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Business and Regional Innovation Culture: An Overview of the Conceptualization of Innovation Culture

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Abstract: The primary aim of this paper is to identify key similarities and differences in the conceptualization of culture across the major theories of regional socioeconomic science, including economic, business, administrative, social, cultural and political dimensions acting at the regional and local scales. The second goal is to present an overview of the knowledge base and third to cohesively examine and partially recreate the topic using the semi-systematic review method. The final objective of examining the aforementioned issues is to clarify the dynamic correlation in the structuring of business and innovation culture, as well as to identify the characteristics that contribute to the sustainable culture of business and regional innovation systems, including long-term sustainable development. The research shows that the coexistence and combination of innovative culture at the business and regional levels should be perceived as a dynamic and co-evolutionary process involving a variety of factors. Local organizations and institutes that foster entrepreneurship are among the elements that enhance the innovation culture; however, having all of the resources in isolation is insufficient for an efficient ecosystem. This study proposes the establishment of a framework that will enhance the growth of innovation, cultural evolution and regional ecosystem performance. The Institutes of Local Development and Innovation (ILDI) are a policy idea that might give effective micro–meso-level solutions for the region. These policy proposals will diagnose the regional business culture under the prism of strategy, technology, and management levels. The specific investigation attempted in this paper demonstrates that several converging fruitful paths have already been created in the relative international literature. These paths could be combined and deepened further by studying the close evolutionary interconnection between business and regional innovation culture as it emerges at a global scale in the present.

Keywords: business culture; regional culture; innovation culture; regional development; regional innovation system; Stra.Tech.Man Innovation approach; Institutes of Local Development and Innovation (ILDI)



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1. Introduction

Culture driven by innovation can be defined as the need to bring out the maximum number of innovative ideas and practices in a given period of time. Innovative culture is essentially a way of thinking and behaving—a philosophy and procedure at the same time—that, within a business, including any organization in general terms, generates, develops and establishes values and attitudes. This fact can enhance, facilitate and support ideas and changes that lead to improved business performance and efficiency, although these

changes may cause conflicts with traditional and conventional behaviors and methods (Alvesson 2013; Henrich 2001).

Research on the organizational features that contribute to innovation does not adequately address the challenges faced in specific business ecosystems and tends to refer to regional innovation culture by simply treating innovation as an aggregate dimension of the different operating business cultures. However, a number of significant research studies have been identified in exploring this relationship, with a focus on the relationship between the external and internal business environments in defining its innovative dynamics.

More specifically, Woodman et al. (1993) suggested that organizational culture, rewards, and resources are determinants of creative behavior. Similarly, Amabile et al. (1996) found that the level of innovational activities in organizations is affected by perceptual ability in the working environment.

In a background study of organizational innovation, Damanpour (1991) found that managerial attitudes towards change, as well as their internal and external communicational abilities, are positively linked to innovation. Factors influencing the effectiveness of innovation can also be distinguished as the following (Wziątek-Kubiak et al. 2009):

- a. Human capital (especially regarding skills, level of training, qualifications, and knowledge of employees, and leadership skills of managers).
- b. Accumulated knowledge (calculated on the basis of research costs).
- c. Material and financial resources (machinery, equipment, buildings, licenses and patents).
- d. Organizational resources (company size, vision, motivation and dynamics of innovation).

According to West (2000), organizational culture prevents or facilitates the development, implementation and preservation of the innovational capability of the organization. Whenever the organization's culture manages to adapt to the new circumstances faced by the ever-changing external environment, the organization's efficiency is improved (Leskovar-Spacapan and Bastic 2007). According to Leskovar-Spacapan and Bastic (2007), open organizational cultures, mainly found in market and innovation-oriented organizations, have a positive impact on business performance. Maher (2014) also argues that organizational culture, which is created by the co-evolution of internal and external organizational environments, is a vital factor influencing the speed and frequency of innovation. As such, at a regional level, an important part of the external environment that directly affects the innovative culture of an organization, or a local ecosystem as a whole, is the culture of innovation of the specific region (Qian 2018).

When examining the impact of culture on the development of regional innovation capability, existing research shows that there is a causal relationship, directly or indirectly, between organizational culture and regional innovation performances (Qian 2018). In this academic debate, major issues include and combine:

- i. Cultural diversity (Mallol et al. 2007),
- ii. Networking culture (Prud'homme van Reine 2015),
- iii. Academic culture in organizations (Pablo-Hernando 2015),
- iv. Entrepreneurial culture (Lombardi et al. 2017), and
- v. Organizational culture (Galán-Muros et al. 2017).

