CREATIVE INDUSTRIES AND ITS INNOVATION PROCESS: THE CASE OF MOBILE GAMES.

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Abstract
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Keywords: Innovation process, creative industries, mobile games sector.

1. Introduction

The innovation issue has been one of the most discussed topic in management literature. Several scholars have called for addressing the roots of this phenomenon, in order to understand the innovate activity from different approaches and sectors (see Salermo, 2015). In the case of the creative industries as a recent academic issue, they have raised interest among scholars because they are considered as highly innovative sectors (Stam et al. 2008; Knight et al. 2015). More than 30 industries are included in this category (e.g design, software, fashion, film), but specially, the video games sector has attracted considerable attention due to its capacity to combine technology, design and arts to create complex and entertainment products (Tschang et al. 2006).

The way this sector organize the innovation process (IP), which we understand as the different activities to create and commercialize new products (Freeman et al. 2007), has led to discussion in management and in creative industries literature. While the traditional and linear conception of the innovation process of ideas to market (Wheelwright et al. 1992; Cooper, 1990; Rothwell, 1994; Hobday, 2005), does not explain the innovation patterns in this sector, other researchers have shed more light proposing different models to explain processes based on multiple iterations and continuous testings (Baba et al. 2001; Simon, 2006; Tschang, 2005; Tschang et al. 2006; Cohendet et al. 2007; Stacey et al. 2007; Burger-Helmche et al. 2012; Parmentier et al. 2014; Belanger et al. 2016). In the innovation literature, these models are linked to iterative models based on lack of bureaucracy, trial and error, and constant adaptation (Eisenhardt, 1995; Hobday, 2000; Grabher,
Nevertheless, these research have only been focus on the traditional branch of video games (PC and console), and they have not taken into account the recent market changes, like introduction of mobile devices or the changing role of customers (De Prato et al. 2014), which have led a deep transformation in this sector and the emergence of mobile games.

Nowadays, mobile games represent the most important branch of games. In line with this, this paper aims to analyze the innovation process in mobile games and propose a model to explain it. Why is relevant to analysis this process in mobiles games? In first place, analyzing the IP in this sector as a separate unit from traditional video games (PC and consoles), is theoretical important because the introduction of new technology and changes in the video game market, introduced different practices in the innovation process. Some scholars have supported this, claiming that technological and market changes lead to transformations in business and productive systems (Barley, 2015; Juma, 2016), and consequently in innovation processes. Therefore, the central research questions are: How is the configuration of the mobile games innovation process? What practices have been introduced due to technological and market changes?

To address this issue, we conducted interviews in 14 mobile games studios located in Barcelona, Helsinki and Montreal. The main contributions are the proposition of a innovation model that attempts to explain this process, and it also presents evidence on the impact of technological and market changes in the innovation process. The research aims to expand the knowledge in innovation process and creative industries, and it is significant because it addresses a gap in literature and for practitioners it presents valuable practices from leading worldwide companies. The paper is organized in the following sections. First, the article provide a background and this is followed by the methodology, and findings and an innovation process model, are introduced in the third section. In the last part, conclusions and discussion are presented.

2. Background

2.1. Innovation process

The innovation process (IP), traditionally understood as a sequence of individual stages of the innovative activity (Freeman et al. 2007), has been analyzed for different scholars that have proposed models to explain it. Some of these models propose an innovation process approach based on documented rules and process, and with a linear view of ideas, evaluation, development, marketing and diffusion (Wheelwright et al. 1992; Cooper, 1990; Rothwell, 1994; Hobday, 2005; Salermo et al. 2015). In this classic view related to low uncertainty conditions, people can organize routines or standardization, nevertheless this could leads to a waste of time and loss of competitive advantages due to rapid market evolution (Eisenhardt, 1995; Loch et al. 2006). In view of this, other researches from the product development literature have proposed iterative models based on trial and error, feedback and learning as the project progress, quick adaptation and improvisation to manage uncertainty and risk in projects (Eisenhardt, 1995; Hobday, 2000; Grabher, 2002; Loch et al. 2006; Whitley, 2006). When there is uncertainty, companies opt to being more experimental and improvisational (Scott, 1987), therefore this cannot be reduced to bureaucratic procedures or a
detailed plans (Hobday, 2000). This approach has been quantitative tested by Eisenhardt et al. (1995) and he concluded that it is faster to innovate than others, however some authors disagree with this one-size-fits-all approach, arguing the need for different frameworks for other sectors and situations, in connection with the contingency theory (see Salermo et al. 2015).

