

Master Thesis

**Fortune 500 companies  
in  
Second Life**

—

**Activities, their success measurement and  
the satisfaction level of their projects**

ETH Zurich

Chair of  
Strategic Management and Innovation  
Prof. Dr. Georg von Krogh

Tutor  
Peter Jäger

Author  
Alessandro Barnetta

5. January 2009

# Abstract

3-D environments and virtual worlds are emerging technologies that could change the future of Internet usage significantly. One of the most prominent virtual worlds is Second Life, because of dimensionless opportunities that result out of user created content. Many companies have entered this 3-D environment to explore its possibilities. The sample for this study exists of Fortune 500 companies: They have repeatedly been the subjects for studies around new information technology since they take often a leadership role. Those companies that do have activities in Second Life were provided with a questionnaire, in order to find out how intensively this new technology is applied. The main questions of this study center on the motivations for companies to enter Second Life, the activities they apply in-world, their measurement of success and the level of satisfaction they have with that Second Life project.

Around 15% of all Fortune 500 companies do have activities in Second Life. The main focus lies on *Marketing* and *Communication & Collaboration* whereas *Management of Services & Processes* and *Recruiting* are hardly applied. The success measurement tools are still poorly developed and leave room for improvements. So far most companies measure the traffic on their Island, the feedback they get and the publicity that results. Overall it seems like it is too early to really draw a conclusion on the satisfaction level for companies. Four out of seven categories have been stated neither satisfying nor unsatisfying by a majority of the companies. The other three points, *Marketing*, *Communication & Collaboration*, and *R&D* are satisfying activities for them.

This study does not provide a guide on how to establish a Second Life presence. But it provides an overview on how Fortune 500 companies use Second Life.

# Table of contents

<b>1</b>	<b>Introduction .....</b>	<b>1</b>
1.1	Motivation .....	1
1.2	Research Question .....	3
1.3	Structure of the thesis.....	5
<b>2</b>	<b>Literature review and framework.....</b>	<b>8</b>
2.1	Research about homepages towards the end of the nineties.....	8
2.2	Literature about Second Life and Framework .....	12
2.3	Objectives of this study and research questions .....	18
<b>3</b>	<b>Research Methodology .....</b>	<b>20</b>
3.1	Sample selection .....	20
3.1.1	Virtual worlds and Second Life .....	20
3.1.2	Fortune 500 companies as the sample .....	25
3.2	Designing the survey tool .....	28
3.3	Structure of Questionnaire .....	29
3.4	Expert test of the questionnaire .....	34
3.5	Response rate and trust .....	35
<b>4</b>	<b>Data analysis and results.....</b>	<b>38</b>
4.1	General Condition.....	39
4.1.1	Project initiators and project owners of Second Life projects .....	39
4.1.2	Entering time into Second Life .....	41
4.1.3	Percentage of Second Life presences based on revenues .....	43
4.2	Activities in Second Life.....	44
4.3	How to attract people to Second Life Islands .....	47
4.4	Success measurement in virtual worlds .....	50
4.5	Satisfaction level.....	52

<b>5</b>	<b>Discussion .....</b>	<b>54</b>
5.1	General tendency .....	54
5.2	Activities .....	55
5.3	Success measurement .....	60
5.4	Satisfaction level.....	62
<b>6</b>	<b>Conclusion.....</b>	<b>63</b>
6.1	Implications for research.....	63
6.2	Management implication.....	65
6.3	Limitations .....	67
6.4	Future research .....	68
<b>7</b>	<b>Appendix.....</b>	<b>76</b>

# 1 Introduction

Times online just recently cited a senior consultant of McKinsey & Company that said “every consumer-facing business absolutely had to be experimenting in virtual worlds if it wanted to get the attention of the under 30s” [Richards, 2008]. And generally in 2006 and the beginning of 2007 the newspapers covered many announcements of big brands entering the virtual world of Second Life<sup>1</sup> (SL) [Amann, Martens, 2008]. This is not very surprising if you see the predictions of Gartner which foresee that 80% of active Internet users and Fortune 500 companies<sup>2</sup> will participate in Second Life or some competing virtual world by the end of 2011 [Gartner, 2007].

## 1.1 Motivation

There are hundreds of thousands of people<sup>3</sup> spending an average of more than 40 hours a month in the virtual world of Second Life [Wagner, 2007a]. And experts<sup>4</sup> are emphasizing that this emerging technology of virtual worlds is comparable with the state of the Internet<sup>5</sup> at the end of the nineties [Driver, 2008a; Paffendorf, 2006; Mittham, 2007]. Therefore it is no surprise that real life companies take a close look at the developments in this area and try to enter virtual worlds themselves<sup>6</sup>. But it is not the technology itself that brings added value to the companies, it is the use of the technology which means it is not enough to be present in a virtual world, you have to be able to apply it for something. Porter made the same statement about the Internet back in 2001: “It is the uses of the Internet that ultimately create economic value” [Porter, 2001: 65]. Therefore the objective of this study is to explore how Fortune 500

---

<sup>1</sup> „Second Life<sup>®</sup> is an online, 3-D virtual world imagined and created by its Residents”; Source: [www.secondlife.com](http://www.secondlife.com) – official Site of the freely available 3-D online virtual world that allows people to create individual characters and move around in a 3-D environment

<sup>2</sup> The Fortune 500 list is published every year by the Fortune Magazine and ranks the 500 biggest companies in the world according to their revenue. The basis for this research builds the list from 2007. [www.fortune.com](http://www.fortune.com)

<sup>3</sup> See Chapter 3.1 for more details on different virtual worlds and its population size.

<sup>4</sup> These people are called experts if they are considered experts by the community and actively take part in shaping the future of virtual worlds.

<sup>5</sup> When talking about the Internet in the context of this thesis, it is meant as the Web 2.0 whereas Virtual Worlds are considered one part of the Web 3.0.

<sup>6</sup> The papers examined in Chapter 3.2 include many case studies that are released by companies or their consultants in order to communicate their engagements. Many of them were mentioned in print newspapers and magazines and some of them are mentioned in the bibliography section under news articles

companies use this emerging technology of 3-D environments by examining their activities in the case of Second Life.

The predictions of Gartner for virtual worlds correlate with the enormous growth rate of 45% for hours spent in Second Life comparing the third quarter of 2008 with the third quarter of 2007 totaling in 102.8 million hours [Linden, 2008]. But not just Second Life is growing, also other worlds like world of *World of Warcraft*<sup>7</sup> that had a resident<sup>8</sup> growth of 25% in 2007 [Hoffman, 2008]. Especially for teenagers it is perfectly normal to meet in 3-D virtual spaces to chat with their friends<sup>9</sup>. *Habbo Hotel*<sup>10</sup> as an example of such a teenage virtual world reported over 100 million registered users by the end of June 2008<sup>11</sup>. The average age for its residents is assumed around 13 years [Kzero, 2008]. Second Life as the examined virtual world of this study has an average resident age of over 30 years and more than 15 million registered users. It appears that 3-D environments with the possibilities of social interactions, gaming parts or in-world economies cast a spell over a variety of people. But the question still has to be answered why companies enter these virtual worlds, what they do in there and how successful<sup>12</sup> they are.

From today's standpoint one can say that virtual worlds in general and Second Life especially experienced a big hype in media at the end of 2006 until the middle of 2007 [Mitham, 2008; Gierke, Müller, 2008]. Towards the end of 2007 and the beginning of 2008 media coverage turned away from hyping Second Life and called it a dying virtual world that loses residents and companies because of their unsatisfying experiences [Computerwoche.de, 2008; Gierke, Müller, 2008: 12; Skinner, 2007]. It is true that the growth in new account sign ups declined, and also the growth of hours spent in Second Life declined, but overall it was still growing<sup>13</sup>. The coverage of the media about such an emerging technology is certainly one important point among others for companies to decide on entering a virtual world. But it does not necessarily represent the status quo of company engagements in virtual worlds. Therefore an objective study about the possibilities and engagements of companies in virtual worlds and the resulting success is missing. Since media coverage has been focusing mainly on big companies that drive vast marketing campaigns in Second Life,

---

<sup>7</sup> World of Warcraft is one of the most successive online games with over 11 million active players. <http://www.blizzard.com/us/press/081028.html>

<sup>8</sup> "Residents" are people that have a stake in the world of Second Life and how it grows. This term was created since Linden Lab did not want to call those people users. This thesis uses residents and users as synonyms. [http://wiki.secondlife.com/wiki/Origin\\_of\\_the\\_term\\_%27Resident%27](http://wiki.secondlife.com/wiki/Origin_of_the_term_%27Resident%27).

<sup>9</sup> <http://www.clickz.com/3626340>

<sup>10</sup> [www.habbo.com](http://www.habbo.com)

<sup>11</sup> [http://www.sulake.com/press/releases/2008-06-25-100\\_million\\_Habbos.html](http://www.sulake.com/press/releases/2008-06-25-100_million_Habbos.html)

<sup>12</sup> An elaboration on success in virtual worlds its measurement follows in Chapter 3, 4 and 5.

<sup>13</sup> Statistics can be found on [www.secondlife.com](http://www.secondlife.com)

marketing is the most known activity of big companies in virtual worlds. But no study can show in numbers if this is true, how many other activities and engagements exist and how frequently they are applied. This study is intended to fill this gap on virtual world exploration and gives an overview of the engagements of Fortune 500 companies in Second Life.

## 1.2 Research Question

Many business ideas that work for real life<sup>14</sup> can be translated to the virtual world. The sky is the limit, as a Daniel Terdiman writes it in a chapter of his book [Terdiman, 2008: 264]. Nevertheless he does point out, that the four most profitable business models are: *“fashion, real estate, building and the adult industry, but the principles can be extended to almost any other field”* [Terdiman, 2008: 39]. On Second Life’s official website a lot more business opportunities already pursued by residents are listed: *“party and wedding planner, nightclub owner, automotive manufacturer, fashion designer, aerospace engineer, custom avatar designer, jewelry maker, architect, XML coder, freelance scripter, game developer, machinima set designer, tour guide, dancer, musician, custom animation creator and so on”*<sup>15</sup>. This shortened list shows how broad and wide-ranging the business opportunities in Second Life are. But those are rather possibilities for individuals than for the biggest corporations in the world, since they have different uses for such an emerging technology.

Some Fortune 500 companies that entered Second Life put their focus on marketing only [Cohen, 2008]. Many others saw that this is not only a new communication channel to reach new customers, but an emerging technology that might even substitute the Internet as we know it today [Küpers, 2003; Paffendorf, 2006; Roush, 2007:5]. Second Life as a 3-D space offers a variety of usage possibilities to corporations: internal and external communication becomes very easy, conferences can be held without travelling, customers can be welcomed, teams can visualize prototypes and design studies very easily and cheaply and everyone can see them and interact right on the spot long before a first real prototype is built<sup>16</sup>. This can go as far as scenario planning or interactive teaching possibilities. It is even possible to set up shops with a direct connection to real life, where customers order an object in Second Life, pay with the world internal currency Linden Dollars (L\$) and the product will be sent

---

<sup>14</sup> “Real Life” is often referred to as the world as we know it and therefore an antonym to virtual world

<sup>15</sup> <http://secondlife.com/whatis/businesses.php>

<sup>16</sup> See chapter 2.2 for literature and chapter 2.3 for a consolidated list of activities

to their home address in real life<sup>17</sup>. Even personnel can be recruited within Second Life [King, 2008]. So the possibilities for the future seem to be endless.

Many people that have been around the Internet business and virtual worlds for a long time suggest that virtual worlds are now exactly at the point, where the internet was during the nineties [Paffendorf, 2006; Richards, 2008; Talbot, 2008: 60; Wagner, 2008a]. There is no standardization, no successful business models, and companies don't know yet how they have to handle this emerging technology. In the Forrester report they say "it is still pioneering days" [Forrester 2008] and Robert Bloomfield referred to it as the "*Wild West*" [Talbot, 2008: 62].

Küpers elaborates more on the fact, that virtual worlds are not yet fully integrated into everyday life and describes it that way [Küpers, 2003]:

*"One has to know at that point that the use of technologies around virtual worlds will become more context and situation driven than it presents itself today. Today I might say: I go into Second Life. Then I enter the virtual world, wander and fly around and might find something interesting. That used to be similar with the Web. Turn on the modem, get the browser started, and explore the Web for possibilities. Today you buy a book at Amazon, watch a movie at iTunes, talk to friends over Skype, play a game – and everything happens in the internet, fully integrated to everyday life without remarking explicitly "to use the internet".*

Relying on the statements of these experts, research papers from the late nineties about websites<sup>18</sup>, homepages<sup>19</sup> and information technology in general will build the basics for this study with regards to the direction this research will take. The research questions, objectives and the outcome are of similar sort but adjusted for virtual worlds.

Existing literature about brands and companies in virtual worlds are based on case studies. One of the most extensive studies is from Markus Breuer [Breuer, 2007]. It brings in ten different case studies of well known companies and shows different possibilities how they use Second Life and gives instructions what an entering company should or should not do. The thesis at hand will include some of Breuer's thinking with regard to the usage of Second Life. Together with a couple of other papers it

---

<sup>17</sup> [www.starfruit.biz](http://www.starfruit.biz): "Starfruit aims to bridge the real world with virtual worlds." "Starfruit is the leading company for e-commerce in virtual worlds." e.g. they work together with [fleurop.com](http://fleurop.com)

<sup>18</sup> [www.wikipedia.org](http://www.wikipedia.org): A website (alternatively, web site or Web site, a back-construction from the proper noun World Wide Web) is a collection of Web pages, images, videos or other digital assets that is hosted on one or more web servers, usually accessible via the Internet.

<sup>19</sup> [www.wikipedia.org](http://www.wikipedia.org): The homepage (often written as home page) or main page is the URL or local file that automatically loads when a web browser starts and when the browser's "home" button is pressed.

builds the ground for a framework<sup>20</sup> of consolidated activities for corporations in virtual worlds.

After all, broad overviews like the ones towards the late nineties for homepages are missing for virtual worlds and this study closes this gap by providing a fundamental overview on the activities of Fortune 500 companies in Second Life, their motivation to enter this virtual world, how they measure success and how they judge their satisfaction level. The research questions will be defined in more details in Chapter 2.3.

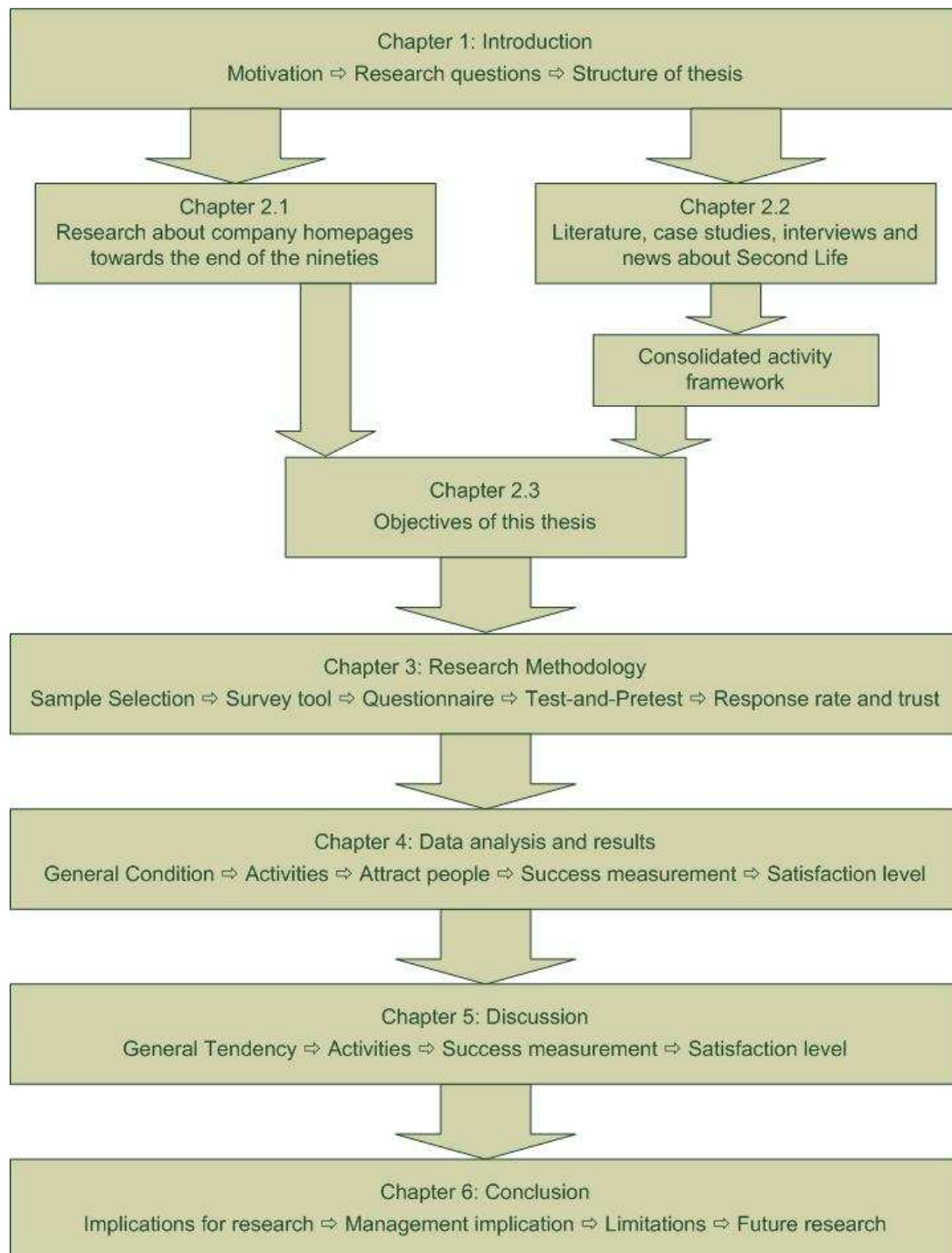
### 1.3 Structure of the thesis

The assumption is made that the cited experts of the previous chapter and their predictions are right and the development of virtual worlds is comparable with the one of the internet<sup>21</sup>. Chapter 2.1 therefore starts with a review about papers from the late nineties and the beginning of 2000 about research on homepages, websites and its features. This literature review gives a good understanding on what were the important questions during that time, how they were explored and what the answers were. With that knowledge in mind, Chapter 2.2 examines the existing literature about Second Life. These publications build the fundamentals for a consolidated framework of activities that the corporations use in Second Life. The framework is shown in Table 2 and builds the backbone of this thesis. The papers and the research about websites and homepages give the direction and the methods for this thesis and the literature about Second Life brings in the detailed topics. Out of the two chapters the research questions can be formulated in Chapter 2.3. Figure 1 shows graphic design of the thesis.

---

<sup>20</sup> See chapter 2.2 for more details on the framework of consolidated activities

<sup>21</sup> Just assuming it is not right: the approaches that the studies from the late nineties took should work for any emerging technology, but would have to be further adjusted.



**Figure 1: Graphic design of this thesis**

Chapter 3 explains the whole research methodology of this thesis and starts in Chapter 3.1 with the explanation of the sample selection. This includes the choice of Second Life as the virtual world to examine and which Fortune 500 companies belong to the sample. First of all data was gathered about which companies are present in Second Life. Since it was less than a fifth of all these 500, a very high response rate is needed for a valuable statement. In Chapter 3.2 it is shown why a web survey

was chosen and its structure is explained in Chapter 3.3. The structure is derived from the framework that is described in the previous Chapter 2. Before this survey was sent out to the corporations, several experts from different fields tested it (see Chapter 3.4). The last Chapter 3.5 describes the necessity of a high response due to the small sample and a four step approach is defined to persuade as many corporations as possible to participate.

The gathered data is analyzed in Chapter 4. It starts with Chapter 4.1 that gives an overview of the companies regarding the department that gave the initial input to start such a project and the responsible project owner within the company. It is also explained when the individual projects were started and when the actual launch within Second Life took place. Following again the literature about the Internet development the independence of company revenue and the presence in Second Life is analyzed. In Chapter 4.2 statistics and graphs about the activities of Fortune 500 companies in Second Life are presented and the efforts to attract residents are shown in Chapter 4.3. In an explorative approach the companies provide insights on their success measurement which is summarized in Chapter 4.4 and finally in Chapter 4.5 the project owners give statements about their level of satisfaction with Second Life, again referring to the consolidated framework.

