



HELSINKI UNIVERSITY OF TECHNOLOGY

**FACULTY OF ELECTRONICS,
COMMUNICATIONS AND AUTOMATION**

**DEPARTMENT OF COMMUNICATIONS
AND NETWORKING**

Henri Mattila

**Increasing websites' effectiveness by improving
usability**

Master Of Science Thesis

Helsinki, October 5, 2009

Supervisor: Docent Timo Korhonen

Author: Henri Mattila

Name of the thesis: Increasing websites' effectiveness by improving usability

Date: 5 October 2009

Number of pages: 73

Faculty: Faculty of electronics, communication and automation

Department: Department of Communications and Networking

Professorship: S-72 Communications Engineering

Supervisor: Docent Timo Korhonen

Websites are an effective marketing channel for companies. Good usability is an important factor of successful user experience. Creating good user experience the effectiveness of a website can be increased significantly. Clarification of goals and requirements of the website is the starting point to create a website.

The goal of this thesis is to clarify what is needed to create an effective website. Theory part concentrates on usability factors what needs to be taken into account when designing websites and which tools can be used more cost efficiently to study and measure websites' usability. The main goal is to create an effective and flexible process model for usability projects.

In the practical part usability evaluation is done for an Internet marketing company, Klikkicom's website. During the process effectiveness of each phase and study is evaluated.

Keywords: Usability, e-business, Ecommerce, user experience, Internet marketing, digital marketing, web analytics, conversion, SEO, Search engine optimization, website optimizer

Tekijä: Henri Mattila

Työn nimi: Internetsivuston tehokkuuden parantaminen käytettävyyden avulla

Päivämäärä: 20 Syyskuuta 2009

Sivumäärä: 73

Tiedekunta: Elektroniikan, tietoliikennetekniikan ja automaation tiedekunta

Osasto: Tietoliikenne ja tietoverkkotekniikan laitos

Professori: S-72 Communications Engineering

Valvoja: Dosentti Timo Korhonen

Internetsivustot ovat merkittävä markkinointikanava yrityksille. Internet-sivuston hyvä käytettävyys auttaa luomaan hyvän käyttökokemuksen ja parantamaan Internetsivuston tehokkuutta. Toimivan Internetsivuston luominen vaatii tarkan vaatimusmäärittelyn laatimista sivuston tavoitteista.

Tämän tutkimuksen tarkoituksena on selvittää mitä vaaditaan tehokkaan Internetsivuston toteuttamiseen. Teoriaosiossa käydään läpi mitä käytettävyysseikkoja tulee huomioida sivustoja suunniteltaessa, sekä mitä työkaluja voidaan kustannustehokkaasti käyttää web-sivuston käytettävyyden parantamiseksi ja mittaamiseksi. Pää tavoitteena on luoda tehokas ja joustava prosessimalli Internetsivustojen käytettävyysprojekteihin.

Käytännön osiossa tehdään käytettävyysarvio Internetmarkkinointi yrityksen Klikkicom sivustoille, sekä arvioidaan prosessin kulkua ja eri työkalujen tehokkuutta.

Avainsanat: Käytettävyys, sähköinen kaupankäynti, käyttökokemus, Internet markkinointi, Digitaalinen markkinointi, web analytiikka, hakukoneoptimointi. SEO

Acknowledgements

I want to thank everyone at Klikkicom for supporting me during the process. Especially Toni Lehmusvaara and Petteri Erkintalo for the opportunity to cooperate with Klikkicom. Docent Timo Korhonen for guidance and support. My whole family and friends and the love Elisa. And of course Aatu Luoto for priceless help with fixing the language.

Table of Contents

<u>ACKNOWLEDGEMENTS</u>	<u>6</u>
<u>KEY CONCEPTS</u>	<u>11</u>
<u>1. INTRODUCTION</u>	<u>12</u>
<u>2. WHY INVEST ON WEBSITE?</u>	<u>13</u>
2.1 THREE KINDS OF WEBSITES	16
2.2 HOW DOES THE WEBSITE SERVE BUSINESS?	16
<u>3. USER EXPERIENCE</u>	<u>18</u>
<u>4. USABILITY</u>	<u>22</u>
4.1 WHAT IS USABILITY?	22
4.1.1 THE SHACKEL MODEL	22
4.1.2 NIELSEN'S USABILITY MODEL	23
4.2 WHY USABILITY?	24
4.2.1 DIFFERENT KINDS OF USERS	24
4.2.2 DIFFERENT KINDS OF EQUIPMENT	24
4.2.3 IMPROVED WEBSITE PERFORMANCE VIA USABILITY STUDIES	25
4.3 GUIDELINES TO DESIGN USABLE WEBSITES	28
4.3.1 DESIGNING AND EVALUATION	28
4.3.2 FINDABILITY	28
4.3.3 MINIMIZING USER'S WORKLOAD	29
4.3.4 MINIMIZING DOWNLOAD TIMES	29
4.3.5 WEBSITE CREDIBILITY	29
4.3.6 USE OF USERS' LANGUAGE	29
4.3.7 DO NOT USE UNSOLICITED WINDOWS	30
4.3.8 ERROR RECOVERY	30
4.3.9 SHOW SYSTEM STATUS AND PROVIDE FEEDBACK	30
4.3.10 MAKE THE CONTENT PRINTABLE	31
4.3.11 AVOID SCROLLING	31
4.3.12 WEB BROWSERS	32
4.3.13 FRONT PAGE	32
4.3.14 PAGE LAYOUT	32
4.3.15 HEADINGS, TITLES AND LABELS	33

4.3.16 LINKS	33
4.3.17 TEXT APPEARANCE	34
4.3.18 LISTS	34
4.3.19 SCREEN BASED CONTROLS (WIDGETS)	35
4.3.20 GRAPHICS, IMAGES AND MULTIMEDIA	35
4.4 CONTENT	37
4.4.1 CONTENT STRUCTURE	37
4.4.2 INTERNAL SEARCH	37
4.5 USABILITY TESTING	39
4.5.1 AUTOMATIC EVALUATION METHODS	39
4.5.2 BENCHMARKING	39
4.5.3 QUESTIONNAIRE	40
4.5.4 HEURISTIC EVALUATION	40
4.6 NIELSEN'S TEN HEURISTICS	41
4.7 USER TESTS	43
4.7.1 RIGHT AMOUNT OF PARTICIPANTS	43
4.7.2 "THINK ALOUD" OR RETROSPECTIVE	44
4.7.3 LABORATORY OR REMOTE TESTING?	44
4.7.4 USE MAGNITUDE EXPECTATION (UME)	45
<u>5. WEB ANALYTICS</u>	<u>46</u>
5.1 CONVERSION	47
5.2 BOUNCE RATE	48
5.3 INTERNAL SEARCH	48
5.4 SEARCH ENGINE OPTIMIZATION (SEO)	49
5.5 WEBSITE OPTIMIZER	50
<u>6. VALUE OF INVESTMENT</u>	<u>52</u>
<u>7. INTRODUCTION OF KLIKKICOM</u>	<u>54</u>
7.1 KLIKKI MEDIA	55
7.2 KLIKKI SEARCH	55
7.3 KLIKKICOM ANALYTICS	55
7.4 KLIKKI PLUS	56
<u>8. KLIKKICOM WEBSITE</u>	<u>57</u>

8.1 SITE HIERARCHY	58
<u>9. STAGES AND STEPS OF WEBSITE USABILITY PROJECTS</u>	<u>60</u>
9.1 STAGE 1: SPECIFICATION STAGE	61
9.2 STAGE 2: ANALYZING STAGE	61
9.3 STAGE 3: MONITORING STAGE	61
<u>10. SPECIFICATION OF A WEBSITE'S REQUIREMENTS</u>	<u>63</u>
10.1 GOALS OF THE WEBSITE	63
10.2 USER EXPERIENCE	63
<u>11. HEURISTIC ANALYSIS FOR KLIKKICOM'S WEBSITE</u>	<u>65</u>
11.2 CONCLUSION OF THE HEURISTIC ANALYSIS	66
11.2.1 USABILITY	66
11.2.2 CONTENT	67
<u>12. WEB ANALYTICS FOR KLIKKICOM WEBSITE</u>	<u>69</u>
12.1 BOUNCE RATES	69
12.2 NAVIGATION	70
<u>13. BENCHMARKING COMPETITORS OF KLIKKICOM</u>	<u>72</u>
<u>14. USER INQUIRY AT KLIKKICOM'S WEBSITE</u>	<u>74</u>
<u>15. USER TESTS FOR KLIKKICOM WEBSITE</u>	<u>75</u>
15.1 TASKS OF THE USER TESTS	76
15.2 RESULTS OF THE USER TESTS	77
15.2.1 ABOUT KLIKKICOM	77
15.2.2 PRODUCTS AND SERVICES	78
15.2.3 CASES AND JOBS	79
15.2.4 CONTACT	79
15.3 OTHER COMMENTS	80
<u>16. OVERALL ANALYSIS OF FOUND PROBLEMS</u>	<u>81</u>
<u>17. CONCLUSION</u>	<u>83</u>
<u>BIBLIOGRAPHY</u>	<u>85</u>

APPENDIXES	89
INQUIRY	89
HEURISTIC ANALYSIS	92

Key Concepts

Conversion. The Actualization of website's goal.

Key performance indicators (KPI). Measurement indicators to the goals of the website.

Main navigation. Main navigation is located usually at the top of page and it is similar to all the pages on the site.

SEO (Search engine optimization). Designing website to appear high in search results at search engines.

Sub navigation. Sub navigation is unique on all the sub-sites. Usually it is located at the left side of the page.

Website. Collection of web pages under a domain.

White space. Empty space between the website's elements.

Web analytics. Measuring all the actions on the website.

1. Introduction

Websites have become a remarkable marketing channel for many companies. A company website is an effective way to serve customers, give information and sell products and services. Almost every company has their own website. At many cases companies do not have a clear vision why the website exists and how does it effect to business.

User experience is one of the most important measurements of a website's success and usability is an important factor for user experience. This thesis' purpose is to investigate what is needed to create a good website user experience. Does the website serve its visitors well enough and is there any unused potential to use for the website.

The theory part of this thesis points out what is meant by usability and what characters have strong influence on it. The theory part also introduces what kind of tools we have for improving website usability and how to evaluate the benefits of better usability. The main goal is to build a usability process to make website usability as optimal as possible with the most cost efficient way.

The empirical part is about usability study of an Internet marketing company Klikkicon website. The goal is to test what usability tools give the best and the most cost efficient results. Based on this study Klikkicom can design their own website more effectively.

After the study we have a good understanding and process for usability studies and improvement methods to use. The goal is to create an effective process model for usability improvement projects.

2. Why invest on website?

Internet is a growing marketing channel. There are approximately 4.2 million web users in Finland and 70 percent of households have Internet broadband connection (Tilastokeskus, Internetin käytön muutokset. Tieto- ja viestintätekniiikan käyttö 2008 -tutkimuksen tuloksia, 2009). Websites are an effective nonhuman sales drive and also the best source to learn from customers and to get feedback.

In the last ten years websites have become a remarkable marketing and customer service channel. With the aid of a website a company can get new customers and leads, forward information and sales offers, inform more accurately about their products and services, build and enhance their brand, take along potential customers to product development, learn from customers' needs and their interests and opinions. (Merisavo;Vesänen;Raulas;& Virtanen, 2006)

Websites are also an effective purchase channel (Kaushik & Sterne, 2007).

Ecommerce has enjoyed constant growth in Finland. In 2008 a study was made where 33 percent of people had purchased products from ecommerce website during the last three months (Tilastokeskus, Tehnyt hankintoja verkkokaupasta viimeksi kuluneen kolmen kuukauden aikana vuosina 2001 - 2008, prosenttia 16-74 -vuotiaista, 2008). Figure 1 shows statistics of an annual growth of sales in mail order and Ecommerce in Finland.

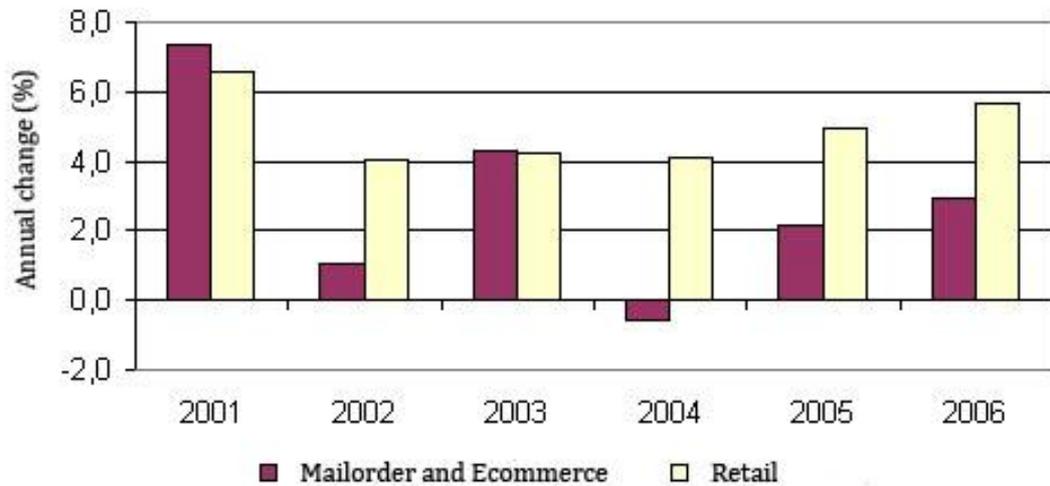


Figure 1. Annual change of mail order and Ecommerce. (Tilastokeskus, Internetin käytön muutokset. Tieto- ja viestintätekniiikan käyttö 2008 -tutkimuksen tuloksia, 2009)

Internet can be the core of a company's marketing strategy even if the company does not sell anything on their website. Every successful marketing act will show on increased visitor flow on website. Many of the product related searches are caused by traditional offline advertizing. Most customers search product information online before buying the product (Merisavo;Vesänen;Raulas;& Virtanen, 2006). A survey made in 2005 showed that 37 percent of shoppers informed that search engines had the most important influence to their purchase decision. Also 72 percent of shoppers used more online search engines when comparing to previous year. (news, 2005)

Studies show, that 30 percent of consumers got a negative image from a company based on their poorly designed website. 57 percent of users may change the web-shop or website if they find it complicated to use. If a product is not available at the website 50 percent of users assume that the product is not available at all. (Nielsen, Designing web usability: The practice of simplicity, 2000)

Figure 2 illustrates the percentages of Internet use in Finland in three different age groups.

