Soft Innovation in the Video Game Industry

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Abstract. This paper reviews literature on soft innovation with a focus on soft innovation in the video game industry. A systematic review of books, reports and papers, in all 39 literary works form the bases of this paper. Four streams were identified from the literature - management, design, market and network. Based on the findings some key insights were made. The need for a holistic view of hard and soft innovation is necessary, the product becomes valuable only through experience, the market pressure increases the need for soft innovation, and networking increases knowledge, which generates intangible and tangible value.

Keywords: Soft innovation · Management · Design · Market
Network · Video game industry

1 Introduction

In today's rapidly changing markets, innovation is seen as a necessity. It is no longer a question if companies should innovate, but how they should innovate [1, 2]. There is considerable amounts of innovation research in businesses, which mainly has a perspective on technological product and process innovation (TPP). The Organisation for Economic Co-operation and Development (OECD) emphasizes on function in the Oslo Manual [3] when describing TPP innovations as implementation of technological new products and processes and significant technological improvements in products and processes. Though TPP innovation research is an important part of analysis of innovation, other aspects such as organizational process innovation should not be ignored [4]. Schumpeter's [5] definition of innovation includes new products, processes, raw materials, management methods and markets through three stages – invention, innovation and diffusion. The process of an innovation is often a lengthy one, encompasses many different inventions and interrelated innovations. This makes it natural to view the process as a larger system rather than focus on each individual innovation [4]. In order to get a clear picture of innovation as a whole, it is necessary to also consider both the technological as well as the non-technological sides of innovation, here referred to as soft innovation [6].

In 2006 the Oslo manual added services and organizational innovation as well as marketing innovation to their definition of innovation [7]. The introduction of such activity as marketing innovation in the OECD gives credibility to part of the soft innovation definition which includes 'significant change in the design of an existing

Á. Rocha et al. (Eds.): WorldCIST'18 2018, AISC 745, pp. 30–41, 2018.
https://doi.org/10.1007/978-3-319-77703-0_3

product but where the functional or user characteristics of the product are not significantly changed' [6]. Though innovations related to a cultural concept and development of an art form stands out from the description of the OECD [8–10]. As much focus has been on R&D and technical innovation in previous research, non-technical innovation, involving new products or processes such as the creation and launch of a new book, movie or video game, has been overlooked [6, 7, 9]. Jaanieste [11] points out that TPP innovation needs to be complemented with "Cultural Product and Process (CPP) innovation", i.e. research, development, application and diffusion of cultural products (stylistic changes, changes to forms, changes to content) and their processes (the ways such products are made, delivered and distributed) found in [12].

Paul Stoneman presents the idea of soft innovation in his book Soft Innovation: Economics, product aesthetics and the creative industries [6]. Soft innovation concerns changes in "goods and services that primarily impact on sensory or intellectual perception and aesthetic appeal rather than functional performance" [6]. Soft innovation can be interpreted as complementary and interrelated to technological innovation [7, 13]. These activities are often hidden, not captured or recognized by traditional indicators such as research and development (R&D) spending or number of patents [9, 14]. Some measures capturing soft innovation could include trademark counts or new product variant launch counts [6]. Chapain et al. [14] present formal (registration of design, patent, trademark, copyright, confidentiality agreement) and informal (secrecy, lead-time advantage or complexity of design) intellectual property (IP) protection methods as a measurement as well. According to Stoneman [6] there are two facets of soft innovation. One being aesthetic or intellectual appeal often found in the creative industries, and the other being functional aesthetics as seen in marketing. Creativity plays an important role in the success of a company's innovative activity. The source of innovation lies in the creativity and innovator capability of people [15]. It is seen as "complex constructions involving the production, conceptualization, or development of novel and useful ideas, processes, or procedures by an individual or group of collaborating individuals" [16]. Soft innovation not only involves the creation of ideas but also making them into marketable products [6]. This type of innovation has only recently been the focus of research resulting in prior literature largely overlooking much of the innovative activity present in the economy, and ignoring the side of soft innovation will lead to pay-offs being attributed to TPP innovation and the values will be biased as a result. [6, 7, 17]. Soft innovation often depends upon or exploits other innovations, such as a new product, new technology or process innovation [14]. Creative workers often view innovations as contextual, as new in specific field a specific place, a sub-sector or a particular scene [18]. Soft innovation is crucial in building a sustainable competitive advantage [19]. Creative works need to be understood beyond economic entities in a marketplace, and there is more to innovation than a firm bringing a new work to market. "Reducing one to the other is only likely to dim our understanding of both. We need to look closer at what soft innovation is and how it can be captured in the creative industry" [20].