The findings are discussed in Chapter 5. The Common tendency of Chapter 5.1 compares some interesting results with the papers of the late nineties. Chapter 5.2 is more focused on the activities of companies in Second Life and their comparison with the motivation for companies to enter this virtual world at all. The discussion about success measures in Chapter 5.3 takes into account what activities the corporations engage in and compares them with the applied success measurements. It shows the optimization potential for success measurement and gives a thought-provoking impulse on improving them with a few concrete examples. Chapter 5.4 is concentrating on the satisfaction level of the companies and also compares it with the motivation for companies to enter Second Life at all.

Chapter 6 summarizes the results and comes up with conclusions and interpretations of the findings. The implications for research in Chapter 6.1 summarize the most important points of the study and give some interpretation of the findings. More detailed and with more practical applicability Chapter 6.2 gives some management implications based on this research. Additionally the limitations of this thesis are shown in Chapter 6.3 and future research possibilities on this topic are mentioned in Chapter 6.4.

## 2 Literature review and framework

Due to the parallels with the internet, the studies and research papers about company websites and their homepages towards the end of the nineties build the basis of this research paper. They are analyzed in Chapter 2.1 and show how to conduct research about emerging technologies, give inputs for research directions and show what the focus has to be. In a second step Chapter 2.2 reviews specific literature about businesses in Second Life and their engagements are consolidated to a list of activities and opportunities for companies. This framework builds the basics for the further research of this thesis. Resulting from the study of the early Internet developments<sup>22</sup> and the literature about Second Life<sup>23</sup> are the objectives of this study with their research questions in Chapter 2.3.

### 2.1 Research about homepages towards the end of the nineties

Liu, Arnett, Capella and Beatty's (1997) were one of the first to analyze websites of Fortune 500 companies on how they face customers through their homepages and how they deal with this emerging technology. It gives an overview how many out of these 500 companies do have a homepage, what they use it for and if there are differences of homepage use by industries. They identified that by then almost two-thirds of the examined companies had set up a website with a homepage and that the usage of homepages was not restricted to certain industries. But you could see that in certain industries like mining and construction a very low percentage made use of that new medium. Also were companies with higher revenue more likely to use homepages to reach costumers. The homepages were not used for generating revenues in the first place but rather to provide information about products/services and the company, allow interactive feedback, and to inform about company novelties [Liu, Arnett, Capella and Beatty's, 1997].

In a further study Liu and Arnett (2000) interviewed webmasters of Fortune 1000 companies about factors that are critical for website success. The answers came out of an electronic questionnaire survey that was electronically sent to the webmasters

---

<sup>22</sup> Chapter 2.1

<sup>23</sup> Chapter 2.2

after the content validity was examined by six experts. They came to the conclusion, that in the context of electronic commerce success, four major factors were important for website success:

- Quality of information and service
- System use
- Playfulness
- The system design quality

A benchmarking of websites for Fortune 500 companies by examining their homepages was done by Tamimi, Rajan, and Sebastianelli (2000). They pre-defined thirteen critical factors that they believed showed the quality of corporate homepages:

- Use of meta tags<sup>24</sup>
- Selection of homepage titles
- Selection of domain names
- Search engine site registration
- Server reliability
- Speed of page loading
- Links
- Spelling
- Visibility of contact information
- Timeliness of information
- Presence of privacy policies
- Presence of search engines on homepages
- Translation to multiple languages

By examining the content of all Fortune 500 companies' homepages the researchers tried to find out which of these factors were applied. Although these factors might have been very important at the time, they did not hold for predictions of the future. Mentioned factors like "use of meta tags" or "search engine registration" might have been a must before Google came into play and overruled those factors because their algorithm does not value those factors very high<sup>25</sup> and search results cannot be bought in the ad-free section. Nevertheless the study provided a good overview of what practices used to be widely applied and what factors the companies assumed to be important. The same accounts for this study, it is not sure whether the findings of the activities, the success measure and the satisfaction level will hold for the future, but they show what is important to the companies at the moment.

---

<sup>24</sup> "Meta tag elements provide information about a given webpage, most often to help search engines to categorize them correctly. Their utility has decreased dramatically as search engine robots have become more sophisticated. [www.wikipedia.org](http://www.wikipedia.org)

<sup>25</sup> [www.wikipedia.org](http://www.wikipedia.org)

While the previously mentioned studies did not filter out specific industries, Perry and Bodkin (2002) examined specifically manufacturer's websites of the Fortune 500 companies and focused on the applied marketing communication methods. They state that the internet can be used as an integrated marketing communication platform and is a relatively cost effective communication channel. They put together an exhausting list of potential website components that were divided into nine comprehensive categories. Then they counted how many of the companies did make use of certain components. They found that larger companies<sup>26</sup> used more of the identified website components than smaller ones. Also companies with a higher R&D to sales ratio used more web-specific components and offered more product- and company-specific information.

Like the Internet, virtual worlds can be used as a marketing communication platform. It is a relatively cost effective communication channel whose usage can be extended with social interaction and brand experience which have not been possible to that extent with the Internet [Forrester 2008; Kozlov, Reinhold 2007]

Venkatraman and Henderson looked at the challenges in customer interaction that came up with the formerly emerging technology Internet [Venkatraman, Henderson, 1998]. They recognized an approach of three different interdependent vectors: virtual encounter, virtual sourcing, and virtual expertise. Their approach was focusing on the interaction between company-customer-interaction and communities, allocation and sourcing of resources including coalitions and knowledge leverage with work-unit experience and professional community expertise. Their management implications partly still hold true today and can be transferred to this paper [Venkatraman, Henderson, 1998: 39]:

- *“Do you have a strategy to virtually connect with your customers that focuses on capturing information and leveraging knowledge?”*
- *“Do you plan to be a passive participant or an active orchestrator in dealing with emerging customer communities?”*
- *“How are you addressing your progress in the customer interaction vector as the marketplace demands greater remote access, dynamic customization, and participation in the customer community?”*
- *“Have you developed appropriate mechanisms so customers can reach you twenty-four hours a day, seven days a week?”*
- *“Can customers experience salient product features remotely?”*

The tools back then were: FAQ's on company website, customer communities around products, real time monitoring, electronic retail sales channels, create cus-

---

<sup>26</sup> Larger companies in regards to revenues

customer services like online banking and much more. Most of these features are still important today in one form or another and therefore reappear in the framework of Chapter 2.2.

All these studies focus on customer facing homepages or interaction possibilities. Li, McLeod, and Rogers (2001) focus on the deployment of marketing information systems (MKIS) in Fortune 500 companies. The study is a more recent update of the studies in 1980 and 1990 and provides a good overview of how the deployment of this technology has changed over the years. With a questionnaire for managers of marketing they gathered the needed data. The most surprising conclusion of the study was the fact, that only 67% of the companies used an MKIS, which is much lower than the 75% to 77% of 1980-1990. On the other hand a substantial increase in general usage and importance of communication technologies like e-mail, video and computer conferencing, and the Intranet was detected. Also the growing importance of the Internet, data warehouses, and data mining are becoming more and more important. These are the basics for an improved customer relationship marketing [Li, McLeod, Rogers, 2001].

Virtual worlds are the next step that has not yet been foreseen by Li et al. but are the reasonable continuation of their prediction. Futurists like Jerry Paffendorf see Second Life as a test lab for the upcoming 3-D Internet [Paffendorf, 2006; Roush, 2007]. It allows you to know even more about the customer and improve customer related marketing through extended data management. It is even possible to study behavior of customers and residents.

**Table 1: Consolidation of the most important findings in literature about homepages**

Literature	Main concepts applied in this study
Liu et al., 1997	<ul style="list-style-type: none"> <li>- Study gives a snapshot on website usage of Fortune 500 companies</li> <li>- Important questions for an emerging technology</li> </ul>
Liu, Arnett, 2001	<ul style="list-style-type: none"> <li>- Instead of examining the emerging technology passively, you can ask the project responsible, which certainly knows the most about it</li> <li>- Six experts tested the validity of the survey</li> </ul>
Tamimi et al., 2000	<ul style="list-style-type: none"> <li>- A list of 13 factors is put together and with its help the homepages of the Fortune 500's are evaluated</li> <li>- the study provides an overview of factors that are important at that time</li> </ul>
Perry, Bodkin, 2002	<ul style="list-style-type: none"> <li>- A list of website components is put together and with its help the websites of the Fortune 500's are evaluated</li> </ul>
Venkatraman, Henderson, 1998	<ul style="list-style-type: none"> <li>- The whole approach of facing customers has to be thought over again and adjusted to the possibilities of the emerging technology</li> <li>- Most of the tools that they found are still true today, but for an even newer technology.</li> </ul>
Li et al, 2001	<ul style="list-style-type: none"> <li>- Managers had to fill out a questionnaire</li> <li>- Internet, data warehouses, and data mining are becoming more and more important</li> </ul>

In terms of research proceedings the most important points in terms out of these different papers are consolidated in Table 1. They build the guidelines for a general approach to emerging technologies and will be applied for this thesis too. They are the basis for the formulation of the research questions.

## 2.2 Literature about Second Life and Framework

The previous Chapter 2.1 shows in what general direction research about unknown technologies can go. To get more specific several papers about businesses and Second Life are consulted. The result is a consolidated list of company activities in Second Life and will build the framework<sup>27</sup> to evaluate the presences of these companies in Second Life. This framework is the backbone of the questionnaire that is sent out to the project responsible after the experts have tested it.

Unfortunately only a few good publications about real life companies in Second Life exist. A great deal of case studies about individual companies can be found in the

---

<sup>27</sup> See Table 2

Web. A couple of papers analyze the most important of these case studies and summarize the results. They look at the activities and initiatives these companies have undertaken, filter the positive and negative aspects of them and give implications on how companies in general can profit from a virtual world and what they have to do for it. Besides the case studies, interviews, news and experiences of the authors build the inputs for the six papers that are described below.

Grosser and Klapp [Grosser, Klapp, 2008] have already found a classification of possible activities companies can undertake in Second Life. They came up with seven possibilities for companies to use Second Life:

- Communication platform and management tool
- Marketing tool
- Support for mass customization
- Virtual market
- R&D platform
- Support for virtual learning
- Tool for recruiting

Their classification is inspired by the work of Breuer [Breuer, 2007] and is complemented with other case studies and interviews. Their list of possible activities for companies in Second Life is quite extensive and very similar to categories of the framework in Table 2. Grosser and Klapp see the communication platform together with the management tool<sup>28</sup>. In this study the communication platform and management tool are treated as a separate because they differ significantly in motivations, goals and ideas.

On the other hand they treat support for mass customization as a separate category. In the framework of this thesis mass customization can belong to two different categories, depending on the goal: If the goal is to sell the customized product (virtual or real), it is part of the virtual market. On the other hand you can focus on data gathering with regards to customer preferences and then it is some kind of user innovation that belongs to the R&D activities.

Kozlov and Reinhold [Kozlov, Reinhold, 2007] also put together a list of activities that companies in Second Life engage in:

- Communication and PR
- Marketing initiatives
- Innovation

---

<sup>28</sup> For them one possible management tool would be storage an inventory management

- Product development
- Internal and external meetings
- Training
- Expose product portfolio
- Client acquisition
- Consumer research

Their findings come out of the research of press articles and announcements made by companies in 2006 and 2007. Their statements of what they are planning to do in Second Life give a good estimation on what the companies really realize in the end. They compare these activities with the culture and activities of online world participants and see that many companies “*struggle with the obvious and large cultural gap between these worlds*” [Kozlov, Reinhold, 2007: 7]. Their suggestion to companies to turn their presence in Second Life into something meaningful and sense-making for the residents leverages the potential of playfulness. This means that a company has to see their involvement as a way to get to know the residents of this virtual world, understand the characteristics of the evolving culture, languages, and the codes of behavior. In other words a company’s mindset has to change from: “what added value can a virtual world have for me” to “what added value can I bring to the virtual world”.

Breuer [Breuer, 2007] has delivered one of the most extensive papers about Second Life, covering more than ten case studies of companies and giving in depth insight to their activities. He lists the following categories as main activities for companies in Second Life:

- Prototyping for products and buildings
- Mass customization
- Virtual Shopping
- Virtual meetings
- Branded entertainment

Even though not listed as one of the main possibilities for real life companies, he does mention the virtual learning as a possible application in Second Life and gives the example of the Harvard Law School that holds courses and discussions in Second Life. He admits that the user groups of virtual worlds are still small compared to classical mass media. But first of all companies can now gather knowledge and experiment with this emerging technology. And secondly he identified three communication models for marketing that work also with smaller target groups:

- Early adopter
- Virtual leverage
- 3-D-Community.

For the early adopter model, Second Life is used as a kind of test market. Those tests also work with a smaller amount of people, and if they are successful, a big launch of the product is the next step.

By applying the virtual leverage model, the virtual world represents only one component of the marketing mix. The target group is the real life target group that's built of potential customers and the engagement in the virtual world supports the marketing efforts. For example by giving the brand an image through the association "virtual world = modern, innovative, trendy" [Breuer, 2007]. Breuer sees that model as the reason for all the "first-in-Second-Life"<sup>29</sup> projects in 2006.

The last of his communication models is the building of a 3-D-Community of already existing interest groups. Typical to those communities is an extensive event program that brings the people together and ties the members to the community.

The Multimedia Victoria [Multimedia Victoria, 2007] paper *Learnings from the Melbourne Laneways Project* lists the following business opportunities for companies:

- Commerce
- Marketing
- Product R&D
- Internal communication
- Business services

Besides these concrete opportunities for businesses, they also state that general applications like education & training, simulations and social networking are typical examples of Second Life activities. Stronger than in other literature it points out the possibilities in simulation and interactivity Second Life brings. As an example Thomson NetG offers training in Microsoft and Cisco certification in Second Life and in the "virtual hallucinations" building experiences like schizophrenia can be simulated to help non suffering people understand this mental disease a little better.

Susan Kish's [Kish, 2007] very good overview of Second Life sees businesses doing mainly:

- Education & Training
- Communication & Collaboration
- Sales
- Innovation.

Those main categories are defined with some describing activities and some examples of big companies and their efforts. Her work does not bring many new

---

<sup>29</sup> "first-in-Second-Life" projects that try to draw a lot of attention through PR and are suppose were suppose to give the project initiator a good image

insights about possible activities, but her positioning of Second Life in the context of virtual worlds is very interesting and useful and is analyzed in Chapter 3.1.1.

The Forrester Report *Getting Real Work Done in Virtual Worlds* [Forrester, 2008] does underline the previously mentioned activities and is the only report besides Grosser and Klapp that talks about the potential of recruiting within Second Life. Like Breuer it mentions prototyping of products and buildings as a key element especially from a collaborative social aspect. Different people from all over the world can look at the same prototype or product at the same time and discuss it in real time. The interactivity of the virtual world in general and Second Life especially comes out as the biggest advantage of this emerging technology.

The sources of these papers build experiences of the authors, press announcements, case studies, and research among residents of Second Life. Breuer [Breuer, 2007], Grosser and Klapp [Grosser, Klapp, 2008], and Kish [Kish, 2007] try to give an overview what is going on in Second Life by explaining the existing possibilities. The Forrester [Forrester, 2008] report and the research of Kozlov and Reinhold [Kozlov, Reinhold, 2007] are written as guidance for other companies that want to enter Second Life. Especially Forrester describes a wide range of possible opportunities how this emerging technology is used and eventually will be used, whereas Kozlov and Reinhold come up with the clear message that presents “playfulness as a distinct quality of virtual worlds, with a culture that is open and collaborative, creative and role-playing, ‘light’ and ‘joyful’”. Multimedia Victoria [Multimedia Victoria, 2007] even goes one step further and gives a step by step guide for companies setting up a presence in Second Life.



logic reasoning. The crosses in the grey lines mark papers that also made similar kind of groups and specifically mentioned this particular category as one group.

Table 2 points out that many different activities of businesses in Second Life fall under the category of *Marketing*. This seems to have two reasons: first of all many activities fit under the umbrella term “marketing” if no more specific term is defined. Secondly a lot of companies have started to explore virtual worlds with a marketing approach [Cohen, 2008; Wagner, 2007a] and have launched press releases and case studies. They talk about the engagement of corporations in 3-D environments and show what the opportunities, possibilities, risks and threats are and since many of them have started with marketing approaches that is what they mainly talk about. Those studies consequently build the grounds for the discussed literature about Second Life. In order to make sure that no overbalance in *Marketing* exists it will be divided into “*Conventional Marketing*” and “*Interactive Marketing*”. Everything that is translated one to one into the virtual world like billboards and so on is considered as conventional marketing. Interactive marketing on the other hand represents activities that are either unique to 3-D environment, are closely tied to it or can be done in a totally new way.

## 2.3 Objectives of this study and research questions

The framework gives a good view over all the activities that companies engage in in Second Life and are covered in the literature. At the same time it lacks a quantitative overview of the implementations and appliances of these activities by real life companies. This study’s goal is to fill this gap at least for the Fortune 500 companies.

The main research question centers on the use and the appliance of an emerging technology, but is adjusted for the 3-D environment of Second Life:

1. What are the dominant and what are the rarely applied activities of Fortune 500 companies in Second Life?

This question is copied from the study of Perry and Bodkin (2002) but is adjusted for activities in Second Life instead of original marketing communications on web sites. It is directly relying on the framework discussed in Chapter 2.2.

This quantitative overview gives a good basis for the follow up question about the success of these activities. In order for a company to answer questions about ROI,

added value of a technology or generally success, one needs to decide on what success is and how to measure it.

2. How do Fortune 500 companies measure the success of their Second Life activities?

So far no serious research has been done on how success is measured in virtual worlds<sup>30</sup>. Hence this question is of open form and the answers are provided individually by the project owners of each company. Presumably the more fact based these measures are, the easier you can compare them with expected goals and see how variations of different variables influences the output. Since this area is very young, not only the hard facts count but also the general impression the people have about their Second Life appearance. This impression will be captured by the satisfaction level each project owner has from his Second Life presence.

3. What are the individual satisfaction levels of the project owners regarding the different categories of the framework?

---

<sup>30</sup> Millions of Us, an agency in specializing in virtual worlds and the technology and market research company Forrester have announced to start a landmark study on marketing and engagement measurement in virtual worlds.  
<http://www.millionsofus.com/pressrelease/PressRelease20080404.pdf>

## 3 Research Methodology

Chapter 3 explains the methodology applied in this research. First it takes a look at the sample selection which includes the choice of Second Life and the Fortune 500 companies. A short review of virtual worlds in Chapter 3.1.1 helps to explain the choice of Second Life as the virtual world that this research focuses on. Chapter 3.1.2 goes on with a description of the sample. After the explanation of the survey design in Chapter 3.2, the structure of the questionnaire is discussed in Chapter 3.3. Before the survey was sent out, it had to go through an expert<sup>31</sup> test (see Chapter 3.4). After that the survey was ready to be sent out to the project responsible of the different companies. Since the sample is not very big, a high response rate was needed. The strategy to achieve that is explained in Chapter 3.5.

### 3.1 Sample selection

This research examines how real life companies make use of virtual worlds, how they explore them and what activities they engage in. Virtual world is a very big umbrella word that includes very many different definitions and understandings. The next chapter explains what a virtual world is, what kind of virtual worlds exist and why Second Life is chosen as the sample to examine. Chapter 3.1.2 explains why within Second Life Fortune 500 companies are selected as the sample to analyze.

#### 3.1.1 Virtual worlds and Second Life

In 1978 two students from Essex University discovered that it was possible to let different users share the same database at the same time [Lober, 2007]. Thanks to this discovery it was possible for more than one person to play the same game simultaneously and this was the beginning of multi-user game experience. The students developed a game named MUD<sup>32</sup> which is seen as the primary multi-user online role playing game [Lober, 2007]. A lot of similar games were developed over time and more and more people tried to convert the mostly text based games into graphic environments. The first game with complete graphic game play was the 1991 released *Neverwinter Nights* [Lober, 2007:13]. Parallel to the technological evolution a growing

---

<sup>31</sup> These experts will be introduced and their qualifications proven in Chapter 3.4

<sup>32</sup> MUD stands for Multi-User-Dungeon which was a tribute to the famous adventure game Dungeons that they liked to play [Lober, 2007].

cultural awareness of digital 3-D environments and virtual worlds took place which was partly triggered by Neal Stephenson's novel *Snow Crash* (1992) [Wagner, 2008b]. His novel describes the continuation of the internet as a virtual world called the Metaverse and talks about avatars and system daemons that inhabit this space [Stephenson, 1992] and subsequently inspired the *Matrix* films. Stephenson's novel is one of the most cited and was the inspiration for Philip Rosedale to create Second Life [Lober, 2007; Wagner, 2008b].

