Exploring team roles for social innovation labs: toward a competence-based self-assessment approach

Ferney Osorio[a,b], Fabio A. Cruz Sanchez[a], Laurent Dupont[a], Mauricio Camargo[a]

[a] *Université de Lorraine - ERPI -F-54000, Nancy, France,*
[b] *Departamento de Ingeniería de Sistemas e Industrial, Universidad Nacional de Colombia, Bogotá, Colombia*

Abstract

Recently, there has been a great interest in the development of innovations labs as intermediate means to fostering social innovative solutions to wicked problems. However, understanding how lab teams are assembled including the underlying competences and main roles inside of these organizational structures is still yet to be addressed. This aspect is of paramount importance at the early-design phase to foster the future development and consolidation of such initiatives. A competence-based role model is proposed as a basis for guiding the conformation of social innovation lab teams. The model has been structured from (1) a set of 14 competences for social innovation labs retrieved from the literature, (2) a comparison of 7 frameworks of innovation team roles and (3) authors experience. The proposed model is then operationalized through a self-assessment approach composed of an online questionnaire and a retrospective workshop aiming to allow team members to position themselves in terms of the potential role that they could perform for their team but also to elicit improvement strategies. The self-assessment methodology is then applied among 10 Latin American nascent social innovation lab teams with focus on climate change challenges. Insights and implications of this exploratory study for both researchers and practitioners are then discussed.

Key words: innovation lab, social innovation, innovation team roles, innovation competences, self-assessment

1. Introduction

Today's most critical challenges demand systemic ways to tackle them. Climate change, environmental degradation, health crisis, education inequalities, and employment and poverty reduction are some examples of those wicked problems characterized by their complexity, their interdependencies and their context specificity (Zivkovic, 2018). Social Innovation (SI) then emerges as a research strand for not only helping to understand these societal issues but to facilitate the development of systemic strategies toward a transformative change of social practices in order to solve social problems and meeting local demands (Strasser, Kraker, & Kemp, 2019).

*Corresponding Author
Email address: ferney.osorio-bustamante@univ-lorraine.fr (Ferney Osorio)

In particular, the notion of SI Labs has recently become a subject of interest in the literature. SI labs emerge as an approach to keep up with increasing changes and accumulating challenges that society deals with and where more conventional approaches relying solely on techno-centric approaches fall short (Jezierski et al., 2014; Westley et al., 2015). Innovation labs are defined as semi-autonomous organizations dedicated to facilitate innovation processes by allowing multi-stakeholders groups to interact in open collaboration with the purpose of creating and prototyping solutions to systemic challenges while strengthening people's innovative and technological competences (Gryszkiewicz, Lykourentzou, & Toivonen, 2016; M. Lewis & Moultrie, 2005; Zivkovic, 2018). In this sense, SI labs act as cross-pollinators of knowledge, creating dialogue, mixing voices, allowing for new ideas to appear and to be translated into alternative solutions (Wascher, Kaletka, & Schultze, 2019). The way these organizational forms perform often depends on the problem that is being addressed and the context they belong to. This means that the people, the organizations involved and even the methods applied within a SI lab are constantly changing (Wascher, Hebel, Schrot, & Schultze, 2018).

The changing and permeable nature of the "lab" phenomenon represents a complex working environment which often leads to conditions of uncertainty. This is something on which authors have raised concerns, suggesting that those teams in charge of leading an innovation lab should be able to deal with ambiguities, integrate multiple perspectives and facilitate the work across-disciplines (McGann, Wells, & Blomkamp, 2019; Osorio, Dupont, Camargo, Sandoval, & Peña, 2020). There is an increasing interest in how innovation labs can be used to address societal problems (McGann, Wells, & Blomkamp, 2019); governments, companies, universities, and even communities are continuously turning to the implementation of their own "lab." They are becoming vectors for fostering collaborative learning, inclusive entrepreneurial thinking, systemic change and the transfer of innovation capabilities (Camargo, Morel, & Lhoste, 2021; Delgado, Galvez, Hassan, Palominos, & Morel, 2020; Rayna & Striukova, 2019; Vessal, Partouche-Sebban, Scuotto, & Maalaoui, 2021). However, several questions arise when considering how the teams managing these initiatives should be composed and organized (J. M. Lewis, 2020; Zivkovic, 2018). This aspect is of paramount importance, especially at the early-design phase to foster the future development and consolidation of such initiatives.