Increasingly, the video game industry has become an area of interest for innovation research as technology and the rate at which these technological products are developed is very high. Product life cycles are becoming shorter and more "best sellers" are entering the market each year showing high rates of innovation as well as increasing

rates of significant soft innovation [6]. It is also increasingly difficult to enter the market over time, which accelerates the trend toward the non-technological and soft innovation as well [21]. The video games act as creative experience products that generate emotions and experiences when played by the users. This interaction and immersiveness is essential for the success of video games [22]. Common indicators such as research and development (R&D) spending or number of patents do not capture innovation that occurs in the creative process. It is often considered hidden because of this [23]. In this paper, a literature review on soft innovation in the video game industry is presented. The video game industry is a suitable area of studying soft innovation as it is highly creative and fast paced, with quick turns of game development and increasing necessity for soft innovation in order to stay ahead. This leads to the research question addressed in this paper: How is soft innovation conducted in the video game industry? A structured literature review is done to identify relevant literature to help answer this question.

2 Method

This paper is a literature review on the topic of soft innovation in the creative industry, particularly the video game industry. The topic for this review stems from the book by Paul Stoneman, Soft Innovation: Economics, product aesthetics and the creative industries and the NESTA report on soft innovation [6, 7]. Four broad terms within soft innovation were chosen for the literature search as they were frequently mentioned in both Stoneman's book and the NESTA report. These are Creative Industry, Innovation Process, Video Game Industry and Innovation Network. The Video Game Industry is a part of the Creative Industry, but both these search terms were chosen in order to include literature from other industries where soft innovation seems likely to occur as well as specify the main area of interest that is the Video Game Industry.

A systematic search was done through two databases; Google Scholar and Oria, University of Oslo's BIBSYS-database. Google Scholar was chosen as it generates a broad search result necessary for covering an emerging issue. Oria was chosen to ensure inclusion of peer-reviewed literature on the topic. A combination of soft innovation with the terms were used to drill down the search to identify relevant articles (shown in Table 1). Some combinations returned a very large number of articles that would be too time consuming to sift through. It was therefore necessary to alter the searches to get more specific results by applying inclusion and exclusion criteria. The inclusion criteria were the search terms as seen in Table 1 and English language. The exclusion criteria were literature which fall outside of the concept and not involving soft innovation to a larger degree, work in progress and other languages than English. The resulting literature included books, journal papers, reports and conference papers. The reason for including such a wide variety of literature was to cover both established concepts as well as perspectives that uncover new trends. The abstract and conclusion were read to determine relevance which resulted in the first review. A second review was then done where the literature was read in more depth to define which actually discussed soft innovation within the concepts defined resulting in the final literature reviewed in this paper. From this literature other relevant literature was identified

giving more depth within certain concepts. Several of the articles and especially the books and reports cover more than one of the concepts which need to be taken into consideration when viewing the number of relevant literature.

Table 1. Search results from each database and relevant literature

Search concept	Google scholar	Oria	First review	Final review
"Soft innovation" AND "creative industry"	163	24	33	14
"Soft innovation" AND "video game industry"	25	3	9	5
"Soft innovation" AND "innovation process"	310	64	44	16
"Soft innovation" AND "innovation network"	48	0	6	4

Through the extensive review of the final literature, notes were taken and the literature was coded iteratively. These codes were then compared and contrasted and then conceptualized into four broad research streams discussed in more detail below.

3 Research Streams in Soft Innovation

In this chapter, four research streams identified from the literature review are presented. Each stream in the table is matched with key insights and contributions from the literature. They are then presented in more detail in correlation to findings in the video game industry below (Table 2).

Table 2. Research streams with key insights and key contributions from literature

Research stream	Key insights	Key contributions
Management	A holistic view of hard and soft innovation is necessary	Jaw et al., Ahmed, Tschang, Paiola, Masiello et al. [13, 24–27]
Design	The product becomes valuable only through experience	Hawkins and Davis, Tschang, Miles and Green [9, 26, 28]
Market	The market pressure increases the need for soft innovation	Choi, Brandellero and Klosterman, Stoneman, Stoneman and Bakhsi [6, 7, 22, 29]
Network	Networking increases knowledge which generates intangible and tangible value	Choi, Hawkins and Davis, Jøsendal, Choi [21, 22, 28, 30]

