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Obstacles and Challenges in the Use of Gamification for Virtual Ideas Communities

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Abstract

Virtual idea communities (VIC) are a relatively new phenomenon in business. These communities, in which distributed groups of individual customers focus on voluntarily sharing and elaborating innovation ideas, are used by firms to integrate customers into the ideation for new product development rooted in Chesbrough's (2003) open innovation paradigm. Developers and decision makers realized especially within the last decade that games or game-like appeals could serve as appropriate gamifications to attract people to participate in VICs. Therefore, gamification gained momentum and has been widely implemented into VICs. The use of gamification does, however, not lead to this intended positive outcome per se. Because of that, obstacles and challenges in the use of gamification have to be considered, which has often been neglected in practice. Therefore, the goal of this chapter is to address this topic and to describe major obstacles and challenges in the use of gamification in VICs.

Introduction

Virtual idea communities (VIC) are a relatively new phenomenon in business. These communities, in which distributed groups of individual customers focus on voluntarily sharing and elaborating innovation ideas, are used by firms to integrate customers into the ideation for new product development rooted in Chesbrough's open innovation paradigm (Chesbrough, 2003) or according to the more general crowdsourcing principle (Afuah & Tucci 2012; Chesbrough, 2003). Based on this paradigm, firms transcend their boundaries in order to engage other resources in developing ideas for innovations (Chesbrough 2003). In this context, customers are seen as a key resource as they often have high product expertise as well as experiences and creativity potential gained by regular product usage (Amabile, 1979; Henle, 1962). Many well-known companies, including DELL ("Ideastorm" VIC), Starbucks, Google, SAP, Intel, and BMW, established VICs (Di Gangi and Wasko 2009).

Firms organize VICs from initial community building to continuous community management. This allows them to constantly control the community, from moderation of the ideation to non-restrictive use of its idea outcome. In contrast to that, already known online user innovation communities, such as open source communities, Wikipedia, or online communities of basketball enthusiasts that share ideas for improving the design or other features of sport shoes (Füller et al., 2007), are run completely by and for users, which makes it difficult for firms to harness the communities' outcome for new product development.

By shifting customer ideation onto the Internet, firms profit from organizational benefits. First, inviting customers into VICs is less complex than organizing face-to-face workshops such as focus groups or lead user workshops. Once the VIC is established, firms can constantly get back to the customer knowledge base. Furthermore, VIC's underlying IT-based idea management systems help

firms to evaluate and select the most promising customer ideas. Second, VICs can help firms attain access to a much broader customer base or a customers' knowledge base, respectively (Leimeister et al., 2009b). This considerably increases the likelihood of identifying a number of promising ideas for product development.

In order to gain these benefits, firms have to be aware of the reasons and motives why people participate in VICs and have to address these motives by creating a positive and adequate experience. Developers and decision makers realized especially within the last decade that games or a game-like appeals could serve as appropriate gamifications to attract people to VICs. Gamification therefore gained momentum and has been widely implemented into VICs. However, the use of gamification does not per se lead to this intended positive outcome. Obstacles and challenges in the use of gamification have to be considered for that reason, which has often been neglected in practice. Therefore, the goal of this chapter is to address this topic and to describe three major obstacles and challenges in the use of gamification in VICs.

The chapter is structured as follows: First, a literature review on the motivation for participation in virtual ideas communities is given in section 1. Following, gamification and its design elements are described in section 2 before the obstacles and challenges of gamification in VICs are highlighted in section 3. Section 4 comprises the conclusion and possibilities for future research.

Motivation for Participation in Virtual Ideas Communities

There is evidence that customers participating in VICs have fun in developing ideas (Antikainen et al., 2010; Jokisch, 2007; Motzek, 2007). By doing so, customers are able to satisfy their creative urge and product-related curiosity or they simply find developing ideas to be intellectually stimulating. This is discussed as the fun-motive.

