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Regional Innovation Systems and Revolutionized Sectors: the Mobile Gaming and Digital Music

Filipe Castro Soeiro[a,*], **Ana Filipa Conduto**[b]

[a]Nova School of Business and Economics (UNL)
Economics Dept., Campus de Campolide, 1099-032, Lisbon, Portugal and
Universidade Europeia (Lauerate International Universities)
Instituto de Investigação, Estrada da Correia 53, 1500-210 Lisbon, Portugal
[b]Nova School of Business and Economics (UNL)
Economics Dept., Campus de Campolide, 1099-032, Lisbon, Portugal

ABSTRACT

Mobile gaming and digital music industries' dynamics and growth show high potential of value network and induce new ways of designing and developing competitive value propositions throughout disruptive innovation processes. These innovative processes have the potential to lead to design and development of new products and services, by combining games with music contents and revolutionizing the current media entertainment sector. In view of that, mobile gaming sector and market analysis were conducted throughout competitive analysis frameworks, analysis of regional innovation systems and online surveys to support the blue ocean opportunities and corroborates its market potential. Hence, the analysis involved the study of the competitive environment and technological convergence of both industries and the impact of this new game in industry dynamics. Moreover, the key drivers and trends influencing the business environment were analysed and competitive strategies were discussed as new trends for the sector, as well as new value chain rearrangements and potential players' competition models. Finally, there were discussed vertical and horizontal integration processes, industrial clustering and agglomeration economics to lead regional innovation systems, higher knowledge investments and R&D spillovers to support blue ocean opportunities benefiting customers through new and innovative value propositions. Major sectorial changes and societal impacts for the future are also discussed.

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**Corresponding author:*
Filipe.CastroSoeiro@europeia.pt
(Filipe Castro Soeiro)

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1. INTRODUCTION

The mobile gaming and digital music industries has been increasing its innovation potential and technological convergence which has been adding value and potential growth to the market at global level. These technology industry changes show high potential of value network, while leading to new ways of designing and developing competitive value propositions throughout innovative processes and business models. Hence, there is huge potential in developing and launching innovative products and services, by combining games with music contents and revolutionizing the current media entertainment sector. On the other hand, network based innovation models supported by both technology convergence and social capital network factors are generating knowledge spillover mechanisms, while leading to

additional collaborative advantages and knowledge transference and acquisition within the new sector, in result of vertical and horizontal integration processes, industrial clustering and economies agglomeration throughout the major industries stakeholders.

These sectorial changes and societal impacts are potentially leading to global trends, while influencing the evolution of emerging countries, like China and India, which is of the most importance as these markets are expected to become market leaders in the near future.

Hence, the overarching research question is centred in what is the market potential and the environmental context for the development and implementation of a blue ocean opportunity within the mobile-gaming and music sector? Subsequently, in order to completely answer this question, other sub-questions were analysed, namely: what is the current state of mobile-casual games and digital music industries?; how did these industries evolved and in which aspects there are common links?; what is the market potential in geographical terms?; which are the major trends expected in both industries?; what are the general characteristics of mobile gamers?; who are the main players of industry?; how will the mobile games industry be affected by the music integration?; and finally, which are the critical success factors for this innovation?

2. LITERATURE REVIEW

The innovative mobile-casual games [1] (Casual Games Association (2007) "Casual Games Market Report" (casualconnect.org)) are leading to the emergence of a new sector, mostly because of the convergence of innovative technologies that induces new consumer "wants". In regarding to the ecosystem and industry outlook the evolution of mobile-casual games industry arose in the early 1990s when calculator producers, like Texas Instruments, decided to include the well-known "Snake" game in their devices. The game had such a success among consumers that Nokia decided to introduce it in its devices, opening a new window of opportunity for mobile companies and game developers. (Entertainment Software Association (2012) "The Evolution of Mobile Games" (www.theESA.com)). Still, it was only in 2002, when operators began to sell devices capable of downloading games from their own portals, that these games became a world phenomenon. (Feijoo et al., 2012).

Until 2007, game developers were limited in the design and complexity of the game due to the restricted graphic and processing capabilities of mobile devices. (Feijoo et al., 2012) However, in 2007, the possibilities changed and once again a new window of opportunity arose with the creation of the smartphone and the widespread of broadband connections. Once more, Nokia was the first mover to this new market but it was only the introduction of the iPhone that radically changed the mobile gaming

[1] Mobile[a]-casual[b] games are: (a) games designed to be played in mobile devices, such as smartphones, PDAs, portable media players and tablets and (b) games developed for a mass audience, which are easy to learn and require no previous game expertise neither a time commitment to play. See Exhibit 3 (Appendices Section).

industry. (Feijoo et al., 2012) The combination of new possibilities in the device and the global connection to the network allowed many innovations. The main creations were the application stores and social platforms that became new channels of distribution, widening the possibilities for both consumers and publishers. Nowadays, these games are an important component of entertainment for the generation of connected consumers and downloading from different app stores or browsing from mobile devices is now the standard behaviour of a mobile gamer (Feijoo et al., 2012).

The mobile-gaming ecosystem follows the three-stage model for digital mass consumption[2], composed by (1) content creation, (2) distribution and (3) consumption and interaction. Thus, this industry is constituted by three main groups: the content creators, divided in developers and publishers, the distributors and the gamers (Feijoo et al., 2012). The developers are responsible for game concept design, optimization and maintenance whereas the publishers are responsible for the process of distribution, negotiating with the diverse group distributors. The latter is divided in three segments: application stores, portals and aggregation platforms. In addition, aggregators and middleware companies are also involved in the ecosystem. The first are intermediaries between developers, publishers and distributors whereas the middleware companies are the ones providing the resources for the process of game development, distribution and monetization Roland Berger (2012) "Casual Games are for everyone and everywhere" Think: Act Content (www.think-act.com).

Throughout the years, the mobile gaming ecosystem has evolved. The early ecosystem was very operator-focused with developers mainly working with publishers and aggregators, which in turn had relationships with mobile operators. These represented the main distribution channel but, with the appearance of apps stores and the social networks, the importance of operators decreased and new distributors emerged. Moreover, the role of developers and publishers also changed, specifically in recent years, due to the trend of vertical integration. On one hand, developers started to acquire publishing capabilities and to work directly with manufacturers and independent stores for the distribution. Simultaneously, many publishers begun to acquire development capabilities to have a higher control over the value chain and to improve their cost structure. Global digital media marketing and digital consumer experience behaviour is leading Entertainment and Media sector outlook as was recently published by PwC (Pricewaterhouse Coopers 2013 "Global Entertainment and Media Outlook 2013-2017" (http://www.pwc.com/gx/en/global-entertainment-media-outlook/index.jhtml)).

Throughout the product life cycle, market pressure, competitors and even the product change, thus, identifying the different phases of the cycle is crucial for the elaboration of effective positioning and differentiation strategies (Kotler et al., 2012).

[2] See Exhibit 4 for Graphical Representation of the Ecosystem (Appendices Section).

In the case of mobile games, the life cycle follows a typical bell-shaped curve. Usually, the introduction phase is short and if the game has the predisposition to become a hit, it will reach the growth phase extremely fast (Partanen, 2001). The first phase is constituted by innovators and early adopters while the growth phase is already composed by the majority of mobile gamers. Afterwards, when the game reaches the maturity phase, the early adopters and a relevant part of the majority already started to shift to new games. Hence, when the game moves to the decline phase, there is only the group of "laggards" (J. Partanen, 2001). In conclusion, on average the life cycle of a mobile game is very short and it may take only one to two months until new games start to replace the old ones. Typically, even though, when a game reaches the maturity point, it is possible to prolong this phase with the release of new features[3] (J. Partanen 2001).

Moreover, it is probable that the integration of music contents to mobile casual games may has an impact to prolong maturity phase. Thus, the access to an unlimited catalogue will be a significant motivation for consumers to keep playing, even if the features related to the game play do not change immediately. Subsequently, the prediction is that music integration not only fosters consumers' engagement and loyalty to games but also increases the time span for development.

Moreover, regarding the industry, researchers and business consultants defend that it is still at the growth phase. On the one hand, despite the popularity of the casual games, game companies continue to struggle to generate profits. At the same time, the industry is extremely crowded and distributors are more demanding regarding their share. Hence, the industry has not matured yet. [Exhibit 5], (Roland Berger 2012 "Casual Games are for everyone and everywhere" Think: Act Content (www.think-act.com)).

