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How do creative industries innovate? A model proposal

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ABSTRACT

Creative Industries have been considered as highly innovative sectors. Nevertheless, the research about their innovation process is dispersed and incomplete. In this paper, the existing innovation process literature in the creative sector is reviewed, and a theoretical model for the entire innovation process is proposed. This model is based on themes of ideation, development, diffusion and the impact of external factors. In essence, it explains how innovation occurs and what managerial practices are commonly used. This is, to the best of the authors' knowledge, the first study exploring proposing a model for the entire process. Based on the proposal, an agenda for future research is presented.

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Introduction

Creative industries (CIs) have positioned themselves as important in academic and political agendas due to their economical contribution and growth prospects (UNCTAD 2013). According to a report supported by UNESCO (EY 2015), these industries represent 3% of world Gross Domestic Product (GDP) and 1% of the world's active population. The academic research about these industries has been focused on urban and economic issues (Scott 1996; Verganti 2006; Clare 2012), and on the labour occupation type under the concept 'creative class' (Florida 2002; Mellander and Florida 2011). However, there is a lack of scholarship around their management, and specifically around the innovation process (IP) (Pick et al. 2015, 757; Townley, Beech, and McKinlay 2009, 941). Given that these industries have been considered as highly innovative (Rozentale and Lavanga 2014, 55; O'Connor 2009, 387), studies about innovation in CIs have been centred in creativity research, dedicating little analysis to the innovation process (IP), which is rarely mentioned and has been scarcely theorised (Knight and Harvey 2015, 811). According to Sunley et al. (2008, 677) this situation exists due to the difficulty in identifying a concrete output from the process. Furthermore, most of the theoretical and empirical studies about IP, have been developed in technological and manufacturing industries. Therefore they do not fit the CIs, because they conceive the process as sequential activities and are associated with traditional management (Tidd 2001; Hotho and Champion 2011).

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Thus, the main aim of this paper is to propose a model for the entire innovation process from the exploration to the exploitation phases, in selected CIs. Through a literature review, we analysed the sectors of design, video games, fashion and haute cuisine. We choose these sectors because they are examples of the use of creativity, constant innovation and symbolic value, all of which are common features for all creative sectors. In the case of the video games industry, it has become one of the most important entertainment sectors, and it combines cultural and technical components (Burger-Helmchen and Cohendet 2012, 317; Tschang and Szczypula 2006, 270). Likewise, design is fundamental in adding value and creating novelty in other kinds of industry (Sunley et al. 2008, 676). In the fashion sector, it is usual to use aesthetic elements in order to build an individual style and competitive advantages, besides its economic importance in global context (Cillo and Verona 2008, 651). The haute cuisine industry has used creativity and certain cultural elements as flagships; this also has been increasingly discussed in academic literature (Svejenova, Mazza, and Planellas 2007, 540).

Our theoretical model explains the entire innovation process as a result of individual and collective efforts, and it is influenced by external and internal factors. Also it explores the following questions: Where do ideas come from? How do firms develop ideas into innovation? How do they diffuse innovation? What is the impact of the environment? Due to the novelty of the proposal, a research agenda is proposed to reinforce this research field. The paper follows with the literature review about creative industries and innovation processes. Then, the methodology applied is presented and the model is proposed in the results section. Finally, the conclusions and the research agenda are presented.

Creative industries, innovation and innovation process

In this section the features of creative industries, linked with innovation and IP, with the intention to frame this investigation are discussed.

Creative industries

CIs have been known as having activities based on individual talent to produce content, services or products with cultural and symbolic value (DCMS 1998), and positioned themselves in an important way. For instance, the European Union through the strategy 'Europe 2020', mentions them as important industries for economy and employment generation. Nevertheless, the European Commission (2016) considers that there is a lack of knowledge about their function patterns and their funding.