A second motive is altruism. Customers who are motivated by altruism for example seek to help the firm enhancing existing products or developing new ones without expecting any reward (Jeppesen and Frederiksen, 2006; Schattke et al., 2012). For instance, Jokisch looked at motivations of customers that contribute to the BMW VIC. He found that most participants contribute because they simply want to help BMW (Jokisch, 2007). In other words, some customers have highly altruistic attitudes towards firms.

Third, the product innovation and enhancement-motive is another motive. Some customers feel that by participating in VICs they can influence the firm to incorporate new product features into existing products or even develop completely new products that they find highly valuable in their own context. Their participation thus arises from their individual needs (Antikainen et al., 2010; Jokisch, 2007;

Motzek 2007). Further, some customers hope to accentuate the necessity of improving the functionality or a defect of the underlying product (Antikainen et al., 2010).

A fourth motivation is that customers may consider participating in virtual communities as an effective way to demonstrate their capabilities and skills shown through their contributions (Jeppesen and Frederiksen, 2006; Motzek, 2007). Their achievements in VICs can be used to demonstrate competence to the firm or other participants. Thus, participating can be a good channel for self-advertisement; hence, this motive is called capability signaling-motive or self-marketing-motive (Bretschneider et al., 2015).

A fifth motive is the recognition-motive**.** As Jokisch discovered, customers engage in VICs because they hope to receive positive reactions to their submitted ideas displayed on the VIC's Internet platform (Jeppesen & Frederiksen, 2006; Jokisch, 2007; Schattke et al., 2012). They expect positive reactions from other participants as well as from the firm. In psychological theory, recognition is derived from an individual's desire for fame and esteem (Holmström, 1999; Maslow, 1987). Positive recognition, for example a certain piece of work, is described to be self-reinforcing, as positive feedback enhances the motivation for expending additional effort in this or future work. This pattern is in line with VICs. Idea submitters feel proud when other customers or firms acknowledge their ideas openly within the community, and they perceive this recognition as an additional incentive for creating new ideas or elaborating existing ideas.

The next motive is the learning-motive. Very often, customers engage in a firm's VIC to gain knowledge from the participants in the VIC (Antikainen et al., 2010; Jokisch, 2007). Such customer involvement enhances customers' knowledge about the product, as well as about the underlying technologies. This, in turn, enables them to use the product in a much more comprehensive manner, thereby increasing the potential benefit of product usage (Nambisan, 2002).

A further motive is called need-motive. Customers feel that by participating in VICs they can lobby and influence the firm to incorporate certain product features that are highly valuable in the customer's own context (Bretschneider et al. 2015). This has often been evidenced in the enterprise software product market where customers from a particular industry actively contribute to product development efforts in order to ensure that their specific needs are met by a new product (Hoch et al., 1999).

Finally, the contact to peers-motive is linked to getting in contact with other customers in order to make new friends or to interact with others in the virtual environment of a VIC (Bretschneider et al., 2015).

Gamification

Beyond doubt, VICs are suitable tools for engaging customers in the ideation process, as suggested in many studies (Afuah & Tucci, 2012; Chesbrough, 2003; Henle, 1962). As shown above, customers are encouraged by stimulating manifold intrinsic motivational factors. To do so, VICs are enriched with game design elements in order to positively influence customers' motivation and behavior (Deterding et al., 2011; Huotari & Hamari 2012; Petkov et al., 2011). This follows the thought that games have high potential to foster motivation and creativity (Scheiner & Witt 2013). This application of game elements in a non-entertaining context is called *gamification* (Deterding et al., 2011) and according to Gartner (2012), it reflects a major trend for IT design. Of course, the aim of designing information systems to be more intrinsically encouraging is not new, but started with the beginning of personal computers. Approaches range from the design of user interfaces (Carroll, 1982; Carroll & Thomas 1982; Malone, 1981) to the implementation of hedonic elements (Hassenzahl, 2004) and their motivational effects (Zhang, 2008). Playfulness evolved as aspired user experience (Deterding et al., 2011). Central is the vanishing differentiation between the hedonic and utilitarian purpose of the information system (Dahan & Hauser 2002; Füller, 2010). Examples for such hybrid information systems in the context of VICs can be found in several studies (e.g., Franke & Piller, 2004; Haas et al., 2013; Piller & Walcher, 2006; Witt et al., 2012).