The literature suggests that mobile gaming and music streaming will be influenced by open innovation models and network value autocorrelation. In first, technology convergence results in the creation of new knowledge that through filtering processes (Acs et al., 2003) is converted into economic knowledge or commercialized knowledge (Arrow, 1962), ultimately leading to new ways of increasing value to both industries and collaborative network based advantages focused on differentiation. Open innovation models and network value autocorrelation draw into "soft factors", embedded in social capital available through regions and spatial agglomeration (Tappeiner et al., 2008), generating economic impact on the innovation of a sector or a region. Hence, the Hypothesis is "the regional Innovation Systems and Mobile Gaming and Digital Music technological convergence, along with the possibility of innovative design value propositions being offered to customers is likely to seen as pioneering, and may lead to full

[3] See the Graphical Representation of Mobile Game Life-cycle in Exhibit 5 (Appendices Section).

exploitation blue ocean opportunity." The empirical evidence supporting the Knowledge Spillover Theory of Entrepreneurship shows that there are potentially higher economic growth rates, higher level of investment and innovation across different industries, as result of bridging different explicit and implicit knowledge contexts throughout a variety of players (Audretsch and Lehmann, 2005), while increasing activities integration and coordination, as well as communication and decision-making, ultimately leading to network-based collaborative advantages.

3. METHODOLOGY

Methodology is based on a set of methods and analytical tools. Besides Literature Review, in first, it focus on Secondary Research, analyzing information and secondary data over the (i) contextual and environment, as well as (ii) the market size, (ii) market value, (iii) potential growth rates and (iv) market trends for both mobile-casual games and digital music industries. These were fundamental to answer to the following research questions: a) what is the current state of mobile-casual games and digital music industries?; b) how did these industries evolved and in which aspects there are common links?; c) what is the market potential in geographical terms?; and d) which are the major trends expected in both industries? Benchmark studies, e.g., (Roland Berger (2012) "Casual Games are for everyone and everywhere" Think: Act Content (www.think-act.com); CGA and Newzoo (2013) "Smartphones & Tablets Gaming 2013" (casualconnect.org)) and Pricewaterhouse Coopers (2014) "New star emerging in global media market" China daily Hong Kong edition, 4 June, pp 1)) were considered.

In Second, to discuss and answer to questions like what are the general characteristics of mobile gamers?; who are the main players of industry and how did they compete? Analytical tools were applied to focus on (v) gamers needs and wants and on (vi) the competitive aspects of the industry, covering its current state and also key drivers.

Thirdly, methods to analyze (vii) regional innovation systems and (viii) value chain network were discussed in order to support the view on how mobile games industry will be affected by music integration and to provide explanation on regional innovation black-box, vertical and horizontal integrations and new changes for the structure of industry and its value chain, focusing on new ways of generating profit margin, value and innovation.

Last, but not least, Primary Research was also conducted through Qualitative Research, which includes in-depth interviews to Celestino Alves, the CEO of NMusic;[4] and numerically-oriented Quantitative research, which includes online survey research.

[4] Nmusic was founded in 2010, by Celestino Alves, as part of Diligence Capital SGPS Group, which is the most important shareholder. Its purpose was to develop an innovative solution for digital content distribution that could please consumers, music entities and partners. MusicaOnline, the former startup project, was sold to PT Telecom to be integrated in the Sapo brand, starting

In overall, the methodology followed the interpretive perspective which it advocates the use of multiple methods and tools for conducting research. The significance of the interpretive research model lies by adopting the principles of interpretive thought and methodological pluralism, still examining potential limitations and assumptions that might be relevant for future research.

4. ANALYSIS OF RESULTS

a. Market Potential

The total video game market will grow at a CAGR of 6.7% to 86.1$ billion in 2016 and by that year, the number of gamers is expected to increase to 1.55 billion. From the total market, mobile gaming is expected to detain the first position in terms of growth, being the fastest-growing segment over the next five years, with a CAGR of 27.3% (Pricewaterhouse Coopers (2013) "Global Entertainment and Media Outlook 2013-2017" (http://www.pwc.com/gx/en/global-entertainment-media-outlook/index.jhtml)). This growth, and consequently the increased demand for mobile games, will be mainly driven by smartphones and tablets as they will become the device of choice for gamers. In quantitative terms, mobile gaming is expected to grow at an average annual rate of 19% for smartphones and 48% for tablets. In addition, the MMO's segment is also expected to grow over the next years but all the others tend to stagnate or present a negative growth (Newzoo (2013) "Mobile Games Trend Report" and "The Global Games Market: Key Facts & Insights" (http://www.newzoo.com/category/trend-reports/). Nonetheless, regarding income share, the segments' ranking is slightly different given that consoles keep the first position, with a 43% income share. Then, MMO's and mobile, with 21% and 18%, keep the second and third position. Lastly, casual/social and PC boxed download segments represent each 9% of the market (Newzoo (2013) "Mobile Games Trend Report" and "The Global Games Market: Key Facts & Insights" (http://www.newzoo.com/category/trend-reports/).

On the subject of monetization, the current statistic is that 38% of global mobile gamers are "payers" and spend a monthly average of 2.78$ on or in mobile games. By 2016, these numbers are expected to increase as analysts predict that half of the total global gamers will become "payers" and that the average monthly spend will increase for 3.07$ (Newzoo (2013) "Mobile Games Trend Report" and "The Global Games Market: Key Facts & Insights" (http://www.newzoo.com/category/trend-reports/)).

The market segmentation presented above has been the general standard for researchers but Newzoo developed a new model - the Screen Segmentation - dividing the market in types of screen used to play rather than genre and defined four segments: TV, computer, floating and personal . Thus, according to Newzoo, the computer segment is the leader with 39% of global game revenues, followed by TV with

the partnership between Nmusic and PT, the Portuguese leading telecom company. Thus, in 2010, with PT as a partner, musicbox was launched, which is a streaming multi-platform system that allows users to listen to millions of songs on the computer, mobile phone, tablet and television, without advertising and free of charge. In 2011, Pathena SGPS became one of Nmusic's investors, currently one of its greatest partners. Also, in 2012 the company was invited to join the Startup Lisboa project, a Portuguese Business Incubator, and started its expansion process lead by Celestino Alves and his team [Exhibit 1] (Appendices Section).

36%, floating with 13% and personal with 12%. Nonetheless, Newzoo predicts that the growth of global revenues in the next years will affect positively the differences between the segments, tending to an equal division amongst them (Newzoo (2013) "Mobile Games Trend Report" and "The Global Games Market: Key Facts & Insights" (http://www.newzoo.com/category/trend-reports/). Globally, there are demographics unbalances between West and East countries, which of course reflects in the human resources' availability and valuation and in economic growth. Hence, the 21 countries of Asia-Pacific Economic Cooperation (APEC)[5] seeks to promote free trade and economic cooperation throughout the Asia-Pacific region dominate economic activity and establish new markets for innovative products and raw materials beyond Europe, where demand had been declining in the last years. APEC countries account for approximately 40% of the world's population, approximately 54% of the world's GDP and about 44% of world trade.[6]

In particular, China has been closing the innovation gap to Europe continuously in the last few years and it should be keeping the same trend in the future. This fact is supported mainly by three different factors. In first, due to a source of competitive advantage based on cost leadership, grounded by the economies of scale and economies of scope, by cost efficient business processes and sector value chain activities integration. Secondly, the regional innovation system China is developing is based on resources access spatial location and network synergies that potentiate value, following the design, the management and the implementation of "cross-boundary cooperative development plans", namely "cooperation plans for the adjoining areas" and the "cooperation plans for the non-adjoining areas".[7]

[5] APEC is the forum for 21 Pacific Rim countries (formally Member Economies) that seeks to promote free trade and economic cooperation throughout the Asia-Pacific region. It was established in 1989 in response to the growing interdependence of Asia-Pacific economies and the advent of regional trade blocs in other parts of the world. APEC works to raise living standards and education levels through sustainable economic growth and to foster a sense of community and an appreciation of shared interests among Asia-Pacific countries. APEC includes newly industrialized economies, although the agenda of free trade was a sensitive issue for the developing NIEs at the time APEC founded, and aims to enable "ASEAN economies" to explore new export market opportunities for natural resources such as natural gas, as well as to seek regional economic integration (industrial integration) by means of foreign direct investment. Available from: (http://www.apec.org/) [Accessed 20 April 2013]. See Table 1 (Appendices Section).

[6] Available from: (http://www.apec.org), referring to APEC Secretariat website. [Accessed 20 April 2013]. Available from: (http://publications.apec.org/file-download.php?id=1284&filename=2012_psu_econ-trend-05-12r.pdf) referring to APEC Economic Trends Analysis in 2012. [Accessed 20 April 2013].

