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EVALUATING A BUSINESS MODEL IN THE DEVELOPMENT STAGE OF CONTENT BASED INTERNET BUSINESSES – SHOWN WITH AN EXAMPLE OF A PLATFORM FOR PEOPLE WITH FOOD INTOLERANCE

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AFFIDAVIT

I, **Dipl.-Ing. Stefanie Feichter**, hereby declare

1. that I am the sole author of the present Master Thesis, ”Evaluating a business model in the development stage of content based internet businesses – shown with an example of a platform for people with food intolerance",
   85 pages, bound, and that I have not used any source or tool other than those referenced or any other illicit aid or tool, and
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ABSTRACT

This thesis deals with the creation and evaluation of business models for content based internet businesses. A missing business model is often a crucial factor for a breakdown when starting a business. Hence, there is a need for finding a set of criteria that can be used before implementing the business in order to assess the defined business model. This work determined some criteria mainly based on the work of Hamel (2001) and Schubert and Selz (2001).

The definition and evaluation of the business model was demonstrated on a web site that provides help for people with food intolerance by offering access to a recipe database and information relevant to food intolerance. However, the criteria are applicable to all web sites that offer online delivered content. The analysis of the business model shows that the set of criteria does not give a guarantee for a successful business but is a help for analysing and correcting weaknesses in a business model.

1 INTRODUCTION

This thesis deals with the question if there is a suitable business model for an Internet platform helping people with food intolerance. This platform will be mainly a database with recipes that allows easy search for recipes that do *not* contain certain ingredients. Additionally, information about food intolerance will be provided in a way, which is easily understood by non-professionals. This work will present a business model that can be applied to this Internet platform. A set of criteria has to be found to check if this business model is suitable to create a successful business.

In the following the motivation for this topic followed by a specification of the problem will be described. After defining the objectives and the goal of the thesis a description of the structure of the thesis will be given.

1.1 Motivation

The motivation for this thesis arose because I have food intolerance. When I found out that I have food intolerance I had to start to change my diet. The change in my diet was particularly difficult because I am intolerant to a great variety of foods namely cow milk and diary products made from cow milk, gluten, white sugar, artificial sweetener, glutamate and others. These foods and additives are in nearly every industrially processed edible food therefore I was forced to cook my own a lot of times instead of going to a restaurant for a fast snack.

When faced with a question I use the Internet to find information. Hence, I also used the Internet when searching for information on food intolerance and cooking. I wanted to find recipes suitable for my diet. I could find databases containing recipes for people with celiac disease, which are people who are not allowed to eat any gluten, but since I had to avoid also diary products and so on most of these recipes were inappropriate for me.

Another problem was that grocery shopping took me a lot of time because I had to read the information on every product I wanted to buy. I also had to go to different shops to find foods I am allowed to eat. In the beginning I also made a lot of

mistakes, because the information is often in such small letters that sometimes, after reading it for the third time, I suddenly noticed that there is an ingredient in the product I am not allowed to eat.

I also talked to other patients of my doctor with the same problem. There is a lot of medical information regarding food intolerance but these sites are often written in complicated language useful for medical experts but no information that would help to prepare meals in the right way. All patients agreed that we would really appreciate a database where it is possible to find recipes appropriate to one's diet, names of producers specialised in goods for people with food intolerance, and information on shops which stock products for people with food intolerance.

My personal need made me think of designing a website that would provide all the information you need in your daily life when dealing with food intolerance. I also deliberated whether this website had to be only a hobby or whether there could even be a possibility of earning money with it.

Therefore, it became necessary to find a way to test in advance if the proposed business model was a suitable basis for a successful business. Testing a business model before implementing it is very important since conducting a start-up, no matter if creating a production company or creating a business in the Internet, consumes a lot of resources. Entrepreneurs in Internet business often overlook the fact that even if their monetary investments are mostly small the amount of time they invest is very high.

1.2 Problem definition

If a company is founded it is essential to have a well thought-out business model otherwise a breakdown is very likely. Missing business models were one crucial factor for the bursting of the dot-com bubble. In 2000 a lot of companies established in e-commerce went bankrupt due to the lack of planning and developing long-term customer acquisition and business models. A lot of websites relied on the high prices for banner advertisement (Albers et. al, 2002). This short sighted acting caused financial problems for many companies when the prices for banner advertisement went down.

Kowallik (2004) argues similarly when evaluating the chances for success of start-ups in electronic commerce. He states that successful long-term strategies have to be developed for businesses. A missing or badly defined business model can lead to the bankruptcy of a company.

From the start, a lot of businesses operating in e-commerce failed besides the known winners (Preißl and Haas, 1999). Even Amazon.com which had a fast growing online-turnover was not profitable for a long time due to its aggressive price policy (Kowallik, 2004).

It was a commonplace to say that everyone can set up a business in the Internet because it was believed to cost nearly nothing (Vogler and Reischl, 2006). But this is not true because every start-up needs money, time and other resources which are often disregarded in financial calculations. Because of the high risk of setting up a business without a business model, this work will examine what business model can be applied to a business with following main features:

- The business uses the Internet exclusively to deal with information.
- The content is partly medical containing information about food intolerance and cooking information as well.
- The content will be collected by the operator of the website and the users will also contribute their knowledge.
- The purpose of the website is to serve primarily people with food intolerance but could be also used by people interested in cooking or nutrition.

In order to reduce the risk of setting-up the business a set of criteria has to be developed for evaluating the found model and changing it if necessary.

1.3 Objectives

This study seeks to find out if common web-based business models for businesses in e-commerce are suitable for an Internet business trading with content/information on food intolerance in order to set up a long-term plan for revenues. By means of this example a set of criteria will be found in order to evaluate a web site before it is

implemented. Additionally, this work wants to give an introduction to the most important subjects concerning Internet businesses and their business models.

The primary research question will include how the business model of a platform specialised for people with food intolerance should look like and what value can be extracted from this web site. Additionally, criteria for assessing this model will be defined.

Research question:

- How does a business model for a web site on food intolerance look like?
- What are the criteria to assess this business model?
- What are suitable models to gain revenues from this web site?

In order to answer these questions we have to define what an Internet business is, talk about the value chain of an Internet business, web-based business models and possibilities to generate money with Internet businesses.

1.4 Structure of the thesis

Chapter 2 deals with the underlying facts which are necessary to clarify as a background for this thesis. First the suitability of the Internet being the media to provide this help platform will be shown. Then an explanation of terms like “Web 2.0”, “e-business”, “e-commerce” will be given and the meaning of “Internet business” in this thesis will be explained. Further, business models in general and web-based business models in particular will be described and a more detailed background about food intolerance will be given.

The third chapter describes in detail how the web site for people with food intolerance will look like and what features it will provide to the customer. Further, it identifies the constraints of a business model for a food intolerance e-business model and sums up the underlying criteria.

Besides the definition of the business model, Chapter 4 comprises a set of criteria for analysing the business model regarding its wealth potential. Then these criteria are

applied to the business as defined in Chapter 3. A discussion of the results can be found in Chapter 5. Chapter 6 gives a summary of the thesis and suggests further areas of work. The references used in this thesis are listed in Chapter 7.

In the appendix (Chapter 8) tables containing criteria for evaluating implemented web sites are given (Schubert and Selz, 2001). Parts of these criteria are discussed in more detail in Chapter 4.2. Next to that a small set of web sites offering recipes and / or information about food intolerance are studied. Table 7 shows a short evaluation of these web sites in order to give an overview over German web sites dealing with a similar topic to this thesis.

2 FUNDAMENTALS

In most documents the terms „e-business“, „e-commerce“ and „Internet business“ are used interchangeably. The next section tries to work out the differences between these terms and define them in a more distinguishable way. But first the importance of the Internet in today’s society will be described, in particular in regard to both retrieving health-related information and business on the Internet, and the role of “Web 2.0”. The following sections discuss business models and e-business models and give an overview over food intolerance which will be the content of the business.

2.1 Internet

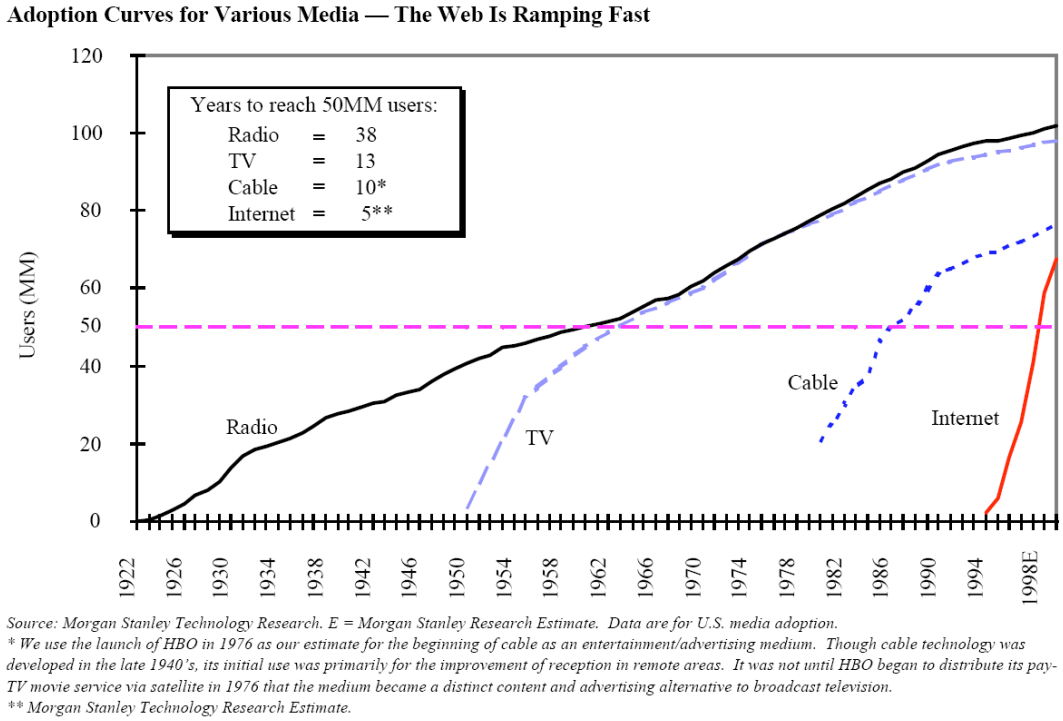

Figure 1: Comparison of coverage of different media (Meeker and Sharon, 1997).

In 1997 Meeker and Sharon stated that the Internet is the next form of mass media. The assumption arises from the results of the “Morgan Stanley Technology Research” report, which is illustrated in Figure 1 above. According to this research it took the radio 38 years to reach 50 million people but only after about 5 years the same amount of people were using the Internet. The report shows the tendency of the

Internet to be a fast growing medium but should be regarded with caution (cp. Hannemyr, 2003; Cornford, 2003). This tendency still goes on like current figures of Internet access show (see below).

The possibility of cheap and easy access to the Internet made it interesting for companies to trade goods via the World Wide Web (Albers et. al., 2002). Opportunity had to be given to both the business and the consumer side, which has indeed been done. This helped to increase the percentage of Internet-access in many countries. For instance, in Austria the percentage of businesses with Internet-access rose between 2001 and 2006 from 84% to 98% while until 2006 the percentage of private households increased to 52% (Figure 2). In the year 2006 72% of businesses and 63% of private households with Internet-access used broadband connections.

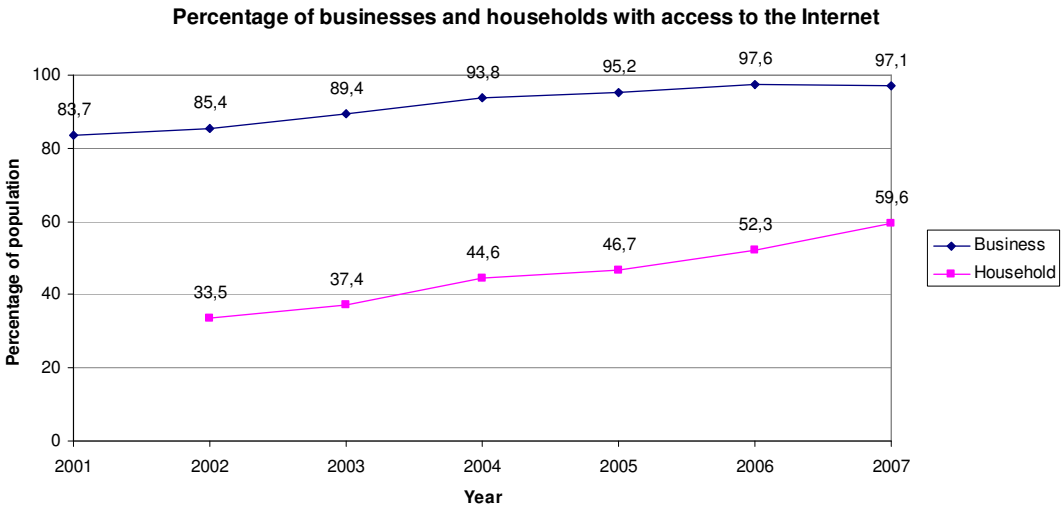

Figure 2: Percentage of business and households with access to the Internet in Austria (Statistik Austria, 2007).