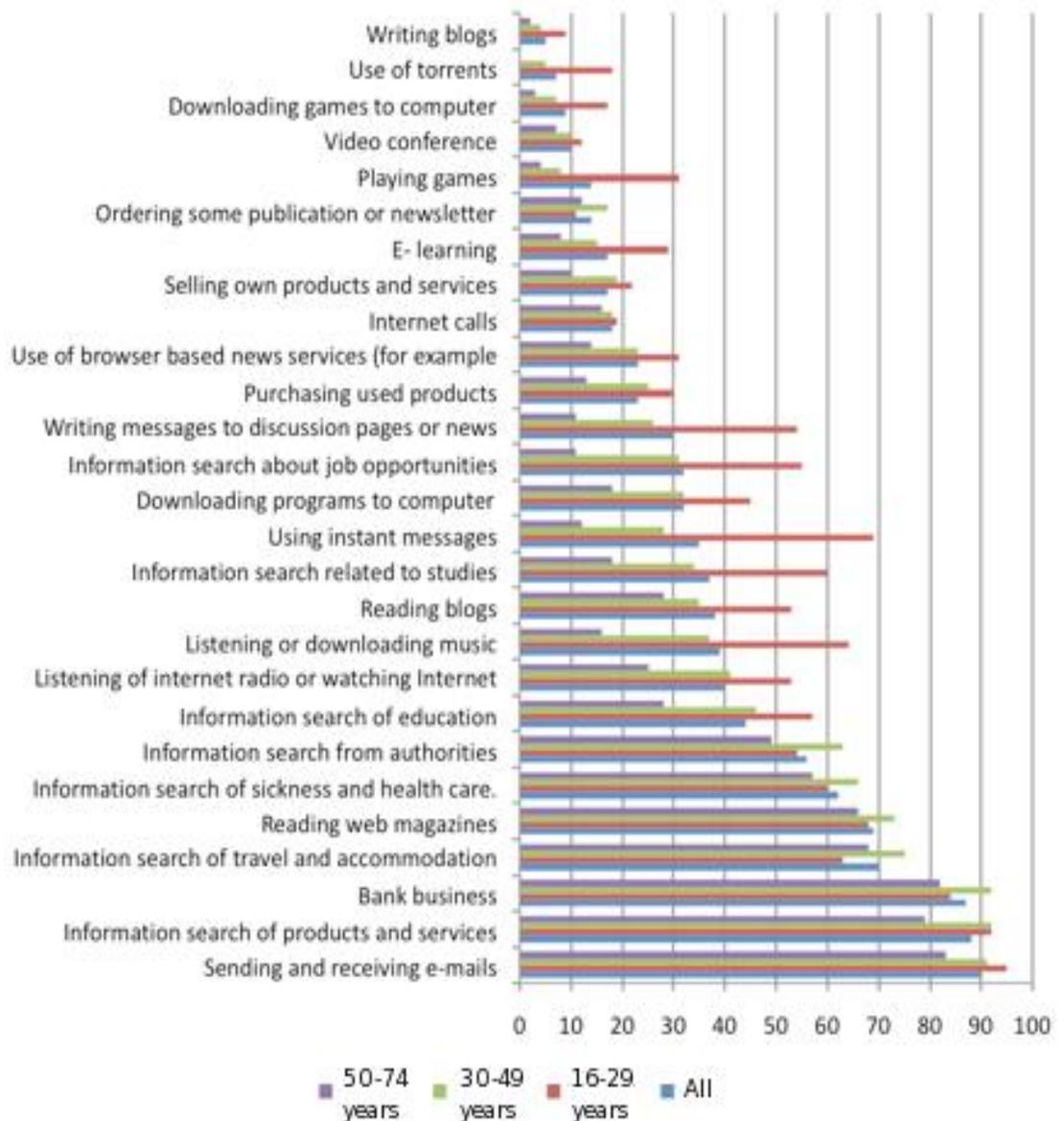


Figure 2. Use of Internet in 2008 in Finland. (Tilastokeskus, Internetin käytön muutokset. Tieto- ja viestintäteknikan käyttö 2008 -tutkimuksen tuloksia, 2009)

2.1 Three kinds of websites

Websites can be divided into three different categories: informational, promotional and application providing websites (Andrews, 2008). Often more than one of these characteristics are combined in the same website.

- **Informational website.** Typical informational website contains information about books, articles, references etc. Informational websites' goal is to give visitors the information needed and at the same time minimize the user's time spent on the website.
- **Promotional websites.** Promotional websites are made for marketing and entertainment purposes. For promotional website it is important to maximize the time that visitors spend on the website.
- **Application website.** Application websites are meant for transactions, sales and exchange.

2.2 How does the website serve business?

Many companies are still maintaining the website just because everybody is supposed to have a website without truly understanding the opportunities that it holds (Kaushik & Sterne, 2007). Every website is unique and every commercial website should ask themselves business questions that define their website's goals. Possible questions might be for example:

- **How much the current website affects and how much it could affect on their business?** Does the company take full advantages from it's website potential?
- **How much value the website produces comparing to company's off line functions?** Does the website support the company's strategy?
- **Do customers get value from the website?** Does the website serve fully users needs?

- Does the website add value to company brand?**

3. User experience

Having a good user experience is extremely important to a website because most of the cases the user has many competing sites to choose from. It is easy to change from website to another if the user's experience of the website does not please the visitor. Commercial websites are not just competing with competitors in their own domain of business but they are competing with all the websites on the users time spent on the web (Nielsen, *Designing web usability: The practice of simplicity*, 2000).

Jacob Nielsen claims in his book *Designing web usability* that the best usability always wins a competition between websites (Nielsen 2000). It is a proven fact that usability correlates with popularity of the website but not necessarily guarantee website's success (Spool, et al., 1997). That is why in this thesis the concept user experience is used when studying websites success. Peter Morville (Morville, 2004) uses three circles to emphasize the success factors of a website. The three circles illustrated in figure 3 include three factors: context, content and users. Context includes websites designing and layout. Content is the main reason why the user navigates to a website. For example news and other texts, pictures, videos, links etc.(Rayport & Jaworski). Third character is users own subjective expectations and mental models about a website.

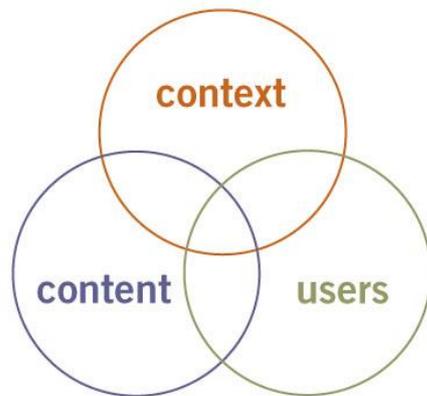


Figure 3. Three circles of user experience.

Morville extends the model to Honeycomb model. This model divides user experience into six different characters that together defines the value of a website. The Honeycomb model is illustrated in figure 4.



Figure 4. The Honeycomb model.

Usefulness. Honeycomb model emphasizes the usefulness as the first important character of creating value for a website. Website's service must meet the users needs. If the website does not solve any problems or needs of visitors it is not considered as valuable. (Morville 2009)

Usability. Second factor for user experience is usability, the most important factor of this thesis. One goal for this study is to understand how improving usability can lead to better user experience and increased conversion rates for websites. Usability is more closely described in chapter 4.

Desirability. Desirability defines how esthetics and brand issues affect the user experience. The stronger the brand, more desirable the website is among users. First impression and image of the website are important success factors. (Morville, 2004)

Accessibility. Users use different kinds of equipments, operating systems and web browsers to navigate to websites. It is important that the use of a website is not depending on those issues. Accessibility becomes also an issue when considering people with physical disabilities. Over 10 percent of people have some kind of disability and that should be taken into account when designing a website. (Morville, 2004)

Findability. There should be no problem for users to find the website. Search Engine Optimization (SEO) is an important tool to make a website more visible to users. When user writes the right key words to a search engine, the website should appear in search results as high as possible. Website's address should be easy to recall. Users can also navigate to a website from another website through links. The more often a website is linked on the other sites the higher it appears in search results. (Hautamäki & Fogelholm, 2006)

Credibility. There are certain elements that creates websites' credibility in the eyes of the user. For example using a Visa logo at a payment page makes the website more credible and courage's users to make purchases. Other trustful references can also be used on the website. In figure 5 there are highlighted elements that are made to reduce users' risks. (Ash, 2009)



Figure 5. Logos that strengthens the website credibility.

4. Usability

As chapter 3 referred usability is one of the most important success factors for a website. This chapter clarifies the concept usability. What is actually meant with the word usability, why usability is so important and what are the factors that create good usability.

4.1 What is usability?

Before starting to discuss about usability it needs to be clarified what is actually meant with the word usability.

ISO Standard ISO 9241-11 defines usability as: “The extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in a specific context of use”. (Leventhal & Barnes, 2008)

4.1.1 The Shackel model

Brian Shackel divided usability in 1986 into four different elements: Effectiveness, learnability, flexibility and attitude (Shackel, 1986):

- **Effectiveness.** To be effective, website needs to exceed some level of performance by some required percentage of target users.
- **Learnability.** Defines how much a user needs support and training to use a website efficiently. User of a learnable website does not need to relearn actions every time he or she uses it.
- **Flexibility.** A flexible website contains some specified variation of tasks and/or environment. Flexibility is not yet a common matter in Internet but has been already considered pretty far in some websites.

- **Attitude.** Attitude measures levels of human costs such as tiredness, frustration and personal effort for the result of using a website.

4.1.2 Nielsen's usability model

Jacob Nielsen's usability model (Nielsen, Usability engineering, 1994) uses the term System acceptability, which includes usability as a part of five dimensions. Nielsen's model is illustrated in figure 6. Social acceptability refers to all the legal and ethical issues. Practical acceptability includes in addition of usefulness also cost, comparability and reliability. Usefulness includes utilities and the usability of a website. In this model usability consists five factors: Easy to learn, efficiency of use, easy to remember, minimum amount of errors and subjectively pleasing.

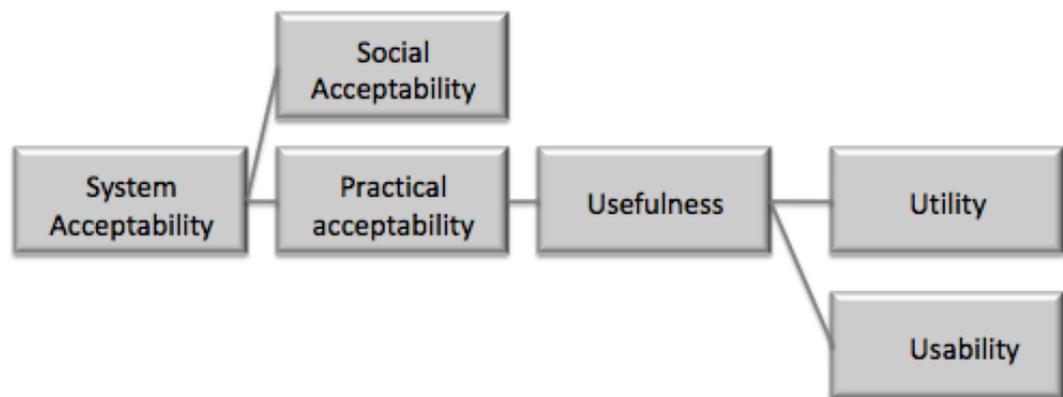


Figure 6. Nielsen's model of usability.

4.2 Why usability?

"Why am I getting such a good service while I'm buying a ten dollar book, but such a bad service when I AM PURCHASING A 1000 DOLLAR SOFTWARE" (Nielsen, Designing web usability: The practice of simplicity, 2000)

All the websites are competing with each other for the users' time and attention. It means that your toughest competitors are not necessarily operating in the same business. User experience becomes a critical factor in this competition. (Nielsen, Designing web usability: The practice of simplicity, 2000).

4.2.1 Different kinds of users

Websites are often designed from the company's perspective and not for actual users. Often users do not share the same mental models in seeking information. Users have different kind of knowledge and capabilities to use the websites. That is why the website structure needs to be designed with actual users. Finding information needed as fast and easily as possible is very important. If a user cannot find easily the content needed, he or she will move to the next website. In Nielsen and Loranger study (Nielsen & Loranger, Prioritizing web usability, 2006) users given a certain task, for example researching a new product, users spent an average of 1 minute and 49 seconds visiting a website, before deciding on to move to another website. Average amount of sites visited were 3.2 and a chance to revisit a website was 12 percent. Website's content is not useful if it cannot be found easily. (Nielsen, Designing web usability: The practice of simplicity, 2000)

4.2.2 Different kinds of equipment

Designers often do not take into account that users use different kinds of equipments to browse websites. Users use different operating systems and different performance levels of computers and web connections. One of the biggest variance is the different usage of different web browsers. All users do

not have the latest web browsers installed. 1995 statistics showed that the new web browser update rate was 1-2 percent per week. That means that it took more than a year to update the whole browser base. Reason for that is that people do not see any visible changes after updates. (Nielsen, *Designing web usability: The practice of simplicity*, 2000) Nowadays automatic updates do the most of the updating but still many users use old versions of web browser although newer version have been out for years. Browser usage statistics from April 2009 in Figure 7 indicates 3.5 percent usage rate for the newest version of Internet Explorer 8 (released in 2009) while in 2001 published Internet Explorer 6 (Microsoft, 2003) is enjoying 15.40 percent usage.

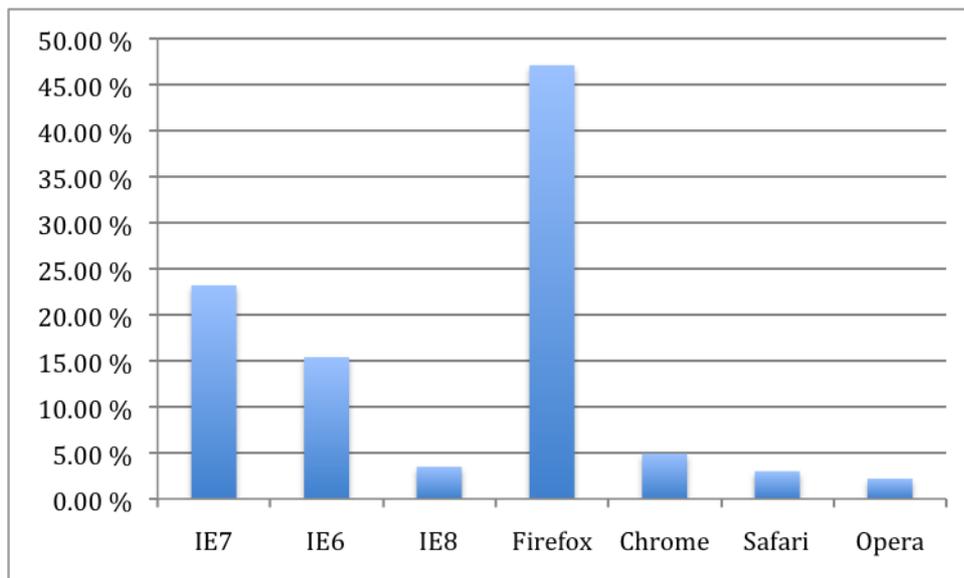


Figure 7. Browser statistics in April 2009.

4.2.3 Improved website performance via usability studies

Nielsen's studies shows average of 83 percent improvement in a website's conversion rates after the usability improvements with a given key performance indicators. Usability studies are quite expensive to execute but still return of investment of usability improvements are in a really good level. (Nielsen, *Usability ROI Declining, But Still Strong*, 2008)

Benefits of fixing usability problems on the websites can be calculated with simple business metrics:

Conversion rates. Conversion rate is a relative ratio on how many website users complete the tasks that website is intended to. Tasks can be for example buying a product via website, registration to a website or sending a feedback form. Average website conversion rate is between one and two percent. It is very unlikely that a conversion rate can be much over 10 percent since the users like to compare sites before making decisions. (Nielsen, Usability ROI Declining, But Still Strong, 2008)

Traffic numbers. All kinds of traffic numbers can be monitored with web analytic programs. For example how many people navigates to a specific page, from which page did they come to the page and where they navigated after visiting the page. Web analytic applications are introduced more specific in chapter 5.

User performance. How long does it take to do a specific task and what are the success rates of the tasks?

Target feature usage. This registers the number of users that clicks on the link of crucial information on webpage.