The implementation of new 3-D graphics in these programs towards the late nineties helped to put users even deeper into these virtual worlds. Around that time the term MMORPG (massively multiplayer online role-playing game) became common usage to describe the genre of games that center around the sword-and-sorcery fantasy template of the MUD [Wagner, 2008b]. Even though virtual worlds originally come from that theme, today MMORPG's only represent one part of them (see Figure 2). Susan Kish presents in her *virtual geography* a way to classify existing virtual worlds in five different categories.

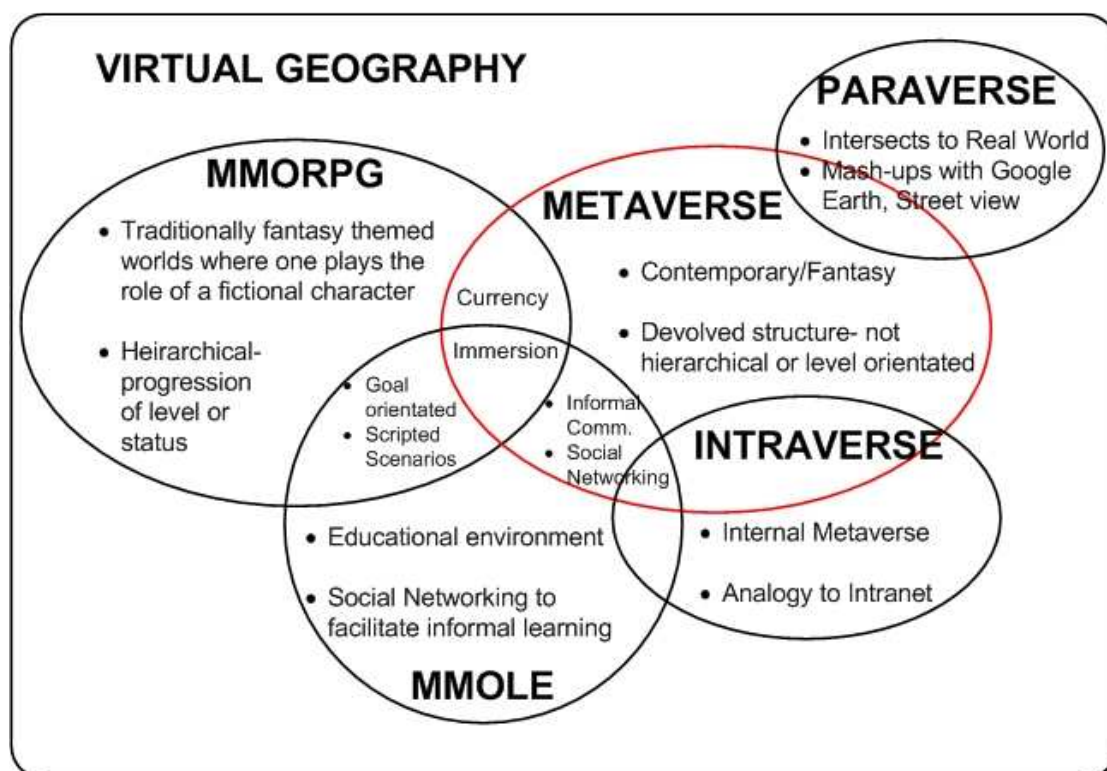


Figure 2: Virtual Geography – a way to classify virtual worlds [Kish, 2007]

MMOLE (massively multi-learner online environments) can be built like 3-D enhancements of different systems, as virtual classrooms or can be similar to web-conferencing tools [Gierke, Müller, 2008]. The Metaverse describes virtual worlds

that are primarily social vs. game oriented, which can overlap with the Paraverses (often called Mirror worlds) that try to mirror reality like Google Earth [Kish, 2007]. Intraverses are the 3-D enhancement of the Intranet and describe virtual worlds behind the corporate firewall that can have business, learning or knowledge focus [Gierke, Müller, 2008].

Second Life belongs into Kish's Metaverse cluster in Figure 2 which also shows graphically what is written above: The Metaverse cluster overlaps all the other clusters and this indicates that these virtual worlds potentially combine features and topics of all the other clusters. The diversity of many different aspects and possibilities of Second Life is a reason, why so many companies with different motivations and different visions entered the same 3-D environment.

This classification goes along with other articles that try to change the false common opinion that all virtual worlds are just games [Kirkpatrick, 2007; Kozlov, Reinhold, 2007] which is only entirely true for the MMORPG's. Each of the five clusters in Figure 2 does have its specific focus and topic and a lot of them lack the *“usual attributes of (online) games: a plot, a set of tasks to accomplish, rewards, scores, levels etc.”* [Kozlov, Reinhold, 2007]. Susan Kish states: *“Second Life is not a game, it's a social place”* [Kish, 2007: 1]

Second Life is just one virtual world among all the other existing ones or the ones under construction as seen in Figure 3. This graphic also shows the average user age, how long the world exists and how many people have signed up until the second quarter of 2008.



Eleven of the shown virtual worlds have more than ten million subscribers by the second quarter of 2008 [Kzero, 2008]:

- Habbo Hotel, 90 mio
- Neopets, 45 mio
- Weeworld, 21 mio
- IMUV, 20 mio
- Club Penguin, 17 mio
- Stardoll, 17 mio
- vMTV, 15 mio
- There, 15 mio
- Second Life, 13 mio
- Barbie Girls, 12 mio
- Gaia, 12 mio

Eight out of these eleven virtual worlds are inhabited by young people between the age of 10 and 22 including the high achiever Habbo Hotel with its 90 million accounts. This shows the enormous future potential of these worlds. Today's generation is already used to a life in 3-D environments and does not need to be convinced that virtual worlds do offer a whole range of new opportunities<sup>33</sup>.

Even though Second Life is not at all the largest of these worlds in account sign ups, it has certain features that make it a very special place to be. The most important points are certainly:

- User as content creators<sup>34</sup> [Lober, 2007]
  - Content creators keep their IP rights [Wagner, 2008, Lober, 2007]
  - Content can be sold, gets value [Amann, Martens, 2008]
- Very high differentiation and diversity of content [Lober, 2007]
- Single network of servers<sup>35</sup> [Wagner, 2008: 28]
- In-world economy with its own currency that can be converted to US\$ at the LindeX stock exchange<sup>36</sup> [Amann, Martens 2008; www.secondlife.com]
- Sociability factor is very high<sup>37</sup> [Kish, 2007]

---

<sup>33</sup> According to a recent Nielsen study of 40,000 British Internet users looking at top sites in specific age segments, virtual worlds lead for the under-12 demographic.  
<http://www.virtualworldsnews.com/2008/08/nielsen-virtual.html>

<sup>34</sup> Unless a previously constructed piece of land is bought, one starts out with a piece of land and everything on it has to be built. If you think of games or other virtual worlds, the content is given by the programmers.

<sup>35</sup> Opposed to e.g. World of Warcraft where you play on specific server networks that you cannot switch while playing.

<sup>36</sup> Some other worlds with an in-world currency and economy exist, but it is still not very common. Some of them have a fixed exchange rate instead of an exchange trade.

<sup>37</sup> Other worlds that come mainly from the MMORPG genre do not focus on sociability that at all.

Compared to other virtual worlds, Second Life attracts older people with an average age of about 32 [Kzero, 2008] or 36 years [Amann, Martens, 2008] depending on the source. Amann and Martens (2008) also found that Second Life residents have formally a higher level of education than the general population and that women account for 42% of the residents. So on average it is not the “classical gamer” that is attracted by Second Life [Amann, Martens, 2008]. This can be very important and valuable information for real life businesses that enter Second Life in case they want to approach a specific target group with their activities<sup>38</sup>.

*“In no other place was it possible to build and see the results instantaneously; to share the act of creation with others; to riff off their work, and make it larger than its individual components; to collectively create” [Wagner, 2008b]*

The discussed, in their combination certainly unique characteristics of Second life are the reasons why Second Life seems to be the most popular virtual world for Fortune 500 companies. Unfortunately this has not been proven yet, since no research on this exists for Second Life or other worlds. This study brings the first insights on that subject by quantifying the companies that are in Second Life and their activities.

### **3.1.2 Fortune 500 companies as the sample**

The Fortune Global 500 companies build the sample frame for this study because they are usually among the leaders when it comes to the use of new information technology as has been seen by McLeod and Roger (1982) and Li, McLeod and Roger (1993). In order to find out what their main activities in Second Life are, it has to be determined which companies do have or at least did have a presence in Second Life at all. Those build the sample for this research. The research has been done twice, once in June and again in September 2008. First the numbers are discussed and in a second step the changes are analyzed.

---

<sup>38</sup> For example if a company tries to build a strong brand within teenagers, it might not choose Second Life as the virtual world to explore since the target group “teenagers” is not as present as in other virtual worlds.

**Table 3: Companies with Second Life activities in June 08 and September 08**

The composition of the sample	Class	Jun 08	Sep 08
Found with search tool in SL and island visited	Open Access	47	46
Found with search tool but closed access	Closed Access	15	17
Found through alternative sources	Hidden in SL	5	6
Former presence, not found anymore	Discontinued	6	9
<b>Total Sample</b>		<b>73</b>	<b>78</b>

Second Life provides an integrated search tool. This tool was used as the primary way to find out which Fortune 500 companies do have activities in Second Life. All the 500 company names and some variations of them were typed in and then the results were examined by the author. At the beginning of this research<sup>39</sup> a total of 47 companies was identified and verified to have a presence in Second Life as seen in Table 3. The verification was done by visiting the company's Second Life island and looking if the owner of the island is either from the company<sup>40</sup> or belongs to a consulting company. Additionally the company presences present themselves with official logos and branding instruments. The verification was only possible for companies with open access to their island. Another 15 company names did produce search results, but a special permission is needed to teleport<sup>41</sup> to their island, since they have closed access. This means, that it was not possible to verify whether these results really belong to the respective companies or not. Different possible reasons<sup>42</sup> are imaginable for a company to have closed access to their presence:

- The place is still under construction
- The name (island) was claimed but nothing is being built (like reserved URLs in the WEB)
- The island (SIM) is used for internal exploration and experimentation

---

<sup>39</sup> June 2008

<sup>40</sup> You can see in what groups those owners are, often there exists a group of the company

<sup>41</sup> Teleporting means, that your avatar disappears and reappears in an another destined place

<sup>42</sup> These reasons are supporting thoughts by the authors to show, why companies might not be found in Second Life, even though they are present

But not all companies use their name of the Fortune 500 list also for their Second Life projects which means that they do not appear in the search results of Second Life's search tool. There are different reasons for the companies to work with another name: The company...

- ...wants to keep their project anonymous
- ...drives a specific campaign with a special name
- ...wants to bring one specific brand to Second Life
- ...does not have their own island but are integrated in other places
- ...has shut down all their activities in Second Life

Those companies have to be found through alternative sources like case studies or interviews with experts. Another 5 companies that do not operate publicly in Second Life were identified that way. Finally the sample was extended by 6 companies that were known to have stopped their activities in Second Life. They used to have publicly accessible islands but stopped their activities as it was mentioned in case studies or news releases. Companies that stop their activities in Second Life usually delete all traces and will not appear in search results anymore. But because of their experience and their gathered information they potentially deliver very valuable information to this research and are therefore not excluded.

There have been a couple of changes during the time from June to September 2008 as seen in Table 3. Out of the 47 companies that were identified and visited in June 2008, three stopped their activities and cannot be found anymore. Instead two other corporations did open up new presences which results in 46 open access presences at the time. Two companies are probably planning to have activities in Second Life because their names produce search results, but the access is closed. Additionally one more company is known to have started some activities, but they are not yet to be found with the Second Life search tool and are therefore noted under "found through alternative sources". This results in a final sample size of 78 companies.

It is not possible to estimate how accurate the numbers in Table 3 are. First of all because it is not possible to prove if an island with closed access really belongs to the respective company or if anybody just makes use of that name. Secondly are all corporations identified through "alternative sources" lucky punches that can as well be missed. Thirdly do companies that stop their activities in Second Life usually delete everything and will not appear in search results anymore. This has also been seen by three companies that closed their presence during the time of this research<sup>43</sup>. But thanks to the thorough research the number of not identified companies is expected to be rather small.

---

<sup>43</sup> Mercedes Vans island, BMW island and Vodafone island

## 3.2 Designing the survey tool

The sample consists of the biggest companies in the world that are globally distributed in different places all over the world. Hence the advantages of a web based questionnaire are immense: fast, cheap, interactive and worldwide [Berekoven, Eckert, Ellenrieder, 2004]. Web-based surveys also have the advantage to automatically verify and store survey responses [Andrews, Nonnecke, Preece, 2003]. Further this eliminates transcription errors and prevents survey alteration by the survey respondent.

The only negative point of online surveys that is mentioned in literature concerns the distribution of computers among the target group [Andrews et al., 2003; Berekoven et al., 2004, P. 116]. They warn that the “online” population is not yet representing the “offline” population but only a very specific part, the so called “*elite of information*” [Berekhoven et al, 2003: 116]. It is expected by the author that this has changed significantly by now and since this study is only concerning the companies that are already in Second Life the online survey is the best tool available.

The questionnaire is designed with a mixture of open-ended and closed multiple-choice questions. Closed questions<sup>44</sup> have the advantage of simple coding and make it easy to quantitatively analyze and interpret the outcome [Kirchhoff, Kuhnt, Lipp, Schlawin, 2003]. But they require a good knowledge of the subject to formulate all possible and sense making answers [Kirchhoff, Kuhnt, Lipp, Schlawin, 2003]. A big part of the standardized questions are derived of the framework in Chapter 2.2 and give the questionnaire its structure.

Open ended questions on the other hand create more room for the participant’s creativity, new findings and inputs, opinions, and ideas. The findings are of qualitative nature. However, too many of them could have a negative influence on the response rate [Crawford, Couper, Lamais 2001]. Therefore the main part consists of standardized questions with additional open ended questions at the end. It is expected by the author that the open ended questions will not be used very often if the standardized questions are all-embracing.

The questionnaire should not be too short since this could be interpreted by the participant with lack of knowledge about the subject. On the other hand, too extensive surveys discourage people to participate. The aim was a survey that takes between 15 to 20 minutes to fill out and the later tests assured that this range was accurate.

---

<sup>44</sup> Closed questions give the answerer a set of answers contrary to open-ended questions that leave it up to the answerer to respond in his own words

This duration time was communicated to the responsible of the companies beforehand as a motivation to participate.

The tool that was used to realize this online survey was *Survey Monkey*<sup>45</sup>. It allows to create all the types of questions that are needed for this survey, allows to store the given answers and gives the possibility to extract them as an excel file.

The person contacted within the companies was the project responsible for Second Life, since he has the overview of the activities as this questionnaire requires it. The process to get in contact with the project responsible is described in Chapter 3.5.

### 3.3 Structure of Questionnaire

The following Chapter explains the ideas and thoughts behind the different questions in the questionnaire which can be found in the appendix. The questionnaire is divided into six parts: General Information, Initial Phase, Realization, Activities in Second Life, Attraction of Residents, and Success Measuring and Satisfaction Rate.

#### General Information

The general information part consists of specifications of the participant and his company. The industry type, the number of employees and the department of the participant are of interest. Also it is interesting to see, if the company is engaged in B2B<sup>46</sup> or B2C<sup>47</sup> activities and if this is consistent with their Second Life presence. This information is gathered to find out, if there are any patterns that show differences depending on these input variables. No issues have been identified and therefore the answers will not be analyzed in Chapter 4.

#### Initial Phase

Questions about the initial phase show the premises of the participants<sup>48</sup>: in what virtual worlds does the company have presences, how much experience in Second

---

<sup>45</sup> [www.surveymonkey.com](http://www.surveymonkey.com)

<sup>46</sup> B2B stands for business to business commerce

<sup>47</sup> B2C stands for business to consumer commerce

<sup>48</sup> "The participants" refers in this context and the rest of the study to all the 25 companies that filled out the online survey.

Life the company has, which department gave the input to start the project and what was the motivation to enter this emerging technology. It is interesting to compare the initial motivation of entering Second Life with the current activities and the satisfaction level.

### Realization

Realization goes into details about the number of island's the company operates, where they are located<sup>49</sup>, if they have public or closed access, if the project runs under the company name, who had the lead during realization phase and how many employees worked on the project. The goal was to see a pattern on how different ways of realization influence the satisfaction level of the participants. Same as with the general information, no patterns could be identified and only a few answers will be included in Chapter 4.

### Activities in Second Life

A couple of changes and adjustments on the original framework for activities in Chapter 2.2 were made for the questionnaire. The two subchapters "*Conventional Marketing*" and "*Interactive Marketing*" are presented in this questionnaire as two individual activities. First of all, because marketing would otherwise have had a big overweight compared to the other categories considering the amount of activities, and secondly does this emerging technology offer new possibilities that could not be achieved in the same way before. Therefore it seems to be very interesting to see how many companies take advantage of these new possibilities. The difference of the two is very important as seen in this statement of Betsy Book, editor of the *Virtual Worlds Review* Web site and director of product management for There<sup>50</sup>:

*"To be effective, marketing in these worlds needs to be consistent with the virtual environment and enhance participants' experience. You don't want to simply shove a billboard in people's face". [Hemp, 2006]*

Even though literature does not make a distinction between sales of real and virtual products and services on the virtual market, the web survey does differ between

---

<sup>49</sup> There is different possibilities to establish a presence: either you have one or different islands, that belong to you or a group of companies and you can even place your presence on the so called main land.

<sup>50</sup> There is another virtual world that states on its website: "*There is an online getaway where you can hang out with your friends and meet new ones--all in a lush 3D environment that's yours to explore.*" [www.there.com](http://www.there.com)

them to see if companies themselves do make a difference or not. But just in case a difference exists between those two activities, it would be very interesting to know.

The same is true for *R&D* activities where the books and case studies write about development and testing of products by residents and company members as one thing. To see if the companies explicitly encourage residents to produce their own things and if they are integrated in the testing phase, the question about resident's participation in product development and testing will stand for itself as well as the company's engagement in this field.

Only Forrester (2008) mentioned the possibility of Second Life for facility management which falls into the category of *Management of Services & Processes*. Customer relationship management has also been mentioned by the Forrester report (2008). But employee relations and HR<sup>51</sup> activities<sup>52</sup> have not been mentioned but will be added for the survey<sup>53</sup> since it seems possible to extend the activities into that direction.

The scale to rate the answers was the same for all the questions about activities: "currently operating", "in implementation", "planned", "no activity", and "discontinued".

### **Attraction of residents**

As seen in Chapter 3.1.2 some companies have closed access to their island. This implicates that they are not trying to get new people to their presence. For the other companies it is a goal to attract many new people to their location, either residents of Second Life or get none users to sign up for Second Life. One of the newer applied technologies<sup>54</sup>, allows people to sign up for Second Life over the company's website. After installing the Second Life program, the new user will be transferred right to the company's SIM over a SURL (Second Life URL). Previously to that technology a new user had to download the program and register for the program over the Second Life website. The new possibilities make a big difference concerning customer relationship and branded experience. A company can also place a SURL on their website to show commitment towards the Second Life presence and attract people to this new place. Other possibilities to attract residents include in-world events, discussions, or advertising within Second Life or in the WEB in general. One option in use to generate traffic is called camping: Avatars of residents are paid to spend time in a certain

---

<sup>51</sup> HR = Human Ressource

<sup>52</sup> Appart from recruiting activities

<sup>53</sup> Input by Stefan Häfliger, one of the experts that tested the survey

<sup>54</sup> Referd to in this thesis as the SLAPI

location, which attracts a lot of residents and brings traffic to the company. Experts<sup>55</sup> point out the negative image camping can have to other residents that want to have a good experience on the company site and find an army of “avatar zombies” that do not react to the environment since the person that controls them is away from keyboard<sup>56</sup>.

### Success measuring

Success and its measurement are always very important for real life businesses and this is not different for virtual worlds. Up to this point no studies on success measurement in virtual worlds exist and most statements elaborate on the intangibility of success of these projects and point out other important aspects. The *Learnings from the Melbourne Laneways Project*<sup>57</sup> (2007) identified as key measures the amount of time the users spend on their site, sales made and the number of visitors over a given period of time. At the same time they mention that “the key measures in Second Life, however, are still poorly developed”. But they mention that the real value for companies is knowledge and “*keeping up to date with emerging trends and understanding the potential for this platform to influence a range of social and economic factors into the future*” [Multimedia Victoria, 2007]. Also the Forrester report [Forrester, 2008] sees exploring and knowledge gathering as the most important point for entering virtual worlds at this stage.