[7] The main purpose of the "cross-boundary cooperative development plans" detailed is to support the "master spatial coordination plans", "transportation cooperative development plans" and "ecological/environmental protection plans" in the land use and development aspects (*Planning Study on the Coordinated Development of the Great Pearl River Delta Townships Honk Kong Government Plan, 2011 -2015* (p.117)). In this study, "cross-boundary areas" cover the "adjoining areas" which are located along the boundaries among Guangdong, Hong Kong and Macao as well as the "non-adjoining areas" which do not adjoin the boundaries but have the potential for cooperative development or management by Guangdong, Hong Kong and Macao. Hong Kong's economic integration with the Pearl River Delta (PRD) has been highly beneficial for all parties. It is expected to further expand economic ties and help improve cooperation among Hong Kong, Macao and mainland China. In According to this plan, Guangdong, one of the country's economic "powerhouses", is in alignment in terms of policy making and strategic guidelines and implementation for the expansion of ties with Hong Kong, which is playing an increasingly important role in Guangdong's economic infrastructures area, representing about 75 percent of Guangdong's overseas investment, and Hong Kong is the province's biggest trading partner. The Hong Kong

Besides the general positive side effects as result of Regional Innovation Systems in the regions' capacity of learning, the specifics of mobile gaming and digital music Geographical Assessment[8] shows Asia Pacific, with 48% of global revenue and a CAGR of 11.5 %, has the highest score. Thirdly, in Asia, China is emerging as the new star in the global digital media market, as it will overtake Japan to become the world's second-largest entertainment and media market by the end of 2018, next only to the United States, according to Global Entertainment and Media Outlook 2014-18 (Pricewaterhouse Coopers (2014) "New star emerging in global media market" China daily Hong Kong edition, June, 4th of 2014, pp.1). In addition, overall spending in the E&M segments in China is forecast to grow at 10,9% CAGR through 2018, including an 11,8% CAGR in overall advertising spending, vis-à-vis the global E&M industry to grow by an overall 5% CAGR in the same period. This trend is very favourable to China for the next coming years (Pricewaterhouse Coopers (2014) "New star emerging in global media market" China daily Hong Kong edition, June, 4th of 2014, pp.1) in general, and in regards to Gaming, 7,0% CAGR for China compared to 6,2% globally and Music, 8,6% for China compared to 1,2% globally.

North America and Europe are basically at the same level. North America is the second biggest region in terms of revenues and the first in terms of monetization potential, with a 44% share of payers. Finally, Western Europe also presents a CAGR of 11,5 % and has the highest average spend.

In conclusion, Asia Pacific, North America and Europe, mainly Western Europe, are the regions with highest potential and market attractiveness for mobile gaming (CGA and Newzoo (2013) "Smartphones & Tablets Gaming 2013" (casualconnect.org)).

section of the massive bridge linking Hong Kong, Zhuhai and Macao (the world's longest cross-sea bridge) includes three major projects, which are the Hong Kong boundary crossing facilities, the Hong Kong Link Road as well as the detailed design of Tuen Mun-Chek Lap Kok Link and Tuen Mun Western Bypass. In total, the three projects are expected to cost 48.5 billion HK dollars ($ USD 6.2 billion). According to this plan a 150-hectare artificial island would be built in the waters northeast of Hong Kong International Airport to house the boundary crossing facilities. The bridge is to be operational in 2016 which will be strategically important and would further facilitate the economic integration and development of Hong Kong, Macao and the mainland, reducing significantly reduce transportation time by 60 percent to 80 percent for travelers and goods, as well as reduce the costs, according to official statistics. The PRD Regional Innovation System will permit that important cities will fall within a three-hour radius of Hong Kong and will attract Hong Kong and International investors to access innovative business opportunities in the western Pearl River Delta, which is rich in human and land resources. Universities are also being engaged to participate in the project, namely the University of Hong Kong. In the long run, the bridge is set to create a new era in transportation link between Hong Kong and the mainland, inject new impetus to Hong Kong's long-term economic development, and generate new opportunities for Hong Kong's main industries such as tourism, finance, communication, trade, commerce, logistics and airspace industry. This regional Chinese example is aligned with Horizon 2020 view, as it fosters macro-economic competitiveness, by investing in regional environments where knowledge-communities and innovation can increase and disseminate, although focusing on differentiation through innovation, and on cost leadership at a regional scope.

[8] See Exhibit 6 for graphical representation of regional differences (Appendices Section).

4.2. **Market Outlook**

The market trends within the next few years, the mobile games business environment will be affected by four major trends and key drivers.[9] First of all, the increased importance of the emerging markets. The mobile gaming market has evolved for a global market place, becoming a "global playground" for game companies and gamers. This progression has been accompanied by the evolution of the emerging countries, like China and India. In the near future, given these markets are expected to become market leaders in this industry, thus, should be considered in the expansion plans of game companies (Newzoo (2013) "Mobile Games Trend Report" and "The Global Games Market: Key Facts & Insights" (http://www.newzoo.com/category/trend-reports/)).

Secondly, the market has been witnessing the evolution of gaming analytics and their increased importance in game development and publishing. As a result of the increasing competition and the consequent high pressure for gamer retention, developers and publishers realized the potential of gaming analytics to better predict and test their ideas. The existence of more and improved analytics transformed the way game companies operate as they are becoming more professional and analytical in their business decisions (Newzoo (2013) "Mobile Games Trend Report" and "The Global Games Market: Key Facts & Insights" (http://www.newzoo.com/category/trend-reports/)).

Thirdly, gamers have now access to more screens to play and to a diverse offer of mobile games. Consequently, consumers are increasingly more demanding regarding multi-screens mobility and innovation. Mobile gamers expect devices' interactivity and define it as a crucial decision factor. Moreover, in its majority, gamers are not willing to commit in financial terms with a game, especially if they are not able to try it first. Thus, they demand for innovation not only in game design and respective features but also in the monetization system. This increases the risk for game companies given that it is harder to convince consumers to spend money in games and it implies it will be difficult to ensure game monetization and sustainability in the near future (Newzoo (2013) "Mobile Games Trend Report" and "The Global Games Market: Key Facts & Insights" (http://www.newzoo.com/category/trend-reports/)). The fourth trend is closely related to monetization. In order to sustain the "in-game spending model", companies have to keep their gamers engaged as long as possible and this engagement is only possible through the continuous introduction of new game content. Consequently, analysts predict that mobile games will evolve from a product to a service, fostered by technology and creative content (Newzoo (2013) "Mobile Games Trend Report" and "The Global Games Market: Key Facts & Insights" (http://www.newzoo.com/category/trend-reports/)). This means that innovation will be centered not only in products and services, but also in processes and business models.

[9] See Exhibit 12 (Appendices Section).

4.3. **Consumer Profile**

The consumer characterization shows that interest in mobile-casual games has been increasing for several years due to its fit into consumers' fast-moving lifestyles as they offer a time-efficient source of leisure. Though, the most recent phenomenon is the evidence that mobile gamers no longer fit the traditional profile of recurring to these games only as "time fillers". On the contrary, although many of them have game consoles, most gamers are now playing mobile games at home and several times a day (Comviva (2009) "Realizing Potential of Mobile Gaming" White Paper).[10] Accordingly, mobile gamers are now divided in three key segments:[11] core, mid-core and casual. The "core gamers" are the consumers for which gaming is an important activity of their life, they usually spend a large amount of their time playing and enjoy competing as well as interacting with other players. The "mid-core gamers" are the consumers that play regularly but not spend much time neither money on games. Finally, "casual gamers" are the ones with limited time and interest are not willing to commit financially with the games (CGA and Newzoo (2013) "Smartphones & Tablets Gaming 2013" (casualconnect.org)).These types of games appeal to people of all genders, ages, income ranges and nationalities. In North America, Europe and Asia,[12] male players are the majority but the split between women and men is very close due to the significant increase of female gamers, noticed in recent years. Still, this close split does not sustain in the case of "payers", as men are more willing to pay for the gaming experience.[13] In addition, in these regions, smartphones have the biggest share of players and the 20-35 age range is the most significant group with shares of around 40%. Yet, in terms of growth, in the US and Europe, the group above 50 years old is the fastest segment (CGA and Newzoo (2013) "Smartphones & Tablets Gaming 2013" (casualconnect.org)).[14] Finally, studies about the motivations for playing mobile games. The Casual Games Association revealed that for casual gamers the main reasons for playing are for fun, relaxation and escapism while for the core gamers, the top reasons are exploitation, adrenaline rush and stimulation (Casual Games Association (2007) "Casual Games Market Report" (casualconnect.org)). In addition, in a study conducted by Sorrent,[15] the ability to multi-task while playing has also been considered an important motivation. Most users stated that they enjoy playing while they are listening to music,

[10] PopCap revealed that the frequency of mobile game play has been increasing each year. In 2011, 84% of gamers were playing at least once a week, compared to only 40% in 2009. In addition, daily play has more than doubled from 13% in 2009 to 35% in 2011. [PopCap Games 2011].

[11] Segmentation adopted by Newzoo and the Casual Games Association.

[12] See Graphical representation of Players Metrics in Exhibit 7 (Appendices Section).

[13] Ex: 61% of all US payers are men. Additionally, in emerging markets like Poland and Turkey, 70% of payers are male.

[14] The YoY growth rates (mid 2012 vs mid 2013) were: +148% in the US and +66% in Western Europe.

[15] Game Publisher.

watching TV or even sending texts (Comviva (2009) "Realizing Potential of Mobile Gaming" White Paper).

