Web 2.0 Business Model Design Issues
Master Thesis

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Date: March 19, 2009
Acknowledgements

This master thesis would not have been possible without the guidance, stimulation and support of my graduation committee. I especially would like to thank Mark de Reuver for making this master thesis possible, as he has been there for me every step of the project. I would also like to thank Patrick van der Duin for providing very useful feedback and triggering new insights throughout the research project. I would like to thank Harry Bouwman for sharing his expertise and showing me the path which lead to finishing this master thesis.

I would like to thank all interviewees for taking the time to discuss Web 2.0 business model design issues. I would also like to thank everyone who has discussed the topic with me, as this has also enabled a fresh look on the subject when things got tough.

I would like to thank my friends and family for unconditionally supporting, inspiring and motivating me every step of the way.

Thank you for being a part of the most important step in my education to date.
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Executive Summary

Web 2.0 is an ever growing and changing phenomenon, but does it also require a different way of doing business? The problem at hand is that current business model science is unconnected from Web 2.0 theory. Conducting research in the field of Web 2.0 business models in order to close the knowledge gap is what this research endeavors. In order to achieve that, this research focuses on critical business model design issues which are important in the domain of Web 2.0. This has resulted in a main research question.

What business model design issues are important in the Web 2.0 domain?

As there is no single definition of Web 2.0, it is necessary for the sake of this research to have a working definition of Web 2.0 to base the research on. The definition of Web 2.0 can be defined based on its seven characteristics: (1) User or algorithm generated data; (2) Socialization and network effect; (3) Long tail; (4) Freedom by relinquishing control; (5) User involvement in service development; (6) Technological functionality; and (7) Compatibility, modularity and extendibility.

There are many perspectives on business models, so it is necessary to know what the definition of a business model encompasses. Hence, the STOF model (Bouwman, de Vos, & Haaker, 2008) is a suitable business model theory to work with. The model considers four domains: the service domain, the technology domain, the organization domain and the finance domain; the domains are interlinked and result into value for customers and value for service providers. STOF model theory also includes seventeen critical design issues which are used to connect business model theory to Web 2.0 theory.

Lessons from practical examples are explored to find important aspects regarding Web 2.0 implementations. These lessons are validated by experts in the field of Web 2.0 and business models through interviews. This leads to seven lessons learned in the field of Web 2.0 business models:
1. The unique value proposition is an important aspect in business model design as it should also enable the service to compete
2. Identify or create a need for the service and launch as soon as the service is stable
3. Evaluate choices by looking at trade-offs; also keep services externally separated and have a structured internal organization, but be creative with resources
4. Radical innovation is important, but the starting point should be incremental innovation
5. There are Web 2.0 services, Web 2.0 platforms and Web 2.0 products, despite of the different nature and differences reflected in their business models, there is a dependency between these different Web 2.0 implementations
6. Web 2.0 services primarily focus on the service domain. Web 2.0 platforms primarily focus on the technology domain and the organization domain has a very important supporting role
7. Business model synergy is the basis for any commercial Web 2.0 service or platform

These lessons can be coupled to Web 2.0 theory and STOF model theory. Critical Web 2.0 business model design issues can be divided into three subcategories: (1) critical Web 2.0 service business model design issues; (2) critical Web 2.0 platform business model design issues; and (3) critical Web 2.0 product business model design issues. This research has only focused on the former two subcategories of critical Web 2.0 business model design issues.

Web 2.0 implementations can be classified by the Web 2.0 characteristics. If the focus of the Web 2.0 implementation is more on “User or algorithm generated data”, “Socialization and network effect” or “Long tail”, the implementation is a Web 2.0 service. If the focus is more on “Technological functionality” or “Compatibility, modularity and extendibility”, the implementation is a Web 2.0 platform.

Web 2.0 business models are not tremendously different from traditional business models, although Web 2.0 business models are a special type of business models which need to be approached in a specialized form. The difference in critical business model design issues for Web 2.0 services or Web 2.0 platforms is evident as the difference in importance of critical design issues is unmistakable.
1 Research Program

The Internet grows with phenomenal speed; in 1995 the Internet counted approximately 16 million users, by the end of 2007 there were roughly 1.3 Billion users connected to the Internet (Internet World Stats, 2008a). The Internet is a collection of interconnected computer networks and the World Wide Web (WWW or also shortened as the Web) is a distributed system that runs on top of the Internet (Tanenbaum, 2002). The Web enables the global accessibility of information through interlinked documents (Berners-Lee, Cailliau, Groff & Pollermann, 1992). This has led to a collaborative information resource and its unparalleled power is growing steadily by the second (Tetlow, 2007). And although the Internet is the most recent information medium, its growth is unsurpassed when compared to any other information medium (Lyman & Varian, 2003). See figure 1-1 for the graph on Internet usage growth over the years.

Figure 1-1: Internet Users in the World: Growth 1995 - 2010

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Figure 1-1: Internet Users in the World: Growth 1995 - 2010 (Internet World Stats, 2008a)
The forecast is that in 2010 the Internet will count approximately 1.65 Billion users. This is a growth of more than 10,000 percent in 15 years. In 1995 only 0.4 percent of the world population was connected to the Internet, today this percentage has grown to 20 percent (Internet World Stats, 2008b). Such an impressive growth of course has its consequences on the way the Internet is actually used (Coffman & Odlyzko, 2001).

Through the evolution in the amount of people using the Web, the actual usage of the Web is also evolving (Liu, Zhang & Yang, 2004). A change in how the Web is actually used can be observed as information flows used to be mainly one way traffic. Over time a graduate shift towards user involvement in creating a true information web where information flows from and to any direction has been made. Today, anyone actively participate on the Web, many Web applications started to thrive on this concept of a more involved user. Also the way people access the Web changes; mobile devices are important tools to enable worldwide accessibility of the Web, anywhere and anytime. Some consider these newer types of Web applications and Web sites fundamentally different from traditional Web applications and Web sites, so these new types were grouped under the term Web 2.0 (Millard & Ross, 2006).

Considering that there is a difference between Web 2.0 applications and traditional Web applications, Web 2.0 may require different business models than conventional e-business models (Yarmosh, 2005). As the definition of Web 2.0 is not given easily (Madden & Fox, 2006), a knowledge gap in the field of Web 2.0 business models remains. Thus the problem at hand is that Web 2.0 is not well defined, which makes it difficult to apply business model theory on Web 2.0; resulting in the non-existence of scientific Web 2.0 business model theory. Additional research is necessary in order to get a greater understanding of the business models linked to the latest dynamics of a prominent technology in the information era.

With the knowledge gap between Web 2.0 theory and business model science in mind, a greater insight in Web 2.0 business models is endeavored. The research will therefore focus on critical Web 2.0 business model design issues while taking sustainable value creation into account.

1.1 Problem Definition

Does Web 2.0 demand a new way of doing business? As business models may require a different design for the domain of Web 2.0 and the traditional business models might need to be rethought. So is there a difference in critical business model design issues which identify what is relevant and important in business model design? These critical business model design issues need to be identified to determine whether Web 2.0 demands a new way of designing business models. If we look at a revenue model for instance, when users visit social networking sites, they are not necessarily in the mindset of clicking banners (Bonneau & Gensollen, 2007). Another example is that of Web access on mobile devices; because of the totally different way of using a mobile device compared to a desktop computer, services need to be rethought and redesigned to become suitable for the mobile Web (Berners-Lee, 2007). Many Web 2.0 applications have started without a completely thought through strategy (Marchese, 2007). This has had the accompanying consequences for these companies. Some have managed to overcome these difficulties, but some did not. Some companies have been lucky that they were bought up for enormous amounts of money by the big players in the ICT industry, and had those companies resolve the problems at hand for them. There is resemblance with the dot-com hype, so this might as well be the next dot-com bubble (Waters, 2007).

Despite the critique on Web 2.0, O’Reilly (2005a) puts some Web 1.0 attributes against Web 2.0 attributes; in this perspective, many assets of the Web seem to have changed. So maybe Web 2.0 is not just a second dot-com hype, but consists of valuable substance. The question now is not whether companies should change their business models and strategies, but the question is how they can change their business models in order to stay in business on a long term basis.

The long term sustainability does not seem to be the first concern of many Web 2.0 companies (Dvorak, 2007); it happens that startup companies choose their revenue model to be an exit strategy (Henry, 2007). As this strategy is mostly based on hoping for luck, it can not be called a sustainable method for.
value creation. Because of the lack of research and scientific knowledge in the field of critical Web 2.0 business model design issues, current Web 2.0 business models are composed by gut feeling or by simply copying successful predecessors (Keeler, 2008). As a result, many companies seem to choose advertisements as the method for earning money. It comes to attention whether Internet advertisement is the best method for generating revenues, or is it an outdated method which has to make way for new revenue models?

So, sustainable value creation is the center of what companies seem to have problems with. How can a company independently stay in business for many years in the turbulent business environment of the Web? Sustainable value creation is the creation of value for customers as well as the service providers over longer periods of time.

The main problem at hand is that current knowledge around Web 2.0 business models is not sufficient enough to give a deeper insight on how sustainable value can be generated. Therefore this research is necessary to get a greater understanding of critical business model design issues regarding Web 2.0 which are important towards sustainable value creation.

The analysis on critical Web 2.0 business model design issues will enable mankind to learn from theory as well as practice, in order to see what is important in engaging into the world of Web 2.0.

1.2 Literature Review

Web 2.0 is a recent development and literature in this field is growing, but still not near maturity. Proof of this is the fact that no consensus can be reached on what the definition of Web 2.0 actually is (Madden & Fox, 2006). Literature on business models is further developed, but still has some gaps to be filled. For instance, Hedman & Kalling (2002) claim that the concept is often used independent from theory and usage lacks scientific method.

In the field of e-business the work of Amit & Zott (2001) on value creation in e-business is often referred to in e-business related articles and is an essential part of later research like Christensen & Methlje (2003). Continuing this work into web business models, Rappa (2004) describes and categorizes numerous business models for the web. The STOF model (Bouwman, de Vos, & Haaker, 2008) breaks down the business model in four basic components: services, technology, organizational arrangements and financial issues. The STOF model also takes the inputs, influencing factors and outputs into account.

In order to study or design a business model, Bouwman et al. (2008) define Critical Design Issues (CDIs) which describe design variables which are important for the viability and sustainability of a business model.

To further explore the dynamics around value creation in Web 2.0 environments, Musser (2007) found eight core patterns which he then applied to different business models. Other knowledge comes from literature of many authors like Bonneau & Gensollen (2007) who touch on the phenomenon of Web 2.0 and discuss interesting issues and consequences. O’Reilly (2005a), the one who first coined the term Web 2.0, describes how the developments change the dynamics around the software industry. Mabillot (2007) goes deeper into the distribution and sharing of videos over the Internet, this gives an insight in the concept of user generated content. Aguiton & Cardon (2007) look at Web 2.0 from the social perspective and look at what actually drives Web 2.0 applications. Auray (2007) also covers the same subject from another angle; he looks at social categorization and indexing of content on the Internet. Hinchcliffe (2007) looks at the business models for Web 2.0 and even looks into possibilities to apply them outside the software industry.

This is a small selection of literature and definitely not a complete overview of the literature available in the fields of Web 2.0 and business models. As noted in the problem definition, the problem does not lie in Web 2.0 literature, neither in business model literature, but in the combination of Web 2.0 and business model literature.
1.3 Objectives

The goal of this research is to apply business model theory in the Web 2.0 domain; coupling two fields of research to find how critical Web 2.0 business model design issues contribute towards sustainable value creation. By exploration and validation through practical examples, the findings should have a theoretical, but also a practical basis. The aim is to conduct research which contributes to scientific knowledge, but also delivers practically usable theories.

1.4 Key Questions

The main research question tries to find an answer on the identified problem:

What business model design issues are important in the Web 2.0 domain?

This question can be subdivided into four sub questions in order to tackle the problem step by step:

As there is no single definition of Web 2.0, it is necessary for the sake of this research to have a working definition of Web 2.0 to base the research on.

1. What is the definition of Web 2.0?

The same problem as with sub question 1 arises when it comes to business model theory. There are many perspectives on business models, so it is necessary to know what the definition of a business model encompasses.

2. What is a business model?

It is necessary to know what aspects are actually important in the field of Web 2.0. Lessons from practical examples must be drawn in order to see which issues are relevant and important concerning Web 2.0 implementations.

3. What are the lessons derived from Web 2.0 implementations?

The findings need to be validated by experts in the field with a greater insight in how Web 2.0 implementations succeed. By presenting the findings from the previous sub question to the experts their feedback enables the research to be based on a stronger fundament.

4. Do the experts recognize the lessons on Web 2.0 business models?

By individually answering all sub questions, the main research question will also become answerable. The lessons learned can be compared to the critical design issues resulting from business model theory in order to find the critical Web 2.0 business model design issues.

1.5 Methodology

There is no well established theory in the field of Web 2.0 business models and this gives the research program an explorative nature; however, the aim is to combine this exploration with validation of the developed hypotheses along the way. The research will be conducted on qualitative basis and will mainly consist of theoretical research and case studies. Therefore data will be collected through archiving data (literature research) and interviews.

Research sub questions 1 and 2 will be answered through literature research. The hypotheses will developed through case studies in sub question 3. To confirm the practical validity of the hypotheses
drawn from sub question 3, it will be revalidated against the knowledge of experts in the field of Web 2.0 and Business models in sub question 4. In table 1-1 the methods are broken down per research question.

<table>
<thead>
<tr>
<th>Research sub question</th>
<th>Research strategy</th>
<th>Data collection</th>
<th>Activity</th>
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<tbody>
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<td>1</td>
<td>Literature research</td>
<td>Desk research</td>
<td>Explore</td>
<td>Develop definition</td>
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<tr>
<td>2</td>
<td>Literature research</td>
<td>Desk research</td>
<td>Explore</td>
<td>Develop definition</td>
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<td>3</td>
<td>Case studies</td>
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<tr>
<td>4</td>
<td>Practical research</td>
<td>Expert interviews</td>
<td>Validate</td>
<td>Validate hypotheses</td>
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Table 1-1: Research methodology per research sub question

The lay out of this methodology is first to develop definitions to work with in research sub questions 1 and 2, as current theory on Web 2.0 and business models is not standardized. Then, in research sub question 3 hypotheses regarding the critical design issues will be formulated based on practical examples from case studies. Finally the hypotheses will be validated through expert interviews in order to answer research sub question 4.

For research sub question it is necessary to select Web 2.0 cases. Based on theory developed in the first two research sub questions, suitable cases can be selected. Because the cases mostly will be international, the case studies will mostly be based on desk research; this also enables to research more cases in a shorter period of time. The findings from the literature research can be validated against the choices made at the companies in the cases. This corresponds with the overall goal of this research methodology to start with a theoretical fundament and develop into a practically validated theory.

To validate the hypotheses from the case studies, it is necessary to validate the findings through expert interviews. This enables the elimination of flaws in the hypotheses and possibly adds aspects which were overlooked.

Each research sub question is answered in its own chapter. The main research question is answered in the general conclusion. Finally there is a reflection which also includes suggestions for further research.

Chapter 2: Web 2.0 Defined – Research Question 1
Chapter 3: Business Model Theory – Research Question 2
Chapter 4: Case Studies – Research Question 3
Chapter 5: Expert Interviews – Research Question 4
Chapter 6: Conclusions – Main Research Question
Chapter 7: Reflection
2 Web 2.0 Defined

This chapter will seek an answer to the first research sub question: What is the definition of Web 2.0? In order to answer this question the various definitions on Web 2.0 must be explored. Based on this exploration a definition can be constructed. Finally this chapter also covers the future of Web 2.0.

Web 2.0 is a term for which there is no single definition. Bray (2005b) describes Web 2.0 as a term to describe a collection of features which do not necessarily have something in common. This will be the base for the working definition of Web 2.0 for this research. Musser (2007) describes Web 2.0 as a set of economic, social and technological trends. These trends and features that essentially make up Web 2.0 will be explored further in this chapter.

Before the specific features of Web 2.0 are looked into, the general definitions of Web 2.0 will be explored in order to get an overview of how Web 2.0 is perceived from different perspectives. The term Web 2.0 was introduced in 2004 (O'Reilly, 2005a). The term was directly criticized to be a marketing hype (Bray, 2005a; Scott, 2007) and consensus on what Web 2.0 really is, has still not been reached. Therefore, different definitions will be investigated to build a clear vision on what Web 2.0 encompasses.

2.1 Web 2.0 Definitions

To start off with a definition by example, McKinsey (2007) summarizes the most common examples of Web 2.0 applications: blogs, collective intelligence systems, mash-ups, peer-to-peer, podcasts, RSS, social networking, web services and wiki's. These examples do not explain the features of Web 2.0, but give a good insight of what kind of applications are typically described as being Web 2.0. Despite that many agree on the examples of Web 2.0 as being Web 2.0, a single definition of what Web 2.0 actually is, still does not exist.

Many look at Web 2.0 from different perspectives, for instance Kelly (2005) looks at the way the Web has evolved from 1995 until 2005. The Web is actually what the users make from it and leveraging collective intelligence is an important aspect in the evolved Web environment (Kelly, 2005). This user centric view implies that everything is about the ability to harness the collective intelligence of the users.

Another very simple vision on Web 2.0 is given by Stern (2005), he looked at the examples O'Reilly (2005a) positions as Web 2.0 applications and concludes that they can be distinguished from their Web 1.0 counterparts as being writable. Therefore he comes up with the term “read-write web”. With this term he implies that the Web 2.0 is about being editable by virtually anyone. Snell (2005) has a similar view on Web 2.0 and describes it in UNIX terms as “chmod 777 web”, which basically means the same as the definition given by Stern (2005) that anyone has full modification rights on data residing on the Web. These visions are again very much focused on users and the way they use Web 2.0 applications.

Continuing from a user perspective, Hagel (2005) tries to capture the essence of Web 2.0 by focusing on the concept of data creation. He states that Web 2.0 ultimately refers to “an emerging network-centric platform to support distributed, collaborative and cumulative creation by its users”. This implies that Web 2.0 is not only about the users, but about networks of users which collaborate towards data creation. Slot (2006) also sees the importance of networks of users and claims that Web 2.0 is about the social dynamics of networking and intelligence generated by a large group of users.

From many definitions and thoughts of Web 2.0 the most important aspect of Web 2.0 seems to be the network of users and their ability to modify data on the Web. A broader, but still user oriented view is given by Musser (2007) as: “Web 2.0 is a set of economic, social, and technology trends that collectively form the basis for the next generation of the Internet—a more mature, distinctive medium characterized by user participation, openness, and network effects”. With this definition he touches on economical,
The characteristics of Web 2.0 are explored by O’Reilly (2005a) where he gives a set of eight design patterns for Web 2.0. The design patterns each tackle a problem which Web 2.0 applications can solve: (1) reach out to the long tail, (2) data is the next Intel inside, (3) users add the value, (4) network effects by default, (5) some rights reserved and aim for as few restrictions as possible, (6) the perpetual beta, engage your users for testing, (7) cooperate, don’t control and (8) software above the level of a single device. O’Reilly (2005a) is often referred to and inspires others like Miller (2005) to modify the principles of Web 2.0 to their own view. He describes eleven principles of Web 2.0: (1) freeing of data, (2) permits the building of virtual applications, (3) participative, (4) applications work for the user, (5) modularity, (6) sharing of code, content and ideas, (7) communication and facilitating community, (8) remix, (9) smart applications, (10) opens up the long tail and (11) build upon trust. From these perspectives it is made clear that there is much more to Web 2.0 than only user participation and network effects. User participation and network effects are identified as important aspects, but are definitely not all aspects important for Web 2.0 applications.