Two articles about Accenture and Microsoft form the exception to the rule and communicate concrete measured success stories. Accenture has installed a recruitment platform in Second Life which targets the “Facebook audience” [Driver, 2008b]. They state that after five or six networking and recruiting events the Second Life island has paid for itself by finding “a decent number of hires” [Driver, 2008b]. Microsoft has also communicated figures that they can substitute certain physical events to the virtual world at about 1/3 of the cost [Driver, 2008c]. One of these events was the launch of three new product releases: SQL Server 2008, Windows Server 2008, and Visual Studio 2008. [Driver, 2008c]

To get an idea on how Fortune 500 companies currently measure success, an explorative approach with an open question is used to give the participants the possibility to answer openly and unprejudiced. The main interest is in how companies

---

<sup>55</sup> Among others Garrett Corrbarr (see Appendix)

<sup>56</sup> Away from keyboard or AFK is a popular term in virtual worlds to describe an avatar that is visible but whose controller is not really active at the moment.

<sup>57</sup> [Multimedia Victoria, 2007]

measure and evaluate their success. The question specifically asks the participants to mention hard facts<sup>58</sup> and soft factors<sup>59</sup>

### Satisfaction rate

Besides the key factors for success measurement with hard and soft facts, there is always an overall satisfaction level. This satisfaction level is not necessarily based on facts but in perception of the participant. It gives an idea on how the project leaders see this emerging technology, which parts are important and satisfying and which parts are not satisfying at all. Each project responsible is asked to state on his satisfaction level on the categories of the framework. The applied five point Likert scale includes the levels: “very satisfied”, “satisfied”, “indifferent”, “not satisfied” and “not at all satisfied”. For companies that do not have activities in certain fields, an additional level “no such activity” exists.

A couple general points had to be respected to create a well balanced web survey that is easy to fill out, has the right proportions and does not stop the people from filling it out:

- Not too big crossovers<sup>60</sup> of questions that annoy the participants
- Balance the different pages so no overweight of certain topics exist
- Ask well-defined questions that allow for clear answers

The crossover check was done by the author of this study in combination with the experts that review the questionnaire in Chapter 3.4. An unasked feedback of one of the participants, that he was glad that no crossovers existed, is taken as a good sign.

Another important point is the balance of the different topics. The problem is that an overweighing of a certain topic could influence the participant’s answers leading to bias<sup>61</sup>. If one topic overweighs, but the participant does not have many activities in this topic, he feels left out and will try to find anything that could possibly fit as answers in order to mark activities in this seemingly very important section. This was ensured in a way to find a good balance of optical page length. The important point was that each page included a maximum of 8 questions. It took about the same

---

<sup>58</sup> e.g. number of residents on the island; traffic

<sup>59</sup> e.g. resident's feedback

<sup>60</sup> Crossovers are questions that reappear in the same or similar context and annoy participants

<sup>61</sup> This point has not been found in literature. It was noticed in Chapter 2.2, that marketing has a big overweight in existing studies about Second Life. The goal here is to make sure, that this does not influence the participants.

amount of time for each page to fill it out, since more complex pages included as few as 2 questions. A progress bar visualizes the participant how much time is left to go, another motivational technique [Andrews, Nonnecke, and Preece, 2003].

To find out if the questions were clearly formulated and represent the correct content concerning terms and specifications, a team of experts was asked to review the questionnaire and give feedback. This pretest is explained in more detail in Chapter 3.4.

### 3.4 Expert test of the questionnaire

Eid and Trueman (2004) and also Liu and Arnett (2000) used a 3 step approach to develop and validate their survey:

1. Development of the survey from the literature
2. Initial pre-test
3. Pilot test of the survey

Following this procedure, the main part of the web survey comes out of the framework in Chapter 2.2 with the adjustments described in the previous chapter. This already gives a high confidence level since the questions did not have to be developed from scratch. A group of designated experts<sup>62</sup> examined the content, the structure and the form of the survey in a pre-test. These people have different knowledge backgrounds and qualify for different reasons as experts as you can see in Table 4:

---

<sup>62</sup> A short summary of the experts is to be found in Appendix

**Table 4: Experts to examine web-survey**

Name	Profession	Field of Knowledge
Shenja van der Graaf	Researcher at Harvard	- Research within SL - Survey design in SL topics
Garrett Cobarr	CEO Swissopolis Founder/Principal at Lingua Media Group	- Scripting in SL - Business consultant in SL - Research in SL
Peter Jäger	Doctoral student at ETH Zurich	- Machinima expert with affinity to virtual realities - As doctoral student experience in structured designs of work
Stefan Häfliger	Postdoctorate at ETH Zurich	- Machinima expert with affinity to virtual realities - As postdoctorate experience in structured designs of work
Michele de Lorenzi	ETH ICT-Commission and CEO & Founder of 2life	- Responsible for ETH SIM in SL - Business consultant in SL
Nick Wilson	CEO & Founder of cleverzebra consulting	- Business consultant in SL
Stefan Stieglitz	Postdoctorate at University of Potsdam	- Experience in surveys about virtual world and SL

These experts were able to give very important inputs for the questionnaire. A few questions had to be rephrased due to unclarity, for other questions the answer choices had to be adjusted because of technical specifics of Second Life. Overall only a couple of minor adjustments had to be made.

The revised survey (see Appendix) was tested by a big Swiss company that is not part of the Fortune 500, but is very similar to one of the participants of the study. The feedback was very satisfying in every aspect. Balancing of the questions, time consumption per page and in total and the crossover of questions was noticed positively by the test company. Therefore no additional changes were made.

### 3.5 Response rate and trust

Since only 78 companies were identified to have engagements in Second Life, a high response rate is needed to get enough responses to make a strong statement. Other studies around information technologies and websites among Fortune 500 and Fortune 1000 companies have achieved response rates of 10%<sup>63</sup> [Li, McLeod, Roger

---

<sup>63</sup> They interviewed managers of marketing research in Fortune 500 companies about their usage of Marketing Information Systems

2001] and 18%<sup>64</sup> [Liu, Arnett 2000] respectively. Both have addressed only their target group and launched two rounds of survey completion and still the response rates were rather modest.

For a higher response rate, Andrews et al. (2003) suggest:

- Separate the invitation to participate (e.g. consent) from the questionnaire
- Obtain consent of online community leaders
- Post survey results or summaries of results
- Use remainders

This approach helps to build a connection to the interview partners. Besides the fact, that a higher response rate can be achieved this way, this is the first step to a relationship of trust [Andrews et al., 2003]. From these suggestions the following four step approach was derived:

### Step 1

All the companies of the sample were addressed without the survey only to get the contact details of the person in charge of the Second Life project, the project owner. This was either done in-world through messages or conversations, or through mail, contact forms, phone or a third party that knew the person in charge<sup>65</sup>.

	Inworld	Mail/Form	Phone	3rd Party	Total
<b>Total number contacted</b>	47	54	10	36	<b>147</b>
<b>Received contact details</b>	11 (27%)	17 (41%)	3 (7%)	10 (25%)	<b>41 (100%)</b>

As seen by the numbers, many companies were contacted simultaneously through different channels. Probably most surprising was the fact that 23 companies did not respond at all to the several contact efforts. This accounts for almost 30% of the overall present companies in Second Life. Also not expected were the few responses from in-world contacts. This is probably due to the fact, that the companies do not manage their presences themselves and the operators are not willing to participate in a survey. Still a total of 41 contact details of the project owners with name and mail address were known by the end of step 1. The 14 remaining companies of the 78 did answer to the initial contact request, but either they said that their company does not give out information or that they forwarded the mail, but they did not answer anymore.

---

<sup>64</sup> They interviewed webmasters of the websites of Fortune 1000 companies about critical factors for website success.

<sup>65</sup> Often virtual world consulting companies

**Step 2**

The responsible project owners and also the other companies were provided with information about the goals of this study and motivated to participate. They were promised to get the final study at the end and as a further motivation all the companies that already confirmed their participation were mentioned. 39 out of the 41 known project owners confirmed a participation in the survey. This shows, that the topic seems to be very interesting to the different Second Life project owners.

**Step 3**

The 39 project owners were provided with an individual message that contained the link to the survey and were asked to fill it out within a week. Another 22 companies of those whose contact details were not known yet but that did not generally deny in taking part in a survey were also provided with the link through general e-mail or a contact form, even though the project responsible was not known. The rest could not be contacted since they either did not provide a mail address or they have already rejected the request after the first mail contact. 9 companies out of the 61 addressed ones answered within the given time which equals an initial response rate of 15% (out of 61) or 12% taken all 78 into account.

**Step 4**

After a first follow up notification was sent out, 6 more companies completed the questionnaire and after the second reminder another 10 companies. Only one company started the survey and did not complete it, which shows that the design of the survey was encouraging for the participants to finish. Overall 25 surveys were accepted which accounts for a response rate of 41% out of the 61 addressed companies or 32% out of the sample size of 78.

One of the two companies whose contact details were known, but that didn't respond, sent in a filled out survey very late when all the statistics were finished and therefore it could not be included anymore. At this point it can be said, that it corresponds with the findings and would not have made a difference in the conclusions.

Because this is an exploratory study which tries to give an overview of the status quo and focuses on theory-building rather than theory-testing, the sample is regarded as adequate for making initial exploratory investigations. [Curran, Blackburn, 2001].

## 4 Data analysis and results

This chapter contains the results of the questionnaire that was sent out to the Second Life project owners. These results are displayed and some of them briefly explained. The elaborate discussion of the findings is found in Chapter 5. The General Conditions in Chapter 4.1 help the reader to understand, who in corporations gives the input to enter virtual worlds, what are their motivations, when did they decide to begin the project, and when did they finally launch their Second Life island. The General Condition ends with an analysis of the result that companies with higher revenues are more likely to establish a presence in Second Life. After this introduction to the participating companies' general conditions, their activities and engagements are analyzed in Chapter 4.2. The goal is to show, how many companies engage in a particular activity, and see what activities are mostly applied. Also the efforts to bring people to the companies' Second Life presences are analyzed in Chapter 4.3 in order to see, how much effort the companies are putting into their projects. In order to see if the activities and efforts to attract people are successful some kind of measurement has to exist. This leads to the KPI's that are applied at the moment by the Fortune 500 companies (see Chapter 0). Since an overall satisfaction level cannot be measured by facts, Chapter 4.5 displays the subjective view of the project owners and their satisfaction level.

A total of 25 qualified responses from the Fortune 500 companies with involvement in virtual worlds were collected. The upcoming percentages are always going back to this number of participants unless stated explicitly different. 23 of these corporations are still actively involved and two of them have stopped their engagements. One of the companies that stopped their activities in Second Life called it a success that was initiated by the marketing department and now they have moved on to other projects. The second company notes, that they did not give the project the necessary attention which resulted in a not very satisfying experience:

*"We didn't give enough priority on the project due to other projects"*<sup>66</sup>

In the following chapters, these two companies will also be included in the data analysis since their experiences are as valuable as the others.

---

<sup>66</sup> Citation of the project responsible for the respective company

## 4.1 General Condition

To have a better understanding about the different engagements of corporations in Second Life the most important facts about the projects must be known. The general conditions give an overview on the initiators of the projects and their motivation to enter Second Life. Also discussed are the starting time of the projects and the likelihood to have an engagement in Second Life for companies with higher revenues.

### 4.1.1 Project initiators and project owners of Second Life projects

Almost one third (32%) of the projects are initiated by the marketing department as seen in Figure 4. Innovation delivers about a fourth (24%) of the initiators, which seems to be quite obvious since this new medium is a very new development in itself and holds very much innovation even in its usage alone. External inputs from consultants, marketing professionals, innovation groups and other externals have initiated four projects (16%). Management (12%) and Communication (8%) together account for only one fifth of all the listed initiators. HR and IT departments do not seem to be the ones pushing for this emerging technology so far since only one project of each department has been initiated (4%).

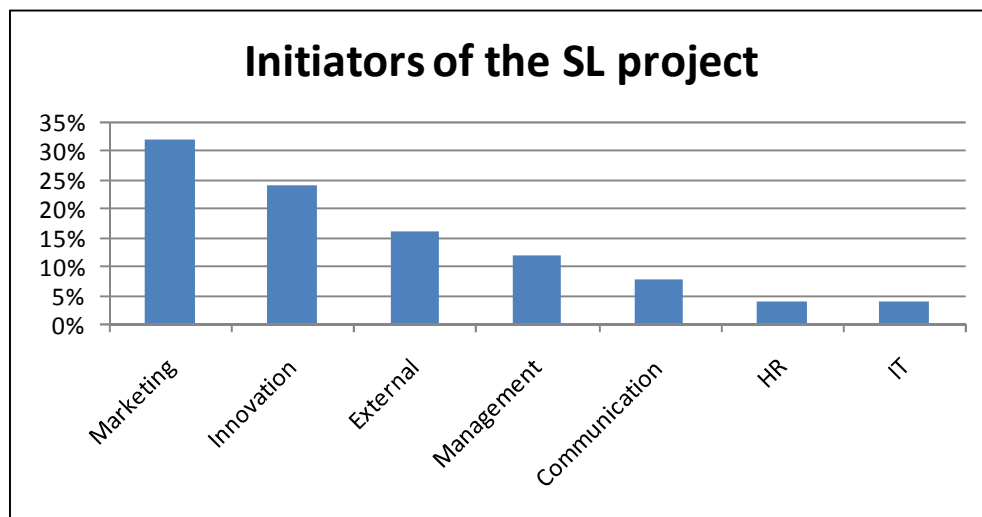


Figure 4: Initiators of Second Life projects

The question of the initiating party of the company goes along with the question about the motivation for a big company to enter a virtual world at all.

**Table 5: Motivations to start the project in Second Life**

	very true	true	indifferent	wrong	very wrong
Collaboration & Communication	<b>52%</b>	48%	0%	0%	0%
Marketing	<b>40%</b>	<b>40%</b>	12%	4%	4%
PR	<b>36%</b>	<b>36%</b>	28%	0%	0%
Market Research	12%	<b>48%</b>	32%	4%	4%
Competitors entered as well	8%	16%	28%	<b>36%</b>	12%
Knowledge gathering about 3-D environment	<b>48%</b>	28%	16%	8%	0%
Innovation	<b>68%</b>	32%	0%	0%	0%
Visualization & Simulations of different kinds	8%	<b>56%</b>	36%	0%	0%
Recruiting	8%	12%	<b>48%</b>	28%	4%
Management of services	4%	16%	<b>44%</b>	28%	8%

Table 5 shows that *Innovation* was stated as the main motivation to start the project in Second Life, followed by *Collaboration & Communication* before *Knowledge gathering about 3-D environments*. Not very common or even known are *Management of Services & Processes*, *Recruiting*, and *Visualization & Simulation* of different kinds. The companies resolutely denied that they entered Second Life because of competitors that entered as well. Other explicitly mentioned reasons to enter are e-learning, recruiting, community building, getting to know new sales processes, exploring new media and new ways of communication. This suits very well with the framework in Table 2 that shows that the here less often chosen motivations are also less often mentioned in literature.

Virtual worlds are “per se” an innovation and having engagements within them even more. Not surprisingly is innovation for the participants one of the main reasons to enter Second Life<sup>67</sup>.

*“As a platform for collaboration of all sorts this was an attractive proposition. Had tried other things over the years, and now was the time.”*<sup>68</sup>

This is also supported by the fact that almost half (12) of the companies are either present in one of the other 10 most populated virtual worlds (see chapter 3.1.1) or are experimenting with their own virtual environments.

<sup>67</sup> The author refers to innovation in the context of product or service innovation. Process innovation is rather part of the management of processes

<sup>68</sup> Citation of the project responsible

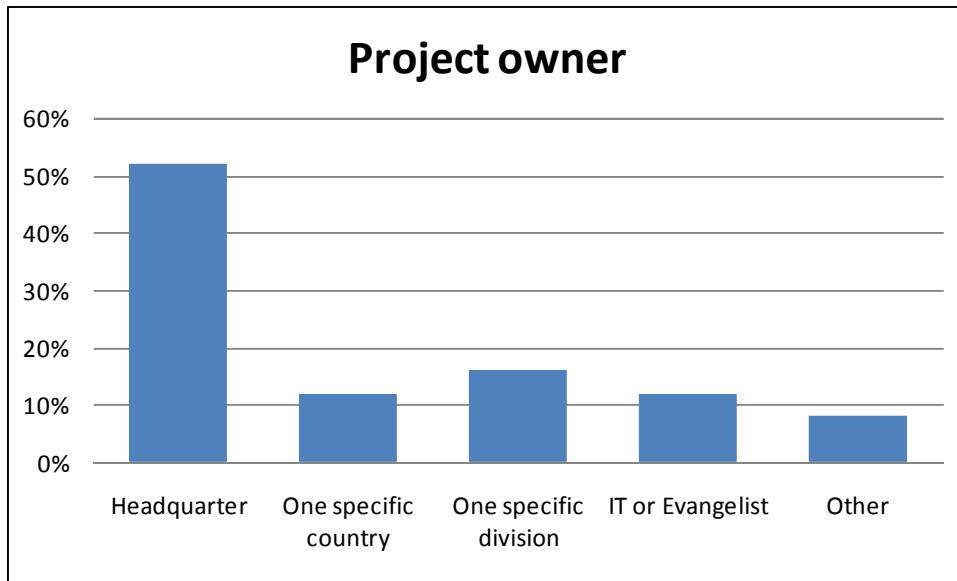


Figure 5: Project leader for the Second Life project

Even though news coverage has reported rather negatively about Second Life<sup>69</sup> during late 2007 and the beginning of 2008, big companies still do actively engage in virtual world activities. They look at those projects as rather important and tend to steer them either from the headquarters or through special IT groups or evangelists<sup>70</sup> (see Figure 5). Especially in big technology companies future trends are handled by special groups and evangelist that promote this technology among the technical community.

#### 4.1.2 Entering time into Second Life

It does make a difference, whether you enter Second Life to drive a marketing campaign only and leave again after some period of time or if you want to understand what is behind the momentum or the hype of it and how the company can profit from it [Hemp, 2006; Kozlov, Reinhold, 2008]. Experts of virtual worlds have said on various occasions<sup>71</sup> that virtual worlds in general, but Second Life in special, are following the Gartner Hype Cycle. Gartner predicts that all emerging technologies follow a

<sup>69</sup> See Chapter 1

<sup>70</sup> An evangelist preaches for his cause. For example has IBM created a job called Metaverse Evangelist that heads the virtual world development and lectures about it. The job is held by Ian Hughes, who participated for IBM in this study.  
<http://news.sky.com/skynews/Home/Technology/IBM-Do-Business-In-Virtual-Worlds-Like-Second-Life-With-Metaverse-Evangelist/Article/200809315103102?f=rss>

<sup>71</sup> [Mitham, 2007] or Gartner on their Hype Cycle 2007, where they put virtual worlds at the peak in August 2007

hype cycle curve as shown in Figure 6. The complex part of this hype cycle is the prediction of the actual point the specific technology is located at. Gartner<sup>72</sup> put virtual worlds in the Hype Cycle of July 2007 at the peak and predicts a downfall. It shows that the technology of virtual environments/virtual worlds is expected to reach main stream adoption in 5 to 10 years.

