
Customer Involvement in the Game Development Process¹

Kaja Prystupa-Rzȳdca², Justyna Starostka³

Abstract

The creative industry is a fast developing sector of economy in many countries. Growing competition in this area has led many companies to implement strategy of users' involvement in product development in order to deliver products that are more aligned with customers' needs. On the other hand, the attempt to align the customers' expectations with artistic creativity may create tensions. Therefore, the aim of the research is to examine the methods of users' involvement in product development and real impact of the users on project design. The obtained findings are based on two-year qualitative research project conducted in game development companies.

Keywords: *user involvement, game industry, new product development.*

INTRODUCTION

In recent years, creative industries have become increasingly important to the economies of countries. Creative industries include those creative enterprises that are oriented especially towards the market and engage in creation, production, distribution and/or transmission of creative goods and services through the media (DCMC, 2008). According to the European Commission, the future of Europe lies in leadership in the area of creativity and innovation, as it is *"an essential part of a post-industrial economy, which is increasingly demand-driven, user-centered and which is more focused on the experience taken out of products and services"* (Tera Consultants, 2010).

Companies that operate in these sectors are struggling with the challenge of how to combine creativity (i.e., artistic activity) with expectations and needs of the customers, whose voice must be taken into account. The process of identification of customer needs is becoming increasingly difficult (Cavusgil,

1 This paper is a result of a research project titled: Alternative sources of social capital in management practices within organizations, run at Kozminski University and funded by National Center for Research and Development in Poland.

2 Kaja Prystupa-Rzȳdca, Ph.D., Department of Management, Kozminski University, 57/59 Jagiellońska St., 03-301 Warsaw, Poland, e-mail: kmprystupa@kozminski.edu.pl.

3 Justyna Starostka, Ph.D., Department of Management, Kozminski University, 57/59 Jagiellońska St., 03-301 Warsaw, Poland, e-mail: jstarostka@kozminski.edu.pl.

Calantone & Zhao, 2003), as managers are facing a new generation of buyers who expect higher product value as well as a more precise fulfillment of their needs. As a result of these changes, one fast-developing trend is the growing importance and role of consumers in the activities of companies (Pralhad & Ramaswamy, 2004b; Ramaswamy & Gouillart, 2010). This is especially evident during activities related to new product development processes (Hoyer, Chandy, Doroti, Kraff & Singh, 2010; Janssen & Dankbaar, 2008).

Often, companies decide to “transfer” design/creative activity from the company to the customers. From the business perspective, this is a profitable solution (Hippel, 2006). Arguably, however, user involvement can be contradictory to the artistic spirit of a design team. Work in game development companies is a perfect example of such tension. On the one hand, game designers want to create a “masterpiece”, demonstrating their creativity and artistry; on the other hand, the game has to meet the needs of users, so some trade-offs are necessary (Prystupa-Rządca, 2014).

Therefore, the purpose of this article is to examine how game development companies introduce users’ involvement into the process of game development. We attempt to answer two research questions: (1) what are the methods of user involvement in the process of game development and (2) in what way the voice of the consumer affects the work of the design project team?

In the first part of the article, we present an overview of literature in the area of changing customer engagement in the new product development process. In the second part, we outline characteristics of the game development process. In the third part, we describe methods of our inquiry and our rationale for choosing particular cases. Finally, in the fourth part, we describe two organizations that have used users’ involvement in game development process.

LITERATURE REVIEW

Role of users in new product development

The concept of co-creation is an emerging area of study in business, marketing and innovation research; it describes how customers and end users can be involved as active participants in the design and development of personalized products, services and experiences (Pralhad & Ramaswamy, 2004; Etgar, 2008; Payne, Storbacka & Frow, 2008). It is based on the development of customer participation platforms, which provide firms with the technological and human resources, tools and mechanisms to benefit from the engagement experiences of individuals and communities as a new basis of value creation

(Tanev et al., 2010). Currently, it is essential for companies to start engaging customers more actively (Prahalad & Ramaswamy, 2004, p. 7).

We can identify several emerging streams of discussion in the area of the value co-creation research. Of these, three seem to be the most common: (1) the general management perspective (Prahalad & Ramaswamy, 2000; Prahalad & Ramaswamy, 2004; Etgar, 2008; Payne et al., 2008; Ramaswamy & Gouillart, 2010); (2) the service-dominant logic (SDL) perspective (Vargo and Lusch, 2004; Vargo, 2008); and (3) the new product development perspective (Fang, 2008; Thomke & Hippel, 2002; O'Her & Rindfleisch, 2010). In this article, we contribute to the last of these perspectives, as we try to identify and explore the role of users in the new product development process. As we can identify in the literature, although the body of research is growing, relatively little is known about how customers engage in the co-creation of value (Payne et al., 2008).

Traditional ways of customer involvement

There are many forms of customer participation. Kaulio proposes three stages of customer development: design for, design with and design by (Kaulio, 1998). At the 'design for' level, customer data are the only input in the design process. At the 'design with' level, during market tests different solutions/concepts are shown to customers, allowing them to react to and select or reject different proposed solutions. Finally, the 'design by' level is the participatory stage, where customers actively participate in the design process (Kaulio, 1998). Other authors have shown that, during the new product development process, customers may play two distinct roles (Fang, 2008): (1) as information providers and (2) as co-developers.