3.1 Management

Management and organizational innovation is viewed as the introduction of new systems, techniques or methods that have not been used before to change the way the company acquires competitive advantage [6]. When managing the process in the creative industry, several non-technological factors need to be considered, such as culture and knowledge management, managing networks, new strategies or marketing concepts, relationships with other companies or users, as well as managing the production of content [31]. The more competitive the industry, the greater is the need for innovation, and innovation needs to be managed where an understanding of critical success factors are key [32]. Companies need to manage two key dimensions of innovation. The first being hard innovation which is specific structures for innovation such as organizational systems and procedures for interaction, physical infrastructures and resources to enhance co-operation and collaboration. The second is soft innovation involving management of hard innovation, including the culture of the organization through sensitive leadership which reinforces behavior of its people [25]. This presents a need to view soft innovation and TTP innovation in combination as they influence each other and enforce innovation overall [6, 25]. Technology is a key driver of soft innovation as it complements, supports or enables process-oriented, service delivery and organizational innovation [13, 33]. Masiello et al. [27] promote a broader conceptualization of innovation including change/newness in: (1) the Intellectual Appeal of creative concepts; (2) the Aesthetic Appeal of creative concepts; (3) the Delivery Channels; (4) the Technological Tools; (5) the Management of Internal Processes and Resources, and (6) the Client Interface where different dimensions complement each other. Stoneman [6] states that soft innovation is not a part of and thereby does not affect organizational innovations. These involve the implementation of a new organizational method in the firm's business practices, workplace organization or external relations to increase a firm's business practices by reducing administrative or transaction costs, improving workplace satisfaction (and thus labour productivity), gaining access to non-tradable assets (such as non-codified external knowledge), or reducing costs of supplies. Though they should be seen in correlation as they are both a significant part of the company's innovative strategy [24, 34, 35]. With lower organizational rigidities comes greater flexibility and adaptation supporting innovation [13, 31, 36]. Innovation should not be seen as a sequential process but should include interaction and feedback, be studied as an on-going process of problem solving (learning), and is not limited to the domain of R&D [33, 37].

In the video game industry the development process is an evolutionary and complex process consisting of multiple design iterations, increased testing, frequent milestones, multifunctional teams and powerful project leadership, where new features and content can be added during the course of the development [26]. This evolutionary tendency can generate greater room for innovation where users' needs are continuously met, but also result in "feature creep" with ongoing additions of new features, a common issue in video game development that can delay the video game, increase its complexity or cause it to end up completely different from the original vision. This can be moderated with good design leadership and project management, though the element of uncertainty is still a fundamental part of the process as profits will only be

apparent when the product is launched and depend on its success in the market [6, 26]. In the video game industry, the value of the video game is not certain as it is a product that relies heavily on experience. The understanding of experience as a strategically important dimension of innovation that changes the perspective on where the engines of innovation lie and on the forms of knowledge essential to utilizing the experience resource [28]. Deep knowledge of the industry is an intangible resource with high value as producers are confronted with two problems: highly unpredictable demand patterns and production processes that are difficult to monitor and control [38]. Miles and Green [9] present in their report a framework of innovation originally from Green et al. [23]. Six dimensions are identified that are prominent in the creative industries. Four of these, cultural products, user interface, cultural concepts, and delivery, are particularly prominent in creative industries and is where hidden innovation is likely to be common. This shows the complexity of the interrelation of each component as well as the necessity to view them holistically.

3.2 Design

Besides technological and organizational innovations, there is soft innovation associated with shaping the experience of the users through new creative content and/or aesthetic design providing more pleasant, sophisticated, or simplified interactions and symbolic content [9, 39]. These "experience goods" become of value ex post the experience of consuming them and they contain intangible and subjective value criteria spanning social, cultural, economic and political influences [28, 40]. The creative industry differs from many other industries as their products are fundamentally intended to provoke particular kinds of response and emotions from their users. This increases co-production with the consumers as those producing creative content respond to the experiences of consumers and users, and make changes to their offer as a result [9]. It leads to a higher understanding of consumer wants and needs and plays an important strategic role in product and service development [41]. This can be achieved through redefining what a product means to a consumer and proposing an innovation to the consumer through the market [42]. Though the view of content as an area for study has been neglected as it could be viewed more as an issue of cultural creativity than as one that can be addressed in terms of innovation processes [23]. Innovations can range from the creation of completely new genres of content which can lead to new markets, to redesigning familiar content within a new context such as video games based around characters or narratives developed in other media that require extensive content innovation, with the development of a more complete games world, tasks and activities for the player [9]. This can also apply to the modularity of a product. Modularity is a design structure of production that permits new product variants to be created using the same structure [43]. This type of soft innovation depends upon technological innovations. It is characterized by innovations in the aesthetics of functional products and can be measured by the number of product variant launches [6, 43]. New technologies can present opportunities for process innovation in terms of distribution channels and new business models as well as product innovations from a consumer perspective [40]. It is difficult to separate content innovation from technical innovation in video game development as video games are both technology based software products as well as

