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Making the strategic intent of innovation labs operational: A process perspective on the case of the Lorraine Fab Living Lab

Ferney Osorio^{1,2}, Laurent Dupont¹, Mauricio Camargo¹, José Ismael Peña²

¹Équipe de Recherche sur les Processus Innovatifs, Université de Lorraine, Nancy, France

²Departamento de Ingeniería de Sistemas e Industrial, Universidad Nacional de Colombia, Bogotá, Colombia

Abstract

This paper examines through a single case study the process in which strategic intent is built within an innovation lab. As collaborative innovation structures, innovation labs are sensitive to collision of visions leading to misalignments that could undermine their purpose. Therefore, this study explores from a managerial point of view the way in which an innovation lab is designed, implemented, and sustained in a university context. Results depict the different manifestations of strategic intent that (1) led to the reorganization of existing capabilities under the original idea that gave life to the lab, (2) drove the experimentation and adaptation stages that shaped our case, and (3) favored the institutionalization of the practices and routines resulting from the lab to its ecosystem. This suggests the potential use of the framework to be applied as a coherence-building tool from which strategic intent could be made recognizable and operational.

Keywords: innovation lab, strategic intent, strategy-making, case study

Introduction

In times of disruptive changes, the “labification” phenomenon has found its place allowing organizations and entrepreneurs to work collaboratively under a conjunction of knowledge, cultures, technologies, and expertise (Rayna and Striukova 2019; McGann, Wells, and Blomkamp 2019). Innovation labs are the embodiment of the will of a group of people or organizations to create a favorable environment for facilitating innovation processes (Lewis and Moultrie 2005). They usually do so by implementing collaborative processes and experimentation that ultimately seek to strengthen people’s and stakeholders’ innovative and technological competences while fostering the creation of new solutions to demanding challenges (Mortara and Parisot 2016). This means that the people in charge of assuring the functioning of such places find themselves in a conjunction of expertise, cultures, mindsets, and interests that change depending on the project or activity that takes place (Rayna and Striukova 2019). Lab teams need therefore to be able to deal with constant conditions of uncertainty and complexity (Osorio et al. 2020).

Scholars have already raised concerns on how the lack of a clear thematic focus and shared intentions among its stakeholders undermines an innovation lab purpose (Moultrie et al. 2007; Osorio, Dupont, Camargo, Palominos, et al. 2019). Defining a strategic intent is indeed a proactive mode in strategy-making, providing a north for everyone in an organization from which resources, competences and evolutionary processes are then guided (Mantere and Sillince 2007). Although it is well-known that strategy-making processes are key to successful innovation endeavors (O'Shannassy 2016), there is a lack of understanding of how these processes are carried out within innovation collaborative structures as innovation labs. Even though concerns have been raised about the importance for collaborative structures to have a clear thematic focus and shared intent for their success, literature is scarce in how strategic intent is built within an innovation lab.

Therefore, this study proposes to move forward in this direction by setting up a processual case study based on an innovation lab located in Nancy (France), the Lorraine Fab Living Lab® - LF2L. As part of an ongoing research on the design and management of innovation labs, this study builds on the works developed by Osorio et al. (2019; 2020) to explore to what extent analyzing the evolutionary stages of innovation labs allows to understand how strategic intent around such structures is built and changes in time. Results show the chosen approach is useful to understand the sensemaking process that is carried out within an innovation lab, by looking at the collective intent from team members, how resources and competences are configured, and the subsequent conducted actions.

The remainder of this paper is structured as follows. First, the theoretical background around innovation labs and strategic intent is introduced. Next, the research design along with characteristics of our case are explained. Then, results of the case study are presented followed by a discussion of the main findings and further implications.

Theoretical Background

Innovation Labs background

Amid a variety of definitions, innovation labs are defined as dedicated organizational forms for the facilitation of innovation processes through uniquely designed environments, creative and inspiring cultures, and high-tech facilities (Lewis and Moultrie 2005; Moultrie et al. 2007; Osorio, Dupont, Camargo, Palominos, et al. 2019). According to Lewis and Moultrie (2005), an innovation lab is the embodiment of the innovation will of an organization. They argue that benefits of implementing an innovation lab initiative are beyond specific outcomes and consist in fact of a learning process for both users (individuals, groups or projects) and their parent institutions. To this end, innovation labs are usually used to implement collaborative processes and experimentation that ultimately seek to strengthen people's and stakeholders' innovative and technological competences while fostering the creation of new solutions to demanding challenges (Mortara and Parisot 2016; Osorio, Dupont, Camargo, Palominos, et al. 2019).

