Becoming innovation intermediaries: Identity aspirations under institutional complexity

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Résumé

Peu d'études examinent les facteurs internes qui influencent les réponses organisationnelles à la complexité institutionnelle. Nous étudions ici la manière dont l'identité organisationnelle et l'aspiration de l'identité organisationnelle influencent les réactions organisationnelles à ladite complexité. Cette recherche s'appuie sur une étude de cas comparative de trois CCSTI qui partagent une aspiration commune à devenir des intermédiaires de l'innovation au sein de leurs écosystèmes d'innovation. Nos résultats démontrent que la construction d'une nouvelle identité organisationnelle et l'adoption d'un nouveau rôle obligent les organisations à s'engager dans des activités de légitimation avec leurs anciens et leurs nouveaux publics. L'image et le statut de l'organisation jouent également un rôle important dans la gestion de la complexité institutionnelle. Les résultats de cette recherche contribuent ainsi à mieux comprendre la manière dont les organisations gèrent la complexité institutionnelle.

Mots-clés: Complexité institutionnelle, Légitimité, Identité organisationnelle, Aspiration de l'identité organisationnelle

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INTRODUCTION

A growing number of research focuses on fragmented institutional environments where the organizational field is influenced by multiple conflicting demands (D'Aunno, Sutton, & Price, 1991). This situation, referred to as "institutional complexity" (Greenwood, Díaz, Li, & Lorente, 2010; Greenwood, Raynard, Kodeih, Micelotta, & Lounsbury, 2011; Thornton, Ocasio, & Lounsbury, 2012), often leads to tensions and conflicts since organizations in these fields cannot simply enact institutional scripts (Yu, 2013). Moreover, they have to take the decision which institutional pressures they should respond to. This decision is risky as it might violate others' demands (Pfeffer & Salancik, 1978) and put organizational legitimacy at stake. As Kraatz and Block (2008: 243) remark, "*an organization confronting institutional pluralism plays in two or more games at the same time*", and it is important to understand how organizations experience and manage these multiple, often conflicting, institutional pressures.

In the past, scholars have already documented organizations' responses to external institutional pressures. One of the earliest efforts was provided by Oliver (1991) who offered the first systematic approach to potential organizational responses ranging from passive conformity to active resistance in response, influenced by the nature and context of institutional pressures. This early research has served as a theoretical base for multiple successive empirical and theoretical studies (e.g., Goodstein, 1994; Ingram & Simons, 1995; Rao, Greve, & Davis, 2001; Seo & Creed, 2002; Washington & Zajac, 2004; Pache & Santos, 2010).

Despite the attention that scholars more recently paid to the issue of institutional complexity, there are to date still relatively few studies that systematically focus on the internal organizational factors that shape organizational responses (Greenwood et al, 2011, Kodeih & Greenwood, 2014, Brikson, 2013). In this paper, we focus on the role organizational identity, which has been highlighted in prior work as playing an important role in how organizations respond to their environment (e.g., Dutton & Dukerich, 1991; Glynn, 2008; Greenwood et al., 2011). In a recent study, organizational responses to institutional complexity were connected to organizational identity *aspirations*, in other words: to "*what an organization wishes to become*" (Kodeih & Greenwood, 2013).

We build on this recent contribution to study in more detail the relationship between organizational identity, identity aspiration and institutional complexity. In doing so, we address the recent claim for further exploration of the link between institutional theorizing and

organizational identity (Glynn, 2014: 414). Empirically, we examine this question through a comparative case study of three French science centers operating in complex institutional fields who share an identity aspiration of becoming innovation intermediaries within their respective regional innovation ecosystems. Historically, the three organizations operated in a field ruled by two institutional logics, science popularization and social welfare. In recent years, these organizations were exposed to a new institutional logic of innovation support, which was perceived by the science centers as an opportunity to position themselves as innovation intermediaries within their local innovation ecosystems. In our study, we explore their efforts to build a new identity and to reposition themselves into their new role. Following the insights that "*identities become most prominent under conditions of high uncertainty and ambiguity*" (Navis & Glynn, 2011: 480), and that organizational responses are more apparent when institutional complexity is unfolding (Smets, Morris, & Greenwood, 2012), our study of the three science centers provides an ideal opportunity to examine the links between identity, identity aspiration, and institutional complexity.

1. THEORETICAL BACKGROUND: INSTITUTIONAL COMPLEXITY AND ORGANIZATIONAL IDENTITY

1.1. INSTITUTIONAL COMPLEXITY

Alford and Friedland (1985, 1991) have introduced the concept of institutional logics as the practices and beliefs inherent in institutions typical of modern Western society. More recently, institutional logics have been defined as "*the socially constructed historical patterns of material practices, assumptions, values, beliefs and rules by which individuals produce and reproduce their material subsistence, and provide meaning to their social reality*" (Thornton & Ocasio, 1999: 804). The so-called institutional logics approach *"provides a bridge between macro, structural perspectives and more micro, process approaches*" (Thornton & Ocasio, 2008: 99). Institutional logics provide frameworks *"available within developed societies, which are differentiated around numerous specialized arenas – political, economic, religious, kinship, and so on – and each of which is governed by a different logic*" (Scott, 2008: 186).