Nielsen introduces the success formula of a commercial website:

$$B = V \times C \times L.$$

Where *B* is Business done from the website. *V* stands for unique visitors coming to website. *C* is for conversion rate and *L* for loyal rate, in other words customers who came back to make another purchase. Other factors can also be the size of an average shopping card and profits of the most popular products. (Nielsen, Usability ROI Declining, But Still Strong, 2008)

Figure 8 shows the most popular reasons to revisit a website. From the table can be read that after content the two most popular reasons are related to good usability, short download times and ease of use. According to this table it is obvious that good usability is a very important factor when creating good user experience of the website. (Andrews, 2008)

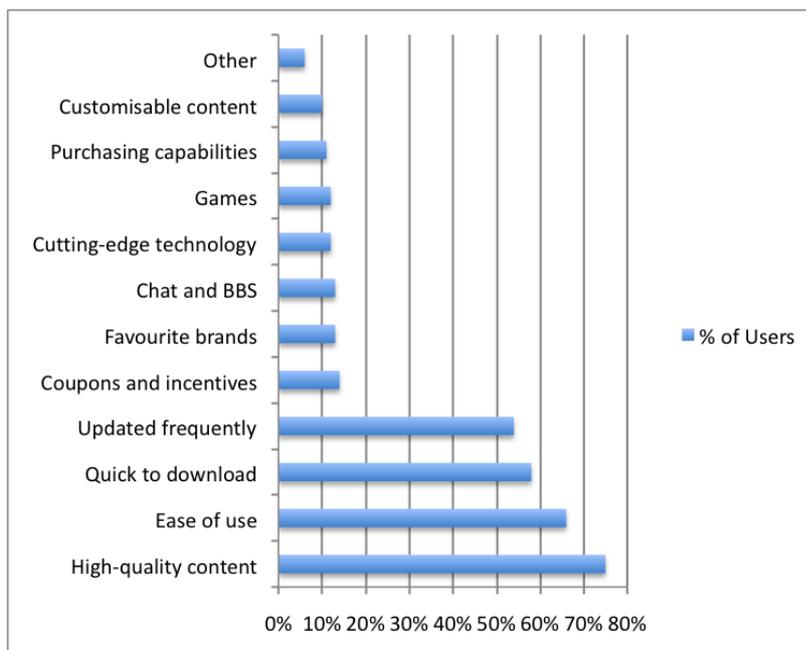


Figure 8. Reasons to revisit a website.

4.3 Guidelines to design usable websites

Internet and literature is full of usability guidelines, which can help developer to build better usability to a website. They are also a great help when evaluating website's usability. Heuristic evaluation, which is reviewed more accurately later in this chapter, can be effective and a cheap way to evaluate usability. With the heuristic evaluation the most crucial usability issues can be cleared out before the actual user tests. This chapter introduces guidelines to follow when creating usable websites. For practical reasons it is impossible to implement all the guidelines exactly as presented here. Professionals should apply the rules and know when it is necessary to break them (Nielsen, *Designing web usability: The practice of simplicity*, 2000).

4.3.1 Designing and Evaluation

The earlier the usability methods are considered in the designing process the better chance it is to create a usable website. When usability requirements are considered at the early stage, less changes needs to be made afterwards. (Leventhal & Barnes, 2008) It is important to set clear goals for a website. What is the target audience? What is the purpose of the website? And if it is a commercial website, what is the business logic of a website?

Designers need to find out what are the users needs and expectations and provide content based on this information. The most important factor in context of usability is to set clear usability goals like maximum time to find a specific information. (Shneiderman, 2007)

4.3.2 Findability

It has to be made sure that target users will find their way to the website. One efficient way to make sure that the website is findable is to optimize the website so that the website is findable at most used search engines. Over 80% of users arrive to the website via search engines (Hautamäki & Fogelholm, 2006).

4.3.3 Minimizing user's workload

Let the computer do as much as possible. Keep in mind that human working memory handles only about seven units at the same time. Do not make users to remember long ID's or sentences. (Shneiderman, 2007)

4.3.4 Minimizing download times

It is important to create a nice visual appearance to your website but be careful that the download times will not become a problem. Flash shows are very common accessories in these days. Flash shows look nice on a website but can annoy users and waste users' valuable time especially when Internet connection is lower than the designer has anticipated (Analytics.fi, 2009). Studies show that only 50 percent of users are assuming that the page is downloaded after 15 seconds. If the website contains downloadable material with long download times inform users about it. (Andrews, 2008).

4.3.5 Website credibility

Make sure that appearance of a website looks professional. Use citations and provide links to other credible sites. Show author credentials and make sure that the website is updated as often as necessary. (Shneiderman, 2007)

4.3.6 Use of users' language

Use common language and avoid jargon. Natural and logical words in navigation bar, content and elements ensures that nonprofessional users can also follow the website. (Nielsen & Mack, Heuristic evaluation, methods, 1994)

4.3.7 Do not use unsolicited windows

Pop-up windows can be irritating and confusing when concentrating on completing a certain task. These unnecessary windows decrease website's credibility and usability. (Shneiderman, 2007)

4.3.8 Error recovery

Trying to prevent errors as far as possible. Make scenarios of possible errors and try to avoid them. But errors do happen anyway. Make it easy to recover errors and present clear error messages to user. (Shneiderman, 2007)

4.3.9 Show system status and provide feedback

Bring enough feedback to user so that the user is always aware of the system's status. For example if user has some form to send verify that user can be sure that the form has reached its destination (see figure 9). Also warn users if the website is programmed to "time out" and inform user when the time out occurs. (Shneiderman, 2007)



Figure 9. Justia's website provides feedback after successful registration process.

4.3.10 Make the content printable

Some users prefer reading from paper rather than from a monitor when the content becomes so long that it needs to be scrolled down to be seen fully. In some cases content is wanted to stored offline or saved to be seen later.

(Shneiderman, 2007)

4.3.11 Avoid scrolling

Try to avoid page scrolling whenever it is possible. Especially at front page scrolling should not be used at all. In Nielsen and Loranger study (Nielsen & Loranger, Prioritizing web usability, 2006) shows that only 23 percent of first time website visitors scrolled down the front page and only 16 percent of second time visitors. In other pages than in front page it is recommend to use paging rather than scrolling whenever it is possible. (Shneiderman, 2007)

Horizontal scrolling should be eliminated totally if possible. Horizontal scrolling slows user radically and makes it hard to follow the big picture of the content. Need for horizontal scrolling can occur because the user has different resolution than designer has meant to be used. (Shneiderman, 2007)

4.3.12 Web browsers

As Figure 4 showed earlier the web browser base is divided to many browsers. These are all unique and it is not guaranteed that the website developed for one browser operates with another web browser as it should be. Testing is needed for every browser with different resolution separately before deployment.

Site features should be designed so that all users can use them without problems. Same browsers also differ with their settings. Two users can have the same browser but different features enabled. (Shneiderman, 2007)

4.3.13 Front page

Front page gives most of the users first impression of the website. Clear, esthetic and usable front page convinces user of the sites credibility. Show user the value of the website at front page. Site's purpose and services should be also made clear at the front page. Users spend average 31 seconds on a front page (Nielsen & Loranger, Prioritizing web usability, 2006) so do not put too much disturbing content to front page. (Shneiderman, 2007) Try to fit the length of the front page to one screen. Only 23 percent of first time visitors scroll down the front page (Nielsen & Loranger, Prioritizing web usability, 2006).

Ensure that the front page looks like a front page. Front page is the harbor where user can easily come back to. Make sure that every page of a website includes a link to the front page. The link to the front page and website logo are also signs to the user that the page belongs to a website. (Shneiderman, 2007)

4.3.14 Page layout

Make enough space for content. A common mistake is to waste valuable space for navigation. Excluding home page, 50% - 80% of page's space should be reserved to content. (Nielsen, Designing web usability: The practice of simplicity, 2000)

Place important features consistently so that they are always clickable at the same place on the screen even if the user is navigating on different pages at the website. Recommendation is to put all the important items to the top navigation. Divide high and low level importance items with each other. Emphasize the most crucial content. (Shneiderman, 2007)

Use the same consistent items and elements along the website. For example same kinds of buttons should perform same kinds of tasks. Also use enough white space to distinct different elements and contents from each other. (Shneiderman, 2007)

When it is impossible to fit the page on one screen, make sure that users realize that there is still content to scroll down to. Do not use any elements that suggest that the page is already at the bottom when it is not. (Shneiderman, 2007)

4.3.15 Headings, titles and labels

Used headings should be in HTML standard order and all the headings should be descriptive. Use titles that are descriptive, meaningful and unique on every page. Achieve tags to titles and headings to get higher on search results in search engines (Hautamäki & Fogelholm, 2006). Highlight the critical data to wake up users' attention. If you use labels that include links, make sure that the label clearly reflects the information that the link contains.

4.3.16 Links

Verify that a link looks like a link. Make sure that there are no non-link symbols that look like a link, which can be mislead to user. Also make sure that user knows where the link directs to when clicked. Especially when the link leads to external website. External links are useful and it is recommended to put links in the content that are related to the topic of the page. (Shneiderman, 2007)

Use “pointing and clicking” rather than “mousing over”. That way you minimize purposeless clicks. Use text rather than pictures to show a link. Text should be long enough to describe the link well. (Shneiderman, 2007)

Broken links should be avoided. According to Jakob Nielsen, six percent of links in the Internet are broken. That means that about 30 percent of pages contain broken links. (Nielsen, *Designing web usability: The practice of simplicity*, 2000)

4.3.17 Text appearance

Use at least 12-point font to make sure that everybody can see the text. Use rather familiar, most common fonts like Times New Roman. High contrast should be used between background and text. Use same fonts and other visuals consistently along the website. Also formats should be consistent along the website, for example the date-format. (Shneiderman, 2007)

Use uppercase letter words and bolded fonts sparingly. Those should be used only when the purpose is to emphasize something, but no more than one sentence. For example if the whole paragraph is formatted with uppercase fonts the text becomes unattractive and difficult to read. (Shneiderman, 2007)

Emphasizing the valuable content is very important on the web. Reading from a screen differs from reading from a paper. Users tend to rather scan than read the text on Internet. Most of the users read only the first sentence of the paragraph then scan highlighted words and links. Article order should be opposite compared to traditional article starting from conclusion and ending with introduction. (Nielsen, *How users read on the web*, 1997)

4.3.18 Lists

Elements should be arranged so that the website would be as efficient as possible. Most used and the most important elements should be put at the top of

the list. List elements should be clearly divided with colors, borders and white space so that the user can easily indentify searched elements.

Lists should be arranged vertically and not to continuous lists. Numbered lists should be used only when list elements are in specific order starting from one. Otherwise bullets should be used.

4.3.19 Screen based controls (widgets)

Use widgets that users are familiar to. Also use the same widgets along the website. Only the use of one data entry method should be used. Express clearly what are the widgets' functions. For example users should know exactly what a button-widget does when pressed. Designers should think which widgets would be the most suitable in all specific cases. (Shneiderman, 2007)

If the page contains data entry fields, distinguish what fields are optional and what are compulsory. Also label the data entry fields consistently. Create fields that are wide enough so that the user can see what they are writing without scrolling. Labels related to each other should be located close enough so that the users can understand their connection. Users' need for data entry should be minimized as much as possible. If a website requires code data entry it should not be made case sensitive. (Shneiderman, 2007)

Users do mistakes whether the designer wants it or not. Errors that user might do should be anticipated in advance, for example putting a date in a wrong format or leaving a compulsory field unfilled. The field that requires a long data input should be split into small pieces like NNN-NNN-NNN. In applications forms default values should be used when possible.

4.3.20 Graphics, Images and multimedia

Graphics, images and multimedia are necessary to make Internet website interesting. Purpose of those should be clearly clarified. Using graphics, images

and multimedia increases the memory size of the page and so can slow the download times remarkably. One effective way to show images is to first view the thumbnail images that makes it possible for closer examine by clicking. If images are clickable, label them clearly so that users know the exact function of an image. (Shneiderman, 2007)

Videos, animation and audio can make the website far more interesting for users. Videos, animation and audio should also be used meaningfully. Unwanted multimedia can be irritating and disturb users concentration. For example animated product introduction on a company's website can draw a lot of attention to a new product but if user is interested in another content of the website it can take valuable time away from the user's real interests. (Shneiderman, 2007)

Company or website logo should always be somewhere where the visitors can easily see it. It is important that the logo holds the same position on every page. That way the user can be sure what website he or she is currently navigating at. (Shneiderman, 2007)

4.4 Content

The content of a website should be fully considered. It is not enough that the content is put at the website it also has to be found easily. It is the website's administrator's work to know what content users need, what content users seek and that the content is structured logically.

4.4.1 Content structure

Content should be organized clearly and logically along the website. Web designers probably do not know what users might consider as logical. What is considered logical depends on users' own mental models and it might be rational to put important content and links to several places where every user finds them easily. All content related with each other should be placed at the same group so that they become as easy as possible to found. (Shneiderman, 2007)

Minimize the number of clicks needed to find specific information. Especially most used content should be easily found with one or two clicks. Graphics should be used to make quantitative information understandable. A page should only display information that is necessary and the use of content should be minimized. (Shneiderman, 2007)

Users' equipments vary. Different web browsers, operating systems and connection speeds should be taken into account. Ensure that the use of content is not dependent of those limits. Otherwise the content should be at different forms and quality. (Shneiderman, 2007)

4.4.2 Internal search

In one study where users were asked to search a specific product 50 percent of test users used only website's internal search rather than tried to search by navigating. Only 20 percent of users searched the product only by navigating.

This study shows that websites' internal search is very important for the success of the website. (Nielsen, Search and You May Find, 1997)

On the other hand Spool's studies in 1997 showed that users who used navigation as a main tool found the information more likely than users who used internal search. Success rate was 53 percent to users who used navigation and 30 percent for users who used internal search.

(Spool;Scanlon;Schoeder;Snyder;& DeAngelo, 1997)

The lesson of Nielsen's and Spool's studies is that the website containing internal search is very important but it should be designed well. Poorly designed internal search can lead to users leaving the website for another website without finding the content even if the content were somewhere at the website.

There are many reasons for unsuccessful searches. User and designer might not share the same language. Users rarely change the default setting to search. Users also might misspell the words and if the search engine is not intelligent enough to fix the misspelling the users may never find the content.

4.5 Usability testing

Usability tests should be executed all the way along the designing process. No matter how well designing has been done the real usability evaluation can really be made only after the website is published and almost all the content is put in to the website. It is impossible to know how users will react in certain cases. Expert analysis and automatic analysis should be implemented first to find out the most obvious mistakes. It is not uncommon that the experts pay attention for not so potential mistakes leaving more potential mistakes disregarded (Shneiderman, 2007). That is why it is recommended to execute also user tests with the potential users with no expertise.

4.5.1 Automatic evaluation methods

There is software that does automatically usability analysis for websites. Such problems as pages running too slow can easily be authenticated with automatic usability analysis. Missing links are also one problem that automatic usability software can do much more efficient than humans. It should be remembered that automatic software cannot replace the human work and mind. (Shneiderman, 2007)

4.5.2 Benchmarking

Benchmarking is an efficient way to get information about requirements of a website. All the important competitors' websites should be benchmarked accurately. Usually benchmarking is done for purposes of human resource management, information systems, customer processes, quality management, purchase of products and supplier management. (Becker, 2008)

Website benchmarking includes usability and usefulness analysis of other websites. A person who does the benchmarking should document what content does the competitors provide and how it is provided. Every website's strengths

and weaknesses should be listed and then decided what needs to be done in their own website. (Becker, 2008)

4.5.3 Questionnaire

Questionnaire is an easy and a fast way to collect information about websites' usability. Questions are created adapting usability heuristics and guidelines. Questions measure websites' attractiveness, controllability, efficiency, helpfulness and learnability (Kirakowski & Bozena, 1998). Relatively reliable results can be collected with approximately 20 participants. It is though recommended to gather more participants. The larger the sample is the more reliable are the results of study (Tullis & Stetson, 2004).

4.5.4 Heuristic evaluation

Heuristic evaluation is a simple usability testing method where one or more experts evaluate website's usability and document usability errors they find. Heuristic evaluation is a relatively cheap method to find out mistakes that decreases usability results. Heuristic evaluation should always be made before the actual usability user tests since the biggest mistakes can be corrected before testing with users. That way test users can concentrate to accomplish the tasks without disturbances of fatal usability errors. (Nielsen, How to Conduct a Heuristic Evaluation, 2005)

It is impossible for one expert to find all the usability errors that the website includes. The more evaluators are used the more errors are found. Based on these studies Nielsen and Landauer have evaluated a formula which evaluates the amount of problems found when using more experts (Nielsen, How to Conduct a Heuristic Evaluation, 2005):

$$\text{Problems Found}(n) = N(1 - (1-L))^n \quad (1)$$

Where N is the total number of usability problems in the design and L is the proportion of usability problems discovered while testing a single user. The typical value of L is 31%.