Continuing into the exploration of important aspects for Web 2.0 applications, Musser (2007) describes six key market drivers and eight core patterns on Web 2.0 based on work of O’Reilly (2005a). The six key market drivers are: (1) your customer base is truly global, (2) your customers are always-on, (3) your customers are connected everywhere they go, (4) your customers aren’t just connected, they’re engaged, (5) your costs of production have dramatically decreased and (6) you have new revenue opportunities. These connect to the overall trend where Web 2.0 applications and companies capitalize on new business models, new social models and new technology models. The eight core patterns of Web 2.0 as described by Musser (2007) are: (1) harnessing collective intelligence, (2) data is the next “Intel inside”, (3) innovation in assembly, (4) rich user experiences, (5) software above the level of a single device, (6) perpetual beta, (7) leveraging the long tail and (8) lightweight models and cost-effective scalability. Hinchcliffe (2006) agrees on these patterns and agrees that there is a link. Musser (2006) also gives a set of common attributes of Web 2.0 supporting these patterns: massively connected through network effect, decentralized, user focused, open, lightweight and emergent.

These extensive lists defined by Musser (2007) and Miller (2005) based on O’Reilly (2005a) seem to cover all aspects of Web 2.0 if they are kept side to side with the examples of McKinsey (2007). Still others have looked at Web 2.0 and tried to narrow down in order to define the core concepts.

To start off with, Proulx (2007) sees Web 2.0 as a polysemic (i.e. having multiple meanings) concept which has three broad definitions. The first definition is that Web 2.0 applications are dependent on a large user base in which the users are actually information producers. The second definition describes Web 2.0 where collaboration and social control influences the quality of information. The third and final definition targets the revenue model of Web 2.0 applications, which is focused on targeted advertisement. The added value lies in the information flows, by which for instance suggestions by consumers are easily made (Proulx, 2007).

Another core concept focused definition is given by Vossen & Hagemann (2007) who recognize the importance of technological developments and user participation and collaboration. They describe the essence of Web 2.0 in three core concepts: (1) combining data from various sources, (2) functionality coming forward from great technology and (3) socialization, referring to Tagging, blogging, and “wiki-ing”. These three dimensions of Web 2.0 are graphically shown in figure 2-1, where Wikipedia is more focused on data and functionality and Blogger is more focused on socialization and data (Vossen & Hagemann, 2007).
In further exploration of definitions on Web 2.0, Aharony (2008) describes Web 2.0 by five characteristics: (1) individual production and user generated content, (2) harnessing the power of the crowd, (3) improve and facilitate user participation through the architecture of participation, (4) network effect and (5) openness.

The final view is that of SEOmoz (2007), the organization which hands out Web 2.0 awards annually. They continue on the work of O’Reilly (2005b) and define a list for their Web 2.0 awards as criteria by which they select the contenders:

- User generated and/or user influenced content
- Applications that use the Web (versus the desktop) as a platform, in innovative ways
- Similar visual design and shared functional languages
- Leveraging of popular trends, including blogging, social tagging, wiki's, and peer-to-peer sharing
- Inclusion of emerging web technologies like RSS, AJAX, APIs (and accompanying mash-ups), Ruby on Rails and others
- Open source or sharable/editable frameworks in the form of user-oriented "create your own" APIs

This view concludes the exploration on Web 2.0 definitions. Although there are many different Web 2.0 definitions, for the sake of this research it is necessary to have a single definition on Web 2.0 to work with and continue the research with. Based on the discussed definitions, Web 2.0 can be defined.

### 2.2 The Definition of Web 2.0

With the exploration of various Web 2.0 definitions, it is now possible to look into the different aspects and the similarities identified. Despite of the differences in definitions, the aspects of Web 2.0 which are identified are still closely linked. The aspects of Web 2.0 identified can be categorized in seven core features. These core features coming forth from the definitions described earlier will be explored individually. The goal is to create a list of features which describe Web 2.0 in its totality, but for which it not necessarily means that every Web 2.0 application needs to comply with all of the features.
User or algorithm generated data
Forrest (2007) sees data as the core of Web 2.0; he stresses the importance of user generated content, or data development through algorithms. This enables the coupling of data creation through collective intelligence to data creation through superior technology. O'Reilly (2005a) describes data to be the next “Intel inside” as one of his design patterns for Web 2.0. Vossen & Hagemann (2007) see combining data from various sources as one of the three core concepts of Web 2.0. The importance of data, regardless whether it is user generated or algorithm generated seems logical as data is the fundament of the Web.

Socialization and network effect
Several Web 2.0 applications are focusing on socialization (e.g. networking communities like MySpace, Facebook and Hyves) and profiting from the network effect following this socialization phenomenon. O'Reilly (2005a) notes that with Web 2.0, network effects happen by default. Davis (2005) defines Web 2.0 as an attitude and not as a technology; he argues that Web 2.0 is about enabling and encouraging participation through technically as well as socially open Web applications and Web services. Aharony (2008) identifies user participation and network effect as two of the five characteristics of Web 2.0. Vossen & Hagemann (2007) also see socialization as one of the three core patterns of Web 2.0. Birdsell (2007) takes this even further as he looks at Web 2.0 as a social movement. Barsky & Purdon (2006) envision Web 2.0 to be about democracy in which everyone has the same rights. From a social perspective on Web 2.0, Aguiton & Cardon (2007) found that weak cooperation between users and builders of Web 2.0 services makes up a vital element in the social operations of Web 2.0. Therefore they also find that Web 2.0 works in a more democratic way than before. Socialization and the accompanying network effect seem to be core of Web 2.0 as it defines a major online trend.

Long tail
O'Reilly (2005a), Miller (2005) and Musser (2007) agree that reaching out to the long tail is an important aspect for Web 2.0 applications. Capturing a niche market is enabled through the broad reach of the Web, combined with the low costs coupled to that broad reach.

Freedom by relinquishing control
Merholz (2005) claims that Web 2.0 is not about technology and features, but that the importance lies in the underlying philosophy of relinquishing control. Giving freedom to your users is important in getting and keeping users use your Web 2.0 application. Proulx (2007) claims that collaboration and social control influences the quality of information. O'Reilly (2005a) also identifies a design pattern of Web 2.0 to have some rights reserved and aim for as few restrictions as possible.

User involvement in service development
When the Web application is up and running user feedback can be used to improve service delivery. In order to suit the services as much as possible to the needs of the users, their feedback is important. O'Reilly (2005a) identifies how important it is to engage your users for testing. Miller (2005) adds that applications should work for the user and that users should be able to participate and help build the application to suit their needs.

Technological functionality
Technological capabilities on the Web have developed and technological standards and expectations have grown. Web 2.0 applications can distinguish themselves through their advanced technological functionalities. Musser (2007) points out that rich user experiences are important for Web 2.0 applications as it also enhances user friendliness. Vossen & Hagemann (2007) also see functionality coming forward from great technology as one as the three core concepts of Web 2.0. Torkington (2007) describes the revolution in the computer industry to be caused by the move to the Internet as a platform. The technological capabilities enable developers to build Web based software with desktop capabilities. Technological functionality also includes the design and usability of an application. A balance between user experiences and functionality is identified by Anderson (2006); he shows that a good user interface should be meaningful, pleasurable, convenient, usable, reliable as well as functional.

Compatibility, modularity and extendibility
O'Reilly (2005a) also identifies the design pattern of software above the level of a single device. This means that Web 2.0 applications should be able to run on any Web enabled device. This includes the growing target group of mobile devices, as we see that Web 2.0 companies are rapidly enabling their
services for mobile devices (Evans, 2007). The interactions and design of the applications need to be rethought to make it suitable for the mobile Web (Berners-Lee, 2007). This is a delicate task and should be given the right attention (Klemettinen, 2007). Applications which are able to run on any Internet enabled device need a different design approach. Miller (2005) identifies the importance of modularity in applications and the possibility to remix and create smart applications. Summarizing, this implies that Web 2.0 applications should be compatible with any device, modularly built and easy extendable so that remixing and mashing-up applications is not made impossible.

These features mostly cover what has already been defined on Web 2.0. Breaking the features down into seven core capabilities of Web 2.0, enables anyone to assess Web applications and categorize it as Web 2.0 or not. It does not imply that any Web 2.0 application utilizes all seven capabilities, but it is more likely that a subset of capabilities is used. Web 2.0 applications are applications which employ one or more of these features. To summarize the features are shortly described in a list:

- **User or algorithm generated data**
  Intuitive data creation makes the Web more efficient than before.

- **Socialization and network effect**
  Interaction has grown out of the boundaries of the browser, life has gone digital.

- **Long tail**
  Low costs and great reach enable to target niche markets successfully.

- **Freedom by relinquishing control**
  When everything is about the user, it seems logical that the users are the ones who are collectively in control as opposed to constant control over content by a webmaster. Total freedom is almost impossible as it introduces legal issues.

- **User involvement in service development**
  By cooperation of users and developers, users are able to express their pains and needs. Software becomes user friendlier faster than before.

- **Technological functionality**
  Technology has developed and new possibilities have risen to enable rich user experiences and use the web as a platform instead of a static medium.

- **Compatibility, modularity and extendibility**
  The Internet is not only accessed by people on desktops. Applications should be ready to communicate with other software and be accessible to any Internet enabled device. To achieve this, software should be built modularly and easy extendable.

These seven features of Web 2.0 applications also define what sets Web 2.0 apart from Web 1.0. This list will act as the standard for what is meant by Web 2.0 during this research. Rule of thumb is that Web 2.0 applications are utilizing at least one or more of these features prominently. So, with the definition and this framework to look at Web 2.0 applications it is now clear what Web 2.0 encompasses. With the seven factors identifying Web 2.0 applications, it is also possible to look at the current trends on the web and the distribution of importance over the factors in respect to the past and future. Because the way the web evolves of course also influences which of the features might give an edge to a Web application in the future.

### 2.3 Web 3.0?

There is a view of what applications will be like in the future, which is also referred to as Web 3.0 or the semantic Web. The question then rises whether Web 3.0 is the successor of Web 2.0 or whether it is something totally different. A comparison often made is the comparison of Web 2.0 and the semantic Web as the semantic Web and Web 3.0 are regarded synonymous by some (Markoff, 2006). However, we do not really know what Web 3.0 is, but we do know what the semantic Web is. The semantic Web is envisioned as a Web in which computers are capable to analyze and process data the same way as people are doing it today (Berners-Lee & Fischetti, 1999). O’Reilly (2007) thinks Web 3.0 will be a combination of Web 2.0 and the semantic Web. It is difficult to speculate what Web 3.0 will be like, but it might be a crossover of Web 2.0, the semantic Web combined with other future Web trends. One thing is then sure, the capabilities of the Web will be greater than we can imagine today (Hendler & Golbeck,
A complementing concept is given by Morville (2005) who gives a definition on the socio-semantic web where he emphasizes the connections in any possible way between people, content and metadata.

Another perspective is given by Kleinrock (2008) who talks about providing access to the Internet from everywhere: “The rise of ad hoc networks, sensor networks, nomadic computing, embedded technologies, smart spaces, ubiquitous access, convergence of content, function, and services, and the deployment of intelligent agents will enable cyberspace to move out into our physical world, provide everywhere access and open up new vistas and opportunities”. Being able to connect to the Internet from anywhere at any moment asks for a different approach when it comes to Web development. Applications do no longer deliver fixed single scenario solutions but are expected to deliver multi scenario mobile solutions. This opens new possibilities which can be categorized under three main categories: (1) location based services, (2) context based services and (3) object based services.

Location based services thrive on the capability to pinpoint the exact location of the device at the suitable moment for the service. Context based services are founded on the capability to act different in different settings based on user or device input. Object based services target the capability to interact with other devices or objects at any given location. These different kinds of services, combined with the traditional Web 2.0 possibilities for desktops enable mobile devices to come to their current full potential.

By looking at the features of Web 2.0 applications and taking the mobile aspect into account, three identified capabilities stand out which have to be redesigned specifically in order to make an application suitable as a mobile solution. These three capabilities are (1) compatibility, modularity and extendibility, (2) technological functionality and (3) long tail. Technological functionality implies that the Web applications should be redesigned to be compatible with the different specifications for mobile devices and able to use the capabilities the mobile device adds over conventional computers to access the Web. This also means that the technological functionality needs to be adjusted to the way the user uses a mobile device. The preferences and needs of users can differ when it comes to Web applications accessed through a personal computer or through a small mobile device. This brings us to the last issue, which is the long tail. Currently not everyone has a full feature mobile device which is capable of accessing and using any service delivered through the Web. This means that it needs to be rethought who will use the service together with when, why and how the service will be accessed.

With the advent of future developments in the field of information mediums, the future of the Web is very exciting. The seven capabilities identified are important features of Web 2.0, but it might be the case that in the future these capabilities for the successor of Web 2.0 might change. However, these features are important today and are not likely to change fundamentally overnight.
3 Business Model Theory

The aim of this chapter is to answer the research sub question: What is a business model? In order to achieve this goal, the definitions on business models should be explored. From these definitions, a definition will be chosen to become a part of the theoretical framework of this research.

The concept of business models has been brought to the forefront of strategic thinking. It has become an important factor through advances in information and communication technologies, in particular on the Internet and broadband technologies (Geoffrion & Krishnan, 2003; Amit & Zott, 2006).

The concept of a business model can be seen as the “architecture of a business” (Hawkins, 2001). A business model is about how a certain strategy or goal can be realized. The term business model is commonly used in both science and practice (Alt & Zimmermann, 2001). However, there are multiple definitions on what a business model actually consists of. In order to get a working definition for this thesis the theory on business models will be explored.

As there is a substantial amount of information available on business models, Pateli & Giaglis (2004) have analyzed the contributions to business model theory until 2004; they identify eight sub-domains of research in the area of business models: (1) definitions, (2) components, (3) taxonomies, (4) conceptual models, (5) design methods and tools, (6) adoption factors, (7) evaluation models, and (8) change methodologies. By combining all sub-domains of business model research, a total perspective on business models can be taken. In this chapter business model theory from different research sub-domains will be reviewed.

3.1 Business Model Components

Based on various perspectives on business model components throughout the years, Morris, Schindehutte & Allen (2003) created an integrative model consisting of six components: (1) factors related to the offering, (2) market factors, (3) internal capability factors, (4) competitive strategy factors, (5) economic factors and (6) personal/investor factors. These components enable the development of business models which take these factors into account.

In the research of Pateli & Giaglis (2004) and Morris, Schindehutte & Allen (2003) it is interesting that many of the specific components mentioned by the different contributors seem to overlap, but the overall definitions still have their differences. Therefore this chapter aims to find and explore a conceptual model on business models suitable to continue this research in the domain of Web 2.0.

Continuing on the components of business models, Shafer, Smith & Linder (2005) have also looked at the components named by different contributors and they analyzed which components have been mentioned by more than one contributor. The components fit in four main categories: (1) strategic choices, (2) value network, (3) create value and (4) capture value. By looking at these categories, all components in a business model seem to either support strategic choices or directly or indirectly influence value creation. Basically this comes down to the questions on what the strategic goals are and how value can be created.

The components identified by Shafer et al. (2005) might seem as the ideal definition for what a business model consists of, but when compared to the definition of Timmer (1998), the definition by Shafer et al. seems incomplete. Timmer (1998) defines a business model as: “An architecture for the product, service and information flows, including a description of the various business actors and their roles; and a description of the potential benefits for the various business actors; and a description of the sources of revenues.” So only looking at the strategy towards value creation is insufficient; by analyzing every aspect of the business a more relevant model can be designed which truly supports the strategy in a well supported manner.
3.2 Business Model Definitions

By looking at the business model definitions and their components defined by some of the contributors, it should be possible to choose a single model to work with. This model should extensively cover the core essence of what has been developed in business model theory over the years. It should also be compatible with the dynamic technological future of information and communication systems as for instance mobile services. Also the model should facilitate the connections between the strategic choices made on different levels and how the different components affect each other.

Ballon (2007) follows a multi-parameter approach as he defines four levels upon which business models operate: (1) value network parameters, (2) functional architecture parameters, (3) financial model parameters and (4) value proposition parameters. The first two parameter levels are focused on control and the latter two are focused on value. With this approach it is again supported that in business model theory it comes down on value and the important aspect is how that value is created. Everything seems to be in service of different kinds of value creation and preservation.

Looking at a different perspective of Alt & Zimmermann (2001); they describe six generic elements of a business model; (1) mission, (2) structure, (3) processes, (4) revenues, (5) legal issues and (6) technology. This is also depicted in figure 3-1. In their model it is made visible how legal issues and technology influence the mission, structure, processes and revenues. This opens up a new issue that is not discussed before; in business models it is also important to see how the different aspects influence each other and how requirements, constraints, but also possibilities from one domain can affect other domains.

![Generic elements of business models (Alt & Zimmermann, 2001)](image)

Osterwalder & Pigneur (2002) distinguish four main elements of business models (shown in figure 3-2): the value proposition, the customer relationship, the infrastructure and the financial aspects. By also identifying how the different elements affect each other, the relationships between the domains are made clearer. Design of a business model can benefit if these relationships are taken into account.
In the model of Alt & Zimmermann (2001) it is not made explicit what the output of the model should be, but it can be guessed that it will be value. Connecting to the issue of value are Amit & Zott (2001) who explore how value is created in e-business environments as shown in figure 3-3. They identify how value is created, as this is not a total definition of a business model, it does however target a very important aspect of business models. It is important to recognize the link between the view of Amit & Zott (2001) on value creation and value creation achieved through business models.

A simple view on business models is given by Gressgard & Stensaker (2004) who define business models along three dimensions: core value proposition, value network and financial aspects. Methlie & Pedersen (2007) also define a business model as consisting of three dimensions: service strategy, governance form and revenue model. Chesbrough & Rosenbloom (2002) define four functions of a business model as to: (1) articulate the value proposition, (2) identify a market segment, (3) define a structure of the value chain and (4) estimate the cost structure and profit potential of producing the offering. These views are important as they also show that business models should not be too complex, as complexity makes it hard to implement the business model in practice. Therefore simplicity without being incomplete is also an important feature of a business model.

Hedman & Kalling (2003) describe the components of business models in which they show a total overview of how business model components affect each other. They also include different kinds of analyses on different levels. However, the model seems to be a little too complex to directly put into practice, but gives an idea on what kind of model is suitable for this research.
This is where the STOF model (Bouwman et al., 2008) fits in as a simple yet complete model which is suitable for this research. Evolving from preceding theories, the STOF model identifies four domains to focus on when it comes to business models. These four domains are: Service domain, Technology domain, Organization domain and Finance domain. In figure 3-4 it is shown how these domains interrelate and how they together lead to an output of value for customers and service providers.

### 3.2.1 STOF Model

The parsimonious approach of the STOF model is suitable for this research as it is simple to use, but still covers the essence of many contributions on business model theory combined. The four domains will be explored in order to see what choices are facilitated by the business model.

![Figure 3-4: STOF Business model domains (Bouwman et al., 2008)](image)

The service domain is the starting point of the STOF model. When it comes to the design of the service, it is mostly about value. Intended value, delivered value, expected value and perceived value by the customers or end users. The perceived value is also affected by the context the service is used in, the tariff (pricing) and effort (ease of use) the user or customer has to cope with for using the service and whether the service is bundled with other compatible services.

The requirements coming forward from the service domain should be assisted by the technological architecture. The technological architecture consists of applications, devices, service platforms, access networks and the backbone infrastructure. These need to be taken into account for a smooth service delivery as it makes up the technological functionality of the service.

The organization domain mainly evolves around technological resources and capabilities, but also marketing and finance issues in assistance of the service. Issues concerning the organization domain are: actors and their roles, the value network consisting of actors and interactions, the interactions and relations between the actors, the strategies and goals of the actors, and the resources and capabilities of the actors. To facilitate this, organizational arrangements and value activities are needed.
The finance domain is about the financial resources behind a service. Finance design revolves around the financial arrangements affected by investment sources, cost sources, revenue sources and risk sources. Monitored by performance indicators, the financial arrangements lead towards a pricing model.