Early-on, Scott (1994: 211) had already argued that many organizational fields were characterized by "*two or more strong, competing or conflicting belief systems*". Later studies observed this phenomenon in fields as diverse as health care (Dunn & Jones, 2010), life sciences

(Murray, 2010), cultural industries (Glynn & Lounsbury, 2005), professional services (Smets, Morris, & Greenwood, 2012) or manufacturing industries (Greenwood et al., 2010). Such competing logics are a source of contradictions since they provide coherent alternatives concerning field structuration and the definition of legitimate activities. Under such conditions, organizations face multiple and contradictory regulatory regimes, normative orders and cultural logics (Kraatz & Block, 2008).

Organizations under institutional complexity struggle to gain and secure legitimacy since they encounter no single shared perception of what is "*desirable, proper or appropriate within socially constructed system of values, beliefs and definitions*" (Suchman, 1995: 574). Organizational legitimacy is generally defined as the acceptance of an organization by its environment (Meyer & Rowan, 1977). It is vital for organization survival (D'Aunno & Zuckerman, 1987) because it enables resources acquisition (Zimmerman & Zeitz, 2002), enhances stability (Suchman, 1995). Audiences' perception of organizational legitimacy is influenced by external actors and thus relies on the organizational capacity to maintain the support of those field-level audiences that detain legitimacy-determining power (Pfeffer & Salancik, 1978). Field-level audiences judge organizational legitimacy based on their values and beliefs, which reflect a field's institutional logics (Kodeih & Greenwood, 2014).

Moreover, institutional complexity can be a source of internal tensions in organizations as "*organizational actors operating in pluralistic environments cannot merely enact taken-for-granted scripts and are compelled to exercise choice*" (Yu, 2013: 107). The more incompatible the conflicting logics, the more severe the conflicts and their consequences are. Incompatible logics can generate internal power struggles (Pache & Santos, 2010), identity problems (Fiol, Pratt, & O'Connor, 2009) and may even lead to organizational crises. A study by Glynn (2000) illustrates how conflicting logics – in her case artistic excellence and economic utility – caused a paralysis of the Atlanta Symphony Orchestra. In more general terms, organizations in institutionally complex fields are obliged to choose to which institutional pressures they want to respond. Navigating between conflicting institutional demands requires not only negotiation and tradeoffs (Zietsma & Lawrence, 2010), but also the design of specific strategies and organizational forms (Pache & Santos, 2010) in order to balance external demands, interests, and resources in the pursuit of legitimacy.

Institutional complexity does not affect all organizations equally since organizational responses to institutional complexity are shaped by internal organizational structures and processes (Greenwood et al., 2011). Earlier studies looked at distinctive aspects of organizations suggesting that, for instance, ownership structure (Goodrick & Salancik, 1996) and internal institutional representativeness (Pache & Santos, 2013) influenced organizational responses. In recent years, research emphasized the importance of identity "*as a filter for interpreting and responding to strategic issues and environmental changes*" (Glynn, 2008: 418). Earlier studies on organizational identity (e.g. Dutton & Dukerich, 1991, Gioia & Thomas, 1996) demonstrated that identity plays an important role in how organizations respond to environmental pressures and expectations.

1.2. ORGANIZATIONAL IDENTITY AND ORGANIZATIONAL RESPONSES

Organizational identity has been defined as a "collective understanding of the features presumed to be central and relatively permanent, and that distinguish the organization from other configurations" (Gioia, Schultz, & Corley, 2000: 64). Organizational identity is a shared cognitive schema that shapes how problems and actions are interpreted within organizations (Dutton & Dukerich, 1991), defines threats and opportunities (Dutton, Dukerich, & Harquail, 1994), and limits organizational interpretations, actions, and potential for change (Fiol, 2001: 694). In the institutional logics perspective, organizational identity is considered as filter "*for interpreting and responding to strategic issues and environmental changes*" (Glynn, 2008: 408). In other words, organizational identity shapes how expectations and external pressures are prioritized and managed. For instance, if an organization's identity is inconsistent with institutional prescriptions, the organization will be inclined to resist or to reverse those pressures.

Several aspects of organizational identity link it to an organization's response to institutional pressure. Since organizational identity "*provides a sense of self and meaning, and places one in a wider social context*" (Ashforth & Mael, 1996: 52), it allows organizations to claim to be a part of an "*institutionally standardized social category*" (Glynn, 2008), which in turn affects the availability of social, cultural, and material resources (Hsu, Kocak, & Negro, 2010). Furthermore, an organizational identity's strength and positive or negative perception influence how the organization reacts to institutional complexity: organization members who perceive their organization's identity as positive will be more prone and motivated to protect it (e.g., Dutton et al., 1994). The strength of organizational identity, i.e. the degree to which individual member's

identity perceptions are widely held and deeply shared (Kreiner & Ashforth, 2004), will influence how organizations manage institutional pressures. Research demonstrated that a strong organizational identity, for instance, provides the necessary confidence for proactive behaviors (Gioia & Thomas, 1996) or, in other terms, "affects the degree of discretion assumed by the organization" (Greenwood et al., 2011: 348).

