Cluster governance and institutional dynamics
A comparative analysis of French regional clusters of innovation

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ABSTRACT
Governance is an issue often neglected by studies on clusters even though recent empirical studies point out the potential role of cluster governance in the creation and integration of innovation networks within cluster. However, no insight is provided as to how, concretely, cluster governance manages to sustain innovation. Drawing on the concept of institutional work, we develop an integrative framework of institutional practices that cluster governance can implement to create a specific environment conducive to institutional dynamics and enhanced collaboration for innovation. Three levers – political, normative and cognitive – and 8 sets of institutional practices of innovation are suggested. We apply this conceptual grid to the comparative analysis of three French clusters of innovation: one technopole and two competitiveness clusters. The findings show that 1) the three cluster governances activate all institutional levers but with a high variation of intensity, and 2) this intensity differences match the innovative performance of the clusters.

KEY WORDS:
Innovation; Cluster governance; Institutional work; Institutional practices of innovation; Technopole; Competitiveness cluster
1. INTRODUCTION

Numerous empirical studies have pointed out the positive influence of spatial clustering of organizations – firms, universities, public or private research institutes – on creation and faster diffusion of innovation (Baptista, 2000; Baptista & Swann, 1998; Feldman, 1994) as well as on innovative performance (Beaudry & Breschi, 2003; Freel & Harris, 2006; Grando & Belvedere, 2006). The central hypothesis is that innovation, more than any other economic activities, relies on knowledge (Cohen & Levinthal, 1990; Feldman, 1994) and that knowledge flow more easily through geographically restricted networks where firms can develop formal and informal cooperation ties thanks to easier face-to-face interactions (Bell & Zaheer, 2007; Torre & Rallet, 2005).

However, a growing stream of work questions the geographical proximity as being the only determinant of the co-located firms’ innovative performance (Bell, 2005; Ben Letaifa & Rabeau, 2013; Breschi & Lissoni, 2001). “Geographical proximity is neither a necessary nor a sufficient condition for learning to take place” (Boschma, 2005). Other dimensions of proximity - social, cognitive, organizational and institutional - might coexist and facilitate interactive learning and innovation amongst clustered firms (Boschma, 2005). Torre and Gilly (2000) emphasize in particular the essential role played by institutions on cluster innovation since it aims at facilitating interactions and linking cluster members together through the creation of common references, shared beliefs and representations. Institutions aim at providing information and reducing uncertainty, managing conflicts and cooperation, providing incentives (Edquist & Johnson, 1997) as well as building trust within inter-organizational relationships (Bachmann & Inkpen, 2011).

Governance is an issue often neglected by studies on inter-organizational networks or clusters (De Propris & Wei, 2007; Provan & Kenis, 2007). Drawing on the emergent Knowledge-based-View of Clusters (KBVC) which places primary emphasis on cluster governance and knowledge exchanges among cluster firms (Arikan, 2009; Bahlmann & Huysman, 2008; Maskell, 2001), this paper analyses the specific ability of cluster governance to develop a convenient organizational and institutional environment to foster interactions and innovation. Collaborative dynamics are not necessary part of the clusters’ DNA, specifically for clusters of SMEs with strong individualistic culture or in traditional industries. Nonetheless, recent empirical studies point out the importance of local or territorial governance in the creation and integration of innovative dynamics and innovation networks within clusters (Bocquet & Mothe, 2010; De Propris, 2001; Visser & De Langen, 2006). Cluster governance, first broadly defined as a steering and managing structure, might act as a catalyst of latent relationships between co-located actors of the cluster – small and large firms, research laboratories, educational institutions – and foster the emergence of other types of proximities (Torre & Gilly, 2000).

To date, researchers’ insights into institutional practices mobilized by cluster governance have been very limited. Very few empirical studies have dwelt in detail on the concrete practices implemented by cluster governance to develop a specific institutional environment conducive to greater collaborative and innovative dynamics (Bell, Tracey, & Heide, 2009; Lawrence, Suddaby, & Leca, 2009). Yet this preoccupation is of crucial
importance for both academic research and government policy initiatives and programs on clusters and regional innovation systems (Uyarra, 2010).

To bridge this gap, this paper adopts a neo-institutional perspective based on the emergent concept of institutional work (Lawrence & Suddaby, 2006). Following Arikan (2009) and Lawrence et al. (2009), it shifts the focus to the analysis of the concrete institutional practices implemented by cluster governance to foster knowledge interactions, collaborative dynamics and innovation within cluster members. Institutional work is defined as “the purposive action of individuals and organizations aimed at creating, maintaining and disrupting institutions” (Lawrence & Suddaby, 2006: 215). This framework renews the conventional neo-institutional approach by focusing on the impact of collective practices on the creation of institutions instead of relying on the sole impact of institutions on the organizations’ behaviors.

The contribution of this paper is twofold. First, through the adaptation to the specific context of innovative inter-organizational relations of a framework originally designed for institutional work within organizations, it generates a new conceptual framework helping to identify cluster governance’s institutional practices sustaining innovation. Second, it aims at filling a void in the literature as to whether and how cluster governance can sustain innovation through the precise identification of institutional practices of innovation.

An empirical comparative analysis is made between three French “institutionalized clusters of innovation” (Ben Letaifa & Rabeau, 2013), all issued from a top-down government policy: a technopole, Savoie Technolac, and two newly created “competitiveness clusters”, Axelera and Imaginove, located in the Rhône-Alpes region. Drawing on a qualitative analysis, this study compares the way cluster governance implements institutional practices of innovation and analyzes their impact on the cluster firms’ innovation.

After this introduction, Section 2 presents a literature review on cluster governance and institutional work and builds a conceptual framework to understand institutional dynamics of cluster governance. Section 3 describes the three clusters and explains the methodology used to collect and analyze the data. Section 4 presents the main results. The final section discusses the most important conclusions and contributions of the study followed by the limitations and future research directions.

2. CONCEPTUAL FRAMEWORK

Clusters are “geographic concentrations of interconnected companies and associated institutions in a particular field” (Porter, 1998: 78). This definition emphasizes two important dimensions for cluster governance: first, the network dimension and second, the geographic or more precisely the territorial dimension. A third dimension, ie. knowledge management, is highlighted by the emergent knowledge-based view of clusters – KBVC (Maskell, 2001) which conceptualizes clusters as “venues of enhanced knowledge creation” (Arikan, 2009: 658).

In this section, we first define cluster governance according to the three above-cited dimensions (2.1). Then, following the KBVC (Arikan, 2009; Bahlmann & Huysman, 2008)
that considers cluster governance as a major mechanism for developing an appropriate institutional environment conducive to cooperative exchanges and innovation, we detail the original framework on institutional work (Lawrence & Suddaby, 2006) and adapt it to the specific context of innovation clusters (2.2.). This adaptation to both cluster governance and innovation context enables us to design an original framework of institutional practices for the understanding of institutional dynamics of cluster governance (2.3).

2.1. Cluster governance

Cluster governance is a relatively new and rich concept. The term of governance first appeared in the economic discourse in the 90s, mostly with regard to corporations’ internal distribution of power (Jessop, 1998). The stream of corporate governance has long dominated theoretical approaches of governance. It offers a hierarchical view of the coordination of actors’ interrelations: governance being the means by which order is restored, conflicts regulated and mutual gains realized (Williamson, 1996). In public management, governance refers to the funding and oversight roles of government agencies (Hill & Lynn, 2005). The critical role of governance, for private as for public management, is to monitor and control the behavior of management (Provan & Kenis, 2007).