In fact, the assembling of innovation teams has been a matter of interest for a long time. Both practitioners and scholars from public and private sectors have addressed and shared their experiences in the nature and characteristics of innovations teams across time. This is a vision that has been in constant evolution, referring for instance to the 80's where corporate-type innovation teams, whose nature depended mainly on the emergence of those 'champions' capable of overcoming any obstacle, while additional roles were organized towards supporting them (Jenssen & Jørgensen, 2004; Roberts & Fusfeld, 1982). Then, as the adoption of open innovation practices became more widespread, the idea of innovation teams has progressively become more agile and adaptive, opening the door to the integration of multiple disciplines, and being the inspiration for new

ways of work and collaboration (Gemünden, Salomo, & Hölzle, 2007; Hellström, Jacob, & Malmquist, 2002; Hering & Phillips, 2005). While the perception of lonely innovators and isolated teams seems to persist today, the increasing interconnection and complexity of the problems that we face as society, the amount of information and knowledge that is continuously created, and the challenging task of making critical decisions with unforeseeable repercussions, are evidence on why today's innovation teams are called to be able to efficiently collaborate under a multitude of perspectives, disciplines and cultures (Björklund, Laakso, Kirjavainen, & Ekman, 2017; Puttick, Baeck, & Colligan, 2014).

This is not a minor issue since it is in people where the success of every innovation process of an organization lies (Leonard-Barton, 1995). Thus, understanding the dynamics of group work and team performance has been a topic of interest for the scientific community. In this regard, previous studies have tackled this issue from several perspectives. In terms of team theory for instance, Belbin (2010) gathers in her book an extensive research that resumes her proposition of the nine key team roles at work. Originally published in 1993, Belbin explains in her work why roles in a team are in fact the sum up of multiple factors such as personal traits, knowledge, skills, experience and even situations that will determine a person's behaviour in group work or in a specific job. More specifically studies on innovation teams as the ones by (Kratzer, Leenders, & Engelen, 2004; Kratzer, Leenders, & Engelen, 2006a; Kratzer, Leenders, & Engelen, 2006b) have focused on examining how factors such as team communication, conflicts or virtuality influence creativity performance. Likewise, DeCusatis (2008) pointed out how team performance varies based on generational preferences, habits and the nature of the intended innovation. Precisely, this changing nature of the innovation process across time has opened the door for not only asking which roles are required but also what are the competences needed for successful innovation teams.

That is why researches like these of (Chatenier, Verstegen, Biemans, Mulder, & Omta, 2010) and (Podmetina, Soderquist, Petraite, & Teplov, 2018) have proposed specific competence profiles, for open innovation teams revealing what are the main tasks they perform, the main challenges they face and the underlying competencies behind them. Chatenier, Verstegen, Biemans, Mulder, & Omta (2010) pointed out that competence profiles are instrumental for the creation and development of innovation teams. However, besides their comprehensive and detailed model they also suggest that a single competence profile falls short when it comes to assembling effective innovation teams, specifically at the moment of determining which competences need to be held by each team member and for which role.

Despite the existing research, the literature remains scarce when referring to what competences are key for guiding the conformation of SI lab teams and under which roles can they be organized. This is a major issue for the successful implementation of an innovation lab initiative, since beyond physical and technological resources, human facilitation is one of its fundamental pillars (Magadley & Birdi, 2009). Furthermore, how these aspects are early weighed in terms of the lab setup and its context (i.e. private, community or university) de-

termines the type of challenges a lab team will have to face (Rayna & Striukova, 2019). But more importantly, the strategies to overcome these challenges could be driven or undermined according to the competences of the lab team, reflecting also on how effectively they would be able to achieve the intended social impact (Rayna & Striukova, 2021). Therefore, the main focus of this article lies on the identification of the key competences and roles that could help the conformation of teams meant to be the bearers of SI processes. Our goal is to propose a methodological approach for the early design of SI lab teams. By means of a self-assessment tool, we intend to provide practical guidance for the creation of more enduring lab teams while at the same time we continue to create awareness on the management of these organizational structures.