Certain characteristics have been generalised for any creative organisation (Rozentale and Lavanga 2014). For example, authors suggest the lack of management skills (Marcella and Rowley 2014, 1), deficiencies in commercial vision by managers (Chaston 2008, 821), fragmentation in small and medium-sized enterprises (Jones et al. 2004, 135), with self-employed workers or in a part-time status, and innovation being vital for their survival (Stam, De Jong, and Marlet 2008, 119; Caves 2000). But also, their high expressive value, which does not reflect production costs and are the result of ideas exploitation (DCMS 1998; Potts et al. 2008), and due to the particularity of their products as symbolic, experiential and non-utilitarian goods, where they play aesthetic and expressive roles (Caves 2000). Consequently consumers evaluate, accept and reject them in a completely different

way, versus utilitarian products or with rational purchase theory (Stam, De Jong, and Marlet 2008). All this means that they have a different innovation process and other management practices (Knight and Harvey 2015, 810).

Innovation

Innovation is considered as constant in the CIs and is one of their essential aspects (Nesta 2009). Traditionally, innovations have been defined as novel ideas with an application and financial returns for organisations (Baregheh, Rowley, and Sambrook 2009, 1323), and this phenomenon has been researched widely in other industries and often classified in incremental innovation (Usher 1929) and radical innovation (Schumpeter 1934), as well as in product innovation, service innovation, process innovation and marketing (Organization for Economic Co-operation and Development 2005).

These classifications, although widely used, do not fit with CIs because of two main reasons. First, they are more related to technological innovation and patents measurement (NESTA 2009, 5). Consequently, the identification of an output is more complex, and some CIs use intellectual property, e.g. source code in video games, while others do not use any protection, e.g. haute cuisine (Sunley et al. 2008, 677). Second, innovation in CIs is based on new content or experiences, therefore it is inaccurate measuring them from utilitarian perspectives (e.g. the patent point of view). Miles and Green (2008) and Stoneman (2011), have addressed these issues and they have proposed the concept of 'Hidden innovation' and 'Soft innovation', which are related to: (i) R&D processes but in contexts different from conventional laboratories, like in haute cuisine; (ii) a mix of technology and content, but with new purposes, for example educational video games; (iii) Innovation based on aesthetic change rather than utilitarian one. These approaches are taken into account in this paper in order to identify different innovation types in CIs, through a literature review. In the methodology section it is explained in detail.

Innovation process

In regards to the IP, it has been defined in other industries as 'a sequence of individual stages of the innovative activity' (Ota, Hazama, and Samson 2013, 277), and traditionally split into: i) internal IP, or 'creation', and ii) external IP, or 'innovation diffusion' (Ota, Hazama, and Samson 2013; Rogers 2003). March (1991) has also referred to this division in his exploration and exploitation approach, which is about ambidextrous ability of organisations to, on the one hand, create or investigate (exploration), that involves spontaneity or lack of structure, and on the other hand, implementation and repetition (exploitation), that involves standardisation and control (applied in CIs by Knight and Harvey (2015)).

The academic literature indicates that since the 1950s, there was a proliferation of IP models, mainly aimed at technologic and manufacturing industries (Hobday 2005). For example, Utterback (1971) proposed one of the first linear models, Cooper (1990) developed a model divided into 'stages', and Wheelwright and Clark (1992) proposed the 'Funnel Development Model' along with several other authors (Rothwell 1994; Hobday 2005). Generally, these models proposed an IP in a simple and linear view, from ideas to market launch. Consequently, academic discussion argues that these models are not realistic and are focused on big companies with R&D departments (Salermo et al. 2015, 60). Furthermore, these models

are centered in standardised or formal processes, thus, they do not fit in with the CIs that develop a non-articulated IP (Knight and Harvey 2015, 811), and do not take into account factors like having several sources of creativity. Other contributions about creativity management in organisations (Drazi, Glynn, and Kazanjian 1999; Mumford et al. 2002) have not paid attention to the IP in creative industries. Pick et al. (2015), Knight and Harvey (2015) and Miles and Green (2008) mention that there is a lack of theory to enable a better understanding of the innovative activity, as a set of processes in a systemic approach. This is the gap that the present paper tries to address. In other words, this study analyses how the innovation process in creative industries is managed to propose a model that could fit for these industries.