In recent years, by adding the variable of ecosystems as a factor-mechanism for linking businesses with regional economies, there has been considerable research interest in the role of culture in the economic vitality and dynamics of innovation of regional economies (Klaerding 2009). Cultural, structural and social factors are highlighted previously in the literature on industrial districts as important assets for regional economic development (Asheim 2000; Amin 1999) and on innovative milieux (Kebir and Crevoisier 2007; Crevoisier 2004).

These crucial factors as assets have been valorized in various studies and academic concepts such as

- (a) High technology clusters or knowledge-intensive industries and high-tech clusters (Cooke 2002; Keeble and Wilkinson 2017),
- (b) Creative class approach (Florida 2005),
- (c) Learning regions (Boekema et al. 2000; Legendijk 2000),
- (d) Regional innovation systems (Tödtling and Trippl 2005; Cooke et al. 2004), and
- (e) Creation of a 'knowledge economy' (Cooke 2001).

On the other hand, this “cultural turn” option in regional science has raised many debates and has received criticism for a variety of reasons such as the “instrumentalist” understanding of culture and institutions (Moulaert and Sekia 2003) and the problems of conceptualizing and analyzing cultural factors empirically (Martin and Sunley 2003; Rodríguez-Pose 2001). Nevertheless, culture, institutions and social capital still remain important factors at the top of research agendas. There is also important literature on the role of culture in business innovation, often offering lessons learned from the success stories of innovative companies (Ahmed 1998).

According to the above, it becomes evident that that the relationship between business and regional culture has not already been clearly defined or framed. To leverage a broader base of talent and R&D outcomes, businesses need to have the capacity to leverage regional cultures in order to build the foundation to thrive in a global market. Katimertzopoulos et al. (2020) support that this interaction between markets and regional culture is likely to be a two-way dialectical process.

Based on all the dimensions approached in this section, the central objective of the present study is to comprehensively investigate the dynamic interconnection between the business and regional innovation culture factors, as reflected in the currently available literature, critically examining the points at which further theoretical compositions could be made. In this sense, the current study attempts to fill a research gap caused by the fact that the existing literature has no yet to comprehensively examine the co-evolving dimensions, in micro (businesses) and meso (region and local systems) terms, within a single and cohesive theoretical framework, thereby enriching our understanding of how we could effectively manage their innovative process on a unified and unifying basis.

By examining various literature strands and analyzing their contributions on regional and business innovation culture, this study intends to identify key commonalities and differences with regard to the conceptualization of culture in the main theories of regional socioeconomic science. Finally, the goal of this research is to investigate and analyze the following academic questions as they emerge from the evolution of existing literature:

- What is the influence of culture on regional and business development and innovation?
- What are the sense and perception of the culture of innovation at the business and regional levels?
- How is the culture of innovation described and conceptualized by the overall regional culture?
- To what extent does the interaction of business and regional cultures lead to the development of innovation cultures?
- Are there any policy proposals that can contribute effectively to the development and continuation of a culture of regional and business innovation?

2. Design and Structure

As an instrument of analysis in economic and social development research, the literature review is often indefinite in analytical terms and it is carried out without a specific methodology rather than following a particular approach (Snyder 2019; Torraco 2005). However, despite its fragmented and interdisciplinary nature, knowledge production is experiencing an increased interest and proliferous production throughout the field of business research. It is therefore difficult to keep up with all the latest trends and to review cumulative knowledge in a given field of regional socioeconomic science.

It seems that all attempts to approach the concept of organizational culture theoretically have one thing in common: researchers in the field converge on the fact that it is possible to

analyze organizational culture at different sublevels and as an organic evolutive system. A level is defined as the degree to which a phenomenon becomes visible to the observer. They are typically very visible, clear and tangible elements, easily observed in most cases. However, in some cases, these levels can become mixed, overlapping and difficult to distinguish in analytical terms. Structural components that affect organizational culture include values, different beliefs and rules of conduct used by the members of a team. These elements are deeply rooted and determine the essence of the culture in a every organization (Kunda 1992).

In this area of research, two types of literature reviews appear to be preferred and regularly used (Snyder 2019): semi-systematic and integrative reviews. The semi-systematic and integrative approach requires each research to carry out a qualifying study and to raise wider questions for the development of a new theoretical framework. One important feature that distinguishes the semi-systemic approach from the integrative one is that it may include research elements from both books and other published documents, instead of just academic papers.

By using the semi-systematic review method, the purpose of this study is to present an overview of the knowledge base and to objectively examine and partially recreate the topic as it progresses. The ultimate goal is to recognize the factors that could enhance the sustainable culture of business and regional innovation and long-term steady growth (such as strategy, technology and management). In this structural context, as examined below, the possible mechanisms that can help the more sustainable development of the innovation culture, both at the regional (meso) and business (micro) levels, can be found in the form of the Institutes of Local Development and Innovation (ILDI) (Katimertzopoulos and Vlados 2017).