By taking the four domains into account, the developed business model will strive towards value creations for customers and service providers. This service centric approach where all domains are distinguishable, but remain in assistance of the service, suits the nature of this research perfectly. Basically this research is about Web 2.0 services and the STOF model gives a solid base to explore critical Web 2.0 design issues.

This research is focused on finding the critical design issues and success factors relevant for sustainable value creation in Web 2.0 environments. In order to get there Bouwman et al. (2008) defined the concepts of critical design issues and critical success factors. These definitions will act as the foundation for following steps in this research.

Bouwman et al. (2008) define Critical Design Issues (CDIs) as: “A CDI is defined as a design variable that is perceived to be (by practitioner and/or researcher) of eminent importance to the viability and sustainability of the business model under study”. Rockart & Bullen (1986) compactly define Critical Success Factors (CSFs) as: “Key areas where things must go right in order to successfully achieve objectives and goals”.

By combining CDIs and CSFs it is possible to work towards customer and network value and thus viability of the business model. Bouwman et al. (2008) have created break down structures which explains how business model viability is influenced by CDIs and CSFs. In these break down structures they mention important aspects for business models and employ the STOF model. This framework will be the basis for this research.

Bouwman et al. (2008) place CDIs under the domain most suitable. These are also the CDIs which will be used in this research. The CDIs are shown in table 3-1.

<table>
<thead>
<tr>
<th>Critical Design Issues per Domain</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Service</strong></td>
</tr>
<tr>
<td>• Targeting</td>
</tr>
<tr>
<td>• Creating Value Elements</td>
</tr>
<tr>
<td>• Branding</td>
</tr>
<tr>
<td>• Customer Retention</td>
</tr>
<tr>
<td><strong>Technology</strong></td>
</tr>
<tr>
<td>• Security</td>
</tr>
<tr>
<td>• Quality of Service</td>
</tr>
<tr>
<td>• System Integration</td>
</tr>
<tr>
<td>• Accessibility for Customers</td>
</tr>
<tr>
<td>• Management of User Profiles</td>
</tr>
<tr>
<td><strong>Organization</strong></td>
</tr>
<tr>
<td>• Partner Selection</td>
</tr>
<tr>
<td>• Network Openness</td>
</tr>
<tr>
<td>• Network Governance</td>
</tr>
<tr>
<td>• Network Complexity</td>
</tr>
<tr>
<td><strong>Finance</strong></td>
</tr>
<tr>
<td>• Pricing</td>
</tr>
<tr>
<td>• Division of Investments</td>
</tr>
<tr>
<td>• Valuation of Contributions and Benefits</td>
</tr>
<tr>
<td>• Division of Costs and Revenues</td>
</tr>
</tbody>
</table>

Table 3-1: Critical Design Issues per Domain

The STOF model and the CDIs are very suitable to become a part of the theoretical framework of this research. Therefore the STOF model and CDIs will be used to continue the research with.

### 3.3 Business Model Taxonomies

Having looked at how business models are composed, known Web 2.0 business model taxonomies can be discussed to get a greater insight into the different kinds of services and suiting business models. It is important to be aware of the business model taxonomies in the field of Web 2.0 as it identifies what kind of business models are currently known and implemented.
Rappa (2003) has described the different business models on the Web and categorized these Web business models. These categories are: Brokerage, Advertising, Infomediary, Merchant, Manufacturer (Direct), Affiliate, Community, Subscription and Utility. His description gives a very broad perspective on many different business models on the Web. Many of his described business models do not apply for Web 2.0 as it does not meet the specifications for a Web 2.0 service.

In further exploration on Web 2.0 business models Yarmosh (2005), claims that Web 2.0 services can be subdivided into two business model categories: Technology focused or Network effect focused. He argues that services are either offering a compelling value proposition not available elsewhere through innovation, or primarily focused on the user base and user interaction. This short and simple categorization of business models for Web 2.0 seems to be right, but compared to the characteristics of Web 2.0 it seems incomplete. However, other business models described are mainly focused on the revenue model aspect of the business models for Web 2.0.

The revenue models are also very interesting as it is also an aspect of the business model which needs to be aligned with the other domains within the STOF model. Various revenue models are mentioned by Hamey (2007), Angrignon (2007), Grivet (2007) and Beuscart & Mellet (2008). The identified revenue models on the web are driven by income through: (1) Advertisements, (2) Commissions, (3) Subscriptions, (4) Pay-per-use, (5) Free to use, but pay for premium service, (6) Donations, (7) Selling of user information and (8) aim to be taken over as exit strategy.

These various business model taxonomies give an insight in the current state on business models on the web. It can be interesting to see how these identified business model taxonomies can be linked to the Web 2.0 case studies in the next chapter.
4 Case Studies

In this chapter an answer to the third research sub question is searched for: What are the lessons derived from Web 2.0 implementations? In order to answer this question it is important to learn lessons from practical examples. This exploration will enable to identify important aspects tallying towards sustainable value creation for Web 2.0 implementations. Coupled to the theoretical models, consequential lessons can be formulated.

This research is based on two theoretical models; the seven Web 2.0 characteristics and the STOF model. These theoretical models are the framework of this research. However, in order to prevent limitations to the seventeen critical design issues of the STOF model, no predefined aspects are assumed in this section. However, this does not mean that the critical design issues will not be used for analysis of the practical examples. Furthermore, the Web 2.0 characteristics and STOF model are necessary to define the boundaries of what is explored in the practical examples; these boundaries reduce the risk of irrelevant information. In order to explore the practical examples, it is necessary to choose the research method that suits this kind of research best.

According to the definition of case study research by Yin (1994), the explorative nature of this research is suitable for case study research. There is no standard definition for case study research, but by looking at other definitions in the field of case studies, Benbasat, Goldstein & Mead (1987) characterize case study research as: “A case study examines a phenomenon in its natural setting, employing multiple methods of data collection to gather information from one or a few entities (people, groups, or organizations).”.

Based on the theories on case study research the research will consist of a multi case study which is mainly limited to the business models of the services. This prevents the collection of irrelevant information. There is a large number of cases available and therefore it is not feasible to conduct interviews for every case, this is also not necessary because the business model of many services can be explored through desk research based on documentation and archival records. The research therefore will be a multi case study conducted through desk research with the Web 2.0 characteristics, STOF model and seventeen critical design issues as the unit of analysis.

4.1 Selection and Approach

Based on the theory and findings in the previous chapters the case studies will be based on the seven dimensions of Web 2.0. The aim is to have diverse cases so all seven dimensions of Web 2.0 are covered in the case studies. If all seven dimensions of Web 2.0 are covered by the case studies, it can be seen which critical design issues are important for what kind of Web 2.0 services.

SEOmoz is a search engine optimization company, which annually selects Web 2.0 services for their Web 2.0 awards. SEOmoz (2007) gives a definition of Web 2.0 as a list of criteria which SEOmoz uses to select their contenders:

- User generated and/or user influenced content
- Applications that use the Web (versus the desktop) as a platform, in innovative ways
- Similar visual design and shared functional languages
- Leveraging of popular trends, including blogging, social tagging, wiki’s, and peer-to-peer sharing
- Inclusion of emerging web technologies like RSS, AJAX, APIs (and accompanying mash-ups), Ruby on Rails and others
- Open source or sharable/editable frameworks in the form of user-oriented "create your own" APIs

In order to select the cases, the SEOmoz Web 2.0 award winner list (SEOmoz, 2008) has been consulted to find successful services in their field. The choice to use successful services is based on the fact that it would be complex to explore unsuccessful cases through desk research as there is significantly less
information available for unsuccessful cases than for successful cases. From a total of 41 categories with each three ranked winners, a sub selection of all winners had to be made. This is necessary, because it is not an option to explore 123 cases. The sub selection was also necessary, because SEOmoz included some services which do not fully qualify as Web 2.0 by the working definition of Web 2.0 concluded in chapter 2. This is because of the difference in the Web 2.0 definition by SEOmoz and the working definition of this research. To reduce redundancy, only one service per category will be chosen, based on its popularity (Google search hits) and accordance with the definition of Web 2.0 by this research. By scanning the services based on the working definition, and looking at the seven characteristics of Web 2.0, a sub selection of cases could be made. Another issue was that not all services had enough information available to write a case about, so these were also scratched from the list. The selection has therefore led to a list of 22 services of different categories which can be specified as Web 2.0 services of by the working definition of this research and have enough information available for an analysis. The list is ordered by popularity of the service; this popularity is measured by Google search hits on the service name. The list is shown in table 4-1.

The cases will be looked at from a descriptive perspective at first, but the aim is to explain why certain choices have been made or why not. Important decisions will be assessed and it will be determined whether these decisions have affected the success of the service positively or not and why that is. It is interesting to look at the service and find what it eventually is that makes it successful and sets it apart from its competitors. In order to efficiently conduct research and separate the wise worthy cases from the pack, a quick scan is performed first to explore and describe all services and after that, the most interesting and open cases will be explored into greater depth. In these cases the goal is to explain rather than to describe the business model and decisions regarding the service. This approach also enables the researcher to assess the quantity and quality of the available information regarding the service. This is important for the final selection of cases which will be explored into depth. The aim for the final selection is to at least cover all seven characteristics of Web 2.0 by the selected cases.

<table>
<thead>
<tr>
<th>Service Name</th>
<th>Description</th>
<th>Google Hits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Del.icio.us</td>
<td>Service enables users to create and share bookmarks; acquired by Yahoo! in 2005.</td>
<td>804,000</td>
</tr>
<tr>
<td>YouTube</td>
<td>This is an online video sharing service; acquired by Google in 2006.</td>
<td>752,000</td>
</tr>
<tr>
<td>Facebook</td>
<td>Facebook delivers a social networking service. More than 175 million users worldwide².</td>
<td>498,000</td>
</tr>
<tr>
<td>Flickr</td>
<td>Service enables users to organize and share photos and videos. Flickr was acquired by Yahoo! in 2005.</td>
<td>205,000</td>
</tr>
<tr>
<td>LinkedIn</td>
<td>LinkedIn is a networking service for business professionals. Community based access towards business opportunities.</td>
<td>149,000</td>
</tr>
<tr>
<td>Last.fm</td>
<td>Service for Internet radio delivery where the user is in control of what he/she hears; acquired by CBS Interactive in 2007.</td>
<td>112,000</td>
</tr>
<tr>
<td>Twitter</td>
<td>Twitter is a micro blogging service, which enables users to post and receive messages on virtually any location.</td>
<td>83,100</td>
</tr>
<tr>
<td>Google Maps</td>
<td>This service enables global mapping. Also enables users to build their own service on its API platform.</td>
<td>76,200</td>
</tr>
<tr>
<td>Netvibes</td>
<td>Netvibes gives users a personal portal to the Web. The service enables users to have a personalized and customizable start page.</td>
<td>67,400</td>
</tr>
<tr>
<td>Yahoo! Answers</td>
<td>This is a service where users post questions and the community answers the questions. Yahoo! Answers is a continuously growing knowledge base.</td>
<td>63,100</td>
</tr>
<tr>
<td>Craigslist</td>
<td>Craigslist enables free online classified advertisements. The service exists since 1995.</td>
<td>43,400</td>
</tr>
<tr>
<td>Lulu</td>
<td>Online book publishing service. This service enables users to publish their own books easily.</td>
<td>35,900</td>
</tr>
</tbody>
</table>

¹ Number of Google hits times 1.000 on 09/21/2008.
Table 4-1: Case selection

<table>
<thead>
<tr>
<th>Service</th>
<th>Description</th>
<th>Users</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yelp</td>
<td>Yelp is a social networking, user review and local search service. The service evolves around reviews by and for the community on local services.</td>
<td>16,000</td>
</tr>
<tr>
<td>Zoho</td>
<td>An online office suite service, which enables functionalities formerly only available by software packages through a web interface.</td>
<td>7,840</td>
</tr>
<tr>
<td>Google Docs</td>
<td>Google Docs is an online word processor, spreadsheet, presentation, and form application. The service also enables to manage documents.</td>
<td>4,230</td>
</tr>
<tr>
<td>Zango</td>
<td>This service enables access to online media. Installation of a sponsored software application is required.</td>
<td>3,580</td>
</tr>
<tr>
<td>Frappr!</td>
<td>This is a mashup service, which exists of a guest book, hit log and map. Users can track and analyze website traffic based on geography.</td>
<td>1,760</td>
</tr>
<tr>
<td>PBwiki</td>
<td>This service facilitates the creation and management of wiki’s. PBwiki delivers the wiki software and the hosting service for the wiki.</td>
<td>1,670</td>
</tr>
<tr>
<td>Cocktail Builder</td>
<td>Cocktail Builder enables users to find or share cocktail recipes based on ingredients.</td>
<td>952</td>
</tr>
<tr>
<td>Yourminis</td>
<td>This service enables users to create and share their own widgets in a relative easy way.</td>
<td>483</td>
</tr>
<tr>
<td>iStats</td>
<td>This is a service targeted at sportsmen or women who wish to monitor and share their workout progress.</td>
<td>264</td>
</tr>
<tr>
<td>G.ho.st</td>
<td>This service is an Operating System in the Web browser. Users can work on their own virtual desktop from almost any location.</td>
<td>80.6</td>
</tr>
</tbody>
</table>

Per case certain data is documented in standardized way to keep uniformity in the various cases. The standard format can be found in Appendix A. The standardized format for collecting data gives a guideline for the researcher to specifically look for relevant facts. The format is targeted at the seven Web 2.0 characteristics, the business model and critical design issues for the service. Also, by using this standardized method of collecting data, the findings per case can be compared more easily. This will help to find differences in the critical design issues across the diverse services.

In order to keep the research repeatable, the search method also needs to be defined. To get a basic understanding of the service the website of the service will be looked at and the Wikipedia description of the service will also be used. For further information the Google search engine will be used with keywords which contain the service name combined with design issue terms like “revenue”, “partners” and “targeting”.

Upon completion of the case studies, statements can be derived which describe and explain how the current Web 2.0 environment should be approached by Web 2.0 service business models.

### 4.2 Case Study Quick Scans

The case studies will be described shortly before further extensive analysis. This enables a quick overview of the service and already shows whether it is interesting enough to take the case up for an extensive analysis. Information described in the quick scans is primarily from the user and client perspective and secondarily from the company perspective. The case study quick scans can be found in Appendix B.

In order to see whether the cases are suitable for an extensive analysis, a reflection per case is necessary. From these reflections the nature of the business model is taken into account, but also the amount of information available plays an important role in order to see whether the case is suitable for further analysis.
The business model of Del.icio.us is the kind that is seen more often in the world of Web 2.0; the service and technology domains are well developed, but the organization and financial domains were not focused on and that is visible in the later developments in the service. Del.icio.us is a part of Yahoo! and does not have an independent business model. This makes it hard to assess the service as a detached entity.

YouTube is a service which when it started also did not have a complete business model. After the takeover by Google, the business model has been revised and is now complete and can operate independently of related services.

Facebook is a typical example of a popular social networking website. The socialization and network effect are fully utilized by Facebook. The business model of Facebook seems to be complete, but the robustness of the business model can be questioned. The financial domain is not fully clear and information is scarce.

Flickr is a service which combines various methods to create a user generated media base. The business model of Flickr shows that there are various aspects that are taken into account and every domain is accounted for.

LinkedIn is a specialized networking service. Targeting a specific audience is what sets this service apart from other social networking services. The different domains in the business model are intertwined and work together.

Last.fm is a service which is very well capable of adjusting to the user's needs. This creates value for the service and is also reflected in the business model of the service. Despite the acquisition by CBS Interactive, Last.fm is still capable of operating as a single entity. But Last.fm is in a stronger position by being backed up by CBS Interactive.

Twitter seems to bring a new concept to the blogging phenomenon; however, the business model of Twitter seems to be incomplete. This makes it hard to analyze the service as it is not a full service but more of a concept which has not been developed fully. Also this case is not suitable for further analysis because it does not comply with the criteria of sustainable value creation which this research is focused on.

Google Maps is such a service which could also operate solely, but because it is backed by a large company the integration with other services from Google is also utilized to a large extent. This enables Google to benefit greatly from the service. The business model is interesting because it is a hybrid between a service which stands alone, and a service which is a part of a larger whole.

Netvibes is an example of a service which has adapted their business model to the capabilities and attitude of Web 2.0. The creation of an ecosystem around the service is a strategic choice and the business model of Netvibes supports this strategy.

Because Yahoo! Answers is coupled to other Yahoo! services, it does not have a full business model. Yahoo! could have made the choice to create a solely operating service, but they did not and made the strategic choice to create an indirect revenue generator from Yahoo! Answers.

Craigslist is a very different service if looked upon from a business model perspective. The non-profit nature, with at the other hand the fact that Craigslist is trying to generate profits make the service a bit two faced.

Lulu is an example of a service which enables users to do something which was completely unthinkable of before the Internet. Their business model is suited to serving the customer as well as to generating revenues.

Yelp is like many other services very basically oriented; the main strategy is to get the users and the money will follow through advertisements. This might sound outdated, but Yelp proves that this strategy is still working if it is combined with a clear business model.
Zoho is an application which is trying to change the way people use office suits. By using the capabilities of the Web, Zoho is enabled to make an effort. The services delivered are operating in a relatively new environment and Zoho is learning about the dynamics in the combination of a traditional system and a new technology.

Unlike Google Maps, Google Docs is not fully capable of operating on its own. However, the integration with other Google services is used by Google. This means that Google Docs does not have a full business model, which makes it hard to analyze the service fully.

Zango has a clear business model. However, Zango's way of operating is on the border of what is legally accepted. This creates difficulties and makes business harder for Zango. This not only influences the business model of Zango, but also influences the seven characteristics of Web 2.0 for Zango. Zango is the only service which has the organization domain as its most important business model domain and Zango also does not really have a high focus on one of the seven Web 2.0 characteristics. This makes it hard to analyze the service as it is a very special case. Also, due to the difficult position of Zango, it is hard to find information about the service as this information might be used against them.

Frappr! is an example of a service which is largely built on other services, which is often referred to as a Web 2.0 Mashup. The service and technology are well thought of, but the financial domain is something which has been added later and it does not fully utilize the capabilities of the business model.

PBwiki is a service which has filled in a need by users to set up and manage wiki's easier. PBwiki has built a complete business model around the value proposition of easy delivery of wiki's.

Cocktail Builder is an example of a hobby project which has grown to be a respectable service. Because it was started as a hobby project, a business model was not there from the beginning, but now when the service is growing, different revenue models are possible for the service.

Yourminis is a service which tries to create an ecosystem around its platform. Though, the service does not have a complete business model. There is not sufficient information available to see how Yourminis is trying to generate revenues and how they organize their business.

iStats is a service which is targeted at a very specific domain. There is however not enough information available to explore this service fully. The service is very interesting as there are many options for a creative revenue model.

G.ho.st is a service which tries to enter the operating system market by moving the operating system domain to a different platform. As it will never compete with existing operating systems, it can change the way people are using computers. The business model is very much focused on technology, but there are many possibilities left for the financial domain in the future.

The findings from the short case studies allow an exploration in the similarities and differences amongst the cases. The short case studies have also given an insight on the type of information available on the Web 2.0 implementations. The short case studies in which the Web 2.0 characteristics and critical design issues are linked have lead to some interesting insights.

### 4.3 Conclusion Short Case Studies

By looking at the twenty-two cases a few issues came to the surface. A very interesting issue is regarding the seven characteristics of Web 2.0. Amongst all cases, there was no service which primarily focused on “Freedom by relinquishing control” or “User involvement in service development”. It seems that from the seven characteristics, these two characteristics play a supporting role as opposed to a primary role for services. The other five play a more prominent role in the nature of Web 2.0 services.