To this end, the article first elaborates on the concepts of SI lab, competence and innovation roles. Next, a role-based framework is developed by comparing seven existing conceptual frameworks drawn from the literature on innovation teams and SI. Then, the proposed framework is operationalized through a competence-based assessment tool (online questionnaire) from which a self-assessment methodology is designed. This approach is subsequently tested within the context of the Climate Labs project, an Erasmus+ initiative whose aim is to strengthen the applied research and innovation capacities of 10 Latin American Higher Education Institutions in Mexico, Brazil and Colombia via the design and implementation of Social Innovation Labs for mitigation and adaptation to Climate Change. Results from this exploratory study evidence that the chosen approach is instrumental in the characterization of teams at the early stages of the implementation of a lab project inside Higher Education Institutions, enabling them to elicit improvement strategies. Lastly, discussion and conclusions are built around the main implications of this work and suggested paths for future research.

2. Theoretical Background

2.1. Social Innovation Labs

SI refers to the new answers provided to the increasing unsatisfied or badly-satisfied societal issues (Gregoire, 2016). It is understood as the new social relations (doing, organizing, framing and knowing) between people (e.g. producers and consumers, citizens and government, refugees and native inhabitants, etc.) as well as between people and any other aspect in society (e.g. people and nature, producers and their products, etc.) (Strasser, Kraker, & Kemp, 2019). SI has been described as being context specific, these new social relations often lead to novel practices that are meant to address social issues such as child-care, education, unemployment, crime prevention, ageing population or climate change (Dias & Partidário, 2019 ; Rayna & Striukova, 2019). This means that the value sought through SI is primarily intended to benefit society rather than individuals (Moulaert, MacCallum, Hamdouch, & Mehmood, 2014). A key difference from other innovation approaches, such as technological innovation, is that the focus is not necessarily on new technologies or material infrastructure

but to contribute to solving social problems where technology is seen as a means for that purpose (Mulgan, 2006; Murray, Caulier-Grice, & Mulgan, 2010). In that sense, SI mainly consists of taking advantage of existing competences and expertise within the population to find more effective, efficient or sustainable ways to tackle current demanding issues (Strasser, Kraker, & Kemp, 2019). This also implies that SI solutions are a product of relational changes that prioritize values rather than status, purpose rather than profit, co-ownership rather than hierarchy, and collaboration rather than competition (Gregoire, 2016; Strasser, Kraker, & Kemp, 2019).

Recently, the term SI lab has been used for framing the different organizational forms that agglomerate teams and methods with the intention of creating socially innovative initiatives (Jezierski et al., 2014; Wascher, Kaletka, & Schultze, 2019; Westley et al., 2015). The notion of innovation labs has been present in the literature for several years now (Osorio, Dupont, Camargo, & Pena, 2019), building on the more classic "lab" idea usually associated to the physical or natural sciences, to establishing itself as a "safe haven for experimentation, focused on problem solving and solution creation" (Bloom & Faulkner, 2016). Among the constellation of labs, SI labs raise with the particular focus on addressing complex social problems and enabling coherent action by multiple stakeholders (Zivkovic, 2018). They do so by providing the space and processes for facilitating collaboration among cross-sector stakeholders in order to develop new projects, products, tools, regulations, policies, etc. (Wascher, Hebel, Schrot, & Schultze, 2018).