Progressively a parallel literature has developed on network governance, in order to take into account the complexity and heterogeneity of independent actors interrelating within the network (De Propris & Wei, 2007; Jones, Hesterly, & Borgatti, 1997). Provan and Kenis (2007) consider that “a focus on network governance involves the use of institutions and structures of authority and collaboration to allocate resources and to coordinate and control joint action across the network as a whole” (ibid. : 231). Analyzing regional cluster organization, Bell et al. (2009) distinguish two different types of governance: relational and hierarchical. Relational governance refers to inter-organizational decision-making based on relational norms like implicit understandings, trust relations, common knowledge binding together actors of the cluster. On the other hand, hierarchical governance relies on explicit patterns of authority that allocate decision rights between transacting partners.

In the specific context of French clusters of innovation characterized by a top-down development policy, a joint presence of companies, higher education hubs and public or private research units and a strong implication of the State and the Region (Brette & Chappoz, 2007), we also need to take into account a third stream of literature on territorial governance. Territorial governance can be seen as “a complex institutional process combining cognitive and political dimensions, in which institutional proximity appears as a precondition of collective action and so organizational proximity at the micro-level of coordination” (Carrincazeaux et al., 2008: 624). Deeply rooted in the theoretical current of the French Proximity Dynamics group, this definition of territorial governance encompasses two dimensions. First, an institutional dimension that builds effective communication and collaboration through shared values and representations between actors. Second, an organizational dimension that emphasizes coordination as well as control and regulation of the co-located actors (Ben Letaifa & Rabeau, 2013).
Thus, emerging from those different literatures on corporate, network and territorial governance, two important and complementary aspects of cluster governance can be highlighted: governance as a coordination mode and governance as a regulation and control mode. We think that a third component might be added to draw a thorough picture of cluster governance: governance as knowledge management device.

For Alberti (2001), cluster governance assumes indeed three distinct roles: 1) a control and regulative role, 2) a coordination role, and 3) a strategic role in developing cognitive resources and knowledge for cluster members. For the KBVC (Arikan, 2009; Bahlmann & Huysman, 2008; Maskell, 2001), learning and knowledge exchanges between cluster’s organizations constitute the main strategic asset of the cluster and innovation its key process. Primary emphasis is placed on innovation and interfirm knowledge exchanges among cluster firms. The complexity and heterogeneity of actors in French clusters – institutional players, large and small firms, private and public research units, education – make knowledge management within the cluster much more complex than it is within a corporate context (Corno, Reinmoeller, & Nonaka, 1999). Creating and exploiting flows of knowledge for the benefit of the cluster lay beyond the responsibility of a single player like one of the leading firms in the cluster. The governance structure can thus play the role of “social architect” (Corno et al., 1999), monitoring the flow of knowledge and enabling favorable conditions for knowledge creation processes.

However not all clusters do exhibit the same successful rate at enhancing firms’ knowledge creation efforts. Arikan (2009) sees three types of failure:

1. When opportunities for interfirm knowledge exchanges do not emerge;
2. When opportunities exist but exchanges fail to materialize because of a lack of cooperation relationships;
3. When cluster firms lack internal knowledge creation capability. Only if their absorptive capacity is large enough, can they use external knowledge effectively to create new knowledge inside the firm and feed it back into the cluster.

For Arikan (2009), the main solution to these failures is for the cluster governance to develop an appropriate institutional environment that will (re)establish cooperation norms and develop or rebuild trust relationships. Following this line, we concentrated our attention on the emergent theoretical framework on “institutional work” developed by Lawrence and Suddaby (2006), in order to understand how precisely could the cluster governance create an appropriate institutional environment to foster knowledge exchanges and innovation.

2.2. Institutional work and practices

The concept of institutional work describes “the purposive action of individuals and organizations aimed at creating, maintaining and disrupting institutions” (Lawrence & Suddaby, 2006: 215). Extending work on institutional entrepreneurship, institutional change and innovation, Lawrence and Suddaby shift the analysis to the practical actions through which institutions are created, maintained and disrupted. Focus is made on how intentional actions and actors affect institutions and what kind of concrete practices are employed in
relation to institutions, instead of focusing on institutions as templates for action (Lawrence et al., 2009).

For our study on cluster governance, institutional work provides an interesting framework to identify the concrete practices implemented by collective actors within the governance structure: “the study of institutional work highlight the awareness, skill and reflexivity of individual and collective actors” (Lawrence & Suddaby, 2006: 219). This collective approach breaks with the literature on institutional entrepreneurship (DiMaggio, 1988) since it does not tend to overemphasize the rational and “heroic” dimension of one institutional entrepreneur but merely relies on the work of many actors organized in “a highly structured and hierarchical manner” (Lawrence & Suddaby, 2006: 247). Moreover, the focus on strategies and concrete practices developed to create a new institutional environment enables us to open the “black box” of cluster governance.

In their seminal article, Lawrence and Suddaby (2006) made an overview of empirically-based institutional research published since 1990 in three major organizational journals\(^1\) and organized their analysis around three broad categories of institutional work in organizations: creating, maintaining and disrupting institutions. We focus here on the first category, namely the creation of new institutions that has received the most attention by organizational scholars. Lawrence and Suddaby (2006) observed 9 distinct sets of practices through which organizational actors engaged in actions that resulted in the creation of new institutions. These sets of practices reflect three broader categories of activities:

- **Political** work: “vesting”, “defining” and “advocacy” reflect political work in which actors reconstruct rules, property rights and boundaries that define access to material resources.
- **Normative** work: “constructing identities”, “changing norms” and “constructing networks” emphasize actions in which actors’ belief systems are reconfigured.
- **Cognitive** work: “mimicry”, “theorizing” and “educating” involve actions designed to alter abstract categorizations in which the boundaries of meaning systems are altered.

Table 1 summarizes the 9 sets of practices associated with creating institutions.

<table>
<thead>
<tr>
<th>Category</th>
<th>Forms of institutional work</th>
<th>Definition</th>
</tr>
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<tbody>
<tr>
<td>Political work</td>
<td>Advocacy</td>
<td>The mobilization of political and regulatory support through direct and deliberate techniques of social suasion.</td>
</tr>
<tr>
<td></td>
<td>Defining</td>
<td>The construction of rule systems that confer status or identity, define boundaries of membership or create status hierarchies within a field.</td>
</tr>
<tr>
<td></td>
<td>Vesting</td>
<td>The creation of rule structures that confer property rights.</td>
</tr>
<tr>
<td>Normative work</td>
<td>Constructing identities</td>
<td>Defining the relationship between an actor and the field in which it operates.</td>
</tr>
<tr>
<td></td>
<td>Changing normative associations</td>
<td>Re-making the connections between sets of practices and the moral and cultural foundations for those practices.</td>
</tr>
<tr>
<td></td>
<td>Constructing normative networks</td>
<td>Constructing of interorganizational connections through which practices become normatively sanctioned and which forms the relevant peer group with respect to compliance, monitoring and evaluation.</td>
</tr>
</tbody>
</table>

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\(^1\) Administrative Science Quarterly, Academy of Management Journal and Organization Studies
The three levers of institutional work – political, normative and cognitive – are treated independently. According to Lawrence and Suddaby (2006), the political lever is key to creating institutions insofar as its associated practices have the ability to establish rules, and construct rewards and sanctions that enforce those rules. The normative lever is the most “cooperative” of the three approaches. The acceptance of the newly created institutional environment by all stakeholders of the organizational field relies on cultural and moral force, which is embedded in communities of practice. Normative practices will thus depend significantly on the cooperation of those communities and on the ability of collective actors to establish and maintain cooperative ties. In contrast to political work that focuses on reconstructing rule systems, cognitive practices are more strongly associated with the extension and elaboration of institutions (Lawrence & Suddaby, 2006). Well-established actors in the organizational field, with sufficient resources and legitimacy, might be more capable to develop cognitive practices. They will provide actions’ templates and specific training for actors to facilitate the adoption of the new institutional practices.

