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Entrepreneurial and innovation ecosystems: Ibero-American perspective

Abstract

This article introduces the special issue of the *Journal of Evolutionary Studies in Business* about entrepreneurial and innovation ecosystems. It sums ups significant changes that have taken place in the world of business innovation and entrepreneurship in recent years. Start-ups are growing at the centre of a change of paradigm where connections and global networks are key in order to develop new and disruptive technologies. In such a framework, this article presents the nine contributions of this special issue that provide research results related to the topic of entrepreneurial and innovation ecosystems from an Ibero-American perspective.

Keywords: Innovation ecosystem; Entrepreneurial ecoystems, Ibero-American countries, Innovation policies.

Introduction

The concept of *ecosystem* has been widely recognised in the last decade. In the field of business research, Moore (1993) is seen as the pioneer of the introduction of the term.

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He suggests that in a context of a competitive dynamics firm, the strategy should move away from a narrow-minded industry perspective to a business ecosystem. It has become a key issue in the current business world, where we identify the business competitiveness with the so-called network economy. The term has been consolidated in different business settings, but, in any case, it is especially associated with two core business concepts of the 21st century: entrepreneurship and innovation. The digitalisation of the economy has significantly contributed to this relevance.

Malecki (2011) defines the ecosystem as a regional agglomeration of individuals, organisations, and regulatory institutions interconnected between them in a concrete geographic area. Jackson (2011) defines an innovation ecosystem as the complex relationships that are formed between actors or entities whose functional goal is to enable technology development and innovation. Connections are a key concept within ecosystems, since connections between economic agents are crucial for the development of innovations and entrepreneurial initiatives.

In such a framework, the origin of this special issue is the X International conference of the *Red de Investigación y Docencia en Innovación Tecnológica* (RIDIT). This conference took place at the University of Barcelona on 20–22 November 2019, and its main issue was 'Entrepreneurial and Innovation Ecosystems'. The articles of this issue correspond to a selection of the research works that were presented at this conference.[1] They provide research results related to the topic from an Ibero-American perspective. In this introduction, we sum up key concepts on the topic and the contributions of the nine papers.

[1] With the exception of the paper by Fernandez Moya et al.

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From an academic point of view, two main ideas need to be highlighted. Regarding innovation, ecosystems are the 'next stage' after the national systems of innovation approach (Lundwall 1992; Freeman 1995; Acz et al. 2014) and the developments related to clusters (Porter 1990) that took place during the 1990s. They lead to a deeper analysis of the regional innovation dynamics where formal institutions are important but where all types of economic agents (people, communities, platforms, etc.) play a key role for business development. Concerning entrepreneurship, ecosystems contribute to the understanding of the role of entrepreneurial activities for competitiveness. Start-ups have a leading role in the reconfiguration of innovative processes and especially in the development of disruptions, what Davila and Epstein (2014) identified as the 'innovation paradox'.

Furthermore, entrepreneurial ecosystems are associated with a major conceptual change: the main idea is that we have the entrepreneur at the centre of the analysis instead of companies (Stam and Spigel 2016). In the past, within old paradigms like clusters or national systems of innovation, that was not the case. Entrepreneurship promotion was a policy option, but start-ups and/or entrepreneurs were not a unit of analysis but a consequence that was not a clearly defined policy objective.

In addition, analysis of entrepreneurial and innovation ecosystems needs to focus on the economic and social conditions that surround the entrepreneurial process. Ecosystems are strongly linked with the importance of 'stakeholders'; that is to say that beyond formal organisations (universities, governments, companies, etc.) there is a large variety of agents of all types, communities, platforms, and individuals that play a significant role in the success of entrepreneurial and innovative processes, where open innovation (OI) strategies are key. Stam and Spigel (2016) define an entrepreneurial ecosystem as a group of actors and interdependent

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factors that are coordinated between them, so that they make possible the productive entrepreneurship in a determinate territory. This productive entrepreneurship is directly connected with the idea of opportunity entrepreneurship and with the development of entrepreneurial initiatives that are looking for success through new and differentiated products and services — in other words, a type of entrepreneurship in which intensive use of technology is required and the probability of failure is high. Obviously, this approach moves away from the necessity entrepreneurship clearly related with self-employment. Start-up is the business concept that represents this opportunity entrepreneurship that creates opportunities for innovation.