As demonstrated by recent research, not just an organization's current identity, but also its organizational identity *aspirations* influence how it responds to institutional pressures (Kodeih & Greenwood, 2014). In this view, institutional complexity is seen as an opportunity for organizations to move towards an aspired identity. Organizations will respond to those institutional pressures that support their organizational aspirations, and organizational responses to complexity will therefore depend upon the nature of those aspirations. For example, Kodeih & Greenwood's (2014) empirical study of four business schools demonstrated that organizations use rival institutional logics to modify their field-level positions and status by integrating practices from a new, rival logic and by restructuring their activities so as to signal adherence to the values associated with the new logic. The extent of activity modification depended on how business schools perceived current institutional arrangements. Organizations dissatisfied by their current situation were more prompt to integrate activities related to new logics. With the present study, we respond to Kodeih and Greenwood's (2014) call to study identity aspirations and their role in responding to institutional complexity in other contexts by addressing the following overall research question: ***How do organizational identity and identity aspirations shape organizations' responses to institutional complexity*****?**

2. RESEARCH DESIGN, DATA COLLECTION AND ANALYSIS

Our research adopts a comparative case study approach in order to provide a robust basis for theory building (Yin, 2003), this strategy offering more reliable explanations than a single case study (Eisenhardt & Graebner, 2007). Our empirical setting comprises three French science centers which deliberately seek to reposition themselves in the context of their respective regional science and innovation fields.

Scientific culture is the expression of all the modes through which individuals and society as a whole can appropriate science and technology. Scientific culture and science popularization

concepts originate in the Age of Enlightenment when education was only available to exclusive parts of the society. The science popularization movement therefore emerged as a response to elitism and aimed to make scientific knowledge available to the population. Until this day, science popularization's goal is to transmit and diffuse scientific knowledge to the wide society.

With recent OCDE studies demonstrating low "scientific literacy", important gaps in equality of opportunities and low access to scientific studies, science popularization is an important part of any government's politics. According to the French Ministry of Higher Education and Research report (2012:1): "*Scientific and technical culture is more than ever an important topic since the questions about technology and sciences and their impact on a community life, thus on a public sphere, have become more frequent*."

Science popularization can take multiple forms, from more traditional scientific journals or books to theme parks such as Futuroscope. Therefore, the science popularization or the scientific culture fields are constituted by a great variety of actors, such as ministries and consulting organizations, education institutions, the media, museums, public libraries, scientific recreation clubs and various other organizations promoting and disseminating science and technology. Science centers are a specific type of science popularization organizations. The first has been established in the late seventies in the Rhône Alp region. There are currently over 50 science centers across France. The science centers can take multiple organizational forms and can strongly vary in size, for instance, some organizations are directly attached to the university, while some others can be relatively independent. Similarly, the smallest organization may only have a few employees, while the largest one, in Paris, can count over 900 collaborators. Despite the heterogeneity in the forms and size, all of the science centers are practically exclusively dependent on public funding. After 2008's economic crisis public funding for education was strongly reduced, for instance, in Brittany, northwest France, between 2010 and 2011 funding was cut up to 40 %, forcing the Ministry of Higher Education and Research to dispatch emergency subsidies not to dismiss the employees of a local science center.

In this context, six science centers decided to apply for the national development program called "Investissment d'Avenir" (Investment in the Future) providing substantial and targeted investments for research and innovation. Launched in 2009, the program injected over 47 billion euros in French economy in multiple sectors. In 2011 the science centers' application was

accepted and they received 30 million euros to enhance equal opportunities in access to science and technology and *"to ensure that scientific culture expands beyond its traditional sector and participates in social and economic life".* The funding enabled developing and testing new scientific culture tools and was therefore perceived as an opportunity to expand the science centers' activities and gradually reposition themselves as innovation intermediaries.

Therefore, we focus on three science centers participating in the program. We followed a purposive sampling approach following a theoretical logic (Eisenhardt, 1989) looking for organizations that varied in terms of size and embeddedness in the region as these differences have been highlighted as key antecedents influencing organizations' responses to institutional complexity (Greenwood et al., 2011). Table 1 below provides a brief overview over the three case study organizations.

Table 1. Case description

CASE	YEAR OF CREATION	GEOGRAPHICREGION	NUMBER OF COLLABORATORS	CASE CHARACTERISTICS
Science center 1	1979	Rhône-Alpes (Southeastern France)	17	The oldest of the three science centers possessing a small building that, with government funding, was rearranged to host a Fab Lab. Since they do not have much space left, their Living Lab activities are occasionally organized outside of the organization. This is the science center with the longest history and the strongest relationship with local universities and research centers.
Science center 2	1995	Aquitaine (Southwestern France)	50	A large science center created by a group of local scientists. This association possesses a two floor building. One of the floors will be rearranged to host their Fab Lab, Living Lab and The Studio.
Science center 3	1999	Basse-Normandie (Northwestern France)	9	The science center is the youngest and smallest and it doesn't have an exhibition space. The received funding is used to construct a building dedicated to open innovation. This space should host their Fab lab and Living Lab (2000m²) and is envisioned to be as sort of an open space where visitors, artists and private firms can get into contact.

In order to reposition as innovation intermediaries, all three centers designed new types of venues (such as Living Labs, Fab Labs, etc.), emphasizing the role of digital resources and interfaces, and also engaged in the development of innovative digital content in order to reach new audiences (see Table 2 below for a description of some of these newly developed tools). The overall idea of repositioning themselves as innovation intermediaries was common to all three

organizations. The director of science center 2 described this change as follows: *"The Funding is an accelerator of transformation. It allows to do the R&D, to have time to sit down, to step back, to analyze the social reality and to allow developing new directions. It allows places like ours to fully integrate social reality."*

Table 2. Open innovation tools

OPEN INNOVATION TOOLS	DESCRIPTION
Fab Lab	A Fab Lab is a technical prototyping platform containing multiple machines, such as laser cutters, 3D printers and others. A Fab Lab facility is often used by individual users and entrepreneurs for digital manufacturing and rapid prototyping.
Living Lab	A Living Lab is a tool of community-driven innovation in real-life contexts. The tool creates conditions for knowledge sharing, cooperation and experimentation amongst different local actors, for example, scientists, students, private companies, etc. The goal, therefore, is to stimulate co-construction and open innovation by fostering interactions between the different actors.
Studio	The Studio is a creativity space containing audiovisual equipment to create a multimedia content. The goal of the tool is to change Science center relationships with their visitors by integrating them in Science center content creation and enable co-creation.