In the rest of the EU a similar picture can be seen: in 2005 91%[1] of businesses had Internet-access and 48% of private households (Eurostat 2006).

[1] Percentage includes all 25 member states of the EU.

When analysing Internet usage we find out that the retrieval of health related information is an important issue (Eurostat, 2008). In Austria the percentage of the population (16 years and older) who uses the Internet for this kind of information for themselves or others was 5.9% in 2004 and rose to 27.4 % in 2007. In the same period the percentage the EU countries (EU25) raised from 17.2 % to 25% (Figure 3).

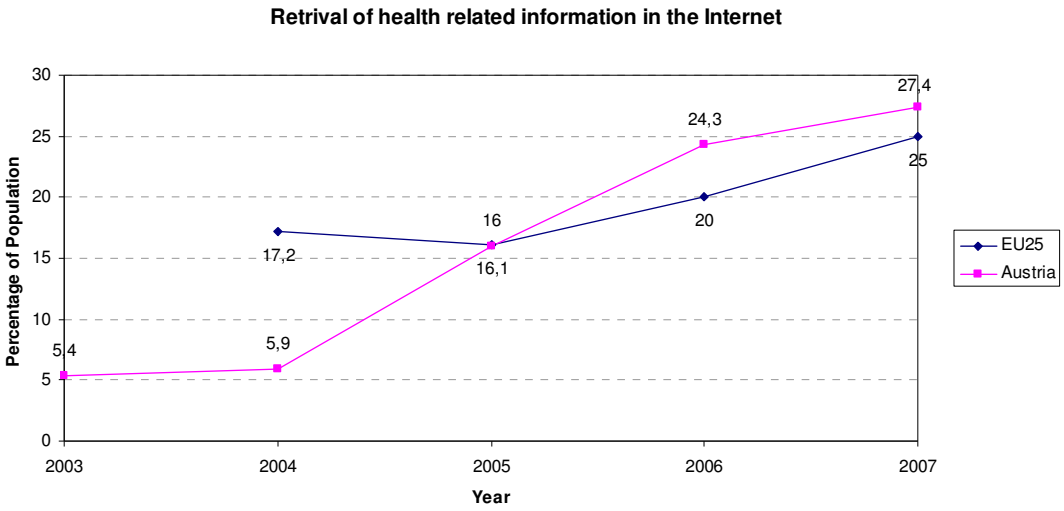

Figure 3: Retrieval of health related information on the Internet; comparison EU25 and Austria (Eurostat, 2008).

In Austria 41% of the Internet users looked for health related information on the Internet (Statistik Austria, 2007). For this survey Internet users were asked for which private purpose they had used the Internet in the last three months independent of whether they accessed it from home, work or other places. Therefore, this number is higher than the figures in the survey of Eurostat (2008) where the percentage of the *whole* population is given.

A similar rise of people going online for health information was shown by "The Harris Poll®" in the US. (Harris Interactive, 2007). The number of people searching for health-related information on the Internet raised from 51% to 71% in the years 2004 to 2007, which can be ascribe to a rise in the total number of Internet users as well as to an increase in people looking for health-related information on the

Internet. But at the same time people rate this information less reliable. Between 2005 and 2007 the percentage of people who believe that the information is reliable dropped from 90% to 86% while now 7% - instead of 5% in the year 2005 – say that it is unreliable.

There are a lot of examples showing the successful build up of a business that exclusively uses the Internet as a market to trade goods (Amazon, eBay, etc.). These businesses are objects of investigation for many books and case studies (e.g. Albers et. al., 2002). Since the Internet is a perfect place to serve customers all over the world, information has become a suitable good to trade on it. Products have to be send to the customer via physical channels (delivery service) but information can be delivered in the same media where it is traded, the Internet.

There are also successful Internet businesses that trade with information namely search engines or websites for price comparison. These services collect and organise information in order to reach a higher level of transparency of the market and orientation for the user (Kollmann, 2007). Information can also be generated by the operator of a website and its users (e.g. Weblogs, home pages for recipes, legal advice sites, etc.).

All these facts indicate that the Internet has been, and will continue to be a suitable medium for trading information.

2.2 Web 2.0

"Web 2.0" has become an intensely discussed topic in literature and is often a buzzword in events for proprietors of businesses. Web 2.0 is a term first formed by Dale Dougherty and Craig Cline in 2004 and made popular by the article "What is Web 2.0" by Tim O'Reilly. This term stands for a new classification of businesses in the Internet. After the bursting of the dot-com bubble in 2001 a lot of people saw the need for change in the use of the Internet (O'Reilly 2005).

Table 1: Examples of Web 1.0 vs. Web 2.0 (O'Reilly 2005).

Web 1.0	**Web 2.0**
DoubleClick	Google AdSense
Ofoto	Flickr
Akamai	BitTorrent
mp3.com	Napster
Britannica Online	Wikipedia
personal websites	Blogging
evite	Upcoming.org and EVDB
domain name speculation	search engine optimization
page views	cost per click
screen scraping	web services
publishing	participation
content management systems	Wikis
directories (taxonomy)	tagging ("folksonomy")
stickiness	Syndication

Table 1 shows examples for Web 1.0 and their counterpart in Web 2.0. There has been a shift in the use of the Internet, for example some years ago everyone had to have a personal website but today a blog is a "must". Information was taken from Britannica Online but nowadays Wikipedia is one of the main sources of information. At Wikipedia information is not only consumed by users but it is also contributed by them. Similar to this, web sites like Ofoto[2] and mp3.com, which offer pictures and music, respectively, for downloads, are replaced by sites where users

2 Ofoto is now Kodakgallery (http://www.kodakgallery.com/).

can also upload or share their pictures (Flickr[3]) and music (Napster[4]). People used to publish in the Internet but today they participate in discussions.

Online-advertising has also changed. The costs of ads were geared to the popularity and importance of a web site which was measured by "page views". Now the number of clicks on a link or banner determines the cost of ads. Unlike prior ad-providers, Google AdSense is choosing the displayed ads so they are dynamically related to the content of a web site.

Content was organised in taxonomies, which is a rigid, hierarchical classification of objects. In contrast, in folksonomy users assign and manage tags to annotate and categorise content. In the World Wide Web, a "sticky content" wanted to get the user's attention and make him or her visit this particular web site again. "Syndication" means the connection of content of different web sites.

O'Reilly (2005) sums up seven principles that stand for Web 2.0 that are core competencies of Web 2.0 companies. A company can implement one or more of these competencies:

- Services, not packaged software, with cost-effective scalability
  Google[5] and DoubleClick[6] are examples of web applications that were delivered as a service instead of packaging and selling it.

- Control over unique, hard-to-recreate data sources that get richer as more people use them
  This core competence is important in order to have a competitive advantage since a lot of applications become data-driven.

- Trusting users as co-developers
  Similar to an open source development of software the product is

3 http://www.flickr.com/

4 http://free.napster.com/

5 http://www.google.com/

6 http://www.doubleclick.com/

permanently developed. The user's behavior is monitored to see which features are used and how.

- Harnessing collective intelligence
  Users add implicitly and explicitly value to the application by contributing their data, knowledge and time (e.g. for explicit contribution Wikipedia[7], Flickr[8]). The implicit value adding happens more often and is done by aggregating data of the user. This building of value is a side-effect of the use of the application and is often the basis for content-based advertisements on the website. There are applications like Napster[9], a music sharing service, or eBay[10], an online auction website, for which the participation of users is intrinsic.

- Leveraging the long tail through customer self-service
  For example DoubleClick[11] required a formal sales contract which limited it to large websites while Google[12] and Overture[13] were able to place ads on virtually any website. Other examples of this principle are eBay[14] which enables the transaction of small amounts between individuals, and Napster[15] which built a system where every downloader also becomes a server to grow the network.

- Software above the level of a single device
  The software / application is designed in a way that is not limited to a PC but

[7] http://www.wikipedia.org/

[8] http://www.flickr.com/

[9] http://free.napster.com/

[10] http://www.ebay.com/

[11] http://www.doubleclick.com/

[12] http://www.google.com/

[13] http://www.overture.com/

[14] http://www.ebay.com/

[15] http://free.napster.com/

can also be used on multiple devices e. g. handheld devices. A good example is iTunes together with iPod[16].

- Lightweight user interfaces, development models, AND business models
  This core competence allows loosely coupled systems in order to make the service successful.

2.3 E-business

In 1997 IBM used the expression "e-business" to address a:

> "… secure, flexible and integrated approach to delivering differentiated business value by combing the systems and processes that run core business operations with the simplicity and reach made possible by internet technology".

This definition implies that every business that uses the Internet for its processes can be referred to as "e-business" (Charlesworth, 2007).

In (Kollmann, 2007) a theoretical and a practical definition are introduced:

Theoretical view

> "E-business is the use of information technology for preparation (information stage), negotiation (communication stage) and execution (transaction stage) of business processes between economic partners via innovative communication networks."

Practical view

> "E-business is the use of innovative information technology in order to sell something via virtual contacts, offer information and exchange information respectively, offer the customer a comprehensive support and allow individual relationship with market participant."

[16] http://www.apple.com/itunes/

The most important feature of e-business is that information technology (Internet) is used for information, communication and transaction (Kollmann 2002).

2.4 E-commerce

Kowallik (2004) claims that there is no uniform definition of “e-commerce”. In the past e-commerce was often used in the same context as e-business (Rebstock, 2000). Charlesworth (2007) also assumes that e-commerce and e-business are nearly the same:

> "If there is a difference [between e-commerce and e-business] it is that e-business represents a broader definition than e-commerce – addressing the impact of Internet technology on all elements of business, with e-commerce concentrating on the practice of the online buying, selling or exchange of goods or services".

Rebstock (2000) refers with “e-commerce” to the support of communication and business processes at the sale trough electronic communication services. Hence, e-commerce can be seen as part of e-business.

Likewise, Kowallik (2004) states e-commerce to be a branch of e-business, besides infrastructure, equipment and e-services. E-commerce is the electronic trading with goods and services.

Supply	Demand: Business	Demand: Consumer
Consumer	C2B	C2C
Business	B2B	B2C

Figure 4: Classification of e-commerce regarding market participant (Zwißler, 2002).

E-commerce can be classified regarding market participant (Zwißler, 2002). On the supply side and the demand side there is either a consumer or a business. This gives

four combinations: Consumer-to-Business (C2B), Consumer-to-Consumer (C2C), Business-to-Business (B2B), and Business-to-Consumer (B2C) (see Figure 4).

In a market where the business takes the role of the supplier and the product (service) is demanded by the consumer it is called a business-to-consumer (B2C) market. In a Business-to-Business (B2B) electronic commerce services and processes between two businesses are carried out via the Internet. The cooperation between businesses is characterised by an intention for a long-term business connection and a normally high volume. Compared to that, in B2C commerce a low volume per transaction and a low business relationship between the supplier and the consumer can be observed (Kowallik, 2004).

This classification can be extended by a third party, i.e. the administration that is represented by a government or Civil Service. An example for an Administration-to-Administration (A2A) e-commerce is the exchange of information between Civil Services. When a citizen files his or her tax return this process is assigned to A2C e-commerce, and a public invitation to tender comes within the limits of A2B (Becker, 2001).

At an "e-marketplace" product or services are traded via digital networks, which are the place where e-commerce is carried out (Kollmann, 2007).

Choi et al. (1997) introduced a model to classify e-commerce by three dimensions: the process, the product and the players (agents). In Figure 5 the difference between pure e-commerce (EC) and traditional commerce is pointed out clearly. In pure EC a digital product is traded by a digital agent with the help of digital processes. Choi et al. (1997) stated that "anything that one can send and receive over the Internet has the potential to be a digital product". Contrary to a physical agent that shows up in person, a digital agent communicates through an electronic interface. A physical example for EC is a travel agency if it exists only digitally (digital agent) and sells e-tickets (digital process, product). The pure form is not very common, hybrids are more popular. For example, prepaid cards for mobile phones can be bought at the supermarket. In this case, the product and the process are digital, but not the agent.