Although the framework on institutional work seems particularly pertinent for the identification and analysis of concrete practices aimed at creating a new and appropriate institutional environment, it does not take into account the specific innovative and inter-organizational context of clusters nor the role of collective actors organized within a cluster governance structure. In the next section we propose an integrated framework considering all specificities related to innovation, cluster and governance.

### 2.3. Institutional dynamics of cluster governance: proposition of an integrated framework

Our literature review on cluster governance emphasized three main aspects of cluster governance that complement each other: 1) a coordination function, 2) a regulative and controlling function, and 3) a knowledge management (KM) function. These three functions match the three main levers of institutional work, respectively 1) normative lever for the coordination, 2) political lever for the regulation, and 3) cognitive lever for KM.

Matching literature on innovation, cluster governance and institutional work and translating it to the specific inter-organizational context of clusters lead us to the following analysis grid of institutional practices of cluster governance. Unlike the original framework of Lawrence and Suddaby (2006), we suggest to study the three levers together and to match them with the three functions of cluster governance. Our framework identifies then 8 sets of institutional practices associated to the 3 levers. For each set or form of institutional practices,
we develop several associated institutional practices that cluster governance might implement to create a specific institutional environment conducive to enhanced innovation.

- **Political practices** foster firms’ innovation within a cluster by facilitating the acquisition and allocation of financial or material resources and by establishing rules and constructing rewards and sanctions that enforce those rules and reduce free-rider risks. We identify three forms of institutional work and 10 main institutional practices of innovation.

1. **Advocacy practices**, such as lobbying, involvement of key players and formal institutions, professional associations or trade unions endorsement, and cluster corporate communication and advertising, correspond to actions implemented by cluster governance in order to guarantee political support for the attraction of opportunities and material resources, both financial and human, to foster firms’ innovation.

2. **Defining constitutive rules**, such as defining rules of selection and recruitment of new cluster members, roles and status of cluster members, standards and certifying actors, are very important institutional practices in the context of French “top-down” clusters. They facilitate the cohesion of very heterogeneous actors by clearly defining the regulative cooperation framework. The final objective being the legitimation of the cluster as “an acceptable form of organizing” (Human & Provan, 2000: 337), both to cluster members and to external groups, such as funders. Even if these practices do not directly influence innovation, they participate to the creation of an organizational proximity between cluster members.

3. **Regulative mechanisms**, such as rules to share authority, formal and informal disciplinary mechanisms like control, penalty, rewards and conflict resolution, are more constrictive, regulative and coercive than both other sets of political practices. These practices aim at limiting opportunism risks for cluster partners engaged in collaborative innovation projects.

- **Normative practices** are aimed at creating both organizational and institutional proximities that link cluster members together and promote innovation. By constructing shared identities and normative networks, normative practices facilitate the development of stable interactions and create relations of trust that promote greater access to and exchange of knowledge within cluster organizations and generate dynamics of innovation (Eisingerich, Bell, & Tracey, 2010).

4. **Identity building** corresponds to two main practices: 1) the formulation of a strategy of its own that will be clearly communicated to all cluster members, and 2) the development of communities bearing this strategy. Different practices back the development of communities: the creation of a Ba, a physical, virtual or mental shared space for emerging relationships (Nonaka & Konno, 1998), the creation of new professional associations representative of the main themes of the cluster strategy, the development of new professions related to the new identity, and a joint participation to professional fairs or conferences.

5. **Constructing normative network** through institutional practices such as formalizing exchanges through formal mechanism, explicit and written like consortium contracts,
standardized procedures, or informal mechanisms, implicit and verbal, like joint teams, seminars, meetings that help regulate and promote interactions for innovation. The development of collaborative projects of innovation through networking actions, thematic working groups, call for projects or collaborative incentive schemes, and the integration of the scientific community are two other sets of normative practices facilitating the building of a normative network.

- Cluster governance relies on the cognitive lever to manage knowledge creation at the cluster inter-organizational level. Cluster members have to share a common knowledge background – technical as well as generic – broad enough to develop collaborative innovation projects (Boschma, 2005). Mimicry, knowledge management practices as well as practices promoting the development of firms’ absorptive capacity, are the three main sets of cognitive practices.

6. **Mimicry practices** rely on the concept of institutional isomorphism (DiMaggio & Powell, 1983) that explains why, in the same institutional environment, organizations tend to adopt identical structure and behavior. In the cluster context, mimicry practices facilitate the adoption of collaborative practices for innovation and have them accepted by cluster members as “taken-for granted”.

7. **Knowledge management practices** are based on three main phases following the model of knowledge integration of Kraaijenbrink and Wijnhoven (2009): knowledge identification, knowledge acquisition and knowledge use. At the cluster level, the specificity of knowledge management practices is that they aim at developing architectural knowledge or cluster core competences. In the US biotechnology sector, McCann and Folta (2011) highlight the positive relationship between a higher innovation performance - calculated on the basis of patents - and an extensive knowledge base at the cluster level.

8. **Enhancing absorptive capacities** is the last set of cognitive institutional practices of innovation. Educating focuses on training actors to acquire key skills and competences, and to improve their knowledge absorption capacity. Cluster governance plays a double role in enhancing ACAP. First, it makes the knowledge available (through identification practices) and second, it ensures that companies in the cluster, and SMEs in particular, have the ability to appropriate them. Technical or generic (management, marketing...) training programs can be deployed. Many studies on innovation in cluster showed the positive impact of the international orientation that allows companies to have more access to external sources of knowledge.

To sum up our analysis grid of institutional work within cluster governance, the main features of the three levers of institutional practices of innovation are listed below.

- **Political lever** provides an easier access to resources for innovation and a legal framework facilitating interaction and cooperation within the cluster.

- **Normative lever** is mobilized to create trust and a shared vision among members (common representations, values, beliefs and norms) and collective goals that facilitate interaction and collaborative projects.
- **Cognitive lever** is oriented towards knowledge management and helps to identify, share and create new knowledge between actors in the cluster, thus forming a cluster-specific knowledge, a source of innovative performance and sustainability for business.

Our conceptual framework with its associated institutional practices of innovation for the cluster governance is summarized in Table 2 hereafter.