When referring to the creation of favorable environments to support innovation, there are several additional concepts that can be found in the literature and are often used interchangeably. Living labs, fablabs, makerspaces, hackerspaces or third places are some

of the prominent concepts that are used to address the emergence and diversity of these innovative spaces (Osorio, Dupont, Camargo, and Pena 2019). Even though previous research has focused on establishing differences between these innovation structures (Capdevila 2014; Schuurman and Tönurist 2016), studies such as the one by Memon et al. (2018) show how living labs, fablabs, coworking space and the like, seem to perform analogously to innovation labs. In this study we therefore look at the vein of innovation labs as an integrating approach that helps us to address the organizational perspective as originally conceptualized by Lewis and Moultrie (2005).

Design and Management of Innovation Labs

Despite the relative freedom in which innovation labs usually operate, they still need to respond to their partners interest and goals (Lewis and Moultrie 2005). In this sense, lab managing teams are deemed to continuously strive to create favorable conditions for creativity and collaboration while at the same time they are embedded in traditional environments driven by broader political and economic interests (Tönurist, Kattel, and Lember 2017; McGann, Wells, and Blomkamp 2019; Rayna and Striukova 2019). This means that innovation labs are semiautonomous organizations strongly shaped by their local context and their team experiences (Gryszkiewicz, Lykourantzou, and Toivonen 2016; Osorio et al. 2020). This is why authors have raised awareness that the designing and management of innovation labs goes beyond the implementation of fancy spaces and instead a more meaningful purpose is required for this kind of initiatives to thrive (Moultrie et al. 2007; Osorio, Dupont, Camargo, Palominos, et al. 2019).

While the innovation lab phenomenon has been present in the academic literature for several years now, few works have focused on the management perspective. The authors of this study have previously contributed to the literature by proposing a strategic-oriented maturity assessment approach as a basis to build guidelines for the design and management of innovation labs (Osorio, Dupont, Camargo, Palominos, et al. 2019). Building on the propositions by Moultrie et al. (2007), they argue that by looking at the stages in which a lab is conceived (strategic intent), implemented (process of creation and physical embodiment), operated (process of use) and valued (outcomes), lab teams can reflect on their journey and potentially envision new strategies to get the best out of their labs (See Figure 1) which coupled with a longitudinal perspective allows also to have an evolutionary perspective (Osorio et al. 2020). Below a summarized description of this framework is shared:

- **Context:** Expectations, needs and culture of lab's hosting organization and/or stakeholders
- **Strategic Intent:** Stakeholders' willingness to innovate translated into the lab's strategic and symbolic goals, common values, culture and lifespan
- **Process of Creation:** The way innovation is intended to be supported within the lab, i.e., stages of the innovation process, methods or activities, type of users, facilitators, events and, available resources and constraints
- **Physical Embodiment:** The lab's physical manifestation in terms of space design, infrastructure, technologies, limitations and reconfigurability
- **Process of Use:** The way the lab supports and facilitates the innovation focus of its stakeholders in relation to what it was originally intended

- **Outcomes:** The tangible and intangible results that are new, useful and duplicable according to the lab's context and strategic intent

