical events"—and subsequent impact on knowledge transfers were observed during plenary meetings, recalled by respondents through interviews and codified by the project managers in the minutes of the plenary meetings.

The chapter is structured as follows. After the introduction, Sect. 2 briefly reviews the traditional approaches for the study of knowledge transfer. It also highlights a specific weakness in extant research as it fails to address interorganizational knowledge transfer as a political process. Then, Sect. 3 presents the outline of a situated approach by asking three basic questions:

What are the research objects of interest when exploring knowledge transfers through a situated approach?
Which conceptual and methodological tools are deemed appropriate?
Why study knowledge transfer in innovation clusters through a situated approach?
    Or said otherwise: who are the stakeholders of such studies?

I then conclude the chapter by presenting the key takeaways and challenges when adopting a situated approach. Going beyond its limitations, I also present implications for further research.

2 Towards a Situated Approach

2.1 Challenges in Clusters

In the last decade, the regional clusters gained worldwide popularity. More and more regional economic plans are shaped under its precepts (Ketels 2004), like the knowledge clusters in the Basque Country or the French "*Pôles de Compétitivité*". This trend is supported by strong theoretical arguments, notably the development of knowledge transfer and innovation though spatial agglomeration and collaborative linkages (Sydow et al. 2011; Boschma 2005), as well as by evidence of positive effects from success stories such as the Cambridge area and the Silicon Valley.

Regional clusters usually assume a dynamic of innovation at the crossroad between proximity and distance. On the one hand, spatial agglomeration as well as institutional (Ponds et al. 2007) or cognitive (Maskell 2001; Andersen 2006) proximity trigger trust and a sense of common understanding between members. The network configuration eventually leads to spillovers from local universities (Jaffe 1989; Varga 2002), the transfer of tacit knowledge (Audretsch and Feldman 1996), and the reduction of transaction costs between the participants of the cluster

(Lorenzen and Foss 2003), sometimes at the expense of external relationships (Maskell 2001). On the other hand, benefits also arise from the distance between the participants: by facilitating interactions between organizations with complementary skills or from different disciplines and economic sectors, the clusters create the diversity that preclude creativity and innovation both at the organizational level (Nooteboom 1994; Katz and Martin 1997) and the project level (Gibson and Vermeulen 2003; Edmondson and Nembhard 2009; Van der Vegt et al. 2010).

Nevertheless, the effects of such policies in terms of knowledge transfers are not straightforward. Too much proximity might trigger a lock-in in collaborative behaviors, with a lack of openness and flexibility (Boschma 2005). Besides, managing diversity in R&D collaborations is also one of its biggest challenges (Edmondson and Nembhard 2009).

Box 1: The Competitiveness Clusters of Wallonia

In this chapter, we focus on a clustering initiative that explicitly promotes the concurrent use of proximity and distance: the Competitiveness Clusters of Wallonia.

This policy was launched by the Walloon Government in 2005. The emergence process of the Competitiveness Clusters combines a technocratic selection with a bottom-up approach: first, the number of clusters as well as their area of focus were a priori defined by local authorities on the basis of the work of Professor Henri Capron from the Free University of Brussels (ULB); then, the government of the Walloon Region opened a call for proposal and let the involved actors build their cluster with a limited set of guidelines (see Hermans et al. 2012).

The Walloon Region defines the Competitiveness Cluster (Bayenet and Capron 2007) as the combination on a given territory of companies, training centers, and research units which (1) experience critical mass that allows for international visibility and (2) engage in partnerships to create synergies around innovative joint R&D projects. Indeed, this policy provides the newly created clusters with a budget specifically dedicated to the conduct of collaborative projects. As argued by Bayenet and Capron (2007), the Competitiveness Clusters distinguish themselves from other innovation networks by materializing their potential partnerships into concrete innovative projects. Those projects involve both research actors and industrial partners with the goal of either targeting "the concrete realization of industrial applications within 3 years, or the building of a prospective vision about a given theme as a way to ensure the competitiveness of the industrial members of the cluster" (Gouvernement Wallon 2005).

In those clusters, public funding is therefore dedicated to the conduct of joint R&D projects that stimulate the interconnection of local—but distinct—actors, with a balanced—and mandatory—involvement of universities, SMEs, and big firms. Following its rationale, interorganizational knowledge transfer should ensue and innovation should flourish.

In the clusters such as the Competitiveness Clusters of Wallonia, partners from different organizations, with different rules, skills, and objectives, must sit together and define a shared R&D challenge. Then, they have to share resources to reach personal and aligned goals. In other words, partners must be convinced to work together in the cluster, and, as a consequence, power and politics become critical issues (Phillips et al. 2000). In this light, taking into account the social embeddedness of knowledge transfer, especially its political dimension, appears as a central challenge when studying clusters. This is particularly true inside publicly promoted clusters where partners are driven by diverging goals and interests but nevertheless cooperate in order to access the promised subsidies.