Overall, this academic paper is a conceptual study that conducts a literature review of a number of field-based studies in regional innovation systems and businesses, with the overall objective of defining core analytical dimensions and variables that could lead to an effective regional and business innovation culture and long-term stable growth and development.

3. Literature Review

Through an examination of the literature, this section will identify how business culture influences and is influenced by innovation. It will also serve as a preliminary inquiry of how regional culture and innovation develop, as well as how they affect regional ecosystems and businesses.

3.1. Business Culture and Innovation

Within the relevant literature, it is now clear that positive cultural characteristics provide the necessary ingredients to create effective innovation (Ahmed 1998). Culture has many elements and dimensions that can serve to strengthen or curb the tendency for innovation. It has been demonstrated that small businesses have a strong positive relationship between participatory management practices and an innovative culture (Gudmundson et al. 2003). At the same time, Wang et al. (2010) also support the crucial role that a culture of innovation can play in enhancing the ability of a business to innovate.

Loewe and Dominiquini (2006) believe that organizational culture and values are one of the four key areas of effective innovation implementation (in addition to leadership attitudes, management processes, people and skills). Based on these areas, long-term innovative capacity is built and developed within the business. However, these acknowledgments raise the question on what are precisely those characteristics and values of organizational culture that are purely oriented towards business innovation?

Innovation, in the organizational environment, is the tangible action or result of activities that allow for the improvement of organizational performance (Martins and Terblanche 2003). Some standard options are the following:

- Implementation of ideas relating to new products/services or changes to existing ones (product or market focus),
- Unique employee behaviors,
- Organizational responses to opportunities,
- Restructuring or saving costs,
- Improving communications and process-related staffing plans, and
- New technologies coming from research and development.

An innovation-oriented culture values and encourages behaviors such as risk-taking, change, experimentation, innovation, uncertainty tolerance, and opportunity exploitation (O'Reilly et al. 1991). Some researchers have also identified that an innovation-oriented culture consists of a coherent and integrated presence of values and rules that promote “fresh” thinking and rapid execution (Wang et al. 2010). These values and rules are also strengthened by motivation, socialization, role modeling and localism (regional system) for information exchange (Wang et al. 2010).

Therefore, organizational culture can function effectively by motivating or hindering collaboration, knowledge exchange, experiences and ideas. The open culture promotes participation, while encouraging employees to take initiatives. On the other hand, a business culture that is based on strong control over management does not favor creativity and innovation. Dynamism, flexibility, rapid adaptation to changing conditions and finding non-stereotypical solutions characterize cultures that aim to develop innovation. Excessive standardization and bureaucracy, as well as extensive control structures, do not favor innovation, but rather delay decision-making processes and inhibit the creativity of employees (Loewe and Dominiquini 2006).

Overall, it is clear that the existing literature appears to be paying increasing attention to the dimension of business culture and its continuous cultivation on behalf of various forms of organizations, perceiving this dimension as the fundamental cradle for the articulation of every innovative effort, deeper than any partial strategic, technological, or managerial initiative taken by an organization (Joly 2022).

3.2. Regional Culture and Innovation

The topic of regional innovation culture is high on the agenda of the current debates on the foundations of the fast and sustainable development and prosperity of regional economies. Having presented the concept of culture and innovation, and their dynamics in the context of an organization, we now focus on the concept of overall innovation culture at the regional (meso) level. To start with, it is important to note that culture is not always introduced as an explicit element in the analysis of regional development (Pilon and DeBresson 2003). This claim also applies to regional and corporate cultures; and, consequently, there is a need to seek an implicit understanding of the role of cultural actors in the various bodies of theory.

The approach to regional innovation systems (RIS) (Asheim and Gertler 2005; Doloreux and Parto 2005; Cooke et al. 2004) enables exploring the relationship between regional culture and innovation. Typically, a regional innovation system is designed to consist of these mechanisms of knowledge generation and dissemination (i.e., the knowledge infrastructure of a region), including a knowledge application and exploitation subsystem that incorporates any business located in a region (Autio 1998).

Furthermore, interactive relations between regional organizations in the field of innovation systems, which contribute to an intensive flow of knowledge, resources and human capital and promote systemic innovation activities, are considered to be of central importance (Autio 1998). In this context, Autio (1998) argued that the regional socioeconomic and cultural environment had a strong impact on the region's innovative activities, thus emphasizing the specificity of the context and the culturally embedded and path-dependent character of regional innovation. Moreover, Cooke et al. (2000) argued that regions differ in their capacity to develop a strong regional system of innovation and promote the activities of systemic innovation. In this context, the factors of culture are very significant. The

capacity of a regional innovation framework depends, according to [Cooke et al. \(2000\)](#), on infrastructural and super-structural features, including the institutional, business, and policy dimension.

