Innovation Communication in Virtual Worlds: A Multiple Case Study Analysis in Second Life

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Contents

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Innovations help to ensure a company's success if they are communicated appropriately in their innovation ecosystems. Virtual worlds offer interesting possibilities in this context. On the basis of a multiple case study analysis, this paper examines the fields of use, the potential and the limits of innovation communication in the virtual sphere. The area of study was the 3D online world "Second Life". It is characterized by its high profile, a realistic design and far-reaching business opportunities and has, moreover, already provided first examples of how companies have used such online communication in innovation management processes. With the help of case studies of eight companies from different industry sectors, the potential for innovation communication available in virtual worlds will be illustrated: these include the identification of trends, the generation of ideas, marketing new products and positioning the organization behind these products as an innovator.

1 Introduction

In order to achieve sustainable economic success in the context of global competition, companies need to optimize their communication activities within the innovation process. In addition to identifying relevant trends at an early stage and generating marketable ideas, it is becoming increasingly important for organizations to sufficiently communicate the usage and the meaning of their novelties and to position themselves as reliable innovators. Virtual worlds offer far-reaching possibilities within the innovation management process. Although several companies have ended their involvement in Second Life since the media hype surrounding it in 2006/2007 (e.g. AOL, Apple and Pontiac), virtual 3D worlds are experiencing a resurgence in popularity. Social online networks are becoming established, multi-player online role-playing games are considerably growing, and virtual 3D worlds are still of interest in the economy, society and the media. Furthermore, research institutes and companies are also discovering the potential such online environments provide for interaction with internal and external stakeholders and audiences. Virtual worlds appear to open up a wide range of options for innovation communication. To date, however, these have not been examined in any depth.

This article contributes to the systematic analysis of the potential, the limits to and the challenges facing innovation communication in 3D worlds using the example of Second Life. The purpose of this study is to provide a basis for the evaluation of

current and future involvement in online social media by outlining the use of virtual worlds in innovation communication.

2   Research Issues

2.1   State of Research

There are already some studies which explore the use and potential of 3D virtual worlds in innovation management. Several papers investigate the virtual product experience and customer participation in designing and manufacturing new products (Chase, 2008; Franz & Wolkinger, 2003; Füller & Matzler, 2007). Researches under the terms "Avatar based Innovation" or "Virtual Co-Creation" analyze the challenges and opportunities of Open Innovation approaches with the online integration of customers (Kohler, Matzler, & Füller, 2009). Other investigations focus on marketing aspects of 3D worlds (Hemp, 2006) including public relations, advertising (Barnes, 2007; Thomas & Stammermann, 2007) and branding (O'Guinn, Allen, & Semenik, 2008).

As for existing researches on innovation communication, they analyze conceptual frameworks (Nordfors, 2006; Zerfaß, 2005b; Zerfaß & Huck, 2007), the interlinking between corporate communication and journalism (Mast, Huck, & Zerfaß, 2005; Mast, Huck, & Zerfaß, 2006) as well as different communication instruments and formats in a focused view (Zerfaß & Möslein, 2009).

To date, however, the metaverse has not been explored as a platform for innovation communication. Neither has been investigated which role virtual worlds can play for companies when interacting with the public attention, various stakeholders and audiences in their innovation eco systems.

2.2   Innovation Communication

The concept of innovation communication addresses a relatively new field within the area of corporate communication. The term and concept was coined and strongly carried forward by German researcher from the University of Hohenheim and of Leipzig. In their understanding – which we follow – innovation communication is defined "*as symbolic interactions between organizations and their internal and external stakeholders, dealing with new products, services, and technologies*" (Mast, et al., 2005; Mast & Zerfaß, 2005; Zerfaß, Sandhu, & Huck, 2004). It covers all systematic communication activities which have the objective to foster technological, economic and social novelties; this includes activities as communicating the novelty itself, creating an understanding and trust in it, influencing its socially shared meaning pattern, and positioning the organization behind it as an innovator (Zerfaß, 2009).