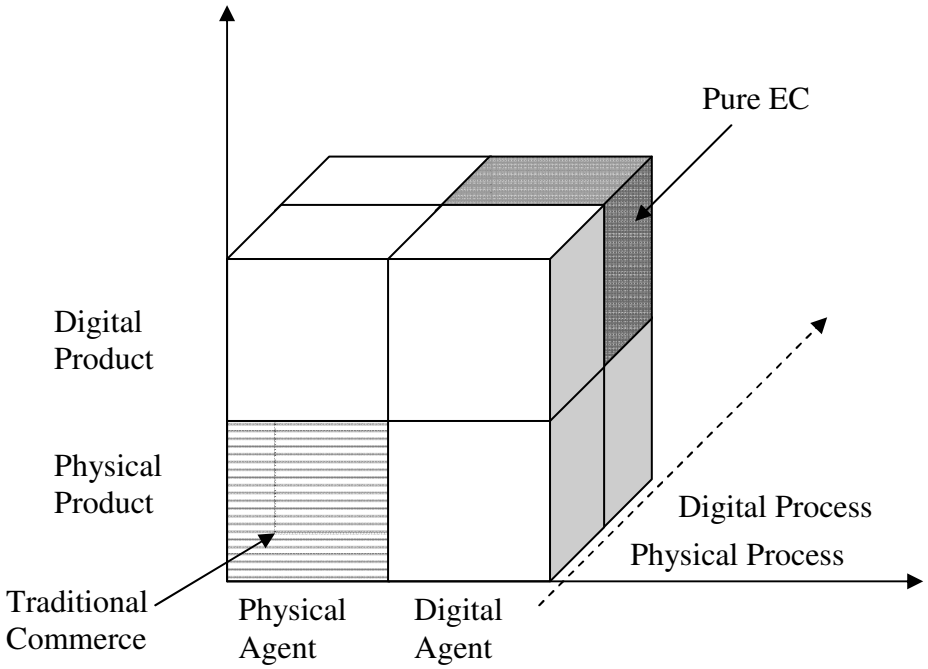

Figure 5: E-commerce Model (Choi et al. 1997).

2.5 Internet business

In literature "Internet business" is often used as a synonym of "e-business" (cp. Vogler and Reischl, 2006). In this work "Internet business" will refer to a special form of e-business:

An Internet business is an e-business whose core business is done on the Internet (like Amazon[17], Google[18], eBay[19] etc.). As defined in Chapter 2.3 an e-business can be for example a normal book shop that uses electronic payment or has an Internet connection to its supplier. Compared to that Amazon is an Internet business because its core business of selling books and being a broker for used books is done through the Internet.

[17] http://www.amazon.com/

[18] http://www.google.com/

[19] http://www.ebay.com/

Other good examples for an Internet business are websites that deal with user-generated content. Famous websites are XING[20] (formerly OpenBC), YouTube[21] or Flickr[22]. These Web 2.0 platforms provide a network where users can exchange data and information and/or contact people with similar interests. The focus is on creating a community (cp. Kollmann, 2007).

Summarising, e-commerce is part of e-business, and an Internet business is a special kind of e-business which also uses e-commerce. All terms have in common that their value is based on Internet technology. While e-commerce includes the trading via information technology, e-business also includes all other business processes like supply chain management (e-procurement), customer relationship management and so on.

2.6 Business model

The term "business model" does not refer to a consistent meaning but is understood and applied very differently. A variety of definitions were developed by different scientists.

Hamel (2001) for example defines a business model as a practically implemented business concept. Both business model and business concept are composed of the same components. The goal of a business concept is to develop an entirely new business model which provides an advantage in competition.

Timmers (2000) provides a comprehensive definition that includes the following aspects:

- an architecture for products, services and information flow including a description of various participants and their tasks

- a description of the potential benefit for the different participants

[20] http://www.xing.com/

[21] http://www.youtube.com/

[22] http://www.flickr.com/

- and a description of the source of turnover.

Similarly to Hamel (2001), Stähler (2001) equates business model with a realised business concept. And similarly to Timmers (2000) he bases the business model on three properties:

1. *Value Proposition:* The business concept describes the value proposition customer and partners gain with this business. This answers the question: "Which benefit does the business provide?"

2. *Architecture of added value:* A business concept is an architecture of the added value describing different levels of the added value and different economic agents and its role in the added value. This answers the question: "How and in which configuration is the service rendered?"

3. *Profit model:* A business concept describes which revenues from which sources will be gained. The future revenues decide the value of the business model and its sustainability. This answers the question: "How will money be earned?"

Rappa (2008) places emphasis on electronic business models (e-business model):

> "… a business model is the method of doing business by which a company can sustain itself – that is, generate revenue. The business model spells-out how a company makes money by specifying where it is positioned in the value chain."

Like these definitions others also have in common that the definitions of business and e-business models focus on the way of generating money, or creating value, respectively (Weill et. al, 2005). Hence, the value added chain in e-business has to be examined. But first we will discuss the value of information transfer. Kollmann (2006a) categorises six aspects

- Overview: The benefit for the user is the creation of an overview over a multitude of information, which can normally only be done with a lot of effort (structuring value).

- Choice: This aspect includes the preparation of information/products/services for a more efficient selection (selection value).
- Procurement: Vendor and customers are brought together more efficiently and effectively (matching value).
- Processing: In this case the benefit is the creation of a more efficient and effective deal (transaction value).
- Cooperation: Suppliers have the possibility to combine their offers (alignment value).
- Exchange: This aspect describes the customers' benefit of communicating with each other about offers (communication value).

Normally more than one of these aspects occurs in e-business. For example an online-shop will in addition to the selling of goods (transaction value) also provide an overview over the available goods (structuring value) and ideally simplify the selection of the desired good (selection value).

However, the value is also dependent on when, how and in which form the information is delivered (see Table 2). For example, some information has to be delivered in real-time like stock-exchange prices, whereas other information is only valuable if it is accurate and correct like weather conditions requested by pilots (Kollmann, 2007).

Table 2: Form of information transfer (Kollmann, 2007).

time	content	form
timeliness	accuracy	comprehensibility
up-to-dateness	relevance	level of detail
aging	completeness	order
frequency	effectiveness	presentation
period of acquisition	reliability	medium

2.6.1 The electronic value added chain

Kollmann (2006a) developed an electronic value added chain that can also be a support for the value chain of a real product. The upper part of Figure 6 shows the value chain model based on Porter (1985) and below the value chain of the net economy.

The value chain of a real product can be divided into primary activities and secondary activities that support the primary activities. Primary activities include inbound logistics, operations, outbound logistics, marketing and sales, and service. The supporting secondary activities are procurement, technology development, human resources management, and firm infrastructure.

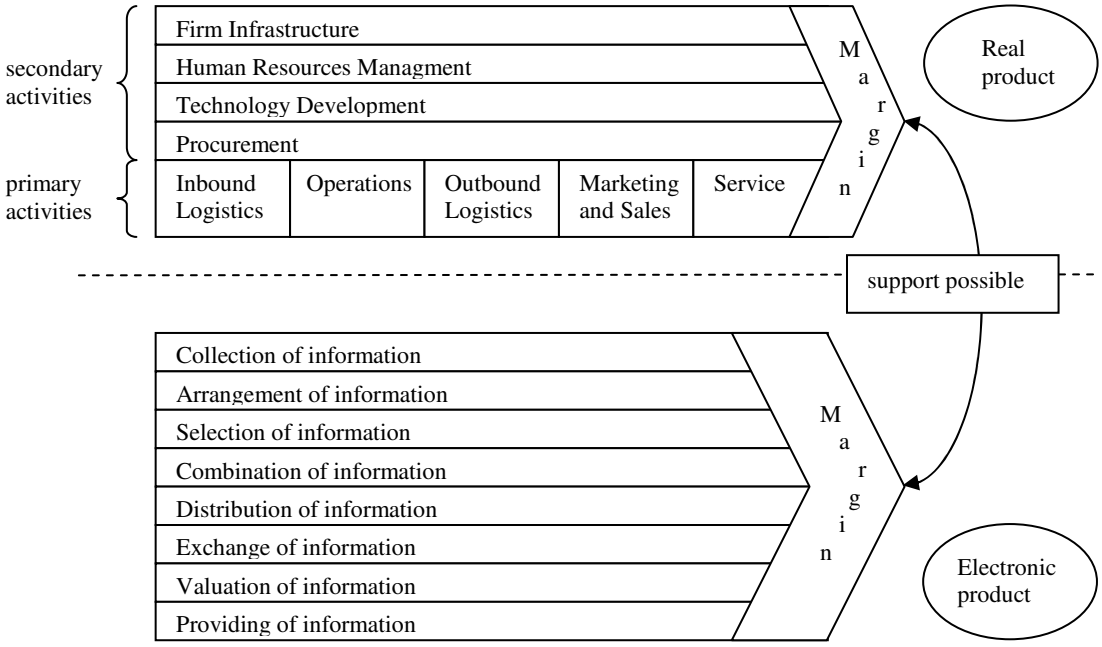

Figure 6: Electronic value added chain (Kollmann, 2006a).

Beside relationships with suppliers *Inbound Logistics* also includes all activities required to receive, store and distribute inputs. The activities to transform input into output (products/services) are called *Operations*. The counterpart to *Inbound Logistics* is *Outbound Logistics,* which stands for all activities to collect, store and distribute output. The activities to inform customers about and induce them to buy products/services and facilitate the purchase are subsumed by the term *Marketing*

and Sales. *Service* includes all activities to maintain the product/service after it has been sold and delivered.

The activities described above can be supported by secondary activities. *Procurement* is the acquisition of inputs (resources). Activities including recruiting, hiring, training, developing, compensating and dismissing personnel are called *Human Resource Management. Technology Development* is needed to support the value chain activities. This includes equipment, hardware, software, procedures and technical knowledge. The different parts of a firm are tied together by *Infrastructure* (functions or departments), such as accounting, legal, finance, planning, public affairs, quality management and general management.

The electronic value added chain describes the value composed of several activities such as *collection, arrangement, selection, combination, distribution, exchange, valuation,* and *providing* of information. The output of the electronic value added chain is an electronic information product which can be the basis of an e-business (Kollmann, 2006b).

2.6.2 Business model of net economy according to Kollmann (2007)

Kollmann (2007) divides the business model into four dimensions:

- Scope: where are revenues generated – regarding participants?
- Concept: how can revenues be generated – regarding content?
- Model of revenue: where are revenues generated – regarding benefit?
- System of revenue: how are revenues generated – regarding source?

The scope of a business is the classification according to the business partners (see Chapter 2.4). It describes whether the supplier and customer is a business, customer or administration.

The concept of a business describes the exchange of the product/service between business partners regarding the content. Four different categories can be identified (Wirtz, 2000):

- *Content*: The aim is to provide a simple, easy-to-use presentation of content for the user. Therefore, information is collected, selected, systematised and provided on a platform.

- *Commerce*: This concept includes the initiation, negotiation and/or handling of business transactions in order to achieve a simple and fast execution of buying or selling processes.

- *Context*: The improvement of the market transparency (reduction of complexity) and orientation (navigation) for the user is achieved by classification, systematisation and consolidating of given information and services.

- *Connection*: Here the interaction between the participants is enabled and organised, respectively.

In all four concepts revenues are generated directly (e.g. membership fees, transaction fees, sale of products) or indirectly (e.g. advertisement, cross-selling). Internet businesses often combine these concepts.

The model of revenue describes whether the revenue is mainly generated by primary benefit or additional benefit. Primary benefit is the electronic value added for which the business model was originally developed. If there is an additional benefit for a consumer (this consumer can differ from the ones consuming the primary benefit), additional sources of revenues can be derived. Three different variations can be defined (Kollmann, 2006):

- *Singular principle*: Only the primary benefit is compensated, an additional benefit is either not existent or is not generated or used intentionally (e.g. e-shop).

- *Plural principle*: Additionally to the primary benefit, an additional benefit is sold (e.g. e-marketplace).

- *Symbiosis principle*: Here both, primary and additional benefit, are provided but the primary benefit is offered for free to obtain the additional benefit in the first place (e.g. e-community).

Independent of primary or additional benefit there are three systems of revenue (Kollmann, 2006a):

- *Margin model*: A price consisting of the costs incurred and a profit margin has to be paid for an electronic product. This form is often used when a particular product/service is offered (e.g. e-shop).

- *Provision model*: A provision is paid for the procurement of an external service. This provision is normally performance-related (e.g. affiliate-program).

- *Basic fee model*: If a transaction independent service is offered a basic fee is charged. Additionally, a transaction dependent fee can be demanded (e.g. e-community, e-marketplace).

Kollmann's (2007) business model matches the net economy and describes comprehensively where and how revenues are generated.

2.6.3 Business models on the web according to Rappa (2008)

Rappa (2008) defines nine categories – with variations – for business models that can be observed on the web but he also pointes out that this taxonomy is neither exhaustive nor definitive since new Internet business models are still evolving:

- **Brokerage Model**:
  A broker brings together sellers and buyers and normally charges a fee or commission per transaction enabled by his or her procurement.