In the traditional approach, customers are treated as a source of information. This concept can be understood in different ways. For example, using Kaulio's stages of customer development mentioned above, the design for and design with stages fall into this category (Kaulio, 1998). The main tool for collecting data about the needs and expectations of customers is marketing research, in which customers' role is limited to that of information providers who deliver feedback. The literature provides many different methods of market research that can be used during the NPD process, ranging from simple interviews or focus groups (Greenbaum, 1998) to more advanced techniques like conjoint analysis or SIMALTO (Green & Srinivasan, 1990; Orme, 2005). Many researchers also identify listening to complaints as a valuable source of information about customers' needs and expectations, especially those that are unmet (Resnik & Harmon, 1983; Tax, Brown & Chandrashekar, 1998).

Although they are grounded in theory, these methods are often faced with criticism. The exchange of information between the company and the user is iterative in nature and may occur repeatedly until the product meets the expectations of the surveyed users. Some researchers show time extensions, increasing costs of product development, and limitation to a relatively small sample of the market as the major drawbacks of this approach (Mahajan & Wind, 1992, p. 143). The obtained information is inherently ambiguous, as consumers often are unable to articulate their needs clearly, or their needs may change as they proceed to use a given product (Rosenberg, 1982). Moreover, the perception of users is limited to current products and solutions, as they cannot imagine and give honest feedback about something they have not yet experienced (Leonard, 2002).

Co-creation with customers

The more advanced form of customer involvement is to treat them as co-developers. This trend is often called the democratization of innovation (Hippel, 2006). Companies have started to look for other ways to increase the efficiency and effectiveness of their innovation processes. For instance through active search for new technologies and ideas outside of the firm, but also through cooperation with suppliers and competitors, in order to create customer value. One example of this is the “Connect and Develop” strategy of Procter & Gamble, through which more than 50% of new product ideas come from outside the company (Huston & Sakkab, 2006; Sakkab, 2007).

Using the customers-as-innovators approach, a supplier provides customers with tools so that they can design and develop the application-specific part of a product on their own. This shifts the location of the supplier/customer interface, as the trial-and-error iterations necessary for product development can now be carried out by the customer only (Thomke & Hippel, 2002).

The most advanced method of customer involvement is to create a toolkit for user innovation (Franke & Piller, 2004). Such toolkits are coordinated sets of “user-friendly” design tools that enable users to develop new product innovations for themselves (Thomke & Hippel, 2002). They give users real freedom to innovate, allowing them to develop producible custom products via iterative trial and error. Through toolkits, users can create a preliminary design, simulate or prototype it, evaluate its function in their own user environment, and then iteratively improve it until they are satisfied. As a result, the construction and testing of the product shift from the company to the user, thus bypassing the lengthy process of “guessing” customer preferences within the company.

Hippel shows that most user-developed products and product modifications are developed by lead users. These are members of a user population with two distinguishing characteristics: (1) They are at the leading edge of an important market trend and thus are currently experiencing needs that will later be experienced by many users in that market, and (2) they anticipate relatively high benefits from obtaining a solution to their needs and thus may seek to innovate (Hippel, 2006, p. 38). The toolkit approach works at the individual user level. In many cases, however the consumer community can be developed. Many researchers indicate that individual users do not have to develop everything they need on their own; rather, they can benefit from innovations developed and freely shared by others (Hippel, 2006).

Role of users in game development

The game industry is a rapidly developing sector of world economy, which exceeded 79 billion dollars in 2012 (Gartner, 2013). This pace of development was induced by the emergence of online distribution and new gaming platforms (mobile and social platforms), which created a space for smaller organizations.

Game development is considered a risky business venture due to rapidly changing industry trends and nuanced customer preferences (Prato, Feijoo, Nepelski, Bogdanowicz & Simon, 2010). To minimize such risk, companies typically test their products prior to official launch. For small companies, the need for a rigorous testing phase is even more essential, as they depend much more on the success of each individual game than large corporations do. This is because they have much more limited financial and personal resources and thus are more prone to the risk of failure and bankruptcy (Dovey & Kennedy, 2011).

Often, small companies invite individuals from outside the organization to test their products, using different strategies of their implementation onto the project. They vary in their decisions regarding when and from where to engage outsiders, how to communicate with them, and how they should protect their product legally (Latusek & Prystupa-Rządca, 2014).

Smaller organizations with limited budgets that cannot afford to pay testers may decide to use innovation communities, which may be defined as “as a group of unpaid volunteers who work informally, attempt to keep their processes of innovation public and available to any qualified contributor, and seek to distribute their work at no charge” (Flemming & Waguespack, 2007, p. 166). The development of the Internet has allowed companies to maintain closer relations with their clients through forums and online communities (Kerr, 2011).

Game development is conducted in the same way as project development. There are various methodologies for the production process; however, the most common is Agile (Cohen & Bustamante II, 2010), which involves game development without a prior complete definition of a project's milestones. Therefore, it is possible to flexibly adjust the product to changing market trends. Initially, only a basic plan for the project implementation is constructed, and the details emerge later at each milestone. This methodology is based on project management with frequent supervision of requirements and solutions and with parallel processes of adaptation. The project is conducted in iterations, which means that, at each stage of production, the game is tested, appropriate requirements are collected and solutions are found. Game development is composed of four phases:

- 1) Concept development- decision about type of the game and targeted segments.
- 2) Preproduction – strategic plan of implementation, division of responsibilities, demo version.
- 3) Production.
- 4) Testing phase:
 - a. Alpha: development of basic structure of the game.
 - b. Beta: tests of a fully playable game.

Research methods

The aim of this study was to examine the role and nature of customer engagement in the game development through an innovation community. To gain deep knowledge and observations about the development process, we used an interpretative qualitative approach based on grounded theory (Glaser & Strauss, 1957) and the case study method (Yin 2003). According to the latter, the choice of the unit of analysis is subordinate to the purpose of the research; hence, it is not random but is a result of a conscious selection process. To achieve our main goal and to explore different approaches, we decided to conduct and compare two case studies. Basic characteristics of the companies are presented in Table 1.