<table>
<thead>
<tr>
<th>Lever</th>
<th>Forms of institutional work</th>
<th>Associated institutional practices</th>
<th>Key references</th>
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</thead>
<tbody>
<tr>
<td><strong>POLITICAL</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Advocacy</td>
<td><strong>Advocacy or “suasion practices”</strong></td>
<td>• Lobbying for resources&lt;br&gt;• Presence of a key player or “institutional entrepreneur”&lt;br&gt;• Involvement of formal institutions&lt;br&gt;• Corporate communication and cluster advertising&lt;br&gt;• Acknowledgement and endorsement practices</td>
<td>Suchman, 1995; Lawrence &amp; Suddaby, 2006; Di Maggio, 2008; Fromholz &amp; Fromhold-Eisebeth, 2005; Elsbach &amp; Sutton, 1992</td>
</tr>
<tr>
<td></td>
<td><strong>Defining constitutive rules</strong></td>
<td>• Defining rules of selection and recruitment of new cluster members&lt;br&gt;• Defining roles and status of cluster members&lt;br&gt;• Defining standards and certifying actors</td>
<td>Lawrence &amp; Suddaby, 2006; Porter, 1990, 2004; De Langen, 2002; Scott, 2001; Bachmann &amp; Inkpen, 2011</td>
</tr>
<tr>
<td></td>
<td><strong>Regulative mechanisms</strong></td>
<td>• Defining rules to share authority&lt;br&gt;• Implementing formal and informal disciplinary mechanisms: control, penalty, rewards and conflict resolution</td>
<td>Alberti, 2001; De Propris &amp; Wei, 2007; Provan &amp; Kenis, 2007; Grandori &amp; Soda, 1995; Boschma, 2005</td>
</tr>
<tr>
<td><strong>NORMATIVE</strong></td>
<td><strong>Identity building</strong></td>
<td>• Formulating a common and explicit strategy&lt;br&gt;• Developing communities</td>
<td>Lawrence &amp; Suddaby, 2006; Hardy &amp; Philips, 1998; Nonaka, 1994; Bell &amp; Zafeer, 2007</td>
</tr>
<tr>
<td></td>
<td><strong>Constructing normative network</strong></td>
<td>• Assessing and balancing the degree of exchanges formalization: formal to informal&lt;br&gt;• Developing collaborative projects&lt;br&gt;• Integrating scientific community</td>
<td>Gulati, 1998; Grandori &amp; Soda, 1995; Noteboom et al., 1997; Cooke, 2001; Arvanitis &amp; Woerter, 2009; Tödtling et al. 2006;</td>
</tr>
<tr>
<td><strong>COGNITIVE</strong></td>
<td><strong>Mimicry</strong></td>
<td>• Mimicry or isomorphic practices</td>
<td>Di Maggio &amp; Powell, 1983; Lawrence &amp; Suddaby, 2006; Arikan, 2009</td>
</tr>
<tr>
<td></td>
<td><strong>Knowledge management practices</strong></td>
<td>• Identifying external knowledge&lt;br&gt;• Acquiring common knowledge&lt;br&gt;• Exploiting common knowledge</td>
<td>Lawrence &amp; Suddaby, 2006; Tallman et al. 2004; Lazard et al., 2008; Arikan, 2009</td>
</tr>
<tr>
<td></td>
<td><strong>Enhancing absorptive capacities</strong></td>
<td>• Apprenticeship or learning practices</td>
<td>Bathelt et al., 2004; Lawrence &amp; Suddaby, 2006; Vale &amp; Caldeira, 2007</td>
</tr>
</tbody>
</table>

Table 2 – Conceptual framework: Institutional practices of cluster governance

3. **METHOD**

French clusters of innovation form a privileged territory for understanding institutional dynamics developed by cluster governance in order to sustain innovation. Three main reasons to that: 1) the top-down context of cluster creation, 2) the mandatory presence of a governance structure and 3) the common aim of fostering collaborative innovation at both the firms’ and the cluster level. This research studies institutional work of cluster governance for the creation of a specific innovative institutional environment within French regional clusters of innovation. In a comparative study of three clusters of innovation in the Rhône-Alpes
3.1. The context

Before detailing the methodology used in this research, we present its empirical context. We first emphasize the specific context of French clusters, and then give a brief comparative description of the three selected clusters.

3.1.1. The French way of clusters

In this study, we focus on two types of regional clusters of innovation, namely technopoles and competitiveness clusters that both belong to a French public policy of innovation and research. In the eighties, the organization of the French system of innovation and research changed from a policy of “grands programmes”, giving up the central mode of state intervention, to a growing involvement of regional public actors (Brette & Chappoz, 2007), leading to the emergence of technopoles. For Castells and Hall (1994), the term of technopole is universally used and can be broadly defined as deliberate attempts to plan and promote, within one concentrated geographic area, technologically innovative, industrial-related production. Four categories of technopoles co-exist: high-tech industrial complexes such as the Silicon Valley, science cities like Akademgorok in Siberia, technopolitan programmes and technology parks, mainly stemming from public or academic initiatives like Cambridge in the UK or Sophia Antipolis in France.

French technopoles belong to this fourth category. Public initiatives fostering technological innovation as well as tools of territorial dynamics, French technopoles were developed in the mid-eighties. They are characterized by the coexistence, on a given space, of small and large high-tech firms, a large multisectoral range of economic activities including both manufacturing and services, academic or private research labs and a strong metropolitan character (Antonelli, 2000). 53 technopoles are awarded a specific label by RETIS association, French representation of the IASP – International Association of Science Parks.

“Competitiveness clusters” result from a new ambitious policy of innovation and research launched in 2002 and embodied three years later in a call for projects that led to the creation of 71 clusters all over the French territory, a success far beyond governmental expectations. A competitiveness cluster is defined as a combination of companies, higher education hubs and public or private research units, engaged in a partnership so as to create synergies in the frame of innovative projects, on a regional (sometimes interregional) scale (Brette & Chappoz, 2007). This partnership is structured around a market and a related technological and scientific sphere, and must seek out a critical mass to achieve international competitiveness.

Technopoles and competitiveness clusters share common characteristics. First, they both stem from top-down national and regional politics and address the same objective of fostering innovation. Second, a great number of these French clusters of innovation were created *ex nihilo* and are constituted of very heterogeneous members. Third, they both have an autonomous governance structure in charge of managing the network. The main difference between those two types of clusters lies in the innovation approach and the territorial
perimeter. Whereas competitiveness clusters are collaborative innovative project-based and have a quite broad perception of geographical proximity, technopoles adopt a more linear-view of innovation and concentrate their actions on a defined geographical scope (“technological park”).

3.1.2. A comparative analysis of 3 French clusters in the Rhône-Alpes region

For this study, we concentrate our analysis on a technopole, Savoie Technolac, and two competitiveness clusters, Axelera and Imaginove, located in the Rhône-Alpes region. First French industrial region and 5th European region for its technological and scientific potential, the Rhône-Alpes region is also particularly interesting for its high concentration of clusters, 2nd rank after Paris region.

The three clusters share similar characteristics in terms of size (between 150 and 180 firms) and nature of members (a majority of SMEs and of micro-businesses for Imaginove and Savoie Technolac). They differ in terms of industrial activities and governance structure. The table hereafter summarizes the main characteristics in terms of emerging context, industrial structure and governance.