2.2 Traditional Approaches and Limitation

Influenced by mainstream economics (Nooteboom 2000), U–I knowledge transfer has been mainly studied as a one-way flow of basic and mostly public knowledge (Etzkowitz et al. 1998) from research institutions to firms. A quantitative approach has been generally used to understand and measure such flows, for instance, by focusing on publications and patent citations as sophisticated spillover indicators (Breznitz and Feldman 2012). By providing evidence of spatial effects, studies like Jaffe (1989) or Audretsch and Feldman (1996) have been crucial for our understanding of the role of tacit exchange in U–I knowledge transfer, but this literature fails to uncover the specific sharing processes at stake in specific relationships such as the ones that prevail in clusters and R&D cooperations. In fact, the way by which tacit and codified knowledge is exchanged between partners is still relatively unknown (Agrawal 2001). Moreover, it does not fully account for the social embeddedness that is assumed in regional clusters: the need to ensure a shared understanding and to bridge cognitive distances.

The knowledge-based view (i.e., Kogut and Zander 1992, 1996; Nonaka and Takeuchi 1995; Spender 1996; Nahapiet and Ghoshal 1998; Cook and Brown 1999) of the firm (KBV) is a perspective that arose in opposition with mainstream economic theories and which proposes "that a firm be understood as a social community specializing in the speed and efficiency in the creation and transfer of knowledge" (Kogut and Zander 1996, p. 503). Like the resource-based view (RBV), the KBV of the firm supposes that organizations should develop resources that are "valuable, rare, imperfectly imitable, not substitutable" (Barney 2001) in order to sustain competitive advantage. But KBV diverges from RBV on two main issues. The first one is about the type of resources under study. KBV considers knowledge-based resources as the most important assets for the firm (Grant 1996). Assets such as industrial secrets, talented employees, and absorptive capacity (Cohen and Levinthal 1990) are therefore at the heart of competitive advantage. The second divergence is about the role of managers which shifts from the actual management of resources to the management of the context of their use (Nahapiet and Ghoshal 1998). Managers are now supervising the contexts that favor

interactions between knowledge creators (Spender 1996; Nonaka et al. 2000; Reinhardt et al. 2001).

In this way, a KBV approach recognizes that knowledge is not a public good produced outside the economic system, as could have been argued by mainstream economics (Boschma 2005). It rather focuses on its social embeddedness (von Krogh and Roos 1996), using the underlying concept of social capital and structures to explain the creation and sharing of organizational knowledge in context (e.g., Nahapiet and Ghoshal 1998). In other words, it builds on "a pluralistic understanding of knowledge, and a view of organizations as complex adaptive systems, where meaning is socially constructed through ongoing activities of semi-autonomous groups" (Carland et al. 1996, p. 161).

From this perspective, the social interactions amongst cluster participants lead to the transfer of knowledge by building on the "informal norms of trust and reciprocity, in short, the social capital that is required so that companies, intermediate organizations and public agencies be capable of self-organizing around a process of interactive learning" (Cooke and Morgan, 1998, p. 23) (Diez 2001, p. 909). In other words, regional clusters are a source of competitive advantage for both the laboratory and the firm. Indeed, one important advantage of KBV for the study of regional cluster lies in its common definition of academic laboratories, research institutions, and companies as knowledge-creating entities.

Nevertheless, KBV has an important weakness considering the context of clusters. This perspective frames specific hypothesis about the nature of an organization as well as about the people in it: as argued by Spender, "organizations learn and have knowledge only to the extent that their members are **malleable beings** whose sense of self is influenced by the organization's evolving social identity' and thus learning is **primarily** internalized from the social context" (1996, p. 53, emphasis added by Felin and Foss 2005, p. 443). As a consequence, the KBV poses that individuals will mobilize their talent in a way that contributes to collective goals, taking for granted the alignment of interests between people and the collectivity to which they belong. By doing so, it eludes the political processes behind knowledge exchanges in organizations, processes that are nevertheless highlighted by the underlying sociological references (e.g. Giddens 1984; Bourdieu 1986; Coleman 1990).

In the context of regional clusters, the intertwining of multiple organizations, institutions, or even "societal spheres" (Giddens 1984; Sydow et al. 2011) undermines the hypothesis of aligned interests between participants. The hypothesis is particularly difficult to hold in the case of publicly promoted clusters such as the Competitiveness Clusters when subsidies are an important driver of the network. Indeed, the joint R&D collaborations are expected to advance the objectives and strategies of the parent organizations (Luukkonen 1998), but what happens when such objectives and strategies are per nature diverging, like in the case of universities and firms (Dasgupta and David 1994)? In such a context, knowledge transfer is better understood as a continuous political process: knowledge transfer is better thought in terms of the strategies that partners can deploy to

shape the opportunities for knowledge creation and to make sure that it is a source of value for their organization or even themselves.

However, apart from rare exceptions like Easterby-Smith et al. (2008) or Lawrence et al. (2005), the combination of knowledge and power is still eschewed by researchers in innovation studies. So far, traditional approaches, from both economics and the KBV of the firm, fail to provide the tools to explore such dimensions. This chapter addresses this gap and proposes a situated approach that accounts for the socially embedded nature of knowledge transfer in or through clusters without eluding its political dimension.