aesthetic, interactive entertainment [26]. Technology is closely connected to content, influencing each other. It is shown to enhance the effectiveness of a particular strategy, virtually integrating and widening the boundaries of the physical environment, function as a platform for information distribution, and support value co-creation within the service systems networks [19]. Content, design, process or artistic innovation are perceived to be part of the 'normal' process of developing video games, and so remains hidden from traditional analysis [9]. Changing or adding features in video games can alter the game play and experience drastically, resulting in players either seeing the change as positive or influence the players negatively. Tschang [26] uses an example from Diablo where a feature was implemented in a way that did not save the "world state", making frustrated players replay a large sequence of actions to reach the same world state. This experience, whether positive or negative, will influence the value of the game, as consumers generate new value and new opportunities for the creation of value by consumption [28]. Content indirectly supports game play by building a sense of immersion and story progression when players control content such as characters or get feedback by seeing the onscreen consequences of their actions. This is again supported by technology as it is the driver behind each action [26]. So the actual value of the video game is in what happens to players when playing the game. This is the crucial intangible information that forms the product of an experience good [9, 28].

3.3 Market

As soft innovation is difficult to measure through traditional indicators such as R&D and patents, observing the market share for new aesthetic products (e.g. video games) can help assess their overall contribution. As more units are sold or the greater the market share is, the greater its significance is considered to be [6, 7]. One can also view the number of variants as a measure of creativity in the industry as well as trademarks, design rights and copyright data [43]. The long tail of niche markets is important for the creative industries as small-scale production becomes possible and consumer's churn is easy. This fosters diversity and creativity as well as generates pressure on producers to create distinctive goods [29, 43]. Increased volatility in the demand environment is categorized as prompts for organizational structures for innovation such as exploitation of new technology [44]. In the video game industry, consumer demand for increasingly complex games and sophisticated interfaces constitutes a major driver for innovation, though the difficulty in forecasting demand can hinder innovation [9]. Through experiential marketing, companies can try to understand the customer "experience" during the consumption of goods and services [26]. Understanding customer needs is critical for the survival of the company [32]. In video games the core value resides in the fun as entertainment products. The emotional satisfaction and enjoyment from playing a video game is an essential part of the viability of the product [22]. "Videogame buyers are simultaneously seeking either escapism or the experiencing of alternate realities, the challenges of problem-solving, the thrill of competitive play" [26]. The combination of technology and design creates an interactive experience where soft innovation is promoted [26]. Choi [22] points out that when an online game is released to the market the company tries to attract gamers and develop online communities with the goal to reach critical mass for number of subscribers. However,

a games' viability is not dependent on reaching critical mass if they are able to maximize resources and insert non-technological soft innovation based on new ideas and concepts. The trend towards non-technological and soft innovation increases as the entrance to the market becomes more difficult [9]. Another strategy is to move new products to new markets, for instance video games for educational purposes. "These developments are driving innovation in the creative industries, not least because competitors use innovation to gain market share and enter new markets" [9]. Internal soft innovation can be branding and marketing with changes in product design or packaging, including aesthetic and intellectual variants with no functional improvements to the existing products [43]. Bolton [35] recognized the importance of branding and market positioning for the company's long term success. A game's financial success relies heavily on marketing, and the standardization of genres enables easier packaging, display and sales of games by non-specialist retailers [9].

