Chapter 8
Entrepreneurial Mission of an Academic Creative Incubator: The Creative Industries Pole of Science and Technology Park of Porto's University

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ABSTRACT

In Porto, like most European cities, cultural dimension and cultural activities have become increasingly important in recent years. Simultaneously, incubators became a way to promote creative business and support creative entrepreneurs, aiming at the local economic development. This is also recognized in academic institutions that boost academic third mission with, among others, the local positive cultural dynamics, responding to the domains of smart specialization defined to the northern region of Portugal. City center of Porto is, because of its centrality, where the expression of cultural and creative dimension assumes particular contours, being more concentrated and effervescent. In this chapter, the authors present the UPTEC PINC. For it, a methodological approach that combines qualitative and quantitative methods, namely interviews of the executive manager and start-ups installed in PINC and analysis of statistical indicators, is used.

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INTRODUCTION

This chapter develops two main themes. On one side, it stresses the role of entrepreneurship, and particularly academic entrepreneurship, in urban contexts currently; and on the other side, it contributes to debate around the importance of cultural and creative start-ups to urban economic development.

Over the past two decades there has been an increased number of studies around entrepreneurship and entrepreneurs (Bosma & Sternberg, 2014). Entrepreneurship is recognized as having a positive effect in local economies by generation of economic activity and creation of jobs (Audretsch, 2015; Castaño, Méndez, & Galindo, 2015; Galindo & Méndez, 2014).

University is one of the main sources of innovation (Etzkowitz & Leydesdorff, 2000) and together with R&D centers, science and technology parks and other innovation *milieux*, they are considered strategic for economic development (Fernández-Maldonado & Romein, 2012; van Geenhuizen, Soetanto, & Schoeten, 2012). The concept of academic entrepreneurship - or the third mission of university - arises in this context (Breznitz & Feldman, 2012; Ramos-Vielba, Fernández-Esquinas, & Espinosa-de-los-Monteros, 2010; Teixeira & Mota, 2012), reflecting the need to establish a close relationship between academic research and private sector R&D activities (Carayannis & Campbell, 2011) because companies increasingly need new knowledge to innovate and to increase their competitiveness (Ramos-Vielba et al., 2010) and universities need to obtain additional funding for research and consolidate strategic positions in innovation networks (Tijssen, 2006).

In most cases, these links are physically reflected in structures such as spin-offs or start-ups (E. G. Carayannis, 2013; Chen & Kenney, 2007), often organized in business incubators (Chen & Kenney, 2007). Science and technology parks are planned venues that have spread in Europe in the last almost fifty years, where training, research, development activities and production occur in a combined and symbiotic manner (Fernandes, Trigal, & Spósito, Fevereiro 2016). Science and Technology Park of University of Oporto (UPTEC) is internationally recognized as an important innovation ecosystem that promotes entrepreneurship and networks between R&D centers, private sector, local government institutions and organizations of civil society.

Cultural and creative sector are becoming increasingly important in urban economies (Freestone & Gibson, 2006). Allan Scott argued, in 2008, that cultural production activities were among the leading sectors of economic growth and innovation processes (Scott, 2008).

In Oporto, like in most European urban areas, the cultural dimension has become increasingly important, in recent years, not only in the context of public policies and strategies, as well as on initiatives promoted by academic institutions. Exploration of potential of creative industries, of production of new materials and innovative technologies and of creation of new competitive advantages in sectors related to the production of consumer goods with a strong design component are also an objective of smart specialization established to the Northern Region of Portugal. And the city of Oporto has resources and skills to meet this goal.

In this chapter it is presented a case study – the Creative Industries Pole of Science and Technology Park of University of Oporto (UPTEC PINC), that supports the development of cultural and creative start-ups since January 2010 and that is aligned with the domains of smart specialization strategically defined at regional level, to the Northern Region of Portugal (Guerra, 2013). The authors use a methodological approach that is traditionally designated in social sciences as extensive-quantitative research strategies, combining methods of quantitative and qualitative nature (Costa, 1999). The analysis of relevant data and an interview to the executive manager and 6 interviews to start-ups installed in UPTEC PINC, made during 2016, supports the understanding of the role of this institution in the design, development and market insertion of cultural and creative industries and the main strengths and challenges they face nowadays.

BACKGROUND

There is a broader scientific theoretical body where it is argued that innovation is a key factor of economic growth and competitiveness of territories (E. Carayannis & Grigoroudis, 2014; Dabic, Cvijanović, & González-Loureiro, 2011).