3   Knowledge Transfer Through a Situated Approach

3.1   Research Objects in a Situated Approach

In the previous section, I plead for a study of regional clusters that recognizes interorganizational knowledge transfers as a situated, political process. Such an approach builds on three basic pillars:

1. The study of actions (Nooteboom 2000; Anderson 2003) and its context (Suchman 2007) to understand subsequent knowledge transfer.
2. The distinction between knowledge creation and sharing as complementary facets of knowledge transfer. As a matter of fact, researchers interested in interfirm learning and knowledge transfer (Jiang and Li 2009) call for an exploration of both processes (Lubatkin et al. 2001) as their distinctive and combined effects are still to be explored.
3. The recognition that interorganizational knowledge transfer is not a one-way flow but rather a process that eventually affects each partner. Supported by empirical evidence (Harmon et al. 1997) as well as theoretical arguments (Meyer-Krahmer and Schmoch 1998) concerning university–industry interactions, I align with the interactive approach proposed by Santoro and Saparito (Santoro and Saparito 2003), a perspective that has gain more attention since the work of Ring and Van de Ven (1992, 1994) on interfirm cooperation.

Behind those assumptions lies a view of knowledge transfer as a situated activity, suggesting that "thinking beings ought therefore be considered first and foremost as acting beings" (Anderson 2003, p. 91). Knowledge transfer happens because people work together; partners jointly define and carry out experiments in order to solve a common R&D challenge. Such a view acknowledges the socially embedded nature of knowledge production (von Krogh and Roos 1996; Bozeman 2000; Dietz and Bozeman 2005) and innovations (Alter 2000; Baba and Walsh 2010) in clusters. It also allows incorporating social factors such as organizational politics (and interorganizational politics) when exploring the learning processes

experienced by the partners. These components therefore form the keystone of a situated approach of interorganizational knowledge transfer.

As a result, a situated approach shapes the research questions that are deemed appropriate when studying clusters as well as the way researchers answer them. Specifically, it advocates for a threefold shift from extant studies:

– A shift from the **knowledge flow to the knowledge interaction** as the main research object
– A shift from **instrumental factors to political factors** to understand learning processes
– A shift from the **(inter)collective level to the interpersonal level** (Grabher and Ibert 2006) as the main level of analysis, especially when organizations, groups, and networks are intertwined within a given cluster

In this way, individuals are seen as self-interested actors whose personal interest might align with organizational and interorganizational goals. It allows considering the multiplicity of logics and loyalties that influence their behavior (Grabher and Ibert 2006) as they create and share knowledge inside the cluster.

Box 2: Case Definition in a Situated Approach

In Hermans (2011), two related research questions are explored:

(1) How does the nature of the R&D project (from exploratory R&D to exploitative R&D) influence knowledge transfer between partners?
(2) How does power exercise between partners influence value creation for the parent organizations in terms of knowledge transfer?

In order to answer them, multiple case studies were conducted. The chosen unit of analysis, which defines both the case and its boundaries, is the "collaborative research": the "exchange relationships in formal research projects undertaken by university researchers and other research partners" (Landry and Amara 1998).

As informed by a situated approach, this unit of analysis is an emergent construct which focuses on actual interactions: it takes the formal project as a starting point for the selection of the case(s), but it may take distance from its official definition and boundaries. Indeed, it focuses on individual partners who actually engage in exchange relationships and continue to jointly conduct the R&D activities throughout the project (Debackere and Veugelers 2005). As expressed by Katz and Martin, "exactly where that border (of the collaboration) is drawn is a matter of social convention and is open to negotiation" (1997). As a result, I use a strategy of self-reported collaboration to draw the relevant borders. This strategy is proposed by Bozeman and Corley (2004) and permits the respondent to determine which exchange relationships are part of the collaborative research.

(continued)

As an example, the case studied to answer the second research question is a collaborative research named **Axis-1**. Axis-1 is a subpart of MEGAPROJ-ECT, an ambitious project that is part of the first call for projects of the Competitiveness Clusters. MEGAPROJECT is best described as a portfolio of subprojects (see Fig. 3.1). These subprojects, or SP, are characterized by various levels of technological maturity: some SP explore technologies and products that are new for the partners or even for the whole industry while other SP focus their efforts on the enhancement of existing products or production processes. Axis-1 for instance was designed as an exploitative research: deliverables were supposed to be realized in industrial settings and the focus was on finding the "right design" rather than on producing new scientific (and publishable) knowledge.

Axis-1 is itself composed of two subprojects. They both have specific legal agreements, resources, and deadlines, but the majority of partners work on both sides and consider Axis-1 as one collaborative research. As expressed by a project manager: "Axis-1 is composed of two projects that are considered as two dimensions of the same project (...) Axis-1 is quite specific; its two internal projects have a lot of similarities and are treated in common for more interactions."

Indeed, the "real partners" are the people that sit "around the table." As expressed by a junior researcher: "When I say 'partners', I mean (undisclosed names), all those people; the people who are really... the people we are working with."

By contrast, members of MEGAPROJECT from other SP are not automatically included as partners; Axis-1 is conducted independently from MEGA-PROJECT with only punctual interactions with those other partners.