Variations of the model:

- *Marketplace Exchange*: The transaction process includes several services from market assessment to negotiation and fulfilment of the exchange, which can proceed independently or backed up by an industry consortium.
- *Buy/Sell Fulfilment*: The broker takes orders to buy or sell a product/service. The process includes terms like price and delivery.
- *Demand Collection System*: The customer who wants to buy a product/service makes a final bid. The fulfilment is arranged by the broker. This model originated from Priceline.com which patented this "name-your-price" model.
- *Auction Broker*: The broker carries out auctions for sellers and normally charges a listing fee and a commission depending on the value of the transaction.
- *Transaction Broker*: The payment is facilitated by a broker (third-party payment) who for example provides security for the transaction.
- *Distributor*: The broker acts as an agent between franchised distributors and their trading partners.
- *Search Agent*: Information about a price or availability for a product/service is provided by the broker.
- *Virtual Marketplace*: The virtual marketplace or virtual mall is a service by the broker for online merchants. Fees can be charged e.g. for setup, monthly listing and/or transaction.

- **Advertising Model**

  This model has its origin in the traditional media broadcasting model. A website provides service or content and uses advertising as major or even

sole source of revenue. The content can be created by the broadcaster or by a third-party. In this case the broadcaster is only the distributer of the content. In order to generate enough revenue with this model the website should be visited by a large number of viewers or the content should be highly specialised.

Variations of the model:

- *Portal*: A portal is usually a search engine. On a personalised portal the content and probably also the interface is customised to the user. A niche portal is specialised for a well defined user demographic.

- *Classifieds*: Products/services for sale or wanted for purchase are listed on the website, comparable to small ads in newspapers. Usually fees for the listing are charged but membership fees are also possible.

- *User Registration*: There is no fee to access the information on the website but the user has to register and provide information about him- or herself. The registration enables the tracking of the surfing habits of the user which is valuable for targeted advertising campaigns.

- *Query-based Paid Placement*: Advertisements or sponsored links are placed dependent on the search term in a user query.

- *Contextual Advertising / Behavioural Marketing*: Freeware that has integrated or is bundled with adware is offered to the user. Adware is software that automatically displays or downloads advertising material to the computer of the user. Targeted advertising based on the user's surfing activity is possible.

- *Content-Targeted Advertising*: Ads are delivered automatically when a website is visited. The ads are associated with the meaning of the web page.

- *Intromercials*: Animated full-screen ads are placed at the entry of a website. The user has to use this entry to reach the demanded content.

- *Ultramercials*: The user has to respond to interactive online ads intermittently to reach the intended content.

- **Infomediary Model**

  An infomediary (information market agent) is an agent that assists buyers and/or sellers to understand the market. As we could see above, detailed data about consumers and their consumption habit is used for targeted advertising campaigns. On the other side, data about producers and products which is collected by an independent party is valuable for the prospective customer. This data is the key of the market survey which is provided by the infomediary.

  Variations of the model:

  - *Advertising Networks*: Banner ads are fed to a network of member sites. This network enables large marketing campaigns. The data collected about the users can be analysed to evaluate the effectiveness of the campaign.

  - *Audience Measurement Services*: Research agencies observe user habits, make surveys, collect data about user demography, and so on. These market research agencies act like in the physical world but in the online market.

  - *Incentive Marketing*: A customer loyalty program gives the consumer incentives for purchasing from associated retailers. The data collected about the consumers is sold for targeted advertising.

  - *Metamediary*: The agent is not involved in the actual exchange of products/services between suppliers and prospective clients but facilitates these transactions by providing comprehensive information and add-on services.

- **Merchant Model**

  The agent is a wholesaler or retailer of goods or services. Sales are either based on list prices or made through auctions.

  Variations of the model:

  - *Virtual Merchant*: A virtual merchant or e-tailer is a retailer that operates only over the Internet.
  - *Catalogue Merchant*: The products are presented in an online catalogue and can be ordered via mail, phone, fax, and/or online.
  - *Click and Mortar*: This merchant is a traditional brick-and-mortar retailer with a web storefront. The company integrates offline and online presence.
  - *Bit Vendor*: The merchant operates its business solely on the Internet dealing with digital products and services. Both, sales and distribution is conducted over the web.

- **Manufacturer (Direct) Model**

  The manufacturer reaches the buyers directly over the web and thereby compresses the distribution channel. The benefit is efficiency, improved customer service and a better understanding of customer preferences.

  Variations of the model:

  - *Purchase*: By selling a product the right of ownership is transferred to the buyer.
  - *Lease*: The buyer has only the right to use the product which is either returned to the seller upon expiration or default of the lease agreement or the buyer receives the right to purchase the product upon expiration of the lease. For the right to use the product the buyer has to pay a fee.

- *License*: The sale only involves the transfer of usage rights to the buyer. Ownership rights remain with the manufacturer. A "terms of use" agreement has to be signed. This model is often used with software licensing.

- *Brand Integrated Content*: The brand integrated content is created by the manufacturer itself for the sole basis of product placement (cp. with the advertising model which is known as the "sponsored-content" approach).

- **Affiliate Model**

  Generalised portals want to drive a high volume of traffic to one site. The affiliate model provides the opportunity to purchase products/services wherever users are surfing the Internet. The affiliated partner sites receive financial incentives (e.g. percentage of revenue) for providing purchase-point click-through to the merchant. The advantage for the merchant is that if an affiliate does not generate sales it also does not generate costs to the merchant.

  Variations of the model:

  - *Banner Exchange*: Trades banners are placed among a network of affiliated sites.

  - *Pay-per-click*: The site pays affiliates for a user click-through. This means that if a user reaches a site e.g. by clicking on a link on the affiliated site, it receives an incentive from the site.

  - *Revenue Sharing*: The affiliated site receives a percent-of-sale commission based on user click-through in which the user subsequently purchases a product.

- **Community Model**

  The community model is based on user loyalty. Revenues are generated by selling ancillary products/services, voluntary contributions, contextual advertising, or subscriptions to premium services.

Variations of the model:

- *Open Source*: Software is developed by a global community of programmers. The code is not licensed for a fee but shared openly. Revenues are generated by additional services e.g. system integration, support, tutorials, documentation, and so on.

- *Open Content*: The content is developed collaboratively by a global community which works voluntarily. These sites are often supported through donations.

- *Public Broadcasting*: A not-for profit radio and/or television broadcasting is extended to the web. Users support the site through voluntary donations.

- *Social Networking Services*: Individuals can connect to other individuals with a common interest that can be professional, a hobby or romance. Revenues are normally generated by contextual advertising or subscriptions for premium services.

- **Subscription Model**

  Users subscribe to a service and pay an intermittently fee. Often the access to free content is combined with premium (subscriber-only) content. The subscription fees are independent of the actual usage. Subscription models are often combined with advertising models.

  Variations of the model:

  - *Content Services*: The website provides text, audio or video content to its subscribers.

  - *Person-to-Person Networking Services*: These are channels to distribute user-submitted information e.g. searching for former classmates.

  - *Trust Services*: Users pay for a membership to an association that abide by an explicit code of conduct.

- *Internet Services Providers*: These service providers offer network connectivity and related services for a subscription fee.

- **Utility Model**

  The utility model is based on actual usage rates. The user pays only for the service he or she really uses. This model is also known as "on-demand" model.

  Variations of the model:

  - *Metered Usage*: Users are billed based on the actual usage of a service, which has to be measured by the provider.

  - *Metered Subscriptions*: Users purchase access to a service in metered portions (e.g. MB downloaded).

Rappa's (2008) business model focuses more on the revenue side of the business and does not take the stakeholders into account like Timmers (2000) suggests. The possibilities to gain revenues are described more detailed while Kollmann (2007) tries to give a more comprehensive picture by taking the participants into account.

2.6.4 The business model's wealth potential according to Hamel (2001)

In the following section we will not discuss the characteristics of business models Hamel discusses in his book "Leading the revolution" (Hamel, 2001) in detail but summarise a business model's wealth potential. These features give a good basis for pre-estimating if a business model could be successful.

A business model has to have a strategy of how it will generate new wealth. Four factors determine the business model's wealth potential:

- The extent to which the business concept is an *efficient* way of delivering customer benefits.

- The extent to which the business concept is *unique*.

- The degree of *fit* among the elements of the business concept.

- The extent to which the business concept exploits *profit boosters* that have the potential to generate above-average returns.

Every of these four factors are necessary for assessing the wealth potential. A successful business model has to concentrate on its diversity compared to competing market participants to make sure that the consumer recognises the added value of the offered service.

2.6.4.1 Efficient

A condition of a business model in order to create wealth is that the value a customer attributes to the delivered benefit exceeds the cost of producing those benefits. However, having an efficient business model does not mean having the lowest costs.

2.6.4.2 Uniqueness

The more business models converge, the smaller the chance to gain above-average returns. The goal is to develop a business model that is unique in its concept and implementation. However, this uniqueness of a business model has to be appreciated by the customer.

2.6.4.3 Fit

A business concept generates revenues when all its elements are mutually reinforcing. All parts have to work together to achieve the same overall goal. The business concept has to be internally consistent. None of its elements may work at cross-purposes.

2.6.4.4 Profit boosters

The question is not *Will my business be profitable?* but will it be really profitable. Hamel (2001) states that including one or two profit boosters into the business concept will help to push profits.

Profit Boosters can be categorised as follows:

- increasing returns

- competitor lock-out
- strategic economies
- strategic flexibility

The first two profit boosters help the business for a short time to take a monopolistic position in the market. A strong monopoly position helps the company to resist assaults from competitors.

Increasing returns

Increasing returns refers to a market situation where those who are ahead will get farther ahead and those who are behind will fall farther behind. This is a competitive situation where the gap between the successful and unsuccessful businesses increases permanently. Following three effects are the conditions for growing returns:

- Network effects: The value of a network for a single user increases with a growing user number.
- Positive feedback effects: Companies that can rapidly extract feedback from their customers can use it to improve its products and services faster than its competitors. These positive feedback channels help the business to consolidate the leading market position.
- Learning effects: Accumulating knowledge in an early stage and using it as a basis to generate new knowledge can help a business to develop a leading market position.

Competitor lock-out

The business model wants to "lock out" competitors to prevent costly fights for market position. Following steps can lock-out competitors:

- Preemption: To be the first entering a new market segment can be sufficient to have a leading market position. There are industries where there is often no second place, e.g. in R&D-intensive industries.

- Choke points: A company that manages to make other companies dependent on its services, resources, location or infrastructure takes a choke point. This enables the company to control other market participants. If they are not willing to pay they are locked out.

- Customer lock-in: Competitors can be locked out by locking-in customers e.g. by long-term contracts or proprietary product design. But beware because customers do not want to have the feeling of being tied up.

Strategic economies

Strategic economies are directly derived from the business model and come in three varieties:

- Scale: A scale advantage can help in different ways to build efficiency, e.g. by better plant utilisation or greater purchasing power. A company has to build scale advantages otherwise it will be left behind. However, a loss in flexibility has to be considered when scaling up a business.

- Focus: A high degree of focus can help smaller businesses to beat their bigger competitors and win a market leadership.

- Scope: *Scope* is nearly the opposite of *focus*. A company can strengthen its efficiency by using scope advantages, e.g. by sharing brands, facilities, best practice etc. across business units and countries.

Strategic flexibility

In a fast changing environment flexibility in strategy can help the company to generate higher profits by helping it to stay perfectly tuned to the market.

- Portfolio breadth: A broad offering can help to ensure the survivability of a company, since focussing on a single market can be high-risk.

- Operating agility: A company that can refocus its efforts easily is better placed to respond to changes on demand.

- Low breakeven point: A company with a low breakeven point is more flexible. A capital intensive company reduces strategic flexibility.

2.7 Food intolerance

The following section gives a short introduction into food intolerance and food allergies and its effects on a person's life. Another new name for food intolerance is *non-allergic food hypersensitivity* (Allergy UK).

2.7.1 Food intolerance and food allergy

More and more people suffer from allergies:

> "Epidemiological surveys demonstrate that rapid increase in allergic diseases is a real phenomenon. Interactions of various factors are involved, such as changes in feeding habits, housing and environment." (Pascual et al., 2000)

Food allergies are no exception. Pascual et al. (2000) suppose that being more aware of the importance of a healthy diet is one factor why food allergies are detected:

> "Adverse reactions to food are frequently suspected due to increasing public awareness of the relationship between diet and health. Twenty percent of the population report some type of food adverse reaction (Young et al, 1994)."

A distinction is drawn between food allergies and food intolerance. Food allergies usually cause reactions immediately after consuming the food and are easily recognised by the patient. But symptoms of food intolerance emerge up to 28 days later, hence, they are more difficult to diagnose. Consequences of those intolerances can be chronic inflammation of joints or even organs. Indications can be chronic non-specific discomfort or pain or problems with weight reduction as well (Yamuti, 2008).