Figure 10 shows a diagram referring to the Nielsen study where evaluating amount of mistakes found with certain amount of evaluators. The diagram suggests that five evaluators would be the most cost efficient amount of evaluators in one project. After 10 evaluators the effect is clearly decreasing and becomes more and more expensive. With the help of the heuristic evaluation can be used Nielsen's Heuristics.

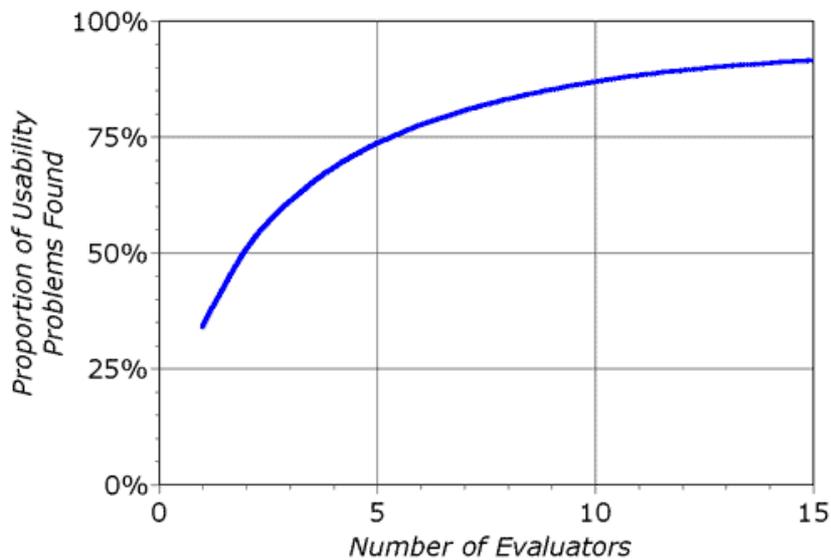


Figure 10. Heuristic evaluation finding curve.

4.6 Nielsen's ten heuristics

- **Visibility of system status.** Always inform user what is going on.
- **Match between the system and the real world.** Use of language and symbols that are familiar to user.
- **User control and freedom.** Keeping user in control and making possibility of undoing and redoing actions.
- **Consistency and standards.** Use of the same symbols and terms throughout the website.
- **Error prevention.** Users do make mistakes. Designers' job is to prevent them and make it easy to recover from them.
- **Recognition rather than recall.** Minimizing user's workload.
- **Flexibility and efficiency of use.** Making shortcuts or otherwise helping experienced users without disturbing inexperienced users to complete their tasks.
- **Esthetics and minimalistic design.** Use of only relevant content and elements.
- **Help user to recognize, diagnose and recover from errors.** Use of error messages and suggestions to complete tasks.
- **Help documentation.** Systems should be usable without need for help. When users need help it is crucial that it is easy to get.

4.7 User tests

It is usability designers' responsibility to decide what problems are significant and what can be left with less attention. Most crucial are the problems that occur frequently and are considered as significant usability errors (Shneiderman, 2007). Designer should also consider pros and cons of error correction.

4.7.1 Right amount of participants

When the website designing is in early process small amount of test users are needed. When the website is at its final stage more test participants are needed. The more participants are involved in the study the more problems are found. On the other hand the more participants are used the more duplicated problems are found. There is a breaking point where having more test users is not cost efficient anymore. Figure 11 shows the benefits and the costs as a function of certain amount of test users. It can be seen that 4 to 5 test users would be the optimal amount of users. It is still noticeable that the benefits of costs are still relatively high after 15 participants. As with heuristic analysis 85 percent of usability problems can be found with 5 test users (Nielsen, Designing web usability: The practice of simplicity, 2000).

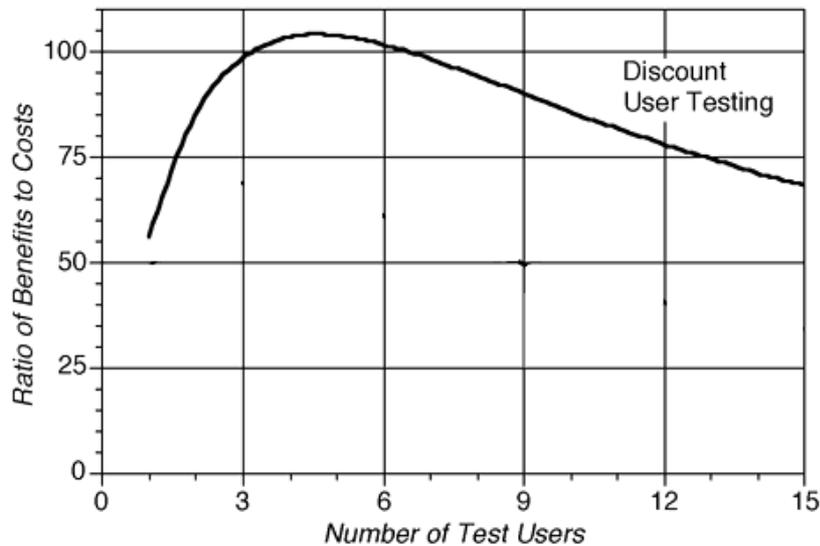


Figure 11. Ratio between benefits of costs as a function of certain amount of test users. (Nielsen, *Guerrilla HCI: Using Discount Usability Engineering to Penetrate the Intimidation Barrier*, 1994)

4.7.2 “Think aloud” or retrospective

There are two methods to complete user tests, “think aloud” and retrospective. In “think aloud” method user comments the actions at the same time as they do the tasks. In Retrospectively method user first does the tasks then comments. Video camera can be used to help in execution for retrospectively method. It allows users to watch their performance afterwards and recall their actions better. With respectively method users tend to complete more tasks than with “think aloud” method. When trying to be as cost efficient as possible simplified “think aloud” method would be the best choice (Nielsen, *Guerrilla HCI: Using Discount Usability Engineering to Penetrate the Intimidation Barrier*, 1994). Both methods vary from normal everyday situations and users are more tend to give positive answers than negative answers. (Shneiderman, 2007)

4.7.3 Laboratory or remote testing?

Usability tests can be applied also by remote testing. With the remote testing the designers should have a clear understanding what needs to be tested. For

example with cognitive walkthroughs the cases should be well designed. Studies show that it does not seem to have differences whether the tests are made remotely or in laboratory. (Shneiderman, 2007)

4.7.4 Use magnitude expectation (UME)

Use magnitude expectation (UME) measures how difficult the tasks are evaluated before the tasks and how hard it showed to be. The results are categorized in for categories:

- Tasks that were expected to be easy but were actually considered difficult.
- Tasks that were expected to be difficult but were actually considered easy.
- Tasks that were expected to be easy and were actually considered easy.
- Tasks that were expected to be difficult and were considered difficult to complete.

(Rich & McGee, 2004)

5. Web analytics

Web Analytics is the measurement, collection, analysis and reporting of Internet data for the purposes of understanding and optimizing Web usage.

-WAA (*Web Analytics Association*) (Analytics.fi, 2009)

Web analytics is about monitoring user behavior at websites. Web analytic applications show detailed statistics of any pages at the sites. For example average time spent at the page or from where users navigate to a certain page. Figure 12 shows dashboard view of Google analytics.



Figure 12. Google Analytics -dashboard view.

Web analytic application can be helpful when evaluating websites' usability. It should be remembered that web analytic tools give a hint of what is wrong with

the website but does not tell you why it is so. After locating the problem we still need to do appropriate usability analysis.

5.1 Conversion

Website success can be measured with goals. Goals are set for every website uniquely. Typical goals for a websites are: purchase of a product, contact for personnel or registration to a page. Web analytic applications calculates automatically conversion rates with the formula:

$$\text{Conversion rate} = \text{realized goals} / \text{visitors altogether} \quad (2)$$

Average conversion rate is nowadays approximately 2 percent, depending heavily of websites' nature. Conversion rate depends a lot on websites' structure and what is considered as a goal. It is very hard to compare two sites success rates just based on conversion rates. It is a proven fact that with usability improvements conversion rates can be increased remarkably. (Nielsen, Usability ROI Declining, But Still Strong, 2008) If the usability improvement does not affect remarkably to conversion rate, it might be considered as failure even if the usability itself would have improved.

Administrators of the websites should have clear a vision what is the websites' purpose. Usability and marketing researches helps to have better understanding what are the users' expectations and requirements. That way key performance indicators (KPI) can be set efficiently. Average conversion rates on ecommerce sites divided by industry are illustrated in figure 13 (Fireclick 2009, 08 24)

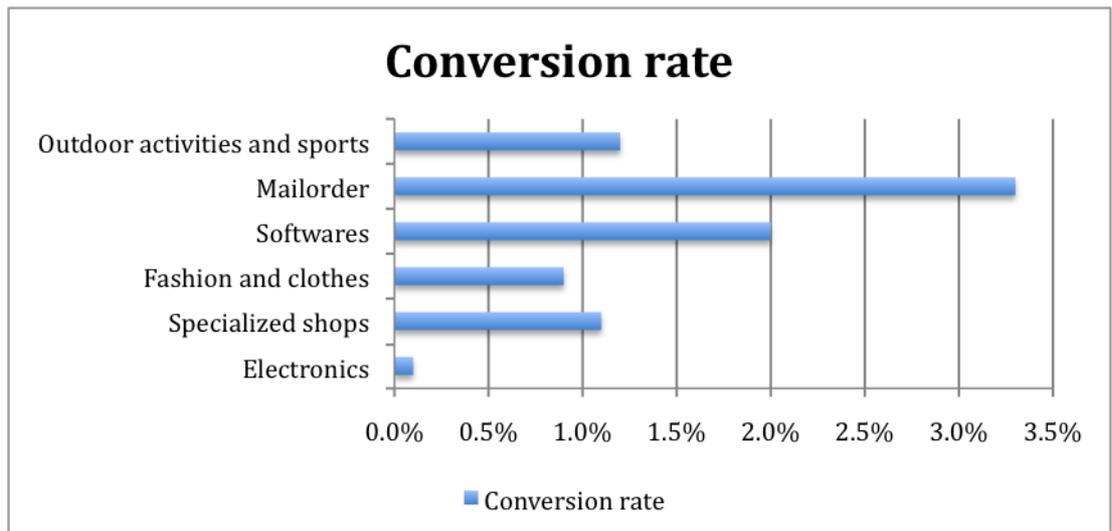


Figure 13. Conversion rates of online stores in various industries.

5.2 Bounce rate

Bounce rate is the percentage of users who stay on website less than 10 seconds and visits only one page at the website. High bounce rate indicates that the content of the page is not what the visitor expected. The landing page is the page where the visitors land via ads or search engines. If the landing page does not contain the content that the visitor has expected the risk of bouncing is high. That is why the bounce rate is a good indicator of bad user experience.

5.3 Internal search

Site's own internal search can be a great indicator what users require from the website. If users cannot find what they want it can lead to switching to another website. Monitoring bouncing rates after failed searches can give a hint on website's necessity. (Analytics.fi, 2009)

5.4 Search engine optimization (SEO)

The goal of search engine optimization (SEO) is to increase target audience flow to a website. The idea is to make the website search engine friendlier so that the search engines find the website when using the right keywords. It is important to optimize the website to appear high in search results.

Website administrators should consider what key words they want to appear in the search result. In order to succeed it is important to appear at the top ten in search results. About 70% of users do not view search results after the 10 first results (Hautamäki & Fogelholm, 2006). Studies also show that users who come to website from deep linking via search engines spend more time on websites than users who navigate directly to home page (Nielsen & Loranger, Prioritizing web usability, 2006).

To optimize search results, websites must have Flawless HTML avoiding flash and Java. Validity of HTML can be checked at w3c's website in "<http://validator.w3.org>". Right amount of content and using key words in body text creates better search results. At least 300-500 words per page and 5 to 10 percent of words should be keywords. It is not recommended to use more than three keywords per page. Titles should be tagged and formed as interesting as possible. For example the use of arguments and questions raises the users' interests more than use of single keywords. (Hautamäki & Fogelholm, 2006)

Example steps of SEO:

- **Analyzing present state.** From where and how the flow is coming to a website.
- **Competitors analysis.** How well competitors manage in search engine results.
- **Selecting key words.** Deciding on what keywords the website needs to have in order to appear in search results.
- **Specification of goals.** Administrator needs to have a clear vision on what kind of flow is needed and what are the website's main purposes.

- **Changes needed in website structure.** Possible changes that are necessary to get high results of project.
- **Linking campaign.** The more there are links from other websites to the desired website the higher the results are. Quality of links has a very important role. Bad linking can destroy website's search result performance.
- **Visitor and conversion monitoring.** For example what key words seem to lead to goals.
- **Analyzing state again.** Analyzing changes in website flow.
- **What to do next?**

(Hautamäki & Fogelholm, 2006)

5.5 Website optimizer

Website optimizer is a tool provided by Google. Website optimizer is designed to improve the effectiveness of a website. With the website optimizer you can compare two or more versions of the same page to decide which is the most effective.

There are two ways of to use website optimizer: A/B testing and multivariate testing. A/B testing allows testing of two totally different versions of web pages. Multivariate testing allows to test certain sections simultaneously for many web pages. If the website traffic is under 1000 then it is recommend to use only A/B testing since gathering reliable results takes too much time.

Figure 14 illustrates how the website optimizer works. At the upper side of the list are the figures of the original page. Below the original page are listed different versions of the page. List shows pages' estimated conversion rates and quality figures. (Google, 2009)

Combination	Estimated Conversion Rate Range [?]	Chance to Beat Orig. [?]	Chance to Beat All [?]	Observed Improvement [?]
Original	17.2% ± 8.4%	—	0.04%	—
Combination 11	30.9% ± 13%	89.3%	37.0%	79.3%
Combination 5	29.5% ± 12%	87.8%	26.3%	71.1%
Combination 9	28.8% ± 10%	88.4%	19.2%	66.8%
Combination 6	26.7% ± 9.5%	84.8%	8.88%	54.7%
Combination 8	24.4% ± 10%	77.6%	4.21%	41.3%
Combination 1	22.4% ± 10%	70.3%	2.25%	29.9%
Combination 4	21.6% ± 9.8%	68.1%	1.30%	25.4%
Combination 10	20.7% ± 9.2%	65.1%	0.60%	20.2%
Combination 7	19.5% ± 9.0%	60.1%	0.31%	13.2%
Combination 3	15.1% ± 8.7%	40.2%	0.01%	-12.6%
Combination 2	11.2% ± 7.0%	22.3%	0.00%	-34.8%

Figure 14. Google website optimizer. (Google, 2009)

6. Value of investment

Before starting a usability process we need to make the management understand why usability improvements need to be made. Return of investment (ROI) is simple and effective way to show what is the value of an investment. ROI is a flexible measurement and can be used for many purposes (Investopedia, 2009).

Formula of ROI is:

$$ROI = \frac{Gains - Costs}{Costs} \quad (3)$$

There are many ways to define what to include in the costs and gains. Before using the formula it needs to be defined what are meant with gains and costs. Sometimes it is hard to define what costs need to be included into calculations.

First we need to define the price for conversion. If conversion is a purchase the value is easy to define by the funds of a purchase. When conversion is something intangible for example an act of contact, the value of the transaction needs to be defined in some other way.

