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THE CONTRIBUTION OF MOBILE DEVICE MANUFACTURES' SITE USAGE TO BRAND SATISFACTION AND LOYALTY

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"Discovery consists of looking at the same thing as everyone else and thinking something different."

ALBERT VON SZENT-GYÖRYI

Abstract

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Recently most of the mobile phone manufacturer companies started to pay extra attention to their websites. This research investigates the sources of value creation on the mobile phone manufacturers' website and the affect visiting the manufacturers' website has on brand loyalty and brand satisfaction. The results show a correlation between positive website usage experience, brand loyalty and brand satisfaction. Moreover there is a relation between Novelty, Efficiency, Lock-in and the perceived usefulness the manufacturers' website has on the mobile phone device. And finally the main reason behind Finnish student's mobile phone brand loyalty is its country of origin.

Аннотация

С недавних пор бльшинство производителей мобильных телефонов стали обращать больше внимания на свои веб-сайты. Это исследование изучает источники создания ценности на веб-сайтах производителей мобильных телефонов, а так же влияние посещения веб-сайта производителей мобильных телефонов на удовлетворение брендом и преданность бренду. Результаты показывают корреляцию между позитивным опытом использования веб-сайта, удовлетворением брендом и преданностью бренду. Более того выяснено, что существует отношение между новизной, эффективностью, лок-ином, восприятием полезности веб-сайта с одной стороны и мобильным телефоном с другой. Наконец, главный фактор преданности бренду мобильного телефона для финских студентов это страна производитель.

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Table of Contents

Appendix.1. Items used for variable measurement

Appendix.2. the questionnaire

Appendix.3. Sample's descriptive statistics

Appendix.4. Multiple regression analysis

Appendix.5. Skwnuess of variables

List of figures:

List of Tables:

1 Introduction

The study intends to investigate the relationship between visiting a mobile phone company's website and loyalty for the mobile phone brand. The data that forms the empirical analysis was gathered through a questionnaire with the students of Lappeenranta University of Technology.

1.1. *The background of the study*

Since the commercialization of mobile phones and wireless technology has changed the world, cell phones over took communication devices, such as the pager and they are slowly overtaking landline telephones and other communication alternatives all around the world. In a country like Finland for example telecom operators started abandoning telephone booths almost ten years ago (Nodium.com). Cell phones save money, are convenient to use, keeps one in touch with his family and friends, and in addition, they are easy to carry everywhere.

Again, the purposes for why people use their mobile phones are increasing every day; the appreciation is due to the advancement of the wireless and digital technology more and more features are added to a cell phone, which makes it more than just a device used to conduct telephone calls.

Mobile services vary from being able to choose a theme colour or ringtone, to sending SMS's, playing games, MMS, etc. Services for mobile phones are expanding more and more every day due to both the collaboration and competition between network providers and cell phone producers.

Mobile phone companies are competing to increase the number of services their mobiles could perform. One of the channels they communicate these services to their customers is through the companies' websites.

The research intends to study the relation between visiting a mobile phone company's website and consumers' satisfaction with the mobile phone brand and if it may result in brand loyalty to consider buying the same phone brand in the future.

1.2. *Objective and research problem*

The objective of this thesis is to investigate the relation between visiting the mobile phone manufacturer's web sites, the services the consumer use, the consumer's satisfaction with the website and the services they used on the website, and its impact on perceived usefulness of the website and brand satisfaction, and whether it can create brand loyalty.

The study intends to define the motives a consumer could have when visiting his mobile phone manufacturer's website, and how he evaluates his experience surfing the website and the services, applications, information, products he gets or uses when surfing the website.

The milieu of this study is the mobile phone industry. The decision of choosing this industry was based on the fact that the mobile phone industry is rapidly developing in terms of the technology used, services provided, and the spread of mobile usage among all kind of consumers.

 However not every mobile phone user visits his mobile phone's manufacturer's website which makes it an interesting phenomenon for research.

Based on the study roots and the objective of the study, the research question of this research is:

Does the usage of mobile phone manufacturers' websites affect brand satisfaction and whether it helps build brand loyalty?

The research might also include other sub-questions that would help us to answer the main research question.

1.1.2 Research sub questions:

- What is the situation in the Finnish mobile phone market?
- Why should consumers visit mobile phone manufacturers' websites?
- What makes a mobile phone manufacturer's website successful?
- What factors creates loyalty for mobile phones?

The idea behind the first research sub-question is to understand the general environment of the mobile phone market in terms of mobile producers, mobile services, and the competition. Further on, loyalty will be deeply studied as it represents the novelty of this study which is the relation between visiting the mobile phone manufacturer's website and the creation of brand loyalty.

During the empirical part of the thesis, the research shall answer the research question through a questionnaire conducted among the students of Lappeenranta University of Technology. Lappeenranta University of Technology was founded in 1969, and provides education in the fields of technology and business and it has nearly 5,000 students studying in its different faculties.

1.3.   *Primary research frame work*

The figure below (Figure 1) displays the primary research frame-work. The independent variable of this study is the mobile manufacturer's website usage where as the dependent variable is brand loyalty,

Figure: 3. The framework of the primary research
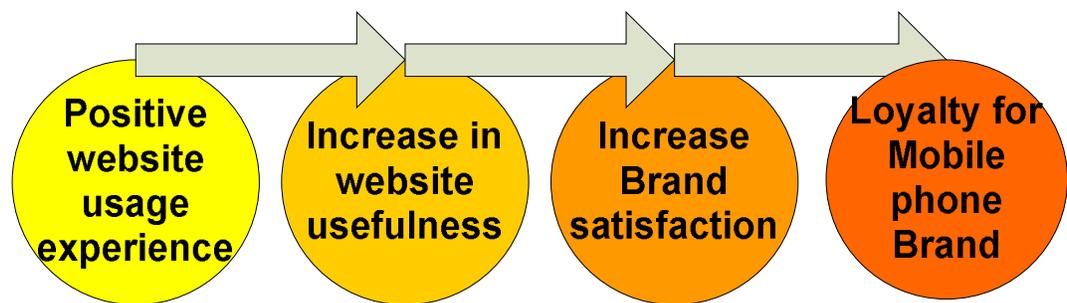
Mobile phone manufacturers use their websites for many purposes. Some of them would be to communicate mobile services, display their products and to increase brand awareness. On the other hand, a consumer's perception for technology, such as the website, mobile services or even the mobile phone itself varies from one consumer to another and, also depending on the technology itself.

Companies are keen to develop loyal customers. Because loyal customers participate directly in supporting the company either through buying more, or by attracting new customers to the company through positive word of mouth (Ganesh et. al. referred in Aydin and Ozer, 2004)

In a study conducted by Anne Martensen (2007), she shows that many previous researchers have confirmed the link between satisfaction and loyalty and that higher satisfaction leads to higher loyalty.

Later in the research we are going to review different models and theories, regarding consumer motives, behaviors and attitudes for using a new technology, such as the Theory of Reasoned Action (Fishbein and Ajzen, 1975-1980), Technology Acceptance Model (Davis.et al,1985) and the Innovation Diffusion Theory (Rogers, 1995) these will help us understand how new technologies are used, such as: the websites of the mobile phone companies or how the services provided by them could help in increasing brand satisfaction and lead to brand loyalty. These studies provide a theoretically based set of behavioral beliefs for our research.

The study shall combine mobile phones, websites, satisfaction and loyalty theory. Findings in this combination have not been published previously. In addition, the combination is important due to the growing mobile phone market and the fast development of mobile phones, websites, and telecommunication services.

The figure below (Figure 2) illustrates the combination between theoretical areas of interest and previous researches that this master thesis will focus on.

Figure: 4. Theoretical combination
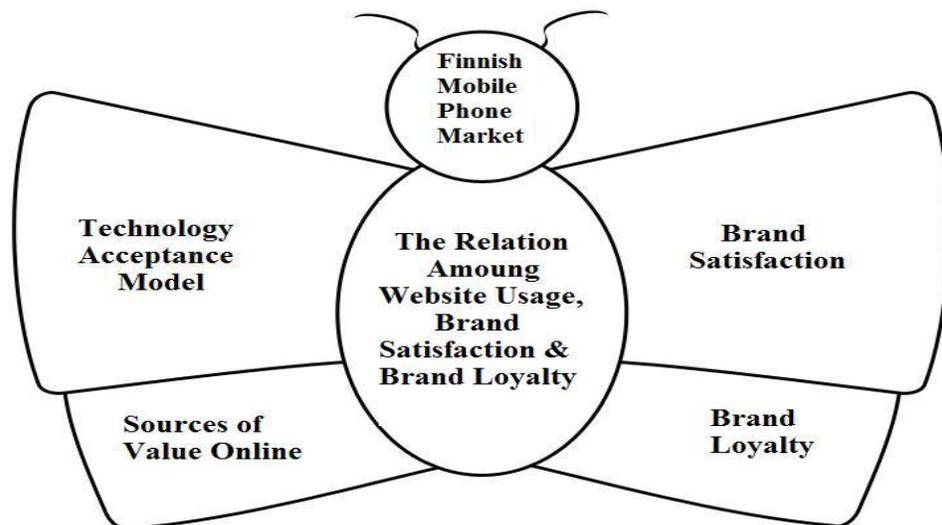
1.4.   *Definitions*

In this section we intend to explain the terms that will be used further on in the research. In the above sections, we explained the objective of the research, the research problem and the primary research frame work that we intend to use in answering the research question. Below are the definitions and explanations for the terminology and concepts that are used in the research.

Loyalty: all scholars confirm the importance of loyal consumers to business. It is considered one of the main goals for marketers as they try to use the Internet to establish a wide base of loyal customers. "One of the most exciting and successful uses of this revolutionary technology may be the Internet's role in building customer loyalty and maximizing sales to your existing customers" (Griffin, 1995). Loyalty could be explained as "the preferential, attitudinal and behavioral response toward one or more brands in a product category expressed over a period of time by a consumer" (Engel and Blackwell, 1982). In a clearer explanation provided by Oliver, he elucidates that loyalty is "A deeply held commitment to re-buy or re-patronize a preferred product/service consistently in the future, thereby causing repetitive same-brand or same brand-set purchasing, despite situational influences and marketing efforts having potential to cause switching behavior" (Oliver,1997 referred in Ozer, et. al. 2005).

 It is important to stress that in this research our concern is not electronic loyalty or loyalty to the website, but rather the loyalty to the mobile phone brand itself.

Satisfaction: Oliver (1999) defines satisfactions shortly as a 'pleasurable fulfilment' while Kotler (1997) explains that it depends on expectations, "Satisfaction is a person's feelings of pleasure or disappointment resulting from comparing a product's perceived performance (or outcome) in relation to his or her expectations". Moon (2004) claim that website satisfaction is determined based on the amount of information available on the website in addition to website design, transmission speed, user friendliness and how frequently it is updated. Nevertheless, in this research we intend to measure consumer satisfaction, from the mobile phone brand.

Perceived Usefulness: "People tend to use or not use an application to the extent they believe it will help them perform their job better. We refer to this first variable as perceived usefulness" Davis (1989). An escalation of this belief creates a positive attitude toward using the mobile phone manufacture's website. According to Davis (1989) Perceived Usefulness is defined as "An individual's perception that using a new technology will enhance or Improve her/his performance".

Perceived ease of use: "The degree to which a person believes that using a particular system would be free of effort" (Davis, 1989).

Perceived Value: Although perceived value has proven to be a difficult concept to define and measure, its importance cannot be underestimated (McDougall & Levesque, 2000). Zeithamal (1988) defines the value as the consumer's general evaluation for the usefulness of a product after comparing what he had to give for what he received. It is clear that what represents value seems to be personal, and may differ with each customer (Woodruff, 1997).

1.5. *Research Methodology*

The objective of the study is to find whether visiting the website of the mobile phone manufacturer on the consumer's brand satisfaction, and if it might help in building brand loyalty. Moreover we might need to investigate the motives behind visiting the website and consumer experience of surfing the website. To investigate this relation, we intend to use both primary and secondary data.

Primary Data: the method of collecting the data that we are going to base our thesis on depends on what kind of research we intend to conduct. **"**Generally, a comprehensive study is quantitative and entails the total population. A selective study, on the other hand, is qualitative and entails a small part of the total population. Quantitative studies generalize while qualitative studies exemplify" (Svenning, 1999).

Quantitative research: Since this research intends to study a general consumer behaviour, which is visiting the website of a mobile phone manufacturer and its relation with a general consumer feeling of loyalty, therefore a quantitative research will be an appropriate method of measurement for behavioural relationships. The quantitative data will be collected through a questionnaire conducted in Finland among the students of Lappeenranta university of Technology. Later on, the valid questionnaire responses will be analyzed using SPSS (statistical packages of social sciences).

Secondary research: In addition to the primary research, secondary research will also be conducted through studying the previous studies focused on the topic of website usage and brand loyalty. Moreover the situation in the mobile phone market will be deeply investigated.

1.6.   *Delimitations*

This study is restricted to the mobile phone market, and will focus only on the market leading companies. Many of the arguments could be adapted to other product areas, because they also have generic characteristics. Another limitation of this study that needs to be highlighted is the fact that the study uses a student sample. While students in this study represent active web users, it is important to have a wider cross-section of population to encourage the generalization of the study.

1.7.   *Study Backbone*

As a master thesis, this research will start by studying the previous literature and theories that will provide the groundwork of the research, after that the empirical research is conducted and compared with the previous studied theory in order to test its validity. Figure 3 illustrates the structure of the master thesis.

Figure: 3. Study Backbone
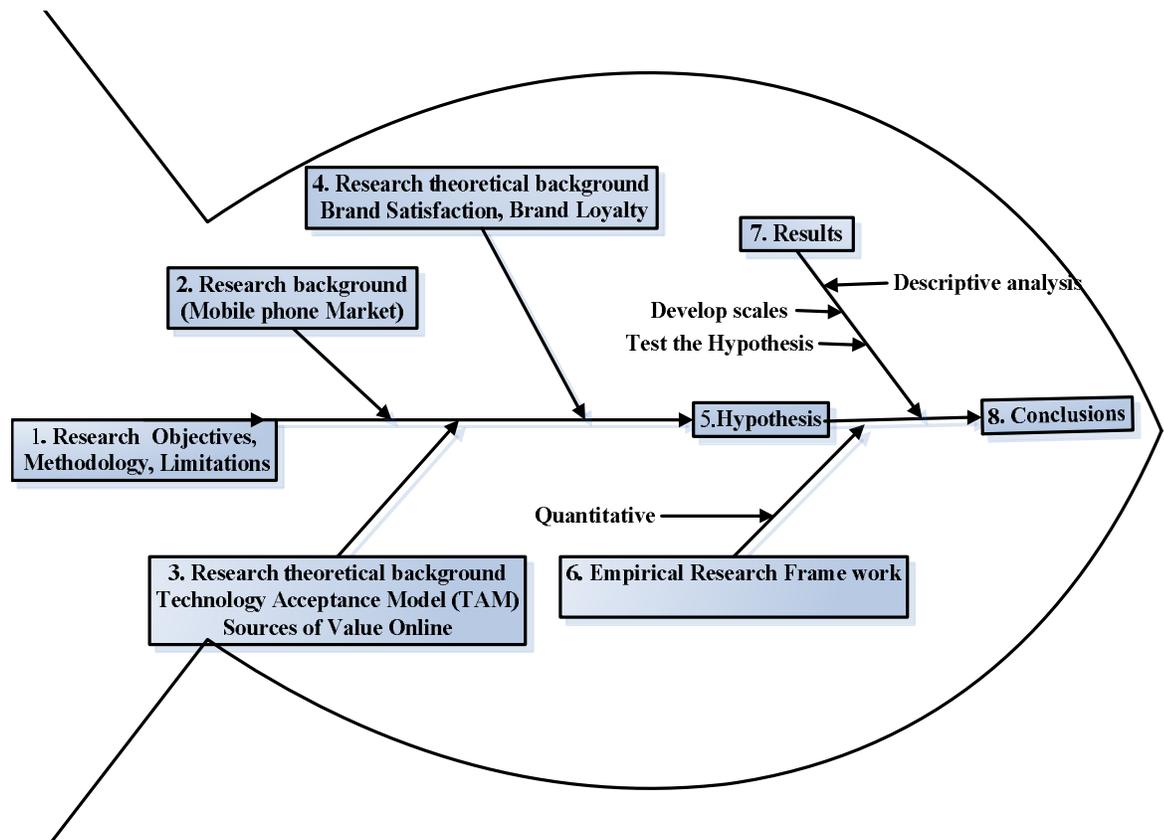
In the second chapter, we review the scope of the study, which is the mobile phone market. The third chapter focuses on reviewing the theoretical models that represent the base of the study such as Davis' Technology Acceptance model (TAM), while chapter four will review the concepts of Value, Brand satisfaction and Brand loyalty in the context of mobile phone market and the Internet. After studying all of this, we intend to develop the hypotheses in chapter five.