Sheikh and Walker (2002) say in the British Medical Journal that "food allergy" is often misused by patients. "In contrast, clinicians reserve the term for immunologically mediated abnormal reactions to food." Further they say that

> "… reactions typically occur within minutes of ingestion of the offending food(s) and provoke predictable reactions, which are typically local (angiooedema, perioral itching, and laryngeal oedema) and systemic (urticaria, rhinoconjunctivitis, wheezing, diarrhoea and vomiting, and in some cases anaphylaxis)." Sheikh and Walker (2002)

Therefore, a food allergy requires an exact avoidance of the food that triggers the reaction since this reaction may be potentially life threatening.

In contrast, symptoms of food intolerance are typically non-specific and are often triggered by a range of foods. As said by Yamuti (2008) it is difficult to find a connection between the intolerated food and the symptoms:

> "A temporal relation between food intake and onset of symptoms is often difficult to establish." (Sheik and Walker, 2002)

2.7.2 Origin of food intolerance

Normally food enters our body through the intestinal wall without an immunological reaction e.g. inflammation. Because of this tolerance we can absorb vitamins, carbohydrates, fats and proteins. Our intestinal immune system detects extrinsic foods but rates them as useful. This process is important for our survival. In the case of food intolerance this system fails. Foods like milk proteins or egg also have antigens like harmful viruses or bacteria. The marker on the surface (antigen) helps the body's defence cells to distinguish between "useful antigens" and "harmful antigens".

Therefore, there has to be a balance between tolerance and intolerance in our intestinal. This balance can become disturbed due to several parameters:

- genetic predisposition
- characteristic and dose rate of the antigens
- frequency of ingestion
- age at the first contact with antigens
- immunological state

- transmission of antigens with breast milk and other ways
- environment

A defective immune reaction can be provoked by viruses, bacteria, parasites, or fungi. But also medicine, preservatives, heavy metal, stress, alcohol, or food colouring can cause the failure of the intestinal immune system. Immune cells start to classify useful marking on the surface as harmful and harmful antigens as harmless. Our immune system now attacks foods antigens and if the intolerance is not detected it provokes chronicle inflammation since we eat very often the same food, and as mentioned before the reaction can emerge up to 28 days later (Yamuti, 2008).

2.7.3 Implications of food intolerance

According to the British Allergy Foundation about 45% of central Europeans suffer from food intolerance and about 30% of central Europeans develop a chronic disease (Pascual et al., 2000).

The clinical manifestation of food intolerance can affect not only the intestinal tract but also respiratory tracts, skin and mucous membranes, eyes, central nervous system, cardiovascular system, musculoskeletal system and so on. A wide range of diseases can be linked to food intolerance:

- overweight / underweight
- rheumatic arthropathy
- dermatitis, neurodermitis
- diabetes
- dyspepsia
- chronic fatigue
- arthritis
- chronic intestinal disease, irritable bowl syndrome, flatulence
- attention deficit disorder (ADD)
- migraine

- hypertension
- acne

Most of the chronic systems, even overweight, are inflammatory: Antibodies against food result in fat deposition due to chronic inflammation. Avoidance of intolerated food may cause weight reduction even without hypocaloric diet.

2.7.4 Treatment of food intolerance

The only way to treat food allergy and food intolerance is to avoid the foods the patient reacts adversely to. Even if the reactions triggered by food intolerance are not directly life threatening – as often with allergies – a patient with food intolerance has to change his or her diet in the long run in order to avoid health problems. A change in the diet has to be done individually, based on an exact test of the particular food intolerance (Yamuti, 2008).

The success of a strict diet is also summarised by Pascual et al. (2000) whereas the permanence of this success depends on the food the patient is allergic to:

> "One-third of food allergic patients lose their sensitivity after 2 y of an avoiding diet (Sampson & Scanlon, 1989). The lasting of clinical sensitization depends on the sensitizing allergen - patients with milk allergy are more prone to loosing their sensitization in 1 or 2 y than those who are allergic to eggs. Patients sensitized to fish, nuts, shellfish or legumes will rarely tolerate the incriminated food (Crespo et al, 1995a - d)."

Bruijnzell-Koomen (1995) points out following indication for dietary management:

(1) Correct identification of the offending foods and additives.

(2) Knowledge of potential hidden sources of the food items.

(3) Awareness of possible cross-reactivity between foods and inhalants.

(4) Proper supervision of elimination diets with regard to nutritional requirements, particularly in growing children.

2.7.5 Help for people with food intolerance

Bruijnzell-Koomen (1995) gives a good short summary on what to do when having food intolerance, for example he also points out the potential hidden sources which are a big problem in processed food. Another big problem is that the diet has to be done on an individual basis. Therefore, every diet is different and different foods have to be avoided. This implies that a general handbook cannot be defined.

There are self-help groups like the British Allergy Foundation[23] (now Allergy UK) which publishes booklets covering allergy, food intolerance and chemical sensitivity, gives information about hidden ingredients in products by different shops, provides a helpline and additionally offers training for healthcare professionals interested in allergic diseases and their management.

The anaphylaxis campaign[24] was set up to help people who live with the risk of a life-threatening allergic reaction. Besides general information on allergies this web site also provides information on ingredients in different products by different producers.

There are also various groups that support people suffering from celiac disease, which is a chronic disease of the small intestine's mucous membrane because of an anaphylaxis to gluten. These groups can be a first step when suffering from food intolerance to gluten but they do not consider intolerances to other foods.

Another organisation, Austrian Nutrition Society[25], supports a project to build a database that provides information about food ingredients ("Lebensmittelintoleranz-Datanbank"). This database is mainly aimed at healthcare professionals like doctors, dietitians, nutritionists, pharmacists and so on. It was developed by the Technical University Graz together with food producer. The content comprises Austrian branded products which do NOT contain certain potential allergenic or intolerated ingredients. The result are positive lists for azo dye, benzoates, egg, gluten, cow milk

[23] http://www.allergyuk.org/

[24] http://www.anaphylaxis.org.uk/

[25] in German: Österreichische Gesellschaft für Ernährung

protein, lactose, sulphur dioxide, soy and wheat. For each of these ingredients a brochure exits that encloses a list of products where the ingredient is not contained in. The big advantage of this list is that normally only products that are forbidden are named, which can lead to malnutrition or undernourishment. The brochure also explains the ingredients and under which names it can be added to food in order to help to recognise hidden admixture (Eckert et. al, 1998). The database is an outcome of a project to build a European food intolerance database (EFID) between 1993 and 1996. Other countries like Greece, Belgium and so on also participated in the project and set up a food intolerance database.

3 AN INTERNET PLATFORM FOR SUPPORTING PEOPLE WITH FOOD INTOLERANCE

In order to choose the business model we need a precise description of the website, its benefits and constraints.

3.1 The website

As said before this website will deal with food intolerance and be of assistance to people with food intolerance. The core part will be a database containing recipes. The special characteristic of these recipes is that they are structured to improve the search for recipes. For example a person can set a search query that retrieves recipes that contain ingredients the person has at home. This service is often offered by recipe homepages. But here it is also possible to search for recipes that do NOT contain special ingredients. This service is mostly not provided by recipe homepages but essential when having food intolerance because the user has a list of foods he or she must not eat.

Additionally, the database is “intelligent”. It contains additional information about ingredients. For example the data base “knows” that wheat, rye, barley etc. contain gluten. So if a person searches for recipes that do not contain gluten only recipes with exclusively gluten-free products will be in the result set. This integrated expert knowledge will increase the satisfaction of the user.

Another service is to give hints to “traps”. For example soy sauce normally contains barley, which makes it impossible for people with intolerance to gluten to eat foods that contain soy sauce except if “Tamari”, a soy sauce made purely from soy, is used instead. But also here a problem exists: some food producers write “Tamari” on their soy sauce but it contains barley. Or a person who is not allowed to eat yeast must not drink wine or vinegar because during the production natural yeast is produced, which is not labelled on the product. These hints will be given in the form of short notes together with recipes if necessary.

Besides the database of recipes and additional information, a collection of background information concerning food intolerance, food allergy, nutrition, links to other sources concerning these topics, shops where to find special foods in an area etc. will be provided. This should help people with food intolerance to ease the first steps when starting a new diet. Very important is easy-to-understand information about what happens in a body when someone has food intolerance, where it comes from and what the consequences are (similar to Chapter 2.7) to give the patients a better understanding.

In the beginning the service will be provided in German only but the plan is to translate the recipes and information sites to reach a more diversified customer base. The integrated structure of the data base will make it easy to translate the recipes and provide the same advantages and features for the search queries as in German. Information about shops as well as products has to be adapted to the area of the user's home place.

The usage of the recipe database should be possible by both anonymous users and users logged into an account. When users are logged in they can store a profile so that it is not necessary to repeat certain information, e.g. to display only recipes that are gluten-free. The user can also bookmark his or her favourite recipes. If desired the user can submit a service that informs him or her about new or updated recipes and/or information. This customisation should ease the use of the website and make it possible to filter information for the user in order to make sure that only relevant information is provided instead of flooding the user with irrelevant information. Consequently, these features will build up customer loyalty. However, the stored information is not visible to other users or passed on to a third party. The user can also use a pseudonym.

Users can also add recipes. The possibility of reviewing recipes should help to make sure that the contributed recipes are appropriate and useless data can be identified more easily and taken from the data base.

Another possibility to tie users to the homepage is to provide a forum where users can exchange their experiences with particular recipes or with having food intolerance. This exchange can be used anonymously or users logged on can use their

pseudonym. Users should also have the possibility to rank recipes and assess the provided information. This is valuable customer feedback to improve the service and additionally improve customer relationship.

The main features of the web site are summed up in the following list:

- Providing a well structured recipe database with intelligent search methods
- Collecting recipes
- Information about food
- Information about “traps” in nutrition
- Background knowledge about food intolerance
- Information where to find ingredients
- Providing a link collection of relevant sites
- Providing a discussion forum

3.2 Constraints

Because of the services provided by the web site we are faced with different constraints when choosing a business model.

The core business is not to produce or merchandise physical goods but to provide services. Therefore, it is a service company. Its merchandise is information traded exclusively through a web site. Loebbecke (2001) pointed out that “trading intangible goods demands new business models …” since “[T]he business of purely intangible goods is radically different from conventional electronic commerce areas, which focus on trading or preparing to trade physical goods or hybrids between physical and intangible goods.”

The only distribution channel is the Internet. Since no physical infrastructure is needed the total infrastructure requirements for trading in information (online

delivered content) are comparatively low and independent of the distance to the customer (Loebbecke, 2001).[26]

Peterson et al. (1997) categorises products into "search goods" and "experience goods". With search goods quality can be determined without using them. But the quality of experience goods can only be learned from using (experiencing) them. The information of the web site belongs to the group "experience goods". The problem is that once a potential customer has experienced the good there is no more reason to pay for it. In order to solve this problem it is necessary to try to shift the good of the web site as much as possible into the category of search goods. One possibility is to offer parts of information to make the customer pay for the rest (Loebbecke, 2001).

Information is not only delivered to the user, but also the contribution of information (e.g. recipes) is expected. The web site is also a media to communicate with the user. The information has to be reliable, up-to-date, relevant and complete. Contributed information has to be verified to provide a consistent quality and avert reliability for consequences of erroneous information.

Three fundamental attributes characterise online delivered content (Loebbecke, 2001):

1. *Indestructibility / non-subtractivity*. The same online delivered content can be consumed more often by the same costumer or by different ones. It will not be reduced by anyone else's consumption.

2. *Transmutability*. The easiness of modifying online delivered content leads to an enormous product differentiation and customisation.

3. *Reproducibility*. Online delivered content can be reproduced fast and easily.

These characteristics influence the way how revenues can be gained. It will be difficult to prevent the free distribution of the web site's information once a user has

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[26] Loebbecke (2001) defines electronically traded *online delivered content* as "… data, information and knowledge traded on the Internet or through other online means."

downloaded it. On the other hand it is difficult for the customer to determine if the offered content is worthwhile paying for without knowing it (Schlee, 1996).

A lesson taught by the problem of copyright protection in the music industry (e.g. Meisel and Sullivan, 2002; Graham et al., 2004; Peitz and Waelbroeck, 2005; etc.) is that sole information should not be the value the user has to pay for but rather other sources of profit have to be found like the special, easy, convenient way of retrieving information and/or an indirect payment. This could solve the problem of reproducibility and the user's dilemma of "buying a pig in a poke".

Products normally consist of three elements: production (and logistics) costs, co-ordination costs[27] and the profit margin (Benjamin and Wingard, 1995). When dealing with online delivered content there are nearly no production costs and very low transaction costs. The setting up of infrastructure has higher fixed costs but the variable costs of using it are low. Pricing cannot be based on production costs since there is no connection between input and output (Loebbecke, 2001). The pricing of content used to be based on the distribution medium not on the actual quality (Goldfinger, 1997), e.g. the price of a book depends on the printing quality not on the quality of the content. Online delivered content can be priced separately from the medium but based on the estimated value of the content (Loebbecke, 2001).