A crucial feature of the literature on the innovation mechanism includes the inter-connection between two subsystems: the information and distribution subsystem, on one hand, and the knowledge application and utilization subsystem, on the other hand. In terms of partnerships with businesses, these mechanisms are impacted by the traditions of knowledge generation institutes and universities. Among other things, the pattern of interaction with companies commercializing knowledge and scientific expertise depends heavily on a number of factors ([Lundvall and Maskell 2000](#); [Whitley 1999](#); [Nelson 1993](#); [Lundvall 1992](#)), especially:

- (a) Academic practices,
- (b) Organizational laws,
- (c) Incentives and attitudes, and
- (d) Relations and cooperation (patenting, publishing, etc.).

These factors may differ from region to region and from country to country, highlighting the importance of specific institutional frameworks of national innovation systems ([Lundvall and Maskell 2000](#); [Nelson 1993](#); [Lundvall 1992](#)) and business systems ([Whitley 1999](#)). Regarding the latter, a distinction was made between a business model (which could be found in the US and the UK) and a cooperative or associative model (which applies, for example, in the Nordic countries, Germany and Austria) ([Cooke et al. 2004](#); [Whitley 2000](#)). It is worth mentioning that these models present a strong variation between the institutions and the organizations that are engaged with knowledge generation and diffusion. This variation is extended to the perception of “cultures” (such as codes, norms, habits and behaviors) of knowledge that are linked with the industry sector. There are also strong differences in relation to university–industry ties with respect to spin-offs and collaborative trends ([Johansson et al. 2005](#)).

Regional innovation can be viewed as a multifaceted concept. In essence, as has been made clear so far, “regional cultures” are interpreted in a multidimensional way in most regional innovation schools, consisting of numerous factors ([Trippel and Toedtling 2008](#)). The following aspects are the most important results of the literature review on regional cultures and their conceptualization in various bodies of work:

- The behavioral routines of companies, organizations and policy actors are another component of regional culture. These routines mitigate uncertainty, help in decision making, and thus contribute to the creation of new technical routes. They also affect the desire and willingness to take on new businesses undertake risks start new businesses, etc.
- Regional cultures are often emphasized as facilitating the building of trust that is recognized as a facilitator or even a prerequisite for the successful exchange of information, cooperation between enterprises, inter-organizational networking and mutual learning.
- Regional culture also to some extent guides the behavior of actors in certain directions through the influence of codes of conduct and informal rules.
- Regional cultures are viewed as a collection of traditions, shared perceptions, values and rules, and a common language that promotes communication with others.

As a result, regional innovation cultures are a multifaceted phenomenon consisting of different elements and evolutive dimensions that, in different ways, contribute directly and indirectly to the creative dynamics of regional economies. In regional innovation cultures, there are both positive and negative aspects. Many studies of industrial districts, innovative ecosystems, knowledge intensive clusters, regional innovation structures, and learning regions consider the local culture of collective learning, confidence, and innovation routines to be positive elements for regional development, growth, and innovation. In the other hand, regional practices can become conservative, networks can become very strong and closed,

and change can be systematically blocked. In the latter case, the area and its businesses have become “locked in their specific trajectories”, with regional culture serving as a significant impediment to effective adaptation and innovation (Katimertzopoulos et al. 2020).

Finally, there is the enhancement of regional innovation cultures. In the literature, the expediency of modifying and manipulating the cultural conditions that favor innovation remains highly questionable. There seems to be no consensus on the degree to which policy makers should alter cultural patterns. It is uncertain if cultural lock-in situations can be broken up and whether it is possible to ‘enable’ culture and confidence in areas that lack cultural ingredients for effective innovation. Several scholars have reacted to this positively, arguing culture changes arise through the interaction between businesses, organizations and policy makers (Storper 2002; Morgan 1997; Powell 1996). Among others, the following variables have been identified as key factors shaping the Regional Innovation Policy:

- Regional investment in R&D (Li 2009),
- Technology intermediaries (Wu and Xu 2013),
- Industrial structure and firm ownership (Li et al. 2014),
- Science parks (Gkypali et al. 2016), and
- Absorptive capacity (Lau and Lo 2015).

But what happens when the culture of innovation faces a slow development because of the setbacks found in a less developed region environment in which it tries to evolve?

In these types of regions, dependence generally occurs on the activities of the primary sector. Furthermore, since research and development activities can be limited, there is no highly established local and interregional infrastructure, as well as a lack of influence over larger political governance systems (local or regional) (Katimertzopoulos et al. 2020). Studies in this field have also shown that a number of political, economic and social factors can affect the capacity of a region to transform its investments into prosperity, economic activity and innovation (Bilbao-Osorio and Rodriguez-Pose 2004). These evolutionary factors include (Roper et al. 2004; Rodriguez-Pose 1998):

- The manufacturing potential;
- The economic structure of the region;
- The size and age of businesses;
- Current business partnerships;
- The political characteristics of the region;
- The local labor market and local entrepreneurs;
- The cultural characteristics of the local labor force.

