

Guest Editorial

Key issues on innovation, culture and institutions: implications for SMEs and micro firms

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Abstract

This Special Issue is devoted to studying the role of cultural aspects in the innovation dynamics of small firms within the context of their territorial environments. Cultural elements are viewed as strategic assets because of their capacity to enhance small firms' action and to provide opportunities to compete in the knowledge economy. Innovation studies use a variety of approaches and definitions for studying how the symbolic aspects of social reality shape innovation. In this Guest Editorial, our aim is to help clarify this topic of research. Departing from the contributions of this Special Issue, we use analytical definitions of values, norms, cognitive repertoires and institutions as layers of the cultural domain that can be present both in firms and in the surrounding innovation system. We describe important mechanisms related to innovation processes in SMEs and micro firms. The ten selected articles provide an intellectual map of current research and investigate different angles of cultural dynamics based on cases in Spain, Portugal, Belarus and the UK. One group of articles studies corporate cultures, human resources, design strategies and collaboration with research centres. Other articles focus on entrepreneurial motivations, vocational training, innovation districts and urban renewal. Based on the findings from these articles, we believe that cultural elements can be integrated and recombined by innovation policies as an essential component of local and regional development.

Keywords: Innovation, culture, values, norms, institutions, SMEs, micro firms, regional innovation systems

Introduction

Innovation and culture have always been elusive social phenomena. In the case of Small and Medium Sized Firms (SMEs) and micro firms (usually with fewer than 10 workers) both aspects are difficult to pinpoint. On the one hand, culture covers a complex array of dimensions that range from fundamental values and norms to motivations and perceptions. Culture is also related to the skills, practical knowledge and routines employed in everyday life, including productive behaviour in work places. In SMEs, cultural aspects are not evident because they blend in with the practices and routines of entrepreneurs and owners, and with the surrounding social and economic context. On the other hand, innovation is not easily noticeable in these firms. Few sources provide reliable information about innovation in SMEs. Official innovation surveys frequently exclude smaller firms from their samples and are often not designed to measure specific elements of small firms because they have few formal internal arrangements and systematic procedures to manage knowledge. Evidence of this topic depends on studies carried out across a variety of disciplines, which are usually limited in their territorial and sectoral scope.

Despite these difficulties, innovation culture in firms has begun to attract attention in innovation literature. Some studies consider that culture is important for innovation because values, informal norms and cognitive frameworks shape the capacity to act and to establish links with key external actors (McLean, 2005). This theme is considered significant in the case of SMEs and micro firms because they represent the majority of firms and employment in many places, especially in peripheral environments. Culture and other intangible elements are believed to be even more important in SMEs than in larger firms because they have a more direct impact on their capacities to generate knowledge and to exchange resources with other actors in the environment (Vossen, 1998).

As a result, a variety of studies from management, economic geography, evolutionary economics and sociology, among others, are focusing on different cultural elements of firms and innovation systems (Cooke & Rehfeld, 2011; Dyer, Gregersen, & Clayton Christensen, 2011; González de la Fe, Hernández Hernández & Van Oostrom, 2012; James, 2005; Tripl & Toedtling, 2008). A major challenge is to disentangle the situations in which cultural aspects can be an important source of or a barrier to innovation. The articles in this Special Issue are an example of this endeavour. They explore various angles of the relationship between culture and innovation in different cases and territories, mainly in peripheral environments. Together they depict the current state of the art. In this Guest Editorial, we extract common elements that may provide more coherence to this topic. After this introduction, the second section summarizes the main issues about innovation and SMEs. The third section depicts the main analytical elements that are useful for investigating different aspects of culture. In the light of the articles included, analytical concepts are explained, and their implications for SMEs and micro firms are highlighted. In the fourth section, we summarize the contributions of the articles, and in the conclusions, we provide suggestions for future research.

Small firms and innovation

Perhaps the distinctive characteristic of the innovative processes in SMEs is the low level of formalization. With the exception of firms working on knowledge-intensive processes and R&D (many of them spin-offs and start-ups), in most SMEs the core knowledge of the firm is seldom codified and is based on experience (Hirsch-Kreinsen, 2008). SMEs have few internal departments and explicit procedures related to innovation. Knowledge management is therefore implicit. Decisions tend to depend on the point of view of the owner and formalized planning is also difficult to implement. Knowledge is transmitted on-the-job and depends on workers' abilities (Terziovski, 2010). SMEs' possibilities to innovate are also shaped by their capacity to collaborate and 'learn interactively' (Lundvall & Lorenz, 2007) with other agents in the environment, such as clients, providers and training centres.