The business has to serve different customer groups. The main customer is the user that desires information. But there could also be a second type of customers: companies that sell or produce special goods for people with food intolerance could be interested in being advertised on the web site. The goal of the business is to meet the needs of both groups, which is a difficult balancing act.

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[27] "Coordination costs include the transaction (or governance) costs of all the information processing necessary to coordinate the work of people and machines that perform the primary processes." (Malone et al., 1987)

3.3 Criteria

The chosen business model should satisfy following criteria and consider the constraints mentioned above:

- Business deals with the collection, arrangement, selection, distribution, and providing of information (online delivered content)

- Satisfaction of privacy (protect information about users, especially medical data)

- The value is not gained from the information itself but from the service of providing information

- The business model has to be distinguishable from the competitor

- Revenues can be generated from different user groups (users and companies)

4 ANALYSING THE BUSINESS MODEL

It is very difficult to "proof" the usability of a business model without implementing it. And even then it is difficult to answer the question if it was successful. For example some people have the opinion that a business model is successful if the company realises a profit after some years. But how high should the profit be? When should the profit be made? After one year, three years or ten years? It is difficult to find the right answer because every business needs some start-up time but on the other hand an extensive time-frame could be wrong since business models are at risk of decaying (Hamel, 2001).

However, it is necessary to examine if a business model is worthwhile to be implemented before investing a lot of money and time. The best way is to investigate the theoretical background of business models and determine if the examined business model shows characteristics of successful business models.

The next section covers the definition of the business model for the website and discusses criteria for evaluating the aforementioned business model.

4.1 The business model

The business model is primarily based on supporting people with food intolerance by offering access to a well structured database of recipes that is easy to search. The search queries can be aligned to the special diet of an individual by excluding ingredients that would harm the person. Additionally, the user will be supplied with information about food intolerance that is useful in daily life and adjusted in order to be also understood by non-professionals. The recipe database can also be useful for people without food intolerance since a lot of Internet users may want to use the possibility of excluding unwanted ingredients when searching for recipes.

4.1.1 The value added chain

The web site provides a wide variety of values to the user. In Figure 7 the value added chain of this business according to Kollmann (2006a) is displayed. The value of the website is to provide information about food intolerance. This information is

collected from different sources (Internet, books, user's personal reports, etc.), selected and arranged. Recipes and information about nutrition or food intolerance, respectively, are combined to a comprehensive database. Additionally, customer and business are brought together via advertisements (distribution of information about shops). Users can also exchange their experiences by posting recipes and reports.

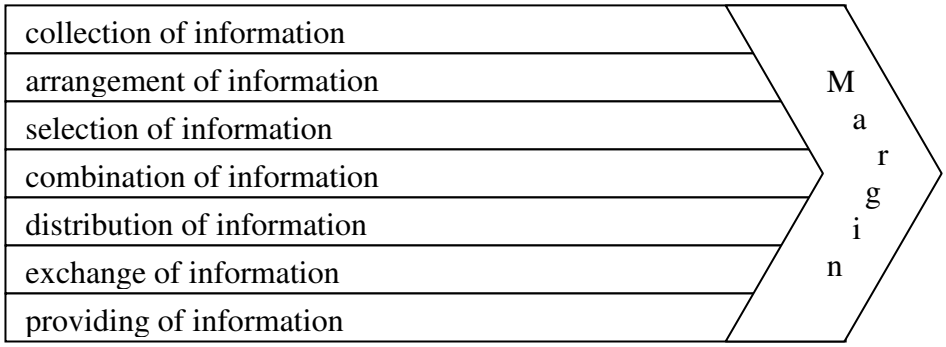

Figure 7: Value added chain of a website specialised for people with food intolerance according to Kollmann (2006a).

Table 3: The features of the website and the type of its added value.

Feature	**Type of added value**
Providing a well structured recipe data-base with intelligent search methods	Collection, arrangement, distribution, Providing
Collecting recipes	Collection, arrangement, selection
Information about food	Collection, distribution, providing
Information about "traps" in nutrition	Collection, combination, distribution, Providing
Background knowledge about food intolerance	Collection, arrangement, selection, distribution, providing
Information where to find ingredients	Collection, arrangement, selection, distribution, providing
Providing a link collection of relevant sites	Collection, selection, distribution, exchange, providing
Providing a discussion forum	Distribution, exchange, providing

Table 3 shows all features as summed up in Section 3.1 and what type of value it belongs to. For example "Providing a well structured recipe database with intelligent search methods" provides the value of collecting, arranging, distributing and providing.

4.1.2 The stake holders

User

The *user* is the person searching for information. He/she wants to find recipes, information about food, food intolerance, where to find ingredients, links to other websites and so on. These people benefit from a comprehensive collection and the arrangement of information. They appreciate that only relevant information is provided and that recipes and information about ingredients are combined. Although the benefit for the user is somewhat higher if he/she suffers from food intolerance the main feature of the website – the recipe database – still delivers a high benefit to all users.

Supplier / shops

Here "*supplier*" stands for the shops that want to find their customers on the website. The shops that mainly advertise on or are linked to this website are specialised in selling products for people with food intolerance or food allergies since the website focus on this customer group. Therefore, the information about these suppliers is a benefit to the user while the benefit to the suppliers is the connection to their focus group.

Experts

Experts contribute their knowledge to the website. They can be

- users that post recipes, information or reports. These users benefit by exchanging their personal experience and extending the database with their recipes that are accessible from anywhere in the world.

- can be hired by the website to ensure correct information. In this case the experts are suppliers of the website that add value by validating collected information.

4.1.3 The revenues

The above described models of revenues of Rappa (2008) (see Section 2.6.3) will be the basis for the analysis which possibilities of retrieving revenues are given in this special business. For this website following models are applicable:

- advertising model
- infomediary model
- affiliate model
- community model
- subscription model

All other models are rejected due to their definition and the characteristics of the examined business. The considered models of revenues and their variations will be analysed separately in the following paragraphs. Some of the arguments may be contradictory since the models often overlap but have different focus.

As pointed out in Section 2.6.3, in order to generate enough revenues from the *advertising model* Rappa (2008) advises that a large number of viewers have to visit the website or the content should be highly specialised. Since also users without food intolerance benefit from the website a high number of users is highly probable. The user also benefits from registration which helps to collect more information about the user but this information must not be given to a third party (supports *user registration*). When searching for recipes the user types in a search query containing different key words. This enables the placement of ads or sponsored links dependent on the query (*query-based paid placement*).

The *infomediary model* can also be used, since the website can also serve as an information market agent. Since the user also provides sensitive data like information

about their health the data is worth to be highly protected. Therefore, a model like the *incentive marketing* where collected data about the users is sold should not be used. A model like *audience measurement services* or *metamediary* would be possible as long as the sensitivity of the data is considered.

A more suitable model is the *affiliate model* since using the website will arouse the need in the user to find ingredients named in the recipes that are not easily to find. If the links that lead to a partner site are placed unobtrusively, the user will even have the impression of receiving information instead of being annoyed with advertisements. A *banner exchange* or a *pay-per-click* model will be the best since they need less administrative effort than the *revenue sharing* model.

Since people with similar interest will access the website a community will be build. This suggests using the *community model*. The most suitable variation is *social networking services*. The revenues will be generated with ads like in the *query-based paid placement*. If additional features are developed they can be offered to premium members that pay for these services.

As mentioned before, the *subscription model* often offers free content in combination with premium content. For example offering to bookmark the favourite recipes could be a premium service. This model partly overcomes the problem of content being experience goods (Section 3.2) since only part of the information is given away.

Summing up, the business model will mainly concentrate on gaining revenues by providing ads based on the user (advertising model). This means if a user is logged on only advertisements that could be of interest to him/her will be displayed or the ads will depend on the searched recipes. Additionally, revenues will be generated by displaying links leading to shops that sell the products named in the recipes. Another service will be to transfer the user to an online print shop that can make a cooking book out of the user's favourite recipes (affiliate model). The future plan is to offer additional services that have to be paid but these services have to be developed with the help of market research (subscription model).

4.2 Theoretical evaluation of an e-business model

As discussed in Section 2.6.4 *efficiency, uniqueness, fit* and *profit boosters* are four factors that determine if a business model has the potential to generate wealth. Beside this we will use Schubert and Selz's (2001) approach of measuring the effectiveness of e-commerce websites to analyse if the surveyed business model shows attributes of a successful business model. The model provides an analysis of the quality of implemented commercial websites from a consumer perspective. The Web Assessment tool is a questionnaire that is given to users. Even if the model obviously focuses on websites that provide classical products or services like online bookstores, it defines interesting criteria that can contribute to the evaluation of a content based website.

Schubert and Selz (2001) base their Web Assessment model on the three phases of a market transaction (Schmid, 1993; Zbornik, 1996):

- *Information phase*: In this initial phase the consumer collects information about potential products and services. He or she searches for possible suppliers and asks for prices and conditions.

- *Agreement phase*: Negotiations between suppliers and customers take place in order to establish a firm link that will eventually lead to a contract. Details like product specifications, payment, and delivery and so on are fixed.

- *Settlement phase*: In this final phase the physical or virtual delivery of the ordered product takes place. After-sales interaction is also possible (e.g. guarantee claims, help desk service).

Since these phases aim at traditional retailers it is not totally applicable to content based websites. The recipe website mainly takes part in the first phase, the information phase. The user can retrieve information from the website and find online or real shops where he or she can buy products. The agreement can even take place indirectly because, for example, the user only uses the free service and he or she does not sign a contract. There will neither be a classical settlement phase but there is a kind of after-sales interaction. In some sense the website will support the

user in the information phase, in case he or she wants to buy products from shops that advertise on or are linked in another way to the homepage.

Since interaction between buyer and supplier is especially important in virtual environments Schubert and Selz (2001) add the community component to the assessment model. In a traditional business the communication that takes place among customers and between customers and the company links them more to the product. The customers can interact and exchange information about experiences with company products or services and more. In the present case the community component is not only an add-on but an essential part of the business.

The web assessment criteria consider the specific media characteristics of the Internet. The core characteristics inherent to the Internet are:

- hypermedia presentation
- database interface (expert system)
- 24-hour access (time)
- Anonymity
- Ubiquity (space)
- Asynchronous communication
- Configuration possibility (interactivity)
- Transfer of cost benefits to the customer

The following tables (Table 4 and Table 5) present a shortened summary of Schubert and Selz's (2001) criteria for the information phase and the community component. A complete description can be found in the appendix (Chapter 8). The criteria for the agreement and settlement phase will not be needed in our case but are added in the appendix (Chapter 8) for the sake of completeness.

Table 4: Criteria of information phase (taken from Schubert and Selz (2001).

1	Good user interface	The "user interface" assesses ease of use for frequent users as well as for first time visitors. This does also comprise loading times of pages and guidance in the interaction process with the website when completing a transaction.
2	Good structure of content	The "structure of content" measures ease of access as well as first and second impression of the logical structure of the content. Tables of contents, navigational frames or image maps are typical features to facilitate navigation.
3	Reasonable information quantity	The "quantity of information" focuses on the range of information on company, product and services.
4	Apparent benefits from stored customer profile (e.g. client-specific offers)	Most websites require customers to register or at least to supply some basic personal information. Good Web marketers should remunerate their customers for "revealing" this kind of information. This could be either by • directly crediting money or services, […] or • granting discounts for product sales
5	Good products/ service combination possibilities (cross-selling: combine products and/ or services)	"Combination possibility" examines the breadth of the product range and the possibility to combine various product offerings (either to the company's own products, or third-party goods/ services) online. It measures the amount of cross-selling, i.e. the combination of various goods/ services (such as an airline ticket and a hotel reservation).
6	Good availability/ performance of the system	"Availability/ performance" (in respect to **geographical** aspects) measures the global availability of the system. It judges the availability to customers regardless of their geographic location. Special mirror sites could e.g. improve global performance. Since this aspect is one of the main advantages of the Internet it gains special consideration. "Availability/ performance" (in respect to **time**) measures the loading times which are of great importance for user comfort.
7	Cost benefits passed on to the client	The use of electronic sales channels often reduces transaction costs. Provided that margins remain unchanged vendors should be able to offer products on their web site at a lower price.

Table 5 a: Criteria 1-7 of community component (taken from Schubert and Selz (2001)).