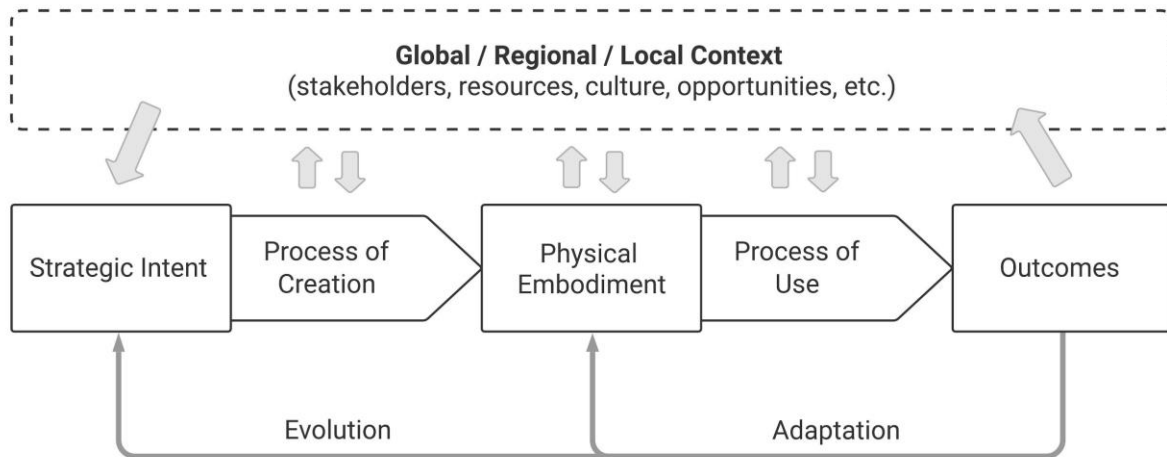


Figure 1. Innovation lab framework outline. Adapted from Osorio et al. (2019)

Strategic Intent

The strategic intent concept is often understood as a proactive mode in strategizing, which symbolizes the organization's will about a desired future (Hamel and Prahalad 2005). It gives a common target to which intraorganizational evolution processes are oriented and the necessary competences accumulated (Mantere and Sillince 2007; Gratton 1994). More specifically, strategic intent has the potential for uniting organizational action into a coherent pattern, especially in those situations where organizations need to be sensitive to environmental changes while being able to exploit bottom-up ideas (Mantere and Sillince 2007). However, according to O'Shannassy (2016) in order to avoid multiple intents dissonance and fragmentation, one needs to be aware when are the right moments to use strategic intent to increase discipline and coordination and when to allow "chaotic" management processes to foster innovation and learning.

This is why Moultrie et al. (2007) assign a fundamental role to the existence of an underpinning strategic intent, so a desired innovation lab initiative does not become a vacuous space with a superficial focus. In addition, given the conjunction of interests, mindsets, cultures and expertise that often collide in today's more open and social innovation labs, it is of paramount importance to not only to use intent to provide a meaningful purpose but to help ensuring strategic alignment in time (Rayna and Striukova 2019; Osorio et al. 2020). Mantere and Sillince (2007) argue that strategic intent and its temporal unfolding is a tool for building coherence between multiple intents by creating purpose, switching perspective, emphasizing context or reaching consistency.

Research Design

Building from the works conducted by (Moultrie et al. 2007) and (Osorio, Dupont, Camargo, Palominos, et al. 2019), the theoretical framework originally proposed for assessing innovation

lab performance has been already adapted for exploring the evolutionary stages of such structures (Osorio et al. 2020). Here, we intend to advance in this research by setting up a processual single case study (Langley 1999) to explore to what extent such an approach could help us to understand how an innovation lab's strategic intent is built and changes in time.

The process data from which this study relies is based on the experience of a collaborative innovation space located in Nancy (France), the Lorraine Fab Living Lab® - LF2L. The LF2L is the result of a joint effort between the ERPI Laboratory and the National School of Innovation and Systems Engineering (ENSGSI) of the Université de Lorraine, the city government and companies (SME network and energy firms). Originally conceived to provide a platform for evaluating uses and innovation acceptability, the LF2L is today a reference in the innovation ecosystem of the Greater East region in France.

We then build our case upon four main sources of data: First, 12 semi-structured interviews with the LF2L team members and representatives from the ERPI and ENSGSI. Second, a compilation of archival data composed mainly by original draft proposals and early designs of the lab as well as technical and management reports between 2014 and 2020. And third, 2-hour prospective workshop with 16 participants composed by professors, researchers, administrative staff and students. The ensemble of this data represents a comprehensive view of the history of the lab since its early conceptualization back in 2005 up to 2020 and its concerns about the future.

Results

This section shares the results of our case study. They are presented according to the four main periods identified for our case, taking into consideration the five dimensions of our theoretical framework. In Table 1 a summary of the main elements that characterize each stage is provided.