<table>
<thead>
<tr>
<th>CLUSTER</th>
<th>Emerging context</th>
<th>Structural characteristics End 2010</th>
<th>Governance characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SAVOIE</strong></td>
<td>Created <em>ex nihilo</em> in 1987, in Savoie, from a regional political will of developing the territory in order to relaunch the economics. Based on the popular model of the Silicon Valley and developed in a beautiful natural environment (lake, mountains and green).</td>
<td>180 firms, 21 research centers, 9 academic establishments, 98% SME (66% &lt; 10 employees). 4 industries: 1) ITC, 2) Conception &amp; manufacturing of industrial equipment, 3) New materials and 4) Solar and renewable energies.</td>
<td>Strategic governance: a joint union, SYPARTEC, with 21 delegates of the 3 territorial collectivities behind the project. Operational governance: 13 people organized in 3 departments: innovation, startups and international.</td>
</tr>
<tr>
<td><strong>TECHNOLAC</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>IMAGINOVE</strong></td>
<td>Emerging context</td>
<td>Structural characteristics End 2010</td>
<td>Governance characteristics</td>
</tr>
<tr>
<td><strong>AXELERA</strong></td>
<td>Emerging context</td>
<td>Structural characteristics End 2010</td>
<td>Governance</td>
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<tr>
<td></td>
<td>Competitiveness cluster created in 2005. Strong influence of two institutions (Grand Lyon and Rhône-Alpes region) on the initial project of joining 2 industries: chemical industry and environment. Project led by 5 organizations, leaders of their industry: 3 industrials (Arkema, GFD Suez &amp; Rhodia) and research centers (IFP EN &amp; CNRS)</td>
<td>169 firms, 55 research centers and 9 academic institutions. 57% SME (37,5% &lt; 10 employees); presence of very large firms. Strong progress of SME membership over the last years.</td>
<td>Strategic governance: a managing board with the 5 founding</td>
</tr>
</tbody>
</table>

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3.2. Data collection and analysis

In-depth interview is the primary mode of the data collection, which was conducted between November 2010 and February 2011 on the three clusters. The main actors of both strategic governance (board members, scientific committees, directors) and operational governance (members of the animation team) were interviewed. A total of 24 semi-structured face-to-face interviews were conducted on the three clusters (respectively 3 at Savoie Technolac, 13 at Axlera and 8 at Imaginove) for an average of 1:20 minutes.

The interview guide is organized around three main themes: 1) the emerging context and the structural characteristics of the cluster, 2) the characteristics of its governance, and 3) the measures implemented by the governance to foster innovation. The interviews were all recorded and fully transcribed. To triangulate the data, we used many public or confidential documentary sources (website, newspaper articles, internal policy documents) and non-participant observations.

Following Miles and Huberman (2003) methodology, data analysis was done in two main stages. We first performed a preliminary analysis of content from the three major themes in our interview guide and wrote a monograph for each of the three cases studied. This first step enabled the condensation and structuration of all data. A dictionary of themes was then created according to our analytical framework of institutional practices of innovation in order to facilitate the coding of primary and secondary data. We then conducted a second analysis, intra- and inter-case study, in order to precisely identify the different sets of institutional practices – political, normative and cognitive – that were implemented by the cluster governance to foster innovation at the firms’ and cluster level.

4. Results

The objective of this paper is to gain an insight into specific institutional practices and to evaluate their effects on the ability of cluster governance to develop social and institutional dynamics conducive to innovation.

First results reveal that the three cluster governances activate all institutional levers – political, normative and cognitive. However, institutional practices of governance in our three clusters show very different degrees of engagement that seem to go hand in hand with innovative performance at the cluster level – as perceived through the qualitative analysis – and at the firms level – as measured through an ad-hoc questionnaire. Firms in Savoie Technolac technopole have much weaker internal and external resources for innovation than in the two competitiveness clusters. Results in terms of technological innovation performance are therefore lower in the technopole (product innovation = 76% vs 83% and 88%; process innovation = 57% vs 80% and 90%, respectively for Savoie Technology vs Imaginove and Axlera). Same results apply for the product innovation intensity whereas firms in Axlera
show a very high trend of radical product innovation – new to the market - (84%) compared to Imaginove (68%) and Savoie Technolac (41%).

In terms of collaborative dynamics of innovation, our findings show the difficulties encountered by firms belonging to the same cluster to work together on collaborative projects of innovation. It highlights important differences in terms of inter-organizational cooperation for innovation within the cluster. To sum up, in our three clusters, internal cooperation should be encouraged and stimulated, which implies an appropriate institutional environment and the specific actions of cluster governance.

Following our conceptual framework, in terms of the three levers of institutional practices of innovation, comparative analysis reveals the following points.

4.1. Political practices

In Savoie Technolac, cluster governance focused its actions on the institutional component of political practices, namely advocacy or suasion practices through a strong regional and national lobbying for financial resources and the presence and action of two emblematic institutional figures: chairman of the technopole, Jean-Pierre Vial is also senator and general councilor of Savoie, and Jean Thermes, old friend, is the director of Grenoble subsidiary of the CEA, the French Alternative Energies and Atomic Energy Commission. Thanks to their political support, they managed to leverage important human and financial resources, including the location of the INES, the national institute for solar energy, and two incubators on site.

Regarding the two other sets of political institutional practices – defining constitutive rules and regulative mechanisms – the governance of the technopole faces more difficulty to implement them. Rules of selection are quite fuzzy, innovation being the main criteria. The absence of rules of procedures impedes a precise definition of the roles and status of the different cluster members (firms, research labs, universities). Finally, regulative mechanisms are not considered as legitimate since the main stakeholders of the cluster, the cluster members are not part of cluster governance. Indeed, the choice of public governance, centralized and disconnected from firms concerns, hinders the acquisition of internal legitimacy (as "entity" according to the dimensions of the legitimacy of Human and Provan, 2000). It slows down the recognition of the technopole as a place conducive to the exchange of knowledge and innovative interactions. Thus, we can say that the deficit of political practices of innovation does not positively influence the dynamics of cooperation. Members of the technopole appropriate the technology park more like a venue and place of accommodation as a territory fostering collaboration for innovation and knowledge sharing.

The mobilization of political leverage is much stronger in Axelera, and fully impacts the three corresponding sets of institutional practices. Unlike the technopole, both competitiveness clusters, Axelera and Imaginove, chose a mixed mode of governance, with a larger private share since the participation of industrial firms is dominant in the steering board. Axelera adopts a fairly hierarchical and formalized governance structure that is focused around a central board – the “Bureau” – consisting of the 5 founding members. They play a pivotal role, promoting as well as enforcing their strategic vision of the cluster collective dynamics. Unlike many empirical examples of cluster governance, Axelera shows a
very interesting model of governance structure developed around a close-knit group of public and private actors that manage to acquire a real internal as well as external legitimacy.

Mobilizing the political lever leads to the establishment of operational collective rules and facilitates a precise demarcation of the borders of the cluster as a meta-organization. Thus it enables the “taken-for-granted” acceptance of the cooperation framework and modus operandi of inter-organizational relations that are necessary conditions for the introduction of trust relationships and interactive learning amongst cluster members. Advocacy practices – in particular well-developed lobbying practices at a national as well as international level and the presence of powerful industrial key players – allowed, from the very creation of the cluster, the acquisition of substantial resources to support large-scale innovation projects. It gave an immediate high visibility to the cluster with ripple effect on its membership. The cluster has also been able to mobilize resources both human (many staff delegated by the founding organizations) and financial (funding a major benchmark study, launching of a consistent communication campaign). These resources quickly developed an image of a legitimate and essential partner for the development of innovation projects in the field of chemistry and environment.