Even though innovation communication is a sphere of activity in corporate communication, it demands own methods and concepts being tailored to the special features of novelties. As researches show (Mast, et al., 2005; Zerfaß, Swaran, &

Huck, 2004), the challenge lies in the fact that new ideas and inventions are difficult to explain: for the most part they are complex and abstract while their benefits and final target groups are initially unclear. Mainly because of their novelty, there is a lack of examples and experiences that could be used for explaining. Thus, one task of innovation communication is to anchor a clear, positive image of the new product, service, process, or technology and its added value in the minds of relevant stakeholders. People must have the opportunity to acquaint themselves with it and to trust the innovative power of the company behind. Moreover, communicative interactions between the organization and its audiences need to create social practices of the novelty. This is important as "innovation is more about creating meanings than it is about creating artifacts" (Toumi, 2002).

This means, innovation communication is not simply transmitting information about a new product or service to relevant stakeholders as classical researches in innovation management and marketing focus on (e.g. Mohr, Sengupta, & Slater, 2009; Trommsdorff & Steinhoff, 2007). In a social scientific understanding, innovation communication is rather also about creating common meaning pattern and establishing joint social practices (Zerfaß, 2005b, 2009).

However, communication is key to make an innovation system work (Nordfors, 2004, 2006). An innovation system is built up by a complex set of interactions between those people, enterprises, institutions, research bodies, investors etc. that are essential to an innovation process (Lundvall, 1985). Therefore, the incorporation of all internal and external stakeholder groups and a close collaboration between employee communication, marketing and public relation (PR) are needed. To partner with innovation journalism plays also an essential part here.

The objectives of innovation communication differ according to the stakeholder group (Zerfaß, 2005b, 2009). The purposes of internal innovation communication are primarily to support employees but also to assist research and development (R&D) partners in searching for ideas and concepts, in initiating dialogue and to enhance product and process development. The task of innovation marketing is to optimize the introduction to the market and thus the diffusion and adoption of new products among customers, partners and competitors. The purpose of innovation public relation (PR), meanwhile, is to ensure an innovation-friendly environment throughout the entire innovation process in order to avoid potential opposition from decision-makers in politics, interest groups and the mass media (see Figure 1).
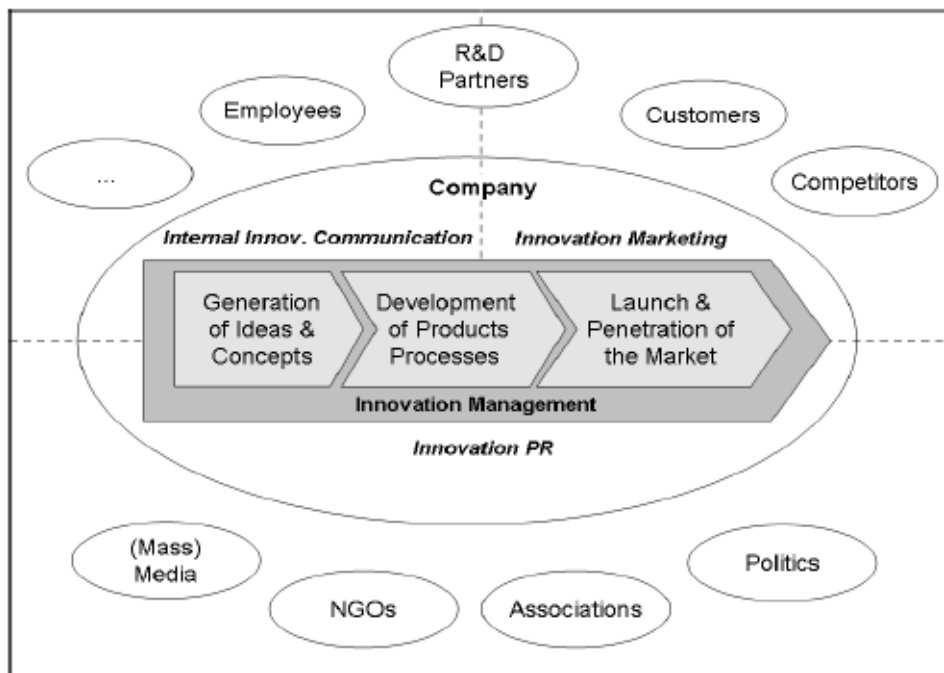
Figure 1: Innovation Communication and Related Stakeholders (Zerfaß, 2005a)