2.2. Innovation processes in creative industries.

In the case of the creative industries, some literature states that due to the particularity of their products as symbolic and experiential goods, consumers evaluate or accept them in a different way (Stam et al. 2008), which means that they have a different IP (Knight et al. 2015). The video games is one of the most important and profitable creative sector, generating $100 billions per year (Newzoo, 2017) and since 2004 its revenues superseded other creative activities like album sales (Cadin et al. 2006). Video games are consider as interactive entertainment and complex products with the characteristics of both content and technology (Tschang et al. 2006), where the artistic and experiential values play a key role, which means that their new products are highly uncertainty and risky. In line with this, different scholars have argued the capacity of this sector to innovate in a more dynamic and flexible way (Tschang, 2005; Belanger et al. 2016), with non linear process in comparison with the classic view presented above (Wheelwright et al. 1992; Cooper, 1990; Rothwell, 1994; Hobday, 2005; Salermo et al. 2015). Consequently, there have been increasing interest to analyze the IP in video games. For example, Baba et al. (2001) identified a spiral process based on a planning phase, and a development phase. Tschang (2005) described a process with frequent milestones and testing, multiple design iterations and multifunctional teams. Simon (2006) and Stacey et al. (2007) identified two general phases, one creative and spontaneous, and another linear and routinized, and other researchers have analyzed the process in a broad way (Tschang et al. 2006; Cohendet et al. 2006; Burger-Helmchen et al. 2012; Parmentier et al. 2014; Panourgias et al. 2014; Belanger et al. 2016).

Although all these studies have analyzed in deep the IP in this sector, only they investigated the “traditional” games (console and PC games), and they did not take into account the evolution in this sector that comes from the introduction of new technology and market changes (Davidovici-Nora, 2014), which has introduced new branch of games and novel managerial practices.

2.2 Technological and market changes in video game industry.

Technological and market changes lead important transformations in social and productive systems (Juma, 2016; Barley, 2015), and consequently on the IP; video games are a good example of it. Over the last decade this industry has experienced a deep transformation, from a vertical production model dominated by retailers and hardware makers, with pay-to-play business models (De Prato et al. 2014; Davidovici-Nora 2014), towards a more democratic system based on independent developers, digital platforms for online distribution (mainly Apple and Google), and free-to-play business models targeted to a wider market (Feijoo et al. 2012). And consequently, the emergence of new branch of games, such as mobile games. Nowadays, the mobile games, which are casual games to be played on portable devices, represents 37% of the video games market, although by
2018 it will overtake traditional video games (Newzoo, 2016). The recently acquisitions illustrate its economic impact, for instance, Supercell, one of the biggest companies was acquired by $8.9 billions, the highest acquisition in the video games history (Newzoo, 2016). The possibilities of this sector changed in 2007 with the introduction of smartphones and digital platforms, the increasing availability of mobile broadband, and the changing role of costumers as a “casual gamers” (De Prato et al. 2014). Versus the traditional model, the digital platforms that distribute the games via mobile applications, are Apple Store and Google Play. Apple’s system is a closer ecosystem with tight control over the developments and features of the applications, and integrated with its own devices such as Iphone and Ipad. Google Play is a more open system, integrated with other devices that not necessarily they develop (Feijoo et al. 2012).

Due to all these reasons, analyzing the innovation process in mobile games is theoretical important. In our opinion, all these technological and market changes represent important constraints for the IP. For instance, thanks to the continuous users connection to internet, companies can access to a large amount of data, that has resulted in an increased importance of it to make decisions during the IP. Nevertheless, this phenomenon has been poorly studied. Consequently, this paper address the questions: How is the configuration of the mobile games innovation process? What practices have been introduced due to technological and market changes?