**Imaginove** lies midway between the other two clusters. Advocacy practices are still poorly mobilized, particularly in lobbying. Unlike Axelera built around large organizations, leaders of their industry, or Savoie Technolac, with strong institutional and political support, the absence of leading companies in the field of motion picture and the strong diversity of actors, independent by nature, make it difficult to implement suasion practices to capture resources. The charismatic personality of the first director of Imaginove and a smaller strategic governance structure, representative of all cluster members, compensate partially the lack of political connections and capture resources.

The governance of Imaginove gradually lays the groundwork for the defining of constitutive rules. However, they are still largely informal and only start to draw up the guidelines for a general working framework for cluster members. The original intention of the cluster governance of converging the three sectors of the moving image results in a progressively finer selection of its members, thus encouraging cooperative behavior. To find additional drivers for enhancing collaborations and innovation, Imaginove governance proposed recently a device that helps leading companies to develop business on a larger scale, hoping that it will create a ripple effect on innovative collaborative projects. However, greater formalization seems desirable in the early stages of creating the cooperative framework in order to quickly establish collective rules facilitating the establishment of an institutional innovation-oriented environment.

This first comparative analysis on the political lever shows that an increased formalization of the governance structure, highly depending on the active involvement of a group of actors and a coherent strategy across the cluster, improves the creation of common benchmarks and framework that should, in return, facilitate the adhesion of the cluster stakeholders and boost collaboration for innovation. However, the only political dimension may not be sufficient to create a sense of collective action. If political practices provide a framework that structures interaction of heterogeneous actors within the cluster and facilitates
preferential access to resources for innovation, it is now necessary to examine the role of normative practices of innovation.

4.2. Normative practices

The recent identity building of Savoie Technolac around the solar and renewable energy facilitates the establishment of a common internal frame of reference and faster identification by external stakeholders. However, this retrospective identity building, driven by INES implementation and the geographic proximity of TENERRDIS competitiveness cluster, only concerns a small but rising proportion of firms in the technology park. It may cause cleavage between two "communities of entrepreneurs": those working in the solar and renewable energies sector, recently installed in Savoie Technolac, and the others, more numerous but also less prone to develop collaborative innovations. To avoid cleavage and facilitate the endorsement of all cluster members to the new identity, strong potential for innovative cooperation, Savoie technolac governance must work to build a normative network that failed him yet. For the time being, Savoie Technolac has not succeeded in transforming informal relationships developed between long-established members of the technopole into professional interactions around collaborative innovation projects.

Developed only for CEOs of the technopole firms, the recent device “Business Lunch” aims at changing the level of interactions, from individual to organizational level. These meetings at lunchtime gather between 5 and 15 people every month and concern about 30% of cluster companies since its launch end 2009. Initially focused on the exchange of business best practices, the cluster governance observes now the emergence of a real network of business leaders. A second networking device was also launched end 2010: “Solar meetings”, an annual meeting around the solar business that eases the networking of technopole firms with key players of the solar industry and generates synergies with the INES. The objective is to develop a community around solar and renewable energies because the more innovative firms belonging to the same industry the more local collaboration and partnerships.

Since its creation, Axeleran governance focused on the building of a clear identity, common to both industries, chemistry and environment. This shared identity facilitates adherence of both communities to the cluster and helps to federate them. There has been a significant effort on the part of cluster governance, to develop a coherent, sense-making strategy for both communities and to promote its dissemination. The strategy statement is clearly written in the first article of Axeleran rules of procedure. As a matter of fact, Axeleran not only develops a new identity for the cluster but also a new industry merging chemistry and environment. It is important that all stakeholders – cluster members as well as trade unions, professional associations, foreign partners, government – shall recognize and accept as legitimate the new industry.

Two key devices have been developed by the governance to form the basis of a community of companies: 1) “Axeleran Thursdays” and 2) the development of ecosystems. Axeleran Thursdays are networking events, approximately 10 per year, structured in two stages. First, a plenary session presents the main actions of Axeleran governance, an overview of some collaborative projects and a presentation of 3 members (a large firm, a startup and a research lab). Second, business speed meetings (5’) are organized and followed by a convivial
networking cocktail. These sessions usually gather hundreds of people. The organization of innovation ecosystems also contributes to the formation of communities as participants meet regularly, especially in the initial phases, pre-projects, brainstorming. These ecosystems have been designed to operate independently in the long run such as "profit centers". They are however still very attached to the cluster governance: follow-up by two referees of the governance structure (strategic and operational) that set projects’ deadlines and indicators of progress, and annual reporting in front of a committee of funders (local authorities) and the members of the Bureau. Formalization generated by these ecosystems provides a specific framework that clearly defines the respective roles of each member, thus facilitating the integration and collaboration of SMEs in collaborative innovation projects.

In order to build an identity shared by all cluster members, Imaginove first started to structure the relationships before entering a second phase of resources pooling. Like Savoie Technolac, the governance of Imaginove struggled to have the idea accepted by all members that synergies on collaborative innovation projects, especially between different industries, were necessary for the future of their industry. The structuring phase aimed at “creating a favorable atmosphere in the Rhône-Alpes region” to promote the development of SMEs from the moving image industry, while the current phase of pooling is focused on creating conditions conducive to the emergence of a real normative network in which actors share collaborative values, including the setting up of joint cross-media oriented projects.

Nevertheless, inter-sectoral differences long outweigh convergence. At the start of the competitiveness cluster, much financial resources have been dedicated to the deployment of training programs and economic development assistance (programs Imaginove Commercial and Imaginove International). It slowed down communication efforts and implementation of specific devices to support innovative collaborations. The difference with Axelera is the lack of large or middle-sized companies, who play the role of "locotive", both to bear and represent this new identity and thus involve SMEs in a system of shared representations where innovative cooperation are the norm. Yet the efforts of cluster governance are now beginning to bear fruit with the emergence of a real dynamic around cross-media activities driven by devices such as the Forum Blanc (annual conference on cross-media), the Living Lab (a usage laboratory), specific call for projects and a professional fair on Serious Games.

The comparative analysis highlights a stronger mobilization of normative practices by Axelera governance, notably the identity building that rapidly united cluster members on the new field of environmental chemistry. Savoie Technolac struggles in establishing a normative network but recent governance initiatives suggest a positive development, especially in the sector of solar and renewable energies. Finally, time for Imaginove should be a powerful ally in building a network whose foundations seem solid.

4.3. Cognitive practices

Beyond mimicry practices and dissemination of best practices, the cognitive lever is mainly based on knowledge management practices and the development of firms’ absorptive capacity (ACAP).

Our results show, in general, a certain weakness of mimetic behavior, especially in Savoie Technolac. The technopole governance rarely communicates about collaborative
innovation projects that are developed on site. It should help though to illustrate these case studies as best practices for other firms on the technopole. Nonetheless some “success stories” of innovative collaboration between technopoles partners have recently been posted on the website. The individualistic behavior of firms (very small services firms in majority) limits the scope of networking activities offered by cluster governance and, therefore, a more widespread use of such devices.