As for the competitive industry assessment, the key vendors in the market are Rovio,[16] Electronic Arts Inc., Gameloft, Supercell, Zynga Inc., Disney, Activision Blizzard, Cellufun, PopCap Games, amongst others.[17] In the light of regional innovation systems dynamics and vertical and horizontal integration within players of both industries, companies will tend to reinforce their brand awareness throughout wider customer base and larger business diversification, namely in the media and entertainment sector, including in music, games and movies creation and management, throughout a revolution that will lead to the emergence of a innovative and highly competitive sector.

4.4. **Industry Analysis and Value Chain Network**

The music industry is composed by two segments - live and recorded – which can be divided in physical and digital music. Considering technological convergence and consumers "wants" the segment of recorded digital music is considered to be of the most relevant as it has many similarities with mobile-casual games. Firstly, the life cycle of a song usually follows a bell-shaped curve and is extremely short given that it only takes a few months to pass through all the phases.[18] Secondly, the evolution of this sector was also driven by the emergence of new technologies and most of the events that affected the course of mobile gaming also had a relevant impact in digital music, like the creation of the iPhone in 2007[19] (Leurdijk et al, 2012). Thirdly, the digital music ecosystem also follows the conventional three-stage model for digital mass consumption. The first stage, corresponding to content creation, is divided between two groups. On one hand, there are the artists, producers and the copyright owners. On the other hand, there are the digital aggregators, the publishers and the record companies, all of which are responsible for the publishing activities. Then, in the second stage, there are distributors, namely the mobile and online music services, online download and retailers, music in the cloud, online radio, social music sites and the multi-channel networks. Finally, in the third stage there are the consumers, reached directly or through other companies with a B2B2C model [20] (Siemer 2013). Nowadays, the industry is characterized by the dominance of a small number of very large music firms and a large number of medium and small companies, known as independent or indie labels. Moreover, in what concerns copyright ownership, there are across the world several music licensing companies and intellectual

[16] See Exhibit 3 in Appendices Section.

[17] Given the wide variety of rivals, the comparison amongst companies can be based on: (i) awareness, in terms of games popularity and (ii) business diversification, specifically links to the music industry.

[18] A given music may reach the top charts very quickly but may also reach the decline phase in an instant, especially with the continuous release of new music every day.

[19] Overview of the evolution of digital music industry is presented in Exhibit 8 (Appendices Section).

[20] See Graphical Representation in Exhibit 9 (Appendices Section).

property management entities[21] (Leurdijk et al, 2012). The Value Chain analysis for music and mobile gaming industries shows relevant synergies and activities in common, especially the support activities. If one conceptualizes the primary activities for an organization competing in this market, then should focus on R&D, Content Management and Game Development and Design, Negotiation and Contract Management, Marketing, Sales and Customer Service (for music and mobile platforms). The secondary activities would be Human Resources Management, Financial Management and Technological Infrastructure, since these are the activities that, although are not directly linked to the finished product and/or service, are necessary to achieve it. Moreover, the value chain network includes aggregating factors resulting from attracting multiple customers, intermediates and suppliers to specific regional scope, which generates efficiency, efficacy and regional learning gains. The value chain network' structure in regarding to regional innovation systems is reinforced on the assumption that not all but specific company-internal value chain information can be shared with customers, intermediates and suppliers, generating activity collaboration and synergies focused on value and volume as key drivers [Exhibit 13 – Value Chain] (Porter, 1985). The digital music value chain network will generate additional sources of competitive advantages, which will impact in new ways of content creation and profit margins generation, for instance, in regarding to integration of gaming and music providers; the potential close collaboration between developers and publishers and also technology integrators; additional synergies between providers and distributors; co-creation and design processes throughout customers' participation in new product and service development, among others. These alliances and rearrangements in the value chain networks will affect the industry structure and its forces in the near future, as well as supply and demand.

4.5. **Market Analysis**

The data collected by IFPI[22] showed that the digital music industry will continue its rapid development with the global expansion of digital music services.[23] [IFPI 2013] Analysts predict that by 2017, digital music revenues will exceed physical music sales. Moreover, in 2012 the number of global digital music users was 1.2bn but by 2016 it is expect to reach the 1.8bn, with a CAGR of 10.4%. [Siemer 2013] Simultaneously, the income from the different distributors[24] are all showing a continuous growth, with subscription services taking the lead. [IFPI 2013] Concerning a more geographical analysis, similarly to mobile gaming, North America, Europe and Asia are the most important and attractive regions as each holds approximately a third of global music sales (Leurdijk et al., 2012). Europe is expected to be the future leader in revenues, mainly due to the contributions of the UK, France and Germany. Still, the

[21] Many artists and performers do not have the means to pursue the legal enforcement of their rights thus they join specific organizations that help in the management of legal issues.
[22] International Federation of the Phonographic Industry – represents the interests of the recording industry worldwide.
[23] In 2011, the major international services were present in 23 counties but nowadays are in more than 100 countries.

[24] Such as downloads, music video streaming, subscription services, digital radio or music in the cloud.

fastest growth will come from unexpected regions, namely the BRIC [25] countries and Sweden (Pricewaterhouse Coopers (2013) "Global Entertainment and Media Outlook 2013-2017" (http://www.pwc.com/gx/en/global-entertainment-media-outlook/index.jhtml)). In conclusion, it is important to refer the significant role of digital music in the development of the digital economy. According to the IFPI, music has been one of the main drivers of technology and innovation. It has been creating economic value in other types of business, helping to sell end equipments and technological devices, driving online search and social networking and even contributing for the increasing demand for fast broadband connections (IFPI (2013) "Digital Music Report 2013" (www.ifpi.org)). As it refers to market trends, in first, multi-screens mobility and interactivity will become more and more a crucial decision factor. Consumers embraced a "whenever, wherever and on whatever" premise for music consumption, thus it is expected an increasing mobile adoption for accessing music. This is already evident in many countries as mobile music apps are considered the second-fastest growing app. [26] Secondly, innovation will be increasingly important in two main areas: music players' commoditization and business models development. Similarly to mobile games, the real problem in the digital music business is to guarantee the sustainability of business models. Consumers have access to the most innovative players and features in the market but the difficulty in translating use into money still exist for music providers. [27] Thirdly, given the increase of music services offers and the availability of several platforms to access music, the tendency for the next few years is the implementation of a more rigid monitoring in order to guarantee license authentication and maximize the monetization of rights (IFPI (2013) "Digital Music Report 2013" (www.ifpi.org)). Fourthly, current analysis predicts the intensification of artists' power due to an increased proximity between them and consumers. It is projected that artists will start selling the music on their own. This decision has been mainly fostered by the increasing role of social media that gave artists a direct channel to consumers and allowed them to intensively promote their music with nearly no cost associated. [28] Summing up, the future of digital music will be determined by three factors: innovation, mobility and the improvement of consumers' experience.

As for the online survey analysis of the results, [29] showed there is an alignment between the information provided cross validation insights and perceptions by considering participants' feedback, the market trends and consumers' profile analyzed previously. Moreover, the survey results and complementary contextual and competitive analysis are interpreted as a change from red ocean to the potential of a blue ocean business opportunity within the sector transformation and a new paradigm for four main reasons:

[25] Brazil, Russia, India and China.

[26] In 2012, mobile music revenues were $18 billion and are predicted to reach $25 billion in 2014. See http://blog.mobileroadie.com/2013/02/state-mobile-music-industry-infographic/).

[27] See http://www.musicthinktank.com/blog/4-emerging-trends-in-social-media-how-theyll-impact-the-musi.html.

[28] See http://www.lexisagency.com/news_and_views/digital-music-trends-discussed-at-smwldn.php.

[29] The main results of the survey are presented in Exhibit 10 (Appendices Section).

(i) the fact that many consumers valued the combination of games with music, (ii) the fact that curiosity and brand loyalty were selected as important motivation for trying new versions (iii) the small value attributed by participants to mobile games soundtrack and (iv) the potential (and predicted) change in terms of revenue process through all the industry intermediates, namely the Content Labels and Publishing companies. All in all, these factors are key indicators that the role of music in mobile games is still at an initial phase and there is room for improvement and innovation, corroborating the window of a blue opportunity predicted.