Another thing is that it is very clear that some services have a revenue model which is suiting the service, but other services seem to struggle with their revenue model. The revenue model is the part of
the business model which seems to be quite important to really think the financial domain through and make it suitable to the service, technology and organization domains.

Appendix C shows a table in which the primary and secondary Web 2.0 characteristics are coupled with the most prominent STOF model domain for the service. The most prominent STOF model domain is determined by the critical design issues which are most important for the service. When looking at the critical design issues for the services it should be noted that the service domain is by far the domain of which most critical design issues are most important for a service. For very technology driven services the technology domain is the most important business model domain based on the critical design issues. Zango is the only service which is different from the other 21 cases. Zango is very organization domain oriented, but this can be explained because of the difficult nature of the service regarding legal issues and therefore this is a very exceptional case.

In the table from Appendix C it can be seen that there is a link between the primary Web 2.0 characteristics and the most prominent STOF model domain for the service. The primary Web 2.0 characteristics “User or algorithm generated data”, “Socialization and network effect” and “Long tail” imply a very service domain oriented service. In contrast, the primary Web 2.0 characteristic “Technological functionality” implies a very technological domain oriented service. Furthermore, the primary Web 2.0 characteristic “Compatibility, modularity and extendibility” points more towards a technology domain oriented service, but when combined with service domain Web 2.0 characteristics, the service can also be more service domain oriented. It is also possible that the service domain and technology domain are equally important; This is the case at PBwiki which shows that if “Technological functionality” is combined with a service domain Web 2.0 characteristic in the primary Web 2.0 characteristics, the service domain as well as the technology domain are equally important for the service.

The table in Appendix C also shows that the organization domain and financial domain can be seen as supporting domains for Web 2.0 services and never as the most important domains. However, this does not mean that these domains are not important as can be seen through the importance of a revenue model. But it means that the revenue model is not the most important issue for Web 2.0 services. Depending on the Web 2.0 service, the service or technology domain is the cornerstone for a service, but should be well supported by the other domains in the business model.

### 4.4 Extensive Case Studies

Based on the short case studies it is clear that some services are more suitable than others for extensive exploration and that some are not suitable at all. The selection of cases is based on the availability of information about the service and the completeness of the business model. The selection should only include legit services which create sustainable value and are not solely motivated by short term revenues. The services which had no financial domain or at least no information about the financial domain available were: Del.icio.us, Facebook, Twitter, Yahoo! Answers, Craigslist, Google Docs and G.ho.st. Furthermore, there was a lack of information available on the services Frappr!, Cocktail Builder, Yourminis and iStats. Moreover, Zango is not considered to be a legit business, so it is also scratched from the list. This selection has resulted in a list of ten options: YouTube, Flickr, LinkedIn, Last.fm, Google Maps, Netvibes, Lulu, Yelp, Zoho and PBwiki. Based on these ten options it is explored whether it is possible or necessary to scratch any more services form the list.

If the cases are very similar, some can be discarded as it is not desired to have redundant information. In order to see how the cases vary it is necessary to determine the similarities and differences. The ten cases all have a different nature, but when looked upon the primary Web 2.0 characteristics combined with the secondary Web 2.0 characteristics, every service has its own unique set of Web 2.0 characteristics; with the exception of Last.fm and Netvibes which both have an identical set of Web 2.0 characteristics. Both of these services are still included for the extensive case studies because the fact that they are both identical from Web 2.0 characteristics perspective, but they are very different from a business perspective. This could lead to interesting issues when compared to each other.
When looking at the Web 2.0 characteristics for the services it brings an interesting issue to the surface; not all seven characteristics are available as primary Web 2.0 characteristics. The characteristics “Freedom by relinquishing control” and “User involvement in service development” are never primary Web 2.0 characteristics for any service; not even for the discarded case studies. Therefore it was not possible to select a case per characteristic, which would have resulted in seven cases only. In order to still cover all critical design issues, it is necessary to keep all ten cases for further analysis. The unique combination of primary Web 2.0 characteristics and secondary Web 2.0 characteristics makes every service unique. Therefore, the final selection of extensive case studies consists of all ten services. The selection of cases and their respective Web 2.0 characteristics are shown in Table 4-2.

<table>
<thead>
<tr>
<th>Service Name</th>
<th>Primary Web 2.0 Characteristics</th>
<th>Secondary Web 2.0 Characteristics</th>
<th>Prominent STOF Domain(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>YouTube</td>
<td>- User or algorithm generated data - Socialization and network effect</td>
<td>- Compatibility, modularity and extendibility</td>
<td>- Service</td>
</tr>
<tr>
<td>Flickr</td>
<td>- User or algorithm generated data</td>
<td></td>
<td>- Service</td>
</tr>
<tr>
<td>LinkedIn</td>
<td>- Socialization and network effect</td>
<td>- User or algorithm generated data - Long tail</td>
<td>- Service</td>
</tr>
<tr>
<td>Last.fm</td>
<td>- Long tail</td>
<td>- Socialization and network effect - Freedom by relinquishing control - Technological functionality - Compatibility, modularity and extendibility</td>
<td>- Service</td>
</tr>
<tr>
<td>Google Maps</td>
<td>- Technological functionality - Compatibility, modularity and extendibility</td>
<td>- Long tail - User involvement in service development</td>
<td>- Technology</td>
</tr>
<tr>
<td>Netvibes</td>
<td>- Long tail</td>
<td>- Socialization and network effect - Freedom by relinquishing control - Technological functionality - Compatibility, modularity and extendibility</td>
<td>- Service</td>
</tr>
<tr>
<td>Lulu</td>
<td>- User or algorithm generated data - Long tail</td>
<td></td>
<td>- Service</td>
</tr>
<tr>
<td>Yelp</td>
<td>- User or algorithm generated data - Socialization and network effect</td>
<td>- Long tail - Freedom by relinquishing control</td>
<td>- Service</td>
</tr>
<tr>
<td>Zoho</td>
<td>- Technological functionality</td>
<td>- Long tail - User involvement in service development - Compatibility, modularity and extendibility</td>
<td>- Technology</td>
</tr>
<tr>
<td>PBwiki</td>
<td>- Long tail - Technological functionality</td>
<td>- Compatibility, modularity and extendibility</td>
<td>- Service - Technology</td>
</tr>
</tbody>
</table>

Table 4-2: Extensive Case Selection

The extensive case studies will go into depth concerning the facts uncovered in the short case studies. The idea is to find explanations for choices and business model issues by the service providers.
4.4.1 Case Study 1: YouTube

Today YouTube is one of the most popular Web 2.0 services, this is proven by the fact that YouTube is ranked on the third place by Alexa in their list of global top sites (on December 12, 2008). YouTube has managed to become such a big player on the web within a period of three years. An important aspect is that YouTube was one of the first in its kind. Also the main aspect which YouTube had to offer was usability. Users were suddenly enabled to share and watch videos easily, which they were not able to do in this way before. The popularity of the service led to a revolution and also created competition. YouTube managed to keep innovating and use their advantage of having a larger user base to keep ahead of the competition. The acquisition of YouTube by Google has also helped YouTube to grow and integrate the service better with some of Google’s services.

It is clear that the business model of YouTube has changed throughout the years. At first, YouTube was just a service based on the service domain, with support from the technology domain, but without the organization and financial domains. Slowly, but surely YouTube is working towards different methods of exploiting their service. By constantly innovating and trying to improve every domain in the business model, YouTube manages to stay on top.

YouTube is very much focused on the “User or algorithm generated data” and “Socialization and network effect” characteristics of Web 2.0. The service domain is the most important domain for YouTube based on the critical design issues which are important for the service. This is also reflected in YouTube’s approach in service development. The service is more oriented towards the needs of customers as opposed to pushing new technologies and searching for user acceptance. By connecting to the users needs, YouTube plays it safe and is enabling itself to maintain a strong position in the market.

4.4.2 Case Study 2: Flickr

Flickr is a very popular service especially for photographers. Although Flickr also delivers the possibility to share other types of media, photographs still are the core of the service. Flickr has some tough competition; however, a technologically compatible service and smart collaborations with mobile device producers and other services have enabled Flickr to get into markets which are difficult to enter for their competitors. This head start in new areas of service delivery makes Flickr one of the first services to learn about the dynamics they have to cope with.

Flickr continuously introduces new features for their service as this is necessary to stay ahead of the competition. By trying new features and improving the service, Flickr attracts more users and does not lose its existing users. Another thing that has enhanced Flickr’s position in its market is the acquisition by Yahoo!. The integration of Flickr into the Yahoo! product family has made the service more accessible for existing Yahoo! service users. However, this also introduces a barrier for users that just want to be a member of Flickr without being a member of Yahoo!.

Flickr mostly focuses on “User and algorithm generated data”; this focus is combined with service domain oriented critical design issues. The service orientation of Flickr is very well noticeable in their updates to the service. Technology is only there to support the service and it does not define the service. This approach has led to a successful service and by putting the needs of customers first it is unlikely that Flickr will lose users easily.

4.4.3 Case Study 3: LinkedIn

The people from LinkedIn took a successful concept and remixed it to create their own successful service. The service uses the knowledge already found through other socialization services; LinkedIn simply chose for the concept of targeting the professional audience. This long tail orientation is what makes LinkedIn one of the best known services in their field. It has enabled LinkedIn to be in a different market and not to compete directly with traditional socialization networks.
LinkedIn has a strong position in their market, but this does not mean that no updates are necessary. Because the users are used to other traditional socializing networks, they expect LinkedIn to match their expectations. However, it can be difficult for LinkedIn to make a selection of what features suit their service and which do not. A wrong choice in the set of features could have unwanted side effects for users with a professional expectation. This could damage the brand name and open up the door for competition.

LinkedIn is very much focused on “Socialization and network effect”; based on the critical design issues, the service domain is very important. This makes LinkedIn a very service domain based service as the users are the most important assets. Putting the users first is a logical choice.

4.4.4 Case Study 4: Last.fm

Last.fm is a service which became very popular because it delivered a service which enabled the user to be in full control of their exploration of their musical interests. There is competition, so Last.fm needs to keep satisfying their users. The advantage is that Last.fm is well known and can build on their brand name. The acquisition by CBS Interactive has given Last.fm a stronger position in the market. CBS Interactive is a useful resource and partner for Last.fm. Last.fm has the resources, other competitors do not have, but they should still not forget that keeping the users satisfied is still just as hard as before.

The service domain orientation of the critical design issues, coupled to the “Long tail” characteristic of Web 2.0 which Last.fm mostly focuses on, defines this service as what it actually is; a long tail oriented service which has its strength based in the service domain of the business model. The users are a very important aspect of the service; therefore the service domain orientation very well aligns with the nature of the service.

4.4.5 Case Study 5: Google Maps

Google Maps is a service which is very diverse and can be used for many different purposes. It also enables anyone to take the service and build their own service on the API of Google Maps. The technological functionalities are the basis of this service and the reason why the service is so popular. There are competitors for the service, so Google Maps is constantly adding features and trying to improve their service.

Google Maps is a very technologically oriented service; this is also reflected in the characteristics of Web 2.0 for Google Maps which focuses on “Technological functionality” and “Compatibility, modularity and extendibility”. The critical design issues which are particularly important for Google maps are also from the technology domain.

The strength of this service is its technology, and that is also the part of the business model which it is all about. The success of this service is defined by the quality of its technology. Because this service is more of a platform it can better be considered a product over a service.

4.4.6 Case Study 6: Netvibes

Netvibes is a service which tries to make it easier for users to see all information they need through a single interface. However, Netvibes is not the only service which delivers this kind of functionality. The competition in this field is fierce. This is logical because if a user is loyal to your service, the user would come back to his or her start page quite often. And many page views can be translated into advertising revenues, or in the case of Netvibes appvertisement revenues. In this highly competitive environment it is important to stand out. Netvibes is creating an ecosystem to get developers to use their API. This stimulates development as developers can earn money by through appvertisement revenues and
advertisers can sponsor an application. If there are good applications available, this will attract new users. However, this is a classical example of the chicken and egg problem; without users, nobody would like to appvertise and develop applications, but without the applications, new users will not come to use the service. Therefore Netvibes does not put the appvertisement as the core of the service, but gives it an important position in the service domain oriented service. By focusing on the service itself, the goal is to attract users and developers at the same time.

The targeting at a specific group of users and the possibility to modify the service as the user wishes makes Netvibes a very “Long tail” focused service on the Web 2.0 characteristics. For the critical design issues, the service domain also takes the upper hand. Netvibes knows that without users, their service can not generate revenues; therefore they focus to create a good service which is fully in service of the user.

4.4.7 Case Study 7: Lulu

Lulu is an example of a service which has taken a traditional way of business and given it a new twist so it can take advantage of new capabilities enabled by the Internet. They make other companies that still operate in the old fashioned manner seem outdated. Lulu has changed the publishing landscape and made publishing accessible for anyone. However, Lulu does not directly compete with the bigger publishers as the target user groups are different; Lulu is more targeted to the amateur writer and the large publishers are targeted at the professional writers. Of course professional writers can also choose to use Lulu, but usually professional publishers are better specialized in handling professional cases.

Lulu is a very service domain oriented service; this also shows from the critical design issues which are important for the service. Lulu is very much oriented on the “User or algorithm generated data” and “Long tail” characteristics of Web 2.0. The service orientation very much suits the nature of the service as the core of their service is about the service delivery. The other domains are only to support the basis of the service which is a logical case as the other domains are also not very complex, so service development is the most important department for innovation.

4.4.8 Case Study 8: Yelp

Yelp is a service which can help people to find local services and accommodations in a city. This service is using the strength of the Internet by harnessing collective intelligence of the crowd. The collaboration of users is important in being successful as this makes up the value on the website. This directly also identifies the risk the service has to cope with; if there are no users collaborating, there will not be any visitors. So it is very important to stimulate users to collaborate. Yelp is not the only service in its kind, so it also needs to compete with other services. This makes it very hard for a service like Yelp to survive as it is just another review site. However, Yelp has built a respectable brand name and has a decent user base. By keeping the current user base satisfied, the position of Yelp is kept stable.

Yelp is very much focused on “User or algorithm generated data” and “Socialization and network effect” Web 2.0 characteristics. This is coupled to the service domain orientation of the business model. Users are the most important asset for Yelp, so it is natural that Yelp focuses on staying in service of the users in order to keep them satisfied.

4.4.9 Case Study 9: Zoho

Zoho is a service which has managed to create a product which is technologically quite advanced. They managed to translate desktop applications into web applications and added web functionalities which are not possible with traditional desktop applications. Zoho is operating in a field in which there is some hard competition, they also compete with the traditional office suits so introducing the customers to a new mindset regarding web office suits is also a challenge. An office suit is very much about the
features and capabilities of the software, so the technology development of Zoho is very important. If they lose the race of having the best features to their competitors the outcome could be disastrous. In order to achieve high product quality and stay ahead of the competition, Zoho has to work hard, listen to their users and check out the competition’s activities continuously. This puts Zoho in a position where there is constant pressure to innovate.

The Zoho service suits the description as product group better than defining it as a service. The products focus mostly on the “Technological functionality” characteristic of Web 2.0 and accordingly the technology domain of the business model is the most important domain. The other domains operate in service of the technology domain, as the technology is the most valuable asset which is delivered. Superior technology through strong support from the other domains is what Zoho tries to achieve.

4.4.10 Case Study 10: PBwiki

PBwiki is a service which has cleverly taken advantage of a trend on the Web. This cunning move has opened the door to create a service which enables users to set up their own wiki in a simple way not possible before. The additional worries for users are taken away, so the user can directly work with the wiki and not waste time with getting the wiki to work. The unique combination of delivering a wiki software package combined with delivering hosting for the users is what sets this service apart from competing wiki software.

On the characteristics of Web 2.0 PBwiki scores high on the “Long tail” and “Technological functionality” characteristics. For the critical design issues the service and the technology are both equally important in the business model. The nature of the service is based on a good technological product, but also on the service that is delivered towards the users. Therefore both the technology domain as well as the service domain is very important. In fact the service consists of two parts, the product and the service. This makes the shared importance of the two domains logical. This double focus does make business more complex for PBwiki because it means that they have two different business models integrated in one, so extra care is necessary when taking strategic decisions.

4.5 Conclusion Case Studies

From these ten Web 2.0 case studies some conclusions can be drawn which explain the important aspects leading towards sustainable value creation. By looking at every case individually, the aspects which make the service stand out and have made the service successful are taken into account. From these aspects as described in the case studies, it is possible to derive conclusions which can be classified as lessons learned from the practical examples. So this conclusion is solely based on the ten Web 2.0 case studies and what have been critical aspects in their situations.

It is important for a service to be aware of the value proposition the service will be delivering towards users and customers. The business model should be designed around this value proposition; the value proposition is the core of the service which eventually determines whether the value creation is sustainable. Therefore the value proposition needs to be thought over thoroughly.

*The unique value proposition is the core of the service, so the business model should be designed around this unique value proposition*

Trends are constantly changing on the Web, so it is important to seek the window of opportunity for launching your service, as well as for your updates to the service. The time needs to be right for launching a service of its kind. It is very hard to get the timing right, but it is important that the service’s core functionalities work and that the business model is fully operational; it is also important that the world is ready for such a service; also don’t launch a service which is the same as something that already exists, so beat the competition to launch first and make sure your service is better, faster and cheaper.
A service should focus on its core business and everything else should evolve around that core value proposition. However, smart service synergies could make a service more attractive. These service synergies could be with coupled services from the same service provider, but it can also be with external service providers. The implementation of these synergies depends on what suits the core value proposition of the service more. The strength of the link between the services also depends on the strategy of the service provider. Being linked to a single other service could have advantages, but also has its disadvantages; the same goes for a service which is not partnering with other services, but is compatible to all other services. These choices should fit the business model and strategy of the service.

The focus should be fully targeted on core business, even when combined with other services or products; service or product synergies should be beneficial for all parties

Web 2.0 services can be relatively easy to copy, but simply imitating a service does not provide the very important unique value proposition. Being original and unique is something that sets the service apart from others and makes users and customers remember the service. From the current landscape of the Web it can be observed that it is quite hard to be original; for every successful service, there are numerous failures with the same concept. It does not mean that every service needs to be totally unique, but a service should have a unique value proposition which makes it stand out from the mass. For instance, existing services can be redesigned to serve a different market not explored yet or a traditional market which is not yet fully utilizing the capabilities of the Internet can be revolutionized. This demands to think outside of the box mentality in service design.

The service should be original or an evolved imitation which delivers a new unique value proposition

Innovation is not something that is only done during the startup phase of the service, but it is a continuous process which goes on during the full length of the service. Lack of innovative capabilities will eventually guide the service to be obliterated by the competition. Innovation enables a service to stay ahead of the competition and become a better service than before. This does not mean that any innovation is a good thing; innovations should be in line with the strategy the service provider has in mind. If this is not the case, the innovation could even have an adverse effect on business. Radical innovations are something to be cautious about, but when applied successfully, the benefits are great. The mobile domain is a relatively new domain which has fertile ground to waiting to have innovations planted on it. New services get a chance to utilize the new capabilities enabled by the technology, but existing services get a chance to expand their services through a new channel.

Innovations should only be incremental; radical innovation should only be done in exceptional cases when it is necessary for the business strategy to succeed

The distinction between a product and a service is important in designing the business model. A Web 2.0 product can be defined as a tool which delivers a technological capability. A product can be perceived as a platform. A service is something that actually enables the user to fulfill a real task. Services run on products. It is usually the case that products tend to evolve more from technology push than from demand pull; for services it usually is the other way around. From a business model perspective, products and services are very different; products need a totally different approach than services, however combining products and services can create successful synergies.