In comparison with bigger firms, SMEs have disadvantages for innovation, such as lack of financial capital, absence of power to negotiate commercial transactions and difficulties to access distant markets. In contrast, intangible elements can be strategic assets for these firms because they shape the capacity to act—though some can also be barriers. The strength of SMEs frequently lies in the entrepreneur's specialized knowledge and organizational capacities. The values and the skills of the owner and core workers are normally the predominant values and skills of the firm (De Jong & Vermeulen, 2006). SMEs' cognitive frameworks, beliefs, motivations and shared meanings are especially important for defining and developing innovative activities. These circumstances also shape interactions with external agents in the regional context, as well as their

strategies for learning and investing in new knowledge. Therefore, cultural traits are considered crucial for adapting to change and for adopting new productive processes.

The influence of cultural elements on SMEs' innovation activities are studied by scholars, who focus on the micro level formed by firms and individuals (De Jong & Marsili, 2006). They usually differentiate between factors internal and external to the firm. Internal factors that are important for innovation are the organizational structure of the firm, the business strategy, skills and motivations, beliefs and perceptions (Keizer, Dijkstra & Halman, 2002). Several studies have shown that the innovation performance of these firms is related to the cultural characteristics of the entrepreneur, especially motivations, flexibility, and adaptation to change and new technologies (Vossen, 1998). Both characteristics are closely dependent on the educational level of the firm's owner or manager (Bougrain & Haudeville, 2002). As for external factors, the main determinants of innovation are found in the capacities to detect and use external knowledge, especially through links with actors that function as knowledge providers (Gray, 2006). Education, training and cultural aspects are also suggested as important determinants of these interactions. Influential components of a symbolic nature include the strategic vision of the entrepreneur, his/her openness to different partnerships and collaborations, and his/her abilities to build fluent relationships with providers and clients based on trust (Chell & Athayde, 2009).

Another stream of research focuses on the meso and macro levels of a territorial milieu. The extensive literature on innovation systems has given importance to the institutions and sociocultural factors that shape SMEs' capacities to innovate in countries and regions (Bluhm & Schmidt, 2008). Some studies focus on the interdependence between regional cultures and the trajectories of regional innovation systems (Cooke & Rehfeld, 2011). Others highlight the interactions and mutual influences between the corporate cultures of the innovation systems and regional cultures (Prud'homme van Reine & Dankbaar, 2011). Given that the corporate cultures of larger organizations present in the territory cannot sufficiently explain the innovation dynamics of a region, cultural factors are still a key issue when describing territorial models of innovation.

Despite evidence of the role of intangible elements for firm innovation and endogenous development, there are still important limitations for research. The first involves the links between different levels of analysis. The separation of studies focusing on specific firms versus the institutional aspects of innovation systems does not contribute to systematic observations of interrelations. Cultural and institutional aspects form an integral part of every organized level of social and economic life, from informal groups and firms to corporations and governments. It is important to acknowledge that values, habits and norms, whether informal or formal, can be embedded in all kinds of social situations to any extent.

A second limitation comes from the conceptual fragmentation of this field of study when referring to symbolic elements of social life in organizations. There is a wide variety of theoretical approaches to institutions, culture, and other symbolic aspects of social life and their role in innovation. Analytical definitions that were established long ago in sociology, social psychology and anthropology are omitted in the field of innovation studies by virtue of disciplinary fragmentation (for instance, classic analytical definitions of cultural layers can be found in MacIver and Page, 1949. An example in the firm domain is Parker et al, 1967). An important task for investigating the role of cultural elements in SMEs and micro firms is to integrate the theoretical and methodological tools available in different disciplinary domains into innovation studies. What we propose here is a cross fertilization of approaches. In particular, the articles of this Special Issue serve to situate several observations about cultural and institutional elements within a common conceptual space that is useful for further research.

Unfolding the cultural dynamics of innovation in SMEs and micro firms

In order to observe the role of culture, innovation must be understood as a socially embedded economic action that is shaped by cultural and structural forces (Granovetter, 1985). This perspective assumes that actors are rational, in the sense of pursuing goals through deliberately selected means, but not socially atomized. On the contrary, relationships and symbolic interpretations enter every stage of the process, from the selection of economic goals to the organization and relevant means of achieving them. From this perspective, cultural elements are a set of explanatory mechanisms. Their specific role in innovation is a matter of empirical observation compared to the role of other influential elements identified by specialized research.