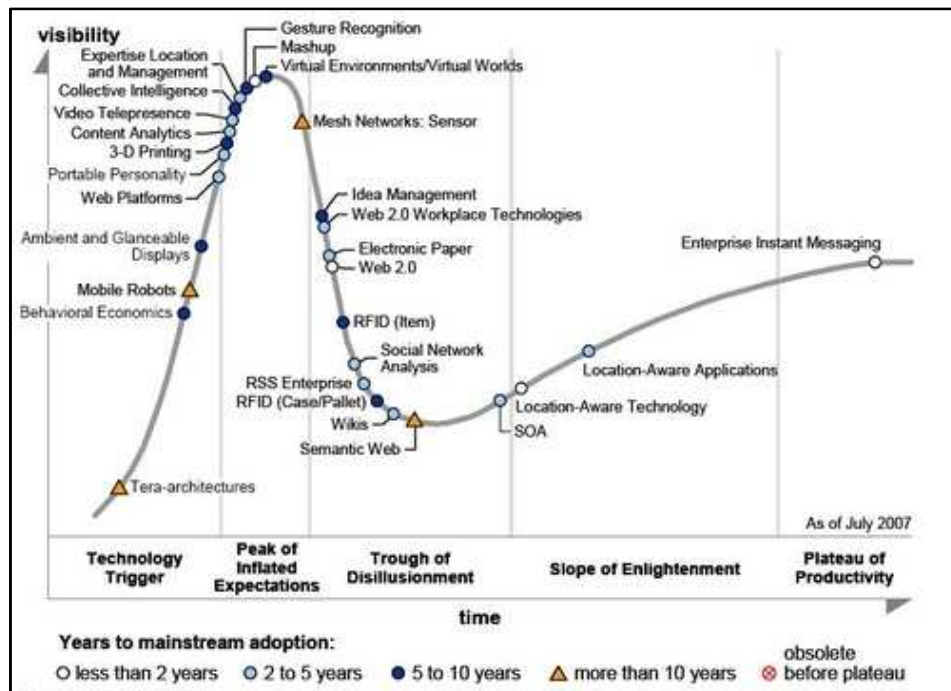


Figure 6: Gartner Hype Cycle for emerging technologies as of July 2007<sup>73</sup>

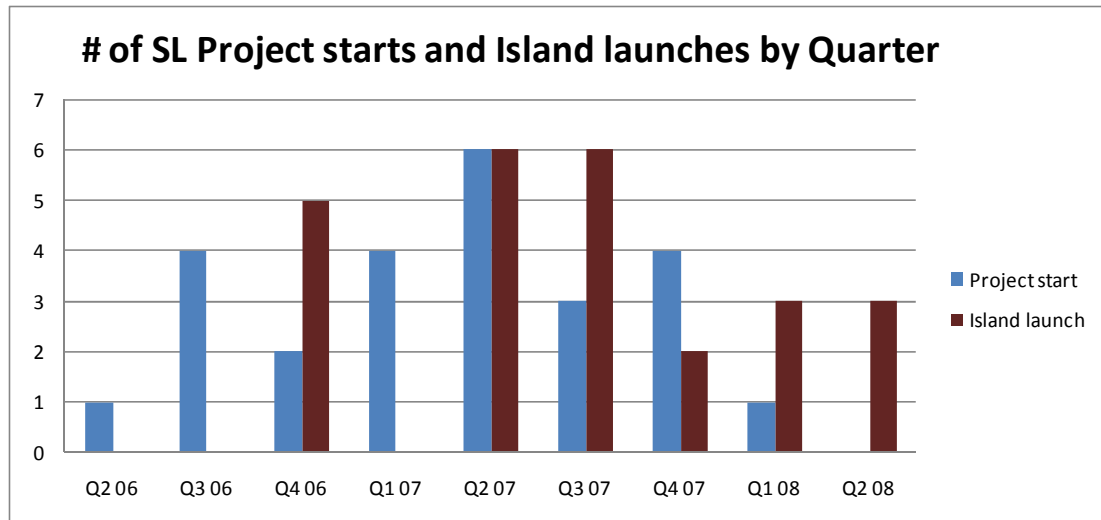
Figure 7 shows the time when the participants started their projects to enter Second Life. Towards the end of 2006 the first couple companies launched<sup>74</sup> their Second Life presence. During the middle of 2007, when virtual worlds were supposedly at the peak of their hype, the most of this study's participants either launched their island or started their project.

<sup>72</sup> <http://www.wortgefecht.net/marktforschung/gartner-hype-cycle-2007/>

<sup>73</sup> Source:

[http://www.saastream.com/my\\_weblog/images/2007/10/02/gartner\\_hype\\_cycle\\_emerging\\_techn\\_3.jpg](http://www.saastream.com/my_weblog/images/2007/10/02/gartner_hype_cycle_emerging_techn_3.jpg)

<sup>74</sup> After the start of the project it takes some time and programming until the Second Life presence is ready to announce and celebrate the launch



**Figure 7: Number of SL project starts and islands launch of Fortune 500 companies by quarter**

Despite all negative media coverage at the beginning of 2008 six companies did launch their Second Life island in 2008. Unfortunately nothing is known about companies that have started new projects during this time, since only the companies with an existing presence have been subject to evaluation. Therefore it is expected that this graph is missing some project starts in Q1 08 and Q2 08.

#### **4.1.3 Percentage of Second Life presences based on revenues**

The ranking of the Fortune Global 500 List is based on revenues. The gap from Wal-Mart as the biggest company in the world with a revenue<sup>75</sup> of 351 billion US\$ and bombardier as the number 500 with 15 billion US\$ is enormous and differs by a factor of more than 23. To find out if companies with higher revenue are more likely to establish a presence in Second Life, all the companies out of the list were divided into three categories based on revenue, similar to Liu et al. (1997): companies with less than \$20 billion, with \$20 to \$50 billion, and with over \$50 billion. Like Liu et al. these portions are chosen in order to get three similar groups.

<sup>75</sup> Revenues come out of the Fortune Global 500 List of 2007.  
www.fortune.com

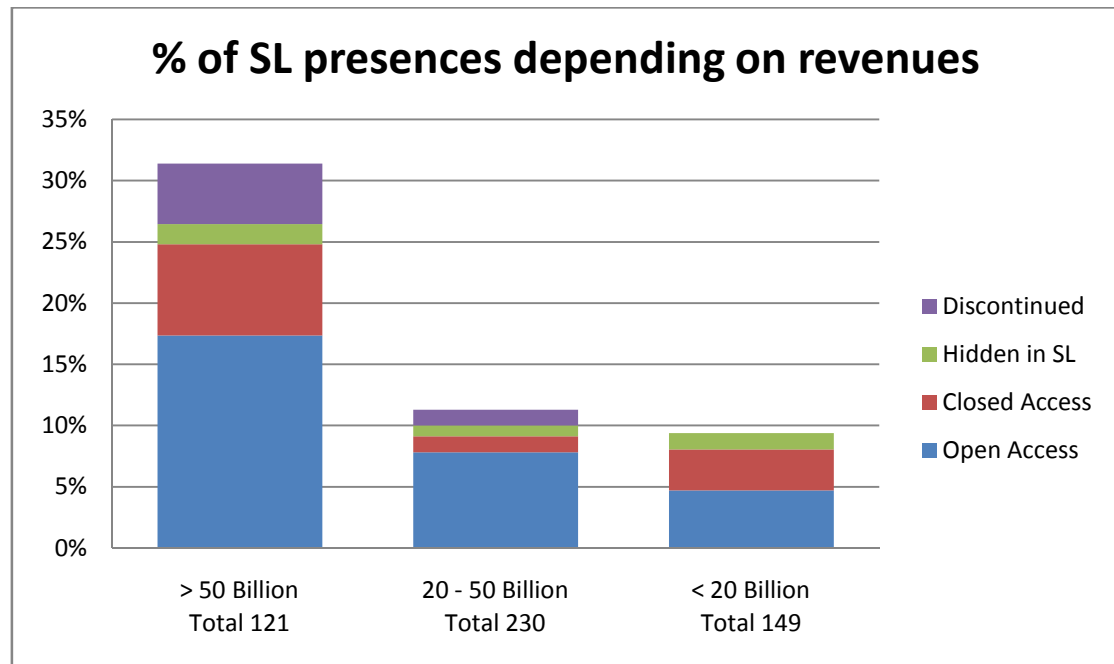


Figure 8: Percentage of Fortune 500 companies with SL presence in September 08

Out of 121 companies with revenues above \$50 billion a total of 38 companies or 30% do have or did have some kind of activities in Second Life. When looking only at presences with open access, this group accounts for 21 which is a difference of only 3 compared to the 20-50 billion group, but percentage wise that is still more than double the amount (see Figure 8). The biggest group of companies (230) had revenues between \$20 and \$50 billion and 26 of them had activities in Second Life which accounts for around 10%. The last group with 149 companies with less than \$20 billion in revenues has 14 companies with Second Life experience (9%). Figure 8 suggests that companies with higher revenue are more likely to have activities in Second Life. The chi-square test for independence of variable confirms this suggestion with a value of 32.6 and strongly sees a relationship between the revenue of the company and the presence in Second Life. The chi-square test is only reliable if less than about 10% have expected frequencies below 5. As you can see in Appendix this is not the case and the results strongly support a dependency of the two variables.

## 4.2 Activities in Second Life

The companies answered questions according to the framework, what activities they are “currently operating”, which ones are “in implementation”, which ones are “planned”, where they have “no activity” and what activity they have “discontinued”. In this study all the activities are included that are “currently operated” or “in implementation”. Table 6 lists all the activities and how many of the 25 participants are apply-

ing them. The Graph in Figure 9 shows how many companies engage in activities of a certain category<sup>76</sup>.

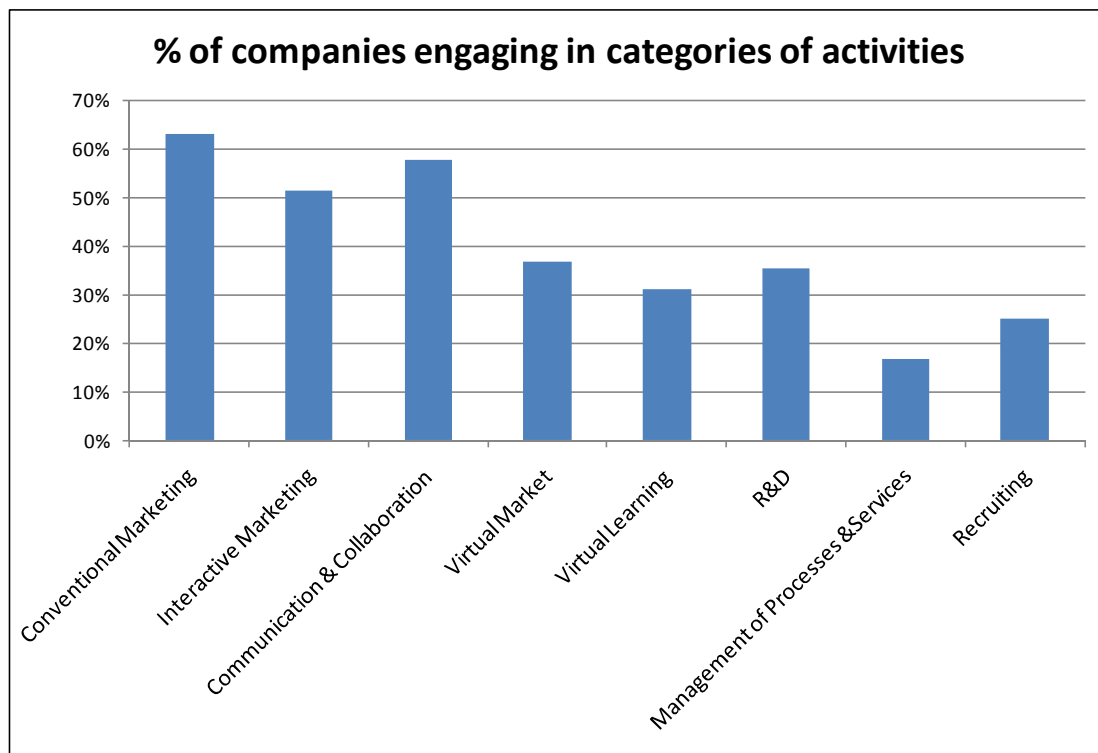


Figure 9: Percentage of main activities of companies in Second Life sorted by categories

Not very surprisingly *Marketing* makes up a very big part of the actual activities that are applied in Second Life as seen in Figure 9. This was anticipated by the news coverage that was mainly focusing on marketing aspects of virtual worlds. The *Top third* of all proposed activities in Table 6 are applied by more than two thirds of all companies. Within that group 4 out of 8 activities belong either to the *Conventional* or the *Interactive Marketing* category defined in Table 2. In numbers this means that 22 out of 25 respondents provide information about their company<sup>77</sup> and 19 additionally provide a possibility and get in contact with the company. Considering the fact that virtual exhibitions and the virtual displaying of products can also be seen as some kind of marketing, it certainly does occupy a very dominant role compared to other activities. The third important category of activities is *Communication & Collaboration*, where 19 companies engage in external meetings with customers and suppliers and another 17 have organized conferences.

<sup>76</sup> The number of activities a company engages in a category were divided by the possible number of activities and that was summarize over all companies.

<sup>77</sup> Corporate Communications

The *Middle third* in Table 6 is dominated by *Communication & Collaboration*. Internal meetings (52%), connection of dispersed teams (48%) and employees with their own office (44%) are the most applied activities in that category. Also big is *Conventional Marketing* like billboards and sponsoring (52%), market and customer research (48%) and client acquisition (36%). *Virtual Learning* in a virtual classroom environment is probed by 12 companies.

Rather surprisingly research and development does not have as an important role as some case studies and news of the scene suggest. Besides the effort to engage residents in product creation (13 companies), the other *R&D* activities like prototyping, company R&D and product testing by company staff or residents are only pursued by 7 or 8 companies, which accounts for less than one third of all the respondents.

**Table 6: Frequencies of activities of Fortune 500 companies in Second Life**

	Activities listed by usage frequency	#	Percentage	Main category
<b>Top third</b> (applied from more than 2/3 of the companies)	Corporate communication	22	88%	Conventional Marketing
	Contact the company	19	76%	Conventional Marketing
	External meetings	19	76%	Communication & Collaboration
	Community building	18	72%	Interactive Marketing
	Brand experience	18	72%	Interactive Marketing
	Virtual exhibitions	18	72%	Virtual Market
	Conferences	17	68%	Communication & Collaboration
	Display/explain products	17	68%	Virtual Market
<b>Middle third</b> (applied by 1/3 - 2/3 of the companies)	Billboard	13	52%	Conventional Marketing
	Internal meetings	13	52%	Communication & Collaboration
	Residents to develop products	13	52%	R&D
	Market & consumer research	12	48%	Conventional Marketing
	Connecting dispersed teams	12	48%	Communication & Collaboration
	Virtual classroom	12	48%	Virtual Learning
	Employees have an office in SL	11	44%	Communication & Collaboration
	Viral marketing	10	40%	Interactive Marketing
	Client acquisition	9	36%	Conventional Marketing
<b>Bottom third</b> (applied from less than 1/3 of the companies)	Collaborative learning scenarios	8	32%	Virtual Learning
	Develop/research company	8	32%	R&D
	Prototyping	8	32%	R&D
	Residents test products	8	32%	R&D
	CRM	8	32%	Mangement of Services & Processes
	Recruit people for "real life"	8	32%	Recruiting
	Company tests products	7	28%	R&D
	Have recruitment rounds/events	7	28%	Recruiting
	Mass customization (Data)	6	24%	Interactive Marketing
	Train staff on certain tasks	6	24%	Virtual Learning
	In-world job application	6	24%	Recruiting
	Sell real products	5	20%	Virtual Market
	Simulation training	5	20%	Virtual Learning
	Employee relations	5	20%	Mangement of Services & Processes
	Visualization	5	20%	Mangement of Services & Processes
	Recruit people for in-world	4	16%	Recruiting
	Sell virtual products	3	12%	Virtual Market
	Mass customization	3	12%	Virtual Market
	Remote System	2	8%	Mangement of Services & Processes
Stock and inventory	1	4%	Mangement of Services & Processes	

### 4.3 How to attract people to Second Life Islands

Every company whose Second Life presence has open access wants as many people to know about it as possible. The company's targets can differ from a current or future employee to a customer or a supplier and this strongly defines the activities that take place and are offered in-world. Depending on the company goals, the targets and the attracted people can change and consequently the activities can differ very much. One thing is common for all of them: unless a closed R&D activity like

service management or other things in Second Life is aimed for, a company has to find ways to get people to their island or at least communicate its activities through other channels. The best and most impressive way is to drive as much traffic to the site as possible and let the people experience everything by themselves. Almost 70% of the responding companies do have a special website dedicated to their Second Life project and more than 70% have a SURL to bring people to their SIM (see Figure 10). Also more than 70% actively use blogging and other Web 2.0 applications to communicate about their activities and eventually generate traffic besides the great PR opportunities.

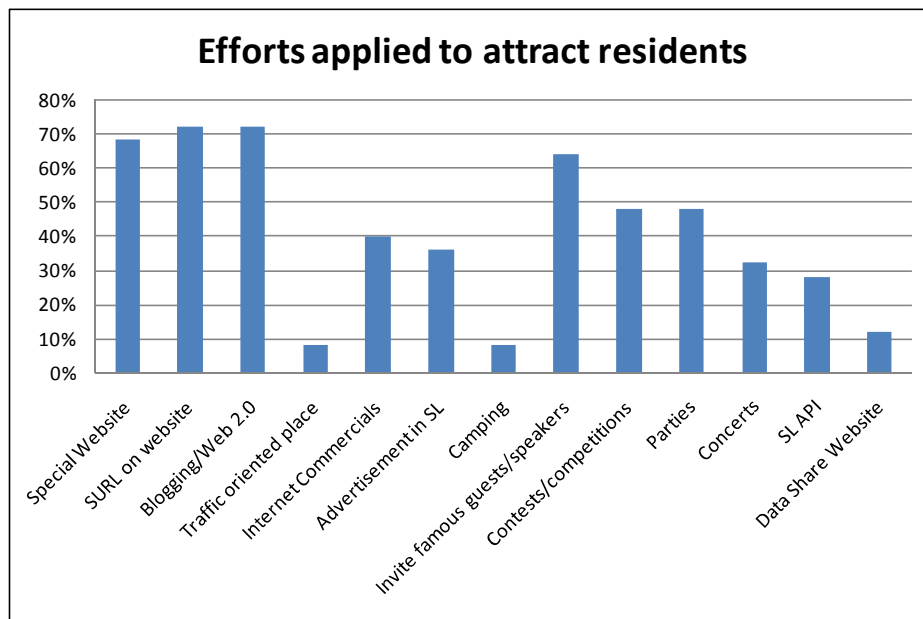


Figure 10: Efforts of companies to communicate their Second Life activities

Another way to drive up traffic is to buy land close to a SIM that attracts a lot of residents for some reason and profit from their frequent visits of residents<sup>78</sup>. Also advertisements in the WWW can call attention to the project and with advertisement within Second Life the common banner ads of the Internet are copied to the 3-D Environment and bring the residents in one click's reach. A newer form of traffic generation is the so called "camping" (see chapter 3.3). The positive aspects of camping are certainly the viral effect, since avatars tell each other where money can be earned, which brings new people to the place. And it drives traffic up and gives the company the chance to move up in the list of "Popular Places". This list is one of the first guides that new Second Life users look at when they explore Second Life for the first

<sup>78</sup> An example for is the official Nike store that is located within a shopping area, instead of establishing a lonely island that does not have any visitors

time<sup>79</sup>. But it is not heavily used as seen in Figure 10 and reasons for it are explained in Chapter 3.3.

Besides attracting new people for the island, most companies want to make sure the residents come back to the island. Through notifications (Instant Messages) the companies can keep interested people up to date and inform them about the next interesting events. More than 60% of the companies invite famous speakers and guests to attend meetings or give speeches. Manpower's CEO for example attended a two hour meeting in Second Life to celebrate the one year anniversary of the manpower engagement in Second Life which was broadcasted to other places within Second Life and into the WWW [King, 2008]. Also Acelor Mittal's CEO took the opportunity and held a speech for investors<sup>80</sup>. Also contests and competitions, parties and concerts are popular tools to get people back on the island.

New attempts focus on a stronger interaction between company and user by accompanying new users when entering Second Life. The so called RegAPI<sup>81</sup> allows you to<sup>82</sup>:

- Register residents for Second Life over the company website
- Guide the people on their first steps into Second Life
- Send the registrants to a location of your choice when they first enter Second Life

These are the first steps to a branded experience with the company and give the possibility of perfect customer support along with valuable information about the users of these services. This might also have some enduring effect on the customer because he will always remember the company that brought him to Second Life. The future brings blurring boundaries between the WWW and 3-D environments along with data sharing. These rather new applications do not seem very popular by now since it is only applied by little more than 10%<sup>83</sup> of the companies.

---

<sup>79</sup> <http://secondlife.reuters.com/stories/2008/04/29/new-sl-site-rankings-may-signal-end-to-camping/>

<sup>80</sup> <http://www.arcelormittal.com/index.php?lang=en&page=657>

<sup>81</sup> Registration application programming interface

<sup>82</sup> See <http://wiki.secondlife.com/wiki/RegAPI>

<sup>83</sup> See Figure 10

## 4.4 Success measurement in virtual worlds

It is very easy to measure sales or costs, but as soon as you try to link for example marketing expenditures to sales and explain direct impact, it can get very difficult. It gets even more complicated if it is supposed to be done in a new media like 3-D virtual worlds in a phase, where no experience in this field exist and not even a rule of thumb can be applied [Multimedia Victoria, 2007].

Therefore the companies participating in the survey had to answer an open question about their individual success measures. Five out of the 25 participants stated, that they don't measure success at all at this point, but one of them noted that it is in implementation and another one said for them it is still too early.