Web 2.0 products are the platforms which run Web 2.0 services; Web 2.0 products and Web 2.0 services depend on each other, but have a different nature; business models for Web 2.0 products vitally differ from Web 2.0 service business models

From the cases it shows that services focus on the service domain. Products focus more on the technology domain, but for services it is very clear that the service domain makes up the core of the service. It is also evident that the services all focus on the “User or algorithm generated data”, “Socialization and network effect” or “Long tail” characteristics of Web 2.0. These characteristics give a prominent role to the users, so being aware of the users needs and translating that awareness into the
service is a must. It is important to know what aspects are important for the sustainable value creation by the service, and make sure your service is in service of those aspects.

Web 2.0 services primarily focus on the service domain. Web 2.0 products primarily focus on the technology domain

For the technological platform provided by the Internet, it is obvious that the technology domain has an important role for every service. As discussed before, it is not the most important domain as the technology domain must be in service of the service domain, except if the service is actually a product. The finance domain and organization domain are always in service of the service domain. The synergy within the business model is very important. Although the service domain is the most important domain, a service can not function without a full business model with all domains fully functional and operating in full synergy together.

No matter what the primary domain focus is, business model synergy is the basis for any commercial Web 2.0 service or product

These lessons learned from the case studies create an insight on what aspects are important concerning Web 2.0 implementations. The next logical step is to see how these lessons reflect on STOF model theory. However, these lessons need to be validated through expert interviews before further analysis can be performed; this is important in order to prevent that a flaw in interpretation of the cases leads to a bigger wrong in the overall conclusion.
5 Expert Interviews

The conclusion from the case studies needs to be validated against the knowledge from experts on the field of Web 2.0 and business models. This is because the research and conclusions up to this point is very much based on desk research. In order to see real world relevance and validity it is necessary to get take the views of field experts into account.

The information is gathered through interviews. It does not suit the nature of this research to conduct a very large amount of interviews, as the core of this research is the case studies and not the validation process. Because there are ten case studies, a suggested amount of five interviews should give enough reference material. The number of five interviews will also keep the research efficient. With too many interviews the risk that information gathered from the experts would be redundant to a large extent is large, so the impact of the interviews would become smaller and thus making the research inefficient. Of course it does not damage the research if there are one or two interviews more conducted. Having less than five interviews could result in a too small representation of the real world and thus distorting the real world perspective. The aim therefore is to conduct at least five interviews. An interviewee should be an expert in either the business model domain or the Web 2.0 domain; however, the interviewee should also have moderate knowledge on the domain he or she is not an expert in. This is because of the nature of this research where business model theory and Web 2.0 theory is combined and he conclusions also take both domains into account.

5.1 The Interview

Duration: 60 – 90 minutes

- Introduce myself and the research I am doing.
- Describe the definition Web 2.0 and Business models
- Ask about the experience and activities of the interviewee in both fields.
- Discuss the propositions with the interviewee. Ask for opinions and structured argumentation.
  Propositions:
  1. The unique value proposition is the core of the service, so the business model should be designed around this unique value proposition
  2. The window of opportunity can make or break a Web 2.0 service
  3. The focus should be fully targeted on core business, even when combined with other services or products; service or product synergies should be beneficial for all parties
  4. The service should be original or an evolved imitation which delivers a new unique value proposition
  5. Innovations should only be incremental; radical innovation should only be done in exceptional cases when it is necessary for the business strategy to succeed
  6. Web 2.0 products are the platforms which run Web 2.0 services; Web 2.0 products and Web 2.0 services depend on each other, but have a different nature; business models for Web 2.0 products vitally differ from Web 2.0 service business models
  7. Web 2.0 services primarily focus on the service domain. Web 2.0 products primarily focus on the technology domain
  8. No matter what the primary domain focus is, business model synergy is the basis for any commercial Web 2.0 service or product
- Summarize the findings
- Ask whether the interviewee has something to add.
- Thank the interviewee and conclude the interview.
5.2 The Interviewees

Through the suggestions of the thesis supervisors and a Dutch LinkedIn IT group it was possible to find a number of willing experts for the interviews. Due to some limitations some interviews had to be conducted by phone or through email. A total of seven interviews have been conducted with the experts, this was enough to get a good insight on the propositions and their practical validity. The names and functions of the interviewees can be found in Appendix D.

5.3 Interview Analysis

The interviewees did agree on the Web 2.0 definition and the business model definition and the definitions are used as the basis of their responses on the propositions. The responses per interviewee on all propositions can be found in Appendix D. In this section it will be discussed what can be learned from the responses of the interviewees on the propositions.

1. The unique value proposition is the core of the service, so the business model should be designed around this unique value proposition

On this proposition the value of users was mentioned. This seems very logical as users indeed create value for your service. In order to attract and retain these users, value should be delivered towards the users, but it is not a one-way street; the discussion is about creating value for users and creating value for the service provider. Both are necessary in order to achieve sustainable value creation. So besides of being very user oriented, the service provider should also have a plan on how to translate the usage of the service into value for itself. Another interesting perspective on designing the business model is that the service provider should not take a naïve attitude and expect that every aspect of the business model can be designed up front. Starting the design and thinking the business model through from the perspective of the unique value proposition and the strengths and weaknesses of the service from this perspective makes the service provider aware of how to run the service. However, just like the service it is likely that the business model will also undergo innovations along the way.

2. The window of opportunity can make or break a Web 2.0 service

The issue of the window of opportunity shows a few different perspectives on whether it is relevant and how service providers can use it to their advantage. The interviewees seemed to agree that the window of opportunity is relevant; however the level of perceived importance differed greatly. This remains a difficult issue as there is no hard proof that the window of opportunity can make or break a service, but maybe that is not the issue that needs to be dealt with. If there is such a thing as the window of opportunity, then how can a service provider take advantage of it, or even create a window of opportunity? The interviewees agreed that the market can be prepared to an extent. A possible approach to achieve market preparation and launching the service can be taken from marketing science. For instance the A(ttention) I(nterest) D(esire) A(ction) model of Strong (1925) shows how to prepare the market and when you have the market ready and they desire such a service, the service is at their disposal. This does however mean that the service should live up to the users desires and should technologically be stable. Because Web 2.0 services are continuously improving, the aim should not be to launch a perfectly complete service. The reason for launching as soon as possible, but having a stable service is because of the importance of getting users and the network effect.

3. The focus should be fully targeted on core business, even when combined with other services or products; service or product synergies should be beneficial for all parties

On this proposition there are three main arguments. (1) The service provider should do what it is good at and focus on that. (2) There is a difference on how services are presented towards the users and how they are organized internally. (3) Pure beneficial and equal win-win situations are not realistic, but also not necessary. The first two arguments are compliant, but also contradictory. So should a service provider internally organize strict business units which all have a uniquely separated presentation towards the users? Or should the presentation towards the outside world be separated and can the
internal organization in that case be mashed up? Another option is of course a hybrid of these two options; a separation in business units, but with movable resources throughout the business units. In that way the business units which represent a single service do what they are good at, there is a clear separated presentation towards the outer world and resources are used efficiently throughout the organization. The third argument seems true, because in the end it is not about winning more or winning less, but it is about winning. So the trade-offs should be taken into account and the best available win situation should be selected.

4. The service should be original or an evolved imitation which delivers a new unique value proposition

Also on this proposition, different perspectives are taken by the interviewees. A perspective is one in which the users are the value of the service. So it does not matter how a service achieves it, but if users can be attracted, value can be created for the service provider. This seems true; however the question is for how long. If the service is inferior compared to the competitors, it is a matter of time before users start to join the larger service because their network is bigger. Another option is that the service will be acquired by the larger competitor to increase its own network size; this is a viable exit strategy, but not the focus of this research which focuses on sustainable value creation. Therefore, in order to compete and deliver a unique value proposition, a service should always distinguish itself. This can be achieved on various levels and does not necessarily mean that a service should be original. Innovations in service delivery like a faster, better or cheaper service could also give rise to a competitive service.

5. Innovations should only be incremental; radical innovation should only be done in exceptional cases when it is necessary for the business strategy to succeed

This proposition was quite interesting to discuss with the interviewees as there are positive as well as negative aspects of both incremental and radical innovation to argue on. Incremental innovation is considered a safer choice than radical innovation. However, a risk averse innovation strategy could also mean losing the market to another player which is able to outsmart the service by introducing a radical innovation in the target market. Most of the interviewees agreed that radical innovation is indeed very important. However, because of the risk the service should not be the goal to innovate radically. Radical innovation is something to keep in mind as a possibility when incremental innovation is not sufficient. The importance of the users also reflects in this proposition, as innovation should never affect quality of service negatively. So if it is necessary to take the risk, radical innovation should be seriously considered, but if there is no need for radical innovation the service should keep improving its services through incremental innovations. For entering new markets, radical innovation is a stronger weapon than incremental innovation as it will make the service stand out. It will allow the service to enter with a bang and get attention. With this achieved, the shift towards incremental innovation seems logical in order to stabilize the service.

6. Web 2.0 products are the platforms which run Web 2.0 services; Web 2.0 products and Web 2.0 services depend on each other, but have a different nature; business models for Web 2.0 products vitally differ from Web 2.0 service business models

Important feedback on this proposition is the question why Web 2.0 products, which are Web 2.0 platforms, are called Web 2.0 products and not Web 2.0 platforms. The term “products” added complexity to an already difficult term. So from this point on, the terminology has changed from Web 2.0 products to Web 2.0 platforms. All interviewees agreed to the Web 2.0 services definition, but the difficulty in Web 2.0 platforms is that it is more difficult to picture what the platform actually is. At first, the platform description was that the Web 2.0 platform exists purely as software. However, the Web 2.0 platform can also be seen as the end user hardware, but maybe the term Web 2.0 product suits the end user hardware better than Web 2.0 platform. This double perspective on a Web 2.0 platform does not end here, as the boundaries of Web 2.0 service and Web 2.0 platforms are not clear. Where do the Web 2.0 platform’s functionalities end and where do the Web 2.0 service’s functionalities start? Where is the boundary defined for end user device and Web 2.0 platform? So, to get all confusion out of the way on the terminology, there are three aspects in Web 2.0 delivery: (1) the Web 2.0 service, (2) the Web 2.0 platform and (3) the Web 2.0 product which is essentially the end user hardware. Having the definitions clear still does not make the borders clear. For the sake of this proposition the borders are not the main
issue, but the issue at hand is that it was agreed upon that there is something as a Web 2.0 service, a Web 2.0 platform and a Web 2.0 product and that they are all connected and dependent on each other.

7. Web 2.0 services primarily focus on the service domain. Web 2.0 products primarily focus on the technology domain

To stay in line with the discussion on proposition number six, the term Web 2.0 products in this proposition are actually Web 2.0 platforms. Because of the difference distinguished in proposition six, most of the interviewees also recognized that the business models of a Web 2.0 service and a Web 2.0 platform also are different. It was claimed that the organization domain is affected most and that for platforms; the organization domain might be just as important as the technology domain. This is because of the linking character of the platform between the Web 2.0 products and Web 2.0 services; this involves the organization domain also to be designed to cope with the accompanying issues.

8. No matter what the primary domain focus is, business model synergy is the basis for any commercial Web 2.0 service or product

This proposition was mostly received as a natural statement. So when looked at into depth the interviewees agreed that a fit between the domains is indeed a very logical assumption. There is a lot of freedom of choice in the different domains, but eventually a greatly designed domain has a better effect if there is synergy with the other domains in the business model.

5.4 Interview Conclusions

Now that the responses on the propositions have been analyzed, some conclusions can be derived. In this section the propositions will be treated one by one to work towards conclusions on the different issues.

So, is it true that the unique value proposition is the core of the service, so the business model should be designed around this unique value proposition? Well, this is a good starting point for strategic design, but not every aspect can be designed up front. The strengths and weaknesses of the service provider must be taken into account. Also, the users and customers are creating value for the service, so the service must also be designed around them. This is closely coupled to the question whether the service should be original or an evolved imitation which delivers a new unique value proposition. Well, a service should always distinguish itself, but not necessarily by differentiation. A service can also distinguish itself by being better, faster or cheaper than its competitors. So the unique value proposition should get a prominent role regarding the business model design. An important aspect of the unique value proposition is that it enables the Web 2.0 implementation to compete in its market.

1. The unique value proposition is an important aspect in business model design as it should also enable the service to compete

Can the window of opportunity make or break a Web 2.0 service? To an extent, the market can be prepared. The need for the service should be stimulated. The technology should also be stable enough to ensure a basic quality of service.

2. Identify or create a need for the service and launch as soon as the service is stable

Should the focus be fully targeted on core business, even when combined with other services or products and should service or product synergies be beneficial for all parties? The internal organization can differ from the external presentation, but towards the user the service should be single function focused. A way to achieve this is to separate services into separate business units in order to keep the activities focused and uniform towards the user. However, this design allows the firm to be creative with resources over the various business units. Power positions of parties also influence the nature of synergies, so the trade-offs are more important to look at, because 100% beneficial win-win situations
are almost impossible to achieve. Based on the interview with Pieter Ballon, risk sharing, revenue sharing and customer connections are aspects to take into account when evaluating the trade-offs.

3. **Evaluate choices by looking at trade-offs; also keep services externally separated and have a structured internal organization, but be creative with resources.**

Should innovations only be incremental and should radical innovation only be done in exceptional cases when it is necessary for the business strategy to succeed? Well, look at the innovation from the customer or user perspective whether the improvement is worth the effort of learning to use it. Innovations are necessary in order to reach or maintain a powerful market position. Quality of service should never be at stake. The capability to radically innovate can save a service which is under pressure of external factors which influence business.

4. **Radical innovation is important, but the starting point should be incremental innovation.**

Do Web 2.0 platforms and Web 2.0 services depend on each other and still have a different nature? Do business models for Web 2.0 platforms vitally differ from Web 2.0 service business models? The definition of a platform still remains a bit vague and there are many different views on what a platform actually is. However, everyone agrees on the fact that the platform exists which enables the service. The device the user uses to access the service is also an important issue to consider for both Web 2.0 services and Web 2.0 platforms. So essentially there are three aspects in Web 2.0 delivery: (1) the Web 2.0 service, (2) the Web 2.0 platform and (3) the Web 2.0 product which is essentially the end user hardware. And it is true that each of these three different Web 2.0 implementations need a different approach in business model design.

5. **There are Web 2.0 services, Web 2.0 platforms and Web 2.0 products, despite of the different nature and differences reflected in their business models, there is a dependency between these different Web 2.0 implementations.**

Do Web 2.0 services primarily focus on the service domain and Web 2.0 platforms primarily focus on the technology domain? Yes, but the organization domain might be more important for Web 2.0 platforms than for Web 2.0 services.

6. **Web 2.0 services primarily focus on the service domain. Web 2.0 platforms primarily focus on the technology domain and the organization domain has a very important supporting role.**

Is it true that business model synergy is the basis for any commercial Web 2.0 service or platform, no matter what the primary domain focus is? Yes.

7. **Business model synergy is the basis for any commercial Web 2.0 service or platform.**

If these findings are compared to STOF model theory and the critical design issues, there are unmistakable similarities. For instance, the unique value proposition is identified as an important aspect in the STOF model on the service domain; the same conclusion is derived through interviews on Web 2.0. Also, marketing and quality of service are a part of the existing theory and are identified as important aspects for Web 2.0 as well. However, STOF model theory does not include the concept of products, platforms and services. It would be interesting to see how that concept can be introduced in the STOF model. In the conclusion it is further investigated what can be derived from these findings.
6 Conclusion

What critical business model design issues are important in the Web 2.0 domain? Based on the applied theories throughout this research, an answer can be derived. However, the answer can not be as straightforward as the question might suggest. The definition of Web 2.0 as the seven Web 2.0 characteristics has shown how Web 2.0 implementations can differ on which characteristics are important for what kind of Web 2.0 implementations. These seven characteristics have led to the insight that Web 2.0 actually consists of different categories of implementations. A distinction within the Web 2.0 domain between Web 2.0 services, Web 2.0 platforms and Web 2.0 products, can be made. Furthermore, the critical business model design issues differ per distinct type of Web 2.0 implementation. However, this research has been limited to Web 2.0 services and Web 2.0 platforms; Web 2.0 products have not been within the scope of this research, so a meaningful conclusion on this type of Web 2.0 implementation can not be drawn. So what does the Web 2.0 implementation distinction implies regarding critical Web 2.0 business model design issues?

Essentially the discussion is on the relevance of the STOF model and the critical design issues per domain on Web 2.0 services and Web 2.0 platforms. The STOF model defines the four core domains any business model, regardless of whether it is a service, platform or product, needs to have. The predefined critical design issues per domain can also be generalized, but the aim of this research is to find out what critical design issues are actually important in the specific cases of Web 2.0 services and Web 2.0 platforms.

When looked upon the lessons resulting from the interviews and STOF model theory, particularly the critical design issues, some relations can be drawn. These relations are explored further in order to draw a more applicable conclusion; therefore, the lessons derived from the interviews are the basis for the perspective by which the critical design issues will be looked at. This enables the intended link between theory and practice and the link between business model science and Web 2.0 theory.

So how do the lessons derived from the interviews relate to critical design issues on Web 2.0 services and Web 2.0 platforms? In order to answer this question each lesson from the interviews will be evaluated individually against the STOF model and the critical design issues.

To start off with, the lesson “The unique value proposition is an important aspect in business model design as it should also enable the service to compete” is also a part of the STOF model which describes the importance of a unique value proposition; the creating value elements critical design issue links to this lesson.

The lesson “Identify or create a need for the service and launch as soon as the service is stable” connects to the critical design issues targeting and branding to create a need for the service; the quality of service critical design issue implies that the service should be stable.

The lesson “Evaluate choices by looking at trade-offs; also keep services externally separated and have a structured internal organization, but be creative with resources” is connected to the partner selection; division of investments; valuation of contributions and benefits; and division of costs and revenues critical design issues from the trade-off perspective. From the perspective that services should be externally separated, the importance of the unique value proposition and branding connects to that. Considering the resources, the organization domain in the STOF model also focuses on the way resources are made available.

The lesson “Radical innovation is important, but the starting point should be incremental innovation” only connects to the quality of service critical design issue, as this is an important criterion for innovation. Thus, considering this lesson from the perspective of critical design issues, quality of service defines a measure on whether certain innovations should be exploited or not.

The lesson “Business model synergy is the basis for any commercial Web 2.0 service or platform” is in essence also what is described as a fit between business model domains in STOF model theory.
The five lessons described have largely in accordance with STOF model theory and relatable to critical design issues. However, there are two lessons which are currently not explored in STOF model theory. This is because of the specific domain of Web 2.0 that is targeted by these lessons. The previous five lessons can also be generalized; therefore it is more logical that current STOF model theory takes the issues mentioned into account.

The first lesson which is currently not relatable to STOF model theory “There are Web 2.0 services, Web 2.0 platforms and Web 2.0 products, despite of the different nature and differences reflected in their business models, there is a dependency between these different Web 2.0 implementations” shows a distinction in different kinds of implementations within the Web 2.0 domain. This is also represented in figure 6-1 which shows the dependency between Web 2.0 services, Web 2.0 platforms and Web 2.0 products. The connecting lesson “Web 2.0 services primarily focus on the service domain; Web 2.0 platforms primarily focus on the technology domain and the organization domain has a very important supporting role” describes the STOF model domain focus of two different kinds of Web 2.0 implementations. The issue of different types of Web 2.0 implementations is the foundation of this conclusion; it enables the coupling of the lessons which are in accordance with STOF model theory to the specific domain of Web 2.0.