Analytical definitions are extremely important for studying the relationship between culture and innovation. Analytical concepts aid the systematic observation of the forces that drive the innovation performance of particular organizations. For that purpose, it is useful to situate the terms in the conceptual space constructed by classic sociological theory. A classical differentiation examines social life according to two dimensions: the social structural domain and the cultural or symbolic domain (Portes, 2010). Social structures are formed by real persons, and are organized in economic and social hierarchies. Typical elements of a social structure are power, class structures, status hierarchies and organizations (including the economic and physical resources managed by organizations). Culture is formed by the symbolic elements of social life that are crucial for human interaction, mutual understanding and order. Cultural elements are values, norms, cognitive repertoires, roles and institutions. These elements can be interpreted as being arranged in different layers, from the profound aspects of social life that are difficult to observe to the more evident social phenomena.

This separation is purely analytical because in real life both elements are mixed. Nevertheless, the distinction between the symbolic and structural domains (particularly between organizations and institutions) provides an interesting basis for explaining how innovation actually unfolds in the specific settings of SMEs. In the following paragraphs, we outline the basic definitions of cultural elements. We then interpret them as hypothetical mechanisms that mobilize capacities or resources, which affect firms' innovation performance. The specific mechanisms highlighted are present in the articles included in this Special Issue.

Values

Language and values represent the more profound and stable phenomena of culture. Values are the criteria that people use to assess their daily lives, organize their priorities and choose between alternative courses of action. They are conceptions of the relative desirability of things and act as the motivating force of moral action (Zelizer, 2010). Innovation can be governed by value introjection, which implies that shared values, or the activation of collectively supported values, influence personal goals in order to engage in new ways of doing things. The desirability of openness to change, tolerance of risk and acceptance of novelty may be a basis for innovative behaviour in the context of a firm.

As social action, innovation is framed by interactions and depends on the opinions, approval and social status of others in the same social milieu. Since innovation is associated with change, it may enter into conflict with the realization of other values. Innovative actions in SMEs are constrained by the social acceptance of key actors in the innovation process, mainly clients, providers and business partners. The realization of innovations in the broader context of an

innovation system is mediated by these actors' understandings of the desirability and feasibility of certain behaviours. In this sense, the pre-eminence of values prone to innovation in networks of firms and workers of a given environment functions as a competitive asset.

Norms

If values are related to desired and expected behaviour, norms are more related to constraints (Portes, 2010). Norms embody concrete directions for action in specific situations. The importance of norms for innovation is reflected, in practice, in the level of sanctions and rewards attached to behaviours that have implications for innovation. Economic action is linked to behaviours that have a normative character. For instance, norms that oppose change and adaptation to fundamental aspects of economic life are detrimental to innovation. Conversely, other norms related to business ethics and loyalty in economic transactions provide the necessary stability to develop partnerships for productive processes that foster innovation.

Moreover, given the fact that culture is not homogeneous, the business norms of some social groups are not shared in the surrounding social milieu. Services or products are not readily available because of normative or value restrictions for production and exchange. In this circumstance, some firms find a niche of competitive advantage. For instance, ethnic entrepreneurs innovate by virtue of doing business with social groups that are structurally separated for religious or ethnic reasons. Entrepreneurs with a different normative background are able to fill a 'structural hole' (Burt, 1992) by acting as intermediaries and recombining resources that are otherwise separated by a social fracture.

Cognitive repertoires and skills

Another very important aspect of culture is the cognitive repertoire of skills and routines associated with activities needed for the enactment of values and norms in a specific productive process. Cognitive frameworks and scripts are considered determinants of individual and social action in any kind of organization and also in firms (DiMaggio, 1997). These cognitive elements are an integral part of innovation inside the firm, and also in the tissue of SMEs and micro firms of any regional environment. The capacity of doing is shaped by socialization both in the craftsmanship and the formalized aspects of an economic activity. Acculturation processes are also important in order to understand the meanings and attributes of specific activities (Lindh de Montoya, 2000). Therefore, certain capacities to act within SMEs are especially dependent on socialization and acculturation within the family, educational system and on-the-job training. Hence, for SMEs and micro firms, the combination of skills transmitted by personal interaction and vocational education systems is closely linked to successful innovation dynamics.