SI labs are characterized because they foster the creation of dialogue, listening and mixing the different voices of the actors involved, and creating boundary objects (e.g. prototypes, illustrations, concepts, scenarios, and maps) for knowledge co-production processes to allow diverse actors to work together (Lake, Fernando, & Eardley, 2016; See Nilsson, Bonnici, & EL, 2015; Timmermans, Blok, Braun, Wesselink, & Nielsen, 2020). Ultimately, they act as cross-pollinators of co-creation methods, approaches and perspectives between groups allowing to stimulate and channel collective creativity so that new ideas constantly emerge (Jezierski et al., 2014; Rayna & Striukova, 2019). Despite how promising it is to pursue the innovation lab approach, it is important to keep in mind that this is a response to keep up to increasing and accumulating changes that we live today and where more conventional approaches fall short (Vessal, Partouche-Sebban, Scuotto, & Maalaoui, 2021; Zivkovic, 2018). That is to say, to embark on such an initiative implies to deal with uncertainty, ambiguity and tensions that are inherent aspects of working on such complex and changing conditions (Jezierski et al., 2014; Osorio et al., 2019). This is why organizations willing to create their own "lab" need to be aware of the challenges and opportunities that this type of initiative entails.

SI lab teams perform in permeable and changing environments where people and organizations come and go depending on the problem that is being addressed and the parties to whom it is relevant (Wascher, Hebel, Schrot, & Schultze, 2018). These ever-changing conditions demand for teams who value and practice flexibility and agility in order to make the most of the ecosystem.

Lab teams should possess a wide range of competences that allow them to be open to transitions and comfortable with ambiguities; use multiple lenses to integrate multiple perspectives; and be able and willing to work across-disciplines so resources can be mobilized in creative ways (Jezierski et al., 2014; Puttick, Baeck, & Colligan, 2014; Rayna & Striukova, 2021). Still, literature seems to remain scarce when it comes to providing guidance on which competences should SI lab teams have or focus their development in order to succeed. In the next subsection, we explore this issue in order to establish a common ground for what set of competences a team for a SI lab should have.

2.2. Competence and social innovation labs

From organizational and managerial perspectives, development of human competences is a fundamental task in the path of innovation and successful organizations (Leonard-Barton, 1995). Understanding individual competences is key for enabling teams and organizations to perform and adapt in rapidly changing conditions (Sandberg, 2000). In general, the concept of *competence* is understood as the capability of an individual to deliver sustainable and effective performance in a specific domain, job, role, organizational context or situation (Mulder, 2014). A *competence* consists of various *competencies* that coherently cluster a set of knowledge, skills, attitudes and experience (Mulder, 2014). In that sense, competence profiles are often used to represent the functional and behavioral competencies that are required to successfully meet complex demands in a particular context (Chatenier, Verstegen, Biemans, Mulder, & Omta, 2010).

In the context of open innovation for instance, (Chatenier, Verstegen, Biemans, Mulder, & Omta, 2010) proposed in their work a competence profile for open innovation teams based on 20 semi-structured interviews and 2 focus groups with professionals that had participated in open innovation projects in the agribusiness sector. Based on their empirical findings, they built a profile composed of 4 main competence categories and 34 key competencies to accomplish three main tasks of an open innovation team: (1) managing the inter-organizational collaboration process, (2) managing the overall innovation process and (3) creating new knowledge collaboratively. They consider that a team having competence in self-management, interpersonal management, project management and content management should be better prepared to deal with the challenges behind those main tasks.

In a similar way, Podmetina, Hafkesbrink, Teplov, Dabrowska, & Petraite (2015) proposed an open innovation specialist profile based on a large-scale survey with 528 European companies. By inquiring on the required and desired competencies that an employee should have for implementing open innovation, they build a profile composed of six categories of competencies: collaboration skills, interdisciplinary skills, methodic skills, explorative skills, transformational skills and exploitative skills. This work will subsequently lead to the proposition of a competence model for open innovation in which direct links between competencies, key activities and roles are made at the organizational level (Podmetina, Soderquist, Petraite, & Teplov, 2018). This holistic understanding of what constitutes a person's essentials elements for performing in a