In this setting, it is therefore not clear how innovative culture will flourish and act as a driving force for development. Based on the information provided in this section, it is clear that cultural development at the regional and business levels is triggered by the interaction of both factors (regional socioeconomic system and business) either directly or indirectly.

But how does this relationship develop, and what are the implications for culture and innovation in micro- and medium-sized environments? How can the development of less developed regions and their market ecosystems be improved, based on the best practices of developed environments, keeping at the same time their peripheral adaptation to a local culture that lacks possibilities but has enough virtues to establish a global network of innovation?

Overall, the above questions appear to be part of a newly emerging research trend that better understands the concept of building regional innovation systems, emphasizing the evolutionary dimensions as they are articulated simultaneously at the micro- and meso-levels. This study focuses on the processes of business cooperation because the individual organizational cultures of the participants are critical in the formation of specific business ecosystems’ innovative dynamic (Della Corte 2018; Mason and Brown 2014).

4. Discussion: The Dynamic Interaction between Corporate and Regional Culture and the Stra.Tech.Man Approach

This part sheds light on and brings to the surface responses regarding:

- (a) Which factors lead to the relationship between corporate and regional cultures in developing an innovation culture?
- (b) How and to what degree does regional culture enable and promote businesses to benefit from and contribute to their area in terms of innovation?
- (c) Which policy proposals can effectively contribute to the development and continuation of a culture of regional and business innovation between the region and the business?

The study of these mechanisms of cultural exchange is a challenging task. Culture needs to be studied at various levels, from practice to meaning. It is important to study and understand the cultural similarities and differences between the different levels (corporate, regional) and the cultural complexities. One way to begin with is by defining cultural values and their significance at regional and business levels. The understanding of how they communicate and engage at both levels will be deduced through the application of the dilemma methodology.

The application of the dilemma methodology to cross-cultural management issues (Hampden-Turner and Trompenaars 2000) indicates that contradictory values can be converted into complementary values by integrating apparently opposing cultural values. In the context of this problem, cultures are not assessed as a fixed set of value orientations but as a cultural process which may simultaneously follow paradoxical standards. Among contrasting principles, some cultures are expected to be favored compared to others, but those others cannot be ignored or not considered measurable.

Developing effective strategies for creating and maintaining an innovative culture requires addressing these dilemmas. This can be seen as an ongoing process of striking a balance between competing values (Quinn 2011). The patterns of cultural meaning can then be represented by the pattern of relations between different value orientations, such as global standardization versus local adaptation, orientation of people versus orientation of achievement, rapid decision making versus finding consensus, focusing on cooperation versus focusing on competition. Companies have the potential to develop their ability to combine these principles, such as by learning to collaborate through networks to increase their performance.

Similar methodologies have been used to define the dilemmas of transition in corporate culture and to develop regional innovation programs (Hampden-Turner and Tan 2002). "Regional innovation cultures" are focused on a relatively secure local identity but can only promote innovation if they are open to global developments (in terms of customers, technology and human talent). As a result, businesses and regions face similar dilemmas in evolving their innovative culture. The dilemma approach can be used to study the change in corporate culture, the change in regional culture and the interaction between them.

At this point the dilemma approach to the culture of innovation is applied on top of some fundamental dilemmas in this area of research (Hampden-Turner and Trompenaars 2000). These dilemmas will be examined under the light of the theoretical methodology Stra.Tech.Man Innovation approach (Vlados et al. 2018). This methodology proposes an exploratory way of developing these interactions and connecting the «neurons» of companies and regions at the level of an innovative culture. As a living system, the region and business are perceived as a living organism that grows, innovates and develops into three essential pillars: Strategy, Technology and Management.

A few years ago, Vlados et al. (2018) further developed the Stra.Tech.Man. Innovation Theory, through which they suggest that a system, whether a business, an incubator, or a region, should understand its own culture based on these three evolutionary pillars (Strategy, Technology and Management). The understating of its culture will reflect attitudes and methods of implementing innovation, as well as give answers on how a business should develop internally (at organizational level) and externally (in relation to the market),

including its ecosystem and the region in terms of a culture of innovation. Any innovation, according to the Stra.Tech.Man analysis, is always and inevitably defined by an endogenous triangle which must constantly respond adaptively to changes in the external environment of the organization. All innovations, invariably and continuously, necessitate a component of Strategy, a component of Technology, and a component of Management. There are no innovations that can happen or be successful unless the three inner Stra.Tech.Man domains of the socioeconomic organism are changed conjointly at the same time. As a result, every type of invention falls under the purview of Stra.Tech.Man. In reality, while it may appear that innovation comes from at least one of the Stra.Tech.Man spheres, focused on a particular region, in the long term, every innovation needs simultaneous relocations and re-adjustments for the whole organization.