An example

The website belongs to a car retailer and they do not sell anything on web. The contact transaction can be valuable for company. We select contacting to sales person via website as a goal. If 10 percent of people who contacts will purchase the car and average fund is 1000 € then the value of conversion is 100 €. The conversion rate increases from 1% to 2% after the user experience project. Project cost 10 000 €. Before the project Company had 10 contacts in week. Now the same number is 20 contacts via website. Now the company sells 1 car more in a week than before. It means 52 cars more in a year and gives 52 000 € fund every year. After a year the ROI is 420 %.

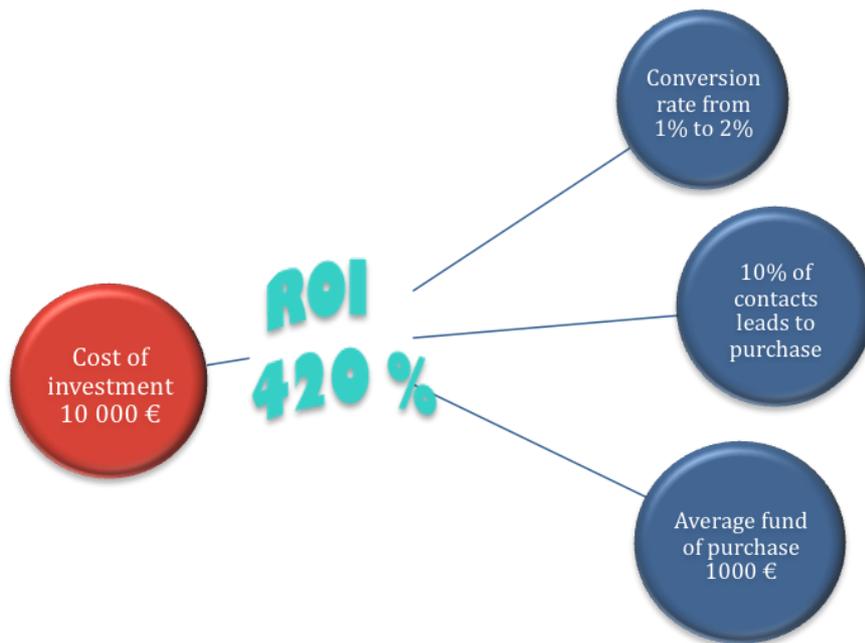


Figure 11. An example of ROI in usability project

7. Introduction of Klikkicom

Klikkicom is a Nordic Internet marketing company. The company was formed as a result of a merger between the Finnish online display sales company Klikkicom Oy and the Swedish search-marketing specialists StockholmBerlin in 2007. Klikkicom was founded in 2002. At that time Klikkicom was concentrated on selling Internet advertizing. StockholmBerlin was founded in 2005. The main services of Klikkicom are Klikki Media, Klikki search, Klikki analytics and Klikki plus.

Internet marketing is a fast growing business. Figure 15 shows the value of Internet marketing in different market areas. Figure shows how Finland's markets are undeveloped compared to almost the same market size area in Sweden. While Finland's investment in Internet marketing is 0.067 Billion Euros, Sweden's is 4 billion Euros.

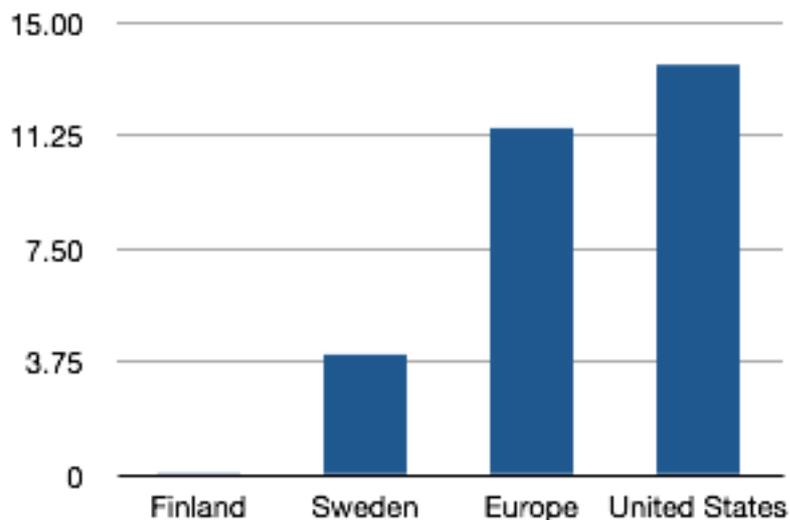


Figure 15. Investments to Internet Marketing in 2007. (TNS 2009)

7.1 Klikki Media

Klikki Media is Finland's largest independent online display selling company with three million weekly users. Over 200 million online displays can be executed weekly at Klkkicom sites. Klkkicom presents such popular sites as Kauppalehti, Elisa, IRC- Galleria and SM-liiga.

7.2 Klikki Search

Klikki search includes paid search management and search engine optimization. KliKKi's Keyword Management Service consists of full-service packages for paid search management. Klkkicom's services consist complete management of clients' paid search activities in multiple search channels, including keyword portfolio development, optimization of ad-copy and bidding strategies.

Klkkicom works with a number of Scandinavia's largest websites with improving search engine positions. Klkkicom is also currently managing an increasing number of Mobile Search campaigns throughout the Nordic region.

7.3 Klkkicom analytics

Klkkicom is a Google analytics authorized consultant. Klkkicom is the third company in Finland and the first in Sweden to get this status. Klkkicom offers consultation for Google Analytics, which is the market leader of web analytic applications. Analytic process (illustrated in figure 16) starts with setting goals and specifying requirements. Measurements are integrated with SEO and SEM goals. After building an account Klkkicom offers continues following and support for accounts.

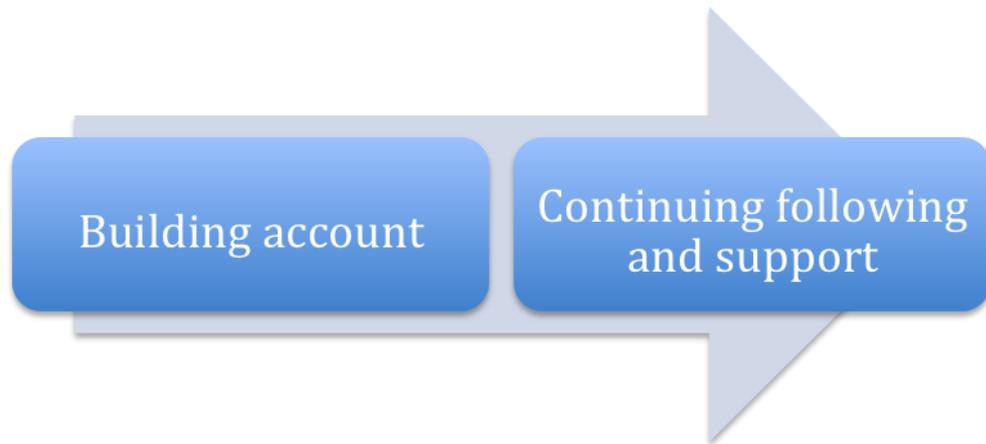


Figure 16. Web analytic process of Klikkicom.

7.4 Klikki Plus

Klikkicom offers also consultation services of online-marketing. Services include for example increasing conversion rates and integrating search services to media sales solutions.

8. Klikkicom website

Klikkicom's website is located in URL <http://www.klikki.com/>. It is provided in three different languages: Swedish (<http://www.klikki.com/sv>), English (<http://www.klikki.com>) and Finnish (<http://www.klikki.com/fi/>). Except job opportunities the content is identical, excluding translation differences. The outfit of the website is clear and simple and the content is left at minimum. Screenshot of the front page is illustrated in figure 17.

IN ENGLISH. PÅ SVENSKA. EESTI KEELES. UUTISKIRJE. PALAUTE. OTA YHTEYTTÄ.

Klikki.

ETUSIVU
YRITYKSESTÄ
TUOTTEET JA PALVELUT

CASEY
REKRYTOINTI
OTA YHTEYTTÄ

P. +358 (0)45 677 7770
F. +358 (0)9 490 770
E. HELSINKI@KLIKKI.COM

IMPROVE YOUR NUMBERS.

SWEDEN	9,166,827
FINLAND	5,303,652
ESTONIA	1,342,409
TOTAL	15,812,888

Klikki. SEARCH.
Klikki Search Marketing -tuotteisiin kuuluvat hakusana- ja hakukoneoptimointipalvelut, jotka sekä lisäävät liikenteen määrää sivullisi että kohentavat sen laatua.
> Hakusanamallonta
> Hakukoneoptimointi
> Linkki-strategiat

Klikki. ANALYTICS.
Menestyvä verkkomarkkinointi pohjaa jatkuvaa kehitykseen. Analytics-tiimimme tarjoaa kaikki tarpeelliset välineet tehokkaan tulosten takaamiseksi.
> Google Analytics

Klikki. MEDIA.
Klikki tarjoaa ainutlaatuisia ratkaisuja tehokkaaseen medianäkyvyyteen nettiympäristössä. Ratkaisuisia hyödynämme mainosverkostoomme Suomessa ja Baltiassa.
> Verkkomedia
> Kaikki mediat
> Kaikki uutiskirjeet

Klikki. PLUS.
Klikki Plus tarjoaa online-markkinoinnin strategisia konsultointipalveluja, esimerkiksi konversiotason kehittäminen sekä hakupalveluiden yhdistäminen mediamyyniträtkäisuihin.
> Konsultointipalvelut

NEWS.
25.2.2009 Hakukonemarkkinointi-seminaari
6.2.2009 KLIKKI valinnutti palkkansa verkkomedioiden raskaassa sarjassa
2.12.2008 KLIKKI valittiin Google Analytics -kumppaniksi
2.12.2008 Uusia klikkiläisiä
17.9.2008 KLIKKI uudistaa kohderyhmäpakettiansa
1.7.2008 KLIKKI osallistuu Tukholman Search Marketing Expoon 23. - 24.8.
5.6.2008 Klikin tekninen kehitystiimi vahvistui!
7.5.2008 KLIKKI panostaa hakukoneoptimointiin - uusi kehityskeskus Ruotsiin

AFTONBLADET

ANALYTICS ADWORDS
AUTHORIZED QUALIFIED
CONSULTANT COMPANY

Google Google

QUALIFIED PARTNERS.
SEMPO :::
TOP OF SEARCH = TOP OF MIND®

Tilaa ilmainen tarvekartoitus

Nimi:

Yritys:

E-mail:

TURKOLMA. HELSINKI. TALLINNA. MATERIAALIOHJEET MAINOSTILAN MYYNTIEHDOT

COPYRIGHT 2009 KLIKKI.

Figure 17. Klikkicom's front page.

8.1 Site hierarchy

Site contains three levels of navigation. Site's hierarchy is illustrated in figure 18. First level of navigation is the main navigation and it is located at the upper side of the page. Second level navigation is located at the right side of the page. Third level navigation opens up when clicking the second level navigation title leaving the second level open. See figure 18.

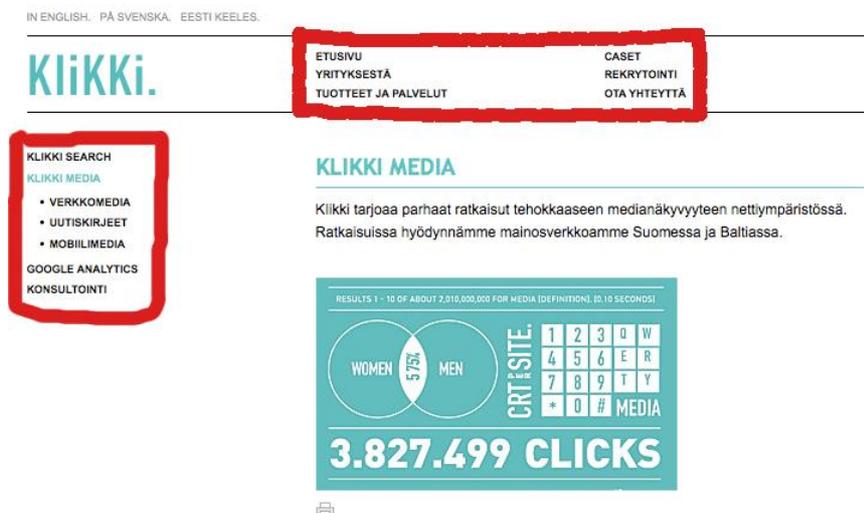


Figure 18. Klikkicom's website's navigation.

Main navigation contains five titles excluding link to front page. These five titles are:

- About Klikki.** Contains information about Klikkicom corporation.
- Products and services.** Contains information about products and services provided by Klikkicom.
- Cases.** Contains successful example cases of Klikkicom's projects.
- Jobs.** New job opportunities can be found here.

- **Contact.** Contact information of all Klikkicom's employee's.

The structure of the whole website is illustrated in figure 19.

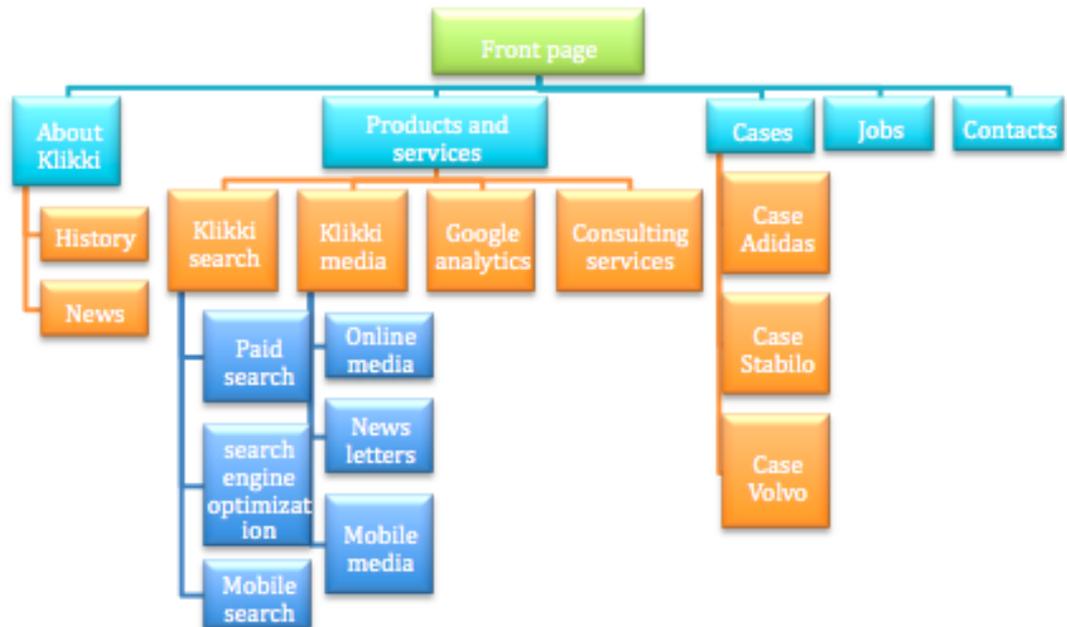


Figure 19. Hierarchy of Klikkicom's website.

9. Stages and steps of website usability projects

Usability process can be divided into three stages: specification stage, analyzing stage and monitoring stage. Each stage can be executed separately and the stages can be customized according to customer needs. Stages are illustrated in figure 20.