![Figure 6-1: Web 2.0 Implementations](image)

So how is it actually possible to determine what a Web 2.0 platform is and what a Web 2.0 service is? Well, based on the definition of the seven characteristics of Web 2.0 it can be determined whether the Web 2.0 implementation has features of a Web 2.0 service or of a Web 2.0 platform. When a Web 2.0 implementation is more focused at “User or algorithm generated data”, “Socialization and network effect” or “Long tail”, the focus on the service gives away the nature of the Web 2.0 implementation as being a Web 2.0 service. If the focus is more at “Technological functionality” or “Compatibility, modularity and extendibility”, the Web 2.0 implementation can be considered to be a Web 2.0 platform. Because Web 2.0 products are not explored in this research, it is unknown what the link between the characteristics of Web 2.0 and Web 2.0 products is.

As stated earlier, the aim of this research is to find out which critical design issues are more important in the specific cases of Web 2.0 services and Web 2.0 platforms. By identifying the lessons which illustrate critical design issues for Web 2.0 implementations in general and by identifying the distinction between Web 2.0 services and Web 2.0 platforms, it is now possible to find out what critical design issues are actually more important in the specific cases Web 2.0 services and Web 2.0 platforms.

Based on the results from the theoretical as well as the practical aspects of this research, it can safely be said that all critical design issues defined by Bouwman et al. (2008) are also applicable on Web 2.0 services and Web 2.0 platforms. Nevertheless, in the case of Web 2.0 services and Web 2.0 platforms there are different critical design issues which seem to be more important than others.

From a Web 2.0 service perspective, based on the lessons, the most important STOF model domain obviously is the service domain. This does not mean that there are no important critical design issues in
the other domains. The other domains need to be well thought through, in service of the service domain and in synergy with the rest of the business model.

The service domain critical design issues for a Web 2.0 service are all very important based on the importance of the service domain itself. Targeting, creating value elements, branding and customer retention are of essential importance within the business model. The importance of the unique value proposition has also been noted out and the service domain takes the basic responsibility on this issue to be well thought through.

As Web 2.0 services often deal with two different clients with different desires which can be described as users and customers; the technology domain critical design issues for a Web 2.0 service enable the service to be stable and deliver its services in the best possible way to the users and customers. The most important critical design issues in the case of Web 2.0 services are quality of service and accessibility for customers (and users). The quality of service is very important as that is by which a service can be defined as reliable and usable. Without the quality of service, users or customers can be hesitant to use the service. The accessibility for customers and users also connects to this issue as the services should be easy to use and accessible for anyone. If the learning curve is too steep or if the service is not easy accessible, there is room for competitors which are enabled to take these customers and users away from the service.

The organization domain critical design issue which is particularly important for Web 2.0 services is partner selection. As a Web 2.0 service provider, it is necessary to pick business partners carefully and assess the trade-offs of a partnership thoroughly. A Web 2.0 service is firstly dependent on its Web 2.0 platform and possibly on Web 2.0 products. As a result, the Web 2.0 service should carefully choose its Web 2.0 platform(s) and Web 2.0 product(s) as resulting from the partnership lock-in can occur. Partnerships with other Web 2.0 services, should also be assessed based on the trade-offs by looking at risk sharing, revenue sharing and ownership of customer connections. This is also closely linked to the finance domain critical design issues.

Web 2.0 services should also take the finance domain seriously. From examples of the cases it was shown that this domain is often initially overlooked, only to be the center of attention when cash flow becomes a problem. In order to accomplish sustainable value creation from the start, it is necessary to include the finance domain into the business model design. Considering the nature of a Web 2.0 service, pricing and division of costs and revenues are very important critical design issues. The revenue model which describes the method of cash flow generation is of significant importance in order to have a profitable Web 2.0 service. Pricing is important as it defines who the customer is and how the pricing strategy enables the Web 2.0 service to be worthwhile. As described earlier in the organization domain, it is likely that there are more Web 2.0 implementations linked to the Web 2.0 service; therefore it is important to look at the trade-offs pertaining towards the division of the costs and revenues. Even when the Web 2.0 service has no partners at all, this is an important critical design issue as no service can exist without cash flow, so the costs and revenues should be balanced logically.

Having looked at the business model domains for Web 2.0 services, it is now essential to look at the business model domains for Web 2.0 platforms in order to see the similarities and differences between these two types of Web 2.0 implementations. Unlike Web 2.0 services, the most important STOF model domain in Web 2.0 platforms is not the service domain, but the technology domain. Because of the characteristic of a Web 2.0 platform of being a technology platform, the technology domain gets the main focus. Furthermore, as the Web 2.0 platform is usually linked to a Web 2.0 service and Web 2.0 product, the issue arises that the partners and network take a very important role in the business model. As a result the organization domain is also very important for the Web 2.0 platform. Nevertheless, the organization domain should be in service of the technology domain as that is the actual core of the Web 2.0 platform. The service domain and the finance domain are significant as they complete the business model and therefore should be designed to support the technology domain. Of course all business model domains should be in synergy with each other.

Although the service domain is not the most important business model domain, it still has some critical design issues which are also relevant for Web 2.0 platforms. As a platform it is very important to take targeting and creating value elements into account, as the critical design issues define the target market
and the unique value proposition of the Web 2.0 platform. Having these critical design issues in line with the technology domain is crucial for business model synergy.

In the technology domain for Web 2.0 platforms the critical design issues which are crucial to create a safe and solid platform to build Web 2.0 services must be taken into account. These critical design issues are security, quality of service, system integration and accessibility for customers. Because it might not be fully clear what the exact details of the Web 2.0 services are which will run on the Web 2.0 platform, security is something to take into account from the beginning. The Web 2.0 platform should also be stable, so quality of service is also very important. As the purpose of the Web 2.0 platform is to be integrated with Web 2.0 products and Web 2.0 services, system integration definitely is a critical design issue to take seriously. As in the case of Web 2.0 platforms the users are usually the same group as the customers; this is different from the relation with users and customers in Web 2.0 services where users and customers are two separate groups. So, for Web 2.0 platforms it is important to take accessibility for customers into account. Customers should be given easy access to the platform and this should be facilitated with clear APIs and technical documentation, as they are the users who will implement Web 2.0 services based on the Web 2.0 platform.

The very significant supporting role of the organization domain focuses on the importance of the critical design issues as partner selection, network openness, network governance and network complexity. These critical design issues are very important as the Web 2.0 platform operates in a network where partner selection is very important. The openness and complexity of the network are issues to look at seriously and a total overview of the network should be explored. In such a networked environment, network governance is of essential importance as it can be used to shift power positions. Just like with Web 2.0 services partner selection is based on the assessment of trade-offs to determine what is best for the Web 2.0 platform.

Despite the fact that the finance domain has a supporting role in the Web 2.0 platform business model, it consists of very important critical design issues. Pricing, division of investments, valuation of contributions and benefits, and division of costs and revenues are very important critical design issues to consider as they enable the Web 2.0 platform to produce cash flow in a networked environment. The pricing strategy is essential as it is important to choose the revenue model which suits the nature of the Web 2.0 platform, but also makes usage of the Web 2.0 platform attractive. It is also important to be aware of the position of the Web 2.0 platform in the network and how investments are divided. Furthermore it is also necessary to determine what the contributions and benefits within the network are and how to use it in their advantage. Continuing on that same nature of Web 2.0 platforms as operating in a networked environment, the division of costs and revenues amongst the partners is an important critical design issue to take into account as it enables a firmer trade-off analysis on important decisions.

So what can actually be deduced from these conclusions and how does it pertain towards theory and practice? It is important to recognize that Web 2.0 business models are not significantly different from traditional business models, but that Web 2.0 business models are a special type of business models which need to be approached in a specialized form. The distinction through the definition of the seven characteristics of Web 2.0 on whether the Web 2.0 implementation is a Web 2.0 service or a Web 2.0 platform helps to determine how the Web 2.0 business model design can be approached best. The STOF model is applicable on Web 2.0 implementations, however the importance of the Web 2.0 business model critical design issues are valuable in the specific field of Web 2.0 business models. The critical Web 2.0 business model design issues are also applicable in real world scenarios. The critical design issues for Web 2.0 implementations can be taken as a guideline in business planning; this will give the company a lower probability of missing out on important aspects to take into account for the Web 2.0 implementation.
7 Reflection

This thesis research has been a great experience and I have learned new things on conducting research, the subject of this research, but also about myself. As much as I would like to believe that this research is flawless, it is hard to admit that it is not. I am very satisfied with the research and its outcome, but this does not take away that this research has been influenced by limitations.

The biggest limitation is the methodology. Throughout the research program the research methodology has changed a few times. The changes in methodology were chosen for the sake of the quality of the research, but did also have a negative influence on the time schedule. However, I am convinced that the methodology eventually chosen is a very suitable one for a thesis research project. But in order to draw conclusions which have higher scientific value, it would be necessary to use another methodology and a larger timeframe for this research. For instance, the case studies are done through desk research; this means that there might be essential private information which could not be accessed. Distorted views can have had their influence on the research.

Considering the content of the research, it was hard to determine whether a service really is successful or not. This is coupled to the limitation of desk research as not all financial information is available on every case, so often it was necessary to go with the public opinion on a case.

The definition of Web 2.0 initially also introduced some difficulties, however a clear definition of Web 2.0 by the seven characteristics was very beneficial for the research, especially for the interviews where it removed any doubts on what the discussion actually was. However, this definition also has its limitations, in some cases it is hard to say whether something is Web 2.0 or not, as it also partially depends on the interpretation of the importance of the characteristics for a specific service. For instance, to an extent every service has a technological functionality, but this does not mean that every service is a Web 2.0 service, because of those services, only a few really focus on technological functionality. I’m afraid that the definition on Web 2.0 will always be argued, as it is impossible to create a proven waterproof definition of Web 2.0.

The final Web 2.0 business model critical design issues have not been validated and this could mean that the real world Web 2.0 business model critical design issues slightly differ from the Web 2.0 business model critical design issues. Therefore it should have been necessary to validate the conclusion. This already links to the next section where further research will be suggested.

I have tried my best to try and keep this research repeatable, to an extent I have managed to achieve this, but some aspects of the research are prone to have slightly different results when repeated by another researcher. There are three main aspects which are (1) the definition of Web 2.0, (2) the interpretation of the case studies and (3) the interpretation of interview results. These aspects are vulnerable as the researcher gets the freedom to interpret the findings in his/her own way to an extent. To prevent this, I have tried to stay with the aspects directly resulting from the analyses, but this does not mean that when the research is repeated, exactly the same results will follow.

The goals set in the beginning of the project have been achieved to a large extent and despite the limitations and critique on the research; I consider this work a decent research with a satisfying outcome.

7.1 Further Research

There is space for further research based on the findings in this research. As uttered in the preceding section, practical validation of the conclusion is necessary to see whether this conclusion is fully correct or not.
The findings of this research are practically usable; however the findings are not presented as practical guidelines. So to achieve this, further research based on these findings is necessary to create a practically usable guide for Web 2.0 implementers.

Research in the fields Web 2.0 products is also necessary to complete the Web 2.0 business model domain. This research has been limited to software only Web 2.0 implementations, but hardware is a very important aspect as it is the tangible aspect of a digital world. It enables users to physically interact with Web 2.0 services through Web 2.0 platforms. It would be very interesting how the definition of Web 2.0 translates towards Web 2.0 enabled products and what the critical design issues for Web 2.0 product business models are.

The last suggestion for further research is on the subject of the link between Web 2.0 services, Web 2.0 platforms and Web 2.0 products. This research is necessary to explore where the borders of these different Web 2.0 implementations are and what the dynamics around the synergies amongst these Web 2.0 implementations are.
Appendix A

Quick scan format for case studies

- Service category
- Service on the seven characteristics of Web 2.0
- Description of the service domain
- Description of the technology domain
- Description of the organization domain
- Description of the financial domain
- Description of synergy and trade-offs within the STOF-model
- Description of the value for the customers
- Description of the value for the service provider
- Description of the importance of the various critical design issues
- Sources
Appendix B

Case study quick scans

Short Case Study 1: Del.icio.us page 48
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Short Case Study 1: Del.icio.us

- **Service category**
  Social Bookmarking

- **Service on the seven characteristics of Web 2.0**
  This service prominently focuses on the “User or algorithm generated data” and “Socialization and network effect” characteristics.

- **Description of the service domain**
  Del.icio.us is a service which enables users to create and share bookmarks. Tags consisting of keywords can be assigned to these bookmarks to form a non-hierarchical categorization system. Del.icio.us delivers a system to store and share your bookmarks.

- **Description of the technology domain**
  The technology is pretty basic and the service does not require any high standing technological functionality.

- **Description of the organization domain**
  Del.icio.us has many competitors, but because it was one of the first bookmark sharing services it has the advantage of being a well known service. The strength of Del.icio.us is also that they make it simple for other services to let their users create Del.icio.us bookmarks easily. This easy bookmarking is in the interest of the content provider as well as Del.icio.us.

- **Description of the financial domain**
  Del.icio.us was acquired by Yahoo! in 2005 for an estimated value of $15 to $20 million (Schonefeld, 2005). There is no real transparent revenue model. Because Del.icio.us is a part of Yahoo! it is not necessary for Del.icio.us to generate income by itself, but by attracting users who will also use other Yahoo! services Del.icio.us makes itself worthwhile for Yahoo!.

- **Description of synergy and trade-offs within the STOF-model**
  The service, technology and the organization domain seem to work together, but the financial domain of Del.icio.us is not very clear. Because of the ownership by Yahoo! Del.icio.us is part of a larger business model and not an isolated entity.

- **Description of the value for the customers**
  Del.icio.us delivers services to customers which can not be achieved by a standard search engine. The user generated data versus the algorithm generated data method delivers different search results.

- **Description of the value for the service provider**
  Del.icio.us is attracting users through network effect dynamics. These users are the value for Del.icio.us as the opportunity arises to incorporate other services which do have a revenue model.

- **Description of the importance of the various critical design issues**
  For Del.icio.us the following critical design issues are of large importance: creating value elements, branding, customer retention, quality of service and system integration. These critical design issues are mostly service domain related.

- **Sources**

  Website Del.icio.us: http://delicious.com/

Short Case Study 2: YouTube

- **Service category**
  Video Sharing

- **Service on the seven characteristics of Web 2.0**
  This service primarily focuses on the “User or algorithm generated data” and “Socialization and network effect” characteristics. Secondarily it also has a focus on the “Compatibility, modularity and extendibility” characteristic.

- **Description of the service domain**
  YouTube is an online video sharing service. Users can view, upload and share video clips. Video clips can be rated and comments can be posted. Video clips are also linked to other related video clips.

- **Description of the technology domain**
  The technology behind YouTube is not very complex; videos are uploaded and can be shown. The additional features like embedding a video clip in an external website add more value to the service.

- **Description of the organization domain**
  YouTube finds itself in a highly competitive market, however, because of the advantage of being the market leader in online video sharing, the brand name is well known. Because of this popularity YouTube is recognized as a strong party. This gives YouTube a stronger bargaining position towards advertisers.

- **Description of the financial domain**
  YouTube generates income through advertisements and branded channels which are paid for. In 2006 Google bought YouTube for US$1.65 billion. In 2007 Google noted the revenues as “not material” (Yen, 2008). It is projected that YouTube will generate US $200 million in 2008 (Hardy & Hessel, 2008).

- **Description of synergy and trade-offs within the STOF-model**
  YouTube started off with only the technology domain as its basis, but as they went along the service and organization domain became stronger. Google finally added a working revenue model which completes this business model.

- **Description of the value for the customers**
  Users get to use the service for free and the service delivers a wide variety of features for the users.

- **Description of the value for the service provider**
  YouTube is growing fast (Hardy & Hessel, 2008). This growth in usage and popularity means greater revenues for YouTube.

- **Description of the importance of the various critical design issues**
  The most important critical design issues for YouTube are creating value elements, branding, quality of service, partner selection and pricing. The service domain takes the biggest share in critical design issues.

- **Sources**

  Website YouTube: http://www.youtube.com

Short Case Study 3: Facebook

- **Service category**
  Social Networking

- **Service on the seven characteristics of Web 2.0**
  This service primarily focuses on the “Socialization and network effect” characteristic. Secondarily it also focuses on the “Freedom by relinquishing control”, “User involvement in service development”, “Technological functionality” and “Compatibility, modularity and extendibility” characteristics.

- **Description of the service domain**
  Facebook is a social networking service which enables users to be socially active with people they know or get into contact with through the service.

- **Description of the technology domain**
  The service is delivered through a simple platform upon which users get a lot of freedom to customize different aspects of the service. It is also possible to create your own modules for Facebook and integrate them with the service.

- **Description of the organization domain**
  Since the founding of Facebook, the founder Mark Zuckerberg is the CEO of the firm. The competition in this market is fierce and the socialization and network effect is of utmost importance to gain users.

- **Description of the financial domain**
  It is not fully clear what the financial model of Facebook is (Francisco, 2008). Facebook generates income through various additional services they deliver. They also enable anyone to use their platform and create a module to generate their own revenues. The main service serves as the attractor of users and the additional services serve as the income generators.

- **Description of synergy and trade-offs within the STOF-model**
  The business model has every domain working together and focused on attracting and retaining users.

- **Description of the value for the customers**
  Users are enabled to get in contact with millions of people and they are also given a lot of additional features to be used if they feel the need for it.

- **Description of the value for the service provider**
  The more users the service gets, the higher the sales will be from the additional services delivered by Facebook.

- **Description of the importance of the various critical design issues**
  The main important critical design issues are creating value elements, branding, customer retention, accessibility for customers and management of user profiles. The service domain is the most important domain for this service.

- **Sources**

  Website Facebook: http://www.facebook.com

  Wikipedia Facebook: http://en.wikipedia.org/wiki/Facebook
Short Case Study 4: Flickr

- **Service category**
  Photo and Video Hosting

- **Service on the seven characteristics of Web 2.0**
  This service primarily focuses on the “User and algorithm generated data” characteristic. Secondarily it focuses on the “Long tail” and “Compatibility, modularity and extendibility” characteristics.

- **Description of the service domain**
  Flickr is a service which enables users to organize and share their photos and videos easily online. Flickr hands their users features that are very interesting for bloggers.

- **Description of the technology domain**
  Flickr is basically a hosting service which is technically pretty simple; however because of the compatibility of the service with other services the value for users is enhanced.

- **Description of the organization domain**
  Flickr is owned by Yahoo! since 2005. This has affected the way the service works. Flickr can for instance only be used with a Yahoo account. This shows that Flickr is just a part in the bigger strategy of Yahoo!. Flickr also partners with other parties to deliver new features to their users like geo tagging and direct sharing with mobile devices.

- **Description of the financial domain**
  Flickr generates income through premium user accounts which are paid for by the user, but free accounts are also available, but with less features. By integrating Flickr into the Yahoo! family, Yahoo! is trying to get more revenues to the other services of Yahoo! as well.

- **Description of synergy and trade-offs within the STOF-model**
  The business model is made compatible to other Yahoo! services. However, the service has a complete business model on its own and therefore is also able to run independently of other Yahoo! services.

- **Description of the value for the customers**
  Flickr delivers a specific set of features for photographers all over the world. The users are enabled to organize and share their photos fast and incorporate these photos into their blogs.

- **Description of the value for the service provider**
  Flickr delivers many features which attract users to the Yahoo! family. These users deliver income directly to Flickr or indirectly through other services from Yahoo!

- **Description of the importance of the various critical design issues**
  Important critical design issues for Flickr are targeting, customer retention, quality of service, partner selection, pricing. The most important domain is the service domain.

- **Sources**
  Website Flickr: http://www.flickr.com
  Wikipedia Flickr: http://en.wikipedia.org/wiki/Flickr
Short Case Study 5: LinkedIn

- **Service category**
  Professional Networking

- **Service on the seven characteristics of Web 2.0**
  This service primarily focuses on the “Socialization and network effect” characteristic. Secondarily it focuses on the “User or algorithm generated data” and “Long tail” characteristics.