Lorraine Fab Living Lab				
	2005 – 2013	2014 - 2017	2017 - 2020	2020 - ...
Context	From INPL to UL Close relationship ENSGSI – ERPI Strategic relationship UL – Metropolitan Government	UL-ENSGSI-ERPI Strategic Alliance through Chaire REVES project (UL – Metropolitan Government – French Energy Firms)	UL-ENSGSI-ERPI Strategic relationship UL – Nancy Metropolitan Government	UL-ENSGSI-ERPI continued institutional commitment Changes in metropolitan government Facilities agreement renewal Infra+ Certification Process at UL

Strategic Intent	<ul style="list-style-type: none"> - Demonstrate tangible innovation approaches to boost pedagogic and research processes - Foster links with territory - Increase ENSGSI and ERPI visibility and recognition 	<ul style="list-style-type: none"> -From parallel initiatives to a unified platform to support research and pedagogic processes -Concept implementation -Facilitate interaction with stakeholders in the territory -Showcase ENSGSI & ERPI Competencies 	<ul style="list-style-type: none"> -From concept implementation to scaling-up -Convergence space for ENSGSI, ERPI & Stakeholders -Support of pedagogic and research processes -The place to “faire vivre l’innovation” 	<ul style="list-style-type: none"> -From scaling-up to sustain -Keep convergence dynamic -Institutionalize the platform -Focus on societal issues
Process of Creation	<ul style="list-style-type: none"> - FabLab and Living Lab as parallel approaches - Prototyping to support pedagogical activities - Co-design to support citizen workshops 	<ul style="list-style-type: none"> -Fab Living Lab approach -Innovation process structured in 2D – 3D – 4D stages -Lab Team composition: scientific coordinator, fab manager & research assistant 	<ul style="list-style-type: none"> -Fab Living Lab 4D Model -Green FabLab -Immersive collaborative environment -Reconfiguration of Lab Team competences -Lab Team composition: scientific coordinator, fab manager, research associates and technical assistant 	<ul style="list-style-type: none"> -Fab Living Lab 4D Integrated Innovation Model -Green FabLab -Immersive collaborative environment - -Lab Team competency inventory -Strengthen digital & facilitation skills
Physical Embodiment	<ul style="list-style-type: none"> - Cre@ction room as FabLab within the school building (50m2) - INOCITE as facilities for developing living lab approach (250m2) 	<ul style="list-style-type: none"> -LF2L as single space hosting FabLab and Living Lab setups (400m2) -Nomad’Lab as FabLab mobile 	<ul style="list-style-type: none"> -Same facilities -Continuous technological upgrades -3D printing and recycling technologies -Immersive technologies and biometric sensors 	<ul style="list-style-type: none"> -Scenario building to explore possibilities to: -Facilities Reconfiguration -New facilities -Facilities expansion
Process of Use	<ul style="list-style-type: none"> - Cre@ction: Creativity and prototyping support for pedagogy - INOCITE: Urban innovation workshops 	<ul style="list-style-type: none"> -Support of pedagogic and research activities through: -CAD & Prototyping to support pedagogy -Co-design & immersive environments -Collaboration with communities of practice through open days 	<ul style="list-style-type: none"> -Formalization of pedagogic and research support services: -Experimentation protocol design -Experimentation setups -Facilitation of innovation workshops 	<ul style="list-style-type: none"> -Improvement of welcome experience -Strengthening of pedagogic and scientific services -Diversification industrial partnerships
Outcomes	<ul style="list-style-type: none"> - Conceptualization of methodological approach on collaborative spaces - Student projects & innovation workshops Labels: Fab Foundation, ENoLL, France Living Labs 	<ul style="list-style-type: none"> -Industrial & Territorial Partnerships -Student & research projects -Scientific publications -Nomad’Lab deployments in the territory 	<ul style="list-style-type: none"> -Industrial & Territorial Partnerships -National & European Funded Projects -Participation at annual metropolitan fair -Scientific publications & press articles 	<ul style="list-style-type: none"> -Keep developing new strategic partnerships -Financial performance -Reenforce visibility of parent institutions -Sustain Lab Team competencies

Stage 1: 2005-2013

Although the LF2L officially started to operate in 2014, it was only the result of a discovery and conceptualization process that began several years before. Back in the time, professors from both the ENSGSI and ERPI were seeking to provide the engineering school and research institute with novel mechanisms to help materialize the innovation knowledge that was being created. Therefore, this period was mostly characterized by a strong conceptualization and development of emerging approaches such as (1) fabrication laboratory or fablab to stimulate prototyping and implementation, and (2) living lab methodologies to facilitate collaboration and user validation.