determined task or role is instrumental for assembling teams and training professionals (Mulder, 2014). Furthermore, a competence profile can also be used as an assessment tool of ongoing teams in order to spark reflecting processes (Sandberg, 2000). This ultimately allows managers for identifying whether there is room for improvement and deciding what kind of actions are worth pursuing in order to enhance a team's performance, especially in the complex and uncertain circumstances such as the ones of facilitating innovation processes (Chatenier, Verstegen, Biemans, Mulder, & Omta, 2010). Nevertheless, although the studies conducted by (Chatenier, Verstegen, Biemans, Mulder, & Omta, 2010) and (Podmetina, Soderquist, Petraite, & Teplov, 2018) are presented as specific but not unique to the open innovation context, little has been studied in terms of SI and SI labs.

While the existing literature on SI labs constantly highlights the importance of the lab team and the selection of the staff, most of today's experiences and insights rely on generic statements such as the need of people with mixed profiles and backgrounds to reflect the social reality, with both traditional skills such as project management and communications and innovation skills to get things done, or with networking skills to gather participants and build connections (Jezierski et al., 2014; Kieboom, Exel, & Sigaloff, 2015; Puttick, Baeck, & Colligan, 2014). Acknowledging the importance of this issue, Wascher, Hebel, Schrot, & Schultze (2018) gathered from the literature a set of 14 competences which they proposed as key for a SI lab team (see Table 1). They consider that the combination of all of these competences should help the team to successfully manage and facilitate cross-sector collaborations. Furthermore, these teams tend to be relatively small, usually composed by a lab manager, administrative staff and members dedicated to the lab-process facilitation (Wascher, Hebel, Schrot, & Schultze, 2018). Yet, there is no evidence that suggests what are the required roles for a SI lab and further, which competences are needed to effectively perform those roles.

Table 1: SI Lab list of competences retrieved from [@Wascher2018]

Competence	Description
Project management	Competence in planning and implementing innovative projects; meeting legal requirements as well as financial expertise, contracts and agreements on the use of space
Moderation	Competence for integrating emerging ideas and orient projects
Mediation	Competence for helping project parties understand and focus on the important issues needed to reach a conflict resolution
Networking	Competence for building connections and relationships with local organizations
Participation	Competence in fostering mechanisms for the involvement of the parties in the project's decision-making processes

Competence	Description
Communication	Competence for empathy, change of perspective and use of media in a clear, positive, conversational fashion
Self-organization	Competence for ambiguity and frustration tolerance, confidence and self-esteem
Intercultural	Competence in ensuring inclusivity throughout the project
Evaluation	Competence in the design of mechanisms for monitoring strategies and results
Research methods and interdisciplinary work	Competence for working under interdisciplinary environments using diverse research methods such as critical thinking, data analytics, social research, anthropology, etc.
Design methods and creative thinking	Competence in applying design methods such as design thinking, theory of change planning, etc.
Information and telecommunication techniques	Competence in technological techniques that provide support to the project development
Entrepreneurial thinking	Competence in project incubation processes and ventures
Systems thinking	Competence in addressing challenges in a holistic way and being able to examine the links and interactions between all the constituent elements

2.3. Innovation Teams & Roles

The idea of thinking on what are the roles or behaviors that are required to facilitate the innovation process within an organization is not new at all. One can refer to the notion of "champion" back in the 60's where the success of the innovation process was attributed to the one single person who was willing to fail for a doubtful idea but capable of reaching success (Jenssen & Jørgensen, 2004; Roberts & Fusfeld, 1982). Nevertheless, the aim of reflecting on innovation roles is no longer to create heroes that prevail against all odds. Instead, it consists of building strong teams aware of their strengths and weaknesses so that they can find ways to overcome the barriers in the path of realizing the intended innovation process (Gemünden, Salomo, & Hölzle, 2007). Indeed, innovation does not originate and sustain itself, but rather through the people who make it happen through teams that push their imagination, resilience and perseverance (Kelley & Littman, 2005).