The first case presents a small company called Cubicon, which, despite very limited financial resources and a lack of reputation in the occupied segment, was able to achieve immense success on a global scale with their first product. DAX is the opposite example, being a medium-sized company with a developed reputation and a large amount of financial resources, which allowed them to experiment with different testing tools.

Table 1. Basic characteristics of the examined organizations

Basic characteristics	Cubicon	DAX
Scale of export activity ⁴	98%	40%
Age at the time of inquiry (in years)	1,5	7
No. of employees	4	30
Segment	Visual novels ⁵	Hardcore social ⁶

The techniques of data collection are presented in Table 2. Internet forums, blogs, Facebook pages, Twitter and YouTube were the means of communication between the companies and their consumers. Therefore, electronic data were indispensable for the inquiry.

Table 2. Data collection techniques

Data collection techniques	Cubicon	DAX
Semi-structured interviews	4	3
Blogs (pages)	129	0
Internet forums (posts)	2689	5600
Facebook pages of organizations (posts)	134	140
Twitter (posts)	4768	0
YouTube channels (videos)	7	0
Documentation (pages)	0	86
Notes taken during interviews (pages)	15	18
Literature indicated by interviewees	Gaming portals devoted to specific platforms and segments	
Press releases about investigated organizations	Industry reports, reviews, publications and press interviews with companies' employees	
Segment Participation in industry meetings	GameDay EXPO 2012 Game Industry Trends 2012	

The interviews were conducted in the period of April-June 2012, and the documents used in the analysis were from the period between 20-11-2006 and 29-07-2012 (approximately 643 pages of documentation).

4 Scale of export activity was defined as percentage of turnover that comes from abroad.

5 Visual novel genre: Static game that resembles a multimedia novel or theatrical performance. Most of these offer statistics tracking, requiring the player to build his or her statistics in order to continue the story.

6 Hardcore social genre: Games that are targeted at skilled players but require less engagement than core games. They use social platforms as a vehicle for playing.

Data were coded and analyzed using the qualitative research software Dedoose. To maintain the credibility of the results, the authors used the data triangulation method. The identities of the interviewees in the text are coded according to the agreement between the researchers and the organization under its study.

ANALYSIS/STUDY

Case study 1: Cubicon

About the company

Cubicon was a small game development company that was launched in 2011 by a young Polish game designer named Greg and his former coworker, a graphic designer named Lena. In addition to its founders, it employed only two full-time contractors, both of whom worked with the company from a distance: a Norwegian programmer who had become acquainted with Greg through an online community devoted to Greg's first game, Wizzardy, and who had already had a chance to work on one project; and a British music composer who had also worked earlier with Greg and maintained contact with him through online community.

Means of users' involvement

Communication with users

Having limited experience in the development of visual novels, Greg decided to engage a gamers' community in the production process. The demo version of the game had been posted on the website and made freely available for download. To communicate with gamers, he used his website with the company's blog and online forum. On the blog, he detailed the game development and posted images from the game in order to get feedback. He started using the online forum after five months of productions. He announced the new thread about the game as follows:

Posted by Greg on Mon May 09, 2011 1:09 pm

"The Snow White should be out in just few months from now, so I think it's the right time to start a forum section about it. If you have any questions or suggestions regarding the game, please feel free to post them here. As always, I'll do my best to answer as soon as possible."

The forum was open to anyone interested in Greg's productions and required only simple registration. Forum participants originated from different countries (see Table 3). As the forum was primarily dedicated to the genre of RPG games, the fans of visual novels started to join gradually.

Information about the new visual novel production began to spread through various online communities, where the participants who were interested in this genre constituted a rather small group of which most members knew each other through online interactions.

Table 3. Bios of some lead users

Participant	Description
A	Game producer with 12 years of experience in the industry; journalist of one of the biggest international game portals; winner of East Design Contest
B	23-year-old biology student; fan of RGP and visual novels living in the U.S. (California)
C	23-year-old American studying Japanese linguistics in Japan; fan of visual novels
D	18-year-old American; started playing RPG games; fan of visual novels
E	20-year-old American poetry lover; lives in the Eastern U.S.
F	Australian with a university degree in programming ; tried to develop games on his own

On the forum, a post calculator was installed that enabled tracking of the frequency of each member's participation in discussions. The number of posts written on the forum determined the rank of each participant. Thus, testers could easily determine the engagement of others participating in community discussions. Moreover, being active on the forum allowed participants to build a reputation among gamers.

Users' influence on product development

Game concept

Cubicon's team decided to design games for the visual novel niche genre, targeting the segment of well-educated women aged 20-35. Most clients from this niche were from the United States. The company's owners decided to choose this particular genre due to several advantages it offers, despite their lack of experience in developing such games. For example, visual novels have lower production costs and can be developed more quickly than other games. In order to compensate for their lack of knowledge and experience, the founders conducted extensive market research by reading different forums, blogs and playing games.

Preproduction

Following their research, the founder produced a demo version of a game which they published on the company's website and informed potential

customers through online forums devoted to visual novels. Additionally, they sent the demo to one of the most renowned game developer in the segment to ask him for his opinion and directions.

Production process

During the production process, Greg consulted with gamers about the game on a regular basis.

The founders planned to finish the first version in six months. Unfortunately, after seven months the company began to lack financial resources. After consulting with the gamers' community, Greg decided to launch pre-orders for the game. Pre-ordering allowed users to receive a preview version of the game, to participate in beta testing, and to receive the final game earlier than other gamers. This move allowed the company to continue to work on the game for several months. In addition, Greg began to recognize how many gamers were interested in his production.