To study the three case organizations, we conducted 45 semi-structured interviews with science center managers, collaborators, main stakeholders and external actors involved in the centers' innovation projects (see Appendix A1 for a detailed list of all interviews). A representative set of interviewees were pre-selected jointly with the director of each science center by taking into account their role in the innovation projects and their past collaborations with the science centers. We also conducted semi-structured interviews with 3 representatives from local governments involved in science center financing and strategic management. Interview data constituted the main data source. Interviews were conducted between May 2014 and November 2014. Interviews lasted between 30 and 90 minutes, and 44 of them were digitally recorded and fully transcribed. The interviews addressed the science centers' roles within their respective regional fields, their principal activities, as well as changes and obstacles encountered. In addition, data collection included documents such as activity reports, data from internet sites and blogs, press articles and local government reports to complete interview data. These documents allowed us to gain a sense of the development of the three organizations over time.

All data was analyzed using Atlas.ti 7 qualitative data analysis software. Our data analysis consisted of multiple steps, consistent with the so-called Gioia methodology (Gioia, Corley &

Hamilton, 2013). Firstly, the first author coded transcripts and documents for each organization. Codes included phrases, terms and descriptions of institutional logics, their conflicts, organizational change, identity aspirations and their challenges. This analysis evolved into first-level codes which were then compared across documents. The second stage of our analysis was characterized by introducing the theoretical background. By moving back and forth between data and theory, we sought to identify emerging themes and concepts to describe and explain the phenomena under study. Therefore, in the second step we aggregated codes into higher-level themes, seeking to identify relationships between the codes (Corbin & Strauss, 1998). These second-order categories included references to old and new field-level arrangements, organizational image and dependence on institutional support, as well as categories related to organizations' satisfaction with current institutional arrangements, new practice adoption, and status. We regrouped these second order categories into three broad, aggregate dimensions: coherence between organizational identity and identity aspirations, organizations' legitimization strategies, and organizations' motivation to realize their organizational identity aspiration (see Figure A2 in the Appendix for our final data structure). In the final step, we then compared coded data from the different case in order to identify how the three organizations managed institutional complexity in their efforts to reposition themselves as innovation intermediaries.

3. FINDINGS

All three science centers were non-profit organizations which are primarily funded by local government. Their traditional activities consist of regular collaboration with local universities, research centers, other civil society associations and to some extent with private firms. All science centers in the study experienced similar institutional pressures. The three science centers' organizational fields were characterized by three co-existing institutional logics, which we identified as "science popularization", "social welfare" and "innovation support" (see Table 3 below).

Table 3. Comparison of field-level institutional logics

CHARACTERISTIC	*GOAL*	*TARGET POPULATION*	*EXAMPLES*
SCIENCE POPULARIZATION LOGIC	Make scientific knowledge available to everybody	Whole society	*"When I prepare an exhibit… I want that they (would) ask questions and that they then go search on the internet, buy books and become enlightened citizens"* (collaborator of Science center 1) *"For me the science center's mission it's really to provide a scientific culture…To transform it and make it available to everyone."* (President of Science Center 2)
SOCIAL WELFARE LOGIC	Insure needs of the local community in terms of education or economy	Local community: governmental, organizational and individuals actors	*"So, we had smaller machines, so we said: "What could be interesting is to be able to have a machine that can be shared with local actors for the tasks that they could not do with their own machines". So this is what led us to buy this big thing" (*Collaborator of Science center 2) "*But the mission is also to link all the territories, mobilize all the territories around the dissemination of scientific and technical culture…* (Collaborator of Science center 3)
INNOVATION SUPPORT LOGIC	Facilitate individual and organizational innovations	Local Individual entrepreneurs, Start-ups, Private firms, Scientific research centers	*"We need to provide some tangible constructive things to the local ecosystem, so today we are reflecting on our real positive role in the local ecosystem, Fab Lab is a response"* (President of Science Center 1) *"This place will be structuring for the territory by its capacity to attract new audiences, to initiate innovative projects, to make visible nationally research and innovation conducted in Lower Normandy* (Science center's 3 website)

3.1. INSTITUTIONAL LOGICS AND IDENTITY ASPIRATION

***Science popularization logic*.** The science center concept initially developed in the early 1970s with the aim of science mediation in order to raise the general population's awareness and support for research activities and to openly disclose scientific knowledge. The local science communities played an active role in the design of exhibitions making by providing expertise and knowledge. Scientists also often participated in conferences and other events organized by the science centers. The centers' strong relationship with the world of scientific research was reinforced by the representation of local research centers, universities, and individual scientists in the organizations' boards. As remarks representative of conurbation in Science center 1:

"*The science centers originated from academic knowledge transmission. They are the university! In a historical view, the Science Center is the tool the university has set up to make scientific mediation with those who were not in the university, to communicate with young people who could come tomorrow to the university or parents who have never gone there*"