Methodology

To address the objective of this paper a literature review was carried out to assess current knowledge. Literature reviews are considered a key tool for managing information in academic research (Turner, Swart, and Maylor 2013, 318). The methodology was applied following Tranfield, Denyer, and Smart (2003) and the Centre for Reviews and Dissemination (2001)'s recommended stages: (1) planning the review, (2) conducting the review, and (3) reporting and dissemination. The articles were extracted from relevant journals with peer review, using the key words 'innovation process' and 'innovation stages', along with the sectors selected (video games, design, fashion, haute cuisine) in the title and abstract. Only empirical papers were considered, both qualitative and quantitative. The databases employed were Scopus, Emerald and Web of Science. Furthermore, for selecting the papers, the innovation types mentioned by Stoneman (2011) and Miles and Green (2008, 6) were used. The studies focused on organisational innovation, process innovation and marketing innovation were discarded. Such selection of articles is conditioned by the attempt to focus in product and service innovation with commercial purposes within the CIs. In total, 24 papers were found and analysed.

Results

In the next section we discuss the literature and the theoretical model for the entire innovation process is presented.

From the 24 articles analysed in total, 4 referred to the design sector, 8 to fashion, 8 to video games and 4 to haute cuisine. The descriptive results are listed in Table 1. The majority of papers use qualitative methods, mainly case studies (18), longitudinal studies (1), comparative studies (2) and interviews (3). Only one article is quantitative, which is an opportunity to make this kind of research in the topic. The papers come from Europe (England, Italy, France, Denmark, Austria, Spain, Switzerland and Norwegian), North America (USA and Canada) and Asia to a limited extent (Singapore). These findings show an opportunity for contributions coming from Latin America or Asia.

Table 1 shows the exploration to exploitation phases, where the investigations have been carried out (March 1991). This approach is appropriate to tackle the IP, due the lack of theories. Moreover, this approach offers flexibility to split the process into the two big phases, i.e. exploration and exploitation. The analysis of these papers highlighted that

Table 1. Classification of IP studies.