5. DISCUSSION

By considering de Porter Five Forces Analysis (i) it is notorious that "Supplier Power" is high in relation to the structure of the industry. The middleware companies, OEMs and distributors have a core role in this industry because they impose restrictions on developers and influence consumers' perception and behavior. Moreover, the integration of music will reinforce the supplier power as the music providers will have a decisive role in content creation. Even though, it is important to refer that in the long-term there is the possibility for the minimization of this power due to the recurring trend for vertical integration of developers and publishers.[30] Additionally, this new business opportunity will motivate the formation of new alliances and collaborative arrangement between industry players and may even lead to the emergence of a new player type – the integrators – that fostered by technology convergence will merge the know-how of digital music and mobile gaming industries to develop integrated solutions. These alliances and the appearance of integrators may also contribute for the long-term minimization of the supplier power. Nevertheless, in the near future, music providers and distributors will continue to have a significant influence on developers and publishers.[31] Secondly, "Buyer Power" can be classified as moderate-high, as consumers have a high bargaining power as they are price sensitive, have almost no switching costs and are increasingly demanding in terms of game quality and efficiency. However, as previously mentioned, the music contents will be a mechanism of engagement and customer retention. Moreover, the high differentiation of new game types will lower the sensitivity to other factors, like price in favour to experience. Thus, with the music integration, the buyer power will have the tendency to decrease over time. Thirdly, "Internal Rivalry" can be defined as moderate. There are several players in the current mobile gaming market and innovative new games will not only compete with mobile games but also with music streaming services, eliminating direct competition to current offer due to lack of differentiation.[32] Moreover, most game companies, especially new entrants, are focusing on their

[30] The integration will enhance the power of developers and publishers and allows costs reduction, through the resultant economies of scale. However, may lead to resources dispersion, especially in the short term, which may negatively affect games' design and quality processes.
[31] Example: Even with the creation of its own portal, Zynga was not able to break completely its dependency on Facebook since that the majority of players prefer to play Zynga's game in Facebook and not in its portal.
[32] As the game differentiation increases, categorization and comparisons with rivals become more difficult.

priorities to generate profits, which limit their ability to replicate first movers, as well as on return on investment, instead of incurring in additional costs. Finally, the competitive environment in the new sector will be very different from the current one. Hence, the competition rules and boundaries will be distorted and undefined which may affect the performance of rivals and their current competitive advantages. Fourthly, the "Threat of Entry" is increasingly low as the barriers of entry increase over time. When compared with other game genres, the capital requirement of a mobile-casual game is considered low. However, the transaction and customization costs of these games are increasing due to the diverse technical requirements that have to be fulfilled to ensure mobility across all types of devices and platforms. Furthermore, the integration of music will increase significantly the costs of development given that legal music rights tend to be extremely high and volatile.[33] Finally, the "Threat of Substitutes" is moderate-high. Mobile-casual games have numerous substitutes as they are only one of the diverse entertainment activities consumers have access. Moreover, although the "time filler" image has been changing, it is still a direct association of mobile games, restricting consumers' willingness to commit their time and money. Nevertheless, the differentiated features and improved value proposition[34] of the new games as well as the fact that music will no longer be a substitute, contribute for the minimization of this threat. To conclude, it is been predicted by current research that the music integration will radically change the dynamics of mobile games industry. On one hand, it will positively affect the majority of the forces, such as the buyer power and the threat of entry but, on the other hand, it will also aggravate one of the most significant forces – supplier power. In addition, as a result of the combination of games and music, the industry will be increasingly crowded as the number of industry players will increase.[35] Considering the research studies on both industries there were identified and discussed eight critical success factors influencing the sector (ii): a) early technology convergence focus on games, music and media content, devices and platforms; b) design and innovation in game-play and music features; c) customer know how and monetization systems of value propositions in alignment with products (and services) life cycle; d) access to distribution channels and platforms to increase efficiency and efficacy in distributing media contents and increasing mobility and interactivity; e) concept, design and customer focus; and f) customer analytics and customer service, including revenue process. Competitive strategy (iii) is typically focusing on three-stage market launch[36] targeting cultural and regional common features, where customization requirement is not needed, but do not pose the possibility of global launch.[37]

[33] The costs of the music contents depends on the negotiations with music providers and copyright entities and can change over time depending on how the negotiation is conducted and the offers made.

[34] Having a product that combines music and games is much more valuable than two separate products, especially because in some devices it is not possible to play a game and use a streaming service at the same time.

[35] See Industry Mapping presented in Exhibit 11 (Appendices Section).

[36] By making the launch in stages, the companies will have the chance to spread their costs over time and to make phased, thus smaller, investments.

[37] Music and games integration depends on substantial geographical and cultural differences in terms of music consumption habits and tastes and the only way to ensure gamers' satisfaction is to provide a customized offer.

It was concluded that Asia Pacific region is the most attractive region for mobile gaming, specifically if one considers mobile gaming potential as the relevant factor for product launching decisions. On the other hand, because of high level of cultural and social habits diversity there are culture aspects and market adoption's factors to be considered, so it reasonable targeting Europe and North America is based on four other factors. Firstly, Europe and North America have the highest monetization potential, hence, have the highest probability for profit generation, which is essential for the sustainability of these types of new games.[38] Secondly, in Europe and North America, despite some small local differences, the music tastes are very similar. On the contrary, in Asia there is a need for a greater customization given that within the region the music tastes are very disperse. Moreover, it is harder to ensure customized products and services offerings because of the wider variety of tastes and the music rights system is more complex and fragmented.[39] Thirdly, the gaming distribution channels to be used in Europe and North America are few and practically the same, whereas in Asia it will be necessary to have a larger group of distributors to reach the majority of mobile gamers.[40] Finally, in Europe and North America there is a favourable technological and copyright environment once there has been a consistent effort from national and private entities to, not only implement more restrictive protection rules, but also to create a harmonized system. At the same time, both regions are considered research leaders, having several entities very interested in investing and supporting R&D, especially for mobile applications. Gaming Analytics (iv) is key for the development of innovative games and even after their launch process, as continuous investment is required in game analytics in order to ensure key insights for game development and for the implementation of effective social marketing strategies as they give relevant information about consumers' habits, needs and patterns of consumption. Mobility and Interactivity (v) both in digital music and mobile gaming industries are increasingly important for consumers. The existence of more screens is not only beneficial for consumers but also for the game companies given that there is an expansion of the access to consumers which may lead to an increase of the customer base. Additionally, it boosts the time spent on gaming, since that it is possible to start a game in a given screen and then continue it in another, and this fosters customer retention, brand loyalty and may ultimately lead to an increase in revenues. Therefore, when making decisions regarding the distribution channels, the vast number of devices and platforms available in the market, specifically the new technologies, have to be considered. Investment in R&D and Game Optimization Experience (vi) are reflecting consumers behaviour, being extremely demanding regarding the quality, efficiency and innovation. Hence, it is a source of competitive advantage to invest more in R&D to ensure the

[38] European gamers have the highest average spend in mobile games and North America has the biggest share of payers and are more willing to pay for this type of products and services, which lead to higher probability of profit generation.

[39] Contrary to Europe and North America, in Asia there are several small independent music owners, being harder and usually more expensive to negotiate the music rights.

[40] As long as the new game is available in devices with iOS or Android, it will reach the majority of Europeans and North Americans. However, in Asia, these will not be enough once Asian gamers have a dispersed preference of operating systems so Rovio will have to have contracts with more distributors, increasing costs and development complexity.

continuous innovation required by consumers. Moreover, there should also be a higher investment and focus on game optimization and maintenance, especially taking in consideration that more design and innovation will pulse more technical requirements and consequently a higher risk of technical problems. Market Research (vii) is corroborating the identification of the blue ocean opportunity, although market analysis that was developed within this research has three major limitations. Firstly, there is a restricted access to market reports and industry statistics due to the fact that many researchers constrain the public audience's access to their studies, especially in what comes to digital music and mobile gaming. Secondly, there is a lack of highly specialized literature on the relationship between mobile gaming and digital music. Finally, the online survey was a complementary and positive approach to generalize the findings to the broader mobile gamers' community and validates the market potential. Regional Innovation Systems (RIS) (viii) play an important role for three main reasons. The first one is that the usage of new technologies, like software, digital content and e-commerce has reduced the importance of scale economies in many sectors (Piore and Sabel, 1984; Carlsson, 1989; Norman, 2002; Audretsch et al., 2012). The role of new firms in technological development is enhanced by economies of scale reduction and by the increasing degree of uncertainty in world economy (Mata and Machado, 1996; Audretsch et al., 2000; Audretsch and Thurik, 2001) startups rely on their regional contexts to access knowledge sources and to develop innovative and marketable products (Audretsch and Lehmann, 2005; Audretsch et al., 2005; Audretsch et al., 2008). The second motive consists in the increasing pace of innovation[41] and the shortening of product and technology life-cycles (Klepper, 1996; Agarwal, 1998; Agarwal and Gort, 2002; Adner and Levinthal, 2001; Klepper and Sleeper, 2005; Fritsch, 2008; Dinlersoz and MacDonald, 2009; Auerswald, 2010) that seem to favour new entrants and knowledge-based startups, that have greater flexibility to cope with time-to-market shortness and with radical change rather than large corporations (Zenger, 1994; Baumol, 2004). Thirdly, because of the impact of geographical labor mobility, transport costs and communication costs as the knowledge spillovers that drive economic growth are likely to be regionalized, ensuring sufficient resources are available for both knowledge creation and knowledge commercialization (Acs and Sanders, 2008).[42] This implies contextual dynamic conditions in promoting innovation and value to the ecosystem, while in the one hand accessing and sharing capabilities and resources among different key stakeholders which operate

[41] Adner and Levinthal (2001) developed a demand-based explanation for the technological change. Demand heterogeneity is considered to be the key driver of the technology life cycle instead "endogenous innovation". In this sense, firms innovate to fulfill consumer needs that are continuously evolving and to achieve a bigger market-share, through targeting or keeping broader market segments. Later in life cycle, progressive decreasing of the marginal utility coming from performance improvements (i.e. product upgrades) empowers "customer satisfaction" with technological features, making companies develop new technologies with improved performance at constant prices in order to address "market needs". This explanation looks coherent with the "supply-side" Moore's Law which says that the processing capacity doubles in each 18 months, with the same costs.