Carriers of the science popularization logic defended the traditional role of the science centers as a place for exhibitions and scientific debates and also as a tool for universities disseminate their scientific findings. However, in recent years, science centers encountered growing difficulties

with field-level audiences, such as local universities and scientific research centers. The latter began taking over organizing science popularization activities themselves -- for instance in science center 2's territory local universities has started to build their own center for technology and science without involving the established science center. Similarly, in the case of science center 1, local universities decided to participate no longer in the local science festival (*Fête de la Sciences*), an annual event held in all of France to promote science, which was organized by the science center, but to organize their own events. This growing distance was highlighted by our interviews, such as in the following quote from the president of science center 1:

"I think many universities do not really see an interest in Science Centers, they say: there are blogs, there are internet sites"

***Social welfare logic*.** The second logic was strongly connected to the role and position of local government focusing on the social development of its territory. Science centers were directly influenced by this logic since the local government is their main principal source of funding. Therefore, all three organizations tried to keep their activities aligned with values and beliefs connected to the social welfare logic, which positioned the science centers as means for popular education and mitigating social tensions. Moreover, the centers were seen as instruments for promoting a city or a region, and asked, for instance, to develop exhibitions on local industry or technology, or, more recently, to help developing other local associations. In some regions, science centers were even offered to change their status in order to become public agencies:

"*The difficulty today is that science centers are funded by the City Council and the Regional Council so that these two institutions believe they have an authority over the activities of the science center, and an almost unlimited authority*" (collaborator of Science Center 2)

In recent years, the economic situation led local governments to cut funding for cultural activities. Since science centers were mostly funded by local government, they were advised to find new ways to finance their activities while keeping their social actions in place:
"Search for private money, yes, but without orienting the activity towards the private sector! It is necessary that the activity remains oriented towards the territory and its need of scientific mediation" (representative of conurbation in Science Center 1)

***Innovation support logic*.** In recent years, all three science centers were increasingly exposed to a third logic, which we characterized as "innovation support logic", in the context of

their exhibitions, and a growing number of European projects and innovation-related events. Organizations adhering to this logic focus on supporting innovative and collaborative activities. The specific organizational field connected to this logic is typically constituted of innovation agencies, clusters, innovation platforms, private firms and other service providers related to innovation and regional economy services of the local government. Over time, this logic began playing in increasing role for the three science centers:

"*Science centers, the new generation, as we say, are spaces, platforms of experimentation, appropriation and opportunity creation*" (director of Science Center 1)

This new logic was perceived by all three centers as an opportunity to reposition themselves as part of the local innovation ecosystem and become innovation intermediaries. It offered new organizational goals, missions and potential users such as entrepreneurs, startups or private firms. It also was perceived as an opportunity to access additional funding. All Science centers therefore started to integrate innovation tools and restructure their activity to appeal to new innovation support audiences to build the new identity and the new role.

3.2. EXTENT OF NEW PRACTICE ADOPTION

The three sciences centers all adopted innovation tools and restructured their activities in order to respond to the innovation support logic. Their responses to this new logic, however, differed in terms of timing.

Science center 1. Science center 1 was the first to shift towards acting as an innovation intermediary by launching a Fab lab facility in 2011. Soon after, it started to reach out to local innovation support organizations to build collaborations. It actively participated in multiple innovation events with local scientific research centers and innovation support agencies. In 2012, it engaged in an open innovation project with a local scientific research center around the collaboration between scientists and artists. It offered its Fab lab facility for prototyping and launched their first Living lab to tests innovative concepts resulting from this project. In 2014, it participated in a national digital company support program ("French Tech") and tried to position itself as a place of collaboration and creativity.

The strategy of science center 1 focused primarily on digital companies. It offered to train entrepreneurs in digital manufacturing and rapid prototyping. However, these actions did not yet lead to any long-term collaboration. At the same time, we observed that Science center 1 also

tried to keep linkages with both the ***science popularization*** and ***social welfare*** logics: the center's management extensively communicated that these programs offered an innovative way to popularize science, promote equal access to digital technologies, and to convey an innovative image of the city. It also, for instance, developed a Fab Lab offer for local schools as highlighted in the following interview quote of the president of the Science Center 1:

"*The needs of the metropolitan, the city, the university are not the same, it is clear, it is for us to find a better synthesis to meet the needs of the maximum people*".

Science center 2. Science center 2 decided to establish a creativity space consisting of a Fab Lab, a Living Lab and a Studio for multimedia production. The introduction of these activities was accompanied by a legitimization process similar to science center 1 in which the center described its tools as an innovative way to popularize science, to stimulate creativity among the public at large, and to promote equal access to digital technology, as illustrated by the following quote from the science center 2 annual report describing its Living lab tools:

"*But what is the relationship (of Living Lab) with the scientific and technical culture? (...) The Living Lab can accommodate thousands of objects of study, its operating principle is the same: every time it is to experiment and to divert digital technologies and to launch applications based on public expectations and co-create new scientific, cultural and urban projects*"

These new activities, however, were developed on a small scale since the center still primarily focused on the production of exhibitions, the management of its local association network, and on two spaces for science popularization in socially disadvantaged neighborhoods. As highlighted by the director of science center 2, the organization still needs to define itself primarily in terms of ***social welfare*** and ***science popularization*** issues:

"*Indeed, we tick many boxes in regional, town council and cultural services, and also in education, tourism, sport*…."(director of Science Center 2)

As was the case for science center 1, science center 2 also chose to appeal to a new local innovation system audience to introduce new practices, and to legitimate its new role, for example by inviting a group of entrepreneurs to test their Fab lab and Living lab in order to demonstrate the usefulness of these tools for entrepreneurs. To signal their adherence to the specific audiences connected to the ***innovation support*** logic, it appointed well-known actors from its local innovation ecosystem in important internal positions. Its current president, for

example, also serves as in the top management of the one of the largest industrial firms in its region, and a well-known consultant was recruited as its deputy director:

"*The associative world more and more asks for people from the private sector…Then the demand was: creation of network. We need someone who participates, has a position in an associative activity, and a network to make our association known"* (president of Science Center 2)

Science center 3. The third case organization managed institutional pressures and organizational repositioning in a different way. Its director perceived funding as an opportunity to establish the center on a regional (as opposed to local) level and to become an important actor in the regional innovation ecosystem:

"But it is a nice ecosystem project, because, ultimately, it no longer turns the scientific research into an elite which has difficulties to impose itself… Everyone will come in through the door he/she wants in order to have access to what he/she wants" (director of Science Center 3)

The center decided to design and to build an innovation space (that included both a Fab Lab and a Living Lab). The concept of this new building was inspired by a Paris-based public cultural center promoting both openness and diversity. For this entity, novel forms of projects represented the majority of its activities. The center's director undertook extensive legitimization activities for the new building involving audiences connected to both ***science popularization*** and ***social welfare*** logics. From the outset, the new building was positioned as a space promoting a spirit of community and collaboration between visitors, associations and private firms. Furthermore, the local government tended to perceive the building as a symbol for the dynamism and innovativeness of the hosting city:

"The inhabitants see a science center that is linked to the economic development. This changes the people's vision of their region and we know that the mindset is very important, not only in sports, but also in the economy, the confidence in these things… There is a phrase I love, a sentence of Kennedy, later used by Reagan that is: "A rising tide lifts all boats"" (director of a local innovation agency)

Similarly, from the building project's beginning, the center actively involved audiences connected to the innovation support field and engaged in co-creation projects with actors such as the local Chamber of Commerce, the regional government and various private firms:

"*The director of the science center always talked to about this project and said: "Look, I have a resource here. I want private firms be a component of the animation of this resource. So I therefore need you to build things, define your needs and formalize them in a way that we are able to respond to them together". In their positioning, that I really like, they are not trying to pre-imagine things, but invite industrials to imagine things with them. The science center does not position itself as an assistant but, on the contrary, it is more a place than an agency if you want. Do you see?*" (director of a local firm)

The case of science center 3 suggests that adopting a new field-level role requires appealing to different logics and legitimizing new activities in relation to different field-level audiences. All three science centers tried to legitimize their new activities by appealing to local innovation agencies, clusters, professional associations and private firms, and sought to position themselves as a part of their local innovation ecosystems. Their legitimization strategies included extensive communication with the field-level audiences: the centers participated in local innovation events and national innovation programs, directors personally negotiated with local innovation agencies to get acknowledged as potential partners. Such legitimization strategies proved to be necessary because in most regions (especially in the regions of science center 1 and science center 2) the science centers themselves were relatively unknown or exclusively associated with their traditional science popularization role. As an innovation consultant in Science center 1's territory put it:

"*I think not many people known them, they are there to promote science to the public, they have a Fab lab also, but I do not know much more"*

Actors in the innovation field also rarely perceived science centers as potential partners. This was especially visible in the cases of science centers 1 and 2:

"Yesterday I was at the Urban Community for the digital innovation project… I presented the Science Center to the director of the economy, whom I know well - I knew him when I worked at Deloitte. He introduced me to two persons: "He is a former from Deloitte". So you see, the science center for him had not sufficient legitimacy to work on the subject. The fact that I had a former position, he used it as argument, saying: "It's worth to work with them"." (collaborator of Science Center 2)

At the same time, during this period of repositioning, all three science centers kept responding to the demands of their initial audience and sought to legitimize their actions towards them. As a result, the three centers tended to frame their new activities in a way that mirrored the two "traditional" institutional logics, resulting in a double legitimization process.

3.3. DOUBLE LEGITIMIZATION AND ROLE OF ORGANIZATIONAL IMAGE AND STATUS

The extent of legitimization activities clearly varied among the three centers: Science centers 1 and 2 were more active in legitimization strategies with their old field-referents than science center 3. Organizational image and status played a role in how case organizations responded to institutional demands. Science centers 1 and 2 adopted the new activities with higher caution, as suggested by the following quote from an interview with a science center 2's employee:

"At some point, you feel cornered, because you're still an actor at the crossroads of many people, with quite a lot of public funding… And it is necessary not to be disliked. You therefore always have to arbitrate saying: OK, there, we go a little bit; there we go more, but without displeasing. It is really very complicated" (collaborator of Science Center 2)

Science centers 1 and 2 were worried about losing institutional support. New activities were increasingly integrated into their already existing activities and often framed so that they could respond to the two existing old-field logics. At the same time, their efforts to appeal to audiences connected to the new innovation support logic did not yield tangible results, their environments seeming to be less receptive to their efforts than it was case in science center 3.

Science center 1 had worked in the past with local universities, scientific research centers and some innovation agencies on projects related to innovation and the organization was already quite well known and appreciated for its event organization skills and its knowledge of general audience preferences. Over time, science center 1 became even more active in trying to link with innovation ecosystem actors and was the first of three science centers to adopt new practices related to innovation support. Despite the efforts, the actors of the innovation ecosystem were quite reluctant to these demanded the development of new forms of collaboration surpassing their traditional role as event organizer. This can be explained by its organizational image: In its region, science center 1 was clearly associated with museums and popular education reflecting their traditional mission and role. Therefore, the label of museum, being strongly attached,

sometimes discredited its efforts since its actions were perceived as focusing exclusively on popular education and being distant from economic reality. In other terms, the organization's recognition within the field of science popularization hindered its attempts to appeal to the new-field audiences. Science center 2 was in a similar situation, lacking legitimacy in the innovation field. As the biggest science center in the region and a recognized tourist attraction, science center 2 did not succeed to be recognized outside its traditional role.