In the sixth chapter, we will describe the research approach, and define the research's sample. Subsequently the questionnaire will be tested. Afterwards, we shall also discuss both concepts of validity and reliability.

Chapter seven starts by conducting a descriptive analysis for the data and we follow it with a factor analysis to develop the scales and measurements for the correlation analysis, multi-regression analysis and the T-test. Moreover it will take hold of the theories presented in the theoretical back ground and compare them to the research findings.

As for the last chapter, chapter eight, it will underline the conclusions and findings of the study as well as demonstrating its limitations, and lastly discuss further research recommendations.

2 Mobile phone Market

In this chapter we investigate the situation in the mobile phone market in terms of competition between the mobile phone producers, the customers' behaviour, and the potential of the market in the future. This chapter is one of the three chapters on which we base our research as it discusses the scope of the study.

2.1 Back ground about the mobile phone market

According to webopedia.com, which is one of the most popular search engines for computer and Internet technology definitions on the internet, a mobile phone could be defined as an electronic telecommunication device and it could also be referred to as a cellular phone, or as a cell phone. A cell phone is connected to a wireless communication network through radio wave or satellite transmissions. In general, mobile phones provide voice communication and short messages service (SMS). And everyday mobile phone producers are competing to add new capabilities to their mobile phones. The first mobile phone to reach the market was the DynaTAC 8000X from Motorola. It was released on March 6, 1983 (BBC.co.uk, *DynaTAC 8000X - the World's First Mobile Phone*)

Mobile phones are mainly small computers capable of running a number of software functions, each required for delivering certain services, such as voice calls, SMS messages, or e-mail.

 Voice calling and SMS messaging functions are typically deeply integrated into the software platform of mobile phones. New and more advanced mobile devices also support various other functionalities; basically applications for mobile phones are getting closer to computer software. (Smura et al., 2009)

2.2   Mobile phone Market

The Mobile phone market includes more than twenty brands and each manufacturer produces a variety of models to target different customers segment depending on their tastes and needs. In a monopolistic-competition as the mobile phone market, every producer tries to differentiate his brand.

The handset market was affected by the global financial crisis last year. Nevertheless according to newsfactor.com, which is one of the leading publishers of business and technology news, Nokia Corporation expects the global mobile phone market to grow by 10 percent in 2010. This, suggest the industry is recovering from a global recession which has also impacted handset sales.

According to Gartner incorporation, which is the world's leading technology research and advisory company, a closer look at the mobile phone market, will show that during the first quarter of 2009 we would see that the brands who led the market were: Nokia, Samsung, LG, Motorola and Sony Ericsson. The pie chart below illustrates their market share.

Figure: 4. Mobile phone Market 2009

Market Share 1st Q09
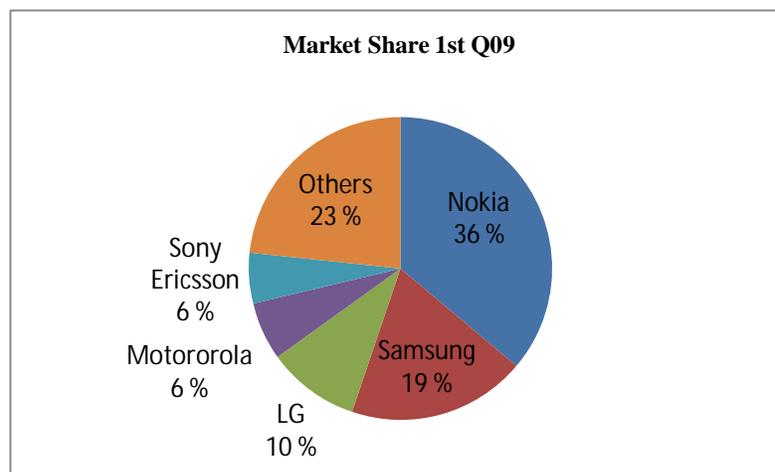
Source: *www.gartner.com*

2.3 Competitive situation between mobile phone device manufacturers

The competition in the mobile phone market is very tight. Mobile phone device manufacturers are constantly developing technologies in order to add new features to their devices while trying to keep their prices affordable. Otherwise, there will be no place for them in the market.

The penetration of mobile phones is very high especially in a country like Finland. In 2004 the mobile phone penetration reached 96%. As a result of this high penetration rate, mobile phone device manufacturers are not looking for new users for mobile phones to increase the market size; however, they are trying to increase the number of functions their mobile phone can perform so that people would use their mobile phones more often.

2.4 Role of Brands for the mobile phone device manufacturers

According to the American Marketing Association, a brand is a " name, term, design, symbol, or any other feature that identifies one seller's good or service as distinct from those of other sellers". Branding also creates brand identification and awareness (Kotler, 1997).

Consumers expect certain levels of quality from certain brands. In the case of the mobile phone market, some device manufactures have created brand images for their phones. For example, Sony Ericsson which is known to be the mobile phone provider with the most advanced music technology. Mobile phones also became more than just a device to conduct phone calls; they became a fashion accessory with different designs and colors to support or to build brand image.

2.5 Finland and Mobile phones

Finland was the first country to operate the mobile phone in the world, according to *phonehistory.co.uk.* The first call ever placed on a commercial GSM (Global Standard for Mobile) phone was on July 1, 1991. Harri Holkeri, governor of the Bank of Finland, phoned the mayor of Helsinki to talk about the price of Baltic herring.

Since 2000, almost 250 ICT companies have either acquired an existing company or established a new business unit in Finland. around 30 per cent of mergers accusations and new establishments were concentrated around mobile technologies or services (Invest in Finland 2005) Nokia represents slightly less than four per cent of Finland's GDP (ICT Cluster Review 2005, Tieke). Moreover Finns are informed users when it comes to using mobile phones to access data and services.

The distribution and penetration of mobile handsets in Finland is among the highest in the world and comparable to Japan and Korea (Bouwman et al., 2008) In addition, the costs for using mobile phones are among the lowest in Europe. All of the above made mobile companies in the mobile phone industry around the world consider Finland as one of the most advanced and sophisticated test-markets for new mobile services. (Bouwman et al., 2008)

However this idea is changing; even though mobile services have been constantly developing in Finland, these developments have recently slowed down in comparison to other countries like Italy, Japan, and Korea and the attitude became more cautions than experimental (Bouwman et al., 2008).

 In the following part of this chapter we cover the actions of the two market leaders in Finland, Nokia and Samsung and their recent actions to develop their companies' websites.

2.5.1 Nokia

Nokia has the lion's share of the world's mobile market in general and the Finnish market in particular. After all, Finland is Nokia's country of origin. Nokia accounts for one third of the R&D carried out in Finland (The Finnish Information Society, 2003). Nokia was listed as the fifth Best global brand in the 2009 *Business-Week* and Nokia was also listed as the world's 85th largest company in terms of revenue in 2009 in Fortune's Global 500 list. According to Tribune Business News, out of 4 billion mobile phone users around the world, 1.1billion of them use Nokia phones (Huuhtanen, 2009)

2.5.1.1 OVI

As a market leader Nokia has launched its new Door-Store. CEO Olli-Pekka Kallasvuo said that The Door-Store is set to change the whole new digital application platform and spark a rapid evolution in the mobile industry.

OVI, Nokia's download store, is a Web shop, for trying and buying content for Nokia devices. A visitor to the website can search, download for free and purchase a broad range of applications and services from a collection of different providers.

 The Store offers 4.500 door applications including: games, videos, widgets, location-based applications, and personalized content under the Social Location concept (SLC). On OVI, one can try applications and download many of them for free, however, there are many downloads that can only be bought. OVI shows that Nokia is proceeding in the Internet services competition. This policy also reflects how the focus of the mobile-phone industry has shifted from devices to software and services.

2.5.2 Samsung

The Samsung Group is South Korea's largest company. It is also the world's second biggest mobile phone producer. Samsung has announced its plans to increase the company's market share in Finland, Nokia's hometown, where Nokia has 86% of the market share, compared to only 6% for Samsung (unwiredview.com).

Samsung plans to increase its market share in Finland through a tough competition with Nokia. Samsung's sales department in Finland was quoted to have said that "the company plans to increase their share of the market to at least 15%, the same they had back in 2005 when Samsung introduced clamshell phones in the country"(unwiredview.com). From an opposite perspective, this increase will mean a reduction in Nokia's market share.

2.5.2.1 Samsung Mobile application store

Samsung Mobile Innovator launched the Samsung Mobile Applications Store in January 2009. Samsung Mobile Innovator is a program that enables mobile software developers to create applications to be used across Samsung mobile devices. The application store offers about 1,100 applications in its catalog.

The Global Relations Manager at Samsung Sanj Matharu said, "The compelling proposition of applications such as GyPSii will play a large part in the success of our online store and in turn enable people to gain maximum value and enjoyment from their Samsung devices," (gypsii.com)

2.6 *Importance of the website to mobile phone manufacturers*

Despite the fact that consumers might have a need for the services provided by the mobile manufacturers, consumers will not start using these services until some prerequisites are fulfilled. The first of these prerequisites is awareness of the service, which could be achieved through promotion and marketing (Verkasalo, 2008). And by using the internet as a distribution channel and a marketing tool, the companies' performance will increase extensively (Geyskens et al., 2002)

2.7 *Mobile phone manufacturer companies' websites*

In order to respond to the main research question of the master thesis we had to analyze the contact of the mobile phone manufacturer's websites to understand thoroughly what factors visitors of the website get exposed to and what benefits the visitor will receive from visiting his mobile phone manufacturer's website. Furthermore, how can visiting the mobile phone manufacturer's websites affect his brand satisfaction and brand loyalty?

The websites of the five biggest mobile phone manufacturer companies in the Finnish market have been reviewed and visualized the figure below (figure 5) to display their contact.

Figure: 5. Content of mobile phone manufacturers' websites

Categorised According to the mobile Marketing association

Acessories Display

Mobile Application Types

Mobile Phone manufacturer webesite

Communication

Games

Multimedia

Mobile phones Display

Productivity

Travel

Utilities

Manual Dowenloads
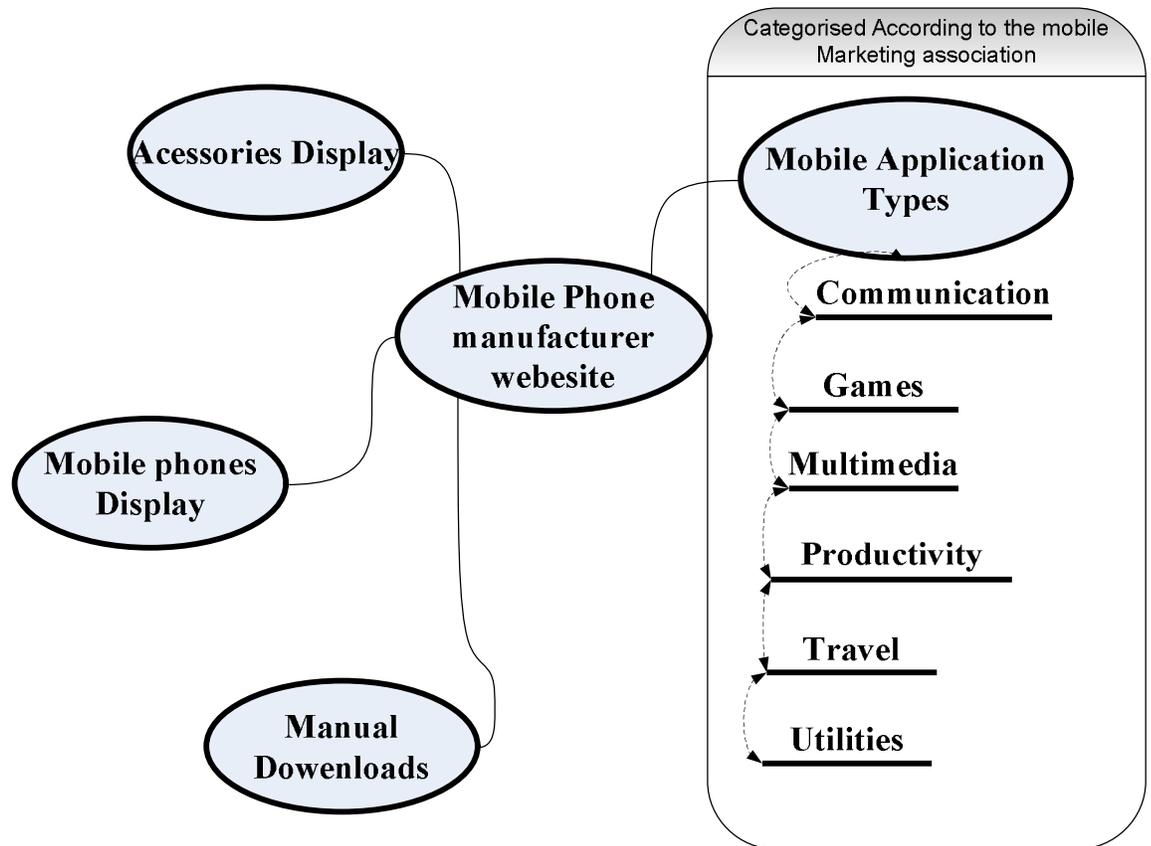
The figure above (figure 5) contains the items that exist in the websites of the five biggest mobile phone manufacturer companies. Nevertheless, every website had a different layout and different users would evaluate them differently in terms of graphics, content display, and ease of navigation.

On the other hand, some websites offered extra services such as; mobile phone models comparison, technology explanations' or even customers' data storage on website.

2.7.1 Mobile application overview

Every customer might have a different reason to visit his mobile phone manufacturer's website. And that's because of the variety of content these websites have to offer to their visitors. One of the main contents these websites are applications.

According to the Mobile Marketing Association, mobile applications are a rapidly developing segment of the global mobile market. They consist of software that runs on a mobile device and perform certain tasks for the user of the mobile phone.

Also known as *Downloadables*, mobile applications are common in most phones, including inexpensive, basic models. Their wide use can be attributed to the variety of functions they perform, including providing user interfaces for basic telephony and messaging services, as well as for advanced services such as games and videos. Other examples include tools for downloading and reading blogs (Mobile Marketing Association, 2008).

Mobile phones come with a lot of applications installed on them such as the SMS and music players. After buying a mobile phone users can purchase or download for free many other applications and install them to their mobile phones themselves.

Regardless of the way the users receives them, the mobile applications market is large and growing fast due to the increasing number of mobile application developers, publishers and providers (Mobile Marketing Association, 2008).

3 Technology adoption and sources of Value

3.1 Introduction

In order to build a good theoretical background for the research, many different aspects of value and motives behind technology adoption have been reviewed.

Later in this chapter we discuss theories concerned with the creation of value as a concept; in addition to theories concerned with the perception of value amongst different players in the value creating process. In this chapter we try to understand the consumers' perception of mobile phone manufacturers' website and the reasons behind consumers' intention to use it.