The three KPI's traffic, feedback and publicity were mentioned very often by the participating companies (see Table 7). There they build the group of the *common KPI's*. Besides these success measures, the companies mentioned other ones that are applied individually and differ very much (see Table 8)

**Table 7: Common success measures in SL for Fortune 500 companies**

<i>Common KPI's for the 25 companies</i>		
<b>KPI's</b>	<b># Companies</b>	<b>%</b>
<b>Traffic</b>	<b>15</b>	<b>60%</b>
<b>Feedback</b>	<b>13</b>	<b>52%</b>
- Visitors	11	44%
- satis. Survey	2	8%
<b>Publicity</b>	<b>10</b>	<b>40%</b>
- PR	6	24%
- Blog	2	8%
- Both	2	8%
<b>None</b>	<b>5</b>	<b>20%</b>

The most applied key performance indicator is traffic with 15 out of the 25 or 60% of the companies using that measure. This makes perfectly sense, since it is the most obvious measure and technically rather easily achievable. The escalation for this goes into some kind of resident behavior measurement, like time spent on the island, movements, object touches and so on. Some companies have already started to explore into that direction<sup>84</sup>.

---

<sup>84</sup> Garrett Cobarr is programming applications exactly into that direction and few of the participants have outlined to explore in that direction.

*“Statistics on users and user behavior, customer satisfaction, case histories, press coverage”<sup>85</sup>*

Customer feedback is the second most important measure. In total 13 companies (52%) are interested in it and two of them even conduct customer satisfaction surveys. Satisfaction surveys allow for quantitative analysis of the answers. It is not known if the companies without surveys measure their success from feedback in a quantitative way or not. It is imaginable that the feedback will be solely of qualitative nature and helps to improve the engagements of the company in Second Life. Another two companies are not solely interested in resident’s feedback but also on employee feedback about their activities.

The third KPI that companies measure is the publicity that their actions and efforts cause. For 8 companies (32%) this means conventional PR like articles and newspaper. Again it is not sure, weather this is meant in a quantitative way<sup>86</sup> or a qualitative way by actually taking into account what the content of the PR is. For two of them this does also include newer PR possibilities like blogs that report about their activities. Additionally two companies only count blog activities as an important measure of their success which accounts for a total of 10 companies (40%) that see publicity over different channels as a key performance indicator.

**Table 8: Individual KPI’s used by companies to support the common KPI’s**

<i>Individual KPI's</i>	<i># Companies</i>
Submissions	1
Mentioning by candiates	1
Leads	1
Impact	1
Costs	1
RL events in SL	1
Contacts & opportunities	2
Business ideas	1

Traffic, feedback and publicity are the most applied measures, but 8 companies have special KPI’s that fit their activities. One company counts the number of submissions they get, and another company with recruitment efforts counts how many candidates mention their actions in Second Life during a recruiting event.

<sup>85</sup> Citation of a project responsible on what success measures they apply

<sup>86</sup> E.g. how many newspapers have written about our project

*“Number of candidates who speak about this activity”<sup>87</sup>*

The generated leads are mentioned by one company and another one sees success in the impact the company has with their actions. Costs are also stated as a KPI and also the number of real life events that can be transferred to Second Life is measured. Two companies bring forth that their success lies in contacts and the opportunities they get out of them and the last measure is the business ideas that company can generate out of the engagement.

Some companies also stated what kind of measurement they would like to apply if technically possible<sup>88</sup>. The most obvious and ever present in marketing is the knowledge about how many Second Life visitors also become customers of the company later on. Another company wants to measure the success of moving real life events to Second Life. They state that if the users are willing to pay internal tariffs, this would be real success. As seen before, others are interested in more detailed traffic measures like individual time spent and total time spent on the island.

## 4.5 Satisfaction level

Each participant was asked to give his personal view on the satisfaction level considering the different categories. It is not based on numerically defined variables but expresses the personal input of the participant.

**Table 9: Satisfaction of the 25 participants by framework category**

	very satisfied	satisfied	indifferent	not satisfied	not at all satisfied	no such activity
Marketing	32% (8)	<b>36% (9)</b>	8% (2)	12% (3)	0% (0)	12% (3)
Communication & Collaboration	<b>44% (11)</b>	36% (9)	8% (2)	12% (3)	0% (0)	0% (0)
Virtual Market	12% (3)	16% (4)	<b>48% (12)</b>	12% (3)	0% (0)	12% (3)
Virtual Learning	28 % (7)	20% (5)	<b>36% (9)</b>	8% (2)	0% (0)	8% (2)
R&D	28% (7)	<b>40% (10)</b>	24% (6)	4% (1)	0% (0)	4% (1)
Mgmt. of Services & Processes	16% (4)	8% (2)	<b>44% (11)</b>	8% (2)	0% (0)	28% (7)
Recruiting	12% (3)	24% (6)	<b>40% (10)</b>	4% (1)	0% (0)	20% (5)

The most noticeable thing in Table 9 is the fact, that no company is “not at all satisfied” with any of the Second Life features. Even though a bias with the companies

<sup>87</sup> Citation of the project responsible of the respective company

<sup>88</sup> It is not known which of those things are technically not possible which are just a hurdle for the respective company

that participate in the survey might be given, it is still remarkable. Especially considering that two of them have stopped their activities. The companies in general show a high satisfaction level for *Communication & Collaboration* possibilities in Second Life with 80% that is either satisfied or very satisfied. This is the only category with the biggest proportion of companies that is very satisfied. 68% of the companies think positively about the *R&D* possibilities and activities in Second Life with 28% that are very satisfied and 40% that are satisfied. The same applies for *Marketing* with a total of 68% satisfied companies and 32% of them very satisfied.

The companies are not too convinced about *Virtual Learning*. Only 28% are very satisfied with it, another 20% are satisfied and a bigger part of them (36%) has an indifferent view to that subject. With regards to the options for a *Virtual Market* almost half (48%) of the participants have an indifferent view about it and only 12% are satisfied and 16% very satisfied with it. The cumulated satisfaction rate of 28% is the second lowest over all the activities.

*Management of Services & Processes* and *Recruiting* have the highest rates of companies that do not engage in these activities with 28% and 20%. The ones that do are mostly indifferent about it. For the *Management of Services & Processes* 44% are not sure whether it is satisfying or not, and only 16% are very satisfied and another 8% satisfied. A little better with *Recruiting*, where 12% are very satisfied, 24% are satisfied and 40% have an indifferent view.

Overall three out of seven categories of activities are seen as satisfying or very satisfying by the companies. For the other four the companies do not have an opinion and a higher rate of companies that do not have such activities at all. And also the amount of companies that are not satisfied with those four activities are smaller or the same as for the others, probably since less people have experience with it.

## 5 Discussion

The discussion highlights a couple of aspects that seem to be very interesting and compares some of them with the literature review of Chapter 2 or points out why certain results are unexpected. At the beginning the interesting discovery of the dependency of company revenues and Second Life presences is discussed in Chapter 5.1. Chapter 5.2 analyses and elaborates on the different activities, certain appearances, or explains possible inconsistencies. The success measurement and its KPI's are discussed in Chapter 5.3 in regard to the different measurement possibilities that were given by the companies themselves. The last part builds Chapter 5.4 with the discussion of the project owner's satisfaction levels.

### 5.1 General tendency

This study has found a tendency for companies with higher revenues to be more likely to establish a presence in Second Life. These findings show that for Second Life this is even more significant than in the study of Liu et al. (1997) about the Web presence of Fortune 500 companies. McLeod and Roger wrote in 1982 that Fortune 500 companies are leaders in the use of new information technologies. It seems like this can also be proven within the Fortune 500 companies themselves, that the leaders in new information technologies are bigger companies in regards of revenues.

Perry and Bodkin (2002) have analyzed similar questions with the focus on the number of web specific features of manufactures. They also state their reasoning why this might be the case:

*“Having greater financial resources at their disposal, larger manufacturers are likely to be more eager and able to develop web specific features” [Perry, Bodkin 2002: 142]*

It is assumed that this is also the reason for this studies result since it seems to be quite logical.

## 5.2 Activities

Table 6 shows that both *Conventional* and *Interactive Marketing* are the most used activities in Second Life. Also very popular are *Communication & Collaboration* and some parts from *Virtual Markets*. On the other hand *Management of Services & Processes*, *Recruiting*, *R&D*, *Virtual Learning* and *Virtual Market* in the sense of really selling something are rarely applied activities.

### Marketing

Marketing departments have been the biggest group of Second Life project initiators among the participants with almost one third of all projects. This is not surprising, since Second Life can be seen as a new media channel for marketing to reach a broader audience. Additionally are the costs rather low compared to other forms of marketing [Cohen, 2008]. After this media hype that Second Life has experienced, it was seen as a must for many marketing responsables to place a project in Second Life. 40% of the participants had the motivation to enter Second Life because of *Marketing* (see Table 5) which is rather low comparing how many companies in the end actually do engage in *Marketing* activities. It is omnipresent on most corporate SIM's in Second Life through corporate communication (88%), community building (72%) and brand experience (72%). The reason not to mention *Marketing* as a motivation could be, because it is frowned upon by residents and Second Life specialists to be present in this virtual world as a company for marketing purposes only since they emphasize that companies should bring an added value to the virtual world instead of just sitting there and driving marketing campaigns [Cohen, 2008; Hemp, 2006]. Still, with 68% of the companies that have a satisfaction level that is either satisfied or very satisfied with marketing, it is one of the most successful activities in Second Life.

This study shows that *Marketing* does still represent the most important activity for Fortune 500 companies in Second Life. They apply new interactive ways of marketing almost as frequently as the conventional marketing options. And looking at their satisfaction level it seems like they perceive it as quite success.

## Communication & Collaboration

52% answered that it is very true and another 48% stated that it is true that *Communications & Collaboration* was one of the motivations to enter Second Life. This accounts for a total of 100% of the companies that said it was one of their motivations. Since communication can also be part of marketing, it fits perfectly with the fact that the biggest Second Life project initiators are the marketers. Additionally collaboration and also communication is an important part of any kind of work. Especially external meetings (76%) and conferences are the most important parts of that category (68%). But also internal meetings (58%) and connecting dispersed teams (48%) seem to be rather frequently applied activities. For employees with their own office in Second Life, only the Forrester Report [Forrester, 2008] mentions such a possibility at all. Contrary to the poor mentioning in literature 44% of the companies put down that this exists at their SIM. Overall 80% of the project owners think that their communication & collaboration activities in Second Life are satisfying or even very satisfying, which makes it the activity with the highest satisfaction level.

Like the very consistent mentioning of most *Communication & Collaboration* activities in literature suggests, this is an often applied and successful usage of Second Life. This leaves room for speculations that such a satisfying activity with a high rate of appliance will become even more important in the future. Taken into account, that the more important an activity is, the more likely are future developments in virtual worlds that go into that direction to further improve the quality and the usability, which brings again a higher acceptance and appliance for it. A positive spiral could result out of it.

## Virtual Market

None of the Second Life projects of the participating companies was initiated by the sales department and market research was not a big motivation to enter Second Life. But a *Virtual Market* does not only consist of sales, but also of virtual exhibitions and virtually displayed products and services. 68% of the companies display or explain their products on their SIM. All the sources of the literature review talk about the display and interaction possibilities of residents with the company's products and often this shared experience in combination with company products is mentioned as the biggest advantage of 3-D environments over Web 2.0 [Wagner, 2008b]. Of course depending on the company's products it can be easier or more difficult to do that. But even a service company in the telecommunication industry has been able to show their services through their daughter company Starfruit by planting phone booths all

over their SIM from which you can send out SMS to any cell phone in the real world<sup>89</sup>. Again it is the Forrester report that suggests companies to hold virtual exhibitions as the only literature source. Despite this little attention from literature, already 72% of the companies have held at least one exhibition in Second Life. The other activities of the virtual market category like selling real or virtual products or let the people mass customize their products are only very unimportant activities. This goes along with the findings of Liu et al. (1997) about the early days of the Internet:

*“...the main purpose of using Websites of Fortune 500 companies at present is not for directly generating sales. Rather, the Fortune 500 companies are attempting to communicate with customers.”*

Because of the few companies that have experience with the *Virtual Market* and the lack of knowledge, many companies are indifferent about their satisfaction of this activity (48%). Only 28% companies are either satisfied or very satisfied with it.

The distinction between selling real or virtual products that was made for the questionnaire was not very important, since both are rarely applied. And it is not expected that for Fortune 500 companies will shift their focus to concentrate on sales in virtual worlds in the near future. But if they do one day, it is assumed that it will be to sell real products, since this is closer to their existing business models than selling virtual products.

## R&D

The motivation to enter Second Life because of innovation is very high. It is assumed here, that the participants meant innovation regarding a new way of conducting marketing and communication and did not associate product or service innovation with it. At a closer look it is evident that Second Life holds many possibilities for very interesting innovation projects. This is also illustrated by the literature review where development of products and services by company staff or residents is mentioned in five of six sources, which makes it a very popular activity in literature. This is similar for testing and prototyping products. Therefore it is unexpected to find that most applied *R&D activity encouraging residents to develop products* is only done by little more than 50% of the companies. And the companies themselves engage even less in *R&D activities*, with not even one third of them developing or prototyping in Second Life. This is especially very surprising, because one of the standard cases to explain the possibilities and opportunities of Second Life is about Starwood Hotels and their

---

<sup>89</sup> More information on [www.starfruit.biz](http://www.starfruit.biz) or visit the Starfruit island in Second Life

aloft project<sup>90</sup>. It is very well known since it is mentioned in most of the articles about Second Life, among them also business week back in August 2006 [Jana, 2006]. It is interesting to see that despite the low appliance of the *R&D* activities, 68% of the companies are either very satisfied or satisfied with their *R&D* and Innovation. So even though some companies do not engage in *R&D* they still think of these activities as satisfying.

### Virtual learning

In the consulted sources of literature *Virtual Learning* does not take an important stand in combination with Second Life. The most potential is seen in training of staff on certain tasks and examples are given of companies that train their staff in Second Life for Microsoft or Cisco certificates. The virtual classroom is also mentioned and two cases are presented, but they are from universities and not from companies actually engaging in this activity. Over all the potential of *Virtual Learning* is acknowledged in literature but not many detailed examples from companies are available. And not surprisingly *Virtual Learning* is not something the participants are focusing on. Contradicting to the literature the virtual classroom is the activity the companies engage the most in (48%) followed by the collaborative learning scenarios (32%) that is only sparsely mentioned in literature. The rest of the virtual learning like training staff on certain tasks, which was supposed to be the most important point of *Virtual Learning* according to the framework, is only done by 6 companies (24%). Almost half of the participants are either satisfied or very satisfied about the virtual learning activities in Second Life and the rest is mainly indifferent. Of course this is also due to the fact that not more participants apply those activities at all.

---

<sup>90</sup> Instead of renting a hangar, building their new aloft hotel project and test it in real life, Starwood hotels prototyped it in Second Life and let the residents test and comment on their hotel.

## Management of Services & Processes

This is the category the least companies have stated to be the very true motivation for entering the virtual world of second life. 20% of all the companies say that the motivation to enter Second Life for *Management of Services & Processes* is true or very true. *Management of Services & Processes* through a public virtual world is rather new or at least not very known. This is very clearly seen in the literature review, where each activity that makes up *Management of Services & Processes* is only mentioned in one of the sources. Two in the Forrester report and two from Grosser and Klapp (2008). The projects of IBM and Implenia have only lately been seen in a couple of presentations [Driver, 2008a; Graham-Rowe, 2008; Forrester, 2008]. Their project consists of different doll houses in the real world that are connected through sensors with their prototypes in Second Life. The whole real world model can be steered and maintained through the Second Life reproduction. Maintenance of real world houses over 3-D environments could be possible like that and costs could come down around 20% [Graham-Rowe, 2008]. Migros as one of the Fortune 500 companies has also been experimenting with process management by the visualization of stock and inventory management [Grosser, Klapp, 2008]. But the participating companies of this survey are not very eagerly engaging in these activities either. The most they do is CRM<sup>91</sup> which almost one third takes part in. Coherently most companies have an indifferent view about their satisfaction on the *Management of Services & Processes* and processes through Second Life.

## Recruiting

Only a few companies use their SIM for *Recruiting* activities. Only one company has actually started its project because of an input of the HR department and only 20% of the companies stated that it was true or very true that *Recruiting* was one of their motivations to engage in Second Life. It is interesting that one of the two hard facts about real monetary success of Fortune 500 companies in Second Life are Accenture<sup>92</sup> with their recruiting events. Not even a third of the companies hiring people for real life jobs in Second Life and even less have recruiting rounds or in-world job applications. Therefore the bigger part of the participants have no mindset about *Recruiting* in Second Life (40%), but 36% are satisfied or very satisfied about it. Probably some companies have had positive recruiting experiences even though they are not actively engaging in recruiting activities.

---

<sup>91</sup> CRM = Customer relationship Management

<sup>92</sup> See: Chapter 3.3 under Success measuring and satisfaction rate

## 5.3 Success measurement

Success measurement is directly dependent on the company's goals. A company that is present in Second Life to hold internal meetings has a totally different understanding of success in Second Life than another company that is driving a marketing campaign to get residents to the island and give them a branded experience.

### Traffic

Traffic is one of the easiest measures one can apply in Second Life and it is very easy to understand. Therefore it is the most-applied success measure according to the participants. But traffic by itself does not make a statement that you can compare with others, since more traffic does not necessarily mean more sales or more success, unless the business model is the traffic itself<sup>93</sup>. But that is certainly not the case for Fortune 500 companies. Still, some companies even offer camping in order to drive traffic to their site. Discussions about the usefulness of traffic measurement in its basic form have long been discussed in different forums<sup>94</sup> and there are different possibilities, on how success could be measured more effectively. Some companies have stated that they would like to have more detailed statistics about user behavior, time spent on their island and time spent over all.

### Feedback

The second common way to measure success is feedback. The companies see the visitors and their views as very important and 65% of the participants make use of their feedback<sup>95</sup>. Unfortunately it is not clear, to what extent those feedbacks go into quantitative measures, but its assumed by the author that most is just used as qualitative answer to project that helps to improve it. Two of those companies additionally collect feedback from company staff. Contrary to the traffic KPI, this is a way to get high qualitative feedback. Some companies even had feedback rounds within Second Life and gathered their community to find out, if they are on the right track and if the community has any inputs. Another two companies tried to standardize the feedback collection and even collected it through surveys. In general it certainly

---

<sup>93</sup> E.g. for a marketing campaign

<sup>94</sup> <http://metaversed.com/14-may-2007/traffic-useless-measurement-success-virtual-worlds/>;  
<http://www.your2ndplace.com/node/957>;  
<http://www.digitalpodcast.com/podcastnews/2008/02/13/digital-podcast-40-social-media-performance-measurement/>

<sup>95</sup> See Table 7

makes sense to listen to the residents, if you are having a publicly available SIM that is supposed to serve the general audience.

## Publicity

The last but not to be underestimated common KPI among companies is publicity. Publicity is one of the best marketing actions a company can choose, since it helps to gain trust and credibility for your actions and shapes the readers image of the company [Homburg, Krohmer, 2006]. Two companies are evaluating the conventional media channels<sup>96</sup> and the new channels<sup>97</sup> to count publicity and another two only count the new channels. Of course it seems very obvious that blogs are closer to Second Life than conventional media channels from a media type prospective. But since they target a similar audience, the impact of conventional media channels might be more successful in terms of reaching a broader audience.

Besides the common KPI's the some companies operate with individual success measures. But even though a couple of them apply individual measure, this is still not very much and is exactly as it was mentioned in the literature [Multimedia Victoria, 2007]. The most obvious success measures that could be implemented rather easy are derived directly from the company's activities. As one example there are companies that are trying to build up a community and have established a group within Second Life where they can send out messages to their members. That number is pretty interesting because it shows how many people the company can reach with a message or a notification and the growth and size of the community can be measure. For other companies that are interested in user innovation, the number of valuable inputs could be an important number. Even though a few companies do have such individualized KPI's for their project, there seems to be a big potential for improvement. It is assumed that in the future the responsible of the Second Life island will operate with set of KPI's that helps to steer the inputs or campaigns into a direction that is favorable for the company.

Of course it should not be forgotten, that a lot of companies are in Second Life to gain general knowledge about virtual worlds and their communities in order to understand how they function and how they can bring added value to the company. This is certainly one reason why 20% of the companies are not measuring success at all.