Testing

When the first version of the game was completed, Greg invited the pre-order participants to test it. Volunteers received the activating token to the game via email. The beta testing phase was perceived as crucial in game development. As Lena stated:

“If someone claims that he doesn't need to conduct beta testing, he is completely mistaken. (...) Testers play and complain, but for us it is very helpful. Then we publish the product, which is more refined than if we had made it on our own. In my opinion, a good game cannot be produced without beta tests. The beta tests check the gamers' reactions rather than ours; we are often blind to issues because we developed the game.”

For Greg, this phase was crucial. He had seen the failures of developers who did not spend adequate time on beta testing. For Cubicon, it brought additional benefits, as the company did not have experience in visual novel development. Through testing, they were able to gain valuable knowledge about the market specifics. The company lacked financial resources and time to develop software which would monitor gamers' behavior. Therefore feedback gathering was limited to online forum conversations.

The game had a number of problems. One of the most serious of these was that the game did not work on older PC computers and notebooks with an integrated graphics card (it was around 20% of the market). Greg found out that this was the fault of the game engine and needed the help of the programmers from the game engine supplier.

Each day, Greg read the forum and was working on proposed corrections. It took a lot of time and effort, as he tried to reply to everyone; he did not want any of the gamers who had devoted their time to helping with this project to feel ignored. However, he did not agree with all the suggestions. There were two main reasons for this. First, he knew that gamers are not always aware of what they want, as Greg highlights in the following quote:

“The tester says that he doesn’t like the black knight. But the black knight is not the issue; it is the second scene (...) I have to move the second scene after the third one... and the problem disappears. Similarly, people think that they want to play difficult games and win at the same time. (...) this game has to appear to be difficult, but they need to be able to win. If they lost, they would throw the pad away and say that the game is [worthless]. But on the forum, they state that they want it to be difficult. (...) fans do not know what they want. Sometimes you need to read between the lines to understand the problem. With experience it comes easily; it is simply a professional issue.”

Secondly, Greg was eager to introduce some innovations to the genre of visual novels, some of which were not understandable for all gamers. For instance, many people advised him to erase lip movement. It was not a standard option in visual novels, so it was not necessary, and it required a lot of extra corrections. However Greg wanted to include it in order to deliver a higher gaming experience.

On the 16th of August, 2011, the new version was ready for testing. The major bugs had been erased, and a tutorial for gamers had been added. Greg wrote on the forum which parts of the game had been changed and asked gamers to test the new version. This time, there were problems with the IOS version of the game, which was modified numerous times. Greg tried to solve this problem by asking the testers to send details about the device and the number of errors. He then corrected the relevant version and sent the corrected version back to the user. Then the tester played the game again and described the effects on the forum.

The gamers suggested adding such functionalities as the possibility of faster scene scrolling and a description of awards and the exact time of their obtainment. Moreover, there was a long discussion on the forum about the tutorial. The experienced visual novel gamers did not like it, claiming that it spoiled the mood. However, they agreed with Greg that it was a helpful solution for the inexperienced players. Finally, the programmer gave the game to his mother to test it. It was the first electronic game she had ever played, and the tutorial was very helpful for her. Greg wanted to broaden the range of possible clients; therefore, he added the tutorial as an option.

The new version appeared in January 2012.

Table 4. Summary of the project development and the users involvement in Cubicon case study

Production phase	Description of the phase	Users' involvement	Type of data acquired	Examples of implication
Concept development	The founders developed the initial game concept based on available information about market and their ideas	None	None	None
Preproduction phase	The team developed the demo of the game which was published on the website and sent to specialists from the segment	At the end of this phase users commented on the demo and proposed changes.	Customers' expectations, Subjective quality, Technical quality	· Ways of speeding up the dialogues, music in crucial parts of the game
Production	Greg divided work into milestones and the team started to implement it gradually	Greg was taking advice from users about issues the team had doubts about.	Customers' expectations, Subjective quality, Artistic creation ⁴	· Presenting two types of dress of the main character
Testing	Greg and the team were implementing changes that were suggested by the players (selectively)	Purchasers of pre-order had full access to the latest game version. They were playing and delivering feedback to Greg via forum.	Customers' expectations, Technical quality, Subjective quality, market trends	· A special icon signaling that the action could follow the other way; · Small icons for each character distinguish them to more clearly; · Awards for finished levels visible in the main menu; · An auto play option; · The option of faster reading, which was strongly suggested by the readers; · New visual and sound effects

The involvement of gamers in the development process brought significant changes to the game. In the end, the game became much more detailed and sophisticated that it was envisioned to be in the first phase of concept development. Greg analyzed the final version of the game in comparison to the initial plan and outlined a number of changes that were made thanks to users' involvement in testing. For instance, there was a major

change of the nature of the main character. The testers suggested that she was too neutral, so Greg decided to shape her character through decisions made during the game. She could become cruel and calculating or warm and kind depending on earlier player decisions.

To sum up, in the Cubicon case study, users were involved in the preproduction, production and testing phases of the new game development process. However, different types of users (specialists or lead users; everyone with open access via the forum; and users who bought the pre-order version of the game) were involved in different ways (see Table 4).