1	Good access to community	[…] A high value of the "access to community" criterion indicates a good link between the product offer and the community component of the website.
2	Uniqueness/ originality of information (information is difficult to obtain from other sources)	This criterion evaluates the value of the information that can be obtained from the community area. A community which includes experts who actively contribute to the community area might supply information that cannot be retrieved from other sources. […]
3	Adequate number of members	The value of a community are its members. There must be some "key members" who show a special dedication to the community. Nevertheless, as the number of members increases so does the probability of good questions, answers, reviews and other contributions and hence a rich community experience.
4	Well-implemented collaborative filtering (e.g. systems get you in touch with similar -minded people)	When joining a community members are usually looking for people with similar tastes or interests. There are two main kinds of user profiles that can be stored in a community database • personal information about interests and tastes entered by the user (self-assessment) • tracking of interactions performed by the user (activity log) The self-assessment should contain a selection of predefined categories (e.g. gender, age, favourite music, etc.). This information is not subject to many changes whereas the activity log is meant to trace dynamic information (page accesses). After a while the system may use the dynamic information to derive patterns of user i nterest and behavior.
5	Member may choose his /her appearance within the community (e.g. choosing a personal avatar)	Some websites offer the possibility to chose a representation of one's self […]. These presentations are called "avatars". They appear in the form of animals, people, or characters from comics strips. […]
6	Privacy is sufficiently protected	Sometimes you might gain access to a community forum without revealing personal information about yourself. There are clients who prefer the anonymity of the web to the face-to-face encounter in a brick-and-mortar shop.
7	Perceived real added-value from membership	This criterion evaluates the value of membership. Besides the information that can be obtained from the community area there might be an additional value creation, e.g. in the establishment of personal relationships with other members. […] Specific shared experiences of life are the basis of these communities. […]

Figure 5 b: Criteria 8 and 9 of community component (taken from Schubert and Selz (2001)).

8	Good, customized push mechanisms (information is automatically being sent to member)	[…] **Push-Technique**: The web system automatically supplies the customer with information. Either the customer chooses to receive specific information updates or the information provider sends unsolicited information which might be of interest to an established or possible customer. Push mechanisms can be customized by customers. […]
9	Good pull mechanisms (member can ask for information updates)	**Pull-Technique**: The customer actively seeks information and retrieves this information on his / her own whenever needed. Pull effects are typically the result of ads, discounts or a good (visible) place in store shelves.

Some of the criteria cannot be evaluated before the website is implemented (e.g. "good user interface") but can be considered as an important design issue of the website or be part of the business model (e.g. in our case the idea for the business was born because retrieving information concerning food intolerance is difficult, therefore "Uniqueness/ originality of Information" is part of the business model). For our evaluation it will be useful to divide these criteria into the ones that can be assessed before starting the business and the ones that have to be considered in advance but cannot be assessed.

Criteria suitable for assessment of business models:

- Good structure of content
- Reasonable information quantity
- Apparent benefits from stored customer profile (e.g. client-specific offers)
- Good products/service combination possibilities (cross-selling: combine products and/or services)
- Good access to community
- Uniqueness/originality of information (information is difficult to obtain from other sources)

- Well-implemented collaborative filtering (e.g. systems get you in touch with similar-minded people)
- Privacy is sufficiently protected
- Perceived real added value from membership
- Good, customized push mechanisms (information is automatically being sent to member)
- Good pull mechanisms (member can ask for information updates)

Criteria that should be considered when implementing the web site:

- Good user interface
- Good availability/performance of the system
- Adequate number of members
- Member may choose his/her appearance within the community (e.g. choosing a personal avatar)

The criterion "Cost benefits passed on to the client" is not suitable for a content based business since the customer does not directly buy products on our web site.

Table 6 sums up the criteria that will be used for evaluating the e-business model in the next section. It combines the four criteria of Hamel (2001) to forecast the wealth potential of a business model together with the criteria of Schubert and Selz's (2001) assessment tool for implemented business models that can also be used for a theoretical evaluation of business models.

Table 6: Summary of criteria for evaluating an e-business model.

efficiency
uniqueness
fit
profit boosters
Good structure of content
Reasonable information quantity
Apparent benefits from stored customer profile (e.g. client-specific offers)
Good products/service combination possibilities (cross-selling: combine products and/or services)
Good access to community
Uniqueness/originality of information (information is difficult to obtain from other sources)
Well-implemented collaborative filtering (e.g. systems get you in touch with similar-minded people)
Privacy is sufficiently protected
Perceived real added-value from membership
Good, customized push mechanisms (information is automatically sent to member)
Good pull mechanisms (member can ask for information updates)

4.3 Theoretical evaluation of the business model for a food intolerance web site

In this section the business model defined in Section 4.1 will be evaluated with the criteria discussed in Section 4.2. Every criterion from Table 6 will be discussed separately.

Efficiency

One of the features defined by Hamel (2001) to determine the business model's wealth potential is how efficiently the customer's benefits are delivered. As shown in Section 4.1 there are a lot of values delivered to the customer but the challenge is to communicate these benefits to the customer. The time costs of the user to retrieve the information will be very small since the structure of the website will be simple and not new, hence, resulting in small learning costs. The time costs of contributing information will be higher but since this feature is voluntary the user will only use it if his/her benefit is higher than the invested time – as long as the way to add the information to web site is as easy as retrieving it.

In order to gain *efficiency* the payment of the user has to be rather small. The main features will be free but if a premium service is introduced this will have to be considered. Another cost for the user are the advertisements but since the philosophy of the web site regarding ads is to deliver quality not quantity and the ads should also deliver a value (information) to the user, this cost should not negatively influence the efficiency of the business model.

Uniqueness

Since only one found recipe website (see Appendix (8.2) for investigated websites) allows excluding ingredients in a search query – but did not have the advantage of a more structured search – this is quite a unique feature that will especially be appreciated by people with food intolerance. Another unique feature is the specialisation on food intolerance. Some websites are specialised on celiac disease but no recipe website specialised on food intolerance could be found in a reasonable amount of time.

Fit

All features aim at supporting people with food intolerance who are defined as the main customer group. The information is offered in an easy to access and easy to understand way.

Profit boosters

According to Hamel (2001) including one or two *Profit Boosters* will help to push the business. *Competitor lock-out* will definitely not be part of the business model but the other profit boosters could be included.

Increasing Returns could be included in the business model since the conditions named in Section 2.6.4.4 are at least partly given. The goal of the website is to increase the number of users quickly for which reason the basic services are free. By using a forum the users can give their feedback which can be considered for the website. There will also be a learning effect since the website will start with a basic knowledge which will encourage users to contribute their knowledge or develop variations of recipes that can be contributed back to the website. All these facts lead to a positive influence of the required conditions for *increasing returns*: network effects, positive feedback effects, and learning effects.

Strategic economies and *Strategic flexibility* are only partly implemented. For example the business has a high degree of focus namely focusing on people with food intolerance and people who want to exclude special products from their recipes, respectively. This will help to distinguish it from other recipe websites. The company will also have a very low breakeven point since it is not capital intensive.

All in all, it seems that the business model includes at least the profit booster *Increasing Returns* and partly two other profit boosters, *Strategic Economies* and *Strategic Flexibility*.

Good structure of content

A good structure of content is also part of the business model. It emphasises that the user has easy access to the recipes and also to the information. Additionally, when implementing the web site it has to be considered to make a good structure of the overall web site.

Reasonable information quantity

Since this criterion focuses on the variety of information, it should be achieved by information about where to get more information, and information concerning different topics of nutrition. However, when collecting the data this criterion has to be kept in mind to provide not only one shop or supplier that offers the product but different ones. This also means that it must not be allowed that one shop or producer gets the exclusively rights to advertise on the website.

Apparent benefits from stored customer profile (e.g. client-specific offers)

The benefit for the customer from storing his or her customer profile is that it is not necessary to give the same information again and again. The search result is filtered according to the ingredients that should be excluded – naturally this filter can be deactivated. Furthermore, the customer can bookmark his or her favourite recipes in order to reduce the search to recipes that are used more often. The user can also submit a service that informs him or her about updates in recipes or information.

Good products / service combination possibilities (cross-selling: combine products and / or services)

The website offers different services, i.e. finding recipes and giving information about nutrition. When using the affiliate model as a source of revenue, additionally links to companies and / or web shops that sell e.g. gluten-free products could be offered. This feature is planned to be implemented since it will make it easier for the user to get the special products and at the same time is a good source of revenue.

Good access to community

Access to the community is given by providing a forum where people can give tips or ask questions about recipes and talk about their experiences with food intolerance and cooking when being on a special diet, respectively. How good the link between the product offer and the community component of the website will be also depends on the users. The administrator can try to guide the discussions in the right direction.

Uniqueness / originality of information (information is difficult to obtain from other sources)

As discussed above the search for existing web sites providing recipes, giving help when suffering from food intolerance and giving information where to find special ingredients was not easy. Therefore, the combination of recipes and information about food intolerance seems to be very new and unique and cannot be easily obtained from another website. It is also not easy to get this information from different websites.

Well-implemented collaborative filtering (e.g. system gets you in touch with similar-minded people)

Additionally to the user profile it should be considered to track the user's activities to find out his or her interests. This will help to find sponsors that advertise on the website and to improve the information given to the user similar to Amazon's rubric "Users who bought this item also bought ..."

Privacy is sufficiently protected

The protection of the user's privacy is considered in the business model. For example the user can also access the forum anonymously. The user can also retrieve the information without logging in on the web site. Because of privacy reasons a model of gaining revenues by selling information about the user is objected (cf. Section 4.1.3).

Perceived real added-value from membership

According to Schubert and Selz's (2001) definition the user should perceive a value from the membership in the community since the community is a kind of self-help group where people with similar problems can ask each other and exchange experiences.

Good, customized push mechanisms (information is automatically being sent to member)

The user has the possibility to decide if he or she wants to be informed about new updates on the websites. It will be necessary to give the user the possibility to decide which updates are relevant for him or her.

Good pull mechanisms (member can ask for information updates)

For fulfilling this criterion there should be a section on the website where the user can easily view new recipes and new information added within a set timeframe. If the user logs in, all new recipes and information since his or her last log in will be displayed.

As said before the other criteria cannot be evaluated with the business model, but have to be considered when implementing the website. But looking at these criteria shows that it is also necessary to consider them in advance. For example when designing the user interface it is necessary to find out about the demographics of the users. If they tend to be middle aged to older people it will be necessary to make a web design and use colours that make it easy to read the web site. If the users tend to be working with older computers and weak Internet connections it will be necessary to reduce the data load when opening the web site.

5 RESULTS OF THE THESIS

This thesis points out the need for examining a business model before implementing a business in order to save resources. But first the business model with its model of revenues has to be defined.

Starting a business makes it necessary to consider how revenues will be gained. Rappa (2008) provides a comprehensive collection of possible models. When dealing with content-based websites, models like the *Brokerage Model*, *Merchant Model*, and *Manufacturer Model* are not suitable due to their focus on products. Even if the *Utility Model* was not used in this business it is possible to use it for content oriented businesses since it charges for the usage of a service metered in time or portions. More frequent are models like the *Community Model* or *Subscription Model*.

Hamel's (2001) features for determining a business model's wealth potential alone do not seem to be enough for evaluating the model. Therefore, these features were combined with Schubert and Selz's (2001) criteria to assess web sites.

When evaluating the web site for people with food intolerance as defined in this thesis it shows that even if this collection of criteria cannot be a guarantee for a successful internet business model it is a good check list to consider features in the website that are wanted by the customer. Therefore, it can be seen as a tool for finding weaknesses in a business model that have to be corrected in order to consider all relevant criteria that make a good consumer-oriented web site.

The discussion of the criteria has raised the need of taking further steps to make the business model successful. E.g. in order to grow a large customer base it is necessary to have a good marketing in order to reach the potential user. The marketing is also responsible to communicate the advantages compared to competing websites to make clear the uniqueness of the service. A user that registers is more valuable since more information about him or her can be collected. This increases the contact to the customer, improves the effect of advertising, and supports the profit booster *increasing returns*. But this also creates a dilemma because of the need of protecting the user's privacy.

As shown in Section 2.1 people have started to rate information on the Internet as not reliable due to incorrect information spread over the Internet. This is also a risk that has to be considered in this business model. The discussion of the business model also brought up the dilemma of information vs. advertisement. On the one hand where to find products is the information which should be given to the customer. On the other hand, the shops should pay for advertising for their product line. This leads to a conflict between giving the best information and making a profit.

The defined criteria do not focus on websites dealing with food intolerance but on content based websites. Hence, this framework could be used for every website dealing with information or online delivered content as defined by Loebbecke (2001) (see page 46).

6 SUMMARY AND FURTHER WORKS

This thesis deals with the creation and evaluation of business models for content based internet businesses. The need of developing a well thought-out business model arises from the risk of bankruptcy. The bursting of the dot-com bubble showed that if a company is lacking a business model a breakdown is very likely. When developing a business model it is necessary to have a tool for evaluating this model. Therefore, this work aimed at finding a set of criteria that can be used before implementing the business in order to assess the model. The defining and evaluating of the business model was demonstrated with a website that provides help for people with food intolerance by offering access to a recipe database and information specific to food intolerance.

The work shows the still growing importance of the Internet as a mass media and how it has become an important market place for many companies. Furthermore, the development of the Internet from “Web 1.0” to “Web 2.0” was described, along with any changes this movement resulted in.