3.2   Research Tools in a Situated Approach

3.2.1   Conceptual Framework

The Structuration Theory in Context

The exploration of knowledge transfers as a situated activity requires a theoretical framework that accounts for its social embeddedness as well as for the process of interest alignment between the individuals that participate in the cluster. In Sect. 2, I present the KBV as a promising framework but it also shows that the knowledge-based streams fall short to account for the political dimension. Because the KBV is defined by its seminal authors as a sociologically informed perspective on management (Nahapiet and Ghoshal 1998), I turn to the social theories that are used to build its foundations. In this chapter, I therefore propose the Structuration Theory developed by Anthony Giddens (1984) as an interesting alternative.
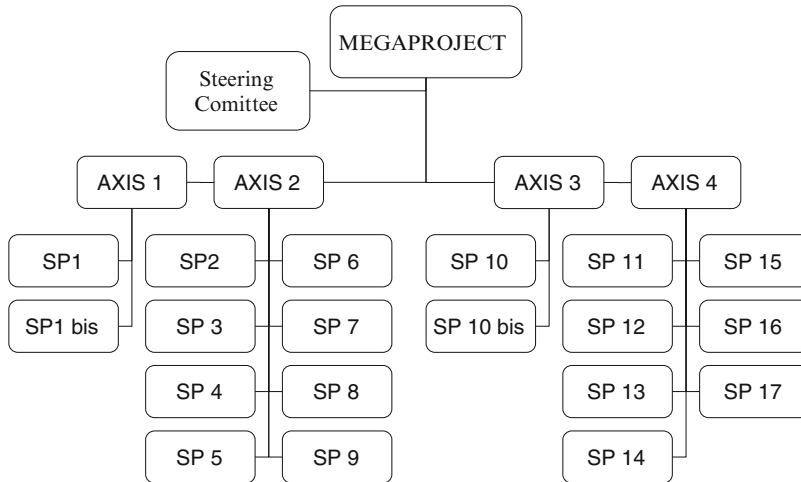
Fig. 3.1 MEGAPROJECT as a portfolio of projects

Like in KBV, Giddens distinguishes between two types of knowledge: discursive knowledge and practical consciousness, "all things which actors know tacitly about how to 'go on' in the contexts of social life without being able to give them discursive expression." But, unlike them, the Structuration Theory links the "knowledgeability" of individuals to a missing concept in organizational learning (Easterby-Smith et al. 2000): **power**, the ability of one individual to accomplish things that depend on others (Chazel 1983, Giddens 1984). Like in KBV streams, the Structuration Theory considers the organization as a social community (Kogut and Zander 1996; Nahapiet and Ghoshal 1998), but it refocuses our attention on the fact that there are sociopolitical systems (Child 1997). Therefore, the Structuration Theory goes beyond the weaknesses of the KBV and provides researchers with a powerful paradigm to understand knowledge exchanges in cooperative contexts (Orlikowski 1992, 2002).

Another central asset of the Structuration Theory in the context of clusters is its account for the multiple institutional contexts that are at hand. This is coherent with the existing models of innovation which intend to explain "the current research system in its social contexts" (Etzkowitz and Leydesdorff 2000): the Triple Helix model (Etzkowitz and Leydesdorff 2000), the "mode II" of research production (Gibbons 1994), and the National (Freeman 1992; Lundvall 1992; Nelson 1993) and Regional (Cooke et al. 1998; Asheim 2003) Innovation Systems.

While recognizing the influence of the institutional sphere on U–I knowledge transfer, the Structuration Theory goes beyond "the institutionalists' self-confessed tendency to determinism" (Whittington 1992) by considering the competences of individuals who draw upon institutional resources and thereby (re)produce them. By doing so, it contributes to existing models such as the Triple Helix whose founding father recently advocated for "a turn towards reflexivity in sociology in order to obtain a richer understanding of how the overlay of communications in university-

industry-government relations reshapes the systems of innovations that are currently subjects of debate, policy-making, and scientific study" (Leydesdorff 2005).

The Structuration Process

In accordance with a situated approach, Giddens defines a social system as a set of relationships that only exists in and through the continuity of social practices (Giddens 1984). The Structuration Theory therefore focuses on the structuration process of social systems: "the structuring of social relations across time and space, in virtue of the duality of structure" (Giddens 1984). In other words, this framework describes how social systems—for instance the clusters—are structured through the interactions of individuals—academic researchers and companies' employees—who are "knowledgeable," reflexive, and apply adequate rules and resources to interact.

The set of rules and resources that individuals draw upon, constraining and at the same time enabling their actions, is what Giddens calls "structures." As expressed by Orlikowski (2000):

> Giddens (1979, 1984) proposed the notion of structure (or structural properties of social systems) as the set of enacted rules and resources that mediate social action through three dimensions or modalities: **facilities, norms, and interpretive schemes**. In social life, actors do not enact structures in a vacuum. In their recurrent social practices, they draw on their (tacit and explicit) knowledge of their prior action and the situation at hand, the facilities available to them (e.g., land, buildings, technology), and the norms that inform their ongoing practices, and in this way, apply such **knowledge, facilities, and habits** of the mind and body to "structure" their current action. In doing so, they recursively instantiate and thus reconstitute the rules and resources that structure their social action.