Author (s)/year	Sample/method	Industry	Country	Area of study	Phase of study	
					Exploration	Exploitation
Sutton and Hargadon (1996)	1/Case study	Design	USA	Ideas generation	X	
Redfern and Davey (2003)	1/Case study	Fashion	UK	Supply chain	X	
Tschang (2005)	1/Case study/65 technical reports	Video game	Singapore	Idea generation and development process	X	
Tschang and Szczypula (2006)	2/Case study/ Interviews	Video game	Singapore	Creative process	X	
Sunley et al. (2008)	80/Interviews	Design	UK	Idea generation, development and execution	X	X
Cillo and Verona (2008)	6/ Comparative study	Fashion	Italy	Creative process	X	
Byrkjeflot, Strandgaard, and Svejenova (2012)	1/Longitudinal study	Haute cuisine	Norway Denmark	Creation and diffusion	X	X
Messeni and Savino (2014)	1/Case study/ Interviews	Haute cuisine	Denmark	Creation of new dishes	X	
Caniato et al. (2014)	13/Case study/ Interviews	Fashion	Italy	Creative process and development	X	X
Stierand, Dorfler, and MacBryde (2014)	18/Interviews	Haute cuisine	Swiss	Creative process, innovation process diffusion	X	X
Shah and Franke (2003)	4/Case study	Fashion	Austria-USA	Ideas generation and diffuse the resulting innovations.	X	X
Rowley, Kupiec-Teahan, and Leeming (2007)	1/Case study	Fashion	UK	Ideas generation, development, feedback	X	X
Burger-Helmche and Cohendet (2012)	2/Case study	Video game	Canada	Ideas generation, development, test, diffusion	X	X
Parmentier and Mangematin (2014)	4/Case study	Video game	France	Ideas generation, development, test	X	
Cohendet and Simon (2007)	1/Case study/ Ethnography	Video game	Canada	Ideas generation and innovation process	X	X
Svejenova, Mazza, and Planellas (2007)	1/Case study	Haute cuisine	Spain	Creative process and diffusion	X	X
Andriopoulos and Lewis (2010)	7/Case study/ Interviews	Design	Italy	Ambidexterity	X	X
Hotho and Champion (2011)	1/Case study	Video game	UK	Innovation process and others	X	X
Panourgias, Nandhakumar, and Scarbrough (2014)	3/Case study/ Interviews/	Video game	UK	Creative process and development	X	
Simon (2006)	4/Case study/ Interviews	Video game	Canada	Activities of the manager in creative projects.	X	
Kincade, Regan, and Gibson (2007)	3/Case study/ Survey/Focus group	Fashion	USA	Development activities, production, sales	X	X
Bettiol and Sedita (2011)	300/Survey/ Network analysis	Design	Italy	Networking in temporary organisations	-	-
Marcella and Rowley (2014)	8/Interviews	Fashion	UK	Project management	X	X
Cohendet, Llerena, and Simon (2014)	1/Case study/ Ethnography	Video game	Canada France	Idea generation, development	X	X
Houman and Kragh (2015)	7/Comparative Case study	Fashion	Norway Denmark	Creative process management	X	

none of the papers analyses the entire process in detail, they rather analyse it by topics. This is the main reason to propose our model.

Towards an innovation process model in creative industries

As previously mentioned, the IP has been commonly defined as a sequence of activities or stages (Ota, Hazama, and Samson 2013, 277). However, the literature review has shed more light on this phenomenon. The IP is an integrated process and not separated in stages, with several micro-processes and interconnections. Although the word 'process' is used, in this paper it does not refer to an ordered system, because activities are more complex in organisations (Styhre et al. 2010, 134). Since most of the existing literature focused on different parts of the IP, the proposed model theorises it completely from the exploration to exploitation phases (Figure 1).

Although the IP differs in various creative sectors, the proposed model incorporates four basic aspects (based on Knight and Harvey 2015): (1) ideas, (2) development, (3) diffusion or commercialisation, and (4) external factors. Both ideas and a part of the development aspect are considered as part of exploration. The other part of the development aspect (control, standardisation and administrative tasks) and diffusion, are considered as a part of exploitation. The proposed model is focused on the innovation that is the result of individual and collective efforts and is influenced by external and internal factors. Thus, the model attempts to answer the following questions:

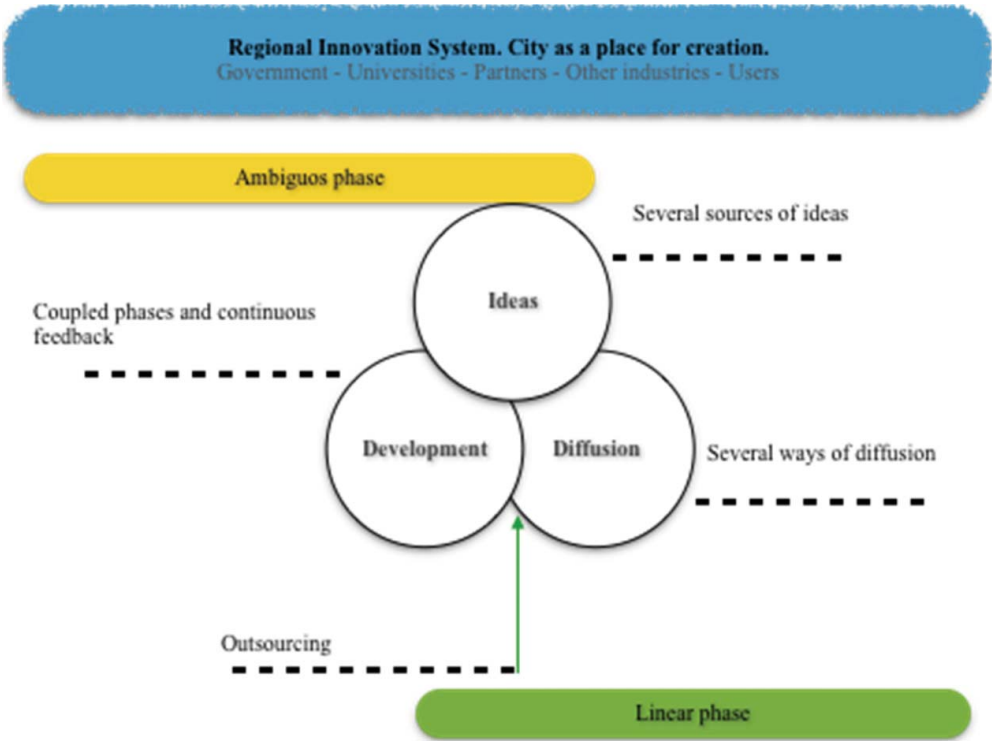

Figure 1. Innovation process model.

Where do ideas come from? How do firms develop ideas into innovation? How do they diffuse innovation? What is the impact of the external factors?.

Where do ideas come from?

The CIs convert an idea into a product, service and cultural or experiential content (Throsby 2001, 104). Four different sources of ideas have been found (see Figure 1):

(1) Individual creativity. This means that a person is the main creative process leader, and ideas could emerge through a recombination of elements, one's own initiative, inspiration, the influence of others, background and the availability of internal resources like technology, or external, like cultural elements (Tschang and Szczypula 2006; Tschang 2005; Stierand, Dorfler, and MacBryde 2014; Cillo and Verona 2008; Redfern and Davey 2003; Caniato et al. 2014; Panourgias, Nandhakumar, and Scarbrough 2014; Messeni and Savino 2014). Individual creativity also is clear in the study of Caniato et al. (2014), which shows that in certain occasions the fashion sector creates new collections based on creativity of its designers. Also, Stierand, Dorfler and MacBryde (2014), Byrkjeflot, Strandgaard, and Svejenova (2012) and Svejenova, Mazza, and Planellas (2007) in their respective papers focused on haute cuisine, demonstrate that chefs play the main role in the creative process through their emotions, aspirations or inspired by local resources or certain traditions to develop new dishes. Although individual creativity is a common practice in CIs, Brentani and Reid (2012) suggest that this could trigger lack of integration with market needs, and higher uncertainty during the process.

(2) Collective work or with users. This source of ideas comes from user communities and working teams, and is common both in video game and fashion sectors. Sutton and Hargadon (1996) suggest their use in order to get ideas in brainstorming sessions or through pilot tests. In the video game sector these are used to test and get feedback from experienced and online users (Burger-Helmchen and Cohendet 2012; Parmentier and Mangematin 2014), which leads to an extension of company borders and reducing intellectual property. In the fashion sector users play an important role to find new materials, new ideas, pilot testing, among others (Cillo and Verona 2008; Redfern and Davey 2003; Caniato et al. 2014; Shah and Franke 2003; Rowley, Kupiec-Teahan, and Leeming 2007). Also, users could be an important source to test ideas in real environments, like the case of sport fashion sector (Shah and Franke 2003; Rowley, Kupiec-Teahan, and Leeming 2007). All these practice are related with the open innovation concept (Chesbrough 2003), however some creative sectors have the philosophy of 'noncommercial profits' (Chaston 2008, 821), like open source in video games (Burger-Helmchen and Cohendet 2012).