It is in this sense that literature on innovation teams and roles has evolved, as innovation processes have become more open, collaborative and social, so it has been the case for the roles needed to facilitate these processes. By diving into the literature of innovation teams we intend to illustrate the diversity of roles that members of an innovation team can have which subsequently could be of inspiration for the set up of a lab team. Under this context, seven models

of innovation roles have been found in the literature (Figure 1) which will be now discussed.

One of the earliest innovation role models that can be found is the one proposed by (Roberts & Fusfeld, 1982). Their proposition is composed of five roles needed to fulfil the critical functions for a technology-based innovation process. These are the *idea generator*, the *entrepreneur* or *champion*, the *project leader*, the *gatekeeper* and the *coach*. The intention was to highlight those key functions that were not always explicit in formal job structures. They also acknowledge that depending on the size of the team or the organization, some roles need to be fulfilled by more than one person, while some individuals can perform more than one role, and that ultimately, the roles someone can fulfil will change over a person's career. But beyond considering a role as purely functional, it is even more important to ask how a person is going to behave within a team. Under the premise that people's useful behaviors can be grouped into a set of related clusters, (Belbin, 2010) condensed in her book (originally published in 1993) the nine team roles which make an effective contribution to team performance: *plant, resource investigator, coordinator, shaper, monitor evaluator, teamworker, implementer, completer finisher and specialist*. Even though the Belbin team roles are not exclusively for an innovation team, they represent an important part of team theory that should be considered.

More recently, Hering & Phillips (2005) presented eight innovation roles making emphasis on those that are required for a generic innovation process. They detailed the features of what can be expected of these roles rather than just titles or job descriptions. According to them, *connector, librarian, framer, judge, prototyper, monitor* and _storyteller _are the roles that should be sought to set-up an innovation team. Organization's commitment and a belief system are also considered critical for them in order to have the time and the resources for innovation teams to deal with the uncertainty involved in any innovation process. Alternatively, Kelley & Littman (2005) published their book *Ten Faces of Innovation* based on their experiences at IDEO. They condensed ten persona descriptions as a way to inspire the roles that members of an organization should play to foster creativity and innovation. They consider that each role or persona helps to bring on the table specific values, tools, skills and thus, it is important to assure their presence in any innovation team. These ten roles are grouped in *learners* (anthropologist, experimenter and cross-pollinator), *organizers* (hurdler, collaborator and director) and *builders* (experience architect, set designer, caregiver and storyteller).

Based on 104 interviews with representatives of German enterprises and 42 cases from questionnaires, Gemünden, Salomo, & Hölzle (2007) proposed a model to assess whether the influence of certain innovation roles increase the success of new product development under increasingly more open innovation contexts. They pointed out that not only innovation and technological experts are present (*expert promoter* and *process promoter*), but strong leadership (*project leader*) as well as good external relationships (*technology and market relationships promoters*). Moreover, they emphasized the importance of having institutional support in the form of *power promoters*. In more recent

years, (Goduscheit, 2014) builds on the work initiated by (Gemünden, Salomo, & Hölzle, 2007). In this case, he seeks to further develop the concept of innovation promoters. This notion is established on the basis that innovation teams are meant to overcome the barriers and difficulties to successful innovations. His interest was to explore the inter-organizational dimension among the innovation roles proposed by (Gemünden, Salomo, & Hölzle, 2007) by analyzing how they interact/perform with multiple organizations. As a result, he further develops the innovation promoters model by moving from the original six roles to a proposition of nine roles: *seniority, top-level representative, technological expert, methodology expert, intra-organizational process, inter-organizational process, project process, technology relationship and* market relationship.

Finally, we refer to the very interesting work conducted by (Nyström, Leminen, Westerlund, & Kortelainen, 2014). They also build on the work realized by (Gemünden, Salomo, & Hölzle, 2007) on analyzing the roles for an open innovation context but they center their research on the influence these roles can have on innovation networks. For this, they studied 26 living labs leading to a final proposition of 17 roles that network actors can adopt or create during an innovation project. The new roles identified are mostly related to the users and the facilitators (*e.g., co-creator, orchestrator, contributor*), which correspond to living lab approaches that encourage multi-stakeholder involvement. They also state the importance of innovation roles to combine multiple perspectives due to the increasing complexity of innovation projects. This is something that relates to the more systemic and transdisciplinary approach that is required on SI projects.