Game Design Elements

The game design elements are the building blocks of the gamified service bundles (Blohm & Leimeister, 2013). These game design elements serve as trigger to encourage users to show a certain behavior and to reach a defined goal (Fullerton et al., 2004; Witt et al., 2012). By forming the game, game design elements are able to foster motivation for participation, stabilize users' engagement, and strengthen their creativity (Scheiner & Witt, 2013). Game design elements can be identified on different degrees of abstraction. Deterding et al. (2011) differentiate between five levels: (1) interface design patterns (Crumlish & Malone, 2009); (2) game design patterns (Bjork & Holopainen, 2004) or game mechanics (Taylor, 2009); (3) design principles (Isbister & Schaffer, 2008); (4) conceptual models (Calvillo-Gámez et al., 2010; Fullerton, 2014); (5) game design methods and processes (Belman & Flanagan, 2010). A comprehensive overview of the most common game design elements is presented by Scheiner et al. (2013). This systemization of game design elements is applied in certain studies (Haas et al., 2013; Witt et al., 2012). Scheiner and Witt (2013) differentiate between nine game design elements, which are explained and discussed in the context of VICs in Table 1.

Table 1. Overview of Game Design Elements	
Game Design Element	*Explanation* (Scheiner & Witt, 2013)
Game Points	Game points are assigned automatically for the achievement of pre-defined objectives (e.g., solving a task, finishing a mission) (Hacker and Von Ahn 2009). In VICs, game points represent direct feedback for a user's performance relative to that of other participants. In VICs, game points are assigned for instance for submitting, commenting, or rating an idea. As all users receive the same number of points for the same tasks, game points are the starting point for competitive behavior as participants are motivated to enhance their activities within the VIC.
Social Points	Social points are assigned by other users (e.g. community rating (Leimeister et al. 2009a). In VICs, this represents direct qualitative feedback for a user's performance, such as the quality of an idea or a comment. In VICs, this can be realized by for example a simple thumb up/down button (as known from *YouTube)* or scales (as the five stars scale known from *Amazon*). Social points both foster the sense of social belonging and serve as competitive anchor, which are important conditions for an effective VIC.
Redeemable Points	Redeemable points represent an in-game currency, which can be spent to purchase virtual or real goods (Füller 2010; Hamari and Lehdonvirta 2010). Thus, it enables an economic system allowing users a certain degree of autonomy for individual development and differentiation. In VICs, redeemable points can be implemented by applying market-based rating mechanisms to rate ideas (e.g., participants can make weighted decisions by assigning different amounts of points to different ideas) or to incentivize the participants (e.g., by exchanging the points for physical rewards).
Levels	Users can rise to new levels by achieving certain objectives (e.g., exceed certain points). Levels indicate a user's past performance and thus enable inter-user comparisons. By that, levels increase the competitive character of a game. In VICs, levels can either be designed as sections, where a game is divided into smaller subtasks while the level of difficulty remains the same (Byrne 2005), or as stages, where the level of difficulty increases continuously (McGuire and Jenkins 2008). The user experiences a steadily growing optimal challenge. A typical application of levels in VICs is the implementation of user ranks.
Leaderboards & Highscores	Leaderboards and highscores enable immediate comparisons of users' past performances. Thus, in VICs, they are highly competitive game design elements and increase the visibility of users' performances (Reeves and Read 2009; Von Ahn and Dabbish 2008). The individual ranking within a group of peers represents a strong motivator for human behavior (Frank 1985) and motivates the participants of a VIC to increase their activities.
Exchange	Users exchange with each other due to competitive (e.g., mutual moves) or collaborative reasons (trade, support, donation) (Blau 1964). In VICs, the exchange between participants represents a core characteristic, as the collaborative development of ideas is the central objective of VICs. Through exchange, users feel as active part of a social group (Sun et al. 2006). Thus, exchange satisfies the need for social belonging. In VICs, exchange is enabled by a private messaging system, commentary functions, activity streams, or forums.
Stories	In VICs, stories can be integrated statically or dynamically. Initial idea descriptions or background stories are examples for static stories and provide a narrative, imaginary frame and basic structure. They create a virtual world where