This intent was manifested by two parallel initiatives. On the one hand, there was the implementation of Cre@ction in 2005, the prototyping room conceived to support student projects located within the ENSGSI building. The allocation of these resources and the dynamic created there will eventually lead to creation of the GSI Lab in 2011 as one of the first fablabs in France. On the other hand, there was INOCITE, a user innovation platform created in 2009 to foster territorial innovation open to public servants, citizens and companies. This initiative will be the carrier of the Lorraine Smart Cities Living Lab (LSCLL) project officially recognized by the European Network of Living Labs (ENOLL).

The simultaneous functioning of both structures naturally sparked complementary interactions as explained by one of the interviewees *“the fablab side helped me to make mock-ups to model mobility stations so that we could have other ways of getting users to work with more representative or novel objects to bring another form of creativity to the citizen workshops”* (interviewee 4, personal communication, June 24, 2020). The development of this dynamic is perhaps one of the most important outcomes of this period, since it was this reciprocity between initially independent approaches that will establish the methodological basis for the future operation of the LF2L.

Stage 2: 2014-2016

A remarkable aspect of the context around this case is the strategic alignment between ENSGSI and ERPI. Both the engineering school and the research institute have clearly coincided in their common interest in jointly promoting the necessary actions and resources to support and foster their scientific and pedagogical processes. A key strategy in this regard has been their determination to interact and collaborate with the different actors in their territory to constantly bring new projects so students from all levels and young researchers have a real milieu to work in.

As result of this dynamic, in 2013 the Chaire REVES project, a public private partnership between the UL, Greater Nancy and two energy firms - Electricité Réseaux Distribution France (ERDF) and Électricité de France (EDF) - to reinforce their actions for sustainable urban transformations started operations. The public focus and scale of the project, the favorable political environment, in addition to methodological knowledge developed in the preceding years were the conditions that led to the implementation in 2014 of the LF2L in a new dedicated facility to host both, the collaborative space along with the fabrication lab. Although the context was determined by a specific project, the vision of the research institute and the

engineering school was to establish an integrated environment with a triple purpose: (1) support research and pedagogy through collaborative innovation processes; (2) facilitate interface with the territory; (3) be a showcase of their expertise.

While this new vision followed the same line as before, its materialization represented a major change in perspective due to the reorganization of resources and competencies: going from two independent sites with different ways of operating to assembling everything into a single one. Something that helped to give meaning to the new organization was the construction of a unified methodological model that reflected the learning and aspirations sought for this new stage. The Fab Living Lab approach is then presented as the innovation continuum expressed by the stages 2D - 3D - 4D as a depiction of the desired way of working around which the different activities and human and technological resources would begin to be guided.

Another important characteristic of this period was the conformation of the lab team composed by a scientific coordinator, a fab manager and a research assistant. Even though the LF2L was conceived to function as a support platform for the ERPI and ENSGSI, undoubtedly the management of the space itself and the activities it was intended to perform required a dedicated team. Support for modeling and prototyping activities, facilitation of co-design workshops and access to immersive environments were some of the main activities that the platform offered to its users in order to provide an experience under the 4D model. All these activities rapidly allowed the development of an active use of the space, measured mainly by the number of events with citizens and the number of student projects supported. In addition, capitalizing on the experience acquired through scientific publications derived from the laboratory's activity was a key result that would help disseminate and gain legitimacy in the region's ecosystem.

Stage 3: 2017-2020

The positioning of the LF2L in the city, as well as the growth of the ERPI and the ENSGSI triggered a virtuous circle where new projects were increasingly housed in the lab, professors and students were using the space for their undergraduate and master courses, and doctoral thesis were being conducted. In this way, LF2L has become the place where the work of the institute and the school *“converge as a place to bring innovation to life”* (interviewee 6, personal communication, June 30, 2020).

Moving from implementing LF2L as a new concept to scaling up was what characterized this period. This was evidenced by the increase in the number of personnel installed on the platform from 3 to 5 people along with the formalization of functions. While in the early days the lab team members felt that *“because one was here you had to do everything”* (interviewee 9, personal communication, June 25, 2020), over time the operational needs became clearer and more defined roles were created. This reorganization did not only involve a redistribution of functions, but also the building of new competencies in areas such as plastic recycling, circular economy, virtual and augmented reality, biometric sensors, etc.

Under this new configuration, a service-based operation began to be more explicitly defined, mainly around the reservation of spaces and technological resources, design of experimentation environments, design of testing protocols, and the facilitation of innovation

workshops. As a result of all these conditions, LF2L today plays an essential role as a support platform for research and pedagogy. On the one hand, it supports the ERPI in the implementation of research projects with regional, national and European funding. On the other hand, it provides a place and complementary resources for the academic activities offered by the ENSGSI, including the hosting of master's and doctoral students in need of an experimental environment.