Through the duality of structures, individuals bring meanings to a given context, focus on the adequate resources, and are able to act. But they are also constrained by the structures: they provide the conditions for actions, **they define what members of a given system believe is possible and the panel of actions they can choose from to reach their goals**.

Overlapping Structures in Clusters

While Giddens' work does not focus on the organizational context, it has been presented as a powerful framework to explore organizations and networks (Phillips et al. 2000; Lawrence et al. 2002; Sydow and Windeler 1998; Pozzebon and Pinsonneault 2005; Pozzebon 2004), especially in the case of plural and overlapping systems (Whittington 1992). Indeed, the Structuration Theory inspires the study of various economic phenomena and dedicated systems: the management and evaluation of interfirm networks (Sydow and Windeler 1998), knowledge management in distributed organizations (Orlikowski 2002), knowledge creation

through consulting relationships (Hargadon and Fanelli 2002), or more recently leadership in clusters (Sydow et al. 2011).

In Hargadon and Fanelli (2002) for instance, the authors highlight the interest of overlapping networks for knowledge creation. They show how consulting firms specialized in new product development interact with their clients to produce new innovative products: **the consulting firms provide the clients with new solutions that were not seen as *possible* by the clients while the clients provide the consulting firm with the empirical field to enact them in action**. While the clients might be trapped in their own organizational routines, the relationship with a consulting firm brings an overlapping of networks and opens the set of possibilities for new knowledge creation. Orlikowski (2000, p. 412) explains that phenomenon in the following terms: "by enacting various interpenetrating (and perhaps even contradictory) structures, actors experience a range of rules and resources that may generate knowledge of different structure and awareness of the possibilities for structural change" (Sewell 1992; Tenkasi and Boland 1993).

Such a recursive process between new possibilities and actions can be witnessed in the context of regional clusters: *in* the cluster as partners contribute to common goals in the context of joint projects or *through* the clusters as they bring back knowledge to their parent organization. Through the overlapping of structures, clusters should create value for the parent organizations: they should allow for the possibility "to act otherwise" (Giddens 1984) in which "lies the potential for innovation, learning and change" (Orlikowski 2000).

Power in the Structuration Process

Knowledge creation in regional clusters should be stimulated by the overlapping of structures. Academic laboratories as well as companies provide their partners with solutions that were not seen as "possible" before the collaboration. **But the transposition of rules from one context to another, especially when the context is still emerging, is not neutral**. The overlapping is constructed through interactions between individuals with diverging interests and asymmetrical access to resources: the facilities that partners have access to enable them to shape the project, its borders, its participants, and its relevant rules. By doing so, partners exercise power and reproduce resources as structures of domination.

Partners have to agree about a "problem" and ways to answer it within the cooperation. The definitions of the problem and its solution are an important stake; they compete to shape it, enrolling allies to their cause even if those allies come from a different universe with "distinct logic and horizon" (Akrich et al. 1988). As a result, collaborations are "multilayered systems entwined through partially overlapping, partially competing logics as their members anchor in different linchpins of identity and loyalty" (Grabher and Ibert 2006). Participants are at the same time members of the project, members of an organization, and entrepreneurs of their own human capital (Nooteboom 2000; Hollingsworth 2002; Grabher and Ibert 2006). A twofold process of interest alignment must be explored and the

Structuration Theory provides researchers with tools to do so (Pozzebon 2004; Phillips et al. 2000): vertically through the individual-collective articulation (Child 1997; Pozzebon 2004) and horizontally between individuals from various organizations and functions through the notion of interpenetrating structures (Orlikowski 2000).

In fact, this framework allows considering academic and industrial partners as individuals with different interests and motives and who have to coordinate their actions—share common and specific resources under common and specific rules—in order to contribute to the cluster activities, to bring back the gained knowledge to their organizations, and to develop their own human capital.

3.2.2 Methods

Because knowledge interactions are the primary research objects in a situated approach, the in-depth case study is a privileged research strategy (see Table 3.1). The justification builds on two main blocks: the necessity to use naturalistic methods to approach knowledge interactions and the adequacy of a longitudinal qualitative case study when the Structuration Theory is used as a conceptual framework.

The naturalistic case study, defined as the systematic examination of a case in real-life settings (Decrop 1999), is considered as an adequate research strategy to study U–I knowledge transfer as a social and political process for the following reasons. First, power relationships are difficult to grasp for an external researcher, requiring in situ observations and access to the field to witness the actual interactions. Knowledge is then considered as the product of social interactions (von Krogh and Roos 1996; Bozeman 2000), requiring to be studied through its context of production preferably through qualitative methods (Lockett and Thompson 2001) like interviews and in situ observations. Such a qualitative approach is particularly appropriate given the difficulty for measuring and interpreting organizational phenomena in the context of U–I interactions (Link et al. 1998).

Second, the phenomenon of interest—knowledge transfer—and its context—regional clusters and their joint R&D projects—are difficult to distinguish from one another (Yin 1994).

Finally, long-term exposure to the case and its implicit multiplicity of data sources allow for an access to off-record issues as well as a better identification of taboos and contradictions in the discourse of actors. It is an essential tool to draw an accurate picture of "competing and opposing loyalties" (Grabher and Ibert 2006) at stake in the collaboration.