Based on this discussion we try to answer some of the research sub questions like: what makes a mobile phone manufacturers' website successful? And what creates value in the mobile phone manufacturers' website?

3.2 Theories of technology adaption

One of the early theories discussing the adaption of a new technology is the theory of reasoned action (TRA) developed by Martin Fishbein and _Icek Ajzen_ (1975, 1980). TRA consists of three variables: behavioural intention, attitude and subjective norm. Fishbein and Ajzen explain that behavioural intention is a dependent variable for both attitude and subjective norms. Behavioural intention measures the individual's willingness to perform a certain act. While attitude is how the individual perceive the consequences of performing the action and the individual's evaluation of the consequences.

Subjective norm is explained as "the person's perception that most people who are important to him or her think he should or should not perform the

behaviour in question" (Azjen and Fishbein, 1975). The theory of planned behaviour asserts that only certain attitudes towards a specific behaviour could anticipate the behaviour. The more positive the attitude and the subjective norm a person have towards the behaviour, the more likely the person carries out this certain behaviour. Rogers (1995) took this concept further and developed the theory of innovation diffusion.

3.3 Innovation diffusion theory (Rogers, 1995)

The theory of innovation diffusion studies the probability that individuals in a certain group or culture would adapt to a new innovation, idea, product or practice. The theory claims that the media and interpersonal contacts form opinions and judgments. In addition to that both media and interpersonal contacts form an important source of information for an individual. E.M. Rogers explains in the theory that innovation takes place in phases first the innovation after that comes the diffusion while holding both time and consequences.

In regard to our research what makes us pay particular attention to the Innovation Diffusion theory is that the research high-lights the variables that control the methods and the motives of adopting a new information medium like the Internet (Rogers, 1995).

3.4   Technology Acceptance Model (Davis, 1985)

Davis based his hypothesis for the Technology acceptance model on the Theory of Reasoned Action by Fishbein and Ajzen (1975). Davis (1985) suggested that users motivation to use a technology is driven by the attitude towards using the new technology, which in turn is driven by two factors perceived Ease of use and perceived usefulness (Davis, 1985)   .

The technology acceptance model (TAM) has been one of the most influential theories in the information technology literature. However, "it has not been used in marketing literature to understand consumer acceptance of international web sites." (Singh et.al, 2005) although, only a limited number studies have attempted to extend the Technology Acceptance Model by study online user behaviour, it has been found to be an applicable theory to explain the intention of the web site usage (Chen et al., 2002; Lederer et al., 2000; Lin and Lu, 2000).

The TAM provides an analytical measure for marketers to categorize and evaluate strategies for encouraging user acceptance to websites (Al-Gahtani, 2001).

Figure: 6. Technology acceptance model

Source: Davis et. al. (1989), Venkatesh et. al. (2003)
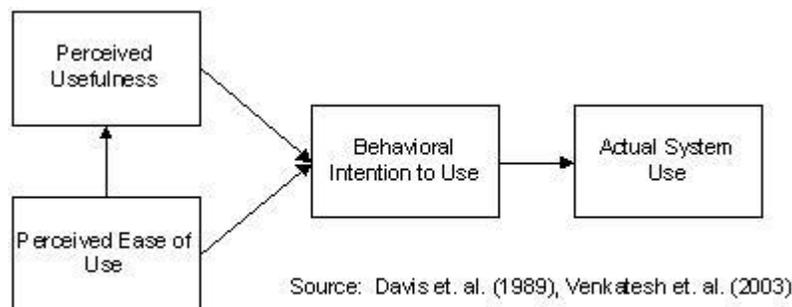
3.5 What makes a mobile phones company's website successful?

Many of the previous research focusing on online consumer behaviour argued that websites which are easier to use, navigate and load are perceived as more effective and thus receive leading to preferable feelings from users of the web site (Chen and Wells, 1999; Chen et al., 2002; Heijden, 2003). While Shenkman and Jonsson, (2000) considers beauty as one of the main reasons behind a positive overall judgment of a website. From another perspective many of the IT literature has proven that there is a relationship between perceived usefulness of a website and website usage, as it encourages website adoption indirectly through attitude and directly through behavioural intention (Heijden, 2003).

Agarwal and Venkatesh, (2002), developed weighted scores for the seven factors of website usability that are employed by Microsoft Corporation. These seven factors are; use of colour and fonts, use of multimedia, clarity of goals, trustworthiness, interactivity, ease of navigation and finally the downloading speed of the website.

Clarity of goals is how clear the purpose of the website is stated or understandable for the website visitor (Agarwal and Venkatesh, 2002). While ease of navigation is important because users rarely find what they are looking for on the websites' first page (Nielsen, 2000). On the other hand Helander (2000) stated that one of the most important determinants for revisiting a website is the download speed.

Website evaluation criteria may also vary amongst college student consumers. With different Internet channel usage, some consumers may use the Internet to search for product and service information and also buy to these items through the Internet. Some of the students may search for the information through the Internet, but buy products/services through non-

Internet channels. Because of the differences in Internet usage, online information searchers and purchasers may consider the importance of each website's attribute differently. (Seock and Chen-Yu, 2006)

Amit and Zott (2001) explain that when customers have access to complementary product and services of the main product, it creates some kind of efficiency by reducing search cost and it also improves decision making.

According to Stevenson et al. (2000) Attitude toward the web site is an important explanatory variable in understanding brand attitudes and purchase intention. However, even if there is a service need match, there are some prerequisites for the match to be converted into actual usage. It was noted that the first prerequisite is that potential users should be aware of the service. (Verkasalo, 2008)

3.6 Value

Customer value is considered "the fundamental basis for all marketing activity" (Holbrook, 1994). Organizations that are seen as being competitive by their customers are capable to deliver better value in comparison to their competitors. (Feurer and Chacharbaghi, 1994)

3.7 Website contribution to product value

Raphael Amit and Christoph Zott (2001) approached the value in online transactions in their research *Value creation in E- business.* They assert that value in E-business is created through four main value drivers; Efficiency, Complementarities, Lock-In and Novelty.

Efficiency can be explained as "supply of updated and comprehensive information" (Amit and Zott 2001) Improved information can also reduce customers' search and bargaining costs (Lucking-Reiley and Spulber, 2001).

The second driver according to Amit and Zott is complementarities. This explains that "Complementarities are present whenever having a bundle of goods together provides more value that the total value of having each of the goods separately" (Amit and Zott 2001). By analyzing the mobile phone companies' websites one could come to the result that they offer a collection complementary products and services which could be categorized in to two groups vertical and horizontal. Vertical complementarities are: software updates, and user catalogs while horizontal complementarities are things like headphones, mobile phone holders, and entertainment such as games and tones.

Lock-In is the third value driver according to Amit and Zott, which occurs after encouraging the customers to do more transactions or repeat their dealings. The purpose of *Lock-In* is to prevent the customers from switching to other competing sites, and could be achieved through developing dominant design proprietary standards for business processes, products, and service (Teece, 1987, Amit and Zott, 2001).

The last value driver Amit and Zott identified for value creation is novelty, which is more like the first mover advantage but by providing a new service or product.

Novelty could be linked with complementarities, for example in the case of mobile phone manufacturers, being the first in developing and offering new software that can be downloaded from the website.

The figure below illustrates the sources of value creation according to Raphael Amit and Christoph Zott (2001)

Figure: 7. Sources of value creation in E-business:
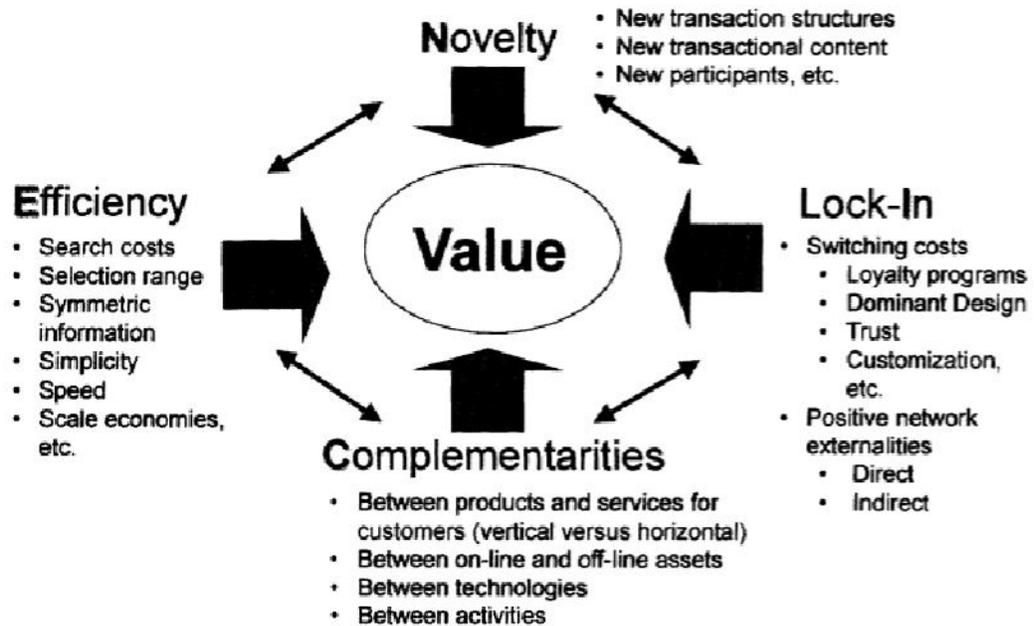
Source: Amit and Zott, 2001

3.8 Mobile Applications and Value

Meier (2002) focused more on mobile applications and viewed them as a marketing unit that is strongly related to the customer. He also developed a model that viewed the elements of mobile applications as involved in creating customer value. Meier (2002) classified these items of customer value in to three elements. The first is Financial, which is concerned with the profitability of the customer relationship on the long-term. The second element is Development, which is the aim to strengthen and reinforce the relationship with the customer in the future. The third element is Communication on both levels, whether between the company and the customers or between customers and each other (Meier, 2002).

The creation and distribution of Mobile application involves different actors. Martignoni and Stimmer (2002) studied a case on the specific environment of financial services provision and discussed the interaction between the participants in the creation of the mobile applications.

Porter (1985) developed the Value chain analysis which is commonly used to describe value as a competitive advantage of firms. Never the less, many scholars found them inappropriate to be applicable in case of electronic business where the real value is created when more than one firm uses the same technologies.

In order to understand the value creation in e-business we have to understand network relations (Cartwright and Oliver, 2000). Müller-Veerse et al. (2001) have divided the value web in to three market areas, Services, Technology and Applications and then explained the actors in each area.

The figure below (figure7) shows the relation between all the actors in the mobile phones value web and how the value is created in the web between all the actors not in every firm by itself.

Figure: 8. Mobile data value web
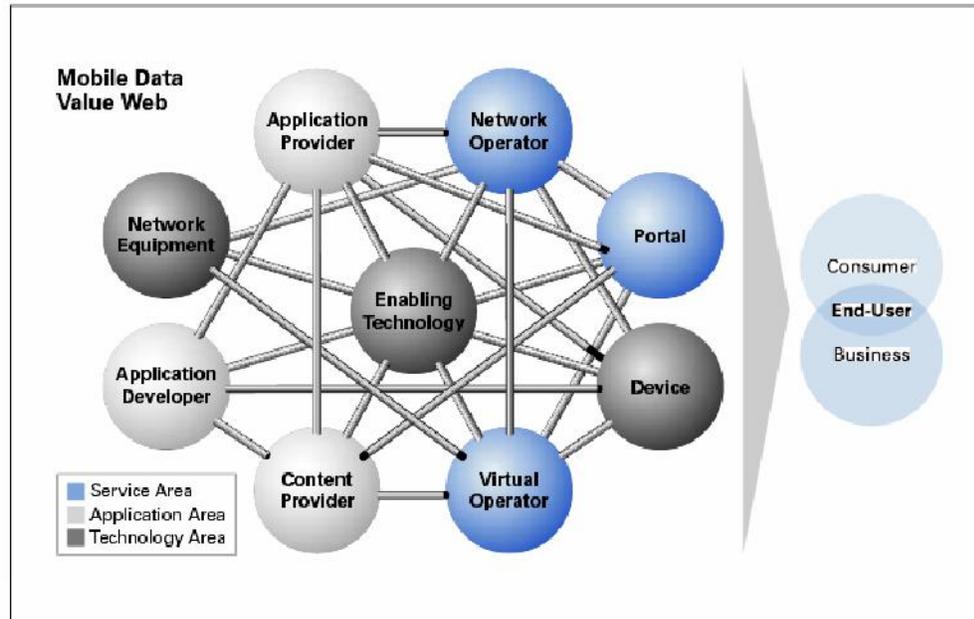
Source: Müller-Veerse et al., 2001

Nevertheless, in this research we are focused on the value of the mobile device itself from the perspective of the customer and whether it is affected by the customer's visit to the mobile phone device manufacturer website.

For most customers, better value means an increase in the overall satisfaction and increase in product utility (Fälldin and Pettersonn, 2002).

3.9 Chapter summery

In this chapter we described the motivation behind using mobile phone manufacturer's company website through the theories of technology adaption and the sources of value creation in the internet. We also had a closer look on how a good website might add to the perceived usefulness to mobile phone from the customer's perspective. In addition, we studied mobile applications and how they could contribute to the perceived usefulness of the mobile manufacture's website. According to the literature reviewed in this chapter, when customers visit the mobile phone manufacture's website they get complementary products and services. In addition, they also get exposed to the new products provided by the company, which helps reduce search cost and effort.

4 Satisfaction and Loyalty

4.1 Introduction

In this chapter theories that deal with brand satisfaction and E-satisfaction are reviewed side by side with theories that study loyalty in order to understand the basis of loyalty for mobile phones and the factors that lead to satisfaction from the mobile phone manufacturer's website. The purpose of this chapter is to answer the sub research questions concerning what makes a mobile phone company's websites successful. And what factors creates loyalty for mobile phones?

4.2 Satisfaction

Kotler (1997) defined Satisfaction as "a person's feelings of pleasure or disappointment resulting from comparing a product's perceived performance (or outcome) in relation to his or her expectations". As the economic theory suggests human beings are constantly looking to maximize their utility or benefit. In this context utility means the total satisfaction that a consumer gets from the products and services he consumes.

Mittal *et al*. (1999) drew attention to the fact that as consumers gain more knowledge of certain attributes; the customer might change the weights they locate for attributes in determining overall satisfaction, this type of learning is necessary in skill based products such as software's and websites. The more the knowledge the consumers gets concerning a particular attribute the better the users they become which will be reflected on their level of satisfaction and overall consumer experience.

Applying customer satisfaction strategies means identifying customers, their needs and what they expect from the company and then measure their perception (Stenberg, 1997). Whereas quality and satisfaction are correlated, satisfaction is generally viewed as a wider concept for quality assessment. In other words quality is a component of customer satisfaction (Zeithaml and Bitner, 1996).

4.3 Website satisfaction

A group of Korean researchers have identified ten essential factors for e-satisfaction from previous studies and categorized them into convenience, transaction process, mobile portal reliability, information, representation, price, security/privacy, usefulness, experience, and user's behaviour. However, some researchers argue that the quality of information that impacts consumer satisfaction is higher than that of the website layout alone (Hsu, 2006). The factors for e-satisfaction are shown in the table below (table1) in a more comprehensive way.