Stage 4: 2020-Future

The history of LF2L has been marked by continuous institutional support and ownership by its parent institutions. Although throughout these years there have been changes in the leadership of both institutions, the professors recognize the strategic role that this has for their ecosystem. However, 2020 was a year with important changes in the political, social and regulatory context. At the local level, it was an election year that would call into question whether the agreement for the use of the space where the LF2L is installed could be renewed. In addition, a quality certification process for the different platforms offering research and pedagogical services was beginning to gain momentum within the UL. These factors, together with the health and social crisis caused by Covid19, triggered a phase of institutionalization of processes and activities that until then had taken place organically.

The purpose of LF2L has never been in doubt, however issues at this new stage have centered on how to move from growing to sustaining, how to preserve the dynamics of a convergence space for all stakeholders, ensure an increasingly social thematic focus, and institutionalize all these capabilities within the university. Hence, the concerns for the future of LF2L seem to be oriented towards how to formalize the operation of the platform within the structure of the university and to what extent the administrative conditions allow or not to maintain the competencies acquired so far. Questions such as what are the organizational boundaries between the LF2L and the ERPI and ENSGSI, if any; to what extent the platform should be measured by its financial performance or not; or even how the positioning of LF2L in the local ecosystem should be better oriented to reinforce the visibility of its parent institutions, appear as some of the key aspects to work on for the future.

Unfolding the strategic intent of Innovation Labs

From this case we can see how the intent of an innovation lab emerges. Yet, this intent is also changing and relies heavily on the physical and intangible manifestations of the surrounding environment. According to Mantere and Sillince (2007) the temporal unfolding of strategic intent along with the logical interconnections of its components makes strategic intent understandable and recognizable. Further, they theorized on how strategic intent can be used to build coherence between multiple stakeholders by helping in finding purpose, offering a different perspective, emphasizing context or creating consistency. In this section, we use Mantere and Sillince (2007) propositions to explain our case intent evolution, laying the foundation towards an innovation lab intent meter as a tool for summarizing innovation lab value and trigger retrospective sensemaking process (See Figure 2).

Finding purpose: The first stage of our case highlights the importance of finding a purpose for the innovation Lab: the desire of two institutions from the same university to develop new capabilities and to have an interface that would facilitate interactions with the territory. Although the path to the official start of LF2L took several years, the conceptualization undertaken during that time was the seed of *a desired future towards which subsequent actions would be related*.

Switching perspective: There is no doubt that having the will to create the right conditions to foster some form of innovation is the basis for innovation lab initiatives. However, from having a purpose to putting it into practice is quite a journey, and the path to that purpose can often lead to a change in perspective. Although the competencies of the FabLab and Living Lab were already under development, it was not until the implementation of LF2L that a thorough reorganization took place, providing a unified cause from which new efforts would be channeled. While this triggered a new phase of rediscovery and adaptation, *this new perspective served as a guide for all*.

Emphasizing context: Once the LF2L was operational, it became a beacon for its parent institutions and stakeholders. Therefore, it was important to emphasize what the laboratory was all about, so that users could realize its potential and increase its scope. Stage 3 of our case represented a period of increased awareness of the potential of the LF2L, whereby more and more professors, partners and students were making use of the space and its resources. During this period *people were encouraged to use the lab according to their own point of view*.

Building consistency: Disturbances and contradictions are bound to arise along the way of managing an innovation laboratory. Despite the positive results and perceived impact, LF2L is entering a stage where external conditions are adding pressure to a so far mostly organic dynamic. Organizational boundaries, institutionalization of competencies and financial performance are some of the issues driving the debate on the future of the platform. This is where innovation lab initiatives tend to have difficulties in maintaining strategic alignment with their stakeholders. Consequently, one must be aware of when *dissonances need to be collectively addressed in order to strengthen engagement around the lab*.