Case study 2: DAX

About the company

DAX was launched by four former employees of a large IT consulting company who saw the potential in the market of mobile games. Primarily, they focused on localization games (i.e., games that use the localization function of mobile telephones). Games were dedicated to the segment of core gamers. After a few years of functioning, they started to collaborate with the biggest Polish game development studio, DevTa, on a mobile game that aimed at worldwide promotion of their well-known game title in Poland. This experience made DAX visible to publishers on the international market and opened possibilities to participate in various contests. However, when the segment of games produced by DAX slowed down its pace of development, the company struggled with financial instability and finally decided to conduct a strategic shift focusing on the newly emerging segment of social games.

The founders had not previously worked in the gaming industry, so they lacked the necessary experience to effectively develop games.

Means of users' involvement

Communication with gamers

DAX used an Internet forum and Facebook page as the main forms of communication with users. The forum was divided according to products that were developed by the company. The company's website was barely used by DAX – the data had not been refreshed for two years. The forum required only simple registration with basic user information and no personal data provided about the gamers. From the off-topic conversations it could be deduced that most of the users were core gamers. Similar to Cubicon, a post calculator was used.

Users' influence on product development

Preproduction

From the beginning, DAX management planned to offer the game in “free-to-play” mode, which meant that the basic version of the game was available for free but additional functionalities (i.e., weapons, bullets or other equipment) required in-game purchases. The logic of this selling option differed from the one used by the company previously. It was not only important to attract many gamers but also to strongly involve them in playing so that they would constantly play and purchase additional functionalities. One of the company managers reflected on this as follows:

“What we were interested in was to keep the player for 1,2 or even 3 months in the game. The longer we keep him, the longer he plays and the greater the possibility that he will buy something. It is like the supermarket. It is one thing to make people come and another to get them to pack a basket and pay when they leave.”

The game concept was based on a Polish board game, which had previously been physically published by the publishing house Portal, with which DAX collaborated in the past. The game was called Daniello.

However, DAX was initially unable to start the development phase, as the company did not have sufficient financial resources. Most of its products were realized together with partners. That was the case of Daniello as well. A few weeks after the initial game concept development, the managing director, Bart, was informed about a competition organized by the global publisher Monelion with a prize of \$1 million. There were 114 companies registered from 25 countries. DAX sent its application at the very last moment. In two days, they were informed about winning the competition.

DAX used a formalized development process divided into two phases: pre-production and production.

The aim of the pre-production stage was to create a game concept and explore the risk analysis connected with the game development. Moreover, the team was able to verify whether the game was responding to market demands, because the company was presenting the idea to the customers. Feedback collected from gamers allowed the company to save time and finance resources. During this stage, a team of selected employees and company management were formed. The creative director was responsible for market analysis and business risk analysis. The game designer, along with a graphic designer, were responsible for the risk analysis of the gameplay and graphic style.

As part of the market analysis, DAX sometimes conducted interviews with lead users (i.e., the most devoted fans of the company). As noted in an internal company document:

“The most reliable method of market analysis is that of in-depth interviews with gamers conducted in accordance with qualitative methodology (...) If there is no possibility of conducting them, you need to answer questions prepared for an interviewee using your knowledge and knowledge built from benchmarks.”

The subjects of the interviews were gamers’ preferences, motivation and skills. After the interviews, a report with detailed analysis was prepared, and the first prototypes were designed. Prototypes were made with minimal effort designed to verify only the specific issues. For instance, designers created a simple flash game interface in order to present game mechanics. Often several prototypes were developed simultaneously. For instance, if potential problems were identified with the server performance (technology), the climate of the game (aesthetics) and the main mechanism of the game (gameplay), then three prototypes were built to verify these issues.

Prototypes were displayed to users and then a series of observations and in-depth interviews were carried out. Earlier inquiry would have been impossible, as noted by the lead designer:

“You cannot ask the user earlier about the product. (...) Methods that are frequently used by companies, such as focus tests before the creation of a product, do not work here.”

After receiving feedback, the team conducted brainstorming sessions and made more conscious decisions about methods of product development. The pre-production usually lasted for two to three weeks, and it was estimated that at least three team meetings with prototypes presentation and market verification were needed.

Production

The primary objective of the production phase was to launch the product to the market. The pre-production aimed at ensuring the accomplishment of project objectives set in the pre-production phase.

The production process was structured similarly to the pre-production process; it was iterative in nature, with verification of progress after each milestone. Only slight changes in the game concept were introduced in order to ensure stability of the project. In the production phase, despite regular contact with gamers, the company consulted on finished parts of the game with participants, publishers or other game development studios – the specialists/lead users.

The management saw the need for frequent verification of the game project with market needs, as the trends were dynamically changing:

“For social or mobile games, one year is a lot. (...) We conduct tests all the time. Every two weeks, we have a playable version of a game, and we show it frequently to the audience.”

In DAX, the team experimented with innovative methods of user research, such as brain waves analysis, to examine gamers’ reaction to their products. In this way the company was able to gather substantial quantitative data about gamers’ reaction to each scene of the game. Those methods, however, did not prove to be more effective than those previously applied. According to the managing director, the company was not able to use the full potential of such tools.

The lead designer emphasized that in order to acquire useful information from gamers, it was necessary to ask precise and adequate questions:

“We don’t ask whether they like it or not. (...) you can get relatively little information from such inquiries. (...) each gamer would have a million ideas and each would be different. It won’t be knowledge of high quality. The best approach is to choose one thing you want to test – for instance, whether the mechanism used in fights is intuitive and gives the gamers a sense of control and fun.”

After the whole game was completed, the product was given to 100 lead users for beta tests, which lasted two months. This approach allowed the developers to receive immediate feedback and introduce initial necessary changes. The beta testing group was collected from DAX’s fans who voluntarily enrolled for tests on the company’s forum. In the case of Daniello, the company was mostly concerned with the new mechanics of network infrastructure that it was using for the first time. In the next step, the game was passed on to further beta tests, which were available to a larger audience.