(3) Market. The market is a source of inspiration based on market trends and used by designers as a source to develop new proposals (Caniato et al. 2014; Cillo and Verona 2008; Kincade, Regan, and Gibson 2007). Caniato et al. (2014) shows that on some occasions the fashion sector creates new collections based on creativity of its designers (as well as Cillo and Verona 2008) and in other occasions, takes in consideration the local market to adapt their new products, which is a usual strategy in technological industries and is known as 'market push' (Godin and Lane 2013, 622).

Sunley et al. (2008) in design sector, exposes an IP based on the designer-client relation, in which the main priority is to achieve persuasion in the project, this is, equilibrium among creative freedom and customer satisfaction. However, Brentani and Reid (2012) considers that organisations which take the client voice too seriously could damage or reduce novelty. Redfern and Davey (2003) analyzed this dilemma in fashion industry and they proposed the 'Kano' model in order to improve material selection and increase market satisfaction.

(4) Science. Cillo and Verona (2008), Svejenova, Mazza, and Planellas (2007), Panourgias, Nandhakumar, and Scarbrough (2014) and Cohendet and Simon (2007) suggest that sectors like haute cuisine, fashion and video games, use R&D processes in order to develop new ingredients, materials or devices, which are the main source of creation in these sectors. The case of haute cuisine is especially interesting, where some restaurants have separated the creative process from commercialisation, which leads a business model based on earning returns from innovation and R&D consultancy, instead of selling food. This money is afterwards invested in their own R&D, which enables freedom during creation and commercial success (Svejenova, Mazza, and Planellas 2007).

How do firms develop ideas into innovation?

Isolated ideas are not enough for innovation. There is a need for organisations and resources to convert ideas into products, services, or content to promote business benefits (Amabile 1998). It is a systemic and complex process, rather than sequential and simplistic, and is supported by external stakeholders who promote innovation (Byrkjeflot, Strandgaard, and Svejenova 2012; Stierand, Dorfler, and MacBryde 2014). For example, in haute cuisine, restaurant guides (Michelin) and the industry have the role of evaluators and promoters. In video games, publishers play an important role during the development.

Different ways in which CIs organise and use resources to convert ideas into innovation have been found, and they have been divided into two phases (see Figure 1): an ambiguous phase (related to exploration), and a linear phase (related to exploitation). Simon (2006) labelled these stages as the creative and ambiguously face, and the linear and administrative face, respectively. The first one is a series of non-ordered, uncertain and flexible activities. During this phase, teamwork is self-governing (Townley, Beech, and McKinlay 2009, 943), and has freedom to find new paths, for instance, to choose tools or resources for certain tasks (Shah and Franke 2003; Rowley, Kupiec-Teahan, and Leeming 2007). The use of similar activities from traditional industries is also applied, like milestones, tests, multidisciplinary teams or strong leadership, but also unique activities which involve a complex and uncertain process (Tschang 2005; Stierand, Dorfler, and MacBryde 2014; Simon 2006; Cohendet and Simon 2007), for instance, the motivating or sense making role of a creative project manager with freedom to select resources and manage work (Simon 2006, 119). Furthermore, the team often manages the work in temporary units or in project-based units (Bettiol and Sedita 2011), which are disintegrated once the project is finished. In this way it reduces complexity of the process and increases possibilities of success (Andriopoulos and Lewis 2010; Cohendet, Llerena, and Simon 2014); this a common tool in other CIs, like in film sector (Faulkner and Anderson 1987). In addition, firms

organise work into a network with other organisations in their surroundings (Grabher 2002, 218), and with user communities, in order to delegate part of their IP (Burger-Helmchen and Cohendet 2012; Parmentier and Mangematin 2014; Svejenova, Mazza, and Planellas 2007), that constitutes a business model based on social network market, as suggested by O'Connor (2009, 387), and is related to the open innovation concept (Chesbrough 2003).