The well succeed performance of developed and developing economies depends increasingly on knowledge (E. G. Carayannis & Campbell, 2011), considered the driving force of economic, social and technological dynamics at different scales and a source of innovation (van Geenhuizen & Nijkamp, 2012).

Science and technology are considered as main sources of competitive advantages for regions and nations. The determining factor for its effectiveness is the quality and quantity of entrepreneurship-enabled innovation capable to unlock and capture the financial benefits of science in the form of private, public or hybrid products or services (E. G. Carayannis & Campbell, 2011). Over the past two decades there has been an increase in the number of academic studies around entrepreneurship and

entrepreneurs, with particular attention to the spatial dimension of entrepreneurial activities and its causes and effects. There is still a long way to go to arrive at a theory or at least to a theoretical framework to explain the processes, causes and effects of entrepreneurship in urban areas (Bosma & Sternberg, 2014) but the post-crisis economic situation encourages research on the driving forces of economic growth. Entrepreneurship is recognized as having a positive effect by generation of economic activity and creation of jobs. Since the early twentieth century, Schumpeter and many other authors have argued that entrepreneurship and innovation were becoming gradually driving forces of job creation and economic growth (Audretsch, 2015; Castaño et al., 2015; Galindo & Méndez, 2014).

University is considered one of the main sources of innovation (Etzkowitz & Leydesdorff, 2000). And together with R&D centers, science and technology parks and other innovation *milieux*, they are considered strategic for an innovation ecosystem (Ribeiro & Ferrão, 2014) capable of boost economic development (Fernández-Maldonado & Romein, 2012; van Geenhuizen et al., 2012).

Since the early 1990s that European Union (EU) member states were encouraged to promote a more active role of academia in technology transfer. This was mainly due to greater restrictions in the state budgets regarding the financing of science, which pressured universities and other research institutions to seek alternative sources of financing. So, in this context, entrepreneurial universities have gained increasing attention (Grimaldi, Kenney, Siegel, & Wright, 2011).

The concept of academic entrepreneurship - or the third mission of university - arises following the emergence of studies around the links between university, business sector, government institutions and other civil society organizations and the need to understand the economic potential of transfer and application processes of knowledge that these relationships allow. The positive impact that universities have on the economy and society underlies the concept (Breznitz & Feldman, 2012; Ramos-Vielba et al., 2010; A. A. C. Teixeira & Mota, 2012). University and other research institutions are particularly important agents in the support of innovation processes of small and medium enterprises (Marques, Queiroz, & Alves, Dezembro 2014) and in the promotion of entrepreneurship (Chen & Kenney, 2007).

Academic entrepreneurship also reflects the need to establish close relationships between academic research and private sector R&D activities (E. G. Carayannis & Campbell, 2011). These relationships serve as catalyst for commercialization of products and services that result from technological research and application, generating economic surpluses (E. G. Carayannis, 2013; Ramos-Vielba et al., 2010; Zucker & Darby, 2007). On the one hand, companies increasingly need new knowledge to innovate and to increase their competitiveness (Ramos-Vielba et al., 2010); and on the other hand, those links allow gains for the university that, through

them, can obtain additional funding for research and consolidate strategic positions in innovation networks (Tijssen, 2006).

Etzkowitz (2012) argues that the strength of the entrepreneurial academic community is a guarantee of success in terms of innovation and that the ease of interactions at the boundaries between academy, private sector and government institutions is a key factor, as the facility (or difficulty) can encourage (or discourage) new connections. These interactions are positioned between the academic production of knowledge and the search for advanced know-how and knowledge by society or private companies in order to generate new products, services or ideas. In most cases, they are physically reflected in structures such as spin-offs or start-ups (E. G. Carayannis, 2013; Chen & Kenney, 2007), often organized in business incubators (Chen & Kenney, 2007).

The concept of business incubation, first developed in the United States of America (USA) in the late 1950s and spread internationally in the 1980s, in a favorable context to entrepreneurship, consists of a framework to facilitate the right conditions to the creation and development of business projects, providing a set of support services, promoting contact with other entrepreneurs and favoring the reinforcement of knowledge and skills (E. G. Carayannis, 2013).

Science and technology parks are a mechanism of technology develop and transfer, aligning academic research with industrial application. They are an example of academic entrepreneurship as well as a triple helix interaction platform in the sense that they respond to the objective of effective integration between science, industry and technology, in which government institutions play an important role (Tijssen, 2006). They are planned venues that have spread in Europe since the 1970s, where training, research and development activities and the material production of goods and services take place in a combined and symbiotic manner (Fernandes et al., Fevereiro 2016).