Concerning mimicry practices, AxelerA and Imaginove are in the opposite situation with members of the strategic governance strongly convinced of the benefits of collaboration for innovation. They even set an example by participating themselves to collaborative innovation projects. This is still not enough to gain the support of the remaining members. On the one hand, the ubiquity of the founding members of AxelerA in the first collaborative projects, beyond the ripple effect, may have a chilling effect on smaller companies. On the other hand, the lack of ”locomotives” in Imaginove able to enlist startups in collaborative projects slows the mimetic behavior.

As far as knowledge management is concerned, the three cluster governances engaged in the identification of new sources of knowledge. Due to the large majority of SMEs, Savoie Technolac and Imaginove first worked on the development of generic information tools, such as information or help given on entrepreneurship, innovation funding and protection, negotiation of consortium agreements, exploration of academic partners, HR management, recruitment, export or project management issues… They also disseminate more technical information like regular presentation of newly developed technologies by scientific partners, conferences or roundtables, on the solar for Savoie Technolac or on cross-media for Imaginove. AxelerA even created a specific event, “Technical Tuesdays”, to regularly discuss technical topics such as water in industrial process, intensification of extrusion processes…

The three clusters also developed many partnerships with other clusters, national or foreign, with public or semi-private institutions in charge the development of innovation (CRITT, THESAME, Economic Agency, Chambers of commerce) and with trade unions or professional associations. The objective of these partnerships is to provide member firms a widest possible range of external sources of knowledge to limit risks of cognitive lock-in.

Apart of the first set of knowledge management practices – identifying external knowledge – Savoie Technolac has not really developed the two other sets, namely the acquisition and the exploitation of common knowledge. Only the INES and its dedicated incubator deal with the creation and the transfer of cluster-specific shared knowledge. At the opposite, AxelerA governance is heavily involved in the identification and acquisition of collective knowledge across the cluster. It quickly established 5 innovation ecosystems in relation to the strategic themes identified for the cluster. These ecosystems support and accelerate the development of ideas, innovative projects and new knowledge. The exploitation of this new architectural knowledge is materialized in two projects: the creation of a platform for innovation, Axel’One, and of a research institute, INDEED, that should allow the implementation of knowledge created at the collective level, its formalization and development through spinoffs.
Imaginove governance is also strongly convinced of the importance of knowledge management practices at the cluster level. After the first phase of external knowledge identification, Imaginove implemented different ways to help cluster firms to develop and acquire shared knowledge, primarily focusing on cross-media and serious games: the organization of a professional fair, Serious Game Expo, two calls for collaborative projects on Serious Games and new consuming habits, a investment fund for cross-media and an annual conference, Forum Blanc.

The last set of cognitive practices concerns the ACAP of cluster firms and the way to enhance them for better innovative performance. These practices focus mainly on apprenticeship and learning. In Savoie Technolac, practices enhancing ACAP are oriented in two directions. First, the solar industry, with a major learning program, lifelong and initial training, managed by INES institute. Second, the startups, with the Base Academy, a specific training program for business developers. However, no other training programs are scheduled for the majority of cluster firms not belonging to these two categories, even if the geographical proximity of the university, Université de Savoie, might facilitate an easier access to education.

Axelera only started to develop an educational program for its members in the second development phase, i.e. from 2008. This program is mainly for SMEs with training for innovation, European collective projects, export… The governance also worked together with member universities to develop new, adapted educational program (5 new initial training on chemistry-environment sector). An ad hoc working group was set up to discuss questions relative to education, forward planning and skills.

Since the beginning of Imaginove, the training and human resource component is very important and materializes with the recruitment in the governance structure of a project leader for Training & Employment, who is in charge of coordinating the network of schools of image in Rhône-Alpes. Four targeted training programs were developed: Imaginove Commercial, Imaginove International, Imaginove Development and “Going for Growth”. Eventually, the cluster governance manages a skills management program that aims at defining common standards for cross-media players and stimulating inter-sectorial collaborative projects.

5. DISCUSSION AND CONCLUSION

5.1. The positive impact of cluster governance on firms’ innovation

This paper contributes new evidence toward understanding the positive impact of cluster governance on firms’ innovation within French clusters. The original framework on institutional work highlights how cluster governance can mobilize institutional practices of innovation to create a specific institutional environment conducive to collaboration for innovation.

To sum up briefly the results, two points can be noted. On the one hand, we observed differences in terms of innovative performance between the three clusters. Even if they are more innovative than average, the technopole Savoie Technolac show poorer outcomes than
Axelera and Imaginove, the two competitiveness clusters of the sample, Axelera being on top of the podium. On the other hand, our analysis highlights the mobilization of the three levers of institutional work and of all 8 sets of institutional practices defined in our framework. However, great differences, between the three cluster governances, in the intensity of uses of each practice are found. Indeed, the competitiveness cluster Axelera succeeds in implementing several sets of political, normative as well as cognitive practices. Thus it facilitates the emergence of a normative network linking together the cluster members and fostering innovative collaborative practices as well as knowledge dynamics between them.

To compensate for a weaker mobilization of political practices, the governance of Imaginove, the second competitiveness cluster, focuses first on cognitive practices to develop individual absorptive capacities of its members (mainly SMEs and micro businesses) and a common cluster-specific knowledge base. By developing normative practices such as shared vision and common identity around cross-media skills and trades, Imaginove governance succeeds then in laying the foundations for the emergence of a normative network conducive to interactions and innovative collaborations.

The third cluster, the technopole Savoie Technolac, is globally weaker in mobilizing the three levers than the two other clusters. Although very strong on lobbying practices that enable the allocation of important material resources for innovation in the solar industry, the technopole Savoie Technolac is still struggling to set in place other effective political practices such as constitutive rules (Scott, 1995) and regulatory framework. This lack of political practices hinders the growth of a normative network within the cluster, slowing down the development of collaborative projects of innovation. However, the recent construction of a common identity around solar and renewable energies supports the implementation of a new entrepreneurship community in the technopole.

### 5.2. The complementary effect of the three institutional levers on innovation

This multiple case study reveals some complementary effect of institutional work at cluster governance level. The implementation of the three levers – political, normative and cognitive – facilitate the emergence of an institutional environment favorable to cooperation and innovation because of three contextual components:

- Political practices benefit the building of the cluster’s legitimacy.
- Normative practices facilitate the emergence of institutional trust.
- Cognitive practices participate to the constitution of architectural knowledge.

Cluster legitimacy, institutional trust and architectural knowledge represent the three pillars that might act directly on cluster firms’ innovation, militating for an integrative approach of cluster governance. We develop hereafter our understanding of these three pillars and their impact on innovation.

#### 5.2.1. Building the cluster’s legitimacy

Legitimacy is a major source of acquiring resources and innovative opportunities (Zimmerman & Zeitz, 2002) as well as the foundation of the cluster’s success and longevity (Human & Provan, 2000). Political practices of innovation favor the legitimacy building. In
French top-down clusters, the question of legitimacy arises even more resonance. The issue of legitimacy is involvement, mobilization and accountability of all stakeholders. In the context of innovation where the acquisition of resources is a key element, the cluster and its governance must be recognized as legitimate both vis-à-vis external stakeholders to recover resources and sustain them, and internally, so that members "trust" part of their own resources by agreeing to work together on collaborative projects. Studying the French competitiveness cluster PEIFL (Fruits and Vegetables in the south of France), Meseghem and Paradas (2009) show how the construction of legitimacy has been decisive for the emergence of the cluster as a recognized inter-organizational structure and "a major player in the fruit and vegetable sector". This legitimacy has also had a strong impact on innovation by strengthening territorial anchoring and promoting the development of collaborative innovation projects.