3. Methodology

To achieve the objective, we follow the works of Yin (2014) and Eisenhardt (1989) about case studies, and Strauss et al. (1992) to construct theory from qualitative data through an abduction reasoning. Case studies allows investigating complex contemporary problems in a real environment and it provides a richer data than quantitative methods (Strauss et al. 1992). Abduction seeks a theory, explaining better something that was previously unexplained or unclear (Reichertz, 2014). Due to the explorative nature of our study, but with the previous investigation on innovation, we considered the research of Freeman et al. (2007) and Salermo et al. (2015) to operationalize the concept of innovation process. Consequently, we divide the process into three main phases: conceptualization, development and diffusion. Considering this approach, we defined constructs and propositions in order to focus the research, and as well to building a case protocol and a first draft of the interview guide. Following recommendations of Yin (2014), we tested the protocol and improved the interview guide with two pilot case studies. A creative director, a general manager and a game designer from two companies (Mexico City and Barcelona), were interviewed. Following the abduction approach (Reichertz, 2014), these first insights allowed us to improve the interview guide and the protocol in order to collect the data later with the selected cases. The interview guide contained: i) General questions about the company and the role of the interviewee. ii) Questions related to the exploration of new knowledge and development. iii) Questions related to commercialization or diffusion of new games, and incremental innovations after the market launch.

Table 1. Overview of cases
3.1. Selected cases and data collection

Field work was conducted in 14 mobile game studios (see Table 1), located in three cities (Barcelona, Montreal and Helsinki), selected by “theoretical sampling” (Eisenhardt, 1989; Yin, 2014). This is, we selected cases where the phenomenon was easy to observe and that they could explain theory. We selected the cases from those cities because are important hubs for digital business and video games (Cohendet et al. 2010). Following recommendations of Yin (2014), we attempted to study a range of organizations to increase generalizability (big, medium and small-sized studios). Rovio, Supercell, Zeptolab, Ubisoft, Gameloft, King, Social Point and Ludia are some of the most successful mobile games companies with worldwide operations and revenues higher than $100 million per year. Omnidrone, Abylight, Kerad Games and Winko represent new successful competitors. To collect data, we conducted 38 semi-structured interviews with different people directly related with the innovation process (Table 2 provides details). All interviews were recorded and transcribed. To avoid biases and for external validity, the case protocol was used all the time, and in order to triangulate information more than one person was interviewed in each company. Additionally we review secondary data from the industry and related literature. Finally, in most of the companies was possible a period of observation after the interviews.
<table>
<thead>
<tr>
<th>Company</th>
<th>Interviews</th>
<th>Secondary data</th>
<th>Observation</th>
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<tbody>
<tr>
<td>Rovio</td>
<td>Vice Pres. of Operations (60)</td>
<td>Web of the company and other interviews in internet</td>
<td>Office observation during a tour provided by one of the interviewee.</td>
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<td></td>
<td>Executive Producer (50)</td>
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<td>Supercell</td>
<td>Lead Game/Producer (50)</td>
<td>Web of the company, press articles and other interviews found in internet.</td>
<td>Office observation during the field work.</td>
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<td></td>
<td>Game Lead (50)</td>
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<td>King</td>
<td>General manager (55)</td>
<td>Web of the company, press articles and other interviews found in internet.</td>
<td>Office observation during the field work.</td>
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<td></td>
<td>Head of studio (70)</td>
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<td></td>
<td>Lead Designer (55)</td>
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<td>Social Point</td>
<td>Head of product (45)</td>
<td>Web of the company, press articles and other interviews found in internet.</td>
<td>Office observation during a tour provided by one of the interviewees.</td>
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<td>Product manager (50)</td>
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<td>Ubisoft (1)</td>
<td>Studio manager (60)</td>
<td>Web of the company and press articles.</td>
<td>Office observation during the field work.</td>
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<td>Head of production (60)</td>
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<td>Ubisoft (2)</td>
<td>Head of innovation (40)</td>
<td>Web of the company and press articles.</td>
<td>Office observation during a tour provided by one of the interviewees.</td>
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<td>Producer (40)</td>
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<td>Ludia</td>
<td>Head of Production (50)</td>
<td>Web of the company and press articles.</td>
<td>No observation</td>
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<td></td>
<td>Lead Producer (50)</td>
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<tr>
<td>Gameloft</td>
<td>Lead game designer (50)</td>
<td>Web of the company and press articles.</td>
<td>Office observation during the field work.</td>
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<td>Senior producer (50)</td>
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<td>Creative director (50)</td>
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<td>Kerard Games</td>
<td>Head of studio (50)</td>
<td>Web of the company and press articles.</td>
<td>Office observation during a tour provided by one of the interviewees.</td>
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<td>Producer (50)</td>
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<td>Digital Legend</td>
<td>Head of production (70)</td>
<td>Web of the company, press articles and other interviews found in internet.</td>
<td>Office observation during the field work.</td>
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<td>CEO/Founder (40)</td>
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<td>Omnidrone</td>
<td>CEO/Founder (70)</td>
<td>Web of the company Press articles</td>
<td>No observation</td>
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<td></td>
<td>Senior game designer (50)</td>
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<td></td>
<td>Head of business (50)</td>
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<tr>
<td>Zeptolab</td>
<td>CEO/Founder (40)</td>
<td>Web of the company, press articles and other interviews found in internet.</td>
<td>Office observation during a tour provided by one of the interviewees.</td>
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<td></td>
<td>Chief of production (40)</td>
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<td></td>
<td>Project manager (50)</td>
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<td>Abylight</td>
<td>CEO (50)</td>
<td>Web of the company Press articles</td>
<td>No observation</td>
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<td></td>
<td>Project manager (30)</td>
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<tr>
<td>Winko</td>
<td>CEO (50)</td>
<td>Web of the company</td>
<td>No observation</td>
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<td></td>
<td>Creative director (40)</td>
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<td></td>
<td>Game designer (40)</td>
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3.2. Data analysis