Throughout this literature review it is possible to observe that despite the diversity of perspectives, processes or names, authors agree that unbalanced teams and frequent changes can disturb how an innovation team performs. This is a challenge that definitely should be considered in the conformation of an innovation lab. However, none of the role models establishes a direct link between the proposed roles and the adequate competences that should allow a person to fulfil it. Nor any of the identified studies is developed under the SI context. These elements are taking into account the proposition of this article in the next section.

3. Methodology

Throughout the theoretical background presented before, the principles behind the notion of SI labs have been explored, along with the dynamics that lab teams are deemed to deal in such kind of context. Several questions have been raised in terms on which roles would allow a SI lab team to be better prepared to accomplish their mission. And further, what set of competences would be necessary for these teams to thrive in such conditions. Accordingly, seven innovation role models have been retrieved from the literature on innovation teams as well as a set of 14 competences considered as key for SI lab teams. However, since research on how managerial teams of innovation labs perform, and more specifically those within the SI context remains unexplored, through this study

we intend to establish a connection between theory from competences for innovation and innovation teams in order to hypothesize on the essentials elements that should be considered in the process of assembling a SI lab team. To this end, a four-stage process was designed for conducting this research as shown in Figure 2.

Firstly, based on the literature review an adapted role model is proposed. Since none of the previous role models for innovation teams were rooted in SI nor innovation labs, we aim to take into consideration the 14 identified competences to make a model proposition adapted to the conditions of this research. Following this, the proposed model is operationally defined as an assessment tool (online questionnaire) that would ultimately be applied under a self-assessment approach. Given the practical motivation behind this exploratory study, is to support 10 latin-american university teams to set up the lab team for their own SI lab within the frame of the Erasmus+ Climate Labs project, we opted to pursue a self-assessment approach with a two-fold purpose. Firstly, to use the proposed approach to spark reflecting processes that would allow the university teams to increase awareness of their current status toward the expected roles. And secondly, to have a comprehensive role characterization at the early stage of the project encompassing all the lab teams according to their own perception of the degree of mastery of such competences.

Due to the transcontinental nature of the Climate Labs project, the application of the self-assessment approach was conducted virtually by means of the online questionnaire and an online workshop. The proposed approach was designed so each lab team member (including professors, researchers, students, and administrative staff) could participate and be part of the process. A total of 65 answers were received along with the workshop results for each team. Results and insights are then analyzed and discussed so conclusions can be made in order to provide guidelines for the future of the Climate Labs project but also to the further development of this study.

4. Proposition of a competence-based role model for SI Lab teams

Despite several insights from empirical studies and different statements of which functions or behaviours are possible to find in an innovation team, the propositions and explanations fall short when it comes to the specificity of innovation lab teams. We therefore believe that it is reasonable to think that by establishing a clearer connection between competences for SI labs and innovation team theory a model can be proposed. First, drawing from the 14 competences proposed by (Wascher, Hebel, Schrot, & Schultze, 2018), a categorization was made thinking on which main functions could be proposed. Based on the literature and according to knowledge and experience of the authors, four categories of competences were identified as illustrated in Table 2. This was done in terms of those competences that contribute the most to one of the following functions: (1) innovation process orchestration, (2) materialize systemic solutions, (3) spark connections and new ideas, and those that contribute to (4) organizing and measuring results.

Table 2: Categorization of SI lab team competences

Competence	**Orchestrate Innovation Process**	**Materialize Systemic Solutions**	**Spark Connections & Ideas**	**Organize and measure results**
Project management				X
Moderation	X			
Mediation	X			
Networking			X	
Participation	X			
Communication			X	
Self-organization				X
Intercultural	X			
Evaluation				X
Research methods and interdisciplinary work		X		
Design methods and creative thinking		X		
Information and telecommunication techniques		X		
Entrepreneurial thinking			X	
Systems thinking		X		

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