[42] Acs and Sanders (2007) developed evidences and assumptions at aggregate level for innovation,entrepreneurship and the search for knowledge spillovers, which support the claim that knowledge spillovers are important for regional economic growth. The underlying assumptions require further empirical research to test and validate modellation predictions.

along the sector's value chain and regions; and on the other hand, attracting customers worldwide, globalizing the value proposition and promoting economic growth.

6. CONCLUSION

In conclusion, there is a contextual opportunity for the development of a technological convergence innovation and business opportunity supported by the diverse resemblances between the industries and their high potential of growth via value network. The design and innovation of introduction of this new game will dramatically change the current state of mobile gaming and digital music, as it will lead to the emergence of a new sector, with unidentified characteristics, mainly driven by technology convergence. At this moment in time the analysis of Regional Innovation Systems and Mobile Gaming and Digital Music technological convergence, along with the possibility of innovative design value propositions being offered to customers is seen as pioneering, and may lead to full exploitation but also protect this first mover opportunity. Once the industry players realize the potential of the convergence and integration of the two digital components, there will be a rapid movement into this new sector accompanied by the formation of several alliances. Accordingly, the rivalry intensity in the new sector will increase and the business environment will be altered, along with new sources of competitive advantages creation.

Overall, the success of alliances will rely on: the proper alignment of their resources, the ability to understand and rapidly adapt to future changes in the industry and the capacity to keep up with consumers' demands and sustain a continuous innovation of the product offer. New regional innovation systems within revolutionizing sectors will lead to innovative business models and value networks capable of generating additional sources of competitive advantages, learning opportunities for improvement, sector competitiveness and consumer benefits maximization. Finally, there are potentially new sources of collaboration among the different players of both industries throughout exchanges of strategic insights and visions, strategic plans and knowledge, co-creation and innovation, technical know-how, collaborative design, production and distribution, which will flow and disseminate around the ecosystem and support the core value chain. Ultimately, exchanges of value and benefits that go beyond business and economics, generating societal impacts and enhance value for customers and community.

7. LIMITATIONS AND FUTURE RESEARCH

In first, limitations of the present piece of work are linked to the opportunity of developing future research focused on customer view, that along with technological convergence may lead to complementary approach in terms of new product design, development and manufacturing. This approach will allow the discussion and validation on ways how to organize and value customer needs and aggregate features in order to generate innovative product concepts and impacts in industry competitiveness on the future. Secondly, the blue ocean business opportunity that emerges from the

present research, leading to an innovative breakthrough in regional innovation systems of mobile gaming and digital music industries, can be also discussed from a conceptual cross-cultural perspective, leading to further studies which potentially contribute to innovation research in cross-regional and cross-industry interstices.

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APPENDICES

Exhibit 1 – Nmusic Team

Source: Nmusic website

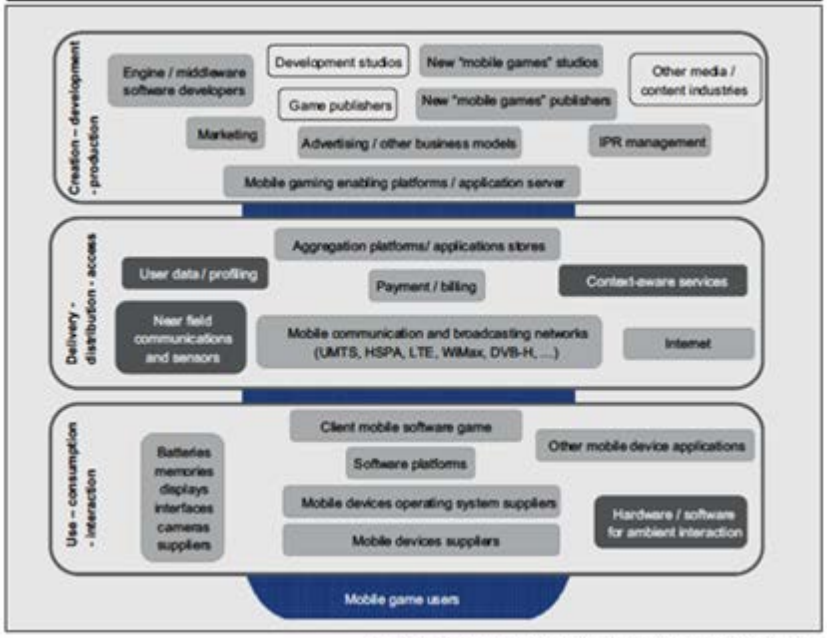
Exhibit 2 – Rovio Management Team

Source: Rovio website

Exhibit 3 – Rovio Products

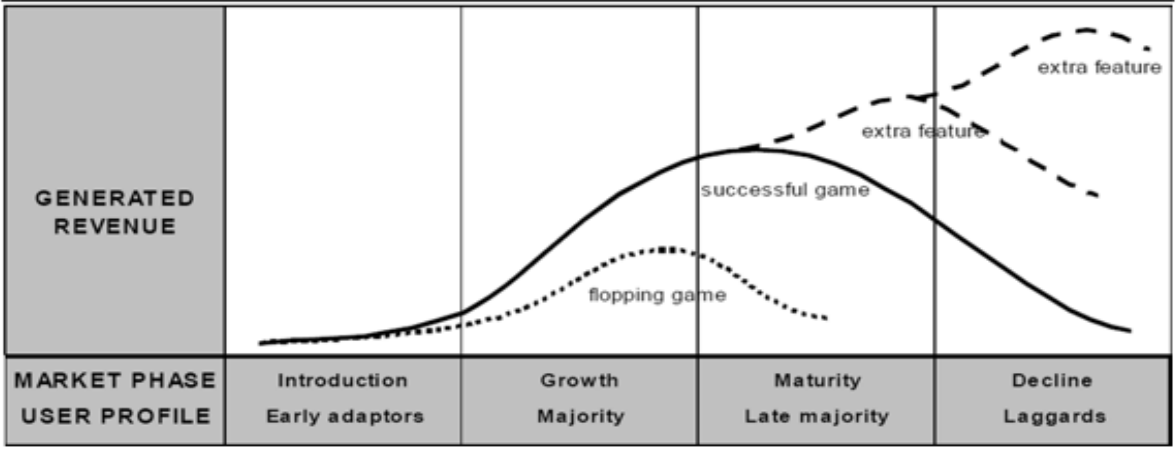
Source: Rovio website

Exhibit 4 – Mobile Games Ecosystem (Structure and main activities)



Source: C. Feijoo et al. (2012) Journal of Telecommunications Policy

Exhibit 5 – Mobile game life-cycle



Source: Gaptime Century Lda. (Partanen, J. 2001)