	users act or enhance the desire to participate. They link information, give meaning to the game, and help to focus on the point (Mallon and Webb 2000; Salen and Zimmerman 2004). Dynamic stories, for example continuing the idea description in a narrative way, enable interactive action where the user becomes the narrator. They allow for insights into the user's opinions and cognitive structures (Bruner, 2009; Buckler & Zien, 1996).
Virtual Identity	Avatars are idealized self-images, which compensate real deficits (Bessière et al., 2007). An avatar increases one's self-esteem and confidence and helps to overcome for instance hierarchy levels (McKenna and Bargh 2000). This is important in VICs, as overcoming hierarchies and silo thinking is a key success factor of VICs. Therefore, VICs often enable participants to create anonymous nicknames. In VICs, these enable individuality and differentiation between participants and support the formation of new hierarchies within the game (Jakobsson, 2002).
Collecting	The collecting of rare items (e.g., badges for submitting the first/fifth/tenth idea, making 20 comments, or rating 50 ideas) works due to the desire to complete a set (Thompson et al., 2007). Collecting represents an additional opportunity to achieve social recognition and supports the competitive character of a VIC, as collected items demonstrate the social status of a user (Danet & Katriel, 1989; Long & Schiffman, 1997).

The game design elements are neither new, nor is their application in a professional context. According to Blohm & Leimeister (2013), the innovativeness of gamification lies in the bundling of these game design elements into *"*comprehensive, IT-based and increasingly ubiquitous enhancing services*"*, which not only provides intrinsic motivation and benefits on its own, but also affects the usage experience of the core offer cognitively, emotionally, and socially (Lee & Hammer, 2011). Thus, the application of game design elements in the context of VICs aims at developing more and better ideas, overcoming hierarchies and silo thinking, and promoting an innovation-friendly corporate environment.

Obstacles and Challenges in the Gamification of VICs

Given the knowledge base stemming from research concerning motives for participation and gamification, gamification illustrates a promising tool to evoke positive effects among participants in VICs and to create a more enjoyable experience for participants. The application of gamification is however not easily accomplished and definitely not without obstacles and challenges. Previous endeavors and scientific research have mainly neglected this side and solely proclaimed its potential benefits and values instead. Yet, gamification can unfold its potential only under such circumstances where obstacles and challenges are addressed adequately. There are three major sources from which obstacles and challenges can arise.

The first challenge concerns the misuse of gamification by developers and decision makers. Gamification is not a standalone solution but describes the application of game design elements in a specific artifact. Developers and decision makers have to be aware that this artifact has to be

constructed in such a manner that the use of game design elements contributes to the creation of an enjoyable experience (Füller, 2006; Scheiner, 2015). Hence, given functionalities of the artifact have to be interwoven with the chosen game design elements. Game design elements are otherwise not perceived as an integral part but as disturbing or distracting elements. Game design elements also have to be aligned with the overall objective of the VIC to guide the activities of participants toward that objective (Scheiner & Witt, 2013). Simultaneously, the motive structure of participants has to be borne in mind in order to offer a working incentive scheme (Blohm & Leimeister, 2013). In practice however, it can be observed regularly that decision makers believe that game design elements unfold their motivational effect automatically regardless of the motive structure of participants. Yet, there is a huge difference between game design elements with a social character and such without. Social points and exchange for instance can contribute to an overall social appeal of the artifact, where the motive of recognition and being in contact with others can be fostered. In all these cases, the misuse can reduce or even diminish the potential of gamification completely. At the same time, misuse can also mean that gamification is too effective and becomes an end in itself or a burden for participants. Kevin Werbach and Dan Hunter (2012) point to the misuse of gamification where it is too effective and becomes a burden for participants. They describe the case of Disneyland hotels in Anaheim, where the performance of laundry workers was measured with a gamified system and was displayed in form of leaderboards. The introduction and implementation of this system negatively influenced the working climate by creating an atmosphere of fear. Ian Bogost argued for this reason in his blog provocatively in 2011 that gamification resembles a "perversion of games" and suggested the term "exploitationware". To avoid these negative consequences, Schell (2008) advocated that developers and decision makes should be aware of the danger of gamification and their responsibility in order to ensure an ethical use. When rewards are an end in itself, reaching a new level, improving the own position in a leaderboard, or collecting a new badge can become so important that participants direct their focus of activities solely on these rewards, while the underlying objective of the VIC is pushed into the background.