Table 1 Satisfaction factors in e-commerce in the previous studies

Factors	Description	Researchers
Convenience	Ease of use Ease of access/navigation Ease of understanding Usefulness Functionality of web store	Zeithaml *et al.* (2000), Szymanski and Hise (2000), Donthu (2001), Francis and White (2002), Loiacono *et al.* (2002), Bansal *et al.* (2004), Schaupp and Belanger (2005)

Transaction process	Order process
	  Efficiency
	  Clearness of order process
	  Transaction time
	  Response time
	Delivery Process
	  Delivery time
	  Product treatment during delivery
	  Delivered product
		Zeithaml *et al.* (2000), Donthu (2001), Francis and White (2002), Loiacono *et al.* (2002) Bansal *et al.* (2004), Schaupp and Belanger (2005)

Web site reliability	System System reliability Product Value competitiveness Variety of products Uniqueness of product Quality guarantee	Zeithaml *et al.* (2000), Donthu (2001), Francis and White (2002), Loiacono *et al.* (2002), Bansal *et al.* (2004), Schaupp and Belanger (2005)
Information	Usefulness of information Pre-information of product Consistent image	Szymanski and Hise (2000), Francis and White (2002), Loiacono *et al.* (2002), Bansal *et al.* (2004)
Security/privacy	Safety of transaction Privacy	Zeithaml *et al.* (2000), Szymanski and Hise (2000), Donthu (2001), Francis and White (2002), Schaupp and Belanger (2005)
Price		Bansal *et al.* (2004)
Site design	Beauty of site design Visibility	Szymanski and Hise (2000), Donthu (2001)
Customer service	Degree of customization/personalization Degree of interaction	Zeithaml *et al.* (2000), Francis and White (2002), Srinivasan *et al.* (2002), Loiacono *et al.* (2002) Bansal *et al.* (2004), Schaupp and Belanger (2005)

Source: Choi, et.al, 2008

4.4 Loyalty

Developing and maintaining a loyal customer base is viewed as the single most important driver of long term financial performance (Reichheld and Sasser, 1990). According to Oliver (1996) "Customer loyalty is a deeply held commitment to re-buy or re-patronizes a preferred product or service consistently in the future, despite situational influences and marketing efforts having the potential to cause switching behaviour"

On the other hand, Brown (1992) defined customer loyalty as "The state in which customer needs, wants and expectations throughout the product or service's life are met or exceeded resulting in repeat purchase, loyalty and favourable word-of mouth"

Griffin (1995) sees a loyal customer as a customer who regularly repeats purchases. Prus and Brandt (1995) combines the two definitions and add that customer loyalty could be viewed as mixture of attitudes or intention to repeat the purchase again in the future or behaviours like recommending the product or the service and to avoid switching to competitors.

Behaviour of loyalty could also include purchasing more or even different products from the same company and maybe recommending them to others. Loyal customers are very important in supporting the business as they perform various actions like buying more or by positive word of mouth (Ganesh et. al. referred in Aydin and Ozer, 2004).

4.5 Online loyalty

Anderson and Srinivasan's (2003) define e-loyalty as "a customer's favourable attitude towards an electronic business resulting in repeat buying behaviour". From the company's perspective, the Internet is a good medium for encouraging customer loyalty by improving customer understanding to the product or the service (Reichheld and Schefter, 2000). However in this research we do not intend to measure the loyalty for the website of the company itself, but the effect a website has on building brand loyalty for the mobile phone brand.

4.6 Loyalty and Satisfaction

Customer satisfaction can have a different impact on customer loyalty depending on the industry (Jones and Sasser, 1995). Friday and Cotts (1995) describe customer's satisfaction as the situation when customer's requirements are convened. This means that the customer is satisfied with little effort. A customer is described as being satisfied when his overall experience and feelings toward the product or the service are neutral or positive. Therefore customer satisfaction does not mean that there will be customer retention. On the other hand, loyal customers are the ones whose not just requirements were convened but also their expectations were met or exceeded and they have also recommended the product or the service to others.

 In recent times loyalty could only be achieved through providing the customers with superior value (Koskela, 2002). Many of the previous research efforts validated the relationship between customer satisfaction and

loyalty (Anderson and Sullivan1993, Kristensen et al., 2000). Liljander and Strandvik (1992), argue that there is a positive correlation between customer satisfaction and repurchase intentions. In addition, Jones and Sasser (1995) present a very instinctive categorization of an individual's link between satisfaction and loyalty; Customers were classified into four different groups: loyalist/apostle (high satisfaction ± high loyalty), defector/ terrorist (low satisfaction ± low loyalty), mercenary (high satisfaction ± low loyalty), and hostage (low satisfaction ± high loyalty).

Riggs (1983) explains that in technical products the customer purchase should not be the end of the communication process between the company and the customers, Customer satisfaction might depend on post purchase communication as it will help customers use the product in the best way and effectively, which will be reflected on the customer satisfaction and encourage him to buy again. In case of mobile phones the manufacturer's website could be an ideal medium for communication between the customer and the mobile phone company. Riggs (1983) continues that customer training is essential for many technical products and systems because it helps the customers understand how to use the products they bought in a better way. Riggs (1983) adds that training should be the responsibility of both the marketing and engineering departments as it is a chance to strengthen sales efforts and provide accurate information about the product.

4.7 Loyalty and Value

Since firms understand that customer satisfaction is the way to commercial success they try to satisfy them by ensuring that the customers are getting the value they expect from the product (Hubner, 2001).Ruyter and Bloemer (1999) tried to implement value attainment in order to widen their understanding concerning loyalty for services. They explain that when there is high levels of satisfaction, customer loyalty will totally depend on it. However it might be difficult to achieve high levels of satisfaction especially in cases with high service encounter.

Price *et al.* (1995) explain that since Extended service encounters represent interpersonal relationships they should have characteristics like duration, effective or emotional content, and the spatial closeness of service provider and customer. Ruyter and Bloemer, (1999) studied these encounters and found out that, customer loyalty intentions could be affected by value attainment and positive mood However value attainment is considered to have relatively higher importance than the mood. In other words, value attainment impact satisfaction and loyalty stronger than the mood.

The figure below (Figure: 9) gathers most of the research reviewed in the theoretical part of the theses and categorize it under five main categorize.

Figure: 9. Literature Review
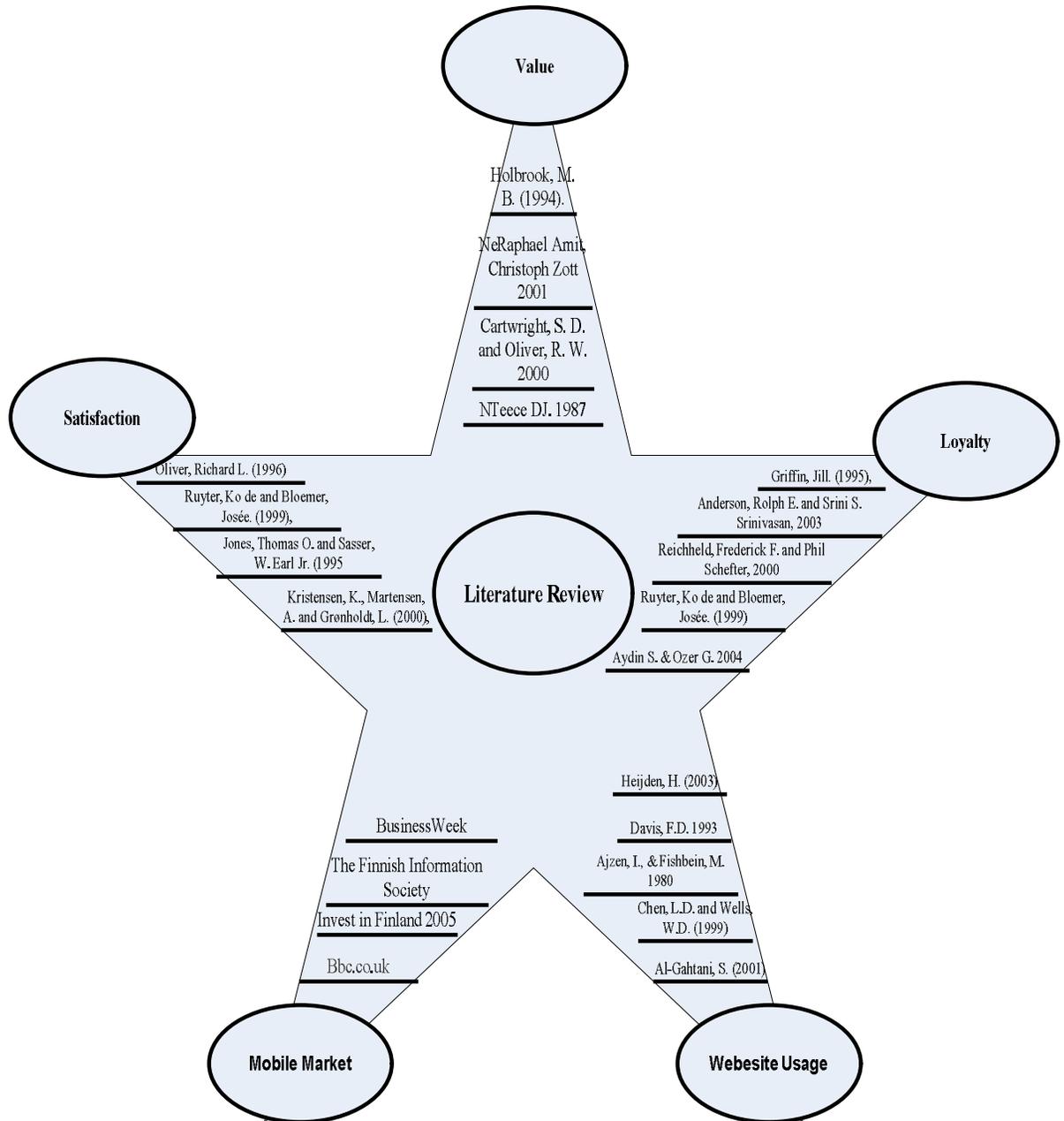
5 Hypotheses

5.1 Development of research model

In this chapter we try to develop the research model based on the theories reviewed in the previous chapters in order to define the relationships between the variant variables of the research. Based on the discussions in the previous chapters we will define the potential relations between; Positive website usage, Perceived usefulness, Brand satisfaction and Brand loyalty. As well as the effect of complementarities, Novelty, Lock-in and Efficiency on the perceived usefulness of manufacturers' website to the mobile phone device.

5.1.2 The relations between: Positive website usage, Perceived usefulness, Brand satisfaction and Brand loyalty.

Many of the previous researchers such as Kotler (1997) and Porter (1985) argued that after sales services plays an important role in building customer satisfaction and customer, loyalty

Riggs (1983) added that the effective usage of the product is essential for customer satisfaction and loyalty which in this case could come from the usage of the website. whereas, Woodruff, (1997) claims that there is a well-built link between customer satisfaction and the concept of customer value. Many researchers claim that customer value is not only in the product but also in various assistances the customer receives (Lindgreen and Wynstra, 2005; Ulaga and Eggert, 2005)

According to the disconfirmation of the expectation theory, customer satisfaction is a result of an assessment process, in which the customer compares the value he was expecting, and the value he received resulting in

a satisfaction or dissatisfaction (Oliver, 1996) Zeithaml and Bitner (1996) claim that service quality is a component of customer satisfaction.

Many previous researches support the claim that there is a link between satisfaction and loyalty. However Fornell (1992) claims that the relation between customer satisfaction and customer loyalty varies depending on the industry. Potential customer purchases could be predicted based on customer satisfaction (Kasper, 1988) which is a prerequisite for loyalty (Reynolds and Beatty, 1999). In line with the above research the following hypotheses are developed:

Hypothesis 1 Positive mobile phone manufacturer's website usage increases its perceived usefulness to the mobile phone.

Hypothesis 2 An increase in the perceived usefulness of the mobile phone manufacturer's website will have a positive effect on brand satisfaction.

Hypothesis 3 An increase in the perceived usefulness of the mobile phone manufacturer's website will have a positive effect on brand loyalty

Hypothesis4 Positive mobile phone manufacturer's website usage increases the mobile phone brand satisfaction.

Hypothesis 5 Positive mobile phone manufacturer's website usage increases the mobile phone brand loyalty

Hypothesis 10 There is a positive relation between brand satisfaction and brand loyalty

5.1.3 The relations between Efficiency, Complementarities, Lock-In, Novelty and perceived usefulness of the website.

The next four hypotheses are based on the research of Raphael Amit and Christoph Zott's sources of value creation in e-business, since they defined four sources for value creation. And claimed that the value-creating potential of an e-business is enhanced by the extent to which customers are motivated to repeat the transaction (Amit and Zott, 2001)

The first source of value according to Amit and Zott (2001) is efficiency It could be described as lessening customers' search and bargaining costs through enhanced information (Lucking-Reiley and Spulber, 2001)

The second source for value creation is Complementarities, If customers value your product more when they have the other products than when they have your product alone' (Brandenburger and Nalebuff, 1996). In line with the above research the following hypotheses are developed:

Hypothesis 6 Complementarities positively reflects on the perceived usefulness of the mobile manufacturer's website to the mobile phone device.

Hypothesis 7 Efficiency positively reflects on the perceived usefulness of the mobile manufacturer's website to the mobile phone device**.**

Hypothesis 8 Novelty positively reflects on the perceived usefulness of the mobile manufacturer's website to the mobile phone device.

Hypothesis 9 Lock-In positively reflects on the perceived usefulness of the mobile manufacturer's website to the mobile phone device.

5.2 The theoretical research model

The theoretical research model has been developed based on the 10 research hypotheses. Later on in the empirical chapters of the study we in tend to test the validity and precision of the model by testing the hypotheses. The theoretical research model below is more illustrated and detailed than the primary research model in chapter 1 since the variables have been hypothesized. In this research model we combine the four sources of online value from Amit and Zott, (2001) with the perceived usefulness and perceived ease of use from Davis (1989) technology acceptance model in addition to brand satisfaction and brand loyalty.

Figure: 10. Theoretical research model of the study
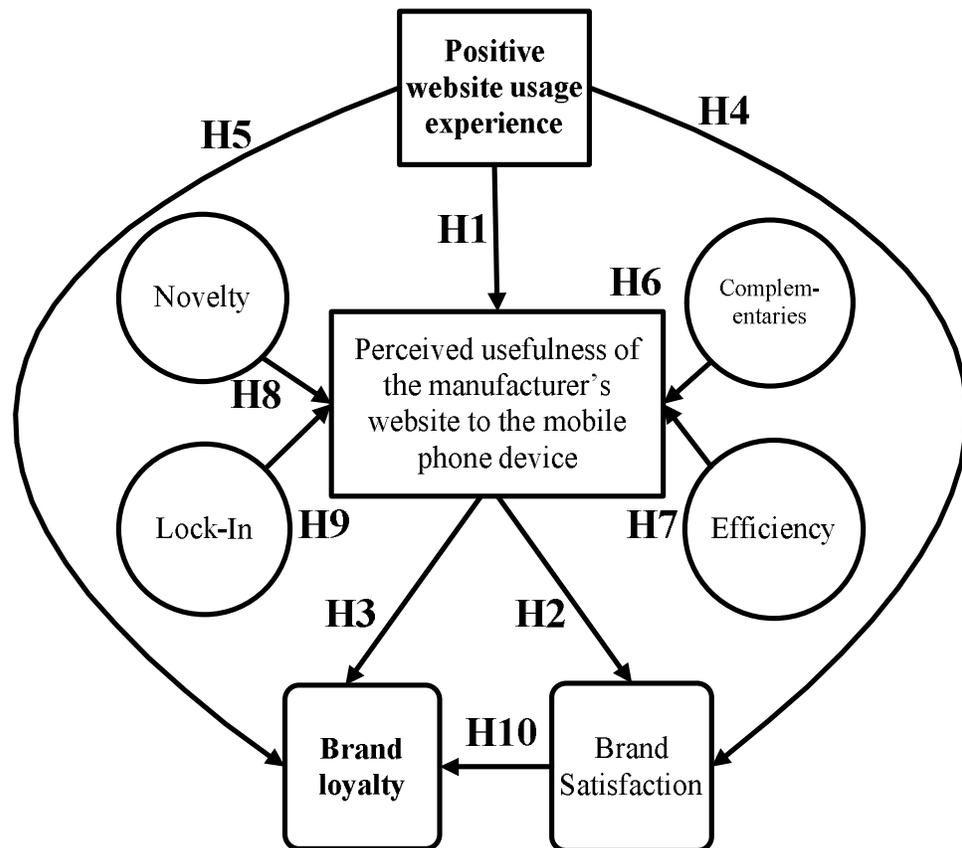
6 Methodology

6.1 Introduction

In order to test the research hypotheses a survey regarding (Mobile phone manufacturer website usage, perceived usefulness of the mobile manufacturer's website, brand satisfaction and brand loyalty) has been conducted. A survey instrument was used to gather the data and to test the relationships shown in the Research model. The survey was distributed among the sample and their answers were collected in order to be analyzed. This approach is considered to be easier and less costly than observations (Emory & Cooper, 1991).