In Portugal, public policies for science and technology and for higher education have been promoting the alignment between academia, the business sector and the labor market. This attitude is based on the assumption that it is possible to build a strong economy based on knowledge production and application, transforming it into technology and innovation. Since the end of the 1990s, were created conditions in higher education institutions to the construction of a national academic entrepreneurship framework (Santiago, Carvalho, & Ferreira, 2013). Science and technology parks are considered, nowadays, in the agenda of local policies as a stimulus for the enterprise structure at this scale (A. A. Teixeira & Silva, 2012).

It is agreed that the cultural, artistic and creative functions streamline local economies (Fernández-Maldonado & Romein, 2012; van Geenhuizen & Nijkamp, 2012).

In the last 20 years it has been recognized the importance of other inputs than the financial capital for economic growth and development of urban areas (Batabyal & Nijkamp, 2013).

Changes in paradigms of economic and social development began to increasingly integrate and valuate cultural and creative dimensions (Landry, 2008; Zarlenga, Rius-Ulldemolins, & Morató, 2013), considered catalysts of the symbolic economy of cities (Zukin, 1995).

In 1995, Sharon Zukin argued that culture was increasingly the business of cities, constituting the support of tourism and city's most competitive factor (Zukin, 1995). Richard Florida argued in the beginning of XXI century that ideas, creativity and culture are essential for urban economic development (Florida, 2005). Since then, cultural and creative activities are becoming increasingly important in urban economies due to recognition of their economic value (Freestone & Gibson, 2006).

Scott, in a study published in 2008, argued that the leading sectors of economic growth and innovation processes were those in which intellectual and human capital, complemented by digital technologies, were the key ingredients of competitive success. Among these sectors were cultural production activities (Scott, 2008). In the last decade, the scientific and political agenda has been emphasizing the importance of cultural and creative activities for local, regional, national and European development (Marques et al., 05/2017). The focus on creative economy appears increasingly as a fundamental axis in urban policy, either through measures that aim to create an environment conducive to creativity (like investment in scientific and technological system, in museums, in places and events of cultural and recreational nature, in art education or in start-ups incubators) or through direct incentives to companies of the creative economy. Cities use their cultural resources (including heritage, talent and cultural and social diversity) as one of the main factor of strategic development public policies in order to promote advancement of creative and cultural infrastructure (Fernandes et al., Fevereiro 2016).

Since the 1990s, cultural and creative industries have gained greater expression in terms of created employment and contribution to gross domestic product (GDB) in developed countries. They are consensually accepted as innovative, flexible and strongly related to creativity, operating at the intersection between local and global, producing and projecting local identity elements through global distribution networks. These characteristics emphasize their tendency for spatial concentration (Mackinnon & Cumbers, 2007) in certain places of cities (Pratt, 2011).

In Portugal, the cultural and creative activities are strongly linked to urban contexts, since they depend on population density and on cultural and creative structures and equipment (Marques et al., 05/2017).

ENTREPRENEURIAL MISSION OF CREATIVE INDUSTRIES POLE OF OPORTO'S UNIVERSITY

Oporto's Cultural Atmosphere

Oporto is the second most important city of Portugal. It is located in the Northern Region of the country and it has a coastline that establishes bridges with other continents, and that is also attractive from the landscape point of view. Oporto is bathed by Douro River, a natural resource that constitutes an added value in economic terms, namely for its tourism and leisure potential (it is a departure point of tourist boats and a privileged location for realization of water sports, sport fishing, among others).

The city has, according to Census of 2011, 237,591 inhabitants and a density population of 5736.1 inhabitants per Km^2. In the same year 171,738 individuals went in a daily basis to the municipality of Oporto to work or study (INE, 2015).

Oporto has, nowadays, visibility at national and international level. This is due in large measure to the increased that tourism sector had in last years, but also to another positive dynamics like a greater importance of cultural economy, in all its perspectives (including the night time leisure), and the investments in urban rehabilitation that change the projected image of Oporto (to a more attractive one).

The large number of individuals that, taken together, live, work or visit Oporto and, in particular, its centre, contribute to the increased flow of people and the consequent notorious living of the central area. In a work about the importance of tourism in historical centre, the authors note that in terms of public strategies there is a focus of municipality on minimizing the effects of seasonality by promoting differentiated events throughout the year, most of them with a cultural dimension. Another important goal of city council is to strengthen and project the Oporto brand internationally to promote the city, attracting more people and more investment (Ferreira, Marques, & Guerra, December 2016).