Science center 3, on the contrary, was more successful in moving towards its aspired identity building up legitimacy. In its region, this organization was well known for its capacity to organize events and manage multiple actors. As the other case study organizations, science center 3 was also working on traditional science popularization. However, this organization ran only a small number of exhibitions, rarely worked with families and for small children, and consciously avoided focusing on these audiences by specializing on the organization of debates, round tables, and workshops. Furthermore, science center 3 was the youngest and smallest organization in the sample. It does not own exhibition space, which enabled it to avoid being labeled a "museum". At the same time, being less embedded in the field of science popularization provided it with the freedom to easily shift away from traditional activities associated with the science centers. As a consequence, Science center 3 almost exclusively focused on its new activities and role:

"This is what we are doing collectively in order to show that scientific culture is not an action of science vulgarization. That does not interest us, that is, essentially, exhibitions and conferences… We, we claim for a scientific culture based on doing, therefore based on industrial projects, on the implementation of these industrial and research projects with the population…" (director of science center 3)

Science center 3 was also the least satisfied by its current role, and its management saw only a very low probability to receive any additional funding from local government. The new innovation support logic was therefore perceived as an opportunity to reconfigure its current position:

"*…a small association, a really small structure…it therefore gave us a new dimension especially because, in addition, there is a project of a building. It thus makes us visible and very visible because it will be 30 meters high, it is a thing that will be seen as the nose in the middle of the*

face here, it is a real thing... And we really started to exist at the end of the Odyssées, the 3 projects… and then, this story of the science center has boosted us" (director of science center 3)

The comparison of the three science centers thus suggested that an organization's status involving an organization's size, age, and embeddedness in a field played a role in how this organization interpreted and incorporated practices associated with a novel (and potentially competing) logic. We observed that the smallest of the three science centers perceived the new organizational identity as an opportunity for the reconfiguration and improvement of its current position. At the same time, this organization had the weakest association with the traditional image of the science centers. We suggest that in our cases organizational image played an important role in how organizations were perceived by new field-level audiences. Science centers 1 and 2 were strongly connected with their traditional roles and the associated image; their attempts to appeal to the new field-level audiences were not perceived as legitimate and so far proved not successful. At the same time, their embeddedness within their old organizational fields limited their capacity to signal their full adherence to the new institutional logic since the organizations still felt dependent on resources provided by their former audiences. In other terms, science centers 1 and 2 viewed the move towards a new organizational identity as an extremely risky choice whereas science center 3 -- being less associated with traditional science center roles and disposing of fewer resources -- was less preoccupied about losing its past institutional endorsement.

DISCUSSION AND CONCLUSION

The goal of the current paper was to examine how organizational identity and identity aspiration influence organizational responses to institutional complexity. We observed that organizations took advantage of institutional complexity to achieve their identity aspirations. They consciously signaled the adherence to a logic that was beneficial to build their new identity and role. We also discovered that organizations were trying at the same time to keep up legitimacy with prior audiences. Organizations trying to build a new identity engage in a double legitimization process. Legitimization is an ongoing interaction with an environment to test and to redefine the legitimacy of an organization (Baum & Oliver, 1991). Its goal of legitimization is to secure the flow of resources from the environment to the organization (Hannan & Freeman, 1989). Studies on strategic change demonstrated that an organization often uses impression management techniques to keep their activity legitimate with multiple audiences, since strategic change

frequently involves symbolic struggles over the purpose and direction of an organization (Fiss & Zajac, 2006: 1173). A study by Arndt and Bigelow (2000), for example, examined how hospitals legitimate new business-like orientations followed by structural innovation with their stakeholders, demonstrating that organizations employ defensive impression management strategies to create "legitimated accounts" (Meyer and Rowan, 1977: 350) justifying their restructuration**.** Similarly, a later study by Fiss and Zajac (2006) demonstrated how organizations framed their actions for different stakeholders. Our study clearly resonates with these prior observations. In the institutionally complex environment our case organizations found themselves in, all three organization were consciously managing how they were perceived by various audiences since legitimacy was critical for their survival. The three science centers were especially sensitive to legitimacy issues because they were non-profit organizations relying on scarce financial sources. However, since the new identity and subsequent repositioning entailed an important risk of losing institutional endorsement, the science centers were only moving carefully towards the new role (especially in the cases of science centers 1 and 2), trying to maintain the institutional support of their old institutional field-level audiences. At the same time, they appealed to the new field audiences, which could provide them with a new base for legitimacy and eventually access to new resources.

Science center 3, the smallest and youngest organization, was the most successful in achieving legitimacy among new audiences. This can be partially explained by their organizational image. Science Center 3's image was not strongly associated with traditional science center roles and values, contrary to the older centers, for which it was more difficult to be perceived as legitimate in the new innovation intermediary role. It appears that well known and recognized organizations in their fields face more difficulties to move to a new identity and role. Although this requires further research, we believe that an organization's success in appealing to new audiences is influenced by their perceived past adherence to other logics. In other words, if preexisting institutional logics are based on very distant values and beliefs, and if organizations are strongly associated with them, new audiences will find it more difficult to perceive these organizations' new identities and roles as legitimate.