Such a naturalistic approach—or at least its methodological aspects—is coherent with the study of situated actions as proposed by the promoters of ethnomethodology like Suchman (2007). According to her, the expression "situated action" underscores "the view that every course of action depends in essential ways on its

Table 3.1 The in-depth case study as a privilege research strategy

Features	Justification
Qualitative approach	Intangible flows mostly explored through a qualitative approach (Lockett and Thompson 2001); it allows to capture the significant tacit component of knowledge flows as well as people-related concerns proper to U–I collaboration (Davenport et al. 1999)
	Qualitative research appropriate given the difficulty for measuring and interpreting organizational phenomena in the context of U–I interactions (Link et al. 1998)
	Need to be close to the data and the informant (Decrop 1999)
Longitudinal approach	Need to witness the longitudinal, contemporary events that the researcher does not control (Yin 1994)
	Relevance of longitudinal, diachronic studies (Pozzebon and Pinsonneault 2005) to explore the structuration process (Giddens 1984) at stake in U–I collaborations
	Long-time exposure to gain trust and to access off-record issues
Multiplicity of data sources	Combining semi-structured interviews with the observation of social interactions allows accessing both the discursive knowledge and practical consciousness of the knowledgeable actors (Giddens 1984)
	Better triangulation to identify taboos and contradictions in the discourses of actors, especially about the interests at stake in the joint R&D project
Naturalistic approach	The phenomenon of interest—knowledge transfer—and its context—the joint R&D project—are difficult to distinguish from one another (Yin 1994)
	Knowledge is considered as the product of social interactions (von Krogh and Roos 1996; Bozeman 2000), requiring to be studied through its context of production

material and social circumstances. Rather than attempting to abstract action away from its circumstances and represent it as a rational plan, the approach is to study how people use their circumstances to achieve intelligent action" (Suchman 2007, p. 70). And because people tend to overlook the fleeting circumstances of action, the a posteriori narration of actions is not enough.

Because knowledge transfer is treated as a process that depends on contemporary actions that the researcher does not control (see Yin 1994), a situated approach might favor longitudinal methods in order to directly observe the sequence of events that describe "how things change over time" (Van de Ven 1992). A longitudinal approach is also required in order to give an account of the structuration process at stake in the case. As expressed by Pozzebon and Pinsonneault (2005): "Along with other scholars (Jones 1997; Rose 2000), we suggest that process approaches are more appropriate when structuration is adopted as the theoretical approach."

Another requirement when using the Structuration Theory through a situated approach is the combination of multiple data collection methods such as in situ observation and semi-structured interviews. On the one hand, an observation phase is needed in order to access the practical consciousness of actors as well as unintended consequences of their actions. On the other hand, individuals are seen as knowledgeable and reflexive. The researcher therefore considers that they can

interpret their own behaviors as well as the power interactions that shape them. Even if this competence is limited by unintentional consequences and unknown conditions (Giddens 1984), individuals understand the conditions of their actions, define goals based on motives that they are able to express, and know that others will do the same.

It implies that respondents are able to give an account of their actions: the researcher has to be attentive to respondents' feedbacks and own interpretations of the phenomenon at hand—the double hermeneutic as expressed by Giddens. Besides, as all actors are involved in the structuration process, each partner in the R&D project is considered as a potentially valuable respondent. As a result, the researcher gives voices to the "ordinary" actors that nevertheless contribute to the innovation process (Alter 2000) like technicians, junior researchers, and other "underlings."

Box 3: The Structuration Process in the Competitiveness Clusters

In Hermans (2011), the Structuration Theory is used to make sense of the political process at stake in the Competitiveness Clusters of Wallonia and their dedicated R&D projects.

During the case studies, a central data collection method was the observation of events of power exercises as materialized in "critical events." The critical event is as an observable incident which starts when an actor of the project speaks up with a "voice" attitude (Hirschman 1970). This event comes from an increasing feeling that something has to be done differently; it opens a negotiation space in which each partner can propose a solution and thereby activate a power relationship. Critical events were witnessed in real-life settings during plenary meetings and team building events. They were also remembered by respondents during semi-structured interviews of partners, allowing a focus on behaviors rather than impressions (Hargadon and Fanelli 2002). Their effects were traced through the minutes of the meetings, especially through the "further actions" section, as well as during subsequent interactions.

The analysis of critical events draws a particular attention to the modalities that are mobilized by the actors when discussing their solution. Informed by the Structuration Theory, I focus on three specific dimensions of modalities:

– The cognitive dimension which refers to the interpretive schemes (goals, roles, scripts) that enrich the joint R&D project (Hargadon and Fanelli 2002)
– The relational dimension which has regards with the social norms that are relevant for the project's members and give direction for action
– The structural dimension which concerns the links and configuration of the network of partners (Nahapiet and Ghoshal 1998) or, from the point of

view of Giddens, the access to enabling and constraining resources of the project (Giddens 1984): facilities and frustrations

Those modalities qualify the "R&D problem" that is put into question and potentially guide the project in a new direction. They are drawn from the interpenetrating structures that are relevant for the project and that the social researcher can infer through their superficial manifestations (Nizet 2007). Moreover, their mobilization implies an impact on the structures of the project: relevant rules are challenged, reinforced, or modified by the project's interactions.