The city was European Capital of Culture in 2001 and this was an important milestone that leveraged changes in urban rehabilitation and in the reinforcement of cultural dynamics. This event led to the emergence of new cultural facilities and since then occurs the progressive promotion of more and diversified cultural and animation events. It should also be noted that in the last decades many communities settled in Oporto. Being an attraction pole in the metropolitan context, the city acquired cosmopolitanism, a phenomenon that contributed to ethnic and cultural diversity of the city (CMP, Maio 2013). In Oporto, like in most European cities, the cultural dimension has become increasingly important not only in the context

of public policies and intervention strategies, as well as in initiatives promoted by private investment or by academic institutions. In many cases these initiatives generate the creation of new spaces or multifunctionality or hybridism of existing ones; and support creative businesses or creative entrepreneurs, aiming the diversification of experiences, the attraction of diverse audiences and the economic development of companies and territory. The city centre of Oporto is, because its centrality, where the expression of cultural and creative dimension assumes particular contours, either by offer or by the size of demand. The focus on creative economy appears increasingly as a fundamental axis in urban policy, either through measures that aim to create an environment conducive to creativity (investment in scientific and technological system, in museums, in places and events of cultural and recreational nature, in art education, in start-ups incubators, among others) or through direct incentives to companies of the creative economy.

The latest specific public policy program for culture is the Municipal Plan of Culture dated from 2013 (CMP, Maio 2013). In the document is clear the recognition of culture as a key factor of economic development and it's important contribution to the quality of life in the city. The cultural strategy for Oporto, patent in the document, values the historical and monumental heritage and the intangible identity elements that are considered a factor of uniqueness. At the same time, awareness for recent character identity marks is very marked. These marks are still in consolidation phase but have brought new experiences and dynamics to the city and in particular to the city centre. The authors refer just as examples the nightlife living and urban markets. The growing importance of nightlife in the city centre is considered to be an engine of economic growth and urban transformation. It has led to the emergence of new businesses and the generation of new experiences of spaces, used and enjoyed by new city-users. These processes have contributed to reverse the trend towards social and functional abandonment of Oporto's city centre, especially in the last decade, leveraging the emergence of socio-economic tendencies, common to other European cities, which translate into the revaluation of the central area.

In a previous work, where the authors study the urban markets that started arise in Oporto in 2009 by private and academic initiative, it was concluded that these events promote the animation of places and streets and constitute a new form of economic and cultural activity. They reflect a mix of functions - economic, social, cultural and artistic - that give life to urban spaces, particularly in city centre (Ferreira, Sá Marques, & Guerra, 2015).

Also dated from 2013, and created to the local elections of the same year, the strategy for the city is reflected in the Election Manifesto of the current mayor. The document states that culture is considered a development factor, a factor of social

cohesion, urban regeneration and economic differentiation. It is valued either the most popular character or massiveness of culture and culture in its most elitist character. Culture is also considered the basis of the creation of identity and symbolic value in city. Promoting start-ups installation and anchor companies able to attract talent and other investments, promoting the value of qualified human resources in the city centre, as well as support the internationalization of the creators and creative class are considered strategic goals for the development of cultural sector in Oporto (Moreira, 2013).

Guerra (2013) stresses the importance of the city in the metropolitan context (constituted by 17 municipalities) in what concerns to the number of business and people employed in cultural and creative industries.

In a broader sense, Ribeiro et al. (2016) points out that Oporto's metropolitan municipalities emerge in the regional ecosystem due to the density of knowledge production, learning and innovation networks. It should be noted that these networks also assume national projection (Ribeiro, Moura, & Chorincas, 2015).

At regional level, the Northern Region Regional Development and Coordination Commission (CCDR-N) identified 8 strategic domains of smart specialization for the 2014-2020 European programming period, which are identified in Table 1 (CCDR-N, Sem data). The collaborative innovation perspective underlies all regional strategies for smart specialization. The networking of the various actors encourages the creation of creative and social capital (Ribeiro & Ferrão, 2014). The city of Oporto has resources and skills that strongly help to achieve this goal. Oporto public strategy and key sectors of economic activity are aligned with smart specialization strategy, in all its domains, and namely in what respects to the culture, creation and fashion and to the symbolic capital.