As such the three components of the Stra.Tech.Man theory are further analyzed in the following part.

Strategy prism: When it comes to strategy, the dilemma competition versus cooperation describes the conflict between a competitive orientation with an emphasis on internal R&D spending and a cooperative culture that relies more on external sources of ideas, i.e., ‘open innovation’ (Chesbrough 2003; Chesbrough and Schwartz 2007). The importance of cooperation and trust-based relationships is emphasized by most books on regional innovation structures, while research studies on regional clusters tend to emphasize the importance of competition in the region (Porter 1998). However, the balance between competition and cooperation, as Heidenreich (2004) has pointed out, is central to flexible cooperation and competition strategies. Saxenian’s empirical study of Silicon Valley confirms that innovation can thrive when highly competitive conditions go hand in hand with collaborative behaviors. Competition calls for continuous innovation, which in turn calls for cooperation between companies (Saxenian 1996). In these terms, the approach of cooperation (competition simultaneously with cooperation) (Nalebuff and Brandenburger 1997) appears to retain its analytical interest.

Technology Prism: From a technical standpoint, the issue of technology push versus market pull is brought to the forefront. In terms of corporate culture, there is tension between concentrating on developing new products/services based on internal technological potential versus focusing on developing creative solutions by cooperating to supplier and consumer perceptions and identifying market opportunities (Katimertzopoulos and Vladoš 2017). The parallel skepticism in terms of regional culture is expressed in the conflict between:

- Regional innovation systems driven by research institutes, universities and transfer institutions of technology, versus
- Regional innovation systems driven by entrepreneurs, venture capitalists and ‘lead users’.

Management prism: From the management perspective, the dilemma arises in terms of corporate culture between company-wide formalized processes and structures focused on incremental innovation. This process is essential to continue previously effective product/service lines, with the much-needed autonomy to inspire ambitious individuals and enthusiastic entrepreneurs to seek transformative progress with an innovative mindset. At the regional culture level, there is the dilemma between continuing previously successful regional development paths by providing systems, regulations and sustaining large ‘anchor’ firms in the region (Agrawal and Cockburn 2003), versus providing room for entrepreneurship to explore new fields and opportunities and creating faster-moving new (and most probably small) firms (Florida and Tinagli 2004).

The dilemma «Directive versus Participative leadership» is also discussed from a managerial point of view. This problem illustrates various leadership standards in different organizational cultures: leadership in the role of authority versus leadership in the role of motivation coach (providing a vision and creating an environment in which creative ideas are easily expressed and accepted). At the regional level, the problem explains the possible

contradictions and synergies between strong regional policy leadership and the need for public engagement in decision making (Van Reine and Dankbaar 2011).

This dilemma also reflects the debate between the 'dirigiste' (top-down initiatives) versus 'grassroots' (locally organized processes) approaches that express different visions to regional governance in promoting innovation (Cooke et al. 2004). The strengths and weaknesses of the 'dirigiste' system (decisive actions versus lack of consensus) are the exact mirror of the 'grassroots' system (consensus in decision making versus lack of decisiveness). Saxenian (1996) examines the division between Silicon Valley's egalitarian society and Boston's bureaucratic and authoritarian practices, drawing some important conclusions that are discussed further below.

Lundvall (1985), who argued that users with spatial proximity could enhance the efficiency of innovation systems, stressed the value of user-driven innovation. The involvement of 'lead users' and 'customer-innovators' were addressed by Thomke and Von Hippel (2002) by providing users with the tools to design and create innovative custom products that really meet their needs. Chen (2008) has shown that the presence of an advanced user pool is extremely necessary for the location of global player innovation centers in Shanghai and Beijing.

So it seems that to successfully create an innovative culture, businesses and regions have to face each of the innovation dilemmas. It can be said that each dilemma also represents an area of interaction between corporate and regional cultures. But under what circumstances does the interaction of corporate and regional cultures contribute to the creation of an innovation culture?

There is no question that corporate and regional cultures cannot be seen as existing and changing independently of each other. The position of corporate cultures, however, is not clear if it is taken into account in most regional innovation schools. Therefore, it is important to further examine the question of how corporate culture and regional culture interact evolutionarily and the degree to which businesses shape the innovation culture of a region and vice versa.

Corporate cultures are understood as collections of social norms that regulate social interactions within companies (laws of conduct, customs, rules of the game, etc.). In addition, attention is paid to the ties between these contracts and the underlying core values (ideologies) which provide general guidance in shaping behavioral standards within the organization. In his model, applied at the regional level, James (2005) argues that a regional culture hierarchy consists of individual corporate cultures, a regional industrial culture, and a wider regional culture in which they are established. A sound conceptualization of the cultural integration of companies in the area is possible by concentrating on overlaps between the different levels of the hierarchy. Regional cultural systems of common values, philosophies and conventions are 'imported' into companies' cultural centers, influencing their governance systems, control and decision-making processes. As such, regional cultures are inflected by corporate behavior and vice versa.