Roles

Roles are generally described as the set of behaviours prescribed for occupants of particular social positions. They are related to norms because norms do not occur in a social vacuum, but appear organized and are attributed to specific actors, at least when those actors occupy a visible social position. Individuals as role occupants are subject to constraints and incentives. The extensive research about roles has seldom been considered by innovation studies, although it can be a useful analytic tool. Roles and associated social dynamics can be of interest for linking the symbolic world of culture to the social and economic structures of innovation systems. In particular, a role set associated with an entrepreneur's position is especially influential on innovation in his/her firm. For instance, the existence of role congruence regarding standards of quality, prices and ethical codes to be fulfilled by the entrepreneur, in accordance with the expectations of clients,

providers or business partners, facilitates the development of competitive productive lines. Conversely, the existence of a role strain in an entrepreneur, when normative expectations are contradictory, is detrimental to achieving coherent results, for instance when economic benefits are not in line with the quality expected.

Institutions

Institutions are the more visible aspect of symbolic social life. Roles, though not exactly the same as institutions, are an integral part of them. Institutions are the symbolic blueprints of organizations. They comprise the set of written or informal rules governing the relationships between role occupants within and between different organizations. People usually develop activities and obtain advantages in organizations formed by groups of roles, associated values, norms and skills, together with economic resources, power and networks disposed in a hierarchical manner (Portes & Nava, 2017).

This restricted definition of institutions is useful for examining explanatory mechanisms related to culture and innovation in firms. First, the complex arrangements of values, norms, roles and skills inside the firm are what enable an organizational engine to make products and services with a certain degree of competitive advantage. Second, outside the firm the social structure of an innovation system is formed by a complex set of organizations (different kinds of firms, knowledge providers, such as universities and technology centres, innovation agencies, business angels, incubators and so on), governed and oriented by institutions and other layers of symbolic aspects (Fernández-Esquinas, 2012). The existence of such organizations, and their cultural and institutional blueprints, determines SMEs' possibilities to cooperate with other firms and to establish relationships with knowledge providers essential for innovation.

Studying the specific influence of cultural aspects on SMEs and micro firms requires an analysis of the different components of culture inside the firm and the relationship with the institutional environment. A key task is to observe the extent to which cultural elements are determinants of innovation, in comparison with other 'hard' aspects of the social structure, including the productive sector, firm size, organizational structure, availability of financial capital or the social networks between people and with other firms.

Articles in this Special Issue

The first two articles provide a useful analytical map for understanding this field of research. The article by González-Loureiro, Sousa and Pinto 'Culture and innovation in SMEs: the intellectual structure of research for further inquiry' provides a general overview of the field with a structured approach using content analysis and HOMALS statistical procedure. Analysing the articles found in ISI-WoS and Scopus databases about the topic of the Special Issue, these authors suggest that future research will emphasize dynamic perspectives of culture using mixed approaches from a variety of social sciences.

The article by Van Oostrom and Fernández-Esquinas, 'Exploring the links between culture and innovation in micro firms', is conceived as a conceptual tool for exploring the dimension of culture, especially values, and for observing the specific social mechanisms that shape innovation dynamics in micro firms and the diversity of open innovation strategies. The outcomes of the study present a plurality of cultures of innovation and highlight the importance of firms' knowledge base in the configuration of different innovation behaviours. The empirical findings

contribute to existing discussions about homogeneity versus plurality of culture, and about universality and specificity. The results suggest that the debate on open innovation strategies could benefit from an operational framework of culture as presented in the article.

A second group of articles cover innovation dynamics of firms close to research and technology. In 'The enterprise of innovation in hard times', Ramella studies corporate cultures and performance in Italian high-tech companies. Based on a sample of firms with EU patents, the article explores the 'socio-cognitive' and 'socio-normative' dimensions that guide internal relations between employees and external relations with other actors. The article finds that collaborative company cultures influence successful innovation strategies. Analytically, the notion of corporate culture used in this article represents a bridge between structure and agency and provides a useful explanation for social change in firms.

In the article 'A new approach to business innovation modes: the "RTH model" in the ICT sector in Belarus', Apanasovich, Alcalde-Heras and Parrilli analyse the modes of innovation adopted by SMEs. Inspired by contributions on 'STI and DUI innovation modes', they present a new framework based on empirically-grounded 'innovation profiles' and 'business innovation modes' – the RTH model (Research, Technology and HRM). Using a sample of ICT firms operating in a technology-follower country (Belarus), the study emphasizes that the degree of product innovation seems particularly sensitive to the Technology and HRM drivers. This result suggests the need to differentiate policies dedicated to Research from those focused in Technology, especially in transition countries.