Oh et al. (2016) review the literature and analyse the concept of innovative ecosystem. They consider that there are at least seven types of these ecosystems: corporate/OI, regional, digital, city-based, high-tech SMEs-centred, university-based, and incubators/accelerators. This typology shows that start-ups are at the junction where the concepts of entrepreneurial and innovation ecosystems intersect.

The academic research about ecosystems has increased in a significant way in the last decade. But that happened using a large variety of terms, concepts, and approaches: entrepreneurial ecosystems, innovative ecosystems, communities of innovation, OI, etc. For some researchers, entrepreneurial ecosystems and innovation ecosystems are complementary concepts. For others, entrepreneurial ecosystem appears in a later stage within the process of development of innovation systems. There are many different research approaches to be taken into account in order to study the phenomenon. But, in any case, a large majority of them are concerned with the search for an appropriate definition of an ecosystem and how to measure its economic, technological, and social impacts (Audretsch et al. 2019).

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Today, literature, public policy, and institutions linked to entrepreneurial ecosystems in developing countries have several challenges that could be defined as global, because, in most cases, these elements are almost impossible to ignore. A first challenge is the presence of a global economic recession, where there is a reduction in the growth of the Chinese economy, important industries such as the automotive industry have problems in demand for their products, and recessions are declared by important economies like Germany. It is in this sense that the economic recession (and in this case, the crisis) is an important challenge for the ecosystems of developing economies, when they are more sensitive to a crisis than most advanced economies.

On the other hand, global value chains today have an important maturity in which it is perceptible that they cross into different ecosystems (whether at the country, region, or sector level). In this sense, institutions must contemplate the role that an ecosystem plays along these chains. Does it play a central or peripheral role in creating value and appropriating it? The challenge is to position oneself in a place where appropriability and capacity building is beneficial to the ecosystem. In that line, the understanding of the interdependence between ecosystems may be more relevant than the interdependence within it.

Technological change is differentiated for each ecosystem. The whole process of change does not follow the same logistic curve ('s' form), and in some cases it does not even close it up. The change in developing economies can be slow, and in others, exponential. The challenge is to build institutions that escape a slowed process and that can be adaptive.

Overview

Based on the above, a primary objective is to recognise the current nature of technological change by type of ecosystem, not only to recognise the existing competition, but also the level

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of complementarity in the chains of each participant. Given these challenges, it is imperative to characterise the entrepreneurial ecosystems in developing countries, leading to a better understanding of their problems. The papers presented in this special issue aid in that direction.

In an increasingly changing scenario, it is necessary to know whether ecosystems are prepared to allow OI. In this regard, the work of Flor et al. entitled 'Innovation policy instruments through the lens of open innovation: An analysis in the Spanish context' aims to examine the degree to which existing public policies to support innovation promote OI by companies, specifically in Spain. Through a regional analysis, the paper describes the Spanish institutional context and analyses the instruments launched by Spanish national and regional governments. This will be of vital importance because the study allows to recognise the limitations and capacities at national and regional levels. The work recognises the absence at the regional level of corporate venturing support (which limits outbound OI, that innovation goes out and is shared) and of network creation (limiting the coupled OI or that is shared by both parties). On the other hand, at the national level, there are austere actions for the public procurement of innovation, support for collaboration among system agents, and knowledge valorisation and transfer (promotion of inbound OI, incorporation of external technology). For policymakers, the document identifies the main lack of policies that encourage OI in Spain, and in that sense, it guides entrepreneurs to find new markets.