The following is an example of communication between the company’s representative and a gamer:

“Gamer: The tutorial is very modest – one short film, so you have to learn almost everything from trial and error. It would be better to do it in the form of a first, short mission during which the gamer tries all the basic options.

The representative: Tutorials will be changed and improved. Ultimately they will be integrated with the game.” (09.09.2012)

Another example:

“Gamer: While exploring the buildings there are many symbols (gas mask, a symbol of the atom bomb, rat). Nowhere is it explained what they mean.”

The company opened a special system for collecting suggestions, which was available on a separate website, where gamers voted which changes should be made first.

In DAX, users were involved in the production process at the very early stage of the game concept development. Similar to the case of Cubicon, three types of users could be distinguished: (1) specialist lead users (from the gaming industry); (2) lead users (fans of the company); and (3) all interested gamers (via open access). See Table 5.

Table 5. Summary of the project development and the users' involvement in DAX case study

Production phase	Description of the phase	Users' involvement	Types of data acquired	Examples of application
Preproduction phase	The team composed of regular employees and managing director prepared few prototypes of the game concept based on available information about market from different online forums and online press, benchmarking and interviews with gamers	Users were consulting with company about the prototypes and were source of information about market trends.	Market trends, Business objectives, game vision, Subjective quality; Customer expectations Game vision	The company chose the segment for which they developed the game. Users selected from prototypes preferred graphic style, of hardcore social
Production	the game designer divided work into milestones and the team started to implement it gradually	Users were delivering feedback after each completed milestone – on average every two weeks.	Technical quality Market trends Customers' expectations	Game mechanics; Reward mechanisms; motorics during fights
Testing	The managing director and the game designer were deciding about changes to be implemented and advised by gamers and the team was implementing them	In the first round of tests (2 months) limited group of gamers were conducting beta tests. In the second round of tests the game was available tor everyone for tests.	Technical quality Customers' expectations Subjective quality.	mechanics of network infrastructure grammar mistakes additional functionalities balance of game costs. Tutorial Explanation of symbols

DISCUSSION

There are many forms of customer participation. Fang (2008) discusses that, during the new product development process, customers may play two distinct

roles (Fang, 2008): of (1) information providers and (2) co-developers. At the same time the “transfer” of design/creative activity from the company to the customers can be contradictory to the artistic spirit of a design team. On the one hand, game designers want to create a “masterpiece”, demonstrating their creativity and artistry; on the other hand, the game has to meet the needs of users, so some trade-offs are necessary (Prystupa-Rządca, 2014).

Therefore, the purpose of this article was to examine how game development companies introduce users’ involvement into the process of game development. We attempted to answer two research questions: (1) what are the methods of user involvement in the process of game development and (2) in what way the voice of the consumer affects the work of the design project team?

In regard to the first research question about methods of user involvement, we found out that both game development companies applied the perspective of users as information providers. Interestingly, the recent research (Fang, 2008) postulates for more advanced methods of user involvement. The tools used to gather feedback varied between the companies, due in part to their financial situation. See Table 6.

Table 6. The comparison of methods of users’ involvement

Area of customer involvement	Methods used by Cubicon	Methods used by DAX
Feedback gathering	Internet forum	Internet forum, special website, brainwave analysis
Ways of overcoming the drawbacks of applied approach	Filtration of information by experts	Precise questions
Primary user involvement	Demo version of the game	First graphics
Free access to test the product	Demo version	2 nd stage of beta tests

Cubicon had only an Internet forum at its disposal, whereas DAX, in addition to information acquired from the forum, had a special website where gamers could vote on the order of implementation of proposed changes and used brainwave analysis.

Both companies were aware of the drawbacks of this approach (i.e., increasing costs of product development (Mahajan & Wind, 1992) and problems with articulation of users’ needs (von Hippel, 1986). The management tried to overcome these problems using different techniques. Cubicon specialists, aware that sometimes users do not know what they want,

emphasized that it was very important to listen and gather feedback, but also to analyze what was “the real message” sent by the users. They pointed out that, in order to acquire valuable information from the opinions of users, it was necessary to have experience – that is, tacit knowledge (Polyani, 1967). Meanwhile, DAX specialists highlighted that it was necessary to ask precise questions about features for which they wanted to get feedback, as general questions such as whether a user liked the product or not, were not valuable during the development process.

In game development, the presentation of the idea of the game was insufficient to gather feedback, as the gaming experience was a necessary condition for feedback (Leonard, 2002). Therefore, both companies involved users at the early stages of game development (Cubicon – demo version; DAX – first graphics) and asked users to take an active part in the development process. Thus, companies were able to implement suggestions on regular basis.

In both companies, lead users played an important role in the game development process. Both market specialists and engaged gamers (fans of the company) were invited to product consultation at the beginning of the development process. In later stages of game development, the product was confronted with a larger audience through an open access mode. In the case of Cubicon, a demo of the game was freely available at the company’s website and the full version of the game was available to all purchasers of the pre-order. In the case of DAX, open access was available at the second stage of the beta-testing to further develop the game.

In reference to the second research question about the level of customers’ impact on the work of the design project team, we found that customers’ suggestions were taken into consideration only in regard to some game features. The results of the inquiry revealed that application of such approach stems from the nature of the game development process (Figure 1). On the one hand, it is an artistic product in which designers’ “gut feeling”, game vision, artistic creation, and a sublime, subjective vision of quality (“flow of the game”) is developed. On the other hand, it may be perceived as a commercial product in which the business objectives, customer expectations, technical quality (understood as the “lack of errors”) and market trends play the most important role.