The Role of Creative Industries Pole

The attractiveness of Oporto's University, responsible for a great number of students (including mobility programs' students, like Erasmus) and researchers that every year settled down in the city for long seasons, is also a phenomenon that in the last 20 years has contributed to the great mobility that characterizes the academic city (CMP, Maio 2013; Ribeiro & Ferrão, 2014). In Oporto, there are many business incubators attached to public and private academic institutions and to non-profit organizations. When associated with universities, those projects respond to academic entrepreneurship - or to the third mission of academy -, the economic and social valorization of knowledge. Benefiting from the reputation and privileged position that the university occupies in the top international evaluation ranking (Ribeiro

Table 1. Domains of smart specialization of Northern Region of Portugal

Domains	Description
Life Sciences and Health	Consolidation of dynamics of articulation between the regional research and the companies in health industries and services in a broader sense (pharmaceutical, medical devices, provision of health services, health tourism, well-being and cosmetics).
Culture, Creation and Fashion	Exploitation of potential of creative industries (especially in the areas of design and architecture), new materials and innovative production technologies. Creation of new competitive advantages in sectors related to the production of consumer goods with a strong design component, namely textiles and clothing, footwear, accessories, furniture, jewelry, among others.
Resources of the Sea and Economy	Articulation between applied engineering, sea resources and economic activities that value them (shipbuilding, energy production, platform construction, nautical tourism, biofuels and aquaculture, among others).
Human Capital and Specialized Services	Promotion of accumulated information and communication technologies (ICT) skills (in particular in development of multimedia applications, programming and systems engineering) in development of e-government solutions and dematerialization of processes.
Mobility Industries and Environment	Use of scientific skills in the areas of production technologies and materials to promote the upgrading of the automotive components industries, supplying more demanding customers with technical specifications, especially in the aeronautics field.
Advanced Production Systems	Development of broad spectrum technologies, namely advanced production systems, material nanotechnologies and information and communication technologies and electronic (TICE), combining the existence of scientific and technological capacities and infrastructures with relevant user sectors, through the strengthening of the existing business fabric or the creation of new businesses.
Agro-environmental Systems and Food	Potentialization of high added value products (wine, olive oil, nuts, etc.) and scientific and technological skills (oenology, engineering, biology, biotechnology, etc.) to respond to more dynamic demand segments.
Symbolic Capital, Technologies and Services of Tourism	Valuation of cultural and territorial intensive resources, taking advantage of scientific and technological capabilities, namely in the areas of management, marketing and ICT, and of relevant tourism offer and main visitor infrastructures.

Source: Adapted from CCDR-N, Sem data, pp. 30 e 31

& Ferrão, 2014), science and technology park of University of Oporto (UPTEC) is national and internationally recognized as an important innovation ecosystem, where entrepreneurship is promoted and interactions between R&D centers, private sector, local government institutions and organizations of civil society are encouraged. UPTEC was created in 2006 as a structure to reinforce entrepreneurship and innovation. It hosts spin-offs and start-ups, innovation centers that promote the articulation between companies and the university and it hosts also anchor

companies whose cohabitation proves relevant for this same articulation. UPTEC has 4 poles (Table 2), one of which is oriented to creative activities – the Creative Industries Pole (UPTEC PINC). UPTEC PINC was, in 2015 and 2017, the second largest pole in number of companies installed (including start-ups, anchor-projects and innovation centers), with a growth of 37% in the two years considered (Table 3). The competences of Oporto's University and of the other poles of UPTEC support the strategy and operation of UPTEC PINC. UPTEC PINC constitutes one of the basic structures of the Cluster of Creative Industries of Northern Region of Portugal (Ribeiro & Ferrão, 2014) and it is strongly market-oriented (Marques et al., 05/2017).

UPTEC PINC is installed in city centre. In operation since January 2010, this pole is a space for meeting and interaction between people and projects that aim to develop and explore the creativity by an entrepreneurial way, in areas like architecture, visual arts, performing arts, design, audio visual, publishing and communication (UPTEC,

Table 2. UPTEC Poles

Poles	Description
Technological (UPTEC TECH)	It offers support in terms of infrastructure and technological equipment capable of leveraging the development and acceleration of technological projects in different areas of expertise.
Creative Industries (UPTEC PINC)	It is a creative ecosystem of attraction and meeting of people who seek to develop and explore their creativity at the corporate level. It supports companies in the areas of design, visual communication, architecture, visual arts, performing arts and publishing.
Biotechnology (UPTEC BIO)	It is oriented to support business projects in the areas of life sciences and biotechnology. It offers support in terms of infrastructures and technological equipment that enhances the development and leverage of projects related to natural sciences.
Sea (UPTEC MAR)	It is focused on the incubation of business projects related to marine sciences and technologies.