The data analysis was an iterative process following recommendations of Eisenhanrdt (1989) and Miles et al. (1994). We followed four steps to analyze the data: i) Analysis within-case. We organized each case according to different tentative categories related to the innovation process, for example, conceptualization, internal testing, pre-development and development. This step was crucial to become familiar with each case. Then, in order to avoid simple conclusions based on limited data, we created tentative concepts in each category, for instance, intuitive and historical inputs in ideation. ii) Searching for cross-case patterns. We carried out cross-case comparisons, looking for similarities and differences within each category and concept previously defined. iii) Shaping hypotheses. We accumulated evidence from our diverse data (interviews, secondary data), in order to evaluate how well or poorly the tentative categories and concepts fits. iv) Enfolding literature. Finally we compared these emerging understanding with the extant literature, asking what is this similar to, what does it contradict, and why, in order to build a theoretical framework about the innovation process in the mobile games sector.

4. Findings

This section presents our findings based on the data. Our primary goals are to analyze the configuration of the mobile games IP and based on this, shed more light on the impact of technological and market changes in the innovation process. The study revealed an emergent process divided in i) a “Creation phase” driven mostly by intuitive inputs, but within a framework to reduce uncertainty of these intuitive ideas. Here, digital platforms, internet connection and mobile devices have introduced the possibility to test the game at early stages in the process. ii) The “Live phase”, when the product is in the market, is driven by data and it is an ongoing system that continuously is adding new features in the game after the launch; it seeks to extend the product life, converting the game in a service.

4.1. Creation Phase

Creative industries have a fundamental characteristic of un-structured and spontaneous set of outcomes in which individuals are able to autonomously produce new ideas and concepts based on emotions and intuition (Stam et al. 2008; Stierand et al. 2015). We found in mobile games that the first phase of the innovation process, the “Creation phase”, related to new ideas and product development, is a feedback loop that, on one hand is creating in an intuitive way, and on the other hand, testing and filter those intuitive ideas using different tools and data. During this creation phase we identified five general steps: i) the ideation, ii) the internal testing, iii) the pre-development, iv) the development and v) the external testing. All of them followed an iterative process in the form of constant feedback loop (see Figure 1). This process does not occur in a linear way, quite the opposite, the people in charge know the different steps but they do not know the final outcome in advance. This is due to the nature of the creative work, intuitions and emotions play an important role in decisions about the future outcomes. This has been accurately expressed by one
game designer: “*Usually at Omnidrome the game starts with one idea from the designers:* ‘I love this kind of game, I think we can do something great’.”