The observation of critical events also focuses the attention of the researcher to the actual leeway that individuals have to speak up. It allows for the identification of the "playing fields" (Mintzberg 1983) that actors dare mobilizing when participating in a critical event. For instance, an academic professor might openly criticize the R&D problem tackled by the project, while an underling might not dare to do so and therefore prefer to discuss the way it is currently implemented. The researcher can subsequently infer the interests that are served—and disserved—by the new arrangements.

Some key outcomes are drawn from the analysis. First, it reinforces a KBV approach of management which defines "the role of managers not as directing other people, but as enabling the performance of collaborators by shaping the (inter) organizational context (rules, values, boundaries)" (Tywoniak 2007). Indeed, critical events provide managers with the possibility to reinforce the rules that they deem relevant for the collaboration.

But the structurationist perspective proposed in this work also shows that underlings that come from other organizations might not take for granted the relevancy of such rules. Likewise, the analysis shows that the alignment of interest is particularly difficult to hold for academic frontline researchers who are torn between the project's interests, their loyalty to the laboratory, and their role as *entrepreneur of their own human capital* (Grabher and Ibert 2006).

When managing the interorganizational context for knowledge creation and sharing, managers should therefore pay a particular attention to the following tasks:

(1) The delimitation of the collaborative research: the designation of the people who are deemed "partners" along with the development of a strong common understanding about the goals and means of the project. In the case of the Competitiveness Clusters, public authorities provided crucial insights by repeatedly claiming that the projects were part of the "economic redeployment of the Walloon Region."
(2) The creation of opportunities for underlings to "speak up" in the project. Indeed, a voice attitude keeps the individuals invested in the collaboration and challenges the project with new insights.

(continued)

(3) The creation of opportunities for "spinning-out" of the project. Indeed, the norms and values that drive the collaborative research also define its limitations. A collective understanding can be very efficient to channel partners towards a common goal, but it also creates a blueprint which impedes alternative thinking.

For that reason, a strong identity of the main collaborative research could be combined with peripheral projects that escape the definition and ways of doing of the main research. Besides, it might allow for a better alignment of interests for the academic researcher who develops a personal project. In this case, delicate issues include the allocation of resources between the main collaborative research and its peripheral parts and the risk of confusion resulting from the blurring barriers that tell them apart.

Such "spin-outs" were witnessed in the case studies that I was exploring to answer the first research question: (1) How does the nature of the R&D project (from exploratory R&D to exploitative R&D) influence knowledge transfer between partners? Indeed, the Structuration Theory informs the researcher about the emerging nature of the collaborative research. In the cases under study, I therefore look for potential hybridizations (subparts of different nature inside the main collaborative research) and iterations (from exploration to exploitation and backwards).

Then, I studied the expected roles and contributions of individuals as the R&D activities vary between exploitation and exploration. As expressed by Phillips and his colleague (2000): "the negotiation of collaborative relationships involves a wider and more fundamental range of issues, including the roles to be played by different participants, and the nature of the problem to be addressed." I therefore explored such negotiations: the emerging modalities, their mobilization by actors who want to impose a new solution (e.g., changing the nature of the project, from explorative R&D to exploitation R&D), and how such solutions relate to the organizational, interorganizational, and personal goals.

3.3   Stakeholders of a Situated Approach

Traditionally, a scientific study is addressed to two kinds of stakeholders. On the one hand, there is the research community who will draw on its theoretical and methodological contributions to build subsequent studies. On the other hand, practical recommendations are formulated for a well-defined set of practitioners like managers in the case of management studies or public authorities in the case of economic analysis. When researchers study knowledge transfers in clusters through a situated approach, however, things can get complicated.

First of all, because regional clusters bring together actors from different organizations and institutions, the set of stakeholders becomes more complex:

public authorities, R&D managers, Technology Transfer Officers from universities, and directors of research center are all potentially concerned by the research findings. In addition to them, a situated approach also targets a set of less usual stakeholders. Indeed, by focusing on the interactions that are actually conducted in the cluster and its projects, a situated approach takes into account the underlings: the "frontline" researchers and employees who are actually performing the research tasks and are collaborating on a daily basis.

Secondly, the situated approach outlined in this chapter provides researchers with a way to introduce power issues when studying knowledge transfers in regional clusters. However, it would be hazardous to deny that the same phenomenon is at hand in their own research. Said otherwise, the power relationships that the researcher is studying are at the same time affecting his work:

– Public authorities that are subsidizing the clusters are, at the same time, a source of additional financial resources for the researcher, or at least for his employer—the university.
– The R&D managers and the professors involved in the cases under study are controlling the access to the field: they manage the openness of the project so that the researcher can access interesting information, and they also have a "right to monitor" on his work.
– Junior researchers and technicians who are interviewed and observed might want to use the research as a way to be heard by their hierarchy.
– Last but not least, the university is the current employer of the researcher; it assesses his work and sees regional clusters as a potential source of fund as well as a way to legitimize its existence.