2.3   Virtual 3D Worlds

Virtual 3D worlds are artificial environments simulated via computer with a three-dimensional look and feel in which users can interact with the help of a player, called an avatar (Kim, Lyons, & Cunningham, 2008). In terms of their appearance, these may mimic the real world, but can also represent fantasy worlds. The common feature of all virtual worlds is that, due to their digital realization, they are not subject to any of the physical laws of reality.

There is a variety of different virtual worlds (Book, 2009), which, in theory, can be accessed from every Internet-enabled computer, irrespective of location and time. According to Fred Cavazza (2007), virtual worlds can be allocated to one of four forms of use:

- *Social*: worlds in which the main focus is on community building;
- *Game*: worlds that first and foremost serve online gaming;
- *Entertainment*: worlds consisting of music, videos and films;
- *Business*: worlds that specifically fulfill business purposes, including worlds for the exchange and sale of goods or to simulate training.

These four categories are not selective; a single world may serve more than one use aspect. The field of study selected in this study, Second Life, brings together all

four forms of use, as this virtual 3D world combines social interaction, gaming aspects, entertainment, and business applications.

Second Life is an interactive 3D online environment, which is not restricted to a specific subject and which was designed and created by its users. It was set up in 1999 by the American Philip Rosedale, but only went online on 23 June 2003. Since then, it has undergone continuous development. Currently, Second Life is seen as one of the most well known 3D world of its kind. Within 60 days more than 1.15 million residents logged-in worldwide (as per February 2010) (Linden Lab, 2010). According to a 2007 study conducted by the German research institute, Fittkau & Maaß, 62 percent of members are male, with an average age of below 30 and are characterized by a high degree of affinity to computers (Fittkau & Maaß, 2007). In addition to individuals – and due largely to intense media interest –also companies, research institutes, private and state organizations have become involved in Second Life. As own researches reveal, amongst them belong companies such as Adidas, BMW, IBM, Sony and Vodafone, research institutes including the Fraunhofer Gesellschaft, Harvard University, and Greenpeace, and organization as the German federal state Baden-Württemberg, the Swedish consulate and many more.

To take advantage of the variety of development and activity options of Second Life users need to install a free available software and create their own avatar. Members can contact each other socially in this world in a multitude of ways (chatting, gaming, trading, organizing events etc.) and, in the case of paying members, can create virtual landscapes and objects (buildings, homes, clothing, etc.). The operators behind Second Life have not specified any differentiated gaming scenario, fixed rules, framework actions or a purpose. In fact, the inhabitants are rather free to design the platform according to their own ideas, interests and objectives, and can create their own games of all sizes and genres within this world.

In addition, Second Life can also be used for targeted business purposes. It has a complete economic system in which goods and services are produced and traded, with the Linden Dollar (L$) as its own currency. This virtual currency can be purchased on stock markets and can, in turn, be exchanged for real currency. The exchange rate is approximately 260 Linden Dollar to 1 US Dollar (as per February 2010) (Linden Research, 2010). The option of exchanging the virtual gaming money into real money has led to the creation of various forms of income in and around Second Life. The platform itself constitutes a distribution channel, as avatars can sell virtual and real products direct to other avatars. Sales branches and flagship stores have been set up to this end in-world, and online market places for Second Life products have been created outside the platform, including www.xstreetsl.com (UK) and www.slmarket.de (Germany). Furthermore, the advertising communication opportunities mean that it is also possible to achieve indirect income in Second Life.