During “Ideation”, the first stage of the process where companies explore promising new ideas in order to developing them later, intuitive inputs or knowledge not previous tested due to lack of data play a key role. The people interviewed noted this with expressions like: “*We prove ideas that we find funny*”, “*We do things that we would like to play*”.

We found four sources of intuitive inputs: individual ideas, group ideas, historical inputs and market. This has been identified by Tschang et al. (2006) as “constructivism” or the notion that new ideas are constructed from various influences. The individual ideas are common in other creative sectors, like haute cuisine, where chefs play the key role in the process (Stierand et al. 2015). The group ideas are related to ideation processes based on different employees, instead from the top positions. This is related with the concept of “Project-based firms” (Whitley, 2006), which is the capacity of the organizations to develop innovative products with multidisciplinary and free teams. The historical inputs are common in big companies. Some CEO’s and Lead products mentioned that they never start a new project “*from scratch*”, but instead they get inspiration from past projects or from the company culture. One Chief of Production noted: “*Always we have autonomy to create, but this creation has to be framed within our guidelines; following company’s objectives and philosophy*”. This has been noted by scholars as “path dependency”, which is certain body of knowledge embed in the shared understandings within the firm that provide templates to produce innovations (Coombs and Hull, 1997). The last source, the market, is the way how ideation is based on market desires or needs. In line with this, some authors have suggested that creative sectors consider that their creations do not have to satisfy the market desires (Marcella, 2014; Chaston, 2008). However, in mobile games companies creation is constrained by the market using different

![Figure 1. Mobiles games innovation process](image-url)
tools and data to reduce the uncertainty of that intuitive work, as one creative directors said: “Our games have to be played by users, not by employees”.

Here, the “Internal Testing”, the second step of the process takes place. In essence, no idea goes further unless it has been internally tested. This is the way to make decisions about continuity, gain feedback to improving or killing the project at early stages. After this qualitative evaluation, the companies decide which ideas will be developed, but again, they use different tools to reduce uncertainty of ideas tested only with qualitative data. Here, the companies “Pre-develop” a set of small characteristics of the game in order to probe them and anticipate problems in development. This is a “critical” phase before the development and some interviewed people mentioned: “It is a way to reduce wasting time”.

At this stage, the studios have defined the central idea and the characteristics around it, in order to start the next step of “Development” of features such as art, music or programming. “Development” in mobiles games is an orderly process. This means thats it is ambiguous enough to foster new inputs (art and design), but it is well defined in strong pillars to constraint production of the game, i.e. is an iterative process, clear tasks and deadlines, but at the same time, freedom and trust to reach them. This is a common characteristic in “Temporary systems” or “Project-based firms” (Hobday, 2000; Grabher, 2002; Whitley, 2006), where the work is based on “tasks” rather than on routinized or standardized activities. Here, the deadline is the main criterion to evaluate the performance and iterations occurs continuously according to new findings or better solutions. The central idea is to iterate when necessary, re-evaluate progress and deciding what is required. It is a highly dynamic way to develop innovative products or services, like other creative sectors such as film, media or traditional games (Eisenhardt et al. 1995; Whitley, 2006).

After the Development, mobile game studios do not release game directly to market, but instead test them in certain markets before the global release in order to gain more quantitative feedback and iterate once more; this is the external test. This is thanks to the introduction of smartphones and digital platforms (mainly Apple and Google). A game designer mentioned: “So, basically what we do is we put the game in a market and then we see how they react to the game, and then we stabilize the game”. This has lead a more empirical innovation process before and after the global release, and important changes during the commercialization, which we have coined as “Live phase”.