6.2 Approach

Researchers apply different approaches to link the theory and the empirical certainty. According to Johansson and Lindfors (1993) there are three methods for doing this; Deduction, Induction and Two way street. In this research we are going to apply the Deductive approach. The deductive approach means that the researcher first reviews the theories and then tries to apply them empirically in order to verify or falsify them. Since this is a quantitative research we intend to use a questionnaire as a data collection method. Questions in the questionnaire are structured based on the theories reviewed in chapters 2,3 and 4 of this research paper.

6.3 Population

A population of a study is the group of people the researcher wants to investigate (Babbie, 2005) the population of this research are the students of Lappeenranta University of Technology who are between the ages of 20 to 30 years old. Individuals in this age group are expected to have at least one mobile phone. Furthermore they are considered to be heavy internet users and according to Greenspan, (2003) and they spend an average of 16.7 hours a week online. In addition, the Internet is a powerful tool for shopping and a source of information for them.

6.4 Sample

A valid respondent should be an Internet user and should own a mobile phone. The total sample should also represent the three faculties that Lappeenranta University has: School of Business, Faculty of Technology Management and Faculty of Technology. There might be a difference between students who study social and technical subjects in terms of willingness to use and understand of technology. The same differences could also exist between different genders. Therefore, the sample should represent both males and females. Respondents should also be Finnish because the research's focus is on the behavior of Finnish students in the first place. Lappeenranta University has around 5000 students therefore in order to be able to generalize the findings of the research we need a minimum of 150 valid responses.

6.5 Validity

Validity of the research means the ability of the study to measure what the researcher is really trying to measure (Svenning, 1999). In order to have valid measures, we paid attention that the questions in the questionnaire were really measuring what we need to measure. Through developing multi-item scales and pretesting the questionnaire and modifying the measures before launching it. Furthermore we conduct a factor analysis to test how the scales rotate with each other.

6.6 Reliability

In order to evaluate the outcome of a research the reader should understand the purpose of the study, the researcher's perspectives on how to conduct the study, and what perspective the researcher has on this science (Arbnor & Bjerke, 1994). It is agreed among scholars that all research should be credible; clearly, credibility depends on the methodology the researcher uses for data gathering and processing. The reliability of the research results means that they are legitimate or in other words, if we would repeat the research using the same methods again we would get the same results (Holme & Solvang, 1997).

6.7 Measures development

In order to build up the measures for this study we started by reviewing the relevant literature. Following that, we developed multi-item scales to measure the variables. As cited in Horppu (2001), the multi item scale consists of various numbers of single questions which measure a single construct (Metsämuuronen, 2005). We tried to adapt the scales as much as possible, and made sure they were developed and tested in previous research as an effort to increase the reliability of the research. As for the scales that were not developed in previous research we tried to follow examples from the previous researches to develop the scales. Churchill (1979) supported the multi-item measures over individual items measures arguing that the multi-item measures could average the specificity of items and decrease the errors in the measurement since it depend on more than one single item.

6.8 Questionnaire

The survey consists of 65 questions in total, 8 of them are multiple choice questions where the answers are stated under the question and the respondent has to choose the most relevant answer for him or her. One open ended question where the respondents were given a free space to write their answer freely. Inaddition, 56 scale questions on a seven-point-Likert scale negatively-positively (1= totally disagree to 7= totally agree) were used in the scale questions. In this study the 7 points lickerd scale was used instead of the original 5 point scale based on the explanation of Heskett *et al.* (1997). He explained that in some satisfaction studies, customers tend to give (4) on a scale from (1 to 5) even though they might answer negatively to loyalty. He claims that a logical explanation could be that many customers do not want to

cause irritation or penalization for a long term product or service provider by giving him low ratings. On the other hand they do not want to give a (5) since the service or the product is not perfect so they end up giving a (4) (Heskett *et al.* 1997). In addition to that, the 7 point scale gives more variance during the analysis.

The survey contained scales to measure the items below. Please note that the questionnaire measures and their sources are attached in appendix 1.

- Personal information (Gender -Age)
- Brand Usage
- Affinity with the Mobile phone
- Respondent use of the internet
- Mobile phone manufacturer website usage
- Perceived usefulness of the mobile manufacturer's website
- Brand satisfaction
- Brand loyalty

Respondents who answered negatively to the website usage were also asked to skip the questions concerning Perceived usefulness of the mobile manufacturer's website and answer directly to the brand satisfaction and brand loyalty questions.

6.9 Questionnaire Pilot study (Pre-testing)

In order to ensure the quality of the questionnaire, a Participating Pretest style was conducted. In a participating pretest the respondents are informed that they are filling out a pretest. They are given a chance to comment and give feedback on the questions to ensure that the questions and the wording are comprehensible by the respondents.

From the pilot study we could estimate the average response time to be 12 to 15 minutes to answer the questionnaire. Based on the feedback of the participants, some wordings were changed, or an explanation to technical terms was provided. Moreover some of the questions where reformulated.

6.10 Data Collection

The questionnaire was printed out and distributed to the students during lunch time at the university cafeteria. Students who fit the sampling criteria were approached and asked if they would like to participate in the questionnaire. Those who agreed were given the questionnaire, a pencil and a chocolate to motivate them to answer. Using a chocolate as a reward for response was perceived positively by the respondents due to the ambiance and the setting of the cafeteria at lunch time.

6.11 Data coding

After the data collection was completed, the responses were entered manually to SPSS (Statistical Package for Social Sciences) –software in order to be analyzed. Three negatively worded items (no.19, 20 and 54) were reversed coded and unanswered questions were excluded from the analysis.

7 Analysis and Results

7.1 Introduction

In this chapter the data that has been gathered by the questionnaire is analyzed using SPSS (Statistical Package for Social Sciences). First a descriptive analysis about the respondents is presented, followed by an assessment of the reliability for the multi item-scales. Then a correlation analysis is conducted in order to describe the strength and the direction of the relationships between the variables. Subsequently, a Multi Regression analysis tests the Hypotheses model. Finally a T-test is conducted to compare the difference in satisfaction and loyalty levels between respondents who are heavy website visitors and respondents who have visited their mobile phone manufacture company website.

7.2 Descriptive analysis

The sample's demographics are summarized in this section. The sample size is 200, which is the number of the valid responses to the questionnaire, The questionnaire's response rate was 46% which is relatively high and we suggest that this rate was achieved due to the data collection method described earlier in chapter 6.

The sample consisted of 122 males (61%) and 77 females (38%). Their age is summarized in the below table (Table 2)

Table: 2. Sample's age

Age	Range	Minimum	Maximum	Mean
	11	20 years	31years	23,4 years

The sample was also distributed among the three faculties at Lappeenranta University of Technology: School of Business, Faculty of Technology management and Faculty of Technology. This variance adds to the reliability of the study and makes it more representative to the total population. Below is a pie chart (Figure 9) that displays this distribution of the respondents per faculty. Please note that the summation of the percentages on the chart equals 101 due to the percentage accumulation effect.

Figure: 11. Distribution of Sample per Faculties
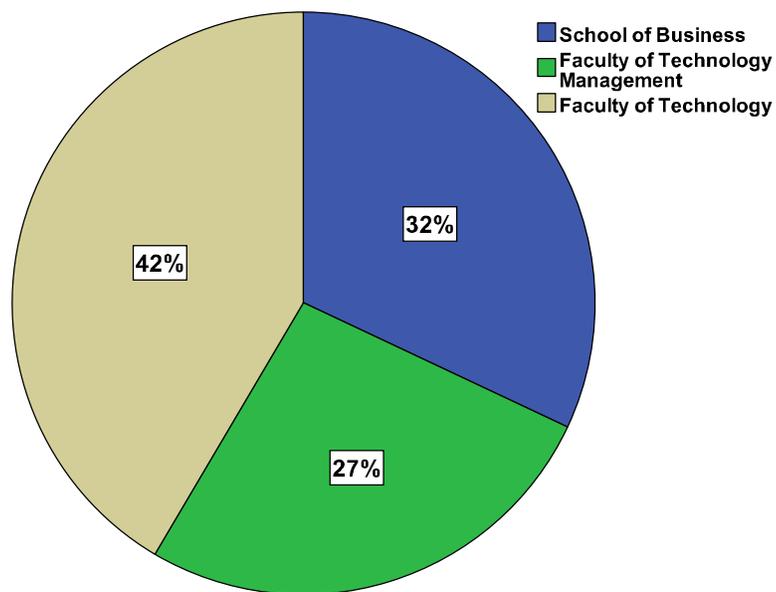
In which faculty do you study?

All the respondents have had at least one mobile phone and the questionnaire shows that the majority of the student (75%) uses the brand Nokia, while Samsung comes second. These statistics are supported by previous market researchers conducted on the Finnish mobile phone market which was discussed earlier in this study in chapter two. Below is a pie chart that shows the sample's mobile phone brands by percentage.

Figure: 12. Sample's Mobile phone brands
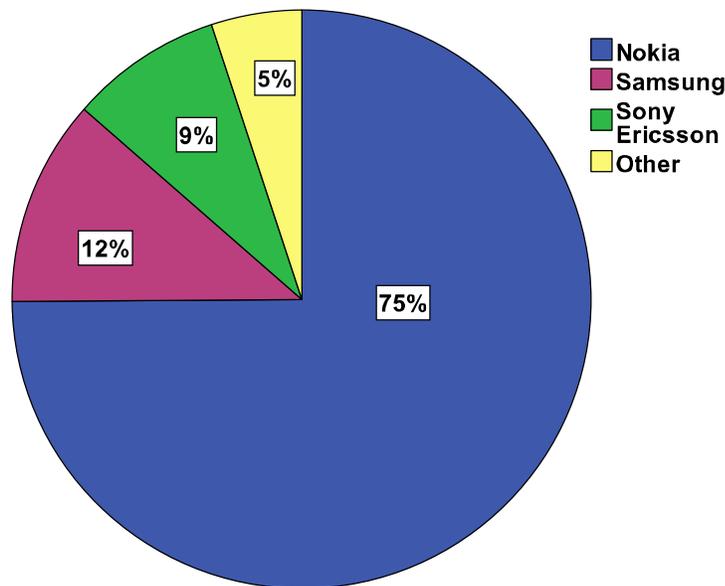
What is your Current mobile phone Brand?

The sample's visit frequency to their mobile phone manufacturer's website is also reported. In this research we can measure the Positive website usage experience and its effect on the other research constructs only from those respondents who visit their mobile phone manufacture website. The below graph indicates the sample's frequency of visiting their mobile phone manufacturer's website by percentage.

Figure: 13. Website visit frequency in the previous 12 months
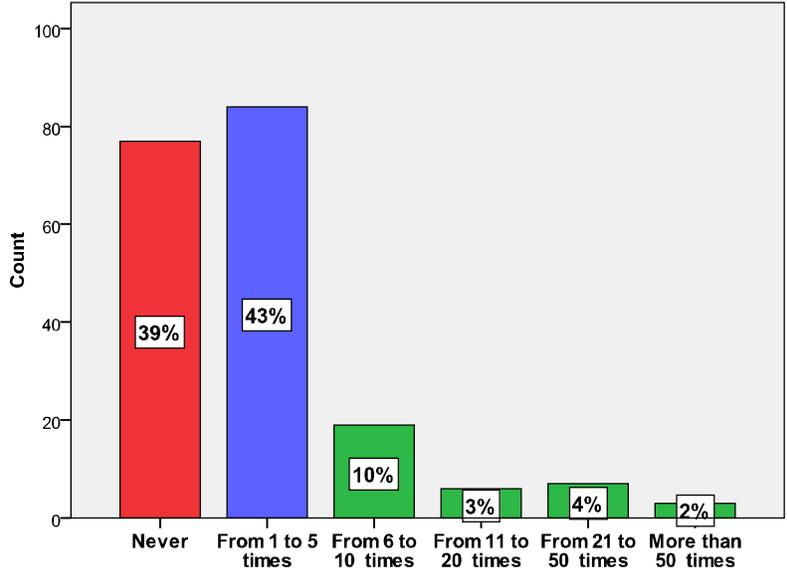
How many times have you visited your mobile manufacturer's website in the last 12 months?

7.3 Factor Analysis

An exploratory factor analysis has been conducted to ensure that the dimensions of the scales are clearly identified. In addition, based on the factor analysis we can also calculate the total scales which helps reduce the data used (Hair et al., 1998). The Scales for the major concepts of the study: positive website usage, perceived usefulness of the mobile manufacturer's website, Brand satisfaction and Brand loyalty were mostly adapted from previous researches as shown in the appendix 1.

At the first stage of the factor analysis all the 35 items in the questionnaire that are measuring the concepts of the research model were entered. Subsequently items that correlated heavily with different measures were dropped. The remaining 20 items are continues and interdependent. However they do not relate casually since they are intended to measure different concepts.

The 20 Items were subjected to principle components analysis (PCA) using SPSS Version 17. Before conducting the PCA we assess the suitability of the data for factor analysis. By viewing the correlation matrix we observed a good number of coefficients of 0.3 and above. In addition to that the Kaiser-Meyer-Olkin value was 0.69 which surpasses the suggested value of 0.60 (Kaiser, 1970). More over the factorability of the correlation matrix is supported by the statistical impact of Bartlett's Test of sphericity (Barlett, 1954). We used the Principle Component analysis as the extraction method while the rotation method used is Varimax.

Table: 3. Factor Analysis

| N. | Item label | Rotated Component Matrix | | | | | | | Communality |
		F1	F2	F3	F4	F5	F6	F7	Extraction
1	Perceived usefulness: 48	,907							,848
2	Perceived usefulness:49	,874							,852
3	Perceived usefulness 50	,835							,773
4	Perceived usefulness:47	,812							,783
5	Brand loyalty:57		,842						,758
6	Brand loyalty:56		,841						,745
7	Brand loyalty:5		,792						,648
8	Brand loyalty:6		,752						,684
9	Perceived ease of use:30			,881					,820
10	Perceived ease of use:32			,868					,826
11	Perceived ease of use:31			,667					,581
12	Brand Satisfaction:51				,828				,785
13	Brand Satisfaction:53				,813				,745
14	RBrand satisfaction54				,762				,668
15	Lock- In:40					,874			,838
16	Lock- In:41					,871			,847
17	Novelty:44						,862		,811
18	Novelty:45						,821		,759
19	Efficiency :35							,874	,850
20	Efficiency :36							,861	,829
	Eigenvalue	4,757	3,323	2,121	1,514	1,380	1,231	1,126	
	Cum.%	23,78	40,40	51,00	58,57	65,47	71,62	77,25	
	Variance%	23,78	16,61	10,60	7,57	6,89	6,15	5,62	

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

The principle component analysis showed 7 components with Eigenvalues exceeding 1, which explain 23%, 16%, 10%, 7.5%, 6.8%, 6% and 5.6%of the variance respectively.

Since the communality of the 20 items shown in the factor analysis table (table 3) are higher than 0.05. Therefore a factor solution accounts for half of the variance for each variable (Hair, 1998).

Unfortunately, items measuring website complementarities were dropped because they showed a strong correlation with the other sources of value of the mobile phone website. The table above (Table3) summarizes the results of the factor analysis and the components of rotation. SPSS coding is explained in appendix 1.