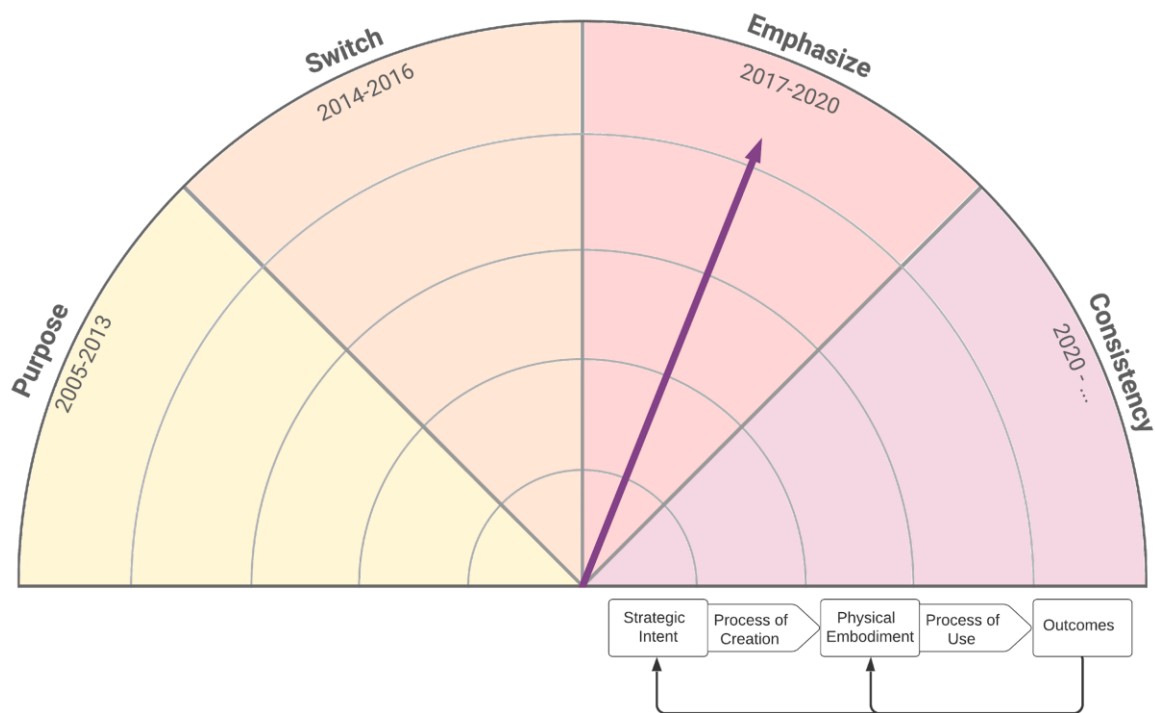


Figure 2. Innovation lab intent gauge

Conclusion

This study explored, from a managerial point of view, the way in which an innovation lab is designed, implemented, and sustained in a university context. It expands from the works of (Osorio et al. 2020; Osorio, Dupont, Camargo, Palominos, et al. 2019) by not only adding insights to the evolutionary process of the management of an innovation lab but also to the way in which the strategic intent around the lab is built. An emphasis is made in how the constitutive pillars of the theoretical framework (strategic intent, process of creation, physical embodiment, process of use and outcomes) help to elicit logical interconnections that emerge among the lab team members and ultimately give shape to the lab strategy.

Results allows us to depict the different manifestations of strategic intent that (1) led to the reorganization of existing capabilities under the original idea that gave life to the lab, (2) drove the experimentation and adaptation stages that shaped our case, and (3) favored the institutionalization of the practices and routines resulting from the lab to its ecosystem (university, public and private sectors). Results also show the chosen approach is useful to understand the sensemaking process that is carried out within an innovation lab, by looking at the collective intent from team members, how resources and competences are configured, and the subsequent conducted actions. This suggests the potential use of the framework to be applied as a coherence-building tool from which strategic intents could be made recognizable and operational.

Through this research we seek to draw attention to the different issues that influence an innovation lab performance beyond infrastructural and operational ones. Public and private

practitioners and policy makers will therefore find a framework that, in practice, constitutes a methodological approach from which innovation lab performance assessments can be tailored. Furthermore, we explore the potential of this approach to become a proactive strategy-making tool to help an innovation lab team and its stakeholders find common ground for building a collective intent.

We acknowledge the importance of collaborative innovation structures in fostering R&D and entrepreneurial innovation. However, we also realize the complex and uncertain conditions in which these structures develop often leading to tensions and bottlenecks. While focus is mostly set on the outcomes and impacts that they may have on their users and ecosystems, we believe that understanding their intra-organizational processes is fundamental for ensuring their success and continuity.

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