Source: Adapted from http://uptec.up.pt, consulted on April, 2016

Table 3. Number of companies installed in UPTEC, 2015 and 2017

	2015	*2017*
UPTEC TECH	68	94
UPTEC PINC	19	26
UPTEC BIO	8	19
UPTEC MAR	8	10
UPTEC (total)	**103**	**149**

Source: UPTEC, Enterprises Portfolio 2015 and 2017

Sem data). In this pole creativity is the main asset. Creativity may be more or less allied to the technological component. The cultural dimension is crucial to the extent that much of the business projects are related to cultural productions through the design of image content, promotional marketing, hiring artists or the provision of diversified services that meet the needs of cultural equipment and agents. In 2015, 20% of incubated start-ups in UPTEC were integrated in PINC.

In a work about the creative industries cluster in the Northern Region of Portugal, Guerra (2013) states that UPTEC PINC made part of the regional strategy of the Cluster of Creative Industries of the North Region, which aims to promote the value collected from various sectors of the University of Oporto and other institutions and concurrently to contribute to the regeneration of Oporto´s urban centre.

Projects accepted by UPTEC PINC undergo an incubation process. A requirement to enter this process is that at least one of the company's promotors must have an academic degree. The teams are almost constituted, on average, by 1 to 3 people. The process begins with a first phase – pre-incubation – of 3 months, in which aspiring entrepreneurs have training and advice in terms of design and business development in Start-ups School of UPTEC. After this phase, companies that meet conditions pass for incubation phase, settling at Creative Industries Pole where they have all kinds of support in order to become self-sufficient and stronger as a business project, always in articulation with academia, namely through involvement in research projects. Companies could be incubated a maximum of 5 years. After this period, they enter the independence or emancipation stage, marked by their departure from the pole to its own facilities, in most cases in Oporto city centre. Some projects considered of great quality and ability to attract other companies are invited to be anchor-projects, contributing, this way, to build up UPTEC's strategy in general and, in this case, PINC's strategy in particular.

In terms of business success, different situations occur. There are business projects more strong and best placed on the market than others and so there are companies leaving the pole with high strength and others that leave in a weaker situation. However, the success rate is considered very significant. This is due to the support that is given in the incubation period, where companies have all the material and immaterial infrastructure necessary for the design and development of their business project, particularly in terms of networks with other start-ups installed in UPTEC and with external institutions or companies. Networks are considered essential for creative entrepreneurs, being a decision-making aspect to undergo the incubation process. UPTEC seal is a certificate of company's quality and, because of that, is another factor of entrepreneurs' attraction. UPTEC PINC supports the networking between creative projects and diversified institutions. Establishing institutional

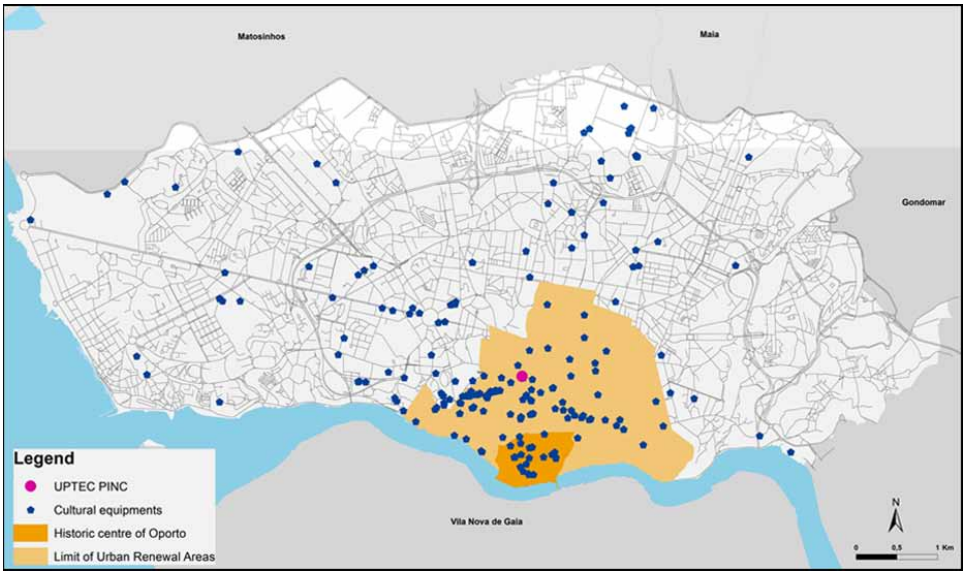
partnerships is not considered an easy process because of the bureaucracy for its implementation; nevertheless, it should be noted the existence of openness and will for collaboration. Highly skilled human resources and dense and strong personal networks of entrepreneurs are characteristics of creative industries. And these are also important aspects stressed in the smart specialization strategy of Northern Region. Considering that small firms and small-scale projects do not have the capacity to invest in formal R&D, there is an approximation to learning based on acquired experience through UPTEC PINC, which validates the importance of physical / symbolic proximity in the transmission of knowledge (especially tacit and / or implicit), and reveals how well the transactions constitute, in this context, privileged occasions of knowledge transfer (Guerra, 2013).