2.4 Virtual 3D Worlds in Innovation Communication Systems

Several companies are already using Second Life within different fields of communication; including activities as to present themselves, their products and services, and to interact with their stakeholder groups (Chase, 2008; Ehsani & Chase, 2009; Franz & Wolkinger, 2003; Füller & Matzler, 2007; Kohler, et al., 2009). The various opportunities for communicating and interacting in this virtual 3D world can also be used for innovation communication purposes. Yet, in order to receive the needed attention, innovations need to be communicated properly within the innovation system.

A few studies have investigated successful strategies. Most promising is deemed an innovation communication which emotionalizes and entertains and which visualizes and presents the specific uses, benefits, and meanings of the new product or service in a multisensual, experienceable way (Mast, et al., 2006). Novelties demand simple, logical examples and an appealing, clear language (Maisch & Meckel, 2009; Mast, 2005). Embedding in stories (storytelling), linking-in with current trends, a gripping dramaturgy and sensationalism are also considered helpful (Huck-Sandhu, 2009).

Furthermore, it is advisable to use dialogue-oriented and direct channels apart from the mass media (Zerfaß, 2005b). Experience-based forms of communication in the real sphere and product samples for testing are particularly well-suited to fulfilling these requirements (Tobies, 2009). For reasons of time and cost, however, these are often dispensed with. Here, the authors believe that, due to its design and use dimensions, the virtual world Second Life provides useful options to close this gap. While it may not be possible to actually touch, taste, or smell new products, these can nevertheless be depicted true-to-life and simulated in virtual processes. Through their avatars, interested parties – like in the real world – can actively try out new products and procedures and enter into dialogue with the companies or innovators. In a virtual environment, this is considerably easier, faster, more cost-effective, and entails less risk. This is significant for the management of innovations, since time and budget are seen as the most crucial factors for success.

The research questions that arise in this context are as follows:

- How can the virtual 3D world Second Life be used for communication within the innovation process?

- Which opportunities and challenges arise from innovation communication in virtual worlds?

- To what extent does innovation communication in 3D worlds help companies to position themselves as innovators?

These questions will be explored in the following case study analysis.

3 Research Framework

3.1   Research Design

As research method for the present project, case study analysis was selected, since it is especially well-suited to describing real phenomena in practice (Yin, 2003). Due to its open nature, data from various sources and collection methods can be included and linked with each other (Eisenhardt, 1989). In particular, a comparative case study analysis was carried out in the survey here, since this allows the research questions to be analyzed in various environments and the gained results can be brought into specific context, allowing for generalized conclusions (Yin, 2003). In order to gain the most comprehensive understanding possible of the research subject and to achieve precision in the results, the methodical approaches employed by Yin (2003) and Eisenhardt (1989) were applied.

3.2   Data Collection and Analysis

As the basis for the case study analysis primary and secondary data were collected from January 2008 to March 2009. First, cases were identified by means of desk research and observations in Second Life. Of these, a total of eight companies were selected according to the technique of theoretical sampling. This means that the sample was chosen stepwise and based on theoretical pre-considerations, and not by statistical random selections. Thus, those cases were chosen for further analysis which were relevant for the research questions and which ensured the broadest variety in results. Hence, there are cases from different companies and industries, with different scopes in format, features, time periods, and fields of innovation communication (see Table 1). Due to the nature of exploratory studies, the results do not claim to be representative.

Second, the selected cases and their references to innovation communication were examined. To collect primary data, online observations were taken. As secondary sources were articles from academic journals and public magazines as well as corporate communication / public relation material.

The cases investigated has been analysed in two phases. In the first phase of the case studies are analyzed self-contained, in the second phase there is a comparative analysis between the cases. The collected data was processed using qualitative content analysis methods. The processing was carried out according to Mayring (2008) to the following process:

- *Summarizing* through reduction and abstraction of the material;

- *Expanding* the understanding by reference to additional material;

- *Filtering* and subsequent evaluation of relevant aspects.