Users’ involvement was more useful in ‘the game as commercial product’ area, as they delivered feedback about various errors, some unclear processes or the game’s meeting their expectations. In the area of game development as an artistic product, users’ involvement was taken into consideration to a smaller extent. Their feedback was analyzed and sometimes filtered/rejected by the designers. For example, as noted by Greg from Cubicon, while users

indicated that they wanted the game to be difficult, it was necessary for the developers to make the game appear to be difficult while still enabling users to win. The research revealed that such precise division was made in order to avoid tensions between designer's artistic aspirations and customers' ideas in game development process.

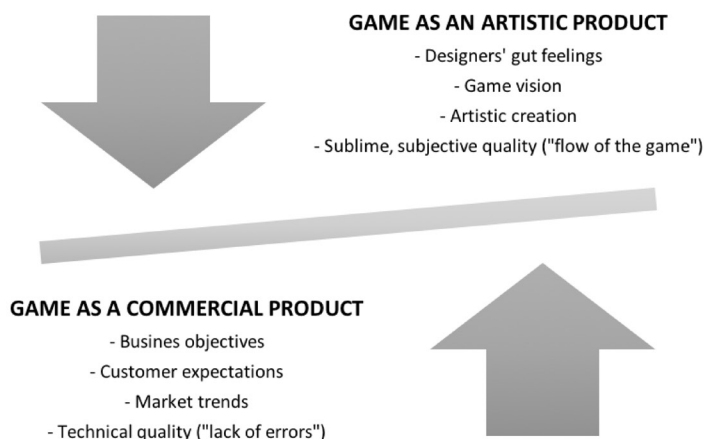


Figure 1. Game development: Artistic versus commercial product

The separation of the creative aspect of game development from the business-oriented approach also provides some explanation about the application of less advanced methods of users' involvement. The application of the co-developers' approach would deprive designers of their artistic privileges by giving too much freedom to the users.

Our research contributed to the new product development literature in two ways. First of all, our research results differ from the indications of Hippel (2006) who indicated that customers-as-innovators approach increases efficiency and effectiveness. In case of game development, however, it might cause additional tension in the development team. Furthermore, they indicate the importance of taking into consideration the industry characteristics and company's culture while selecting the type of users' involvement in NPD. In the second area, we propose a model distinction of two ways of understanding the process of game development process: artistic versus commercial product, which may create specific challenges during the process. Our research clearly indicated that the user involvement was the most useful in the second understanding – game as commercial product.

CONCLUSION

In the literature, various models of user engagement are presented. Recent research has indicated that more advanced techniques, which approach users as co-developers, ensure a better fit to customers' needs (von Hippel, 2006), giving the product a greater chance of success on the market. However, our research pointed out that, in the case of creative industries, market alignment is not the only premise in the selection of the model of user involvement. The balance between artists' creativity and the commercial character of a product has to be found as well, and more advanced techniques of user engagement may interfere with it. Therefore, in the case of companies presented in the article, the management preferred to implement a traditional approach to users' engagement by engaging users as information providers. Being aware of shortcomings of the traditional approach (i.e., problems with understanding consumer needs), they employed experienced designers who were able to 'read between the lines'.

Due to the qualitative nature of this research, the applicability of the obtained results is limited, as they do not allow for statistical generalization. However, they should serve as the basis for more elaborated research that would examine the methods of users' engagement in different sectors of the creative industries.

References

- Cavusgil, S. T., Calantone, R. J. Zhao, Y. (2003). Tacit knowledge transfer and firm innovation capability. *Journal of Business & Industrial Marketing*, 18(1), 6-21.
- Cohen, D. S., Bustamante II, S. A.. (2010). *Producing games. From business and budgets to creativity and design*. Boston, MA: Focal Press.
- DCMC (2008). *Creative industries in Berlin. Development and potential*. Berlin: Senatsverwaltung für Wirtschaft, Technologie und Frauen.
- Dovey, J., Kennedy, H. W. (2011). *Game cultures. Computer games as new media*. New York: Open University Press, McGraw Hill Education.
- Etgar, M. (2008). A descriptive model of the consumer co-production process. *Journal of the Academy of Marketing Science*, 36(1), 97-108.
- Fang, E. (2008). Customer participation and the trade-off between new product innovativeness and speed to market. *Journal of Marketing*, 72(4), 90-104.
- Franke, N., Piller, F. (2004). Value creation by toolkits for user innovation and design: The case of the watch market. *Journal of Product Innovation Management*, 21(6), 401-415.
- Gartner (2013). Gartner says worldwide video game market to total \$93 billion in 2013. *Gartner Press Release*", 29.10.2013. Retrieved from: <http://www.gartner.com/newsroom/id/2614915>.