Exhibit 6 – Mobile Gaming Metrics per region

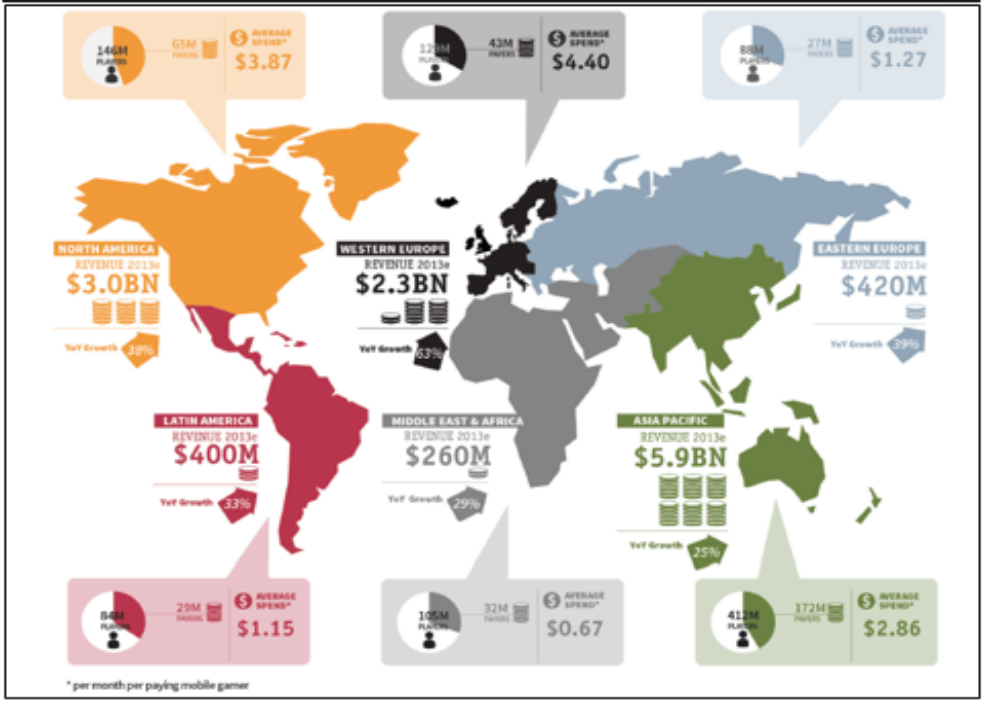


Exhibit 7 – Players Metrics

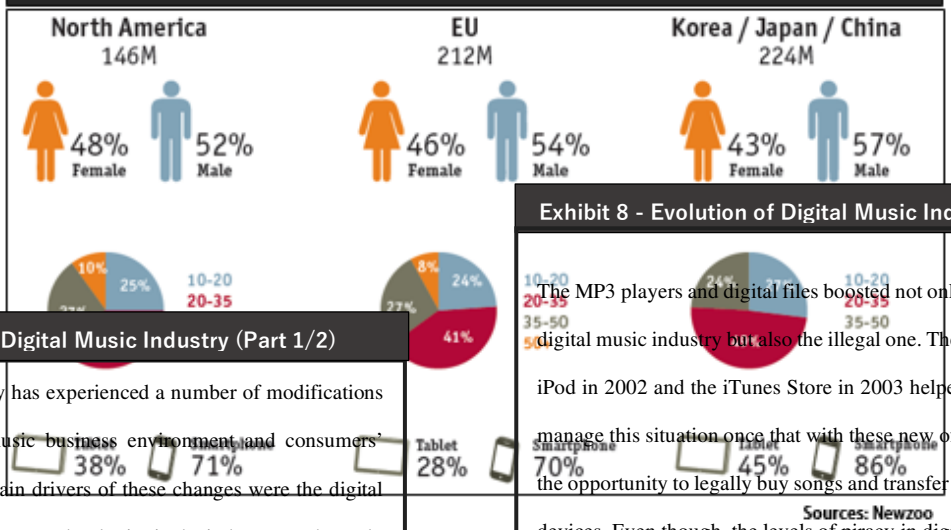


Exhibit 8 - Evolution of Digital Music Industry (Part 1/2)

Over the years, the music industry has experienced a number of modifications that dramatically changed the music business environment and consumers' perception towards music. The main drivers of these changes were the digital revolution and the introduction of new technologies in the industry. In the early 1980s, with the introduction of the CD, the first change in the industry occurred. The market penetration started slowly due to the extra expenses required to start using CDs and the fear of decreased quality. Even so, it did not took long until consumers understood that the sound quality was not affected and by the late 80s, listening music on CD was already the general standard. The appearance of CDs opened new opportunities for record companies, creating a new revenue stream. Then, in 1989, another creation was introduced – the MP3 compression technology – offering the possibility to convert CDs into digital files and to storage them in the computer. The portable MP3 player was only introduced in the end of the 90s but it rapidly took over the market and ranked ahead the CDs. In 1999, 17 million MP3 files were download every day whereas only 846 million CDs were sold in a year. The MP3 technology led to a detachment between the music and the devices, attributing more value to the music itself rather than to the object for listening. Thus, the introduction of this technology accompanied by the evolution of internet connections caused a positive disruption in the ways of listening music.

Exhibit 8 - Evolution of Digital Music Industry (Part 2/2)

The MP3 players and digital files boosted not only the legal sector of digital music industry but also the illegal one. The introduction of the iPod in 2002 and the iTunes Store in 2003 helped at some extent to manage this situation once that with these new offers consumers had the opportunity to legally buy songs and transfer them across several devices. Even though, the levels of piracy in digital music increased drastically over the years, negatively affecting the music revenues.

In 2007, the creation of the iPhone and the beginning of the "smartphones era" led to another significant change. With the introduction of music contents in mobile devices, consumers no longer needed different devices to perform different activities. It was possible to listen music, play games, send texts and make calls all with the same device. Consequently, similarly to what happened with mobile games, the concepts of portability and mobility emerged as important decisions factors for consumers in the digital music industry.

Furthermore, in the next years, the concept of accessibility also became an important factor. In 2008, data from the IFPI revealed that 95% whenever they wanted, without the need to own the music files. This service was provided for a specific fee and was available of music downloads were illegal. This was when music companies realized there was the need for a new business model, able to satisfy consumers and to fight back the piracy levels. Hence, in the same year, the music subscription model and the streaming music services appeared as the most sustainable solution. Consumers had access to a diverse and unlimited catalogue of songs, anywhere and in different devices. Afterwards, several companies entered the market offering this and other type of services such as music in the cloud, mobile services, ad-supported services and social media services. Subsequently, consumers' perspective towards music changed and accessibility became much more important than ownership. In fact, several studies developed by Ipsos indicate that consumers see music as a central part of the mobile experience, they expect this easy access to music contents and consider listening music on the move a core

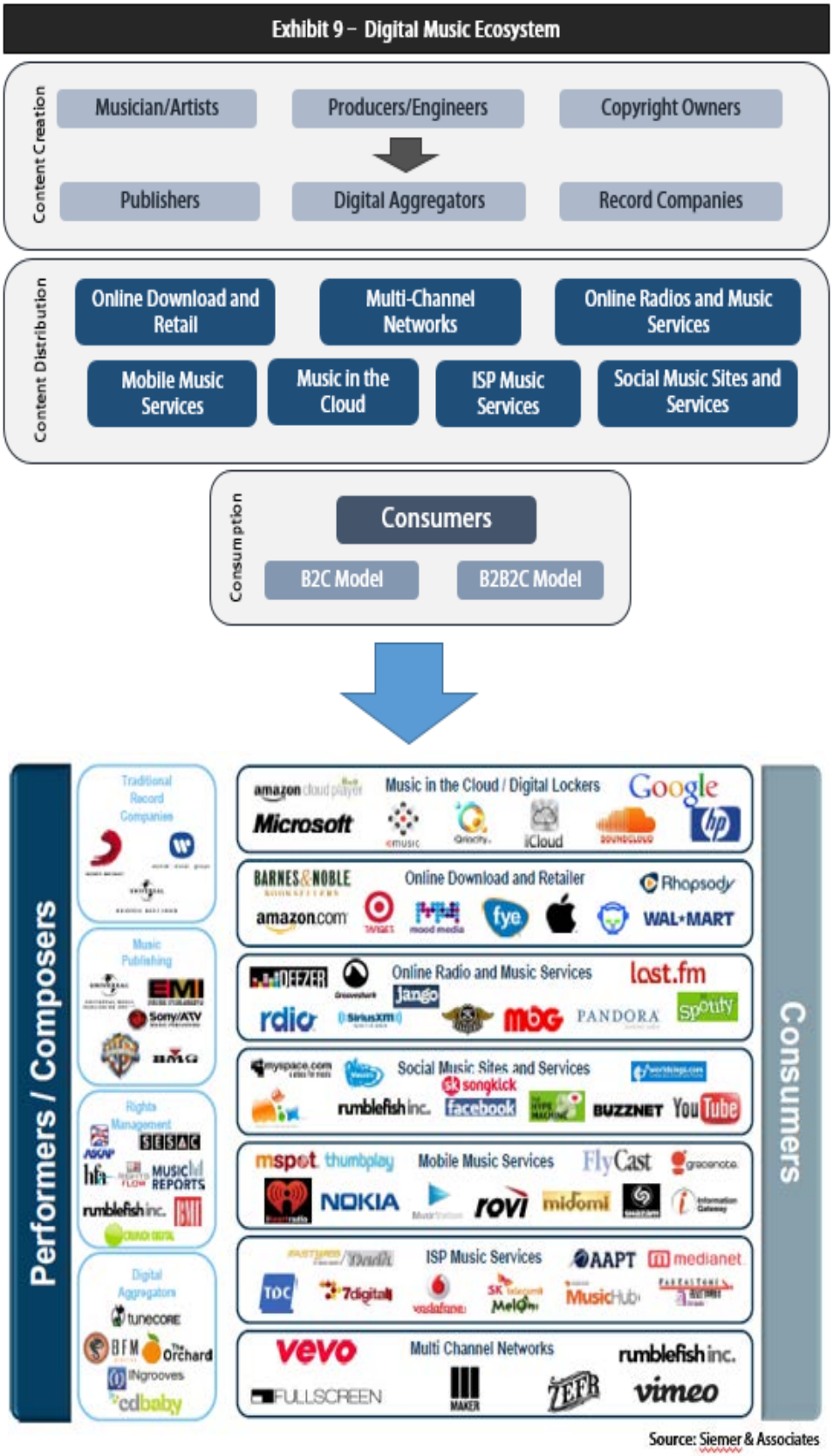
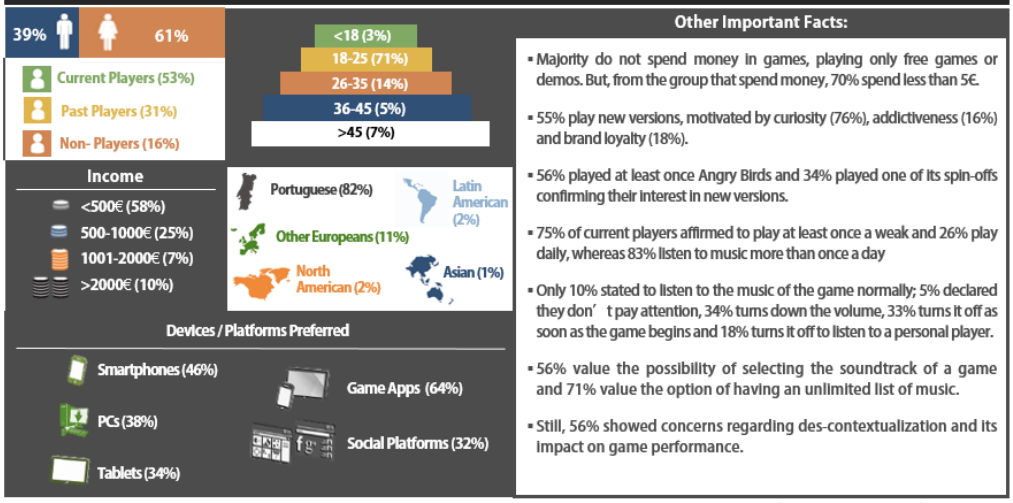