Indeed, from the perspective adopted in this work, scientists are not disinterested; they are an organized interest group and the researcher actually belongs to it. There are two important consequences for the researchers who adopt a situated approach when studying knowledge transfers in clusters. First, researchers should make clear who are the stakeholders of their research and reflect on the extent to which such stakeholders (especially their peers) might influence their work. Secondly, even if a situated approach assumes that power is a central driver of human cooperation (Friedberg 1997; Giddens 1984), researchers should also recognize that power relationships are sometimes endemic. They should seek for the unveiling and transformation of alienating structures: prevailing structures that prevent individuals from self-realization (Chua 1986; Orlikowski and Baroudi 1991).

Box 4: Alienating Structures in the Competitiveness Clusters
In Hermans (2011), alienating structures at stake in U–I collaborations and more generally contract-based research in universities are partially exposed.

(continued)

In such projects, researchers have a taken-for-granted precarious position: hired on a short-term basis, they work on a project defined and launched by the head of the laboratory who takes distance with the ongoing project once it has started to turn to the next contracts. As a result, the project might present a "win–win" situation at the organizational level but it ignores the individual interest of the researcher who is not yet hired. As a consequence, these researchers dedicate a lot of attention to their role of *entrepreneur of their own human capital* (Grabher and Ibert 2006), sometimes at the expense of their roles of "laboratory member or project participant." In fact, findings call for a deeper debate about the status of academic researchers. It should benefit the academic researchers but also the U–I collaboration through the retaining of talents.

4 Conclusion

In this chapter, I outline a situated approach for studying interorganizational knowledge transfers in or through clusters. I also present the Structuration Theory as an interesting theoretical framework to include politics in the study of regional clusters. In particular, the Structuration Theory:

– Allows considering the cooperation in clusters as an emerging construct, a network of actors drawing upon plural and overlapping structures
– Orients the researcher towards specific processes and aspects of social systems (Nizet 2007) like interest alignment, especially in the context of plural social systems (Whittington 1992) and multilevel studies (Morgeson and Hofmann 1999; Child 1997)

Before concluding, some takeaways should be acknowledged. First, a situated approach draws the attention of the researcher and his stakeholders away from the mainstream "one-way flow" conceptualization of U–I knowledge transfers. It rather presents knowledge exchanges as embedded, situated actions that affect both sides. This conceptualization might bring practitioners with well-needed insights about the process in which they are daily involved.

Second, a situated approach allows for the observation of the modalities (norms, interpretive schemes, and facilities) that become (or cease to be) relevant for the partners. Specifically, the Structuration Theory orients the researcher to the structuration process at stake in the cluster. Rather than taking its structures for granted, the researcher looks for its construction and transformation: the interpenetrations of structures from distinct organizations, the prevalence on one's norms over the other, and the dismissing of logics that were previously praised. For example, even if it may seem taken for granted, the way a researcher is considered as a partner of the collaborative research (or not) is not natural and impacts the way people interact with each others. By doing so, it unveils the mechanisms that are

driving collaborative behaviors as well as the damaging habits that gradually enter the collaboration.

Finally, it gives voices to the "ordinary" actors that nevertheless contribute to the innovation process (Alter 2000): because all individuals are involved in the structuration process, each partner in the R&D project is considered as a potentially valuable respondent.

Nevertheless, a situated approach also provides the researchers with a number of challenges. From a methodological point of view, it requires an important access to the field and a long-term immersion in order to grasp the actual power issues. The intensity of resources that are needed to perform a situated study invites the use of complementary approach. An interesting example is the dual methodology developed by Leonard-Barton (1990) who combines insights from an in-depth longitudinal case study with multiple shorter replicated cases. Another possibility is the use of agent-based simulations to explore complex systems.

From a theoretical perspective, the complexity and abstract character of the Structuration Theory have also been considered as a serious challenge (Nizet 2007; Jones and Karsten 2008). For this reason, the construction of the conceptual framework requires a lot of efforts. Besides, the Structuration Theory might not be the only adequate framework when adopting a situated approach. In fact, other epistemological or ontological affinities might guide the researcher towards other authors (Pozzebon 2004) such as Coleman (1990) or Bhaskar (1989). Then, maybe the greatest challenge for a researcher adopting a situated approach is about managing the power issues that are influencing his current work and his future inquiries. Indeed, studies of interorganizational knowledge transfers from a situated approach are full of promises. Two phenomena of particular interest are the mechanisms behind "speaking up and spinning-out."

First, a deeper understanding is needed about the mechanisms that favor speaking up in R&D collaborations. In particular, the role of project leader—with or without hierarchical power—should be explored in order to ensure that interesting ideas are not dismissed or, worth, kept secret by fear of speaking up. Second, the role of "spinning-out" in providing alternative paths and new insights to the collaboration should be investigated. Interesting issues comprise the balance between a strong identity of the main project and the relative independence of a spin-out; the alignment of interest between the peripheral parts and the main project; the management of interactions that bring back the newly created insights into the main collaborative research.

Finally, a better understanding of the role of public authorities is needed. While it is already known that public authorities act as an "animator" (Diez 2001), in other words, as a generator of norms for collaborative individuals, more insights are needed about the actual means that administrative agents can deploy to provide such norms and how they guide the clusters' participants.

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