Company	Industry	Case
Adidas	Manufacturer of sports apparel	Product launch A3 Microride
Deutsche Post	Logistic Services Provider	Post Island and Testbox
EnBW	Energy provider	EnergyPark
Mercedes-Benz	Automotive	Mercedes Island
QUELLE	Mail-order company	ErfinderLand
Reebok	Manufacturer of sports apparel	Reebok Shoe Configurator
Starwood Hotels	Hotel business	aloft Hotel
Sony Ericsson	Consumer Electronic	Booth at CeBIT 2007

Table 1: Examined Case Studies in Second Life

4 Results of the Cross-Case Analysis

The companies from the eight cases examined already incorporate Second Life into their innovation communication. They use the virtual world in all phases of the innovation process, from ideating to marketing introduction and public relations (see

Table 2).

The case studies examined display the potential and limits of Second Life for innovation communication. With the help of this 3D world, companies can identify trends, generate ideas, develop and test new products (innovation development: discovering trends and generating ideas). Furthermore, the three-dimensional visualizations and the involvement of service avatars provide new marketing possibilities for new products and services (product communication: marketing new products) and also represent an opportunity to position the organizations behind these goods and services as innovative (public relations: image profiling as

innovative player). These individual areas of use of innovation communication in the virtual 3D world Second Life will be presented in detail in the following.

Company	Features of the case	Fields of innovation communication
Adidas	Testing sale of shoe innovations	Innovation marketing, Public Relations
Deutsche Post	Ordering physical-deliveries containing new products	Generation of ideas, Innovation marketing, Public Relations
EnBW	Information and entertainment services related to energy	Innovation marketing, Public Relations
Mercedes-Benz	Launch of the C-Class	Innovation marketing, Public Relations
QUELLE	Platform for ideas	Generation of ideas, Innovation marketing, Public Relations
Reebok	Design and purchase of shoe innovations	Generation of ideas, Innovation marketing, Public Relations
Starwood Hotels	Testing hotel rooms	Market research, Generation of ideas, Innovation marketing
Sony Ericsson	Testing trade fair exhibits	Innovation marketing, Public Relations

Table 2: Application Domains of Innovation Communication in Second Life

4.1 Innovation Development: Discovering Trends and Generating Ideas

Second Life is used as a development laboratory for new ideas, products and services (Chase, 2008; Kohler, et al., 2009). With a fairly modest investment in terms of staff and costs, companies can collect ideas within the 3D world and develop them further in collaboration, in line with the Open Innovation approach (Chesbrough, 2006). The joint basis of understanding is facilitated by the graphical, three-dimensional presentation of the product developments and the option of testing these virtually. Possible alterations can be taken into account at an early stage of development at correspondingly low cost. The product designs can subsequently be implemented for real and sent to selected target groups (lead users), to test their potential in the real world.

Sporting goods manufacturer Reebok allows its customers to individually design their shoes – purely virtually – for their avatar and, if they like them, as real one-off designs for themselves (Tedeschi, 2007). The Reebok shoe configurator allows individual components such as the sole, tongue, laces and upper to be designed in various ways (mainly in terms of the colours). By making the customer to "Co-Producer" or "Prosumer" (Toffler, 1980), the manufacturer was able to identify trends and requirements at an early stage. The logistics and transport services provider Deutsche Post investigated new design and distribution ideas in Second Life by allowing visitors to create their own works of art on "Post Island", to take photographs and send them as a postcard to anywhere in the world (Jacob, 2008). The QUELLE Innovation Initiative also appeals to its customers' inner-inventor and in March 2007 launched the first virtual laboratory in the world for inventors and creative individuals, supporting them in the development of their ideas into market-ready products. "ErfinderLand" provides information on patent procedures and marketing, a partner search facility for ideas and a sculpture garden in which users should evaluate current projects (Quelle InnovationsPartner, 2007b). In addition, inventor congresses and competitions are organised, e.g. expert chats on the subjects of inventing, designing and setting up a company (Quelle InnovationsPartner, 2007a).

The ideas and feedback in the Second Life community is also utilized by American hotel chain Starwood Hotels to develop and beta-test new products. The prototype of its new brand, the boutique hotel "aloft", was first created by the company in the second world in autumn 2006. Avatars were able to evaluate sample rooms, assess structural plans and have a say in the fittings, interior design and color palette used. The feedback obtained flowed into the planning for the construction of the first real aloft hotel, of which the Starwood group intends to open a total of 500 worldwide by 2012 (Jana, 2006; Kim, et al., 2008).