The factor analysis identified 7 clusters that measure the constructs of the research model. By reviewing the clusters of the factor analysis one can see that they have very high face validity. Every cluster consists of items that are meant to measure the same factor. Whether they were adapted from previous studies or developed specially for this research.

7.4 Measurement scales of the study

Based on the factor analysis, the scales of the study were combined. The scales have very high face validity. A scale is a combination of all the factors that loaded highly together, In other words instead of using separate variables we are using an average score for all the variables (Hair et al., 1998).

The reliability of the scales was checked using Cronbach's alpha coefficient and all the scales reported a value higher than 0.70 which is the value recommended by Nunnally (1978) for satisfactory scale reliability. And most of the scales are approximately normally distributed (see appendix 3)

Table: 4. Scales reliability

Summated scale	*No. of items*	*Mean*	Variance	*Std. dev.*	*Cronbach's Alpha*
Perceived Usefulness	4	18,29	42,47	6,51	0,914
Brand Loyalty	4	1 4,46	41,53	6,44	0,847
Positive Experience	3	8,79	10,97	3,31	0,758
Brand Satisfaction	3	6,41	10,14	3,18	0,758
Lock-In	2	12,47	7,31	2,70	0,849
Novelty	2	7,33	10,22	3,19	0,720
Efficiency	2	7,96	9,73	3,12	0,769

7.5 Correlation between central constructs

The purpose of the correlation analysis is to describe the strength and the direction of the relationships between variables. A correlation coefficient of zero value indicates the absence of a relationship while a correlation coefficient value of 1 indicates a perfect positive relationship thus a value of -1 would indicate a perfect negative relationship (Hair et al., 1998). As summarized by Julie Pallant (2007), a relationship value between 0.10 and 0.29 is considered weak, while a relationship between 0.30 and 0.49 is viewed as medium and a relationship between 0.50 to 1 is to be considered as very strong (Cohen,1988).

The two tables below (table 5 & 6) indicate inter-correlation among the main constructs of the study. Table five shows the correlations among the constructs of the website value sources: Efficiency, Novelty, Lock-In and perceived usefulness of the mobile manufacturer's website. While table six show the correlation among: Positive website usage experience, Perceived usefulness, Brand satisfaction and Brand loyalty.

Table: 5. Correlation among website value constructs

	Efficiency	Novelty	lock-In	Perceived usefulness
Efficiency Pearson Correlation	1	0,185[*]	0,141	0,318[**]
Novelty Pearson Correlation		1	0,041	0,325[**]
lock-In Pearson Correlation			1	0,413[**]
Perceived usefulness Pearson Correlation				1

. Correlation is significant at the 0.05 level (2-tailed).
**. Correlation is significant at the 0.01 level (2-tailed).

The correlation analysis shows a strong relation between the components of value and the overall Perceived usefulness from the website. This supports our research model and backup hypotheses number 7, 8 and 9, that the sources of value creation in E- business constructed by Amit and Zott (2001) can also be the sources of value in case of mobile phone manufacturer's website. Naturally the complementarities factors were excluded since we could not measure them in this study because the scales were excluded during the factor analysis as they loaded highly with the other sources of online value

Table: 6. Correlations among the study main constructs

	Positive Experience	Loyalty	Perceived usefulness	satisfaction
Positive Experience Pearson Correlation	1	0,248[**]	0,154	0,254[**]
Brand Loyalty Pearson Correlation		1	0,231[*]	0,299[**]
Perceived usefulness Pearson Correlation			1	-,056
Brand satisfaction Pearson Correlation				1

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

In the above table we can see the strength of the relations between the main constructs of the study, did a positive experience from using the website have a strong positive relation with brand loyalty and brand satisfaction, In addition to a strong relation between brand satisfaction and brand loyalty. This relation supports the previous theories reviewed in chapter four, that indicate a relationship between brand satisfaction and brand loyalty. Moreover it verifies our hypotheses number 4, 5 and 10.

As we can see in the table above (Table 6), there is a weak relation between Positive website usage experience and Perceived usefulness of the mobile manufacturer's website which weaken our first hypothesis H1. In addition to a very interesting result, which is that there is a weak negative relation between perceived usefulness and brand satisfaction, this contradicts with our research model and disintegrates hypothesis number 2.

A possible explanation for this negative relation could be related to the reasons the customers have behind visiting the website and the content or the purpose of the website itself, in other words *clarity of goals* as defined

earlier in the theoretical review. In a study conducted by Nathan and Yeow (2008), they used 400 students to evaluate different websites from 36 industries. They found that; companies in industries as computer hardware and software should pay more attention to clarifying the goals of their websites. If we apply this to the mobile phone manufacturer's websites, a consumer might be looking for mobile applications, games, software or even troubleshooting while the goal of the website could be promoting new mobile phone models. However, this negative relation between perceived usefulness and satisfaction did not present a statistical significance, and perhaps further research is needed to study it in a more detailed manner and from different perspectives.

On the other hand our third hypothesis concerning the correlation between Perceived usefulness and brand loyalty is affirmed to be significant at the 0.05 level as indicated in the above table (Table 6).

7.6 Multiple regression analysis

The multiple regression analysis is a step after calculating the correlations and it helps in providing a more refined interpretation of the relationships between the variables (Pallant, 2007). In this research we conduct two kinds of multiple regressions Standard and Hierarchical.

In a Standard multiple regressions analysis each independent variable is evaluated in terms of its predictive power with respect to the other independent variables (Pallant, 2007). It also shows the percentage of variance this group of independent variables have on the dependent variable. Both Standard and Hierarchical multiple regressions are used to explain the effect of the sources of value in a mobile phone manufacturer's website on the usefulness of the website.

As for the research model, a Hierarchical multiple regression is conducted to assess the dependent variables based on their prediction to the independent variables.

Analysis of Website Sources of value – One step hierarchical multiple regression

The first step for investigating the effect of online sources value on the perceived usefulness of the mobile manufacturer's website, a one step Hierarchical multiple regression analysis was conducted. R^2 Of positive website experience showed a value 0.24 which means that positive website usage experience represents only (2.4%) of the perceived usefulness of the mobile manufacturer's website. This is to be considered as a significant but modest contribution since the *Sig. F change* is slightly higher than 0.5. (F 1,116 = 2, 81, P< .0005) and the main values of the analysis are summarized in table 7.

Table: 7. One step hierarchical multiple regression for sources of value

Model	Un-standardized Coefficients		Stand. Coeff.							Hypo theses
	B	Std. Error	Beta	t	Sig.	F	R	R^2	Adj. R^2	-
1 (Constant)	15,624	1,695		9,218	,000					
Positive Experience	,303	,181	,154	1,677	,096	2,813	,154[a]	,024	,015	H1

Dependent Variable: perceived usefulness of the mobile manufacturer's website
(F 1,116 = 2,81, P< .0005)

In order to measure the effect of the remaining online sources value on the perceived usefulness of the mobile manufacturer's website we used the *Enter method* to analyze the three hypothesized website sources of value. From the analysis a fine model emerged ($F4,112$ = 12,972) , P<0.0005. While *Adjusted*

R square = 0,290. And in table 8 below are the noteworthy values of the analysis while the, scatter plot and the normal P-P plots of regression are included in appendix 3.

Table: 8. Summary of Standard multiple regression analysis

Model		Un-standardized Coefficients		Standardized Coeff.			Co linearity Statistics		Hypotheses
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF	
1	(Constant)	-1,476	2,951	-	-,500	,618	-	-	-
	Efficiency	,412	,172	,197	2,395	,018	,892	1,121	H7
	Novelty	,534	,163	,262	3,286	,001	,953	1,049	H8
	Total lock-In	,908	,190	,376	4,774	,000	,975	1,025	H9
	Positive Experience	,142	,160	,072	,890	,376	,918	1,090	H1

Dependent Variable: perceived usefulness

($F4,112$ = 12,972) , $P<0.0005$.

By comparing the Beta values in the table above one can see that in this research model the Lock-In factor has the strongest contribution in explaining the dependent variable which is perceived usefulness of the mobile manufacturer's website. This is followed by Novelty and then Efficiency.

This analysis also indicates that the Total Positive Experience has a *Sig.* value of 0,376 or greater than 0.05. In other words, it is not a significant contribution in predicting the dependent variable (perceived usefulness of the mobile manufacturer's website), which does not match with the previous single step regression analysis that we have conduct previously. A good interpretation for this could be an overlap between the other sources of value:

Efficiency, Novelty and lock-In, and the overall positive experience since the sources of value are actually determinants for the overall positive website experience.

By comparing the effects of positive website usage experience on the perceived usefulness of the mobile manufacturer's website, in both Standard and Hierarchical multiple regression analyses, we come to the conclusion that positive website usage experience has an almost significant influence on the perceived usefulness of the mobile manufacturer's website.

7.6.1 Analyzing main research constructs Hierarchical multiple regression

In order to test the main constructs of the research model we conducted two Hierarchical multiple regression analysis. The first analysis consisted of two steps to measure the effect of positive website usage experience and perceived usefulness of the mobile manufacturer's website on Brand satisfaction. While the second analysis consisted of three steps to measure the effect of Positive website usage experience, perceived usefulness of the mobile manufacturer's website and brand satisfaction on Brand loyalty.

Stevens, (1996) recommends 15 subjects per predictor and since we have 200 respondents as our research sample size our analysis exceeds the minimum recommended sample size.

7.6.1.1 Testing satisfaction 2 steps Hierarchical multiple regression

The results of the two step Hierarchical multiple regression analysis measuring the effect of positive website usage experience and perceived usefulness of the mobile manufacturer's website on brand satisfaction. In this analysis we entered positive website usage experience in the first step and perceived usefulness of the mobile manufacturer's website in the second. The result shows that the overall model explains a total variance of 1 percent, (F 2,115 = 4.46, $P<$ .0005). By inspecting the *Sig.* column in the table below

(Table 9) we notice that only the positive website usage experience achieves a statistically significant contribution of 0,004 or less than 0.05 while the contribution of the perceived usefulness of the mobile manufacturer's website (0.287) is not significant.

An interpretation for this insignificant relation between the perceived usefulness and brand satisfaction could be that one of the most common reasons customers visit their mobile phone manufacturers' website for is trouble shooting, problem solving and acquiring information and if, the website couldn't provide them with a solution to their problem or the information they are looking for that might negatively affect their brand satisfaction.

Table: 9. Two steps Hierarchical multiple regression for satisfaction

Model		Un-standardized Coefficients		Stand. Coeff.								Hypotheses
		B	Std. Error	Beta	t	Sig.	F	R	R^2	Adjusted R^2		
1	(Constant)	4,264	,811		5,259	,000						
	positive Experience	,244	,086	,254	2,824	,006	7,974	,254[a]	,064	,056		H4
2	(Constant)	5,005	1,067		4,693	,000						
	positive Experience	,258	,087	,269	2,956	,004						
	perceived usefulness	-,047	,044	-,097	-1,070	,287	4,564	,271[b]	,074	,057		H2

Dependent Variable: Satisfaction
*(**F 2,115** = 4,46 , **P**< .0005)*

Further on the three steps Hierarchical multiple regression analysis has been conducted on the research model to test how well positive mobile manufacturer's website usage experience, perceived usefulness of the mobile manufacturer's website and brand satisfaction can predict Brand Loyalty for mobile phone brands. And which of these variables would be the best predictor for brand Loyalty.

In step one the positive website usage experience scale was entered to explain 6.2% of the variance in Brand loyalty. After entering perceived usefulness of the mobile manufacturer's website scale in step two the added variance explained 10% of the total variance. Finally brand satisfaction scale was added, resulting in the research Model which includes independent variables; Positive website usage experience, perceived usefulness of the mobile manufacturer's website and Brand Satisfaction explained 17% of the variance in Brand Loyalty.

The Model as a whole including the three steps is to be considered as modest (F 3,114 = 7.8, P< .0005).

Table.10. Three steps Hierarchical multiple regression results

Model		Un-standardized Coefficients		Stand. Coeff.							Hypotheses
		B	Std. Error	Beta	t	Sig.	F	R	R^2	Adj. R^2	
1	(Constant)	10,212	1,643		6,215	,000					
	Positive Experience	,483	,175	,248	2,759	,007	7,613	,248[a]	,062	,053	H1
2	(Constant)	7,153	2,127		3,362	,001					
	Positive Experience	,424	,174	,218	2,431	,017					
	Perceived usefulness	,196	,089	,198	2,211	,029	6,379	316[b]	,100	,084	H2
3	(Constant)	4,363	2,240		1,948	,054					
	Positive Experience	,280	,174	,144	1,605	,111					
	Perceived usefulness	,222	,086	,225	2,590	,011					
	satisfaction	,557	,179	,275	3,107	,002	7,791	,412[c]	,170	,148	H3

Dependent Variable: Total Loyalty
(F 3,114 = 7.8, P< .0005)

By observing the *Sig.* column in the third block we can note that there are only 2 variables: satisfaction and perceived usefulness of the mobile manufacturer's website. Those two variables represent a statistically significant contribution (less than 0, 5) and the total satisfaction has the highest importance in comparison to other variables.

7.7 Significant relations in the research model

After testing all the research Hypotheses using correlation and multiple regression analysis, we indicate that 2 of the research hypotheses did not demonstrate an acceptable statistical significance.

As illustrated in the diagram below (Figure 12), Hypothesis 1: (positive mobile phone manufacturer's website usage experience) achieved almost the significant contribution to the increase in the perceived usefulness of the mobile manufacturer's website. While Hypothesis 2 did not show statistical significance, in fact it had a minor and negative value.

Figure: 14. Significant relations in the research mode
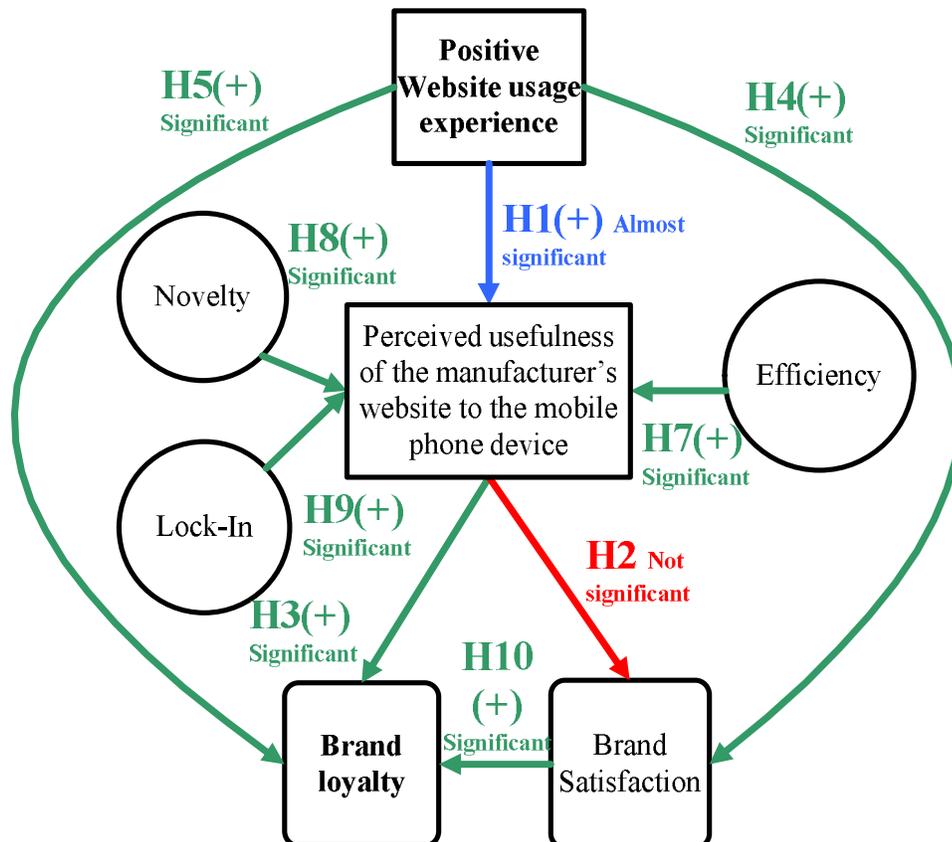
7.8 Independent Samples T-test

A T-test is conducted to investigate if there is a statistical difference in the mean scores of brand satisfaction and brand loyalty between those who heavily visit their mobile phone manufacturer website and those who have never visited it.