The article by Olmos-Peñuela et al., 'Strengthening SMEs' innovation culture through collaborations with public research organizations', focuses on the role of public research organizations (PROs) on SMEs' innovation activities. In particular, they observe the extent to which firms' innovation culture is reinforced by collaboration with PROs. The article is based on a survey of firms that have collaborated with the CSIC, the largest PRO in Spain. The authors built a specific proxy of innovation culture related to the role of new ideas, worker collaboration and decentralized decision-making. The results of their analysis show how collaboration with PROs encourages innovation behaviours among employees and the emergence of new ideas that challenge the organizational situation of firms.

A third group of articles focuses on important innovation processes for SMEs in territorial milieus. Gabaldón-Esteban and Ybarra's article, 'Innovative culture in district innovation systems of European ceramics SMEs', uses the concept of industrial districts to study the role of community and culture in specialized industrial environments. The authors focus on the ceramic tile sector in Sassuolo (Italy) and Castellón (Spain). They adopt the notion of 'district innovation systems' to observe the cognitive frames and tacit knowledge present in the surrounding environment, together with the actors' linkages, systemic functions and failures. The results provide a useful framework to identify symbolic elements of production and possible application to different sectors.

The article by García Rodríguez et al., 'Entrepreneurial process in peripheral regions', focuses on the entrepreneurial potential for regions' innovation performance and examines cultural specificities and the role of motivation. The results of the quantitative survey of university students in the Canary Islands indicate that motivation influences entrepreneurial intention directly and indirectly through individuals' attitudes to entrepreneurship. The findings have important consequences for entrepreneurial education and policies in terms of the attention that should be paid to motivation rather than to attempts to change individual attitudes.

The article by Albizu et al., 'Making visible the role of vocational education and training in firm innovation: evidence from Spanish SMEs' studies the role of vocational education training (VET) in industrial firms. A survey of a large sample of Spanish SMEs is used to observe the presence and profile of workers with VET qualifications. The involvement of these workers in innovation activities and the specific variables that shape their participation are studied in detail. The article shows the importance of the VET system in the formation of cognitive frameworks and skills that are essential for innovation, especially in low-tech sectors. It also identifies how cultural elements internal to firms determine the level of these workers' involvement in innovation.

The article by Froy 'Pragmatic urbanism: London Railway arches and Small-Scale enterprise' explores an urban perspective on the small-scale businesses set up in the railway arches of London through recent industrialization history. The findings presented in this article highlight the importance of the architectural characteristics of railway arches in generating cultures of innovation between micro firms and SMEs through the circulation of people and ideas. The results also highlight the policy implications of urban design, since railway arches and other residual spaces are more flexible and adaptable to new business. The integration of small-sized manufacturers, artisans and retailers into other commercial spaces within urban districts would also reduce industrial gentrification by maintaining the cultural ties of SMEs with local neighbourhoods.

The article by Cesario et al., 'The use of design as a strategic tool for innovation: an analysis for different firms' networking behaviours?' contributes to the understanding of the 'strategic use of design'. They used the Community Innovation Survey (CIS 2012) database for Portugal to understand the association between different external linkages and the use of design in the firms' innovation process. The access of firms to different information sources, such as public customers, consultants or conference participants, is positively connected to the strategic use of design. Moreover, the development of informal channels with these actors is showed to be also associated with better design performances.

Conclusions

The contributions of this Special Issue give an extensive insight into the dynamic and complex relation between culture and innovation in one of the key agents of European economic life: SMEs and micro firms. The articles present valuable contributions that facilitate a theoretical and empirical understanding of the social and cultural mechanisms that influence innovation performance. Lessons and recommendations for policy are identified and suggested. Future research questions concerning the generation and management of cultural elements emerge throughout this Special Issue, in addition to important limitations and challenges for research.

A significant implication for innovation policies is that some aspects of culture can be managed in order to foster positive innovation dynamics. The relation between culture and firm innovation is not just one-way. Different articles have shown how culture is a heterogeneous and changing domain. Therefore, cultural elements can be shaped and integrated into firms' strategies, as well as into regional and local innovation policies. In terms of the implications for future research, an important challenge is to employ analytical and methodological strategies to identify different dimensions of culture (especially values, norms, skills and institutions) and to scrutinize which specific components of culture are relevant to firm innovation and to the more general dynamics of innovation systems, in comparison with other important components of the social and economic

structure relating to size, sector, finance, economic influence, networks and organizational arrangements.

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