However, the case study analysis also shows that those wishing to generate and test ideas and new developments in Second Life must always take account of the risk that competitors will quickly be able to copy them, since confidentiality of information is not sufficiently guaranteed here. The highly sensitive nature of novelties and innovations at the pre-market stage could be one reason why, to date,

only a small number of companies have used Second Life as a test platform, relying instead on a secure development environment.

4.2　　Product Communication: Marketing New Products

Second Life also serves the marketing of fully-developed product innovations. For example, Sony Ericsson presented their product innovations in 2007 at consumer electronic convention CeBIT and in Second Life at the same time (b+d new media GmbH, 2007). Furthermore companies can demonstrate products and services in this virtual environment and present them to their target groups also even before these innovations have been put into place in the real world. Potential customers can view new products in this environment in three-dimensional form (representation level) and interact with them or test them virtually in a straightforward manner (action level). The advantage of this is that companies can find out prior to the real, physical market introduction and the costs and risks this entails, whether the product innovation would meet with approval from potential partners, co-producers and customers.

Adidas, for instance, created a virtual store in which the latest shoes from the current collection can be tested on a training course and purchased for avatars. In 2007, the sports supplier promoted its new shoe, the A3 Microride, in Second Life. The shoes were purchased around 23,000 times, thereby boosting real sales (Andhra Cafe.com, 2007). In 2007, Sony Ericsson set up an interactive copy of its CeBIT trade fair stand on its own island in Second Life. All product innovations could be examined in detail and avatars could request advice from specially-trained Sony Ericsson promoters (Sony Ericsson, 2007). Users can communicate with one another through various forms of expression and can provide direct, swift feedback. For example, information can be transmitted in Second Life in written form via a chat window, orally through voice chat or by way of the body language and gestures of an avatar (Kim, et al., 2008). This immediate feedback in various levels allows not only almost true-to-life customer support, but also turns Second Life – according to the Media Richness Theory by Daft and Dengel (1986) – into a rich medium.

Three-dimensional, multimedia realization of this kind allows for a realistic impression and improved understanding of the shape and dimensions of new products. This approach is particularly compatible with innovations that require some explanation. The energy company EnBW, for example, uses Second Life to outline its innovative energy generation systems, including a geothermal power plant. In the "GeothermieCube" during a virtual journey to the centre of the earth, visitors can find out about the varying heat levels of the earth and the use of geothermal energy as a regenerative source of energy (Schultze, 2008). It would not be possible, on account of the cost involved and the health and safety implications, for the energy supplier's stakeholder group to visit such a power plant for real. Through the virtual depiction, however, the costs can be reduced and the safety risks avoided. In addition, the users can also be shown abstract elements that cannot be viewed with the naked eye. This means, on the one hand, that completely

new perspectives that cannot be achieved in reality can be opened up and, on the other hand, that innovations can be communicated to the target group in a more comprehensible way.

Further to the realistic depiction, the advantage of Second Life also lies in the fact that innovations can be clearly simulated in use scenarios. This not only means that product benefits and added value are made clearer for the stakeholder group, but also that the immersion here is considerably higher than on other Internet platforms. For example, the latest model launched by a car manufacturer, such as the Mercedes Benz C-Class (eMercedesBenz.com, 2007), can be experienced in Second Life in a much more direct fashion than in a vehicle configurator on a Website. After a virtual test-drive, a visitor to Second Life could say that he had "road tested" the new car, even before the new model has actually been built in the real world (Kim, et al., 2008). Through this ostensibly direct handling of the object the users are given the illusion of directly experiencing it. Reservations regarding the product can be reduced or even eliminated entirely, as there is no risk involved in testing the products and there is no damage or wear and tear to the product.