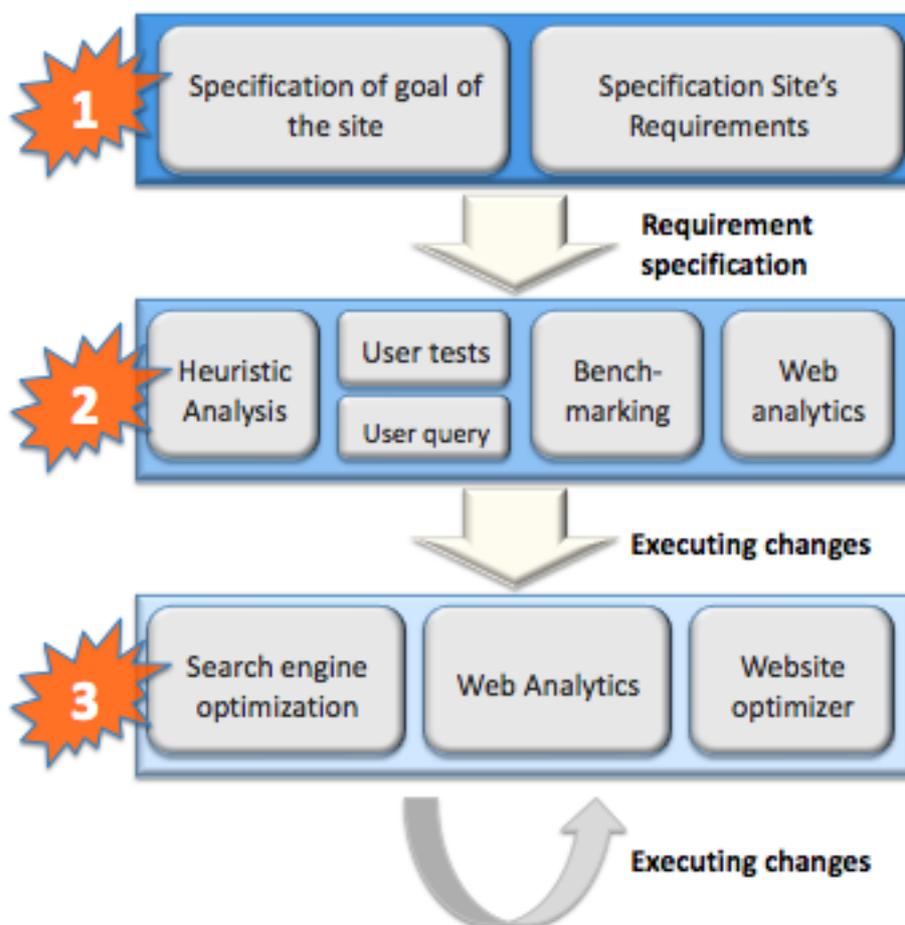


Figure 20. Stages of usability process.

9.1 Stage 1: Specification stage

The stage 1 is for specification of goals of website. How much a current website affects and how much it could affect on business? How much value a website adds to company's offline functions? Do customers get value from website? Does the website add value to company brand? These are relevant question to answer when building a successful website.

Requirement specification is a specific document which describes structure, elements used and the layout of a website. A website is developed following the document. Changes to requirement specification are possible during the development process. It should be remembered that the later the changes are made the more expensive they get (Leventhal ja Barnes 2008). If the website is already built and relevant questions are being answered this stage can be passed or executed as a lighter version.

9.2 Stage 2: Analyzing stage

The analyzing stage is for monitoring the past and the current situation of a website. Tools to be used are: benchmarking, users tests, user inquiry, heuristic analysis and web analytics. Heuristic analysis, benchmarking and web analytics are the fastest and the cheapest tools to use and should be used on every project. User tests and user inquiries are effective but time consuming and the relevancy of those actions should be considered case by case. At least light versions of heuristic analysis, benchmarking and web analytics should always be executed before stage 3. With the aid from the results of this stage the changes to website can be executed.

9.3 Stage 3: Monitoring stage

The final stage is the monitoring stage. If changes to the website have been made, comparing results before and after the changes should be made.

Continuing the monitoring of website actions and visitors behavior is the key to maintain and improve website success. For example title and content relevancy are factors that can be easily formatted to be more effective.

Search engine optimization and search engine marketing affects the findability of a website. If the user finds the website with relevant key words, it should be also secured that the landing page where the visitor first enters is relevant to keywords. Visitors navigate to website from different kinds of sources. Dividing users to different groups based on how they navigated to website helps to analyze user needs and behavior on the website.

10. Specification of a website's requirements

We start the whole usability process with the specification of the website's requirements. First we need to define the website's goals. Determine the main reasons why the website has been made. Usually there is already some kind of a clue, what are the biggest problems and the biggest merits of the website. Feedback from customers and employees should be taken into account.

10.1 Goals of the website

The main goal of the website is to create contacts. The contact page contains every employee's contact information. There is also a "contact for free consultation" -form at the front page.

To persuade visitors to make contact there are sub-sites for promoting that. "About Klikki" inform visitors about history and news related to the company. Products and services section introduces the services that the company provides. Cases section introduces some successful projects.

There is also a "Jobs"-page to inform visitors about open job opportunities within the company. The page does not contain any other information about working at Klikkicom. For example an open application -form or some information about working at Klikkicom might be useful.

10.2 User Experience

To get to this goal the website needs to create an image of a reliable and a competent company. The website needs to have the characters of a good user experience introduced in chapter 3. The user experience honeycomb model included characters ofvaluability: usability, usefulness, desirability, accessibility, findability and credibility.

To be useful the website must contain the information the visitors are looking for. A usable website is organized so that the information is easy to get. The paths to information must be logical.

To have credible and desirable website the outfit of the website must be pleasant. References, cases, partner and certification logos are a good way of increasing confidence. In figure 21 are logos from the Klikkicom's website.



Figure 21. References and certifications at the right side of the web page.

An accessible and a findable website is designed so that it can be accessed with as many equipments and web browsers as possible. The website should be as light as possible so that the users with lower bandwidth could use it fluently. Expansion requirements to browsers should also be avoided. To be findable the website needs to be optimized for search engines.

11. Heuristic analysis for Klikkicom's website

Heuristic analysis was done with the help of Nielsen's heuristics (Nielsen 1994b) and the usability guidelines presented in chapter 4.6 Analysis was done only for the Finnish website to save time and money because the content was same at all the three sites.

Findings of the heuristic analysis were relatively meaningless, except for a couple of bigger problems. One of the main problems was the front page, which did not fit to one screen (see figure 22). For example "contact us for free consultation" –form was hidden at the bottom of the page. The element was also out of context and a small investigation showed that it was hardly ever been used. After sending the form users need to scroll down to get the message that the form has been sent. The process of sending the form is illustrated in figure 23. All the findings of the heuristic analysis are listed in appendixes.



Figure 22. User needs to scroll down to see the lower part of the page.

IN ENGLISH, FINLANDIA, BOST KEELES

UTUUS
YHTIYSSÄ
TUOTOIT JA PALVELUT

CASEY
HEIKKINEN
OJA YHTIYTTÄ

P. +358 (0)4 677 770
F. +358 (0)4 607 770
E. HELSIKKI@KLIPPI.COM

SWEDEN 9,166,827
FINLAND 5,903,452
ESTONIA 1,342,407
TOTAL 15,919,888

IMPROVE YOUR NUMBERS.

KLIPPI SEARCH.
KLIPPI Search Marketing tuottaa laadukkaita hakutuloksia ja hakukampanjoita, jotka auttavat yrityksesi kasvamaan ja saavuttamaan tavoitteita.

KLIPPI ANALYTICS.
Määrittäjä verkkosivustosi käyttöä ja käyttäjäkäyttäytymistä. Analyysi ohjelmisto tarjoaa kaikki tarvittavat tiedot liiketoimintasi kehittämiseksi.

KLIPPI MEDIA.
KLIPPI tarjoaa arvokkaita palveluita verkkosivustosi, hakukampanjoita ja sosiaalisen median kampanjoita. Klippi on erittäin tehokas ja luotettava.

KLIPPI PLUS.
KLIPPI Plus tarjoaa online-markkinoinnin strategian verkkosivustosi, hakukampanjoita ja sosiaalisen median kampanjoita. Klippi on erittäin tehokas ja luotettava.

NEWS
23.12.2016...
03.12.2016...
2.12.2016...
19.12.2016...
11.12.2016...
23.12.2016...

AFTONBLADET
ANALYTICS ADWORDS
AUTHORIZED QUALIFIED
CONSULTANT COMPANY
Google Google

SEMPO
SEMPO.COM

Thank you
We will contact you shortly.

Figure 23. User needs to scroll down to get the feedback from sending the form.

11.2 Conclusion of the heuristic analysis

To get a better picture on the website's deficiency and problems it is necessary to divide analysis into two different categories: usability and content. Both factors are examined separately.

11.2.1 Usability

After the heuristic evaluation it can be pointed out that the website seems to be easy to use and most of the content are placed logically. Outfit of the website is clear and the content is divided clearly from each other. The website basically includes text with one flash animation and a few pictures and forms. The flash is very light but the importance of the flash should be reconsidered. Since the flash can slow down users with low connection speed and does not improve search engine findability (Hautamäki & Fogeholm 2006). Contact information is not specified. The website shows contact information of every employee and users may not know which person to contact in specific needs.

In some cases finding the path to the goal needed too many clicks. At some cases five clicks is the minimum to get to the right content. Klippicom website included very little content and all the content could easily be three clicks away

from the front page. This would help both the users and the search engines to find the content.

The website includes external links to other websites. These links do not indicate that they are external links. This can be very disturbing for a user to navigate outside the website unintentionally. Figure 24 is from the “media” – sub-site that introduces all the medias that Klikkicom represents. All the links in the text are external links and some users might consider them as internal links.

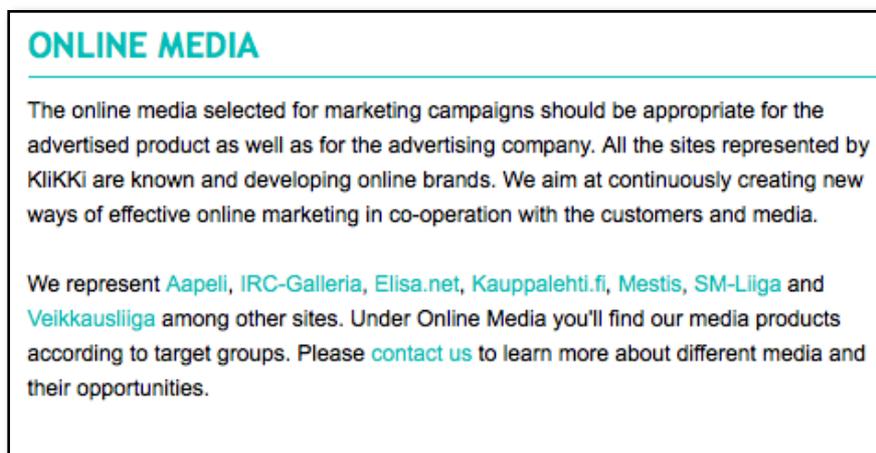


Figure 24. Online media includes external links.

11.2.2 Content

A bigger problem of the website seems to be the lack of content. Not enough information is provided on products and services. Internal search was missing although 80 percent of users use it when available. Also references to customer cases are inadequate. This study indicates that it would be more efficient to design a whole new website for Klikkicom instead of doing little changes which hardly brings any difference for their website performance.

Information about Klikki media site was not up to date. Some of the partner website links were missing and some websites did not belong to media service anymore.

Products and services sub-site did not include contact information except on the mobile search page. This is very inconsistent when one service has contact information and one does not.

12. Web Analytics for Klikkicom website

The next step was to investigate if web analytics could help to localize usability problems. There was no goals set on the website so we could not follow conversion rate to examine website's success. The best indicator to use was the bounce rates and average time spent on page.

12.1 Bounce rates

Bounce rate is a good usability indicator. High bounce rate can indicate that the content of the page is not what the users have expected when navigating to page. To get further information every page needs to be examined individually. When examining data with Google analytics (figure 25) between 01.07.2009 and 01.09.2009, there were found 57 pages with bounce rate more than 50%. This means that over 50 percent of visitors of those pages leave the landing page without navigating to another page on the website.

Pageviews		Unique Pageviews		Avg. Time on Page		Bounce Rate		% Exit		\$ Index	
6,900		5,612		00:00:50		48.74%		29.97%		\$0.00	
% of Site Total: 100.00%		% of Site Total: 100.00%		Site Avg: 00:00:50 (0.00%)		Site Avg: 48.74% (0.00%)		Site Avg: 29.97% (0.00%)		Site Avg: \$0.00 (0.00%)	
Page	Pageviews	Unique Pageviews	Avg. Time on Page	Bounce Rate ↓	% Exit	\$ Index					
1. /about_klikki/news/breakfast_seminar_on_search_eng	13	13	00:00:27	100.00%	23.08%	\$0.00					
2. /about_klikki/news/google_expands_partner_program	7	6	00:00:14	100.00%	42.86%	\$0.00					
3. /admaterialinstructions	11	11	00:00:11	100.00%	45.45%	\$0.00					
4. /admaterialinstructions/	4	3	00:00:15	100.00%	25.00%	\$0.00					
5. /cases/case_stabilo	16	16	00:00:08	100.00%	18.75%	\$0.00					
6. /cases/case_volvo	23	23	00:00:19	100.00%	43.48%	\$0.00					
7. /contact_us	2	2	00:00:00	100.00%	100.00%	\$0.00					
8. /fi/veesti_keeles/	8	7	00:00:08	100.00%	12.50%	\$0.00					
9. /fi/materiaaliohjeet	2	2	00:00:00	100.00%	100.00%	\$0.00					
10. /fi/matkahuolto_-_profilitiedot/	3	3	00:00:00	100.00%	100.00%	\$0.00					

Figure 25. Screenshot from the top content and highest bounce rates.

Before making conclusion we need to look at average the time spent on the page. If the average time is low, users probably scan the titles and do not find

what they are looking for (Nielsen, How users read on the web, 1997). We can view the navigation route to see where visitors navigated to. That way we we're able to get an idea what they were looking for.

One reason for high bounce rate might be that the page is ranked high in search engines with irrelevant keywords. It is possible to view what keywords are used to navigate to the page. If the keywords are considered relevant for the page it should be investigated whether the visitors found what they were looking for. Reasons for not finding the content might be irrelevant titles that did not describe the content well enough or the lack of content or that the page included too much content.

We have to bear in mind that these finding are only suggestions and there should not be any quick conclusion made. Very important clues that something is wrong with the page can be found by following bounce rates.

12.2 Navigation

To get a better picture where the visitors navigates website overlay functionality can be used. High or low click rate can be a sign of low relevancy of the element or consequence of bad placing.

Figure 26 shows the click rates at the front page of Klikkicom website. The figure shows for example that there is no significant number of clicks in "order free consultation" -form. We can conclude that either the form is unnecessary or it placement is not very effective. Figure 26 also shows that visitors navigate almost equally to products and services via main navigation and the front page elements that leads straight to specific page.

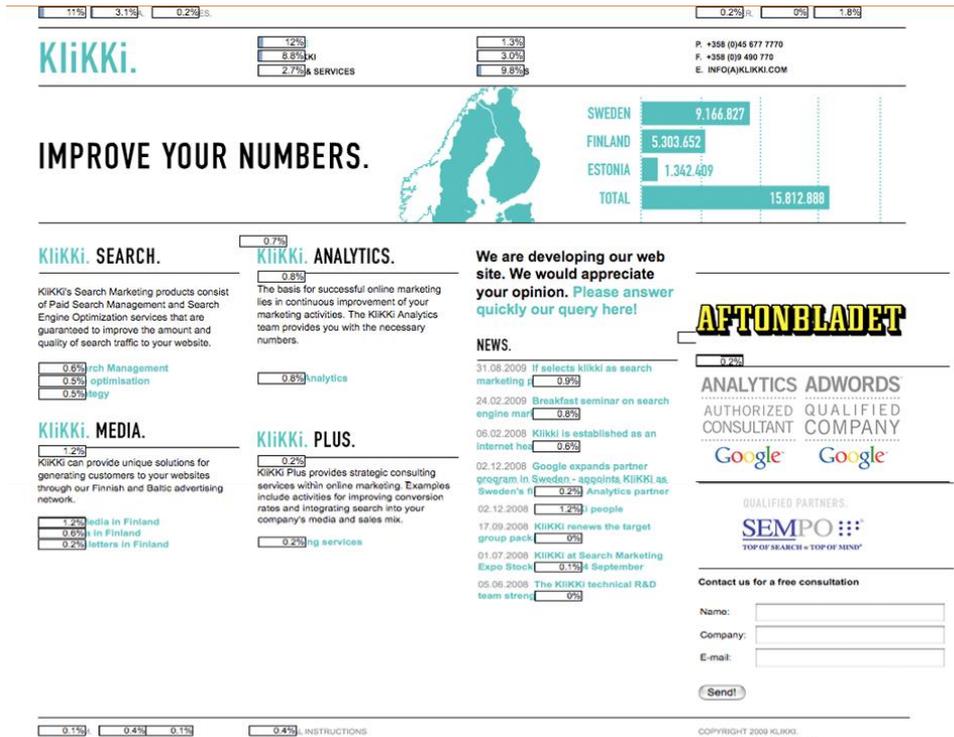


Figure 26. Click rates at the front page.