---

<sup>96</sup> Newspaper, Television, Radio, Magazines

<sup>97</sup> Blogs, Forums

## 5.4 Satisfaction level

With all the negative media coverage of Second Life during the beginning of 2008 it is surprising that none of the participating companies thinks that Second Life is “not satisfying at all” in any category. *Communication & Collaboration* is the activity in Second Life that most companies are very satisfied (44%) or satisfied (36%) with. This is insofar not surprising as for all the participants this category was a motivation to enter Second Life, which is also represented in their activities. Interestingly only one company is measuring a KPI that is related to that category. They take a look at real life events that they transfer into Second Life. This means that the satisfaction about this category is rather a general opinion than a statement based on measurable facts.

*Marketing* overall also enjoys a rather high satisfaction level with 68% of the companies being satisfied or very satisfied. Different than *Communication & Collaboration*, *Marketing* is probably the best category to apply KPI's. Traffic measurement, PR and also the feedback can be used to measure marketing success. The question remains if the satisfaction level is higher if you can possibly derive it from facts.

*R&D* also seems to be a rather positive activity with 68% of the participants that say it is either satisfying (40%) or very satisfying (28%). This is the category that motivated the participants the most to enter Second Life but only a little more than one third of the suggested *R&D* activities are on average applied by them. But it seems that the terms innovation and *R&D* associate with positive thoughts, and therefore many project owners see them as satisfying activities, although they are not even engaged in them.

It was tried to determine if there are connections between the amount of time a company spent in Second Life and the level of satisfaction. But the chi-test for the dependence of two variables showed no dependence what so ever. The same is true for the involvement in different activities and the level of satisfaction. It was assumed that companies that engage in more activities are more involved as others, also because they are more satisfied. But again the test showed no dependency of the two variables. Of course, statistical test are more predictive the higher the number of participants, but it shows at least, that there does not seem to exist any obvious connection.

# 6 Conclusion

This thesis is not trying to give any implications on the development of virtual worlds in the future. The focus is rather on the possibilities these virtual worlds offer and show them by examining Fortune 500 companies in the case of Second Life. As the framework in Chapter 2 shows, the possibilities are endless and probably in five to ten years the framework will be extended with a range of additional activities and engagements. Nevertheless this thesis shows the extension of the research about homepages of Fortune 500 companies to 3-D virtual environments that are summarized in the implications for research in Chapter 6.1. The chapter is divided into the literature summary, the framework for activities derived from literature, success measurement and the findings from the satisfaction level of the project owners. While these parts are a summary of this thesis, the management implications in Chapter 6.2 are seen as a short guidance for managers with inputs on certain topics. Even though this was not the main focus of this study, these implications result directly out of this research. The end of this study builds the limitations to research in Chapter 6.3 and the overview on possible future research in Chapter 6.4.

## 6.1 Implications for research

This part of the conclusion summarizes the literature review, the framework of activities, the success measurement and the satisfaction level of the project owners.

### Literature summary

Many experts compare the development of virtual worlds with the development of the Internet during the nineties. Therefore the literature of the late nineties and the beginning of the new century builds the basis for the methods and research questions applied in this study. It shows that for emerging information technologies the sample often consists of the largest corporations in the world, since they usually belong to the leaders in new information technology [McLeod, Roger, 1982; Li, McLeod, Roger, 1993]. Especially the very early studies about the Internet and its usage are descriptive overviews that show how many companies use the Internet at all, what kind of functions they chose to apply and which consequences this has. Since no study about the usage of Second Life or virtual worlds and their general appliance in big companies exists, this study will follow similar questions and methods in describing the emerging technology of 3-D environment and its appliance in Fortune 500 companies as the studies of the late nineties did. The result is an overview of the charac-

teristics of companies that are present in Second Life, their motivations to enter, their applied activities within Second Life, their measurement of success and their level of satisfaction considering specific categories in Second Life.

### **Framework of activities derived from the literature**

In order to get a feeling about the usage of virtual worlds by companies, six different sources of literature about Second Life and its usage by companies were examined. Those provide the best overview and summary of case studies and interviews existing to this point. All of the activities of companies were listed and classified in eight main categories with marketing having two independent ones: *Conventional* and *Interactive Marketing, Communication & Collaboration, Virtual Market, Virtual Learning, R&D, Management of Services & Processes* and *Recruiting*. This framework of consolidated activities in Second Life builds the back bone of the interrogation of Fortune 500 companies about their projects.

A total of 78 corporations were identified to have activities in Second Life by the end of September 2008. Responses of 25 companies were collected which accounts for a 32% response rate. They show that the company's marketing department and innovation department initiated more than half of all the Second Life projects, whereas externals, management, communication, HR and IT account for the rest. The two biggest motivations to enter the 3-D environment are *Communication & Collaboration* and *Innovation*, followed by *Marketing* in third position. *Recruiting* and *Management of Services & Processes* on the other hand seem to be the least attractive reasons out of the chosen ones to enter Second Life. Companies having such projects in Second Life look at them as rather important and tend to steer them either from the headquarter or through special groups and evangelists.

Liu et al. noted back in 1997 that "companies who have higher market performance measured by revenues will more likely use Websites to reach customers" [Liu et al., 1997: 342]. The same is true for company revenues and company presence in Second Life. It is very evident with around 30% of the top 100 companies having a Second Life presence and less than 10% of the 149 companies with the smallest revenues in the Fortune 500's.

The three most present activities are around *Conventional Marketing, Communication & Collaboration* and *Interactive Marketing*. The least applied are *Management of Services & Processes* and *Recruiting*. For the most present as well as the least it fits perfectly with the motivation why companies entered Second Life. Only the *Innovation* as a motivation to enter Second Life was not proved by a similar amount of activities in-world because some of the participants were not thinking of innovation in re-

gard of a product or a service development but of Second Life as an innovative tool in itself.

Many of the companies undertake quite an effort in order to bring visitors to their presence in Second Life and entertain the ones that are already in there. The most popular efforts are special websites that explain the company's projects, a SURL on their main website and blogging activities. Also famous guests and speakers are a common try to attract people, followed by contest or competitions and parties.

### **Success measurement**

Interestingly the companies have not established a thought through measurement system with a number of different KPI's yet. This has certainly to do with the novelty of this medium. Also might have many companies just granted resources because they want to explore the new medium, without instant return. The main KPI's implemented so far are traffic, feedback and publicity. Some companies are supporting them with other addition KPI's which does make perfectly sense. But they should and could apply a couple more of very obvious, easy to measure facts that have not been mentioned by the companies yet.

### **Findings from satisfaction level**

The project leaders of the corporations state that three of the main activity categories are satisfying. Among them are *Communication & Collaboration* which satisfies 80% of the companies, *R&D* and *Marketing* which satisfy individually 68% of them. There is no category that more than 3 out of 25 project leaders are dissatisfied with, but the majority marked all the other categories as indifferent and did not state an opinion for it. As mentioned by some participants it might still be too early for some of them to judge on some of the subjects yet.

## **6.2 Management implication**

As the framework of the consolidated activities in Second Life shows, there are so many possibilities for the use of virtual worlds, that it is perfectly imaginable that 3-D environments will play a very important role in the future. Many experts say, that they are not sure whether this environment will be Second Life or even Second Life alike, but they are sure that it will change the future of conducting business like the WWW has changed everything in the late nineties. They justify their belief in growth num-

bers of members of virtual worlds that are extremely popular especially among teenagers. One enormous number is the 90 million users of Habbo Hotel.

Therefore it is essential for any company to explore this emerging technology of 3-D environments and to find out how it works and what its possibilities and its characteristics are. It is important that the project in itself gets as much attention as any other project otherwise the experience will certainly not be satisfying, as it happened to one of the two participating companies that stopped their project. But if you follow the changes very closely by experimenting as a company, one will not miss an emerging technology like Barnes and Nobel did with the internet. Barnes and Nobel as one of the world's biggest book store company in the mid nineties was not able to transfer its leadership, established over other media, to the internet because they missed the trend and only picked it up, when amazon.com had already established its predominant position [Kotha, 1998]. An exploring company will be ready enough through its experiences of the new media.

*"Second Life is a first step of more to come! We did not want to miss the learning!"<sup>98</sup>*

Many experts and papers suggest using Second Life as the starting platform for exploration. The arguments are based around the fact, that Second Life with its user created content gives the companies the possibilities to do almost anything they like, as long as they have somebody who is able to program it for them. Besides the fact of great flexibility there is an in-world economy with its own currency and pretty stable dollar exchange rates. This combination is not found in many other popular virtual worlds so far.

To estimate the existing possibilities you have and the activities to engage in, companies can use the framework of consolidated activities in Chapter 2. Even though the list of activities does not claim to be exhausted, it does provide a good consolidation of the so far known and applied activities. Probably this list will have to be revised in due time as soon as new uses of Second Life are reported. For more details about the individual activities, further literature can be consulted.

It is not proven yet, if a first mover advantage will exist in virtual worlds. But the more the different activities are applied, the better the companies begin to understand the possibilities that these worlds offer for the future. So whether you are a first mover or an early follower is not the most important question. The most important part is to have such knowledge within the company that any of the two are possible, because also early followers cannot just copy a first mover to overtake him.

---

<sup>98</sup> Citation of a participating project responsible

Important when engaging in virtual world activities is a profound understanding of the possibilities that they provide and a clear understanding of the main goals for the company. From the goals come the details on how they are best translated to virtual worlds by considering the special needs and characteristics of virtual worlds. If marketing is the goal, you might want to get away from conventional marketing activities that do not really cater the needs and expectations of residents and replace it by interactive marketing like community building, brand experience, and alike.

Through the goals' translation into activities and engagements in the 3-D environment yield success measurements and KPI's. The better the actual goal is described the easier one can see the impact that different inputs have on the output. A variation of the input could be for example a marketing campaign in the Internet to get people to the companies' virtual world presence and then measure the amount of new people that registered during that time compared to other times. Very important are the individual measures and KPI's that fit the corporation's goals, activities and expectations in order to be able to explain success in any way.

### 6.3 Limitations

The primary limitations of this study are the same that Liu and Arnett (2000) found in their study about factors associated with website success in the context of electronic commerce. The only difference is that this study interviewed the project responsible instead of the webmaster.

*"The primary limitation of this research is that data about Website success was gathered from webmasters. These perceptions tell us what these important people in the web design process believe, but they are not necessarily grounded in fact" [Liu, Arnett, 2000].*

Most answers from the survey express an opinion, so the drawn conclusions and ideas that result of this study are not to be taken as a hard fact, but as a general finding about what the project responsible of the participating companies believes in. Additionally it has to be said that this study might not apply to smaller companies since this study only covered Fortune 500 companies.

The approach of this thesis is focused on real life companies that have a presence in Second Life which implements from the very beginning an "outside" view. This approach lacks the "inside" view of companies that have no real life business. All the conclusions drawn in this study might not apply to inworld companies that have to satisfy different stakeholders. Their big advantage is the freedom to do what seems

best for them without being a project of a big company. This gives different guidelines, different goals and could lead to new outcomes.

This study does only cover the virtual world Second Life. As shown in Chapter 3.1.1, Second Life users have completely different characteristics than users in other virtual worlds. This goes along with very different possibilities that each virtual world provides the companies through programming restrictions and so on. With an overall study over different virtual worlds, it might be possible to filter out differences and find out, what the overall trends are.

## 6.4 Future research

This study represents a descriptive snapshot of the projects and its details of Fortune 500 companies. In order to see further developments, changes and strategies, the study should be repeated in a reasonable time, the differences analyzed and conclusions drawn from it. This starts from the number of companies that have left Second Life, to the ones that have newly joined and goes down to the details of what are their activities, how did they improve their success measuring system and how has the satisfaction level changed, among others. Besides this similar study, three continuous research areas are proposed.

### **Broaden the sample size**

As a more general view on virtual worlds, one could approach all Fortune 500 companies and ask them general questions about their engagement in virtual worlds. The goal must be to find out, how many companies did experiment in virtual worlds. That will give a more general view on the work of Fortune 500 companies with this emerging technology in general, and even more important it will provide input on why companies don't engage in virtual worlds. Especially the gray area of companies that experiment in virtual worlds but do not make it public can only be reached if all companies are approached. Additionally it could be examined if the activities in other virtual worlds differ from the ones found in this study.

### **Examine success measures and their influence on success**

Success measures and KPI's are so unexplored and unknown of in virtual worlds, that they provide a big research potential on its own. Together with the analysis of the company's goals in the virtual world project, the adequate KPI has to be identified

and their significance and meaning must be defined. Once they are established, the input variables can be varied and the changes observed. This gives you the possibility to optimize the company's efforts towards the best inputs.

### **Research on small companies**

As this research only applies to Fortune 500 companies, it would be very interesting to see, how these findings apply to smaller businesses. The questions and the format could remain the same, but smaller companies might have a total different perception of virtual worlds and engage in different activities, measure different KPI's and have a different satisfaction level.

# Bibliography

## Journals

- Amann, Martens, 2008      Amann, R., Martens, D., 2008: *Synthetische Welten: Ein neues Phänomen im Web 2.0*, Media Perspektiven, 5/2008
- Andrews, Nonnecke, Preece, 2003      Electronic survey methodology: *A case study in reaching hard-to-involve Internet users*, International Journal of Human-Computer Interaction, Volume 16, Issue 2, P.185-210
- Eid, Trueman, 2007      Eid, R., Trueman, M., 2004: *Factors affecting the success of business-to-business international Internet marketing: An empirical study of UK companies*, Industrial Management & Data Systems, Volume 104, Number 1, 16-30
- Grosser, Klapp, 2008      Grosser, U., Klapp, M., 2008: *Second Life*, Unpublished working paper, University of St. Gallen, St. Gallen.
- Hemp, 2006      Hemp, P., 2006: *Avatar-Based Marketing*, Harvard Business Review, June 06, 48-58
- Kirkpatrick, 2007      Kirkpatrick, D. 2007: *It's not a game*, Fortune, Vol. 155, No. 2
- Kotha, 1998      Kotha, D., 1998: *Competing on the Internet: How Amazon.com is rewriting the rules of competition*, Advances in Strategic Management, 1998 Volume: 15 Pages: 239-265
- Li, McLeod, Rogers 1993      Li, E.Y., McLeod, R. Jr., Rogers, J.C. 1993: *Marketing information systems in the Fortune 500 companies: past, present, and future*, Journal of Management Information Systems, Volume: 10 Issue: 1 Pages: 165-92 Published: June-August 1993

- Li, McLeod, Rogers 2001      Li, E.Y., McLeod, R. Jr., Rogers, J.C. 2001: *Marketing information systems in the Fortune 500 companies: a longitudinal analysis of 1980, 1990, and 2000*, INFORMATION & MANAGEMENT Volume: 38 Issue: 5 Pages: 307-322 Published: APR 2001
- Liu, Arnett 2000      Liu, C., Arnett, KP., 2000: *Exploring the factors associated with Web site success in the context of electronic commerce*, INFORMATION & MANAGEMENT Volume: 38 Issue: 1 Pages: 23-33 Published: OCT 2000
- Liu, Arnett, Capella, Beatty, 1997      Liu, C., Arnett, K. P., Capella, L. M., Beatty, R. C., 1997: *Web Sites of the Fortune 500 companies*, INFORMATION & MANAGEMENT Volume: 31 Issue: 6 Pages: 335-345 Published: JAN 15 1997
- McLeod, Roger, 1982      McLeod, R. Jr., Roger, J.C. 1982: *Marketing information systems – uses in the Fortune 500: past, present, and future*, CALIFORNIA MANAGEMENT REVIEW Volume: 25 Issue: 1 Pages: 106-118 Published: 1982
- Perry, Bodkin, 2002      Perry, M., Bodkin, Ch., 2002: *Fortune 500 manufacturer web sites – Innovative marketing strategies or cyberbrochures*, INDUSTRIAL MARKETING MANAGEMENT Volume: 31 Issue: 2, 133-144
- Porter, 2001      Porter, M. E., 2001: *Strategy and the Internet*, Harvard Business Review, Volume 79, Issue 3, 62-78
- Roush, 2007      Roush, W., 2007: *Second Earth*, Technology Review, Volume 110, Issue 4, 38-48
- Talbot, 2008      Talbot, D., 2008: *The Fleecing of Avatars*, Technology Review, Volume 111, Issue 1, 58-62
- Tamimi, Rajan, Sebastianelli, 2000      Tamimi, N., Rajan, M., Sebastianelli, R., 2000: *Benchmarking the Home Pages of Fortune 500 Companies*, QUALITY PROGRESS Volume: 33 Issue: 7, 47-51

Venkatraman, Henderson 1998  
Venkatraman, N., Henderson, J. C., 1998: *Real Strategies for Virtual Organizing*, Sloan Management Review, Volume 40, Issue 1, 33-48

### Books

Berekoven, Eckert, Ellenrieder, 2004  
Berekoven, L., Eckert, W., Ellenrieder, P. 2004: *Marktforschung – Methodische Grundlagen und praktische Anwendung*, 10. Auflage, Wiesbaden: Gabler

Curran, Blackburn, 2001  
Curran, J., Blackburn, R.A. 2001, *Researching the Small Enterprise*, Sage Publications, London.

Gierke, Müller, 2008  
Gierke, C., Müller, R., 2008: *Unternehmen in Second Life*, Offenbach; Gabal Verlag GmbH

Homburg, Krohmer, 2006  
Homburg, C., Krohmer, H., 2006: *Marketingmanagement*, 2. Auflage, Wiesbaden: Gabler

Forrester, 2008  
Forrester 2008: *Getting Real Work Done In Virtual Worlds*

Kirchhoff, Kuhnt, Lipp, Schlawin, 2003  
Kirchhoff, S., Kuhnt, S., Lipp, P., Schlawin, S., 2003: *Der Fragebogen*, Opladen: Leske + Budrich

Lober, 2007  
Lober, A., 2007: *Virtuelle Welten werden Real*, Hannover: Telepolis

Stephenson, 1992  
Stephenson, N., 1992: *Snow Crash*, Bantam Books (USA)

Terdiman, 2008  
Terdiman, D., 2008: *the entrepreneur's guide to second life*, Indianapolis: Wiley

Wagner, 2008b  
Wagner, J. A.: *The Making of Second Life*, New York: HarperCollins

**Internet sources**

- Breuer 2007 Breuer, M. 2007: *White Paper: Second Life und Business in virtuellen Welten*, seen: [http://www.pixelpark.com/de/pixelpark/\\_ressourcen/attachments/publikationen/0703\\_White\\_Paper\\_Second\\_Life\\_e7\\_Pixelpark.pdf](http://www.pixelpark.com/de/pixelpark/_ressourcen/attachments/publikationen/0703_White_Paper_Second_Life_e7_Pixelpark.pdf); 1.05.2008
- Cohen, 2008 Cohen, A., 2008: *The Second Life of Second Life*, seen: <http://www.fastcompany.com/magazine/129/the-second-life-of-second-life.html>, 1.10.2008
- Computerwoche.de, 2008 Computerwoche.de, 2008: *Mercedes-Benz verabschiedet sich aus Second Life*; seen: <http://www.computerwoche.de/1859287>, 24.06.2008
- Driver, 2008a Erica Driver, CEO & Founder of ThinkBalm, 25. Aug. 2008: Speech in SL at the Metanomics Show, seen: <http://www.metanomics.net/archive082508>, 01.09.2008
- Driver, 2008b Erica Driver, CEO & Founder of ThinkBalm, 14. Aug. 2008: *Accenture recruiting in Second Life cost-effectively targets the "Facebook audience"*, seen: <http://thinkbalm.com/2008/08/14/accenture-recruiting-in-second-life-cost-effectively-targets-the-%E2%80%9Cfacebook-audience%E2%80%9D/>, 08.09.2008
- Driver, 2008c Erica Driver, CEO & Founder of ThinkBalm, 18. July 2008: *At Microsoft, cost of virtual events about 1/3 the cost of traditional events*, seen: <http://thinkbalm.com/2008/07/18/at-microsoft-cost-of-virtual-events-about-13-the-cost-of-traditional-events/>, 8.09.2008
- Gartner, 2007 Gartner, 2007: seen: <http://www.gartner.com/it/page.jsp?id=503861&format=print>; 7.03.2008
- Graham-Rowe, 2008 Graham-Rowe, D., 2008: *Our house in cyberspace*, seen: <http://www.guardian.co.uk/technology/2008/feb/26/internet.buildings?gusrc=rss&feed=technology>, 26.02.2008