- **Description of the service domain**
  LinkedIn is a professional networking service which is business oriented.

- **Description of the technology domain**
  The technology used for the functionality for LinkedIn is very basic. LinkedIn does not deliver any technologically complex services.

- **Description of the organization domain**
  LinkedIn finds itself in a situation where they have to compete with services which are also focused on jobs and business networking. It is important for LinkedIn to attract and retain users as the network effect is very critical for the growth of the user base.

- **Description of the financial domain**
  It took LinkedIn three years since its launch to become profitable (LinkedIn, 2006). LinkedIn has various ways of getting money. Premium accounts which have to be paid for with more possibilities are available. Advertisement is also a big revenue generator.

- **Description of synergy and trade-offs within the STOF-model**
  The model is pretty basic, but largely thrives on the network effect. Without their users, LinkedIn loses its value; therefore the users are the most important thing in this model.

- **Description of the value for the customers**
  A user is enabled to get in contact with many people he or she would normally not get in contact with this easily.

- **Description of the value for the service provider**
  The more users use the service, the faster the service grows and how more premium accounts and advertising is sold.

- **Description of the importance of the various critical design issues**
  Important critical design issues are branding, customer retention, management of user profiles and pricing. The service domain is the most prominent one.

- **Sources**
  
  Website LinkedIn: [http://www.linkedin.com](http://www.linkedin.com)
  
  Wikipedia LinkedIn: [http://en.wikipedia.org/wiki/LinkedIn](http://en.wikipedia.org/wiki/LinkedIn)
Short Case Study 6: Last.fm

- **Service category**  
  Music

- **Service on the seven characteristics of Web 2.0**  
  The service primarily focuses on the “Long tail” characteristic. Secondarily it focuses on the “Socialization and network effect”, “Freedom by relinquishing control”, “Technological functionality” and “Compatibility, modularity and extendibility” characteristics.

- **Description of the service domain**  
  Last.fm is an Internet radio service targeting a music community. Every user can define what music he or she likes or not which effectively creates a fully personalized radio station for every individual.

- **Description of the technology domain**  
  Technologically this service takes care of managing the user preferences and serving them of their suitable content. The service also takes care of various ways and applications the end user listens to the station. This adds complexity to the technological domain of this service.

- **Description of the organization domain**  
  The organization started by combining two separate services into one which resulted in Last.fm. In 2007 CBS Interactive acquired Last.fm. The acquisition has of course led to some changes in the service. CBS claims to have had a 20% increase in users after a redesign of the service (Cardew, 2008). Being in the music industry domain, a company also has to take care of copyright laws. By the acquisition of CBS Interactive along with their experience in this field, this is made easier for Last.fm.

- **Description of the financial domain**  
  Income is generated through an optional fee for subscriber accounts and through selling online advertising space. Because Last.fm knows what every person likes, the advertisements can be personalized.

- **Description of synergy and trade-offs within the STOF-model**  
  The domains within the business model are working together. From the seven characteristics of Web 2.0 for Last.fm it is shown that the service scores high on various characteristics. This means that the service is focused on many different things like being a radio service but also being a music community. This makes the business model more complex than a single focused service.

- **Description of the value for the customers**  
  Customers get to listen to the music of their own choice and can share this with others for free.

- **Description of the value for the service provider**  
  By getting positive feedback the service creates a strong name and more people will listen to Last.fm. This eventually results in higher revenues.

- **Description of the importance of the various critical design issues**  
  The important critical design issues for Last.fm are targeting, creating value elements, branding, customer retention, quality of service, partner selection, pricing. The most important business model domain is the service domain.

- **Sources**  
  
  Website Last.fm: [http://www.last.fm/](http://www.last.fm/)
Short Case Study 7: Twitter

- **Service category**
  Mobile Technology

- **Service on the seven characteristics of Web 2.0**
  This service primarily focuses on the “User or algorithm generated data” and “Socialization and network effect” characteristics. Secondarily it focuses on the “Long tail”, “Freedom by relinquishing control” and “Compatibility, modularity and extendibility” characteristics.

- **Description of the service domain**
  Twitter is a micro blogging service which enables user to post or receive messages from virtually any location and share this with friends.

- **Description of the technology domain**
  The technology is basically based on normal blogging; however the addition of being compatible with mobile devices has added different ways of sharing information.

- **Description of the organization domain**
  The service operates in a highly competitive domain as there are many different services delivering possibilities for mobile blogging. However, because of the Twitter API, there is an ecosystem of services growing around the Twitter service. These additional services add value to the Twitter service.

- **Description of the financial domain**
  Twitter has collected US $22 million of venture capital (Womack, 2008). However, Twitter has generated absolutely no revenues yet (Cain Miller, 2008).

- **Description of synergy and trade-offs within the STOF-model**
  As with more Web 2.0 services we see a total disregard of the financial domain by the service. This means that Twitter has to get the financial domain and their revenue model straight or their service might be short lived.

- **Description of the value for the customers**
  Twitter delivers a free service for their users to keep updated on subscribed events and also to notify the world of what they wish to share.

- **Description of the value for the service provider**
  The popularity of the service attracts more users; however Twitter is not able to translate this success into revenues yet.

- **Description of the importance of the various critical design issues**
  The important critical design issues for Twitter are targeting, creating value elements, branding, customer retention, quality of service, system integration, partner selection, pricing, division of costs and revenues. All domains are involved, but the service domain seems to be the most important one.

- **Sources**

  Website Twitter: http://twitter.com/

Short Case Study 8: Google Maps

- **Service category**  
  Maps

- **Service on the seven characteristics of Web 2.0**  
  This service prominently focuses on the “Technological functionality” and “Compatibility, modularity and extendibility” characteristics. Secondarily it focuses on the “Long tail” and “User involvement in service development” characteristics.

- **Description of the service domain**  
  Google Maps is a global mapping service. The service is accessible with many different devices, including mobile devices.

- **Description of the technology domain**  
  Technologically this service is quite interesting. The service is accessible with many different devices and software developers are enabled to use the API and develop their own mash-ups based on Google Maps.

- **Description of the organization domain**  
  Google Maps is only one of the many services in the Google family. Being backed up by such a large company delivers the resources to make the service worthwhile. Additional information connected to physical locations on the map is what makes the service stronger.

- **Description of the financial domain**  
  Google Maps generates income mostly via advertisements. Also it enhances the brand name of Google.

- **Description of synergy and trade-offs within the STOF-model**  
  The business model of Google Maps is pretty aligned and it is done pretty smooth how Google has integrated their search capabilities and smart advertising with Google Maps.

- **Description of the value for the customers**  
  Customers can explore, find and share locations for free.

- **Description of the value for the service provider**  
  Google Maps is creating a basis for other service providers to build their service upon. This creates more stability for Google as a brand and for Google Maps as a service. The more the service is used, the more personalized advertisements will be clicked.

- **Description of the importance of the various critical design issues**  
  For this service the important critical design issues are creating value elements, system integration and accessibility for customers. The most important business model domain is the technology domain.

- **Sources**  
Short Case Study 9: Netvibes

- **Service category**
  Start Page

- **Service on the seven characteristics of Web 2.0**
  This service primarily focuses on the “Long tail” characteristic. Secondarily it focuses on the “Socialization and network effect”, “Freedom by relinquishing control”, “Technological functionality” and “Compatibility, modularity and extendibility” characteristics.

- **Description of the service domain**
  Netvibes is a customizable web start page which users are capable of personalizing to suit their preferences.

- **Description of the technology domain**
  The technology behind the service mostly relies upon third party web services which can be coupled to the Netvibes service so that users can retrieve information from multiple sources on one page. Widgets can also be developed by the user community as this is enabled through the Netvibes Universal Widget API.

- **Description of the organization domain**
  Netvibes has heavy competition in this domain and also competes with large players like Google, Yahoo! and Microsoft. By creating a Netvibes ecosystem through the Netvibes Universal Widget API, Netvibes tries to get an advantage over their competitors.

- **Description of the financial domain**
  Netvibes is targeting their revenue model at appvertising. This is the concept of branded applications or widgets which is an alternative to traditional advertising.

- **Description of synergy and trade-offs within the STOF-model**
  The Netvibes business model is very focused on the appvertising concept through their Universal Widget API. This alignment in the business model shows a clear strategy for Netvibes.

- **Description of the value for the customers**
  Customers can customize their pages in any way they like for free and use handy widgets to get their information easier and faster.

- **Description of the value for the service provider**
  The value for Netvibes lies in the number of users and widgets developed for the service. The more users, the more widgets will be developed, but also vice versa.

- **Description of the importance of the various critical design issues**
  The important critical design issues are targeting, creating value elements, branding, customer retention, quality of service, service integration, management of user profiles, partner selection, network openness and pricing. The critical design issues come from all four domains, but the service domain has the upper hand.

- **Sources**
Short Case Study 10: Yahoo! Answers

- **Service category**
  Questions and Advice

- **Service on the seven characteristics of Web 2.0**
  This service primarily focuses on the “User or algorithm generated data” and “Socialization and network effect” characteristics. The secondary focus is on the “Freedom by relinquishing control” characteristic.

- **Description of the service domain**
  Yahoo! Answers is a service where anyone can post a question for the community to react on. Best answers can be selected.

- **Description of the technology domain**
  The technology is pretty basic, as there are no spectacular functionalities here.

- **Description of the organization domain**
  Yahoo! Answers is a part of the Yahoo! family. The knowledge base of Yahoo! Answers is growing every time new questions are posted and answered. Key is therefore to have as many users as possible, because more people have more questions as well as more answers.

- **Description of the financial domain**
  Revenue is generated through advertisements and indirectly via other Yahoo! services which are coupled to the Yahoo! Answers service.

- **Description of synergy and trade-offs within the STOF-model**
  By coupling the importance of the network effect and giving users freedom which is socially controlled by the wisdom of crowds and the capability of showing smart advertisements, the business model is completed.

- **Description of the value for the customers**
  Users can ask questions to real persons and receive real questions as opposed to using a traditional search engine.

- **Description of the value for the service provider**
  By having more users, the revenues by the service can grow, but also revenues through linked services of Yahoo! can increase because of the success of Yahoo! Answers.

- **Description of the importance of the various critical design issues**
  The important critical design issues for Yahoo! Answers are creating value elements, branding and customer retention. This service is very service domain oriented.

- **Sources**
Short Case Study 11: Craigslist

- **Service category**
  Directories

- **Service on the seven characteristics of Web 2.0**
  This service primarily focuses on the “User or algorithm generated data” and “Socialization and network effect” characteristics. The secondary focus is on the “Long tail” and “Freedom by relinquishing control” characteristics.

- **Description of the service domain**
  Craigslist is a service which gives the possibility for free classified advertisements.

- **Description of the technology domain**
  Because of the relatively simple functionalities of the service, the technology used by Craigslist also is pretty simple.

- **Description of the organization domain**
  Craigslist has been around for a very long time, this makes their brand well known. By presenting the service as an online community Craigslist is trying to keep their users.

- **Description of the financial domain**
  Craigslist has a non-profit nature, but is a for-profit firm. Revenue is generated through asking for a fee for posting certain kinds of advertisements.

- **Description of synergy and trade-offs within the STOF-model**
  Despite that every domain in the business model is worked out, there is more potential in the service. This can be seen from the technology domain where there is nothing special going on. It can also be that because of this simplicity the service has been so successful.

- **Description of the value for the customers**
  Customers get to advertise targeted easy and relatively cheap.

- **Description of the value for the service provider**
  By positioning as an online community and keeping users using the service, Craigslist can grow. This also means that revenue income will grow too.

- **Description of the importance of the various critical design issues**
  The important critical design issues for Craigslist are creating value elements, branding, customer retention, quality of service and pricing. The service domain is the most important domain for this service.

- **Sources**
  Website Craigslist: http://www.craigslist.org/
Short Case Study 12: Lulu

- **Service category**
  Books

- **Service on the seven characteristics of Web 2.0**
  This service primarily focuses on the “User or algorithm generated data” and “Long tail” characteristics.

- **Description of the service domain**
  Lulu is a service which enables anyone to publish their own books.

- **Description of the technology domain**
  The technology that Lulu uses is pretty interesting as they can create a physical book solely based on user input. Books are also only printed per order, so there is no need to keep an inventory of books.

- **Description of the organization domain**
  Lulu has renewed the way we used to look at book publishing. It has made publishing available for anyone. The experience Lulu has gained is used to improve the service to the needs of the users.

- **Description of the financial domain**
  Like any publisher, Lulu generates revenue by book sales.

- **Description of synergy and trade-offs within the STOF-model**
  Lulu has managed to monetize the long tail of the book market through their business model by employing the reach enabled through the Internet compared to a low price for this great reach.

- **Description of the value for the customers**
  Users are now able to do what normally would cost them a lot more effort.

- **Description of the value for the service provider**
  By getting more users selling and buying books revenue grows for Lulu.

- **Description of the importance of the various critical design issues**
  Important critical design issues are creating value elements, branding, quality of service, pricing and division of costs and revenues. The service domain is the most important one for this service.

- **Sources**
  Website Lulu: [http://www.lulu.com/](http://www.lulu.com/)
Short Case Study 13: Yelp

- **Service category**
  Reviews

- **Service on the seven characteristics of Web 2.0**
  This service primarily focuses on the “User or algorithm generated data” and “Socialization and network effect” characteristics. The secondary focus is on the “Long tail” and “Freedom by relinquishing control” characteristics.

- **Description of the service domain**
  Yelp operates as a social networking, user review, and local search service. Users are able to write and read reviews on services per city. They are able to discuss these locations and rate them.

- **Description of the technology domain**
  The technology is very data driven as the most important thing in this service is the collective data generated by the crowd using this service.

- **Description of the organization domain**
  The service has competitors as it essentially is a service which can be described as yellow pages with reviews. However, by trying to maintain the users, the network effect comes into play and more users will use the service.

- **Description of the financial domain**
  Yelp generates income through advertisements on their website.

- **Description of synergy and trade-offs within the STOF-model**
  The service is very much focused on the social interactions about locations which create value for the Yelp service. This is unique information and Yelp recognizes that this information can be used for attracting visitors to the website.

- **Description of the value for the customers**
  Users can find and share opinions concerning locations for free.

- **Description of the value for the service provider**
  By getting valuable data on their service, Yelp can generate more traffic to their website and this will result in higher advertisement income.

- **Description of the importance of the various critical design issues**
  The important critical design issues for Yelp are creating value elements, branding, customer retention, accessibility for customers and valuation of contributions and benefits. The service domain is the most important domain for Yelp.

- **Sources**
  Website Yelp: [http://www.yelp.com/](http://www.yelp.com/)
Short Case Study 14: Zoho

- **Service category**
  Organization

- **Service on the seven characteristics of Web 2.0**
  This service primarily focuses on the “Technological functionality” characteristic. Secondarily it focuses on the “Long tail”, “User involvement in service development”, “Compatibility, modularity and extendibility” characteristics.

- **Description of the service domain**
  Zoho is an online office suite. Because it is a web application, no software needs to be installed on the client computer and the service is platform independent. This makes it easy for users to manage their documents disregarding which computer they work on.

- **Description of the technology domain**
  Technologically this service is very complex. It is a full feature office suite, but it is used via the client’s browser. This brings the necessary complexities along; therefore functionalities are optimized for web usage.

- **Description of the organization domain**
  Zoho is not the only service delivering an online offices suite. The difficulty in this market is that because the technology is most important aspect, the technologically and functional most advanced service will be most successful. Zoho also has an API, so that third party developers can also create additional software.

- **Description of the financial domain**
  Zoho is partially freely usable; however for some applications pricing is applied.

- **Description of synergy and trade-offs within the STOF-model**
  The business model is very much technology focused. This can be seen as a threat, but also as strength, depending on how Zoho can form a strong strategy to be successful.

- **Description of the value for the customers**
  Customers get to use many applications without the need for installing software. This is in accordance with the vision of the web as a platform.

- **Description of the value for the service provider**
  By being popular and getting a large user base, Zoho might set the standard for online office suits. This will result in more users and more paying customers.

- **Description of the importance of the various critical design issues**
  The important critical design issues are creating value elements, security, quality of service and pricing. The technology domain is the most important domain for Zoho.

- **Sources**
Short Case Study 15: Google Docs

- **Service category**
  Collaborative Writing and Word Processing

- **Service on the seven characteristics of Web 2.0**
  This service primarily focuses on the “Technological functionality” and “Compatibility, modularity and extendibility” characteristics. Secondarily it focuses on the “Long tail” and “User involvement in service development” characteristics.

- **Description of the service domain**
  Google Docs is an online word processor, spreadsheet, presentation, and form application. Users are enabled to manage their documents via the Web instead of on the client computer.

- **Description of the technology domain**
  Technologically Google Docs is not simple. Also the addition of mobile technology to the service adds complexity.

- **Description of the organization domain**
  Google Docs is a single application within the large service portfolio of Google. This means that Google is not fully dependent on Google Docs and therefore uses it as a side product and not as core business.

- **Description of the financial domain**
  Google Docs does not generate revenues directly. Indirectly it adds to the brand name of Google, so it does create value for Google similar as services like Gmail or Google Agenda.

- **Description of synergy and trade-offs within the STOF-model**
  Because Google Docs is not the core business of Google, the business model is incomplete. However, a revenue model would complete the business model and create a true stand alone service.

- **Description of the value for the customers**
  Google Docs is a fast alternative for other word processors. Google Docs can be very valuable for users who do not work at one single computer, but do need to be able to manage their documents.

- **Description of the value for the service provider**
  The more popular the service gets, the better it is for the brand name Google.

- **Description of the importance of the various critical design issues**
  The important critical design issues for Google Docs are creating value elements, branding, security, quality of service, system integration and division of costs and revenues. The technology domain is the most important business model domain for Google Docs.

- **Sources**
  Website Google Docs: [http://docs.google.com](http://docs.google.com)

Short Case Study 16: Zango

- **Service category**
  Entertainment

- **Service on the seven characteristics of Web 2.0**
  This service does not really have a prominent primary focus, but a lesser focus on the “Long tail” and “Technological functionality” characteristics.

- **Description of the service domain**
  Zango delivers online media, but in order to be able to access the content, users need to install a tool. This enables Zango to conduct targeted advertisement to the user.

- **Description of the technology domain**
  The technology of Zango has some problems as their software is classified as adware or unwanted adware by antivirus companies (McAfee, 2005; Symantec, 2007). This is the largest difficulty for Zango.

- **Description of the organization domain**
  The intrusive nature of the software which behaves like adware is the source of a series of law suits against Zango. Zango is not happy with antivirus software blocking the Zango software and other organizations like Federal Trade Commission are not happy with the way the Zango software operates. This leads to disputes which make business harder for Zango.

- **Description of the financial domain**
  Zango generates revenue through advertisements which are enabled by their software. By monitoring user’s online activities, Zango is able to show personalized advertisements.

- **Description of synergy and trade-offs within the STOF-model**
  The business model is clear; however, the nature of the service attracts unwanted criticism and legal issues. This brings difficulty to the service. If Zango can work around this issue, the service might grow a lot easier.

- **Description of the value for the customers**
  Customers are enabled to get access to content for free, but this also means that their privacy might be infringed.

- **Description of the value for the service provider**
  By having users installing the software, the service provider can monitor the activities of the user and this gives a certain power.

- **Description of the importance of the various critical design issues**
  The important critical design issues are creating value elements, system integration, accessibility for customers, partner selection, network governance, network complexity, valuation of contributions and benefits. The organization domain is the most important domain for Zango.

- **Sources**


  Website Zango: http://www.zango.com/

Short Case Study 17: Frappr!