In order to conduct the T-test we divided our sample in to two groups based on their response to question number 22 of the questionnaire which inquires about the average number of times the respondents have visited their mobile phone manufacture's website in the last 12 months.

Figure: 15. Comparing the sample, never visited VS heavy users
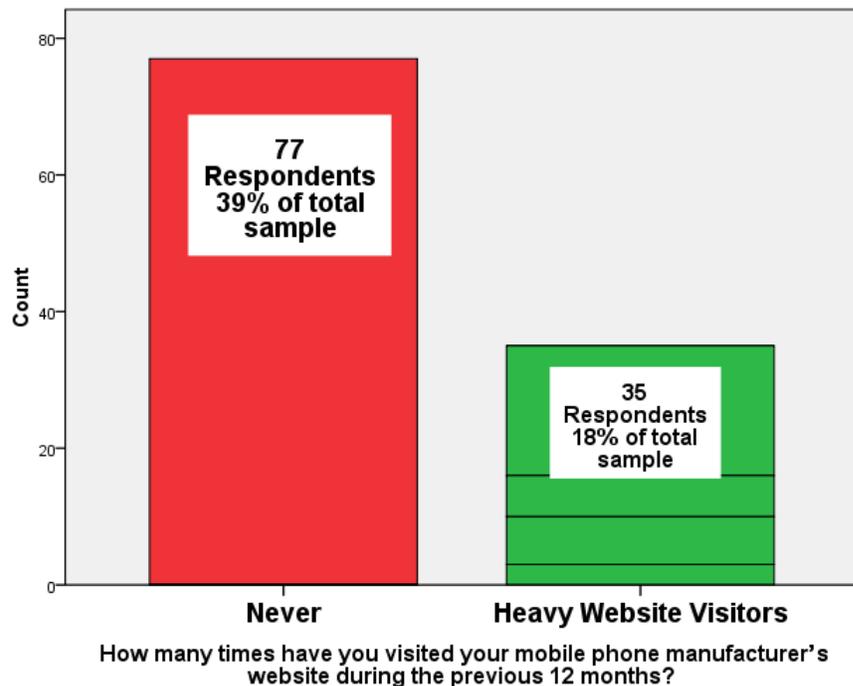
In the graph above (Figure 13) respondents in the first group are the ones who have never visited their mobile phone manufacturer website before. They represent 39% of the research total sample. As for the second group, it includes respondents who have visited their mobile phone manufacturer's website 6 to 50+ times during the same period of time representing 18 % of the research's total sample. While we excluded respondents who have visited their mobile phone manufacturer website from 1to 5 times as this seldom visit might not have a strong behavioural and statistical effect on their brand satisfaction and brand loyalty.

Table 11 summarizes the group statistics for both groups on the two variables to measure brand satisfaction and brand loyalty.

Table: 11. T-test groups summary

	Group	N	Mean	Std. Deviation	Std. Error Mean
Brand satisfaction	Heavy users	35	5,5714	2,90320	,49073
	Never visited	77	7,2208	3,35459	,38229
Brand Loyalty	Heavy users	34	12,0882	6,30232	1,08084
	Never visited	76	15,3289	6,66011	,76397

Table: 12. Independent samples test analysis

Independent Samples Test		Levene's Test for Equality of Variances		t-test for Equality of Means					
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	
Brand satisfaction	Equal variances assumed	,793	,375	-2,511	110	,013	-1,64935	,65680	
Brand loyalty	Equal variances assumed	,257	,613	-2,397	108	,018	-3,24071	1,35201	

By scanning the Sig. column in the table above (Table 12) under Levene's Test for the Equality of Variances, we can see that the data for both variables: brand satisfaction (0,375) and brand loyalty (0,613) do not violate the assumptions of equal variance assumed as they score more than 0.05.

By inspecting the coalmen *Sig.(2-tailed)* under the *T-test for equality means* we note that both brand satisfaction and brand loyalty scored less than 0.05. Therefore there is a significant difference in the mean scores on the dependent variable for the two groups. In the next step we shall calculate the difference between the mean scores.

7.8.1 Calculating the effect size for independent sample test

The purpose of calculating the Effect size is that it presents an indication of the magnitude of the difference between the two groups, and not just the possibility that this difference could have been amassed accidentally (Pallant, 2007).

In order to calculate the Effect size we are going to use the Eta squared method. According to Pallant (2007), Eta squared ranges from 0 to 1 and signifies the amount of variance in the dependent variable that is caused by the independent variable. Pallant (2007) also presented the formula for calculating Eta squared to be as follows:

$$Eta\ squared = \frac{t^2}{t^2 + (N1 + N2 - 2)}$$

Cohen (1988), considers an Eta squared value of 0.01 to have a minor effect while Eta squared of 0.06 would have a reasonable effect. An Eta squared value of 0.14 is considered to have a large effect.

7.8.2 Satisfaction Eta squared

In order to acquire the Eta Squared for brand satisfaction we substituted the respondent's data in the Eta squared equation provided by Pallant (2007).

$$\frac{(-2.511)^2}{(-2.511)^2 + (35 + 77 - 2)} = 0.0542$$

Based on the above calculations the effect size is small, showing that 5.4% percent of the variance in brand satisfaction can be explained by the mobile phone manufacturer's website usage.

By viewing the satisfaction means of the two groups in table 11 we can see that heavy website visitors have a lower satisfaction mean. Since in the research questionnaire (1) represent totally satisfied and (7) represent totally dissatisfied. Subsequently the lower the mean in our research the more satisfied the group is.

Therefore one can conclude that, heavy mobile phone manufacturers' website visitors are 5.4% more satisfied with their mobile phone brand than those who have never visited their phone manufacturers' website.

This finding strongly corresponds with the theories of satisfaction reviewed in earlier chapters of this paper. As heavy website visitors are exposed to more benefits through the website. And they end up receiving more value from their mobile phones in comparison to those who have never visited their website before. These benefits encourage an overall satisfactory feeling towards the mobile phone brand.

7.8.3 Loyalty Eta Squared

$$\frac{(-2.397)^2}{(-2.397)^2 + (34 + 76 - 2)} = 0.0505$$

We calculated the Eta Squared for brand loyalty by repeating the same calculations using the respondent's data for the brand loyalty scales. As shown in the equation above, we can conclude that using the website of the mobile phone manufacturer explains 5% of the variance in brand loyalty. Therefore based on Cohen's (1988) interpretations of Eta Squared outcomes we can conclude that usage of the mobile phone manufacturer website has a small effect on brand loyalty.

By viewing the loyalty means of the two groups in table 11 we can see that heavy website visitors have a lower loyalty mean. Since in the research questionnaire (1) represent totally loyal and (7) represent totally un-loyal. Subsequently the lower the mean in our research the more loyal the group is.

Therefore one can conclude that, heavy mobile phone manufacturers' website visitors are 5% more loyal to their mobile phone brand than those who have never visited their phone manufacturers' website.

This finding also corresponds with previous theories reviewed earlier in the research that discuss the relation between brand satisfaction and brand loyalty from one side and brand loyalty and value from another. From a different perspective, by analyzing the content of the manufacturer's websites one can see that they display new models offered by the same brand and their features, which increase the probability that a visitor to the website would consider buying them.

7.9 Interpretations for Finnish student's loyalty to their mobile phone brands

In order to answer our research question and to have a closer observation on the reasons for loyalty to mobile phone brands among the Finnish university students, we included one open ended question in the questionnaire where we asked the respondents to write the reasons of loyalty to their mobile phone brands, if they think that they are loyal to it. The graph below (figure 14) illustrates the respondent's answers by percentage.

Figure: 16. Reasons for mobile phone brand loyalty
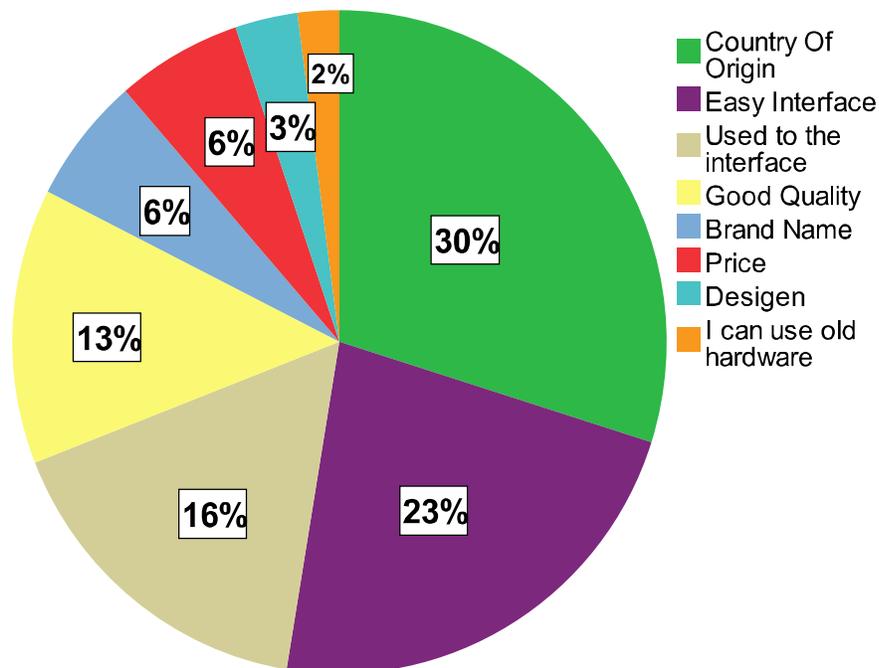
If you think you are loyal to your mobile phone brand, please explain why?

From the above graph we can observe that the biggest percentage of Finnish university students are loyal to their mobile phone brands because of its country of origin. By be reviewing Figure 10 we can see that 75% of the

respondents uses Nokia as their mobile phone. By combining the interpretations of both graphs we come to a conclusion that 30% of our respondents use Nokia mobile phones mainly because it is a Finnish brand. The second main reason for loyalty for mobile phones is the software. Software loyalty can be viewed from two perspectives: The first one is the easiness of interface (software) which is the reason of loyalty for 23% of the respondents.

Whereas the second software related brand loyalty reason is that the users are accustomed to the software of the mobile phone and do not have intentions to start a new learning process for a new brand's software. This is the case with 16% of the research respondents. This can also be supported by the results of respondent's period for using the same mobile phone brand. In the chart below (Figuer15) we can see that 59% of the respondents have been using their mobile phone brand for more than 5 years, which means that they are very accustomed to the mobile phone interface (software).

Figure: 17. Period of Mobile phone brand usage
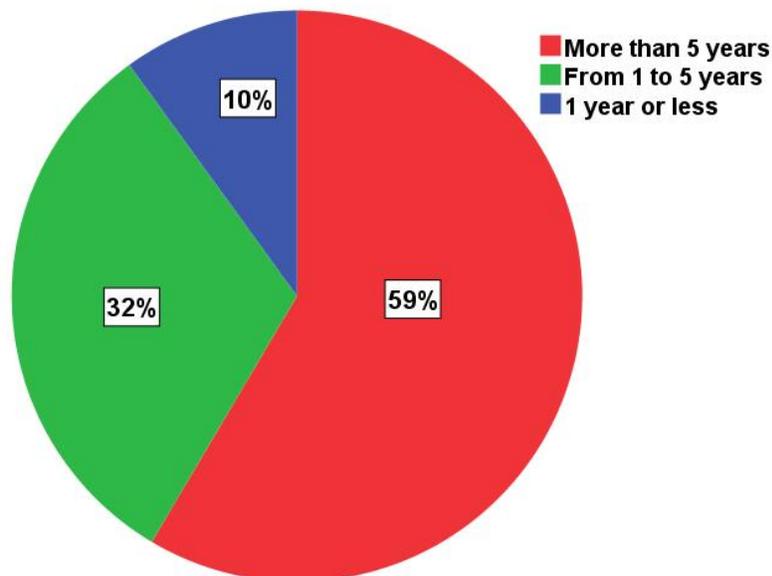
For how long have you been using this mobile phone brand?

To get a closer look on the period Finnish students have been their mobile phone brand for, we calculated the mean for the respondents' answers and found out that the average Finnish student has been using the same brand for 6.5 years, which shows that they are pretty loyal to their mobile phone brands.

Based on figure 12, 16 and 17 we can answer the research sub question concerning the situation in the Finnish mobile phone market focusing on the Finnish students. Based on the respondents' answers, it is obvious that Nokia is the market leader and that Finnish students are very loyal to it mainly because it is a Finnish brand.

8 Interpretations and Conclusions

8.1 Discussion and conclusions

As matters stand, **usage of mobile phone manufacturers' websites affects brand satisfaction and helps build brand loyalty for mobile phone brands.** This is the key finding of this master's thesis. However, website usage only has a slight influence on brand satisfaction and brand loyalty. This is due to other brand satisfaction and brand loyalty attributes that have not been covered in this research.

In order to answer the main research question and the four sub research questions, we based our study on previous research theories that interprets consumers' behavior towards technology. Furthermore we have also studied the sources of value online and their impact on brand satisfaction and brand loyalty theories while concentrating on the Finnish mobile phone market. Subsequently we conducted a survey on 200 Finnish Lappeenranta University of Technology students to test the validity of the research's hypotheses.

To analyze the survey responses, we presented a descriptive analysis then formed research scales and tested their reliability. Next we used them to conduct a Correlation analysis, Standard and Hierarchical multiple regression analysis and a T-test.

Based on the analysis, all the research hypotheses were valid except: hypothesis 6 since the measures for complementarities were dropped during the factor analysis and hypothesis 2, which appeared to be statistically insignificant.

Consequently we performed a T-test between heavy website users and those who have never used their mobile manufacturer's website. The T-test shows

that around 5% of the variance in brand satisfaction and brand loyalty is caused by using the website of the mobile manufacturer.

Another notable finding of this thesis is that 30% of the Finnish students are loyal to their mobile phone brand (Nokia) only because of its country of origin (Finnish company).

8.2 *Theoretical implications*

The study addressed a research gap between the theories of technology adaption and the theories of value creation. The thesis connected it to brand satisfaction and brand loyalty in the online environment. The main goal was to investigate whether usage of mobile phone manufacturers' websites affects brand satisfaction and whether it helps in building brand loyalty for mobile phone brands.

In order to construct our research model, we have reviewed in the early chapters of this thesis a good number of previous research theories about technology adaptation, value creation, brand satisfaction and brand loyalty.

Subsequently we adapted two items (perceived usefulness and perceived ease of use) from the technology acceptance model (TAM) by Davis (1989) and combined them with the four sources of value (novelty, lock-in, complementarities and efficiency) from the model of value creation in E-business by Amit and Zott (2001). Later on we connected these six items with brand satisfaction and brand loyalty to test them together as a model. Finally empirical results supported the relationship between the theories that formed the research model. In the research model, all the hypotheses were proven to be statistically significant except hypothesis 2 had no statistical significance.

8.3 Business implications

The findings of this research are useful for mobile phone marketers', marketing strategy designers and structureing promotional plans. The empirical results of this thesis support a significant relation between positive mobile phone manufacturer website usage and brand loyalty. Therefore mobile phone manufacturer companies who are keen to promote loyalty of their customer should encourage them to use the website more.

In this research, empirical analysis supported our hypotheses that novelties, efficiencies and lock-In contributes to the perceived usefulness of the manufacturer's website of the mobile phone device. Therefore mobile phone companies should consider covering these three items in their website content. Since these items will have an effect on their customers' loyalty.