3.4 Networking

The complexity of the environment and high knowledge demand increases the need for cooperation to succeed in innovation [31, 45]. New knowledge is gained through experience and networking leading to new ways of doing things which influence the innovative activities in an organization [9]. The combination of creative individuals with higher education institutions and external firms increases innovative ideas and knowledge produced as well as enables creativity, driving hard and soft innovation and the chance to adapt and survive in the competitive market [30, 45, 46]. The company should combine its own innovation resources with external inputs such as "external knowledge (e.g. technology developed by other organisations) or specialised R&D services to ideas for innovations generated by suppliers, competitors or customers, including co-operation with partners for developing innovations" [47]. In the video game industry relations are sometimes formed between development studios and higher education institutions such as universities where universities gain new knowledge through guest lectures, professional advice on content of game design curriculum, and the companies provide students placement in projects [9]. The creative industry involves actors at all stages of the value chain where innovation is shaped and co-produced through interaction between teams, companies, and consumers [29, 48]. Consumers may become significant in the development process of a product as they give social and cultural signals influencing the evolution of the product or consumers can play a more direct role in the innovation process by directly co-creating with the producers [28, 49]. Involving customers early in the development process can help to increase the products viability in the market; otherwise the value of the product might be unclear and the customer might not accept the final product [33]. Miles and Green [9] note that publishers and games developers have increasingly recognized the sophistication, intelligence and potential of their customers. 'Ideas harvesting' and user-testing have become an important and embedded element of the development process, and developers are starting to permit the insertion of user-generated content into their games [9]. Several business models have utilized the creative solutions through customer co-operations, such as online stores, micro-transactions, and crowd funding services [50]. Bakhshi and McVittie [51] point out that there is some evidence

that companies acquiring information from customers are likely to enjoy greater returns in terms of improved product range and quality. Networking is shown to enhance innovation and competitiveness, presenting arenas for knowledge transfer, creating trust, sharing risk and gaining access to new technology as well as being a facilitator for sharing tacit knowledge [30]. The risk of revealing sensitive and confidential knowledge while opening up the innovation process is apparent, making it ever more important to find ways to sustain the relationship and knowledge exchange while effectively protecting businesses secrets [21]. This relies on building trustworthy relationships.

4 Discussion and Conclusion

Four streams have been identified in the literature on soft innovation. These are *management, design, market and network*. From the literature, the streams are identified and discussed which indicate the necessity and importance of combining hard and soft innovation for the success of the company in a rapidly changing and demanding video game market. Soft innovation management involves culture and knowledge management, managing networks, new strategies or marketing concepts, relationships with other companies or users, as well as managing the production of content [31]. In a complex and creative environment such as the video game industry, it becomes extremely important to manage the process with a holistic view on both the hard and soft side of innovation. It is difficult to separate content innovation from technical innovation in video game development as video games are both technology based software products as well as aesthetic, interactive entertainment [26]. The evolutionary nature of the development process requires technology which supports modularity that permits new product variants to be created using the same structure [43]. It needs to support the organizational system, the design and the mechanics of the game and provide room for the game to evolve throughout the process as the company adapts to the demands of the customers and the changes in the market. Video games are experience goods where the experience of the user is defining of the quality of the game. Shaping the experience of the user through content can influence either negatively or positively as changing or adding features can alter the game play and experience drastically. It is therefore only after the user plays the game the value becomes apparent. Involving users early in the development process is therefore an important strategy to increase the likelihood of product success once released to the market. This involvement can generate crucial intangible information that forms the product [9, 28]. Through experiential marketing, companies can try to understand the customer "experience" during the consumption of goods and services [26]. The more challenging the market becomes the need for soft innovation increases. Changes in design or packaging helps differentiate the product and increase the possibility to gain competitive advantage. In the video game industry, the importance of branding and market positioning for the company's long term success relies heavily on marketing, and the standardization of genres that enables easier packaging, display and sales of games by non-specialist retailers [9, 35]. Combining internal innovative resources with external inputs such as educational institutions, companies, consumers or competitors increases

tangible and intangible knowledge critical for the company as well as enables creativity as a driver for innovation to adapt and survive in the competitive market [30, 45–47].

As the literature shows, video game companies can generate competitive advantage and strong market positions through hard and soft innovation as the game development process is an evolutionary and highly creative process. Further empirical research is needed on this area. A longitudinal study of companies with different strategies in the video game industry can help gain further understanding of how soft innovation in combination with traditional technological and product innovations influence the development process and the success or failure of a company. Each stream can be an area of study for further research. It could also be argued that these streams will be present in other industries. A comparative study with other industries to see similarities and differences of the streams and the video game industry would be of interest.

Limitations of this literature review are the choice of concepts for the search method, as there are other concepts such as service innovation that encompass soft innovation and due to time limitations were omitted in this review. Thus, the search results did not encompass full coverage of relevant literature on the field of soft innovation and soft innovation in the video game industry. Therefore, it is natural to assume a broader area of this topic may have been excluded.

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