To market new products, Deutsche Post delivered test packages containing a selection of up-to-the-minute branded products. Those who requested the "Testbox" on Post Island in Second Life received a free innovation package containing products relating to a variety of changing subjects, such as wellbeing, entertainment or cosmetics, which contained real products for testing. The Testbox provided customers with information on the latest trends in a broad variety of subject areas. Well-known manufacturers, including Nestlé, Wilkinson, Unilever and the Burda Publishing company used this method to publicize new products, test their sales potential, and gain feedback (Deutsche Post World Net, 2007). Users could leave comments about the products on a separate evaluation page.

However, when virtually communicating and presenting product innovations, it must be borne in mind that haptic experience and the real optical and acoustic experience cannot be truly depicted on a 3D platform, despite the advanced technical options now available. The examined virtual world Second Life is thus only suitable to a limited extent for the presentation of new products. Despite ongoing improvements, the platform is still unstable and plagued by system crashes. Furthermore, the necessity to install a software, even if free available, and to create an avatar is a barrier. Also the usability of Second Life, the use of avatars and the behavior in this world has proven not to be intuitive, and are still not intuitive, which keeps people away from this 3D environment.

4.3 Public Relations: Image Profiling as an Innovative Player

In addition to the communication of new ideas and products, companies use Second Life first and foremost as part of their PR work, for the purposes of image profiling. If a company is active in the area of new, innovative media, it is likely to be perceived by the public as an innovative player. The creation of a virtual representation in itself, or the implementation of special 3D web measures, often

garners free media coverage. For many companies, this was the original motivation behind their involvement in Second Life. With the help of a virtual world, the image of an innovative player can be strengthened twofold: first, by innovative communication via that medium ("how"); and second, by communicating innovations through that medium ("what").

In order to consistently present itself as an innovation leader using this modern form of Internet presence, the energy company EnBW set up a virtual branch, the EnBW EnergyPark. It lives from interactive exhibits, film screenings, recruitment events, lecture series and quiz shows. The EnBW EnergyPark combines innovative communication measures with communication about company energy innovations, which can be discovered interactively in the integrated InnovationCenter. While the monthly quiz on everything relating to the topic of energy, where Linden Dollars can be won and in which more than 75,000 visitors have taken part since Autumn 2007, generates a relatively high level of traffic (EnBW Energie Baden-Württemberg, 2009), the quantitative number of contacts in Second Life remains low. In spring 2008, around 250 avatars daily were counted in the EnergyPark, while the EnBW company homepage has approximately 15,000 visitors daily. Nevertheless, the energy company succeeded in positioning itself in the public perception as a well-versed Second Life expert. This played a significant part in awakening interest in other company areas, so that new use options in virtual worlds are also being considered for internal innovation communication (Quelle InnovationsPartner, 2007a, 2007b; Schultze, 2008).

Deutsche Post also values the Web 3D as a suitable environment for an innovative market presence. Thus, the consideration at the forefront in its involvement in Second Life was that the communication for proven products, brands and services could be carried out in a completely new way, allowing new creative perspectives for communication to be uncovered. In this way, the logistics company hoped to underline its position as an innovative communications service provider. In May 2007, the company opened its virtual presence as a true-to-life copy of its headquarters in Bonn and tested new ideas by means of interactive promotions and competitions. At all times attempts were made to connect both worlds, to provide added value both online and offline, e.g. with the delivery of Testboxes and postcards in the real world. While these promotions were extremely popular among Second Life inhabitants, the actual use remained well below expectations, despite extensive marketing measures. Only a couple of hundred avatars visited Post Island weekly – a total of just over 10,000 visitors within 9 months. The number of postcards sent per week was only in triple figures. Yet, in spite of the lack of response, Deutsche Post clearly displays how involvement in 3D wolds like Second Life can help a company demonstrate its innovative power, imbue the brand with emotions and position the company as an innovator (Jacob, 2008). It is to be mentioned in this context that it is not so easy anymore for companies to generate news value and thereby generate public relations benefit with a new one with a presence in Second Life, because the public interest regarding Second Life, has dropped significantly since 2007 (Google Trends, 2010).