- Hoffman, 2008 Hoffman, D., 2008: *eLab eXchange Predicts World of Warcraft Subscriber Growth!*, seen: <http://sloan.ucr.edu/2008/03/17/elab-exchange-predicts-world-of-warcraft-subscriber-growth/>, 1.04.08
- Jana, 2006 Jana, R., 2006: *McKinsey: Starwood Hotels Explore Second Life First*, seen: [http://www.businessweek.com/innovate/content/aug2006/id20060823\\_925270.htm?chan=innovation\\_innovation+%2B+design\\_innovation+and+design+lead](http://www.businessweek.com/innovate/content/aug2006/id20060823_925270.htm?chan=innovation_innovation+%2B+design_innovation+and+design+lead), 23.05.2008
- King, 2008 King, R.J. 2008: *Power of collaboration: Manpower's first anniversary in Second Life*; seen: [http://dancinginkproductions.com/uploads/pdfs/DIP\\_Manpower\\_July2008](http://dancinginkproductions.com/uploads/pdfs/DIP_Manpower_July2008), 01.08.08
- Kish, 2007 Kish, S. 2007: *Second Life, Virtual Worlds and the Enterprise*, seen: [http://skish.typepad.com/susan\\_kish/secondlife/SKish\\_VW-SL\\_sept07.pdf](http://skish.typepad.com/susan_kish/secondlife/SKish_VW-SL_sept07.pdf); 01.04.08
- Kozlov, Reinhold, 2007 Kozlov, S., Reinhold, N. 2007: *To play or Not to Play: Can companies learn to be n00bs, LFG, and lvl-up?*, seen: [http://wiki.secondlife.com/wiki/Other\\_Second\\_Life\\_Studies](http://wiki.secondlife.com/wiki/Other_Second_Life_Studies), 01.06.2008
- Kzero, 2008 Kzero, 2008: *7 Point Plan for Marketing in Virtual Worlds*; seen: [http://www.kzero.co.uk/blog/?page\\_id=2101](http://www.kzero.co.uk/blog/?page_id=2101), 01.09.2008
- Küpers, 2003 Küpers, J. 2008: *Wozu braucht man eigentlich noch Second Life*, seen: <http://pixelsebi.com/2008-04-14/wozu-braucht-man-eigentlich-noch-second-life/#more-510>, 11.08.2008
- Linden, 2008 Linden, Z., 2008: *Q3 closed on a high note with an unusually strong September*, seen: <http://blog.secondlife.com/2008/11/12/q3-closed-on-a-high-note-with-an-unusually-strong-september/>, 15.11.08
- Mitham, 2007 Mitham Nic, CEO & Founder of Kzero, 18. Dec. 2007: Interview in virtual world businesscast, Show Nr. 8, seen: <http://www.virtualworldbusinesscast.com>, 20.07.2008
- Multimedia Victoria, 2007 Multimedia Victoria, 2007: *Learnings from the Melbourne project*, seen: [http://www.mmv.vic.gov.au/uploads/downloads/ICT\\_Projects/SecondLifeReport.pdf](http://www.mmv.vic.gov.au/uploads/downloads/ICT_Projects/SecondLifeReport.pdf) , 01.05.08

- Paffendorf, 2006 Paffendorf, J., 2006: *Web 3D, Part 6: Interview with Jerry Paffendorf of Electric Sheep*, seen:  
<http://www.realityprime.com/2006/10/02/web-3d-part-6/>; 1.06.08
- Richards, 2008 Richards, J., 2008: *McKinsey: ignore Second Life at your peril*, seen:  
[http://technology.timesonline.co.uk/tol/news/tech\\_and\\_web/article3803056.ece](http://technology.timesonline.co.uk/tol/news/tech_and_web/article3803056.ece), 23.04.2008
- Skinner, 2007 Skinner, C. 2007: *Why Wells Fargo left Second Life*, seen:  
<http://www.finextra.com/community/fullblog.aspx?id=290>, 8.07.08
- Wagner, 2007a Wagner, J.A. 2008: *Second Life Marketing: Still Strong*, seen:  
[http://www.businessweek.com/technology/content/may2008/tc2008054\\_665274.htm](http://www.businessweek.com/technology/content/may2008/tc2008054_665274.htm), 15.09.08

## 7 Appendix

### A Experts

Shenja van der Graaf,  
Berkman Center for Internet and Society



---

Shenja van der Graaf is a fellow at the Berkman Center for Internet and Society and the Research Center for Information Law at the University of St. Gallen, a consulting researcher at MIT's Convergence Culture Consortium, and is also conducting research at the London School of Economics and Political Science. Her research focuses on the organization and management of innovation and technology, especially user innovation, product development, and media uses in media and software industries. She has been awarded with grants and scholarships from among others, the Dutch Ministry of Education, Culture and Sciences and the British Academy. Over the years she has worked with an extensive international network of companies including Valve, Hakuhodo and Ericsson.

Recent and forthcoming publications include "Media Literacy," which she co-wrote with Sonia Livingstone for *The International Encyclopedia of Communication* in 2007; "The Second Life of Analogue Players in a Digital World," which she co-wrote with Garrett Cobarr in Alex Koohang and Keith Harman's 2007 book *Knowledge Management*; "*The Mod Industries? The Industrial Logic of Non-Market Game Production*," which she co-wrote with David B. Nieborg for a 2008 issue of the *European Journal of Cultural Studies*; and "*Spill Over Practices of Virtual Markets: The COMODification of Inventory Toolkits*," which will appear in Japanese in 2008.

**Dr. Stefan Stieglitz,**  
University of Potsdam



### **Forschungsschwerpunkte**

- Potenziale Virtueller Welten
- Web 2.0, Soziale Software und Soziale Netzwerke
- Virtuelle Communities in Unternehmen
- Location based services (LBS), Mobile Communities

### **Mitgliedschaften und Projekte**

- Projektkoordinator des BMBF geförderten Projekts BIO-VW-e
- Mitglied des *E-Learning-Beirats* der Universität Potsdam
- Mitglied der *Schmalenbach-Gesellschaft für Betriebswirtschaft e.V.*
- Mitglied der *International Association for Development of the Information Society (IADIS)*
- Reviewer für *Americas Conference on Information Systems (AMCIS)*, *Hawaii International Conference on System Sciences (HICSS)*, *Ethics and Information Technology*.
- Arbeitskreis Virtuelle Communities und Virtuelle Welten (XING)

## Dr. Stefan Haefliger,

ETH Zurich, Strategic Management and Innovation



### Research interests

- User Innovation
- Free/Libre Open Source Software
- Knowledge Management
- Entrepreneurship
- Art and Management

### Publications

- Open Source Software: What we know (and do not know) about motives to contribute. With Martin Wallin, Georg von Krogh, and Sebastian Spaeth. ETH Zurich Working paper available upon request.
- The Role of Communal Resources for Knowledge Creation in Firms. With Patricia Wolf and Sebastian Spaeth. ETH Zurich working paper.
- User Innovation Beyond Market Barriers: The Case of Machinima. With Georg von Krogh and Peter Jaeger. Working paper.
- [Code Reuse in Open Source Software](#). With Georg von Krogh and Sebastian Spaeth. *Management Science*. 54(1) 180-193. 2008. doi10.1287/mnsc.1070.0748
- Distributed innovation in the education of future entrepreneurs. With Georg von Krogh. In: Marxt, C., Hacklin, F. *Business Excellence in technologieorientierten Unternehmen*. Springer. 35-46.
- Nurturing respect for IP in China. With Georg von Krogh. *Harvard Business Review*. April 2007: 23-24.
- A lightweight model of component reuse: A study of software packages in Debian GNU/Linux. With M. Stuermer, G. von Krogh, S. Spaeth. Working paper ETH Zurich, 2007.
- [Communal Resources in Open Source Software Development](#). With Georg von Krogh, Sebastian Spaeth, and Birgit Renzl. *Information Research*. 2008, 13(1) paper 332.
- Sampling in open source software development: The case for using the Debian GNU/Linux distribution. With S. Spaeth, M. Stuermer, and G. von Krogh, *IEEE, Proceedings of the 40. Annual Hawaii International Conference on Systems Sciences*, 2007, pp. 1-7
- Introducing Novelty: The Role of Renewal in Entrepreneurship. With Stefan Meisiek. Working paper ETH Zurich, 2006
- Knowledge reuse in open source software: An exploratory study of 15 open source projects. With Georg von Krogh and Sebastian Spaeth. *IEEE, Proceedings of 38th Annual Hawaii International Conference on System Sciences*, 2005.
- Permeable development: Technological innovation by users across organizations. Doctoral Thesis. University of St.Gallen, 2005.

- The fragility of knowledge sharing: A behavioral approach. With Simon Gächter and Georg von Krogh. University of Nottingham Working paper, 2006.
- The practice of knowledge reuse in open source software: "Shifting the creative effort". With Georg von Krogh and Sebastian Spaeth. *Best paper proceedings. Academy of Management Conference 2006.*
- Communal resources and collective action in open source software development: The case of Freenet. With Georg von Krogh and Sebastian Spaeth. Working paper presented at the Academy of Management Annual Meeting, 2003.
- Tacit Knowledge in Organisations, by Philippe Baumard. *Innovation: management, policy & practice*, 5(2/3), 2003. ([Book review](#))
- Knowledge creation in open source software development. With Georg von Krogh. In: Tsoukas, H., Mylonopoulos, N. (Eds.), [Organizations as Knowledge Systems. Knowledge, learning and dynamic capabilities](#). 109-29. New York: Palgrave. 2003.

## Peter Michael Jäger

ETH Zurich, Strategic Management and Innovation



### Education

since June 2006: **Research Assistant and Doctoral Student, ETH Zurich** Chair of strategic management and innovation, Prof. Georg von Krogh, focus on: user innovation & intellectual property rights

October 1999 – August 2005: **Studies in Automation & Controls Engineering for Production Systems (Mechatronics), University of Stuttgart, Germany** Focus on Technology & Innovation Management

August 1989 – June 1998: **Gymnasium Markdorf, Germany** (A-level equivalent)

### Practical Experience

2005 – 2006: **Roland Berger Strategy Consultants, Munich, Germany** Projects in Austria (Vienna), Switzerland (Zurich) and Germany

2004: **Wagner Systems, Inc., Carol Stream, USA** Controls Application Engineer. Projects in China, Germany, Hungary, Ireland, Switzerland and all over the US

2003: **Heidelberger Druckmaschinen AG, Wiesloch, Germany** Technology Management & Quality Management

2001 – 2003: **Fraunhofer Institute for Manufacturing Engineering and Automation, Stuttgart** Robotics

January 2000: **Co-Founder of ViaVideo GbR** Video Productions

September 1998 – June 1999: **Military Service, Stetten am kalten Markt, Germany**

1997, 1998, 1999: **MTU Friedrichshafen GmbH** Logistics

1995 – 1998: **J. Wagner GmbH, Markdorf, Germany** Logistics

### Publications

- None for the chair so far -

## Nick Wilson

CEO and Founder of Clever Zebra



Nick Wilson is the CEO of Clever Zebra, producers of the vBusiness Expo, the enterprise Web3D conference held entirely in a virtual world. Nick has been working with corporations in virtual worlds since early 2007 and believes that Web3D will become a vital and integral part of internet strategy for business in the coming years.

Amidst all of these things, he's also the father of Robyn and Daniel, and husband to Ivana, has two dogs called Bailey and Sam, one cat called George, and 4 chickens, known as "Richard and his wives".

Prior to his discovery, and subsequent obsession with the Metaverse, Nick ran several web2.0 companies, co-invented the ScribeFire blogging extension for Firefox, and built several large communities around the topics of Search, publishing, and technology.

## Dr. Michele De Lorenzi,

ETH Zurich, ICT Commission



Michele De Lorenzi, geboren 1964 in Locarno, studierte Informatik an der ETH Zürich wo er auch promoviert hat. Nach dem Studium hat er für acht Jahre in der Beratungsbranche als Consultant und Geschäftsführer gearbeitet.

Ausgehend von den Bedürfnissen der ETH Zürich hat er bei ETH World als «Head of technology exploration» überprüft, welche Technologien verfügbar sind und wie andere Hochschulen damit umgehen. Er hat entsprechende Projektideen generiert, die nach einer Selektion anhand von Prototypen auf deren Realisierbarkeit hin überprüft worden sind. Wo notwendig unterstützte er die Umsetzung dieser Prototypen in laufende Dienstleistungen.

Nach Abschluss der ETH World-Initiative hat Michele De Lorenzi eine Position bei der [ICT-Kommission](#) der ETH Zürich übernommen. Dort ist er für den Abschluss der Aktivitäten von ETH World und für die Unterstützung der ICT-Kommission verantwortlich.

### Vorträge und Präsentationen

- „[Virtuelle Welten und die Bibliothek der Zukunft](#)“, Weiterbildungsveranstaltung für das Medien- und Informationszentrum der Zürcher Hochschule der Künste (ZHdK), Michele De Lorenzi, Zürich, 27. August 2008
- „Second Life after the Hype: Business relevance of virtual worlds“, Michele De Lorenzi and Roger Jegerlehner (Swisscom Innovations), The IET, ETH Zurich, 25 February 2008
- „[Swiss Talk in Second Life: Business = Kommunikation?](#)“, Teilnahme an der Diskussionsrunde, Michele De Lorenzi, Switzerland in Second Life, 11. Februar 2008
- „Second Life: Chancen und Risiken für die Versicherungsbranche“, Kessler Marsh & McLennan Companies, Zürich, 1. Februar 2008
- „Seminaire d'experts: Les nouveaux visages de l'Internet“, TA-Swiss, Zürich, 31. August 2007
- „[Marketing in Second Life](#)“, Michele De Lorenzi, Marketing für Führungskräfte - Praxiswissen in 2 Tagen mit Prof. Dr. Reinhold Rapp, Zürich, 29. August 2007
- „[Second Life und PR: Was bringen virtuelle Welten?](#)“, Michele De Lorenzi, ZfU-Trendforum: Praxistag Online-Kommunikation "Web 2.0 für Marketing und PR", Zürich, 26. Juni 2007
- „[Second Life: Chancen und Risiken in der virtuellen Welt für Messeveranstalter](#)“, Michele De Lorenzi, 39. Messe-Seminar bei der Thun-Expo, Thun, 25. Juni 2007
- „[Second Life](#)“, Michele De Lorenzi, ZfU am Seminar über Innovative Marketing Konzepte, Zürich, 22. Juni 2007
- „[Die ICT-Strategie der ETH Zürich](#)“, Michele De Lorenzi, Workshop "Hochintegriert in die Universität der Zukunft", FernUniversität in Hagen, Hagen, 11. Juni 2007
- „[Second Life: Chancen und Risiken in der virtuellen Welt](#)“, Michele De Lorenzi, Ronny Fischer und Markus Schärer, Orbit-iEX-Konferenz 2007, Zürich, 24. Mai 2007
- „[Wirtschaft- und Privatleben in virtuellen Welten - "die neue schöne Welt" von Second Life](#)“, Michele De Lorenzi und Ronny Fisher, Denktankstelle, Rencontre Culturel, Zürich, 7. März 2007

- „[Fallbeispiel ETH Zürich: Wie eine Institution die interne Kommunikation unterstützt](#)“, Michele De Lorenzi, Fachtagung und Workshop User Generated Content, EUROFORUM, Zürich, 13. Dezember 2006
- „PolyPhone - Internet-Telefonie und mehr für die Community der ETH Zürich“, Michele De Lorenzi und Armin Brunner. 20. DFN-Arbeitstagung über Kommunikationsnetze, 9. Juni 2006
- „VoIP – Entwicklungsperspektiven und -risiken“, Präsentation für Forum Arbeitnehmerdatenschutz 2006. DGB Bildungszentrum Hattingen (Hattingen, Deutschland), 29. Mai 2006
- „ETH-PolyPhone - Being connected“, Veranstaltung zur offiziellen Ankündigung von ETH-PolyPhone. ETH Zürich, 19. Mai. 2006
- „ICT-Strategy for a University - A Case Study“, Michele De Lorenzi, Danmarks Tekniske Universitet (Kongens Lyngby, Denmark), 10. Februar 2006
- „ETH World: Developing a Virtual Campus Infrastructure for Education and Research“, Michele De Lorenzi, Danmarks Tekniske Universitet (Kongens Lyngby, Denmark), 10. Februar 2006

### Publikationen

- „Technology Exploration: From Ideas to New Services“, Dr. Michele De Lorenzi. to appear in Handbook of Research on Technology Project Management, Planning and Operations, University of Texas Health Science Center, USA, Edited by Terry T. Kidd, published by Information Science Reference, an imprint of IGI Global
- „PolyPhone -Internet-Telefonie und mehr für die ETH Community“, Armin Brunner und Dr. Michele De Lorenzi. PIK Praxis der Informationsverarbeitung und Kommunikation, 1/2007, Januar-März 2007 Heft 1, by K.G. Saur Verlag, München
- „Neuartige Kommunikationsformen dank Internettelefonie: Ein Erfahrungsbericht aus der ETH Zürich“, Dr. Michele De Lorenzi und Marcel Baur. IT Business 4/5/2006
- „PolyPhone - Internet-Telefonie und mehr für die Community der ETH Zürich“, Michele De Lorenzi und Armin Brunner. Erscheint in den Proceedings zur 20. DFN-Arbeitstagung über Kommunikationsnetze, 9. Juni 2006. ISBN 978-3-86004-211-3, veröffentlicht auf dem ecoc-Server der Humboldt-Universität zu Berlin: [edoc.hu-berlin.de/conferences/dfn2006/](http://edoc.hu-berlin.de/conferences/dfn2006/)
- „Von der technologischen Exploration zur Dienstleistung: PolyPhone - Internet-Telefonie und mehr für die Community der ETH Zürich“, Michele De Lorenzi und Armin Brunner, Friedrich/Wehner/Clases: „Hochschule im info-strukturellen Wandel. Erwartungen, Wirkungen und Bewertungen am Beispiel von ETH World“ (Herbst 2006)
- „Technologische Exploration bei ETH World: Von der Technologie zur neuen Dienstleistung“, Michele De Lorenzi, Marcel Baur und Tobias Wunden, Friedrich/Wehner/Clases: „Hochschule im info-strukturellen Wandel. Erwartungen, Wirkungen und Bewertungen am Beispiel von ETH World“ (Herbst 2006)

### Blogs

- Schreibt als Neptun Everett über den Einsatz von Second Life für E-Learning: [2life.ch](http://2life.ch), [Second Life Blog Schweiz: Infos, Geschichten und News aus Second Life](#)

## Garrett Cobarr

Founder & Principal of Lingua Media Group since 1990

Through that organization he provides user experience, interface design, 3D / motion graphics and technical/media strategy consultation.

He was involved in the early adoption of virtual worlds when they were VRML. As part of Lingua Media Group he provided creation services to RL firms in Second Life. He has been in Second Life for 3 years. Owned an island sim for 2 years and founded the largest island sim owner's group, IRSO, "Island Region Sim Owners" group. IRSO has about 100 members that represent about 3000 island sims.

He is currently the acting CEO of Swissopolis GmbH. This project is a show case of virtual world development and community building. Using Switzerland as an amalgam, Swissopolis demonstrates the ability to deal with international language sets, cultural interface and real world to virtual world integration. The project also contains extensive metrics and demographics systems.

This project is providing the basis of the initiative to build a 3D web and break out of the bounds of the proprietary virtual world or 'walled garden'. This effort is named DaVirtua.

## B Chi-Test for independence

Beobachtet	Chi	Presence	None	Total
	> 50 Billion	39	82	121
	20 - 50 Billion	26	204	230
	< 20 Billion	14	135	149
	Total	79	421	500

Erwartet	Chi Ansatz	Presence	keine	Total
	> 50 Billion	19.118	101.882	121
	20 - 50 Billion	36.34	193.66	230
	< 20 Billion	23.542	125.458	149
	Total	79	421	500

Degree of independence:  $(2-1)*(3-1)=2$

alpha=0.05

chi<sup>2</sup> = 5.991

chitest

8.15579E-08

20.67653123 3.879919161 24.55645039

2.942091359 0.552078901 3.494170261

3.867545833 0.725739004 4.593284837

**Chi Value**

**32.64390549**

## **C Participating Companies**

Manpower  
IBM  
Enel  
Dell  
Bradesco  
FIAT Brazil  
AEGON Netherlands  
Siemens (PLM Software)  
Philips  
Nokia  
DEXIA  
CREDIT AGRICOLE  
Cisco  
ABN Amro  
Aviva USA  
Electrolux AB  
Microsoft  
FUJIFILM Corporation  
ISN VIRTUAL WORLDS  
Assicurazioni Generali S.p.A.  
Royal Dutch Shell  
Telstra  
Fujitsu Limited  
TUI Deutschland GmbH  
ArcelorMittal

# D Questionnaire