- **Service category**
  Mapping Applications

- **Service on the seven characteristics of Web 2.0**
  This service primarily focuses on the “User or algorithm generated data” and “Socialization and network effect” characteristics. Secondarily it focuses on the “Long tail” and “Technological functionality” characteristics.

- **Description of the service domain**
  Frappr! is a Web 2.0 mashup application which is the combination of an online guest book, a hit log and a map. Users create their own map, which is embeddable on their own webpage, blog, community page, etc., and then the service basically maps where your visitors come from and gives them an interface to communicate with you.

- **Description of the technology domain**
  Frappr! is built on Google Maps technology; this means that half of the work is already done by Google. This does not mean that the other half is easy. Frappr! is compatible with other websites in order to get their widget embedded into their pages. Being technologically dependent on a free service from Google might also create problems in the future.

- **Description of the organization domain**
  Frappr! is not the only service delivering the option for users to create their own social map, this means that Frappr! must make efforts to maintain and attract new users.

- **Description of the financial domain**
  Frappr! mainly generates their income through advertisements on their website.

- **Description of synergy and trade-offs within the STOF-model**
  The business model consists of all four domains. However, the revenue model of Frappr! is not a tailored solution, but more a general model that could be implemented almost anywhere. A real tailored revenue model might get the full potential out of this business model.

- **Description of the value for the customers**
  Users are enabled to track where there visitors come from and the visitors are given a new communication channel towards the user.

- **Description of the value for the service provider**
  The value here are the users, the more users the more revenue. So by improving the service, users might be attracted and also they will not leave easily.

- **Description of the importance of the various critical design issues**
  The important critical design issues for Frappr! are creating value elements, branding, customer retention, quality of service, system integration, partner selection, network openness and pricing. For this service the service domain is the most important business model domain.

- **Sources**
Short Case Study 18: PBwiki

- **Service category**
  Hosted Wikis

- **Service on the seven characteristics of Web 2.0**
  This service primarily focuses on the “Long tail” and “Technological functionality” characteristics. The secondary focus is on the “Compatibility, modularity and extendibility” characteristic.

- **Description of the service domain**
  PBwiki delivers an easy way to set up your own wiki. This eliminates the hassle of needing to have an own server and software to run your wiki on as PBwiki hosts the wiki for you.

- **Description of the technology domain**
  The technology for such a service has to take care of various aspects. Security might be the most serious issue.

- **Description of the organization domain**
  PBwiki is competing with other wiki software packages, but PBwiki has the advantage that hosting is not an issue for the customers.

- **Description of the financial domain**
  PBwiki is operating on freemium basis, this means that basic users can use the software for free, but there is a fee for more advanced features.

- **Description of synergy and trade-offs within the STOF-model**
  The business model of PBwiki seems to be complete; they thought about every domain and show the importance of their unique value proposition.

- **Description of the value for the customers**
  Customers get to create or use a wiki without any of the difficulties involved with starting and managing a wiki.

- **Description of the value for the service provider**
  By getting more users, the popularity of the service grows and more premium users will be using the service.

- **Description of the importance of the various critical design issues**
  The important critical design issues for PBwiki are creating value elements, branding, security, quality of service and pricing. For PBwiki the service and technology domains are the most important business model domains.

- **Sources**
  Website PBwiki: [http://pbwiki.com/](http://pbwiki.com/)

Short Case Study 19: Cocktail Builder

- **Service category**
  Fun Stuff

- **Service on the seven characteristics of Web 2.0**
  This service primarily focuses on the “User or algorithm generated data” and “Long tail” characteristics.

- **Description of the service domain**
  Cocktail Builder is a service which can be used to find or share recipes for cocktails.

- **Description of the technology domain**
  The technology is pretty simple. Users are able to find cocktails by ingredients and by telling the service what kind of ingredients you have, the service can make suggestions.

- **Description of the organization domain**
  The service is pretty unique in its kind, it competes with traditional cocktail recipe sites, but the functionalities delivered by this specialized service are superior compared to those of their competitors.

- **Description of the financial domain**
  Cocktail Builder generates revenue by selling advertising space on their website and by selling cocktail related stuff on their website.

- **Description of synergy and trade-offs within the STOF-model**
  The service is very simple and very specialized. The very long tail focus of this service uses the philosophy of a great reach against low costs because of the Internet.

- **Description of the value for the customers**
  Customers get to find cocktail possibilities easily. Your own cocktails are also easy sharable with the rest of the world.

- **Description of the value for the service provider**
  The recipes add value to the website, the better and more recipes, the more visitors and thus the more revenues.

- **Description of the importance of the various critical design issues**
  The important critical design issues are creating value elements, branding and accessibility for customers. For this service the service domain is the most important business model domain.

- **Sources**
Short Case Study 20: Yourminis

- **Service category**
  Widgets

- **Service on the seven characteristics of Web 2.0**
  This service primarily focuses on the “User or algorithm generated data”, “Long tail” and “Compatibility, modularity and extendibility” characteristics. The secondary characteristics this service focuses on are “Socialization and network effect”, “Freedom by relinquishing control”, “User involvement in service development” and “Technological functionality”.

- **Description of the service domain**
  Yourminis is a service which gives users a framework and API to create their own web widgets and share these with other users. Building, sharing and analyzing widgets is made easier than if the users should have to do everything from scratch.

- **Description of the technology domain**
  Technologically this project has to take care of various aspects. The service has to be easy to use, but yet complex widgets should be possible to be built on the framework. The widgets should also be able to run on a wide variety of platform. This adds complexity to the technological aspects of the platform.

- **Description of the organization domain**
  Widgets are widely developed on the web; Yourminis delivers an easy platform for developers to start developing their own widgets.

- **Description of the financial domain**
  The financial domain of Yourminis is a bit blurry. The users are able to conduct appvertising, but it is not clear how Yourminis generates revenue. It seems that there is no concrete revenue model for the service itself. However, the service is owned by Goowy. So it can be the case that Goowy uses Yourminis to attract more users and become more popular. In this case Yourminis is not a direct revenue generator, but generates revenue indirectly.

- **Description of synergy and trade-offs within the STOF-model**
  In this business model it is clear that the financial domain is incomplete. The service is targeted at novice and intermediate developers; the question arises whether this service is suitable for advanced and professional widget developers.

- **Description of the value for the customers**
  Yourminis delivers an easy solution to creating, sharing and analyzing your widgets for free.

- **Description of the value for the service provider**
  The more widgets there are on the website, the more popular the service gets. This will eventually lead to a strong brand and also increasing revenues for Goowy.

- **Description of the importance of the various critical design issues**
  The important critical design issues are targeting, creating value elements, branding, system integration, pricing and valuation of contributions and benefits. The business model domain which is most important for the service is the service domain.

- **Sources**
Short Case Study 21: iStats

- **Service category**
  Sport

- **Service on the seven characteristics of Web 2.0**
  This service primarily focuses on the “User or algorithm generated data” and “Long tail” characteristics. The secondary focus of the service is on the “Socialization and network effect” characteristics.

- **Description of the service domain**
  iStats delivers a service which enables people who workout to watch their progress and share this with others.

- **Description of the technology domain**
  The technology domain takes care of storing and sharing the data entered by users.

- **Description of the organization domain**
  The service is very long tail oriented. There are more services which enable you to track your sport progress online; however, iStats is different because they deliver a free service.

- **Description of the financial domain**
  The service is free for users. But the value that the users give to iStats can for example be used for targeted advertisement. The revenue model of iStats is not clear, but they do have a set of options what they can do with the data gathered.

- **Description of synergy and trade-offs within the STOF-model**
  The business model is targeted at the niche of fitness, basically the service is not very original, but the way iStats has executed the idea makes it valuable for their users.

- **Description of the value for the customers**
  Users get to manage and share their fitness progress for free.

- **Description of the value for the service provider**
  The data generated by all users together can be used for statistics or advertisement. This makes the information valuable.

- **Description of the importance of the various critical design issues**
  The important critical design issues are targeting, creating value elements and management of user profiles. The most important business model domain is therefore the service domain.

- **Sources**
Short Case Study 22: G.ho.st

- **Service category**
  Online Desktop

- **Service on the seven characteristics of Web 2.0**
  This service primarily focuses on the “Technological functionality” characteristic. The secondary focus is on the “Long tail” and “Compatibility, modularity and extendibility” characteristics.

- **Description of the service domain**
  G.ho.st is a Web Operating System (WebOS) which enables users to work on their own virtual desktop from practically anywhere.

- **Description of the technology domain**
  The technology for such a service is very complex as it encompasses an operating system which runs from within a browser. This brings a lot of issues along which make the service technologically quite complex. G.ho.st is also developing a mobile version of their service.

- **Description of the organization domain**
  There are a few more services which deliver a WebOS, so G.ho.st has some tough competition. In this field it is important to have better features which attracts the user mass. Therefore smart marketing is also important for the service.

- **Description of the financial domain**
  It is not clear how G.ho.st is planning their revenue model, but when the service has a great amount of users and has positioned itself in the market; they have quite a few options on their revenue model.

- **Description of synergy and trade-offs within the STOF-model**
  This service is under development and this is visible in the business model. When the service is in a more stable phase, it can be seen how the business model works in practice.

- **Description of the value for the customers**
  Users get to use a virtual desktop which they can access from anywhere for free.

- **Description of the value for the service provider**
  With a large number of users and maybe third party developers, the service will grow and the options for revenue models are countless.

- **Description of the importance of the various critical design issues**
  The important critical design issues for G.ho.st are creating value elements, branding, security, quality of service, system integration, accessibility for customers, network governance and division of investments. The technology domain is the most important business model domain.

- **Sources**
  Website G.ho.st: [http://g.ho.st/](http://g.ho.st/)
## Appendix C

### Table of short case study Web 2.0 characteristics and most prominent STOF model domains

<table>
<thead>
<tr>
<th>Short Case Number</th>
<th>Service Name</th>
<th>Primary Web 2.0 Characteristics</th>
<th>Secondary Web 2.0 Characteristics</th>
<th>Prominent STOF Domain(s)</th>
</tr>
</thead>
</table>
| 1                 | Del.icio.us  | - User or algorithm generated data  
                      - Socialization and network effect | - Compatibility, modularity and extendibility | - Service |
| 2                 | YouTube      | - User or algorithm generated data  
                      - Socialization and network effect | - Compatibility, modularity and extendibility | - Service |
| 3                 | Facebook     | - Socialization and network effect | - Freedom by relinquishing control  
                      - User involvement in service development  
                      - Technological functionality  
                      - Compatibility, modularity and extendibility | - Service |
| 4                 | Flickr       | - User or algorithm generated data | - Long tail  
                      - Compatibility, modularity and extendibility | - Service |
| 5                 | LinkedIn     | - Socialization and network effect | - User or algorithm generated data  
                      - Long tail | - Service |
| 6                 | Last.fm      | - Long tail | - Socialization and network effect  
                      - Freedom by relinquishing control  
                      - Technological functionality  
                      - Compatibility, modularity and extendibility | - Service |
| 7                 | Twitter      | - User or algorithm generated data  
                      - Socialization and network effect | - User or algorithm generated data  
                      - Long tail  
                      - Freedom by relinquishing control  
                      - Technological functionality  
                      - Compatibility, modularity and extendibility | - Service |
| 8                 | Google Maps  | - Technological functionality  
                      - Compatibility, modularity and extendibility | - Long tail  
                      - User involvement in service development | - Technology |
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<tbody>
<tr>
<td>9</td>
<td>Netvibes</td>
<td>- Long tail</td>
<td>- Socialization and network effect</td>
<td>- Service</td>
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<td>- Freedom by relinquishing control</td>
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<td>- Technological functionality</td>
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<td>- Compatibility, modularity and extendibility</td>
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<td>10</td>
<td>Yahoo! Answers</td>
<td>- User or algorithm generated data</td>
<td>- Freedom by relinquishing control</td>
<td>- Service</td>
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<td></td>
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<td>- Socialization and network effect</td>
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<td>11</td>
<td>Craigslist</td>
<td>- User or algorithm generated data</td>
<td>- Long tail</td>
<td>- Service</td>
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<td>- Socialization and network effect</td>
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<td>12</td>
<td>Lulu</td>
<td>- User or algorithm generated data</td>
<td>- Long tail</td>
<td>- Service</td>
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<td></td>
<td></td>
<td>- Socialization and network effect</td>
<td>- Freedom by relinquishing control</td>
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<tr>
<td>13</td>
<td>Yelp</td>
<td>- User or algorithm generated data</td>
<td>- Long tail</td>
<td>- Service</td>
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<td></td>
<td>- Socialization and network effect</td>
<td>- Freedom by relinquishing control</td>
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<td>14</td>
<td>Zoho</td>
<td>- Technological functionality</td>
<td>- Long tail</td>
<td>- Technology</td>
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<td>- User involvement in service development</td>
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<td>15</td>
<td>Google Docs</td>
<td>- Technological functionality</td>
<td>- User involvement in service development</td>
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<td>- Compatibility, modularity and extendibility</td>
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<td>16</td>
<td>Zango</td>
<td>- Technological functionality</td>
<td></td>
<td>- Organization</td>
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<td>17</td>
<td>Frappr!</td>
<td>- User or algorithm generated data</td>
<td>- Long tail</td>
<td>- Service</td>
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<td></td>
<td>- Socialization and network effect</td>
<td>- Technological functionality</td>
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<td>18</td>
<td>PBwiki</td>
<td>- Long tail</td>
<td>- Compatibility, modularity and extendibility</td>
<td>- Service</td>
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<td>- Technological functionality</td>
<td>- Technology</td>
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<td>19</td>
<td>Cocktail Builder</td>
<td>- User or algorithm generated data</td>
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<td>- Service</td>
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<td>- Socialization and network effect</td>
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<td>- Compatibility, modularity and extendibility</td>
<td>- User involvement in service development</td>
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<td>20</td>
<td>Yourminis</td>
<td>- User or algorithm generated data</td>
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<td>Technological functionality</td>
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</tr>
</tbody>
</table>
| 21 | iStats | - User or algorithm generated data  
- Long tail | - Socialization and network effect | - Technology |
| 22 | G.ho.st | - Technological functionality  
- Long tail  
- Compatibility, modularity and extendibility | | |
Appendix D

Interview Results

Interviewees:

- Pieter Ballon PhD, is a researcher of the Vrije Universiteit Brussel at the section IBBT-SMIT. He has written his PhD thesis on control and value in mobile communications.

- Koen van den Biggelaar MSc and Job Schut MSc, are managers at Accenture and they focus at value creation in Web 2.0 environments.

- Melle Gloerich MSc, has written his master thesis on online participation. Currently he is content master at the NGN which is a platform for ICT professionals.

- Alfred Kayser MSc, is a business architect at Jibes which applies Web 2.0 technology in enterprise environments.

- Vincent de la Mar MSc, has written his master thesis on value drivers in e-business 2.0. Currently he is business development manager at Mendix.

- Mijke Slot MSc, is writing her PhD thesis on changing user roles in media and entertainment services.

- Jolien Ubacht MSc, is a researcher in the field of innovative ICT developments at the Delft University of Technology.

Propositions 1-8:

1. The unique value proposition is the core of the service, so the business model should be designed around this unique value proposition

2. The window of opportunity can make or break a Web 2.0 service

3. The focus should be fully targeted on core business, even when combined with other services or products; service or product synergies should be beneficial for all parties

4. The service should be original or an evolved imitation which delivers a new unique value proposition

5. Innovations should only be incremental; radical innovation should only be done in exceptional cases when it is necessary for the business strategy to succeed

6. Web 2.0 products are the platforms which run Web 2.0 services; Web 2.0 products and Web 2.0 services depend on each other, but have a different nature; business models for Web 2.0 products vitally differ from Web 2.0 service business models

7. Web 2.0 services primarily focus on the service domain. Web 2.0 Products primarily focus on the technology domain

8. No matter what the primary domain focus is, business model synergy is the basis for any commercial Web 2.0 service or product
<table>
<thead>
<tr>
<th>Pieter Ballon</th>
<th>Koen van den Biggelaar and Job Schut</th>
<th>Melle Gloerich</th>
<th>Alfred Kayser</th>
<th>Vincent de la Mar</th>
<th>Mijke Slot</th>
<th>Jolien Ubacht</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 A good starting position, but not everything can be designed. The power position affects the limitations of the design.</td>
<td>There can be multiple focuses; however there is always one core focus.</td>
<td>The value proposition is the strength of the service.</td>
<td>The service should be designed from the perspective per domain.</td>
<td>Because the difference between users and customers, users can be attracted through technology, but valorization is done through B2B.</td>
<td>Web 2.0 is about the users, and the users create value. The service should be in service of the users.</td>
<td>Users can have a different perspective on what the value proposition is, so the value proposition needs to be well over thought.</td>
</tr>
<tr>
<td>2 To an extent, the market can be prepared, but can not be forced.</td>
<td>The window of opportunity can be created.</td>
<td>The window of opportunity is not really relevant, except if a competitor beats you to the market. Influential individuals can affect the adoption rate.</td>
<td>The market can be prepared, but the service should be stable.</td>
<td>The service needs to be superior, but the technology and market should be ready. Usually the service is ahead of the market, so preparing the market is important.</td>
<td>The success of the service depends on many factors. Targeting and value proposition are important.</td>
<td>Network externalities make the service successful.</td>
</tr>
<tr>
<td>3 100% beneficial win-win situations are not realistic. Power positions have an influence on synergies. Trade-offs should be taken into account.</td>
<td>Win-win situations are what you should be looking for.</td>
<td>This is also the same as for traditional businesses.</td>
<td>Do what you know best.</td>
<td>Only from users perspective.</td>
<td>Synergies do not have to be equal for all parties.</td>
<td>Services should be focused towards the users, but internally this is not necessary.</td>
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<td>4 Competition is always based on differentiation.</td>
<td>Traditional competition is also possible in Web 2.0 environments.</td>
<td>Users are value, so if you can get the influential users, others will follow.</td>
<td>Distinguishing by quality or marketing is also possible. You should be better, faster or cheaper than</td>
<td>It is about users, so if you can get and keep a market share in an existing market, you</td>
<td>Being the first to market is not critical. Innovation is a constant dynamic</td>
<td>A service should be able to distinguish itself. It does not work to be a copycat.</td>
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<td>5</td>
<td>It is important to maintain a strategic position in the ecosystem through innovation; sometimes it can be necessary to implement radical innovation.</td>
<td>Radical innovation is very important. The main focus should be incremental innovation, but radical innovation enables a company to survive.</td>
<td>User acceptance is important. Radical innovation can cause users to abandon the service.</td>
<td>You should be open for radical innovation, but it should not be a goal.</td>
<td>Innovation is necessary, but Quality of Service should not be negatively affected.</td>
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<td>6</td>
<td>“Web 2.0 platform” is a better terminology than “Web 2.0 product”. What a platform exactly is remains vague, but it is clear that there is a platform and that there is a service.</td>
<td>Service and product should be distinguished.</td>
<td>Distinguishing products from services is important for strategic positioning.</td>
<td>The difference should be emphasized.</td>
<td>The platform enables the service to be scalable.</td>
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<td>7</td>
<td>Platforms focus on the technology as well on the organization domain.</td>
<td>Products and services have a different nature.</td>
<td>Products and services can not exist without each other.</td>
<td>The organization domain is very different for services or products.</td>
<td>With technology alone value can not be created, services on the technology create value.</td>
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<td>8</td>
<td>A fit between the domains is important.</td>
<td>There can be multiple focuses on different domains, but eventually working towards a single goal.</td>
<td>The synergy is necessary to have a complete Web 2.0 service or product.</td>
<td>There is a lot of freedom of choice in the different domains, but all domains must be thought over thoroughly.</td>
<td>The synergy between the service and technology is the most important aspect.</td>
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Bibliography