13. Benchmarking competitors of Klikkicom

Lack of content seemed to be the biggest problem of the website. 17 biggest competitors' websites from Finland and Sweden were benchmarked. Purpose of the benchmarking was to clear out what content the competitors have on their websites. Figure 27 shows percentages of sites holding the most important content. Only contact form, news, service information on the front page and possibility for printing content was found from Klikkicom's website.

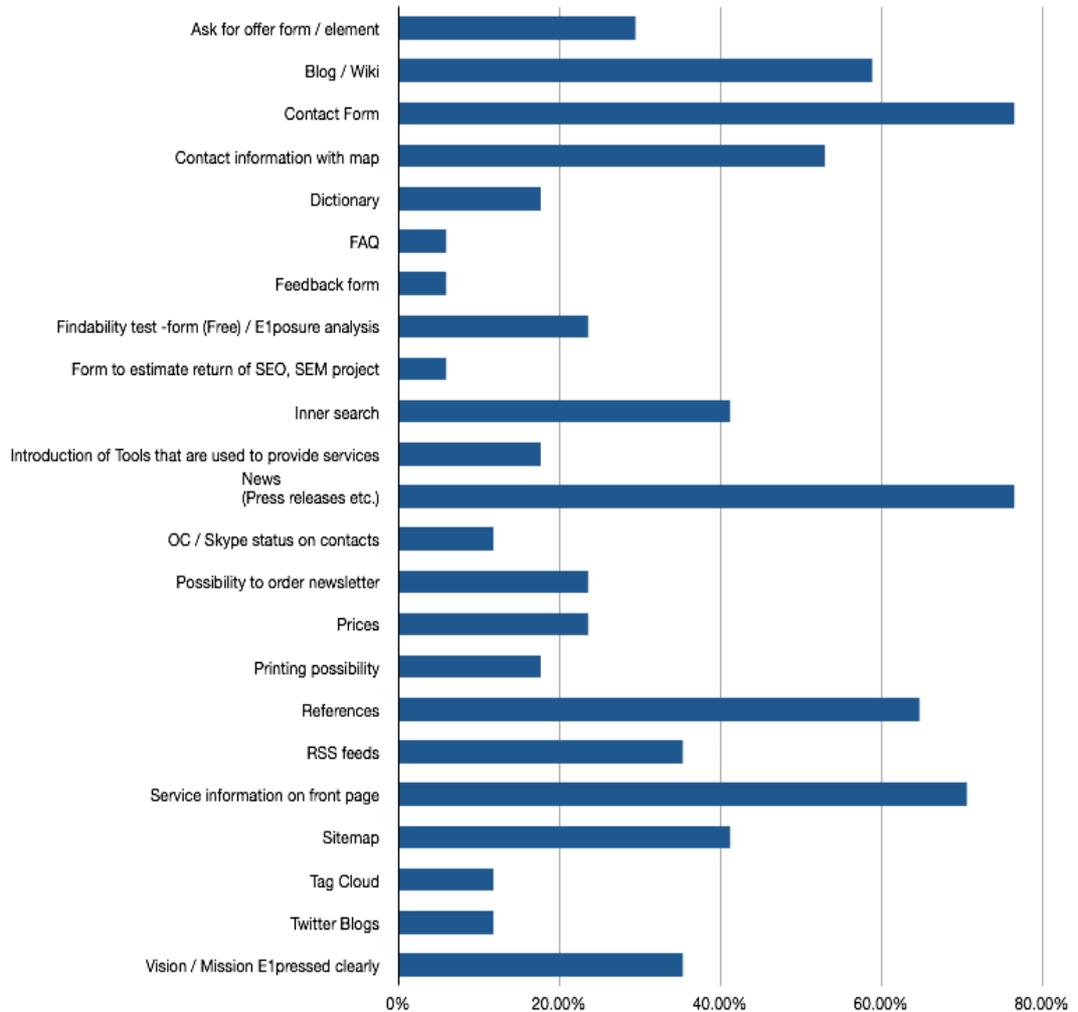


Figure 27. Percentages of benchmarked websites with certain elements.

The biggest fault besides the lack of product and service information was the lack of blog and wiki. Over 50 percent of competitors run blogs on their website. Also customer references were presented more clearly almost in every competitor's website. Internal search was also provided by over 40 percent of websites. A dictionary and a free findability test seems to be very considerable content for Klikkicom's website.

The fact that the competitors have the content or element on their website, does not necessarily mean that the elements should be used on their own website. We still need to consider if the content or element is relevant and would give value to the website. In the next chapter benchmarking results are exploited with the user query.

14. User inquiry at Klikkicom's website

User inquiry was executed at Klikkicom website as a pop-up inquiry. After the visitor downloads the fifth page of the website, the pop-up window appears and gives the option to move to inquiry or continue surfing. Query was also found as a link located at the front page. The answers were registered to database which automatically created a report. Inquiry questions can be found in appendixes.

The inquiry was online at the website and one visitor was kind enough to answer the questionnaire. The one visitor answered only half of the questions. The visitor was searching for a blog, which could not be found. Obvious reason for that was that the website did not include a blog.

This inquiry points out the fact that visitors do not answer these kinds of questionnaires without direct benefit. If there were some kind of a price to win among the answered visitors the amount of answers could have been very different.

Another possibility to get more answers would have been emailing the questionnaire to the customers directly. This was not possible because the company had another inquiry for its customers at the same time and posting two questionnaires to customers was not possible according to management.

15. User tests for Klikkicom website

- 5 potential website users.
- Tests executed in laboratory with Macbook laptop and Silverback - application installed.
- Monitoring user's behavior, click and navigation routes to goal.
- Specified tasks
- Open questions
- Results exported to spreadsheet and analyzed.

User tests were executed in laboratory built in Klikkicom's meeting room.

Equipments were Apple MacBook laptop that included a web camera and a USB -mouse.

Silverback application was installed to computer. Silverback is an application that enables recording the screen while showing web cam picture of user.

Figure 28 illustrates the screenshot taken from user test. Silverback converts tests to video format and enables analyzing tasks afterwards.

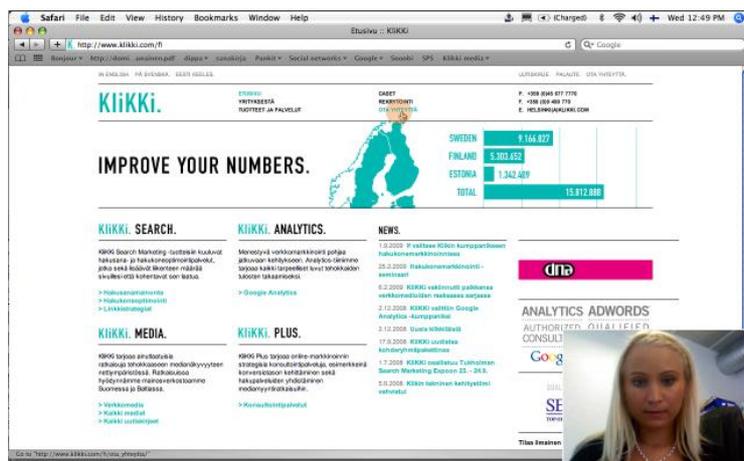


Figure 28. Screenshot from user test executed with Silverback.

15.1 Tasks of the user tests

1. List Klikkicom's 4 main services.
2. What is the target of search engine optimization according to Klikkicom website?
3. Which websites Klikkicom represents in media?
4. What target groups Klikkicom online media has to offer?
5. You are interested in working at Klikkicom's service. What open positions Klikkicom has to offer right now?
6. What example cases can be found from the website?
7. You are interested in search engine marketing project. Who would you contact?
8. Send feedback via website.
9. What is the price for 728x90 sized banner at Elisa front page?
10. What picture formats are compatible in banner campaigns?
11. In what countries does Klikkicom operate?
12. What is the title of the latest news?
13. Where can you find the "Contact us for a free consultation" -form?
14. What do the logos at the right side of the front page mean?

15.2 Results of the user tests

Data of user tests was exported to spreadsheet. Measured factors were: time taken to complete the tasks, clicks needed to get to goal, path to the goal and comments and notes based on videos. Figure 29 shows the average time spent to complete the tasks. Figure 29 also shows how many clicks were needed to complete the tasks. The more clicks needed the more time were spent completing the task. This observation supports the goal to make website structure more flat. It should be noticed that some tasks took longer even if the path was shorter. These cases need to be investigated more accurately.

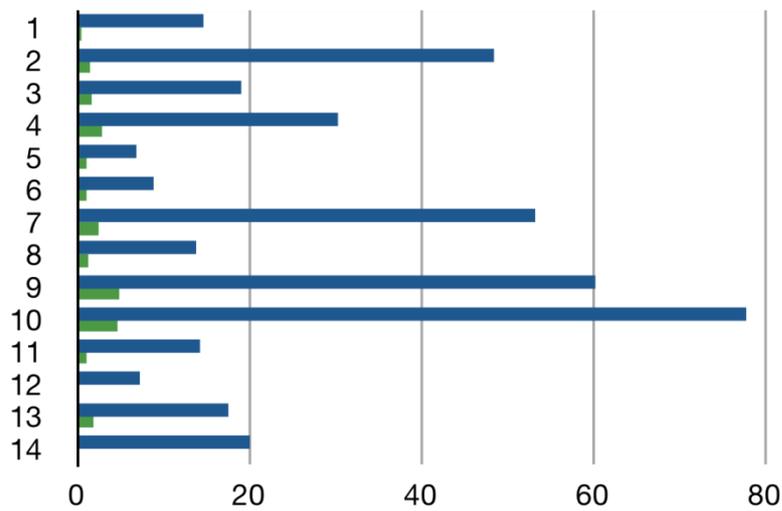


Figure 29. The average time rates and clicks needed to get to goal.

15.2.1 About Klikkicom

All the relevant information from “about Klikki” –sub-site was also findable from somewhere else. Tasks related to this section were 11 and 12. The answers to the tasks could also be found at the front page where all the test users found them without a problem.

15.2.2 Products and services

Most of the tasks were related to products and services since most of the content of the website was related to that topic. Questions related to products and services were 1, 2, 3, 4, 7, 9 and 10. The front page provided lots of information about products and services. Many times test users scanned the front page first before moving to “Products and services “ –sub-site.

Two out of five users navigated straight from the main navigation to products and services section while three users first scanned the front page. These three users used also the main navigation when the information was not found at the front page. In these three cases the front page –element made the task faster when the information was on the front page. When the information was not found at the front page users still scanned it before moving forward. This made the tasks slower to complete. Test results suggest that it is important to keep main services on the front page. It has to make sure that all the relevant information can be found from there. Other option is to keep the front page elements as teasers providing as little information as possible so that the visitor does not even think that the information needed could be found there. Now the element includes too much information to work as teaser and too little to work as helpful information element.

With two out of five users the external links (see figure 24) at the Klikki media page created problems when the user navigated outside the site. That created a little panic and confusion. Users clearly expected to move to the internal link when clicking the links. This should be fixed by indicating user about external links.

Material instructions (figure 30) that were placed at the footer were expected to be located at the products and services information section. Four out of five users first navigated to Klikki media and two users did not find them at all.



Figure 30. Add material instruction was “hidden” in the footer.

The final problem that was found was that the path to media information was too long. Task nine was to find information about Elisa banner adds. To get to goal five clicks minimum was needed. Only one user found the information without problems. The website contains so little information that it would be easy to arrange the information so that it would only require three clicks to get to the goal.

15.2.3 Cases and Jobs

Cases and jobs was very easy to find and all the test users navigated straight to goal via main navigation. Average time to find all the references was 8.8 seconds and getting to the job opportunities took 6.8 seconds.

15.2.4 Contact

Contact information was also found very easily. Contact information was found from the main navigation and also from the header. At contact –page every employees contact information were presented. The problem of the website was that users did not know which contact information to use. When asked to contact someone to start search optimization project four out of five users navigated first to products and services –sub-site and were confused when there was no contact information.

Every test user searched for a feedback form from contacts. This suggested that it is unnecessary to keep the contact link in the header. Even though everyone found it eventually from header after scanning the contact page.

The “Ask for free consultation” –form was also assumed to be located on the contact page. Three out of five users did not find the form at all. This suggests that either the placing of the form was wrong or the existence of the entire form was irrelevant.

15.3 Other comments

Logos at the right side of the front page (figure 21) were mostly misunderstood. Purpose of the logos is to increase the credibility of the website and company. Even though the logos are meant to visitors with knowledge of Klikkicom business domain, we still could use titles to show visitors what these logos really mean.

There was a little confusion between the main navigation and header. Users had difficulties to distinguish which text was navigation and which header. This problem should be fixed by dividing main navigation and footer visually better from each other.

Lack of internal search was also considered as a problem with two of the test users. Internal search helps navigating at the website and finding relevant information faster.

16. Overall analysis of found problems

The website contained several remarkable usability or user experience errors that could easily be fixed by couple days of work. The next list shows analysis on the most relevant errors.

- **Blog.** Blog existed in almost all of the biggest competitors' website. Blog attracts traffic to website and makes it more credible and interesting. Blog administrating requires time but is easy to implement. If there are resources it is recommended to create a blog.
- **Contacts.** Contact page included contact information of all the employees. It was not clear for all users to which contact person should be contacted at different cases. Contact information should include responsibility areas more clearly. Products and services sub-site should also include contact information on every page since the main goal of the website is to create contacts.
- **Internal search.** Placing internal search can be a bigger project compared to other changes. The amount of work depends on the platform which the website is built on and does it have a component that just needs to be configured. Users like to use internal search and finds it handy to use (Nielsen, J. 1997). Internal search also reveals the content that the visitors are looking for but the website does not currently include.
- **References.** Site contained a few examples of customer cases. Klikkicom would have much more cases to introduce. Introducing references provides the credibility of a company and makes it a more interesting partner.
- **Ask for free consultation.** The necessity of the "ask for free consultation" - form should be considered. If Klikkicom wants to keep it, the right placing would be under the contacts.
- **Main navigation / header.** Main navigation and header caused a little bit of confusion. The problem was that they were not visually well enough divided

from each other, so some users thought they were the same element.

Elements should be visually separated better.

- **Site structure.** Site structure at products and services were too deep and so this caused problems to find all the relevant information. There is plenty of space to make a couple of new sub-sites and pages under the products and services.
- **Front page.** User should be able to view the whole front page without scrolling. User tests also proved that users do not assume lower side of front page to include relevant content. Ask for free consultation –form's and flash animation's relevancy should be reconsidered. It is also possible to fit current content into smaller space. This all can be done by the content management system with a few hours of work.

17. Conclusion

The main goal of the Klikkicom's website was simple. The goal was to create more contacts from potential customers. For that purpose the website has very little relevant information about their services. More information should be created to convince visitors about the benefits of services that the company has to provide.