5 Conclusions and Future Research

The research study shows that Web 3D holds potential for innovation communication. Because they are interactive, multimedia and three-dimensional, virtual 3D worlds offer far-reaching opportunities to communicate innovations to the various stakeholder groups of companies in a more easily comprehensible way. By making product and service innovations available to users free of charge to be tested without risk, users are given a clear and comprehensible idea of the innovation. They can gain experience in handling the innovation and determine its usefulness to them personally.

Several companies have recognized the usefulness of 3D worlds for innovation communication. They use Second Life primarily as an innovative research laboratory: to generate new ideas, to test innovations in products and services; to experiment with modern modes of communication; to try out a new form of market presence and thereby position themselves as an innovative company. Many of the advantages of communication in Web 3D are based on the Internet as the method of communication – information is available, with context, irrespective of time and location and content can be processed using a variety of media. What distinguishes Web 3D from traditional online communication is the three-dimensional depiction and use of objects and the interaction with avatars in this kind of world. Through this form of presentation users gain a better idea of the innovation; they can test it without any risk and thereby determine its usefulness. In this way, even before the physical introduction to the market, companies can collect relevant information regarding acceptance and use in the target groups.

Due to the increasing diffusion of online 3D games like World of Warcraft it can be assumed that 3D online worlds will gain a fixed place in the digital sphere. They are still at the beginning of a huge process of development, but they have the potential to develop into the Internet of the future over the next few years. But even if the number of progressive media users and gamers will continue to be significantly greater, it not can be assumed from the current perspective that a virtual 3D world like Second Life will become established as important communication and co-creation platforms regarding innovation. From the point of view of companies, the design options of the platform are still too limited. The instability of the platform is also seen as a major disadvantage. The system often crashes in the middle of a product presentation, leaving the users unable to login again for several hours. Overall, company presences in Second Life are still used too rarely by its inhabitants. Barriers to Internet users becoming a part of such 3D world are, among other things, the need to install special software, set up a user account and design a personal avatar. Additional hindrances are that the system has very advanced technical requirements and that some users find operating or acting via the avatar in this world too complicated. Of the case studies examined, only EnBW is still active in Second Life. Starwood Hotels (July 2007), Adidas (Summer 2007), Deutsche Post (February 2008), and Mercedes-Benz (March 2008) all withdrew from this parallel world.

Although from today's perspective, the future of Second Life in particular is unclear, there are several indicators that virtual worlds in general will continue to develop themselves. New virtual worlds are still being developed and opened, for instance the virtual Berlin, "Twinity", was launched Summer 2008 by the Berlin Company, Metaversum. Further technological development of technological platforms promises a more stable system environment and more comfortable and intuitive operation in 3D worlds in the future. New visualization technologies will result in improved graphics, with almost photo-realistic depiction of objects. Also there are already promising developments in order to reduce the boundaries between the different virtual worlds. IBM and Linden Lab are working collaboratively on the Open Grid Protocol (Linden Research, 2008) which will allow avatars to switch or "teleport" between different the 3D environments without restriction.

The potential applications and the popularity of the upcoming virtual 3D worlds will determine the extent to which companies integrate such platforms into their innovation communication. On the basis of the potential and limitations of 3D worlds for innovation communication identified and outlined in this study, further research is required in order to illustrate, in quantitative terms, the benefits and corporate added value of such platforms. This will entail the further systematic study of virtual worlds in media science, communications science and economic science.

Bettina Maisch holds a degree in electronic business as well as a degree in social and business communication from the University of the Arts in Berlin, Germany. She gained several years of work experience in the international advertising network of Ogilvy and in the marketing department of the German research and development network of Fraunhofer Society before commencing her PhD candidature at the Institute for Media and Communications Management at the University of St.Gallen, Switzerland. Her current research focuses on the potential of web 2.0 applications such as wikis, weblogs and social networks for the communication of innovations. In her dissertation, Bettina investigates the influencing factors of Facebook on the market introduction of electric cars. During her PhD study she also spend one year as a visiting researcher at the Center for Design Research at Stanford University.

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