Entrepreneurial ecosystems are differentiated by the evolution of their trajectory and by their context. Differences are greater between the ecosystems of developed and non-developed countries; knowing them allows identifying opportunities. In this way, the article by Kantis and Federico entitled 'Ecosystems developed and developing: An evolutionary approach' not

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only identifies differences but also analyses how four ecosystems have evolved: Silicon Valley, Israel, Buenos Aires, and Santiago. This allows them to identify the processes of evolution, supported in the concepts of interdependence, self-reinforcement, and route dependence. The analysis focuses on the evolutionary process in terms of emergency and development. In that sense, four forces that allow the emergence and development of the ecosystem are identified: business, institutional, investment, and government dynamics. An important result (among others) in the case of developed ecosystems is the presence of private substantial incentives throughout the entire process, specifically the presence of private and specialised financing. On the other hand, in the case of developing ecosystems, the government would play a central role in generic financing.

An important barrier for the emergence of an innovation is, by definition, the market. This is related to the dissemination of the innovations, its acceptance. In the case of developing countries, such as in Latin America, this limitation increases, as the process of diffusion of technology cannot be accelerated. Therefore, a good demand-oriented innovation policy would be central to the case of developing countries. The research entitled 'Demand-oriented innovation policy: Mapping the field and proposing a research agenda for developing countries' by Reyes et al. deals with this topic. It is based on the systematically documented tracking and review of research on demand-oriented policies in developing countries. One of the results is the great presence of studies focused on environment and alternative energy. For innovations in these areas, the government's role is core, because it allows maturity of the markets. The paper emphasises that while research has focused on developed countries, it has found that its results can be oriented towards a good combination of policies, supply, and demand. Research in this regard is oriented on at least two lines: sectors and maturity of

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technology. The work emphasises that a good combination of supply-side and demand-oriented policies would allow developing countries to strengthen their innovations. In addition, the research takes into account two axes: sectors and maturity of innovation.

Developing economies tend to find barriers to the appropriability of their innovations. Thus, identifying company strategies to achieve it is relevant. Petelski et al., in 'Strategies of innovation and appropriation: Sectoral analysis of Argentine manufacturing firms', do just that. From the analysis of the National Survey of Employment Dynamics and Innovation for Argentine manufacturing firms, the researchers look for determinants as innovative effort and structural factors to choose some kind of appropriability strategy. In addition, the authors identify that high-tech industries access a greater number of appropriation strategies than other industries. The main mechanisms of appropriation are complementary assets, customer communication, and first mover. In terms of public policy concerning ecosystems, it is necessary to promote different incentive mechanisms to appropriate benefits. The paper allows to identify the mechanisms.

Ecosystems always have a regional basis, and for actions on innovation to be efficient, an agenda is required in which ecosystem actors are part of their planning. In that sense, Solleiro et al., propose a research–action methodology, where the researchers themselves can provide feedback on the agenda, once they recognise the problems of the actors in the region. In their paper entitled 'Building a regional innovation agenda: The case of San Luis Potosí, Mexico', the authors identify the main issues in the region. In addition, the dislocation between the actors is identified. Then the elaboration of the agenda required the consensus of the different actors. The research shows that innovation is not merely a technological issue, nor a market

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one. Innovation is a matter of discussion and participation of the actors, and of the support of institutions.

Entrepreneurship has permeated cultural activities, especially with the rise of creative industries. In this regard, Corona's work entitled 'Culture and university entrepreneurship' manages to detail the case of various activities for the Mexican case. This research note focuses on the units of university institutions that promote cultural entrepreneurship. These activities represent an important market niche. The work is relevant once those involved in these activities usually have little advice to follow, so that the actions of universities in this area can accelerate the process. The study also shows that there are few universities that carry out these activities, and that they are usually those with the highest national and public budgets. Some ecosystems begin to bear great fruits and make an important leap globally, so it is necessary to know their experiences in order to replicate them. This is the case of Barcelona city, which is today at the level of cities like Amsterdam, Berlin, or Paris in the generation of start-ups.