Moreover, the way in which science centers introduced new activities strongly varied. The two larger centers were more reluctant to integrate new activities and they tended to graft changes onto existing arrangements (see Nag, Corley & Gioia, 2007 for a parallel finding). Moreover,

they firstly focused on legitimizing the new activities with their old field audiences. As organizations grow and get embedded in field exchange networks, the institutionalized expectations of other organizations, consumers, state, etc. exert greater influence on them (Dimaggio & Powell, 199). In other terms, central organizations are less likely to diverge from prevailing institutional arrangements. In contrast, lower status organizations facing change tend to adopt divergent strategies (Battilana, 2006: 662). Furthermore, organizations at the periphery, often being in disadvantageous positions and not benefitting from current institutional arrangements, are less inclined to maintain the current institutional order. Organizations "*whose status is below their aspirations are more likely to interpret institutional complexity as providing opportunities for status reconfiguration and reconstruction*" (Kodeih & Greenwood, 2013: 32). Organizations in disadvantageous positions are thus not only freer to experiment with their institutional responses, but also more motivated to do so, hoping to improve their current situation.

The present study and its findings extend the framework proposed by Kodeih and Greenwood (2014) framework by adding organizational image as an important factor in organizational efforts to achieve a new organizational identity. We argue that the level of coherence between current organizational image and aspired organizational identity or, in other words, the institutional logics they reflect, influence the perception of legitimacy by the new field audiences. In other terms, if an organization is identified as a strong defender of the one logic, its new field-level audiences could perceive its attempts as illegitimate if the defended logic values are distant or incompatible with their own. In our study we observed that science centers 1 and 2 had signaled their adherence to the science popularization field over an extended period of time. Later-on, this strong association hindered their efforts to build new collaborations in their local innovation ecosystems since these actors perceived the centers' actions as being incompatible with their traditional role. On the other hand, science center 3, which was only weakly associated with the traditional science popularization logic, faced fewer difficulties in building new collaborations and legitimacy. These observations, even though they require additional empirical trial and further exploration, contribute to current efforts to understand how organizational identity and identity aspirations influence organizational responses to institutional complexity.

Our results also provide a first insight into factors influencing the process of organizational repositioning in institutionally complex contexts, and we propose three factors that influence

organizational repositioning: organizational status, organizational image, and legitimization capacity. *Organizational status* influences organizational motivations and efforts to reposition. We observed that lower status organizations were more motivated to move towards an incoming logic and abandon the prevailing institutional arrangements that served them poorly. We therefore propose that organizations that are dissatisfied with their current institutional arrangements will be more motivated to engage with new identities and role building. The *organizational image* held by field-level audiences influences organizational repositioning success. We observed that organizations recognized in their prior field had difficulties to appear legitimate for audiences in their new field since they were perceived as strongly adhering to their old field values and beliefs. Therefore, repositioning should be easier if new and old logics overlap. Similarly, an organization's *legitimization capacity* which allows it to appeal to new audiences and gain support for its activities will influence the success of organizational repositioning.

Establishing and modifying an organizational identity and its claims in an institutionally complex environment it is a challenging task knowing that organizational identity does not "appear out of thin air" (Corley et al., 2006: 96) and it requires negotiations with internal and external audiences and stakeholders (Gioia et al., 2010). Empirical studies on stakeholder relationship provide insights about the possible struggles that organizations face while taking the decision to modify their current identity: "*Stakeholders tend strongly to resent and resist organizations treating them in ways that are inconsistent with the agreed-upon code of conduct outlined by the organization's identity orientation, viewing such behavior as a personal betrayal*" (Brikson, 2005:602). Since our study focused mostly on external field-level audiences and their claims, further research could examine the impact on internal actors and how organization navigate between potential internal and external tensions.

Moreover, this research has not considered the question of new institutional structures and their impacts on the success of organizational repositioning. Studies on organizational identity building and change demonstrate that an actor entering into a new field must negotiate its position as well as its identity claims with field-level audiences (Gioa et al., 2010, Brickson, 2005). Czarniawska & Wolf's (1998) study of two newly established universities has showed that the integration success of new entrants depended heavily on the organizational identity being in harmony with the institutional context and on organizations' ability to acquire institutional

support. These authors also observed that the surviving entrant was gradually forced to mimic the practices of the field and to abandon its initial goals and intentions, since the organizational field did not allow the deviance from prevailing institutional arrangements. Other studies, however, have demonstrated that some fields allow for discretion in responding to institutional pressures. For instance, Quirke (2013:3) has demonstrated that in a patchy organizational field, organizations could be 'legitimated by multiple mythologies' and could seek legitimacy from unconventional sources without compromising their organizational practices to isomorphic pressures. Therefore, further research could examine how organizational field properties will impact organizational establishment success and necessary legitimization strategies.

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APPENDIX A1. List of interviews

	SCIENCE CENTER 1	SCIENCE CENTER 2	SCIENCE CENTER 3
Internal actors	- President - Previous president - Old board member 7 interviews with collaborators	- President 7 interviews with the collaborators	7 interviews with the collaborators
External actors	2 Chamber of Commerce 2 Innovation agencies 1 Scientific research center 1 Innovation Platform 1 Cluster 1 representative of town council 1 Metropolitan representatives 2 consultants	3 local government representatives 1 local consultant 2 local researcher 1 local researcher	1 local researchers 1 local government representative 1 Cluster 1 Large Firm 1 innovation agency 1 Incubator

APPENDIX A2. Data structure