Human and Provan (2000) highlight the importance of building the legitimacy of the network both internally, with member organizations, and externally, with various stakeholders such as funders, institutions. The outside legitimacy building is important for innovation because it facilitates the acquisition of resources while inside legitimacy welds cluster actors together, facilitating the emergence of communities and dynamic collaborations. Savoie Technolac adopted initially an “outside-in” strategy (Human & Provan, 2000), that aims at promoting the cluster externally first (external stakeholders) before developing the internal membership cohesion. This strategy makes it difficult for members to appropriate the technopole as a legitimate entity and organizational form conducive to inter-organizational interactions (Provan & Kenis, 2007). However, recent governance practices tend to reorient the strategy toward an “inside-out” one, fostering the legitimacy building of the technopole as an existing entity and a structure of interaction. At the opposite, Imaginove first concentrated on an “inside-out” legitimacy building in order to have all members agree upon the convergence project and slowly begun to revert the strategy. Meanwhile Axelera governance ran both strategies together, legitimizing the cluster internally in order to rapidly create cohesive and dynamic interactions on innovative projects, while seeking institutional recognition to establish the cluster as a legitimate and reliable partner for acquiring resources.

Human and Provan (2000) bring out the fundamental role of cluster governance in legitimacy building. They come to the conclusion that an “inside-out” strategy at the cluster creation seems more efficient for cluster legitimacy building and sustainability. Both strategies led by Imaginove and Axelera governances seem to confirm this statement.

5.2.2. Developing an institutional trust

Trust is a central concept in explaining collaborations of innovation since it can significantly reduce transaction costs and lead to the creation of new ideas. In clusters where members do not know each other, the creation of trust might be time-consuming because it requires repeated face-to-face contacts. In contrast, where institutional trust exists, both parties refer to institutional safeguards in their decisions and actions and can thus develop trust without having any prior personal experience in dealing with one another (Bachmann & Inkpen, 2011). Cluster governance, when developing institutional-based trust through normative practices, act as a personal third party guarantor for collaboration in innovation projects.
Institutional practices of normative nature, by building a cluster specific and collective identity and a network linking all cluster members in a system of shared representations, standards and common values, lay the foundations of an institutional-based trust that binds cluster stakeholders together. The regulatory and structuring framework generated by political practices reinforces the emergence of this institutional trust. In the context of French clusters, stemming from top-down initiatives and with few local anchoring, creating an institutional trust seems to be a valuable contextual variable to consider in the context of innovation. Indeed it might facilitate and speed the engagement of heterogeneous actors in interactive dynamics of knowledge and innovation.

In Axelera competitiveness cluster, where large leading firms coexist with smaller startups, the development of institutional trust is nearly a prerequisite for the early stages of collaborative innovation projects for which contracts are often not a sufficient basis in the creative process of inter-organizational trust (Bachmann & Inkpen, 2011). The same applies for Imaginove and it explains why the governance emphasized from the beginning the normative lever more than the political one. Despite its stronger territorial anchoring and anteriority, Savoie Technolac did not succeed yet to develop this institutional-based trust in the technopole. Collaborations for innovation are still stronger outside than inside the cluster and the governance has a great challenge ahead in enhancing normative practices in order to develop a stronger institutional trust to foster internal collaborations.

5.2.3. Building the architectural knowledge

The third contextual variable resulting from institutional practices of cognitive nature is related to the creation of new and cluster-specific knowledge from collaborative innovation projects that we can assimilate to architectural knowledge (Tallman, Jenkins, Henry, & Pinch, 2004). When political and normative institutional practices favor the conditions to create an adequate institutional environment conducive to better collaboration for innovation, cognitive practices rely on this environment to facilitate the creation of architectural knowledge as the combination of all actors’ knowledge components. The architectural knowledge is a valuable source of innovation at the cluster level since it corresponds to non-transferable territorial resources and cluster core competences (Prahalad & Hamel, 1990).

Repeated interactions, particularly through collaborative innovation projects, foster the development of a stock of architectural knowledge that distinguishes the cluster from the rest of the industry and facilitates rapid dissemination of new knowledge through the cluster by increasing the absorptive capacity of firms (Tallman et al., 2004). This architectural knowledge then positively influences the innovation of member companies and provides them with a competitive advantage, since it is not accessible to companies outside the sphere of the cluster.

Axelera organization in innovation ecosystems seems particularly relevant to foster the creation of architectural knowledge. Imaginove governance goes in the same direction in supporting specific devices for collaborative innovation projects (Project Booster, calls for specific projects on UNSG) and interactive learning dynamics (launch of Think Tank and laboratory uses Living Lab). Finally, in Savoie Technolac, creating an architectural knowledge seems to be limited, for the time being, to organizations linked to the INES.
The limit of architectural knowledge is how create it at the cluster level in order that every cluster member can have access to it – as if it were a “public” architectural knowledge – and not to limit its access to ecosystems’ members or to those participating to collaborative projects. For Giuliani and Bell (2005), as for Tallman et al. (2004), the risk is great to create a two-tier cluster with a strong asymmetry of knowledge between businesses with access to knowledge networks and others, SMEs in particular. The active participation of the governance in the innovation ecosystems – for example as in Axelera with the mandatory presence of a member of the operational governance and a member of the strategic governance in the steering committee – could alleviate this potential asymmetry. The knowledge gained in the ecosystem allows the governance to play an intermediary role of "knowledge broker " and to integrate isolated in collaborative innovation projects.

5.3. Contributions, limitations and research agenda

Three main contributions can be pointed out. Our first contribution is theoretical since we propose an in-depth adaptation and extension of this model to the analysis of cluster governance and its potential impact on firms’ innovation, seizing cluster governance as a potential powerful determinant of innovation. By focusing on concrete practices implemented by the governance structure, we also contribute to the elaboration of practical management tools, at strategic as well as operational level, to sustain firms’ innovation in clusters. In addition, our analysis grid based on institutional work at cluster level constitutes an original benchmark tool or evaluation indicator for public decision makers that can help to understand the observed differences of performance between the clusters at a national level.

This study has also limitations that require further attention. Although multiple case studies are encouraged for greater external validity and a larger understanding of institutional practices of innovation, the conclusions are limited by the temporality of the case. A longitudinal analysis might deepen our understanding of potential innovative dynamics linked to the complementary effect of the three levers. Cross-sectional studies limit the analysis of institutional work as a process over time. Future research should thus seek to reedit the analysis a few years later in order to better evaluate the impact of the governance’s institutional practices on innovation. The space might also be considered as a limitation. We focus our analysis on one region, the Rhône-Alpes region characterized by a high proportion of innovative clusters, an economic dynamism and a commitment to supporting innovation devices. It may be interesting to compare our results with clusters belonging to other regions, in France or in Europe, in order to eliminate contextual bias.

This work contributes to a better understanding of the role of cluster governance on innovation by defining an original framework based on institutional work. It suggests that an institutional-practice-based approach of governance might be a very convenient tool to analyze cluster governance. Future research should establish more precisely the complementary effect of the three contextual variables of our analysis by testing more in depth their impact on innovation.