The second challenge is closely linked to the previous challenge. If rewards become too important, participants could start to game the system. In cases where self-marketing is a main trigger for participation, participants could especially try to a gain an unfair advantage by manipulating the system. A common approach to play a VIC illustrates the formation of cartels. Participants build groups and show a concerted behavior in order to promote their goals and ideas. This is expressed for instance by awarding each other points, by writing positive comments to each other, or by trying to negatively influence the public evaluation of competing ideas. A longitudinal study by Scheiner (2014) indicated for instance that participants in an online idea competition were generally aware of this issue and pointed to its possible and inherent negative consequences for participation. The remaining question is, however, at what point manipulation starts to harm the motivation of participations and when it starts to inhibit the intended objectives of VICs. Completely impeding

manipulation is an unrealistic and unachievable endeavor. Participants will always explore and exploit ways to gain an advantage. Therefore, the main duty of developers and decision makers is to observe VICs for signs of manipulation and to decontaminate substantial threats for VICs.

The third obstacle and challenge arises from the so-called overjustification effect. The overjustification effect argues in general that external incentives can harm intrinsic motivation. Although it is still debated whether this effect is truly existing (Lepper et al., 1999), the prevailing opinion assumes this negative effect. The work of Deci et al. (1999) especially convinced scholars and practitioners of this cause-effect relation. Deci et al. (1999, p. 653) showed that "tangible rewards had a significant negative effect on intrinsic motivation for interesting tasks, and this effect showed up with participants ranging from preschool to college, with interesting activities ranging from word games to construction puzzles, and with various rewards ranging from dollar bills to marshmallows". The use and implementation of game design elements in VICs could subsequently influence the motivation of participations negatively.

Conclusion and Future Research

Although gamification describes an interesting and promising approach to enhance the experience in a VIC, its application includes obstacles and challenges. This section highlighted three important obstacles and challenges, which have to be considered when game design elements are included in VICs. But how could design elements for gamification in VICs that correspond, for example, to customers' fun and learning motivation look like? For instance, managers of VICs may define specific problems that go beyond customers' personal possibilities at a first glance and thereby challenge customers to solve these problems by developing ideas. In this sense, it might be good to decompose these problems into various tasks, subtasks, and milestones. Users can solve such tasks by trial and error and repeat them until the problem is solved. This stimulates not only fun, but also learning through reaching particular skill levels after solving a task or subtask or reaching a milestone. In general, by designing tasks of increasing difficulty in applications of gamification, cognitive structures for the internalization of learning contents may be systematically created, meaning learners enter a flow state and the above-outlined growth principle will be applied (Simoes et al., 2013).

Another design element for gamification in VICs might be competition. Managers of VICs may organize ideas competitions in the VIC for a defined, short runtime and call for ideas to a certain topic. An idea review committee could evaluate submitted ideas and by doing so determine the winner. Such ideas competitions are not new in the scope of open innovation. For example, Leimeister et al. (2009) described how firms make use of ideas competitions as a standalone instrument – as an alternative to a VIC - for integrating customers into the ideation for new product development. However, ideas

competitions as an integrated gamification concept for VICs are new. In this sense, ideas competitions stimulate not only fun, but also learning by putting participants into the flow state.

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