4.3. “Live phase”: an ongoing and data driven process.

The “live phase” is related to diffusion and commercialization. After the “global launch”, the companies can have access a large amount of data due to the users’ constant internet connection, with the purpose of create continuously new features in order to maintain the audience. Some research has indicated that the use of data and analytics to innovate provide important competitive advantages (Ransbotham et al. 2017). As two producers noted: “We have to create constantly and adapt the game to new competitors and circumstances”. Consequently, the “Live phase” is an ongoing creation process which is data-driven, and it is constrained by the market desires. This means that the product (game) is in the market, but still is within a loop of creation that seeks to
extend the product life, adding continuously new features and converting the game in a free service. A term that explains this is “servitization” (Vandermerwe et al. 1988). This concept describes how companies are moving away from selling only products to a combinations of services and products, even in creative industries, like music (Parry et al. 2012). In this sense, monetization comes from small payments for extra or special characteristics.

This ongoing system involves a) data collection, b) conceptualization, c) development-testing, and d) launching (see Figure 1). In essence, it is the same feedback loop as the previous creation phase, but companies could manage the process in a more empirical way, reducing the possible rejection of the new features and improving the monetization and retention of costumers. It is a way to reduce risky and uncertainty linked to innovation (Loch et al. 2006). A creative director said: “We have data to make more objective decisions. The data tell us what the people want”.

However, this approach leads important tensions to the creation process, for instance, the data allows make more accurate decisions, but employees want to add new features based on their preferences. On this, a person from Zeptolab mentioned: “Because there are so many cool stuffs which each guy of the team would love to do. So, the biggest challenge is to balance it, and we don't want do it the wrong way.” Another tension is related to the adequacy of the new features. Adding new characteristics could lead to an increasing complexity of the product/service (game), and ultimately, confusion between users. Some companies try to focus the features maintaining the core idea and improving the performance.

5. Discussion and conclusions.

Based on the data, our results provide insights about the innovation process in mobile games, which also is an example on the impact of the introduction of new technologies and market changes on this process. The implications of the findings go beyond this sector and improves the knowledge of innovation in creative industries, which has implications for theory and practice.

The model presented is our first contribution. This model explains the way how mobile companies exploring, developing and commercializing new products/services in a iterative way, and it is compatible with the suggestions adaptive models and project-based organizations, where high uncertainty play a key role and it is important to manage (Eisenhardt et al. 1995; Hobday, 2000; Whitley, 2006; Loch et al. 2006). The entire “Creation phase” (ideation, internal test, pre-development, development) is related with previous studies in video games. For example, the ideation, the internal test and pre-development is related with the “planning phase” presented by Baba et al. (2001). Or the spontaneous phase noted by Simon (2006) and Stacey et al. (2007). Nevertheless, one important difference is the capacity of the mobile games to access to a large amount of data in the “External Phase”. As well we found that the IP is based on a continuos creation process, rather than only create and then diffuse, as most of the innovation process literature suggests (Wheelwright et al. 1992; Cooper, 1990; Rothwell, 1994; Hobday, 2005; Freeman et al. 2007; Salermo et al. 2015). In line with this, in the traditionally view of the IP, the launch, preceding commercialization, is the last step of the process, however, mobile games
consider the global launch as a part of the innovation process, and after this phase, the process is realized in an ongoing system with a clear dynamic: collect data, conceptualize features per market desires, and continuously launch new features in order to convert the game into a service.

This “servitization” characteristic is common in other creative sectors (Parry et al. 2012) and it is consider as a competitive advantage (Vandermerwe et al. 1988). Since for creative industries innovation is a critical aspect and it is part of their daily activities, this continuos process in mobile games explains this phenomenon, nevertheless it remains the paradox that organizations have to deal with allocate resources to explore new ideas or to reproduce/exploit them in the market (Knight et al. 2015). A consideration linked with this, is related to the paradox between the creation and commercialization in creative industries. This is, some scholars have exposed the deficiencies in commercial vision in creative industries (Chaston, 2008; Marcella, 2014), and the difficulty to balance the artists vision and the market desires. In other words, creators consider that their creations do not have to satisfied a market. Mobile games are different in this sense. We found that the creation is based on intuitive inputs, which means that there is space to ideas based on artistic or symbolic values, but at the same time, companies use different tools to adjust them in the market. This approach allows desires or creators (i.e game designers, artists, programmers) and commercial purposes.