The second phase, the 'linear phase', is more ordered and related to administrative tasks, such as access to resource and market, which often are in the hands of managers (Townley, Beech, and McKinlay 2009, 943). During this phase deadlines, meetings or control processes occur. (Tschang 2005; Stierand, Dorfler, and MacBryde 2014; Cohendet and Simon 2007; Marcella and Rowley 2014; Simon 2006; Svejenova, Mazza, and Planellas 2007; Hotho and Champion 2011). Nevertheless, in practice there is a lack of management skills (Marcella and Rowley 2014, 2) and dilemmas between artistic and commercial satisfaction, because some creators consider commercialisation as a degradation of their work (Chaston 2008; Fillis 2002). Wilson and Stokes (2005) suggest the division of creative process from management tasks, in order to solve this dilemma. In this respect, the CIs have two dilemmas: to manage a more creative process (ambiguous phase) and managing a more analytic process (linear phase). The scholars underline the difficulty of this dilemma, arguing that many managers or executives do not have knowledge about management tools and in practice they act intuitively (Marcella and Rowley 2014, 1). The tensions between those phases represents one of the biggest challenge in creative industries (Andriopoulos and Lewis 2010), which causes barriers that limits growth or creativity, as Hotho and Champion (2011) and Panourgias, Nandhakumar, and Scarbrough (2014) suggest.

How do they diffuse innovation?

Diffusion is the way in which creative organisations promote or commercialise their products (Ota, Hazama, and Samson 2013; Rogers 2003). Five different practices or diffusion strategies have been found (see Figure 1): (i) through media, (ii) with the support of public actors, (iii) with the support of civil society actors, (iv) networking collaboration, and (v) through internet.

Svejenova et al. (2007, 544) conclude that thanks to mass media, Ferran Adria's innovations have been gaining recognition and promotion. Byrkjeflot, Strandgaard, and Svejenova (2012) also demonstrate the support from media and public actors to diffuse a common label for Nordic cuisine. Cohendet, Llerena, and Simon (2014) in the video game sector, refer to the support from cultural, nonprofit and public organisations to promote and trigger this sector. Burger-Helmchen and Cohendet (2012) and Parmentier and Mangematin (2014) exemplify the internet as a dissemination and commercialisation means in the video game industry that has been known as 'Digital Creative Business.' Finally, Bettiol and Sedita (2011) and Grabher (2002), allude to collaboration in networks to carry out logistics and sales (see also Haefliger, Jäger, and Krogh 2010).

What is the impact of the external factors?

The model also takes into consideration the external factors and the physical space where CIs are located, which could influence innovation (see Figure 1). Because creative

industries tend to lodge in urban centres (Scott 1996; Clare 2012; Stam, De Jong, and Marlet 2008), the need for face-to-face relations and for support from a local customer base (Grandadam, Cohendet, and Simon 2013, 1702), geographic space plays an important role in developing the activity successfully.

The model takes as a reference Kimpeler and Georgieff (2009) and Müller et al. (2008, 2)'s studies, who integrate the CIs as part of national or regional innovation systems, because they cooperate with other companies around them, like technologic centers, governments, universities or other industries, generating exchanges of knowledge or learning, which is essential for creation and boosting innovation in economy. Furthermore, cultural and social norms have been also taken into account, such as tolerance, which could foster or damage innovation (Florida 2002). Moreover, the importance of physical spaces for meeting or encounters, recreation, inspiration and face-to-face communication are also highlighted (see also, Clare 2012, 56; Florida 2002; Landry 2000, 132, 134; Drake 2003).

Discussion and conclusions

The aim of this study was to propose a model, through a literature review, to represent the entire innovation process in creative industries. Despite the growing importance of CIs in the academic world and in political agendas (Stam, De Jong, and Marlet 2008), the literature review related to IP is scarce. This literature review has demonstrated that academic contributions only analyse the process from different perspectives but in a separate way, which makes it difficult to identify the entirely innovation process in CIs. In this regard, the main contribution of this paper is the proposed model that theorises the entire IP in CIs and is the result of the integration of the different contributions analysed in the literature review.