There is a lack of financing mechanisms tailored to the specificities of this type of activity. On the other hand, obtaining financing it is also hampered by excessive bureaucracy. There is also a lack of effective coordination between the public and private cultural sector and businesses to an assertive development of creative industries in Oporto's. Political discourse is not always so easy and well implemented as should be according to what states in public strategies. This is often due to the organization of public services. In the case of Oporto, creative industries are under jurisdiction of Innovation Department, when it made sense also to be articulated with the Department of Culture. Cultural policies are considered essential for this type of activity, to the extent that these are companies that are mostly focused on the production of content or services related to cultural equipment or events. The cultural sector gives visibility to cultural and creative industries, contributing to their recognition and valuation. A greater visibility of these activities is an aspect to work. Another challenge, aiming the promotion and development of creative businesses, is the effort of internationalization. And for this, it is fundamental to establish partnerships with robust companies and an efficient and effective promotion strategy, whose construction goes a long way in articulation with city´s institutions and, hence, the University.

The location of pole has a key role to the full and effective pursuit of its objectives. UPTEC PINC, by its location in the centre of Oporto, is next the main cultural and artistic structures and equipment of the city and where they are more concentrated. And this is essential to the dynamics of the business installed in the pole (Figure 1). These structures are increasingly dynamic, multi-faceted and symbolic, and where mainly occur activities essential to the cultural development of the city and to maintain their collective identity (CMP, Maio 2013).

In the opinion of start-ups entrepreneurs interviewed, being at the pole supports the viability of their projects, contributing to the preparation of the business plan,

Figure 1. Location of UPTEC PINC and cultural equipment
Source: Authors; CMP/DMC, January 2016 (Cultural equipment in 2012)



to the identification of financing sources and partners and to the development of skills related to companies' management. On the other hand, corroborating the opinion of the executive responsible of PINC, the fact that they are installed there gives credibility to their business.

Access to knowledge generated within UPTEC and other institutions of the University of Oporto is considered an important factor for the success of companies.

Relations with companies outside the pole and with national and international institutions are seen as important for accessing market information and to recognize and establish possible partnerships or collaborations, for accessing distribution channels and for facilitating products or technologies commercialization processes.

These networks are also essential for accessing expertise in financial management or legal consulting, to access advice or even to enhance the credibility of projects.

The start-ups interviewed operate mainly in the national market, presenting continuous relationships with some clients. All of them reported working with several clients, not having anyone particularly preponderant. Central and local government institutions are clients of these creative companies. It should be noted that many of them work with the production of content or the provision of services for cultural equipment or events, which are largely managed and carried out by public organizations.

SOLUTIONS AND RECOMMENDATIONS

So far the authors have presented the background of Oporto in terms of cultural and creative facilities and atmosphere and the role of UPTEC PINC on the promotion of creative entrepreneurs and on the development and growth of creative business projects.

The interview to the responsible for UPTEC PINC allows identifying some challenges and pointing some recommendations.

At the outset, it is possible to point out that, although there has been a positive evolution in recent years, there is still work to be done with regard to valuing culture and creative activities in Oporto.

And at this level, as Guerra (2013) has stressed before, it is important to provide an individualized follow-up of the enormous diversity of activities covered by the umbrella of cultural and creative industries, grouped into subsectors that are very different from each other (visual arts, design, film, architecture, publishing of books and multimedia, radio, television, music, software, advertising, heritage and media), reconfiguring an identity and inimitability capable of attracting exogenous investments and interests.