In order to provide the necessary background for this topic terms like e-business, e-commerce and Internet business had to be discussed. These terms are sometimes used interchangeably but here a clear distinction is drawn. While an e-business can be every business that uses the Internet for one or more of its processes, e-commerce can be seen as part of an e-business. It can be seen as the electronic trading with goods and services. An Internet business is an e-business whose core business is done on the Internet.

Neither does the term “business model” have a consistent meaning. In this work I concentrate on the definition by Timmers (2000) which provides a more comprehensive definition including the architecture for products, services and information flow, a description of the potential benefit, and a description of the source of turnover.

In order to give an understanding of the content of the examined example an explanation of food intolerance, its origin and its consequences are given.

Before defining the business model a description of the website, its benefits, and constraints are given. This discussion points out the problems of content being an "experience good". Once the potential customer has experienced the good he or she has no more reason to pay for it. Therefore, for creating a successful content-based business the content has to be classified as "search good", meaning that the customer can determine the quality of the content without using it.

The business model of the website supporting people with food intolerance is discussed by describing the value added chain, the stakeholders of the model and a discussion of its possible sources of revenues. The set of criteria for evaluating this business model is based on the factors determining a business model's wealth potential according to Hamel (2001) and criteria proposed by Schubert and Selz (2001) for measuring the effectiveness of implemented websites. After describing these criteria they are applied to the aforementioned business model.

The work shows that this set of criteria are a useful checklist to examine a business model before implementing it and that it can be a help to find weaknesses and correct them. It also helps to point out further steps to take in order to lead the business to success.

There are different possibilities to take this work further. One possibility is to implement the website and test it after some time according to the criteria. The customer could be asked to fill in the questionnaire of the web assessment tool by Schubert and Selz (2001).

Another possibility is to focus on the set criteria and test if they can also be used as a reliable forecast for evaluating business models. Several successful and unsuccessful business models of content-based Internet businesses should be tested and it should be examined if successful models cover significantly more criteria than unsuccessful websites.

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8 APPENDIX

8.1 Criteria according to Schubert and Selz (2001)

8.1.1 Information phase

1	Good user interface	The "user interface" assesses ease of use for frequent users as well as for first time visitors. This does also comprise loading times of pages and guidance in the interaction process with the website when completing a transaction.
2	Good structure of content	The "structure of content" measures ease of access as well as first and second impression of the logical structure of the content. Tables of contents, navigational frames or image maps are typical features to facilitate navigation.
3	Reasonable information quantity	The "quantity of information" focuses on the range of information on company, product and services.
4	Apparent benefits from stored customer profile (e.g. client-specific offers)	Most websites require customers to register or at least to supply some basic personal information. Good Web marketers should remunerate their customers for "revealing" this kind of information. This could be either by • directly crediting money or services, examples are: http://www.bonusmail.com, http://www.cybergold.com • granting discounts for product sales
5	Good products/ service combination possibilities (cross-selling: combine products and/ or services)	"Combination possibility" examines the breadth of the product range and the possibility to combine various product offerings (either to the company's own products, or third-party goods/ services) online. It measures the amount of cross-selling, i.e. the combination of various goods/ services (such as an airline ticket and a hotel reservation).
6	Good availability/ performance of the system	"Availability/ performance" (in respect to **geographical** aspects) measures the global availability of the system. It judges the availability to customers regardless of their geographic location. Special mirror sites could e.g. improve global performance. Since this aspect is one of the main advantages of the Internet it gains special consideration. "Availability/ performance" (in respect to **time**) measures the loading times which are of great importance for user comfort.
7	Cost benefits passed on to the client	The use of electronic sales channels often reduces transaction costs. Provided that margins remain unchanged vendors should be able to offer products on their website at a lower price.

8.1.2 Agreement phase

1	Adjustable customer profile (e.g. payment information)	Business transactions usually require customers to reveal some basic personal information, e.g. payment information. For a greater comfort this kind of information can be safely stored for reuse in a subsequent session.
2	Guided ordering according to profile (personalized services)	In order to receive a higher degree of personalized services customers could be willing to reveal additional information. Besides, the system might track user activity. A detailed user profile containing personal information such as age, gender, hobbies, preferences, etc. helps to treat each customer differently. This could result into guiding mechanisms, enable the system to come up with suggestions, or to even grant special client discounts.
3	Possibility of customized products	Some customers might be interested in buying combinations of products (product systems) or only fragments of a product (only parts of a magazine or newspaper). The website could support the customization of user-designed products.
4	Transparent, interactive integration of business rules	The underlying business rules should be transparent to the user. Business rules are: general terms and conditions, guarantees, possibility for returning products, etc. Click buttons to accept terms and conditions and a guided interaction are helpful in this context.
5	Good implementation of security issues (digital signature, secure server, TTPs)	Security issues are one of the most discussed topics of Electronic Commerce. Good websites should offer reliable security features (such as SSL, digital certificates, etc.).
6	Good contact possibilities with vendor (help desk for problems during order process)	"Contact possibility" examines the various ways to establish communication with the vendor. It may comprise the implementation of a help desk or a call center. The website could offer • the opportunity to write and read questions of common interest (FAQs) • a feedback possibility via E-Mail or Web forms (i.e. via the electronic medium) The feedback response times must be adequate to the medium used.

8.1.3 Settlement phase

1	Easy selection of generic services	"Generic services" are software modules that are available on the entire Web platform and always present themselves in a uniform interface. Generic Services support an electronic transaction (such as the purchase of a book online). Examples are electronic payment systems, logistics services, electronic contracting modules, etc. Their brick-and-mortar counterparts are power sockets, telephone hooks, water taps, and the postal system that should be the same wherever you are (this applies at least within the same country). **An easy selection** of such services means that they are integrated into the settlement process. This can be by selection of different choices for e.g. payment systems (Ecash, credit card, SET, check, bill, etc.) or logistics services (UPS, FedEx, US Post, etc.). Also the tracking of order information should be supported (e.g. the customer might choose to get an E-Mail message whenever a step of the settlement is completed).
2	Good integration of generic services	**A good integration** of such services means that they are sensibly used wherever necessary comforting the user by their common interface and their routine operation. Typical generic services in Electronic Commerce applications are payments, electronic contracting (dealing with prices and conditions) and logistics. Other Generic Services are: shopping carts, one bill for multiple shops, shopping lists, etc.
3	EC-application makes effective use of customer profile (e.g. payment and logistic information)	During the settlement of a business transaction some basic personal information needs to be revealed (e.g. payment information or delivery address for physical goods). For a greater comfort this kind of information could be safely stored for reuse in a subsequent session.
4	Good tracing and tracking (e.g. direct access to personal order information)	A good example for an integration of a logistics service, (in this case of a third party) can be found at http://www.amazon.com. After ordering customers are provided with information how to trace their order at the UPS tracking site.
5	Good IT-integration (connection with customer's infrastructure)	Especially for small and medium-sized businesses (SMEs) an export filter (a link to their accounting system) for financial data could be of great value (e.g. information can be exported into MS Money).
6	Convenient after-sales support	The website should also support the handling of after-sales services (e.g. guarantee form, feedback form).

8.1.4 Community component

1	Good access to community	The following definition applies to the notion "Virtual Community": *"Virtual Communities describe the union and the communication between individuals who share common values and interests and who use electronic media to get in touch with another. Their communication is independent from restrictions of time and place."* These "Virtual Communities" may be loosely or more closely attached to a special website. A high value of the "access to community" criterion indicates a good link between the product offer and the community component of the website.
2	Uniqueness/ originality of information (information is difficult to obtain from other sources)	This criterion evaluates the value of the information that can be obtained from the community area. A community which includes experts who actively contribute to the community area might supply information that cannot be retrieved from other sources. TV Guide, for example, features online interviews between community members and movie stars and stores them on its website. In this case, the community area is really worth visiting.
3	Adequate number of members	The value of a community are its members. There must be some "key members" who show a special dedication to the community. Nevertheless, as the number of members increases so does the probability of good questions, answers, reviews and other contributions and hence a rich community experience.
4	Well-implemented collaborative filtering (e.g. system gets you in touch with similar-minded people)	When joining a community members are usually looking for people with similar tastes or interests. There are two main kinds of user profiles that can be stored in a community database • personal information about interests and tastes entered by the user (self-assessment) • tracking of interactions performed by the user (activity log) The self-assessment should contain a selection of pre-defined categories (e.g. gender, age, favourite music, etc.). This information is not subject to many changes whereas the activity log is meant to trace dynamic information (page accesses). After a while the system may use the dynamic information to derive patterns of user's interest and behavior.
5	Member may choose his / her appearance within the community (e.g. choosing a personal ava tar)	Some websites offer the possibility to chose a representation of one's self (e.g. Worlds Away, Ultima Online). These representations are called "avatars". They appear in the form of animals, people, or characters from comic strips. Sometimes it is even possible to assemble the character choosing from a given set of heads, bodies, arms, etc.
6	Privacy is sufficiently protected	Sometimes you might gain access to a community forum without revealing personal information about yourself. There are clients who prefer the anonymity of the Web to the face-to-face encounter in a brick-and-mortar shop.

7	Perceived real added-value from membership	This criterion evaluates the value of membership. Besides the information that can be obtained from the community area there might be an additional value creation, e.g. in the establishment of personal relationships with other members. According to Armstrong and Hagel [1] there do exist so-called "communities of relationship". Specific shared experiences of life are the basis of these communities. ParentsNet is one example for this type of community.
8	Good, customized push mechanisms (information is automatically being sent to member)	There are two different mechanisms to establish a customer relationship via E-Mail **Push-Technique**: The Web system automatically supplies the customer with information. Either the customer chooses to receive specific information updates or the information provider sends unsolicited information which might be of interest to an established or possible customer. Push mechanisms can be customized by customers. The information provider may offer different categories of information updates where the client can check boxes in order to receive the information required (examples are Netscapes In-Box Direct and Amazon.com).
9	Good pull mechanisms (member can ask for information updates)	**Pull-Technique**: The customer actively seeks information and retrieves this information on his / her own whenever needed. Pull effects are typically the result of ads, discounts or a good (visible) place in store shelves.

[1] Armstrong, A.; Hagel, J. (1996): "The Real Value of Online Communities", in *Harvard Business Review*, May-June 1996, pp. 134-141.

8.2 Recipe websites

The following table sums up a small research of websites that offer recipes. This should help to give an overview of the market. Only websites in German, and mainly from Austria, where investigated. This small research should not be representative for the whole market but should show which websites and information can be found with little time effort.

Only one of the websites had the option to exclude ingredients from the search. The table below shows the link of the investigated website, whether or not searching for the term "gluten-free" results in any recipes, and how many, and whether information about food intolerance or celiac disease is given. Neither the quality nor the quantity of information is evaluated. The websites are listed in no special order.

Table 7: Websites offering recipes and / or information about food intolerance.

Link	**Gluten-free recipes**	**Infor-ma-tion**	**Comment**
www.kochmeister.de	10	No	It is possible to specify the number of servings. The amount of ingredients is calculated dependent on this number.
www.zoeliakie.or.at	Not online	Not online	With a membership fee a cooking book with information will be sent. There is only limited information online.
www.glutenfrei-kochen.de	475	yes	The web site is specialised on gluten-free recipes and gives some information about celiac disease for non-professionals. Some recipes are also rated as lactose-free (341 recipes). The operator of the website suffers

			from celiac disease.
www.kirchenweb.at/kochrezepte	0	No	No search option within the recipe collection.
www.gutekueche.at	28	No	Information about restaurants and winegrowers is given.
Rezepte.krone.at	0	No	It is possible to exclude ingredients in the search query but it is not possible to search for gluten-free or lactose-free recipes.
www.glutenfreie-rezepte.ch	Not online (108)	No	Recipes have to be ordered by mail (a fee that includes help via mail is charged). The operator of the website suffers from celiac disease.
www.koch-idee.at	0	No	
www.ichkoche.at	342	yes	Also 253 recipes that are rated lactose-free (156 of them are also gluten-free) can be found. There is also a sub site with some Austrian dishes in English but not a real translation of the website.
www.cuisine.at	10	No	Also English recipes but they are not the translations of the German recipes.
www.kochmix.de	0	No	Search does not seem to work properly, e.g. searching for "Milch" (milk) does not result in any recipes but there are recipes with milk.

www.glutenfreikochen.de	36	No	The web site follows the web content accessibility guidelines.
www.hans-joachim60.de	ca. > 500	No	There is the possibility to download the recipes in form of e-books from another web site.
www.daskochrezept.de	0	yes	Information about lactose intolerance and a separate category with recipes for diabetics is given.
www.chefkoch.de	859	yes	There are also 27 recipes that are rated lactose-free. An English version of this website exists[28] but it is not a translation of the German one resulting in much less gluten-free recipes (8).

[28] The user is forwarded to the web site http://www.cooksunited.co.uk.