This concept was the starting point for a project on the relationship between regional culture and corporate culture (CURE-Corporate Culture and Regional Embeddedness) under the European 6th Framework Programme (Dörhöfer and Minnig 2018). The culture of companies influenced by regional culture was highlighted as a potential strength. This regional culture needs to be enabled and it can only be fully realized through communication with regional businesses. In this area, there are few systematic empirical studies to date. Empirical outcomes that stress the significance of regional culture have been examined in regional science.

One of the first examples of the effect of regional culture on business activity is the comparative study of Silicon Valley and Route 128 (Saxenian 1996). In the 1970s, both Route 128 (in Boston) and Silicon Valley were hotspots of high-tech activity. However, just 10 years later, the Route 128 region faced a serious stagnation, while Silicon Valley has risen to become the undisputed global leader in the high-tech industry. This paper points out that the difference in the two areas was not in their resources or location but mostly

in their commercial culture. Silicon Valley firms were open and connected by social and economic networks, allowing them a good adaptability to the eventual market shifts. At Route 128 firms, on the other hand, business was conducted in a conventional manner and the innovation culture tended to be more insular and proprietary. In a similar pattern, the divergent growth patterns of the Swiss and French Jura Alps were investigated, showing that popular culture and practices, regional consensus and mutual future visions have a strong effect on the pattern of business activity and on the region's degree of adaptability and innovation (Maillat et al. 1996).

Observing the company's relationship with the area in which it operates will aid even further in the analysis of the phenomenon. The business-place relationship is a core theme in the fields of regional economics and economic geography. While older location theories see the decision-making process as a "cost-cutting exercise" putting special attention on transportation costs, more recent contributions emphasize the relationship between businesses and regional actors that contributes extensively in the overall productive potential of the region. In addition, a series of academic theories such as the economic perspective, institutional approach (Barnes and Gertler 2002; Hayter 1997) and behavioral approach (Pred 1969) have also enhanced our understanding of the interdependence of regional cultures and businesses.

Storper (1986) emphasized the ability of emerging companies associated with innovative products and process technology to capitalize on "location opportunity windows" because they were less dependent on traditional local actors. Because of their strong market place, these companies will shape the region through their demand for unique inputs, research and training activities, and the emergence of specific industrial cultures. The Industrial District Approach and the Innovative Milieux Approach, on the other hand, emphasize the importance of agglomeration of companies within regions that produce externalities (Brusco 1996; Becattini 1978), as well as the impact of social and cultural environments on the generation of innovation (Camagni 1991). Although new technology drives the development of new industrial spaces, old industrial regions are far from stagnant. Traditional manufacturing processes are continuously repeated and subjected to gradual change as a result of business activities (Katimertzopoulos and Vlado 2017). However, gradual change is well known in the literature to establish specific development pathways in certain situations, which often contribute to negative lock-in, as has been already seen in less developed and remote peripheral ecosystems (Grabher 1993).

Furthermore, according to Gertler (2003), businesses are influenced in a great extent by strong cultures and good practices which are shaped by national and regional institutions (Gertler 2003). Specifically, Dicken (2003) argues that in an era of economic globalization and transnational companies, the relationship between business and the region is becoming increasingly complex. Transnational corporations reflect their home economies' corporate cultures and institutional habits when learning new strategies in host economies (Majek and Hayter 2008).

Along the previously examined theoretical perspectives, it appears that new paths are gradually opening that bring the concepts of business and regional culture analytically closer together, making the two-way relationship between individual business cultures and specific regional innovation systems mutually acceptable, thereby creating additional opportunities for a new holistic and interdisciplinary approach to the innovative dynamic phenomenon at an interspatial level. On this premise, new routes appear to be opening up in comprehending, articulating, and implementing more cohesive enhancing policies at the regional and local levels, as we shall critically investigate in the following section of this paper.

5. Conclusions

Based on what was examined and discussed in this research study, it appears that the coexistence of innovative culture at the business and regional levels is perceived as a dynamic and evolutionary process with multiples variables. In this context, an obvious

question is raised: what are the appropriate frameworks for cultural exchange that should be established between regions and businesses in order to contribute effectively to the development of regional cultures of innovation?

Several attempts have been made to date to envision a viable regional business environment in the view of adopting a more collaborative approach (Mason and Brown 2014). Though opinions on specific ecosystem components may differ, the elements and actors can be generally classified as material, social, and cultural. In this way, a positive culture can be seen as promoting business and contributing to the region's sustainability (Spigel 2017; Fritsch and Storey 2014). Similarly, Spigel (2017) defines social tools as "talents, dealmakers, venture capital, mentorship and network".