Considering two main stages, exploration and exploitation (March 1991; Stoneman 2011; Miles and Green 2008, 6), the model considers three basic issues: ideas, development and diffusion. Each aspect reflects certain activities developed by creative organisations (in the video games, haute cuisine, design and fashion industries) in order to create products, services or content with symbolic, cultural or experiential value.

Regarding the idea source, and against to the usual assumption that CIs are related only with individual talent and with cultural and symbolic value (Townley, Beech, and McKinlay 2009), four different idea sources have been found: individual creativity, collective work or with users, market and science. In the video game industry all these types of sources are common, while the design sector is more focused on individual creativity and the market as main sources of new ideas. The haute cuisine sector uses chefs (individual creativity) as makers of the creative process, and fashion industry gets ideas from its designer (individual creativity), market (trends) and, to a lesser extent, from science (new materials). In the second aspect of the model, the development process is divided into an ambiguous, complex, and flexible face (named as 'ambiguous phase'), and a bureaucratic and administrative face (named as 'linear phase'). Concerning 'ambiguous phase', which is related to exploration activities, CIs organise work in temporary structures and a significant degree of outsourcing in certain processes like R&D, through market networks. Also they use traditional management tools like milestones or tests. In relation to 'the linear phase', it is in hands of managers and refers to administrative tasks and standardisation.

However, this facet is less studied and is where CIs have lower performance (Marcella and Rowley 2014; Chaston 2008, 821). In regard to the third part of the model, diffusion, five strategies or practices have been found: through media, with the support of public actors, with the support of civil society actors, networking collaboration and through internet. In this stage, the CIs show the capacity to work in collaboration, consequently external context is important for their work.

The model also considers external factors, arguing that CIs are part of regional innovation systems, the importance of geographic space or city as place for inspiration, global-local networking, access to public actors or other industries that promote learning and obtaining knowledge.

Although the main contribution of this study is theoretical, implications for managers and academia can be extracted. For managers, the model helps in having the global picture of the IP and thus, allows the decision-making and the strategies setting. It is also contributing to reduce the uncertainty that CIs could have as they know both the stages of the IP and the factors conditioning each of them. For academia, to the best of authors' knowledge, this is the first model considering all IP stages. Thus, the model and the literature review open new research lines that are proposed in the research agenda below.

Research agenda

Based on the literature review and the main conclusions, the following future research lines can be suggested:

- To test the proposed model empirically. This means asking the organisations of these CIs about their innovation process. Using a survey, mainly applying quantitative methodologies that, according to the review, are the least applied in these analyses. The findings will help in improving the model and how it fits in the CIs. Also, to improve the definition of the model, considering more sectors could help as well as the different locations and cultural differences of countries.
- To analyse the role of open innovation (Chesbrough 2003) in CIs. The academic literature already shows research on spillovers in CIs and their role in industrial innovation (Muller 2008), but as innovation is a key factor for these organisations, analysing how applying open innovation allows them to differentiate from rivals could also improve the proposed model.
- To analyse how CIs solve the dilemmas or tensions between creative process and IP as barriers for growth, commercialisation or diffusion. Most of empirical studies have focused on exploitation phase. Widening the analysis to the entire IP and propose solutions to the trade-off could also improve the innovation process. It could help to take into account ordinary or daily activities at the micro level, e.g. routines or actions occurred with persons, artefacts or technology, as a way of 'creating from nothing' combining resources at hand to innovate (Klerk 2015).
- To understand and measure the value-added generation of CIs. One of the biggest challenges in CIs is to achieve sales for something which consumers could get for free. It is necessary to understand the role of symbolic value to enable new products or services with high added value, and learn from those creative organisations that have become commercially successful.

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Disclosure statement

No potential conflict of interest was reported by the authors.

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