Our second empirical consideration is related to new managerial practices in the innovation process thanks to the introduction of new technology and market changes. There is evidence on the impact of these changes in other sectors (Juma, 2016; Barley, 2015), even in overall it has been analyzed in the game industry (De Prato et al. 2014). In mobile games, the first impact has been the introduction of mobile devices and digital platforms. Some authors suggest that these digital environments are shaping the way companies interact with users and have reorganized management practices (Scott and Orlikowski, 2012; Parker et al. 2016). We observed that mobiles games have lead the possibility to recollect data from users and manage a data-driven process (mainly during the live phase) where the decisions are more “objective”, because it allows testing ideas with a large number of users. Commonly, intuition is considers vital in innovation (Stierand et al. 2015; Hodgkinson et al. 2009), but also is linked to high ambiguity and likely failures (Loch et al. 2006). It appears that in mobile games this data-driven approach reduces ambiguity in making decisions, but companies have to find a balance between entertainment elements, that comes from the desires of employees (e.g. designers), and the suggestions from the data. In this sense, scholars argue that games are a combination of art, technology and design, but in the case of mobiles is necessary to add data to this equation. Another important consideration is related to the close innovation model in mobile games. The “open innovation” approach (Chesborough, 2003) is the antithesis of the vertical integration where only internal resources are apply to innovate. This concept claims that companies which use external ideas or resources could gain more flexibility and competitive advantages. In the case of the mobile games, we observed that external ideas or partners are rare. This contrasts sharply with the assumption of open innovation. We suggest that this occurs because of the introduction of some technologies, such as digital platforms and other digital tools, have led to easier processes, for
instance, they allow publishing and distributing games without requiring intermediaries or externalization. As well as because consumers are “casual gamers” that do not care about artistic elements (Chen et al. 2016), consequently mobile games are less complex in aesthetic terms.

In regard to the implications for practice, our findings can help innovation practitioners in three ways. First, the innovation model proposed could provide a framework to companies to manage a more empirical innovation process where data play a key role (see Ransbotham et al. 2017), and to increase competitive advantages incorporating the idea of the product as a service during the commercialization. Second, the model may allow a process in creative industries where intuition is not neglected, but at the same is constrained by market. In other words, is a freedom process to imagine and testing until reach a good idea to develop. Third, the frequent milestones and the iterations based on time constraints (clear objectives and deadlines), is an accurate way to improve performance of the IP. In this connection, some research has pointed the benefits of this approach (Whitley, 2006).

Summarizing, we have used a multiple case study approach to propose a model to explain the innovation process in mobile games, which is based in a “Creation phase” that is creating in an intuitive way, but also testing and filter those intuitive ideas using different tools and data. And a “Live phase”, that is driven by data and it is an ongoing system that continuously is adding new features in the game after the launch. But our contribution goes further this sector providing evidence on how the introduction of new technology and market changes introduced new aspects in the IP. Nevertheless, our research has limitations and therefore opportunities for future studies.

First, we have focused on one creative sector, future research should go further and analyze deeper the impact of new technology, such as digital platforms or data analysis tools, in other industries. Second, a longitudinal approach could be interesting to understand the evolution and innovation process changes in this and other creative sectors. Another area for future inquiry, is the impact of the “Live phase” or “servitization” approach. Are there other creative industries with the same approach? What is the impact on the companies performance or on the daily activities? Also, future papers must analyze the role of intuition and the emotions in the creative and innovation process, so far this issue has been neglected (Stierand et al. 2015). And lastly, we have mentioned that the innovation process in mobile games is closed, which means that most of the companies don't cooperate with others to innovate. This contrasts with the general assumption of the open innovation model. Future research could analyze if digitalization has caused this or what other factors are involved.
REFERENCES