On the other side, there is a need to strengthen investment in the creation of creativity-friendly atmospheres. And in this context, Marques et al. (05/2017) suggest, in particular, the reinforcement of *communities of practice*. There is also the need to create spaces for interaction between professionals from the creative and technological areas, generating synergies that enhance the valuation, projection and economic development of creative sector.

There is a gap between creative activities and cultural structures, which involves more concerted action between municipal services and an integrative and effective strategy that links the structures and initiatives of public and private sector. The strengthening of associative fabric around cultural and creative activities can also contribute to this articulation, as well as to give greater visibility to these activities.

It is also worth mentioning the difficulty that entrepreneurs feel in accessing financing for their projects, largely due to excessive bureaucracy and the lack of financing mechanisms adequate to the specificities of creative activities. At this level, national and European challenges are posed. Recognizing the economic value of these activities, national and European institutions play an important role by ensuring that funding mechanisms are tailored to respond to the needs and characteristics of creative sector.

Particular emphasis is given to the elaboration of specific policies and strategies for the internationalization. It will be particularly important that the strategy and

policies for this area are appropriately linked to the most dynamic sectors such as fashion and tourism or, in particular, the areas with the greatest potential for development such as architecture, design and software.

The authors would also like to suggest, as it was in the past by Guerra (2013) and Marques et al. (05/2017), the reformulation of categories and processes for the collection of statistical and qualitative indicators adequate to the specific characteristics of the sector, in order to evaluate its direct economic impact as well as the impact induced in other sectors of activity. It is important to strengthen the full evaluation and knowledge around the sector in order to ensure adequate and strategic interventions.

All these challenges are possible lines of research in order to contribute to solve some of the problems that hinder the full development and comprehension of cultural and creative activities.

CONCLUSION

Culture and creative activities play nowadays a catalytic role in the public discourse and in academic literature on economic development of urban areas. It is consensual that economic success is strongly related to city´s ability to attract creative classes, recognized as capable of enable prone environments for generation and sharing of ideas and knowledge.

Science and technology parks are structures that offer conditions conducive to entrepreneurship, supporting, among other entrepreneurs, the creatives to develop their business projects.

In this chapter, the authors present the Creative Industries Pole of Science and Technology Park of University of Oporto (UPTEC PINC).

This pole is a space for meeting and interaction between people and business projects that aim to develop and explore creativity by an entrepreneurial way. It is also a structure that is aligned with the domains of smart specialization defined to the Northern Region of Portugal, the region where Oporto is located. With highly qualified human resources and well-connected and dense networks with diversified institutions and companies, UPTEC PINC is an asset in pursuit of strategic development objectives of the city and to the smart specialization strategy of the region, in a context in which University of Oporto, within its mission and ambition of academic entrepreneurship, assumes a reputed position at national and international level and an important role in the support of cultural and creative activities and entrepreneurs.

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KEY TERMS AND DEFINITIONS

Academic Entrepreneurship: Also known as the university's third mission, the concept reflects the need to bring academia and private sector R&D closer together. It is about boosting the economic value of processes of transfer and application of knowledge between university and business fabric.

Cultural Economy: The concept emerged in the mid-90s of twentieth century in the social sciences. There has been a broad discussion around a precise definition and its composition in terms of sectors of activity; however, it is a concept to which is assigned different meanings. In some cases, it contextualizes the cultural and creative industries and in other it relates to the economic exploitation of the culture of a society. And in another case, it means both.

Entrepreneurship: The scientific literature explains it as being the product of the characteristics of individuals and of territories in which they are inserted. Individuals may be more or less likely to risk business opportunities; territories may have conditions that facilitate or, on the contrary, that hinder entrepreneurship.

Incubation: Process through which companies develop their business plan and strengthen their position in the market, increasing the portfolio of clients and densifying their network of professional contacts. It takes place in structures for this purpose, among which are the science and technology parks.

Science and Technology Parks: They constitute a structure for the development and transfer of technology and for carrying out academic research with industrial application. They represent academic entrepreneurship, being spaces that respond to the objective of effective integration between science, industry, and technology.

Smart Specialization: Promoted by European Commission in the framework of Europe 2020 strategy, the objective of this strategy is to enhance the unique characteristics and assets of each country and region, making them competitive advantages over other territories.

Start-Up: These are small, newly created companies which, as a rule, have a strong technological component. They are in process of development and insertion in the market, seeking to do so through an innovative business model.