The material elements that can promote the innovation culture consist of local organizations and institutes that support entrepreneurship (e.g., incubators or accelerators, universities, infrastructure). However, having all of the resources in isolation is insufficient for an efficient ecosystem (Mack and Mayer 2016). All actors in the ecosystem should work together to carry out and encourage business activities. As such, by developing an efficient facilitator, this collaboration can be achieved.

The above conclusions lead the authors of this paper to rethink and enrich the proposal to establish a framework that can contribute to the growth of innovation, cultural evolution and regional ecosystem performance. According to Katimertzopoulos and Vlados (2017), a policy proposal that could provide valuable solutions, at the micro-meso-levels for the region, is the Institutes of Local Growth and Innovation (ILDI). The aim of this policy proposal is to create "clinical hubs for companies" that can diagnose the culture of these regional businesses at the strategy, technology, and management levels (Stra.Tech.Man approach). The ILDI are, in essence, structures for the growth, organization, extraction, and dissemination of information and modern business knowledge, with an emphasis on promoting creative entrepreneurship and the extroversion of locally developed businesses.

As previously mentioned, these organizations are still somewhat uncoordinated. As a result, this paper proposes the development of an ILDI framework at the level of regional business ecosystems to connect all institutions that can strengthen local entrepreneurship.

The following steps can be followed by the particular mechanism,

- (1) Diagnosis of the local ecosystem companies' skills and prospects,
- (2) Input on investment opportunities to regional players,
- (3) Collect and synthesize relevant information,
- (4) Seek out possibilities for educational and consulting interventions within businesses and the region, and
- (5) Dissemination of gained knowledge.

The ILDI are mechanisms that have not been completely implemented in an area; only certain aspects have been studied. As an example, based on the research of Katimertzopoulos and Vlados (2017), in the less developed region of Eastern Macedonia and Thrace in Greece, it has been found that the establishment of such a structure is an essential mechanism for the region. In fact, there are many regions with similar strengths and weaknesses within and outside the borders. In future studies, it will be critical to investigate how these structures are developed and implemented in other regions, using the appropriate configurations and adaptations of the ILDI model. The strategic, technological, and managerial capacity and adaptability of various local businesses that could participate as "patients in need of therapy" could then be further investigated in an analysis. This ongoing cycle could be restarted by keeping track of the developmental outcomes at the regional and business levels.

Regional engagement at the company level can also be part of the day-to-day business operations and strategic business activities of a company. Day-to-day business activities are described as an enterprise's operational functions and they include the actual process of production, employment and management of the activities of the enterprise. These business activities are an essential element of the region's development, the provision of employment to the regional workforce, the demand for regional products and the payment of corporate

taxes. Strategic operations identify behaviors that are long term, growth oriented and closely associated with the production process of the business. Such related activities include participation in special advanced training, conducting collaborative research projects or the implementation of energy efficient measures (Katimertzopoulos et al. 2020).

Finally, from a rather different perspective, there are several research studies that investigate important aspects of regional integration in relation to social capital. The analysis has found that social capital is an important element of regional development and innovation (Doh and Acs 2010; Cooke and Clifton 2005). In contrast, the accumulation of social capital calls for transcending regional boundaries and requires openness to all actors at the national and international levels. Information transfer is facilitated by social capital, especially regarding the sharing of tacit knowledge, which remains a largely localized phenomenon. The innovative potential of regional economies and businesses is thus reinforced by social capital. Saxenian (1989) has shown that during the cluster life cycle, various types of social capital are significant. Deep bonding social capital seems to be critical for the initial implementation of game-changing technology, while a more consolidated information ecosystem requires transparency and hence an increasing share of bridging social capital.

The implementation and development of ILDIs, as discussed above, can serve as a social capital assistant and a starting point for the development of an entity that unites regions and businesses in a structural context in which the innovation culture can develop and evolve dynamically on both axes (region and businesses).

Based on the analysis of the literature review, it becomes clear that particular attention should be paid to future research in relation to organizational structure, culture, strategy, and processes in innovation at the business and regional levels. In addition, it is important to analyze in detail the correct balance between shared values, understanding, and consensus on the one hand and diversity, openness, and conflicts on the other hand. The optimal combination of such homogeneous and heterogeneous elements depends on the type of region in question. For example, the “institutional thinness” found in many peripheral regions requires a strong building of trust, networks and mutual understanding. In contrast, the challenge in old industrial regions is to transcend old views and routines and to break existing relationships. By examining the overall feasibility of the Institutes of Local Development and Innovation, future research should focus on how, in what form, and under which circumstances those mechanisms can be successfully established regionally.

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