- Glaser, B., Strauss, A. (1957). *Discovery of grounded theory: Strategies for qualitative research*. Chicago: Aldine.
- Green, P. E., Srinivasan, V. (1990). Conjoint analysis in marketing: New developments with implications for research and practice. *Journal of Marketing*, 54(4), 3-19.
- Greenbaum, T. L. (1998). *The handbook for focus group research*. Thousand Oaks, CA – London – New Delhi: SAGE Publications.
- Hippel, E. V. (2006). *Democratizing innovation*. Cambridge, MA: MIT Press.
- Hoyer, W. D., Chandy, R., Dorotic, M., Krafft, M., Singh, S. S. (2010). Consumer co-creation in new product development. *Journal of Service Research*, 13(3), 283-296.
- Huston, L., Sakkab, N.. (2006). Connect and develop: Inside Procter & Gamble's new model for innovation. *Harvard Business Review*, 84(3), 68-76.
- Janssen, K. L., Dankbaar, B. (2008). Proactive involvement of consumers in innovation: selecting appropriate techniques. *International Journal of Innovation Management*, 12(3), 511–541.
- Kaulio, M. A. (1998). Customer, consumer and user involvement in product development: A framework and a review of selected methods. *Total Quality Management*, 9(1), 141–149.
- Kerr, A. (2011). Player production and innovation in online games. Time for new rules? In: A. Kerr (Ed.) *Online gaming in context. The social and cultural significance of online* (pp. 25-40). London: Routledge.
- Latusek-Jurczak, D., Prystupa-Rządca, K.. (2014). Collaboration and trust - building in open innovation community. *Journal of Economics and Management*, 17, 47-62.
- Leonard, D. (2002). The limitations of listening. *Harvard Business Review*, 80(1), 93.
- Mahajan, V., Wind, J. (1992). New product models: Practice, shortcomings and desired improvements. *Journal of Product Innovation Management*, 9, 128-139.
- Orme, B. K. (2005). *Getting started with conjoint analysis: Strategies for product design and pricing research*. Madison, WI: Research Publishers, LLC.
- Payne, A., Storbacka, K., Frow, P. (2008). Managing the co-creation of value. *Journal of the Academy of Marketing Science*, 36, 83-96.
- Polanyi, M. (1967). *The tacit dimension*. New York: Anchor Books.
- Prahalad, C. K., Ramaswamy, V. (2004). Co-creating unique value with customers. *Strategy and Leadership*, 32(3), 4-9.
- Prato, G. D., Feijoo, C., Nepelski, D., Bogdanowicz, M., Simon, J. P. (2010). Born digital/grown digital: Assessing the future competitiveness of the EU video games software industry. *JRC Scientific and Technical Reports, EUR 24555 EN*. Luxemburg: Publication Office of the European Union.
- Prystupa-Rządca, K. (2014) *Zarządzanie wiedzą w organizacjach typu born global*. Warsaw: Sedno.

- Ramaswamy, V., Gouillart, F. (2010). Building the co-creative enterprise. *Harvard Business Review*, 8(10), 100-109.
- Resnik, A. J., Harmon, R. R. (1983). Consumer complaints and managerial response: A holistic approach. *Journal of Marketing*, 47(1), 86-97.
- Rosenberg, N. (1982). *Inside the black box: technology and economics*. New York: Cambridge University Press.
- Sakkab, N. (2007). Growing through innovation. *Research Technology Management*, 50(6).
- Tanev, S., Thomsen, M. S., Ma, Z. (2010). *Value co-creation: from an emerging paradigm to the next practices of innovation*. The Proceedings of the 3rd ISPIM Innovation Symposium held in Quebec, Canada.
- Tax, S. S., Brown, S. W. Chandrashekar, M. (1998). *Customer evaluations of service complaint experiences: Implications for relationship marketing*. *Journal of Marketing*, 62(2), 60-76.
- Tera Consultants (2010). Building a digital economy: The importance of saving jobs in the UE's creative industries. A study commissioned by the International Chamber of Commerce's BASCAP initiative. Retrieved from: <https://oami.europa.eu/ohimportal/documents/11370/71142/Building+a+Digital+Economy,+the+importance+of+saving+jobs+in+the+EU+s+creative+industries>.
- Thomke, S., von Hippel, E. (2002). Customers as innovators: A new way to create value. *Harvard Business Review*, 80(4), 74-81.
- Vargo, S. (2008). Customer integration and value creation - paradigmatic traps and perspectives. *Journal of Service Research*, 11(2), 211-215.
- Vargo, S. L., Lusch, R. F. (2004). Evolving to a new dominant logic for marketing. *Journal of Marketing*, 68(1), 1-17.
- Von Hippel, E., Katz, R. (2002). Shifting innovation to users via toolkits. *Management Science*, 48(7), 821-833.
- Yin, R. K. (2003). *Case study research. Design and methods*. Thousand Oaks, CA – London – New Delhi: SAGE Publications.

Biographical notes

Kaja Prystupa, Ph.D. is an assistant professor at the Department of Management of the Kozminski University in Warsaw. Her research interests focus on innovation management in high tech companies, including game development studios and collaboration in the virtual environment. Currently, she conducts research in the area of knowledge management in rapid growth ventures.

Justyna Starostka, Ph.D. is an assistant professor at the Department of Management of the Kozminski University in Warsaw. Her research interests concentrate on design and innovation management. In the years of 2009-2010 she was awarded the Visby Program Scholarship from the Swedish Institute.

Abstrakt (in Polish)

Przemysł kreatywny jest szybko rozwijającym się sektorem gospodarki w wielu krajach. Rosnąca konkurencja w tej dziedzinie skłania wiele firm do wdrażania strategii wykorzystującej zaangażowanie użytkowników w rozwój produktów w celu dostarczania produktów lepiej dostosowanych do potrzeb klientów. Z drugiej strony, próba pogodzenia oczekiwań klientów z twórczością artystyczną może generować napięcia. Dlatego celem tej pracy jest zbadanie sposobów zaangażowania użytkowników w rozwój produktów i rzeczywistego wpływu użytkowników na projektowanie rozwiązań. Uzyskane wyniki są oparte na danych zgromadzonych w ramach dwuletniego projektu badań jakościowych prowadzonego w firmach tworzących gry.

Słowa kluczowe: zaangażowanie użytkowników, przemysł gier, rozwój nowych produktów.