Another important business implication would be for Nokia. This research showed that 30% of the Finnish students use Nokia mobile phones only because the brand is Finnish. This is connected to the role of Nokia in the Finnish economy. Lately, there have been some discussions that Nokia is considering relocating its head quarters outside Finland. this might have a negative effect on Nokia's market share on the Finnish mobile phone market as some students might not consider it as a Finnish company any longer.

On the other hand, companies that have a desire to increase their market share in the Finnish mobile phone market may consider benefiting from this loyalty to the country of origin and try to form some kind of alliance with Nokia, similar to the merger case between Japanese Sony and Swedish Ericsson to form Sony-Ericson or Siemens and BenQ to form BenQ-Siemens.

Another notable finding of the research is that the, easiness of the software represented 23% of the respondents' reasons for brand loyalty while being used to the software represented 16%. Based on this mobile phone manufacturers should consider the amount of their investment in software

development due to its important relation with brand loyalty. Nevertheless they should try to keep the same interface that their consumers are used to.

8.4 Limitations and future research

As with all research, this thesis has certain limitations. The research model is limited to mobile phones. As such, the research has to be replicated to examine the strength of the findings with respect to other technologies. Nevertheless we believe that many of the arguments cover common characteristics that might be applicable in other technological product areas.

This research uses a student sample. While students in this study represented active web users, and mobile phone owners, it is important to have a wider cross-section of the Finnish population to support the generalization of the study. In addition this study is limited to the Finnish population. Samples from different countries might have different motives for brand loyalty.

A further delimitation of this thesis is that we did not use any controls in the regression analysis and it is possible that adding controls like affinity to the mobile phone might have an impact on brand loyalty. Moreover we did not take in to consideration other factors that might affect brand satisfaction and brand loyalty.

Certainly, the research methodology also presents firm limitations. Future research efforts are needed to investigate other determinants for brand loyalty and brand satisfaction of mobile phones. In addition to, examining other possible sources of value that affect perceived usefulness of the mobile manufacturer's website to the mobile phone device.

Other determinants for mobile phone brand loyalty and brand satisfaction should use variant research methodologies to triangulate the result.

Based on all of the above, the results of this research should be viewed only as a groundwork verifying the concepts and further qualitative studies are needed to examine how beliefs and attitudes are accumulated concerning mobile phone manufacturer's websites.

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Appendix.1. Items used for variable measurement

SPSS Code	Measure	Item	Adapted from
Perceived usefulness:47	Perceived usefulness	Using my mobile phone company's website improves my mobile phone performance	Davis,(1989)
Perceived usefulness:48		Using my mobile phone company's website increases my mobile phone capabilities	
Perceived usefulness:49		Using my mobile phone company's website enhances my usage for my mobile phone	
Perceived usefulness 50		I find my mobile phone company's website useful for my mobile phone	
Brand loyalty:56	Brand loyalty	I pay more attention to my Mobil phone brand over other brands.	Quester & Lim 2003; Shang et al. 2006
Brand loyalty:5		I use this Brand because of the Company name (Brand)	Newly developed
Brand loyalty:6		I use this Brand because I am loyal to it	
Perceived ease of use:30	Perceived ease of use	My Mobile phone manufacturer's website is clear and understandable	Davis,(1989)
Perceived ease of use:31		I easily remember how tasks are done on my mobile phone manufacturer's website	
Perceived ease of use:32		I find my Mobil phone manufacturer's website easy to use	
Brand Satisfaction:51	Brand Satisfaction	I am satisfied with my decision of buying my mobile phone brand	Lau and Lee 2000
Brand Satisfaction:53		Using my mobile phone brand has been a good experience	
RBrand satisfaction54		I feel bad about my decision to buy my mobile phone brand	
Lock- In:40	Lock-in	I personalize my mobile phone manufacturer's website	Newly developed
Lock- In:41		I customize products and services offered on my mobile phone manufacturer's website.	
Novelty:44	Novelty	Visiting my mobile phone manufacturer's website informs me about new trends in the mobile phone market	Newly developed
Novelty:45		My mobile phone manufacturer's website introduces me to new mobile models, applications, software and accessories.	
Efficiency :35	Efficiency	My mobile phone manufacturer's website helps me to solve problems I face with my mobile phone	Newly developed
Efficiency :36		Information available on my mobile phone manufacturer's website mostly saves me a call or an email to the contact center.	

Appendix.2. the questionnaire

Personal information:

1- Gender
Male   Female

2- Age _____

3- In which faculty do you study? Please choose one
O School of Business   O Information Technology   O Industrial Management
 O Energy Technology   O Chemical Technology   O Mechanical Engineering
O Electrical Engineering   O Environmental Technology O Mathematics and Physics

4- What is your Current mobile phone Brand?
        A) Nokia   B) Motorola   C) Samsung   D) LG
        E) Sony Ericsson   F) other_____   G) I don't have a Mobile

On a scale from 1 to 7 choose how much you agree or disagree with the following statements where 1 is totally agree and 7 is totally disagree.

5- I use this Brand because of the Company name (Brand)
Totally agree 1   2   3   4   5   6   7 totally disagree

6- I use this Brand because I am loyal to it
Totally agree 1   2   3   4   5   6   7 totally disagree

7- I use this Brand because of the features
Totally agree 1   2   3   4   5   6   7 totally disagree

8- I use this Brand because of the quality
 Totally agree 1   2   3   4   5   6   7 totally disagree

9- I use the this Brand because I trust it
Totally agree 1   2   3   4   5   6   7 totally disagree

10- I use this Brand because of the its price
Totally agree 1   2   3   4   5   6   7 totally disagree

11- I use this brand because of its country of origin.
Totally agree 1   2   3   4   5   6   7 totally disagree

12- I use this brand because I am used to its interface (software)
Totally agree 1   2   3   4   5   6   7 totally disagree

13- I use this brand because I can use my old charger for the new phone
Totally agree 1   2   3   4   5   6   7 totally disagree

14- I use this brand because it has different models to choose from.
Totally agree 1   2   3   4   5   6   7 totally disagree

15- I use this brand because I can use the old battery for the new phone
Totally agree 1   2   3   4   5   6   7 totally disagree

Section: Affinity

16-I would rather use my mobile phone than do anything else.
Totally agree 1   2   3   4   5   6   7 totally disagree

17- I would feel lost without my mobile phone.
Totally agree 1   2   3   4   5   6   7 totally disagree

18- Using my mobile phone is one of the more important things I do each day.
Totally agree 1   2   3   4   5   6   7 totally disagree

19- I could easily do without my mobile phone for several days.
Totally agree 1   2   3   4   5   6   7 totally disagree

20- If my mobile phone was not working, I would not miss it.
Totally agree 1   2   3   4   5   6   7 totally disagree

21- For how long you are using this brand?
_____ Months/ _____ years

22- How many times have you bought something on the Internet during the previous 12 months?

    A) Never   B) 1-5   C) 6-10 D) 11-20   E) 21-50   F) More than 50

On a scale from 1 to 7 choose how much you agree or disagree with the following statements where 1 is totally agree and 7 is totally disagree.

23- I often download Complementarities for my mobile phone from the internet.
(Complementarities could be: software, ringtones, games, Mobile application and themes ext.)
Totally agree 1   2   3   4   5   6   7 totally disagree

24- I often visit my mobile phone Manufacturer's website.
Totally agree 1   2   3   4   5   6   7 totally disagree

25- I often use my mobile phone Manufacturer's website as a source of information.
Totally agree 1   2   3   4   5   6   7 totally disagree

26- I often download Complementarities for my mobile phone from my mobile phone manufacturer's website.
 Totally agree 1   2   3   4   5   6   7 totally disagree

27- How many times have you visited your mobile phone manufacturer's website during the previous 12 months?
                         Never   1-5   6-10   11-20   21-50   More than 50
    If you have never used your mobile phone manufacturer's website before please skip to question no.51

28- How many times have you download Complementarities for your mobile phone from websites other than your mobile phone manufacturer's website during the previous 12 months?
                         Never   1-5   6-10   11-20   21-50   More than 50

Section: Website Perceived ease of use

29- When surfing my mobile manufacturer's website I do not use a lot of mental effort.
Totally agree 1   2   3   4   5   6   7 totally disagree

30- My Mobile phone manufacturer's website is clear and understandable.
Totally agree 1   2   3   4   5   6   7 totally disagree

31- I easily remember how tasks are done on my mobile phone manufacturer's website
Totally agree 1   2   3   4   5   6   7 totally disagree

32- I find my Mobil phone manufacturer's website easy to use
Totally agree 1   2   3   4   5   6   7 totally disagree

Section: Sources of value
(Efficiency)

33- Information available on my mobile phone manufacturer's website helps me to use my mobile phone better
Totally agree 1   2   3   4   5   6   7 totally disagree

34- Information available on my mobile phone manufacturer's website reduces my search costs for a new mobile
Totally agree 1   2   3   4   5   6   7 totally disagree

35- My mobile phone manufacturer's website helps me to solve problems I face with my mobile phone. (FAQ, Customer support, troubleshooting)
Totally agree 1   2   3   4   5   6   7 totally disagree

36- Information available on my mobile phone manufacturer's website mostly saves me a call or an email to the contact center.
Totally agree 1   2   3   4   5   6   7 totally disagree

(Complementarities)

37- I often use my mobile phone manufacturer's website to download applications, ring tones, graphics for my mobile phone.
Totally agree 1   2   3   4   5   6   7 totally disagree

38- I use my mobile phone manufacturer's website to know about accessories for my mobile phone.
Totally agree 1   2   3   4   5   6   7 totally disagree

39- I use my mobile phone manufacturer's website to download software Ex: WAP, MMS, EMAIL, Maps ext.
Totally agree 1   2   3   4   5   6   7 totally disagree

(Lock-In)

40- I personalize my mobile phone manufacturer's website.
Totally agree 1   2   3   4   5   6   7 totally disagree

41- I customize Products and services offered on my mobile phone manufacturer's website.
Totally agree 1   2   3   4   5   6   7 totally disagree

42- I have an account on my mobile phone manufacturer's website
Totally agree 1   2   3   4   5   6   7 totally disagree

43- I often participate in contests on my mobile phone manufacturer's website
Totally agree 1   2   3   4   5   6   7 totally disagree

(Novelty)

44-Visiting my mobile phone manufacturer's website informs me about new trends in the mobile phone market.
Totally agree 1   2   3   4   5   6   7 totally disagree

45- My mobile phone manufacturer's website introduces me to new mobile models, applications, software and accessories.
Totally agree 1   2   3   4   5   6   7 totally disagree

46- My mobile phone manufacturer's website teaches me how to use new mobile technologies
Totally agree 1   2   3   4   5   6   7 totally disagree

Section: Perceived usefulness

47- Using my mobile phone manufacturer's website improves my mobile phone performance
Totally agree 1   2   3   4   5   6   7 totally disagree

48- Using my mobile phone manufacturer's website increases my mobile phone capabilities
Totally agree 1   2   3   4   5   6   7 totally disagree

49- Using my mobile phone manufacturer's website enhances my usage for my mobile phone
Totally agree 1   2   3   4   5   6   7 totally disagree

50- I find my mobile phone manufacturer's website useful for my mobile phone
Totally agree 1   2   3   4   5   6   7 totally disagree

This section focuses on the relation between you and the Mobile phone Brand:

Section: Brand satisfaction:

51- I am satisfied with my decision of buying my mobile phone brand
Totally agree 1   2   3   4   5   6   7 totally disagree

52- I have truly enjoyed my mobile phone brand
Totally agree 1   2   3   4   5   6   7 totally disagree

53- Using my mobile phone brand has been a good experience
Totally agree 1   2   3   4   5   6   7 totally disagree

54- I feel bad about my decision to buy my mobile phone brand
Totally agree 1   2   3   4   5   6   7 totally disagree

55- Using my mobile phone manufacturer's website increases my satisfaction of my mobile phone brand.
Totally agree 1   2   3   4   5   6   7 totally disagree

Section: Brand Loyalty

56- I pay more attention to my Mobil phone brand over other brands.
Totally agree 1   2   3   4   5   6   7 totally disagree

57- I am more interested in my Mobile phone brand over other brands
Totally agree 1   2   3   4   5   6   7 totally disagree

58- I say positive things about my Mobil phone brand to other people
Totally agree 1   2   3   4   5   6   7 totally disagree

59- I recommend my Mobil phone brand to someone who seeks my advice
Totally agree 1   2   3   4   5   6   7 totally disagree

60- I encourage relatives and friends to use and buy my mobile phone brand
Totally agree 1   2   3   4   5   6   7 totally disagree

61- It is very important for me to buy this particular brand of mobile phones over another brand
Totally agree 1   2   3   4   5   6   7 totally disagree

62- The next mobile phone I will buy will be of the same brand
Totally agree 1   2   3   4   5   6   7 totally disagree

63- I will continue visiting my mobile phone manufacturer website
Totally agree 1   2   3   4   5   6   7 totally disagree

64- Using my mobile phone manufacturer's website increases my loyalty to my mobile phone brand.
Totally agree 1   2   3   4   5   6   7 totally disagree

65- If you think you are loyal to your mobile phone brand, please explain why?

Appendix.3. Sample's descriptive statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Total Efficiency	119	2,00	14,00	7,9580	3,12018	,232	,222	-,525	,440
Total Novelty	120	2,00	14,00	7,3250	3,19706	,325	,221	-,653	,438
Total lock-In	120	2,00	14,00	12,4667	2,70366	-2,220	,221	4,966	,438
Total satisfaction	199	3,00	19,00	6,4070	3,18458	1,234	,172	1,444	,343
Total Positive Experience	120	3,00	19,00	8,7917	3,31256	,451	,221	,177	,438
Total Loyalty	197	4,00	28,00	14,4569	6,44477	,510	,173	-,835	,345
Total value	119	5,00	28,00	18,2857	6,51744	-,228	,222	-,845	,440
Valid N (list wise)	115								

# Appendix.4. Multiple regression analysis

Normal P-P Plot of Regression Standardized Residual

## Dependent Variable: Percived usefulness
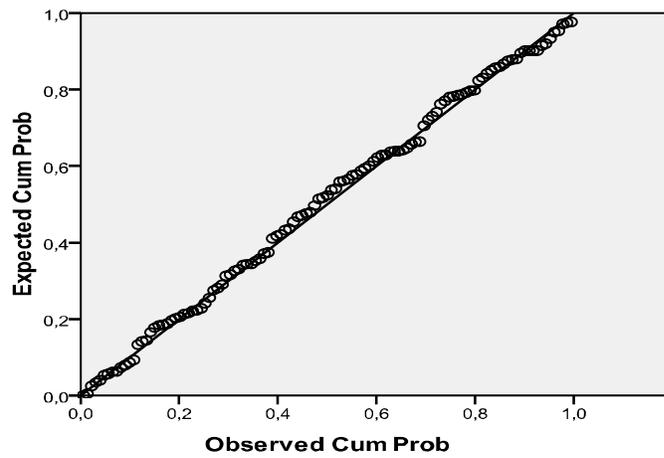
Scatterplot

Dependent Variable: Percived usefulness

Normal P-P Plot of Regression Standardized Residual

Dependent Variable: Loyalty

Scatterplot

Dependent Variable: TLoyalty

Appendix.5. Skwnuess of variables

Perceived usefulness

Mean =18,29
Std. Dev. =6,517
N =119

Loyalty

Mean =14,46
Std. Dev. =6,445
N =197

Percived ease of use

Mean =8,79
Std. Dev. =3,313
N =120

Satisfaction

Mean =6,41
Std. Dev. =3,185
N =199

Lock-in

Mean =12,47
Std. Dev. =2,704
N =120

Novelty

Mean =7,33
Std. Dev. =3,197
N =120

Efficiency

Mean =7,96
Std. Dev. =3,12
N =119