In this regard, Pere Condom-Vilà in 'How technology evolution and disruption are defining the world's entrepreneurial ecosystems: The case of Barcelona's startup ecosystem' outlines the factors present in the Barcelona ecosystem. Condom discusses the definition of start-up, which has evolved in the face of abrupt changes in the economy and as new needs arise, so they are also transformed. Although innovation is crossed over virtual technologies, specifically software (from the production of consumer goods to the same biotechnology), for its generation innovation needs physical spaces in which various technologies are generated systemically. Condom insists that the city and citizens are core in the entrepreneurial system, the place where the entrepreneurship ecosystem is located. He points out that in the face of an

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increasingly accelerated process of change, the basis for success could be located in a start-up ecosystem (not only entrepreneurial), with its foundations being the talent and risk preference guided by technological singularity. In that sense, the author clearly manages to specify the importance that these factors have represented for the Catalonia region.

Finally, the text of Moya et al., analyses the external factors that determine family firm longevity through an approach that recovers the role of public policy. Longevity is a key indicator to understand the success of companies; it also helps to know the best public policies. From the study of four cases of both the Spanish and German economies within the metallurgical and publishing industries, the influence of institutions and institutional change in the evolution of business strategies is identified. The analysis can help to understand the importance of external factors in explaining the long-term survival of the family firm. The paper becomes relevant when in Europe an important part of the most prominent companies is familiar. In terms of public policy, it would allow better design to maintain the growth of firms. The study suggests that 'institutional protection alone is not enough and needs innovative technological and scientific organizations'. In addition, the differences between the two countries are stressed.

As noted, the different articles allow contrasting different experiences of components of the entrepreneurial ecosystems of Ibero-American countries. Firms, governments, universities, and especially entrepreneurs have different challenges within ecosystems. This is what this special issue of the journal tries to shed light on.

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Policy implications

In the process of developing entrepreneurial and innovation ecosystems, many changes have taken place: the way we approach university technology transfer has evolved; the role of cities has been more significant in relation to these ecosystems on a global scale; and innovation and entrepreneurship policies have been merged or are strongly connected in many countries.

The ecosystems group a number of agents, and success seems related to completeness. In other words, the presence of all types of required agents, critical mass, access to all kinds of relevant resources (talent, services, capital), and a good level of connections are crucial. In addition, an enabling role of government is required and global dimension matters. There are more and more global events where entrepreneurs and their start-ups can activate projects, look for finance, or interact in order to develop new initiatives.

This change of scenario leads, in an implicit way, to a reorganisation of support policies. Entrepreneurial and innovation ecosystems have to be placed in a context of what some authors have designated as holistic innovation policies (Borrás and Edquist 2018). In such an approach, the starting point is a wider definition of the concepts of policy and 'system' of innovation and their determinants. In other words, it is necessary to incorporate the notion of 'ecosystem' to face policy challenges. From this approach, policies have to provide components for the system of innovation and improve support services. It is important to create or to have the necessary organisations to develop innovation and entrepreneurship and to foster networking and interactions between organisations potentially involved in processes of innovation ('interactive learning'). This holistic approach is not far from the so-called 'mission-oriented' policies that have been defended in recent years, between others, by Mazzucato (2017). This researcher proposes that the policies have to reduce sectoral strategies

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and move in order to deal with social problems, supporting the cooperation of private–public partnerships, boosting interaction between agents, and contributing to the creation of new markets.

As mentioned, the redesign of public policies is linked to the importance of the strong connections between entrepreneurship and innovation policies. Moreover, it is impossible to think about public policies that are far from political, cultural, health, ecological, and, especially, social problems. Ibero-American countries have other problems in which public spending has to focus on and define priorities. However, these priorities can also be supported by technological development and entrepreneurial efforts. In this sense, the role of entrepreneurs can also be oriented to meet local, regional, and national needs of a different nature, and in order to achieve that aim, public policies (expenditure, legislation, and coordination) play a key role.

The conceptualisation of the generation of innovations has changed, as mentioned at the beginning. It has been changed from national innovation systems to ecosystems, from the firm's capabilities to entrepreneurship. Somehow, it has returned to the original Schumpeterian perspective. However, as new ways of understanding economic growth and development have been proposed, new policy alternatives are required. This, in turn, generates new research questions. In this way, this special issue intends to do so.

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