Exhibit 9 – Digital Music Ecosystem
Content Creation
Musician/Artists
Producers/Engineers
Copyright Owners
Publishers
Digital Aggregators
Record Companies
Content Distribution
Online Download and Retail
Multi-Channel Networks
Online Radios and Music Services
Mobile Music Services
Music in the Cloud
ISP Music Services
Social Music Sites and Services
Consumption
Consumers
B2C Model
B2B2C Model
Performers / Composers
Traditional Record Companies
Music Publishing
Rights Management
Digital Aggregators
Music in the Cloud / Digital Lockers
Online Download and Retailer
Online Radio and Music Services
Social Music Sites and Services
Mobile Music Services
ISP Music Services
Multi Channel Networks
Consumers
Source: Siemer & Associates

Exhibit 10 – Survey Results



Source: Google Forms (Summary of Responses)

Exhibit 11 – Industry Map (with games and music)

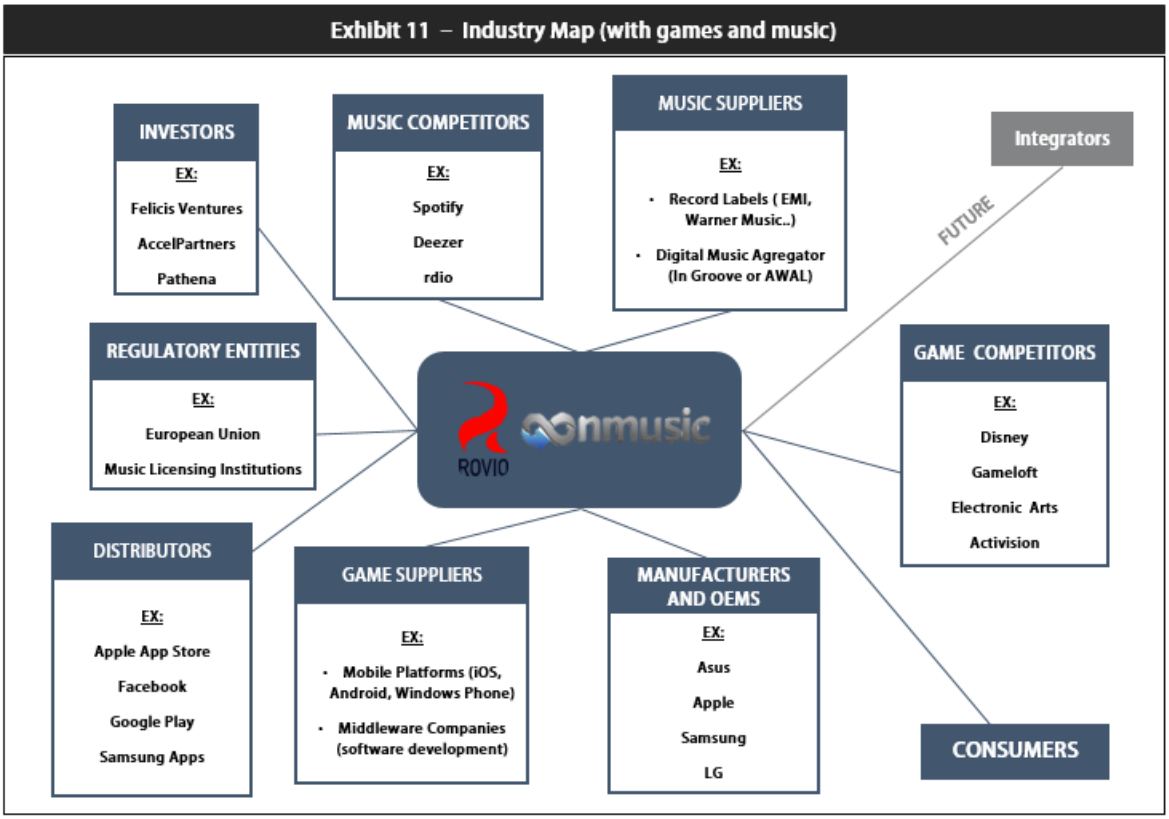
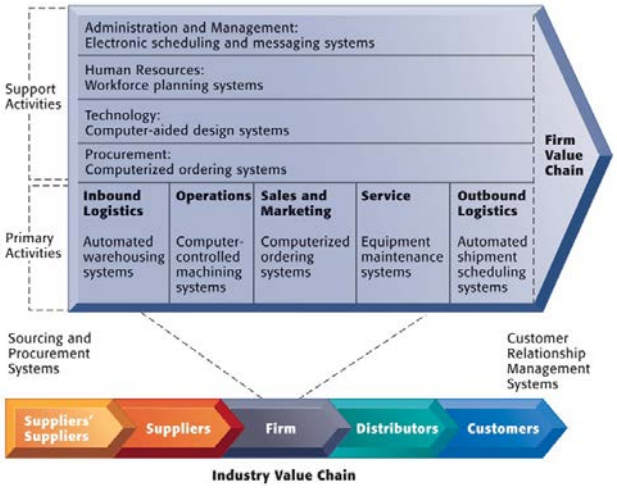


Exhibit 12 – PEST Analysis (Mobile Games and Digital Music in Europe and North America)

Political Factors	• The Fragmentation of copyright laws and technology protection represent high legal obstacle for many media products (including music and games). However, the European Union has been working to implement more restrictive and harmonized rules. • There is also fragmentation of copyright ownership that affects particularly the digital music sector. But, there is a progressive licensing on the part of major and independent record companies (implementation of structures to issuing licences to digital services at different levels – national and global)
Economic	• Downturn of the economy reduces considerably the purchasing power of consumers, especially for leisure activities. (monetization issues) • The low purchasing power is mitigated by the offer of competitive prices and of

[Exhibit 13 – Value Chain]



Source: [Porter, M., 1985, Competitive Advantage: Creating and Sustaining Superior Performance]

Table 1

Table 1 - Regional Markets Attractiveness and Potential						
	North America	Latin America	Western Europe	Eastern Europe	Middle East & Africa	Asia Pacific
MARKET SIZE	Revenues: $3.0 b.n (YoY Growth: 38%)	Revenues: $400 m (YoY Growth: 33%)	Revenues: $2.3 b.n (YoY Growth: 63%)	Revenues: $420 m (YoY Growth: 39%)	Revenues: $260 m (YoY Growth: 29%)	Revenues: $5.9 b.n (YoY Growth: 25%)
Score:	4	2	3	2	1	5
MONETIZATION POTENTIAL	Payers: 65m of 146m gamers Avg.Spend: $3.87	Payers: 29m of 84m gamers Avg.Spend: $1.15	Payers: 43m of 129m gamers Avg.Spend: $4.40	Payers: 27m of 88m gamers Avg.Spend: $1.27	Payers: 32m of 105m gamers Avg.Spend: $0.67	Payers: 172m of 412m gamers Avg.Spend: $2.86
Score:	5	3	4	2	1	4
GROWTH POTENTIAL	CAGR: 7.1%	CAGR: 11.5%	CAGR: 8.6%	CAGR: 7.5%	CAGR: 6.8%	CAGR: 11,5%
Score:	3	5	4	3	2	5
GLOBAL SCORE	4	3	4	3	2	5

Legend: b.n = billion | m = million | Avg.Spend = average spend **Sources:** Data from PWC and Newzoo