The website was a totally informational website but the company should consider also other ways to serve its customers since it provides digital marketing services. For example couple of competitors had a test tool -element for testing the need for search engine optimization on visitors own website. These kind of simple elements can attract visitors' interest for the services when they have a chance to get some tangible information.

Overall, the website is easy to use and the outfit is very pleasing. It was a known fact that the company had not invested enough on the website and did not use it's full potential. The website is kind of a business card to potential customers. Especially when it is a matter of a Internet marketing company the website plays a key role in convincing customers of a credible and professional company.

Drawback of this thesis was that I was not able to implement the changes needed and see their effect to conversion rates. It would have also been worthwhile to use Website optimizer tool to optimize the content to respond the visitors' needs.

This study also showed that the need for inquiry and traditional user tests should be considered really carefully. For smaller sites with a smaller content the web analytic tools, website optimizer, benchmarking and expert analysis give enough information to improve the website's user experience. Inquiry and user tests are time consuming and expensive to execute.

This thesis gives a good understanding on how the usability services should be produced. After this thesis the company is ready to start selling the usability services and has a good knowledge on how to implement them.

Bibliography

- Analytics.fi. (2009, 06 01). *Analytics.fi*. Retrieved 06 01, 2009, from Analytics.fi: <http://www.analytics.fi>
- Andrews, K. (2008, 12 02). *706.041 Information Architecture and Web Usability 3VU WS 2008/2009*. Retrieved 04 12, 2009, from Graz University of Technology: <http://courses.iicm.tugraz.at/iaweb/iaweb.pdf>
- Ash, T. (2009). *Landing page optimization crash course*. London: Google - European GAAC training.
- Becker, A. (2008). *Electronic commerce: Concepts, methodologies, tools and publications*. Idea Group inc.
- Blank, C. (2005, 08 22). *Study: Search Vital to Wireless Buyers*. Retrieved 08 25, 2009, from DMNews: <http://www.dmnews.com/Study-Search-Vital-to-Wireless-Buyers/article/88562/>
- Gallup, T. (2009, 05 27). *TNS media intelligence mainosvuosi 2008, raportti*. Retrieved 05 12, 2009, from TNS Gallup: <http://www.tns-gallup.fi/mainosvuosi2008>
- Google. (2009, 08 31). *Website Optimizer Help*. Retrieved 08 31, 2009, from Google: <http://www.google.com/support/websiteoptimizer/>
- Hautamäki, T., & Fogelholm, N. (2006, 8 23). *Verkkoherran opas: Hakukoneoptimointi*. Retrieved 05 22, 2009, from Optimointi.com: <http://www.optimointi.com>
- Fireclick* (2009, 08 24), Retrieved 08 24, 2009, from Top Line Growth: <http://index.fireclick.com/>
- Investopedia. (2009, 08 26). *Return of investment*. Retrieved 08 26, 2009, from Investopedia: <http://www.investopedia.com/terms/r/returnoninvestment.asp>
- Kaushik, A., & Sterne, S. (2007). *Web analytics: An our a day*. John Wiley and sons.

Kotler, P., & Keller, K. L. (2006). *Marketing Management*. Pearson education.

Leventhal, L., & Barnes, J. (2008). *Usability engineering: Process, products and examples*. Pearson education.

Merisavo, M., Vesanen, J., Raulas, M., & Virtanen, V. (2006). *Digitaalinen markkinointi*. Talentum 2006.

Microsoft. (2003, 06 30). *Windows History: Internet Explorer History*. Retrieved 08 25, 2009, from Microsoft.com:

<http://www.microsoft.com/publications/semantics/000029.php>

Morville, P. (2004, 06 21). *User experience design*. (P. Morville, Editor) Retrieved 07 23, 2009, from Semantic studios:

<http://semanticstudios.com/publications/semantics/000029.php>

news, D. m. (2005, 08 22). *Study: Search Vital to Wireless Buyers*. Retrieved 08 27, 2009, from DmNews: <http://www.dmnews.com/Study-Search-Vital-to-Wireless-Buyers/article/88562/>

Nielsen, J. (2000). *Designing web usability: The practice of simplicity*. Indianapolis: New riders publishing.

Nielsen, J. (1994, 1 1). *Guerrilla HCI: Using Discount Usability Engineering to Penetrate the Intimidation Barrier*. (J. Nielsen, Producer) Retrieved 08 26, 2009, from useit.com: http://www.useit.com/papers/guerrilla_hci.html

Nielsen, J. (2005, 08 27). *How to Conduct a Heuristic Evaluation*. Retrieved 08 27, 2009, from UseIt:

http://www.useit.com/papers/heuristic/heuristic_evaluation.html

Nielsen, J. (1997, 08 1). *How users read on the web*. Retrieved 08 26, 2009, from UseIt: <http://www.useit.com/alertbox/9710a.html>

Nielsen, J. (1997, 06 15). *Search and You May Find*. Retrieved 08 26, 2009, from UseIt: <http://www.useit.com/alertbox/9707b.html>

Nielsen, J. (1994). *Usability engineering*. San Francisco: Morgan Kaufmann.

- Nielsen, J. (2008, 01 22). *Usability ROI Declining, But Still Strong* . Retrieved 04 13, 2009, from UseIt: <http://www.useit.com/alertbox/roi.html>
- Nielsen, J. (2000, 5 19). *Why You Only Need to Test with 5 Users*. Retrieved 08 27, 2009, from UseIt: <http://www.useit.com/alertbox/20000319.html>
- Nielsen, J., & Loranger, H. (2006). *Prioritizing web usability* (1st Edition ed.). New riders press.
- Nielsen, J., & Mack, R. (1994). *Heuristic evaluation, methods*. New York: John Wiley and sons.
- Rayport, J. F., & Jaworski, B. J. *E-Commerce*. McGraw-Hill/Irwin.
- Rich, A., & McGee, M. (2004). Expected Usability Magnitude Estimation. *Human Factors and Ergonomics Society Annual Meeting Proceedings, Computer Systems* , pp. 912-916.
- Shackel, B. (1986). Ergonomics in design for usability. *HCI'86 conference on people and computers II* (pp. 44-64). Cambridge: Cambridge university press.
- Shneiderman, B. (2007). *Research-based web design & usability guidelines*. University of Maryland.
- Spool, J. M., Scanlon, T., Schoeder, W., Snyder, C., & DeAngelo, T. (1997). *Website usability: A designer's guide, User interface engineering*. North Andover MA.
- Tilastokeskus. (2009, 04 27). *Internetin käytön muutokset. Tieto- ja viestintätekniikan käyttö 2008 -tutkimuksen tuloksia*. Retrieved 05 26, 2009, from Tilastokeskus: http://www.tilastokeskus.fi/til/sutivi/2008/sutivi_2008_2009-04-27_tie_002_fi.html
- Tilastokeskus. (2008, 06 28). *Kauppa toimialakatsaus I/2007*. Retrieved 07 23, 2009, from Tilastokeskus: http://www.stat.fi/artikkelit/2007/art_2007-06-28_003.html?s=5
- Tilastokeskus. (2008, 08 25). *Tehnyt hankintoja verkkokaupasta viimeksi kuluneen kolmen kuukauden aikana vuosina 2001 - 2008, prosenttia 16-74 -*

vuotiaista. Retrieved 08 12, 2009, from Tilastokeskus:

http://www.tilastokeskus.fi/til/sutivi/2008/sutivi_2008_2008-08-25_kuv_003.html

Tullis, S. T., & Stetson, J. N. (2004). A comparison of questionnaires for assessing website usability. *UPA 2004*. Fidelity center for applied technology fidelity.

w3shools. (n.d.). *Web Statistics and Trends*. Retrieved 08 27, 2009, from w3schools.com: http://www.w3schools.com/browsers/browsers_stats.asp

Appendixes

Inquiry

Age?

- | | |
|---|----------|
| 1 | under 18 |
| 2 | 18 - 24 |
| 3 | 25 - 34 |
| 4 | 35 - 44 |
| 5 | 45 - 54 |
| 6 | 55 - 64 |
| 7 | Over 64 |

Position?

- | | |
|---|--------------|
| 1 | Manager |
| 2 | Officer |
| 3 | Entrepreneur |
| 4 | Employee |
| 5 | Student |
| 6 | Pensioner |

Sex?

- | | |
|---|--------|
| 1 | Female |
| 2 | Male |

How did you end up Klikkicom's website?

- | | |
|---|-----------------------------------|
| 1 | I came by chance |
| 2 | Via search engine |
| 3 | I was told about the website |
| 4 | I saw an ad |
| 5 | I saw a brochure |
| 6 | I am a customer |
| 7 | I came via another website, what? |
| 8 | Another reason, what? |

How would you grade our website by: ,

- | | |
|---|------------|
| 5 | Excellent |
| 4 | Very good |
| 3 | Good |
| 2 | fairly bad |
| 1 | Very bad |
| 0 | Not sure |

How well did you find the information needed from our website?

- | | |
|---|--------------------------------------|
| 1 | Very easily |
| 2 | I found but was not easy |
| 3 | I found some but not all |
| 4 | I didn't find what I was looking for |

5 I wasn't searching for any specific information

Does the website offer enough information about Klikkicom's services and products?

1 Yes

2 No, what is missing?

Does the website offer you enough information about Klikkicom as a company?

1 Yes

2 No, what is missing?

Does the website offer you enough information about career opportunities?

1 Yes

2 No, what is missing?

Did you have difficulties to understand what you read on the website (unfamiliar terms etc)?

1 No

2 Yes, please specify?

Were the titles in the website named logically and did they described well the content?

1 Yes

2 No, please specify?

Do you think that Klikkicom website's outfit was pleasing and credible?

1 Yes

2 No, please specify?

Did you find comfortable to use the website?

1 Yes

2 No, please specify?

What of these elements or content you would consider usefull (1-5)

Ask for offer -form

Blogg or wiki about Internet marketing

contact form

Contact to office information with map

Dictionary related to Internet marketing

Frequently asked question (FAQ)

A form to test you own website's search engine visibility

Internal search at the website

Introduction of tools that are used providing the services (web analytic

tools etc)

News and press releases

Element to show that the contact person is available

Direct chat connection to contact person

Pricelist of services

Element that prints the content of the website

Customer references

RSS feed from blogg and news feeds

Services introduced at the front page

Sitemap

Tag cloud (lists the most popular content)

Links to company's social networking pages (Facebook, Twitter)

Would you recommend the website to others?

Yes

No, why not?

Do you think that you have a good concept what Klikkicom has to offer based on website?

Yes

No, please specify?

Klikkicom website gives you image of potential and trustful partner in Internet marketing?

Yes

No, please specify?

Heuristic analysis

ID	Page	Problem	Importance (1-3)	Improvement suggestion
1	klikki media -> verkkomedia -> nuoret	Links to external sites without warning	2	Links should inform that they are leading to external website. Since There is already internal information about the website that links lead to why not lead to internal URL? We do want to keep the user in our website!
2	klikki media -> verkkomedia -> nuoret	Site contains link to pdf-file without information that it is pdf-file. ("Paketin profiilitiedot löydät täältä")	3	Show user that link is a file and it is pdf.
3	klikki media -> verkkomedia -> nuoret	"Kysy lisää myynniltämme" leads to company contacts	3	Should give just one contact to sells.

4	klikki media -> verkkomedia -> naiset	Links to external sites without warning	2	Links should inform that they are leading to external website. Since There is already internal information about the website that links lead to why not lead to internal URL? We do want to keep the user in our website!
5	klikki media -> verkkomedia -> naiset	Site contains link to pdf-file without information that it is pdf-file. ("Paketin profiilitiedot löydät täältä")	3	Show user that link is a file and it is pdf!
6	klikki media -> verkkomedia -> naiset	"Kysy lisää myynniltämme" leads to company contacts	3	Should give just one contact to sells.
7	klikki media -> verkkomedia -> miehet	Links to external sites without warning	2	Links should inform that they are leading to external website. Since There is already internal information about the website that links lead to why not lead to internal URL? We do want to keep the user in our website!

8	<p>klikki media -> verkkomedia -> miehet</p>	<p>Site contains link to pdf-file without information that it is pdf-file. ("Paketin profiilitiedot löydät täältä")</p>	3	<p>Show user that link is a file and it is pdf!</p>
9	<p>klikki media -> verkkomedia -> miehet</p>	<p>"Kysy lisää myynniltämme" leads to company contacts</p>	3	<p>Should give just one contact to sells.</p>
10	<p>klikki media -> verkkomedia -> kaikki mediat</p>	<p>"Kysy lisää myynniltämme" leads to company contacts</p>	3	<p>Should give just one contact to sells.</p>
11	<p>klikki media -> verkkomedia -> kaikki mediat</p>	<p>Links to external sites without warning</p>	2	<p>Links should inform that they are leading to external website. Since There is already internal information about the website that links lead to why not lead to internal URL? We do want to keep the user in our website!</p>
12	<p>Etusivu</p>	<p>Page does not fit to one screen</p>	1	<p>Should be fitted in one screen. Users do not scroll!</p>

13	Etusivu	Several navigation opportunities to navigate to "tuotteet ja palvelut"	2	One clear navigation would be more useful
14	Right side of navigation	Unclear what right navigation logos mean.	2	Inform what the logos mean
15	Internal search	Internal search is missing	1	Put internal search bar on every page
16	Right side of navigation	Google analytics is not a link!	3	Should be link as all the other logos on right navigation
17	tuotteet_ja_palvelut -> klikki_media/uutiskirjeet	Links to external sites without warning	2	Links should inform that they are leading to external website. Since There is already internal information about the website that links lead to why not lead to internal URL? We do want to keep the user in our website!
18	tuotteet_ja_palvelut -> klikki_media/uutiskirjeet	Page is too long	2	Rather paging than scrolling should be used. Different pages could be divided at different pages.
19	tuotteet_ja_palvelut -> klikki_media/uutiskirjeet	"Kysy lisää myynniltämme" leads to company contacts	3	Should give just one contact to sells.

20	tuotteet_ja_palvel ut -> klikki_media -> uutiskirjeet -> kaikki_uutiskirjeet	Links to external sites without warning	2	Links should inform that they are leading to external website. Since There is already internal information about the website that links lead to why not lead to internal URL? We do want to keep the user in our website!
21	Main navigation	When moving to second level navigation color code from main navigation disappears	2	Should be always showed by color coding where user is in main navigation.
22	tuotteet_ja_palvel ut -> klikki_search -> hakusanamainonta	Contact links is missing	2	Add contact link below the content
23	tuotteet_ja_palvel ut -> klikki_search -> hakukoneoptimointi	Contact links is missing	2	Add contact link below the content
24	tuotteet_ja_palvel ut -> klikki_search -> mobiliihaku	"Kysy lisää myynniltämme" leads to company contacts	3	Should give just one contact to sells.

25	helsinki	Phone number is missing from contacts	2	Add phone number to contact
26	Tallinna	Phone number is missing from contacts	2	Add phone number to contact
27	Etusivu -Klikki plus	Title says Klikki - plus but the title behind link is konsultointi	2	Change title
28	Etusivu -Klikki analytics	Title says Klikki - analytics but the title behind link is only about Google analytics	2	Change title
29	Etusivu -footer - Materiaaliohjeet	Illogical placing	2	Somewhere to under the products
30	Etusivu -footer - Mainostilan myyntiohjeet	Illogical placing	2	Somewhere to under the products
31	Etusivu -tilaa ilmainen tarkartoitus	Hided at below the upper screen. Scrolling needed to find it.	1	Placed in more logical place.

32	Etusivu -tilaa ilmainen tarkartoitus	Needs more instructions. Maybe more fields	1	Needs more clarification what it means to user.
33	Etusivu -tilaa ilmainen tarkartoitus	User needs scroll to get feedback that the form has been sent	1	Clearer feedback