Aalto University
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The Roles of Social and Network Effects in Consumer´s Mobile Service Platform Switching

Information Systems Science

Master's thesis

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Abstract

Objectives of the Study

Mobile phones have become a commodity and simultaneously the modern touchscreen smartphones penetrate the market. Consumers switch their phones increasingly often, so the reasons behind the switching behavior matter. The academic research of the mobile phone switching factors is limited. Earlier related research findings suggest that the social effects have a role in mobile phone switching. What is this role like, and furthermore, what is the underlying dynamics behind it. This thesis is attempting to fill a gap in the academic research, and add in knowledge of the roles of social environment influences for a consumer´s behavior.

Academic background and methodology

This is a longitudinal, partly inductive analysis, combining quantitative and qualitative elements. The theoretical grounding is built on an academic literature review. An empirical survey data collected in Finland by Professor Virpi Tuunainen, at the Aalto University, School of Business during 2012-2014, is used for the analysis. A modified framework for mobile service platform switching is built on the theoretical grounding, and is used to organize the questionnaire data. The recognized survey data constructs are organized for relevant switch variables, and the primary and the supporting analysis are made. Qualitative and quantitative data are compared in respect with each others, and analyzed separately as well.

Findings and conclusions

Obvious positive impacts of social norms on the consumer´s switching behavior were discovered, and their role has become more important. The consumers recognize the role of social impact in their past behavior rather well, but don´t see this role in their future decisions, which indicates it is partly hidden. Weaker signals of peer pressure were found, though also their role is increasing. Deliberate, compelling peer influencing in one´s mobile service platform switching decisions is still rare. Network effects and social factors are manifesting positive interdependence hence a mobile service platform with proper design can exploit the role of social effects in the mobile service consumers´ switching behavior.

Keywords

Consumer, switching behavior, mobile phone, feature phone, smartphone, mobile service platform, social effects, social norms, peer pressure, network effects, operating system, application, PPM framework, push factor, pull factor, mooring factor, quantitative, qualitative, data

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Jouni Piispanen

Tiivistelmä

Tutkimuksen tavoitteet

Matkapuhelimista on tullut kulutustavaraa ja älypuhelimet valtaavat markkinat. Puhelimia vaihdetaan yhä useammin, joten vaihtamiseen vaikuttavilla syillä on lisääntyvä merkitys. Vaihtokäyttäytymisen tieteellinen tutkimus on laitteiden suosiosta huolimatta ollut vähäistä. Aiempi tutkimus kuitenkin tarjoaa viitteitä siitä, että sosiaalisilla tekijöillä on olennainen rooli kuluttajan käyttäytymisessä. Mikä tämä rooli on ja millainen on dynamiikka sen taustalla? Tämä tutkielma pyrkii osaltaan täydentämään alan tieteellisen tutkimuksen puutteita ja lisäämään tietämystä sosiaalisten tekijöiden vaikutuksesta kuluttajien käyttäytymiseen.

Kirjallisuuskatsaus ja metodologia

Tutkielma hyödyntää pitkittäissuuntaista, osin induktiivista tutkimusmenetelmää, kvantitatiivisia ja kvalitatiivisia elementtejä yhdistellen. Teoreettinen pohja rakentuu tieteellisen kirjallisuuden katsaukselle. Empiirisenä aineistona käytetään Suomessa, professori Virpi Tuunaisen Aalto Yliopiston Kauppakorkeakoulussa vuosina 2012 - 2014 keräämää kyselyaineistoa. Tutkielmassa modifioidaan teoreettisiin pohjatietoihin perustuen, mobiilipalvelualustojen vaihtokäyttäytymisen kontekstiin soveltuva viitekehysmalli, jota sovelletaan empiirisen datan käsittelyyn. Kvantitatiivinen ja kvalitatiivinen data hyödynnetään erillisanalyysein sekä vertailemalla niitä keskenään.

Tulokset ja päätelmät

Tutkimuksessa tunnistettiin sosiaalisten normien selvä positiivinen ja kasvava vaikutus kuluttajien matkapuhelinten vaihtokäyttäytymiseen tutkimusajanjakson aikana. Kuluttajat tunnistavat suhteellisen hyvin sosiaalisten normien vaikutuksen aiemmassa vaihtokäyttäytymisessään, mutta eivät kykene ennakoimaan vaikutusta tulevaisuudessa, mikä viittaa siihen että vaikutus on osittain piilevä. Suoran vertaispaineen roolista löytyi heikkoja viitteitä, mutta tämänkin tekijä merkitys on kuitenkin lievästi kasvava. Verkostovaikutusten ja sosiaalisten tekijöiden välillä on positiivinen vuorovaikutussuhde, joten sopivia ominaisuuksia omaava mobiilipalvelualusta kykenee hyödyntämään sosiaalisten vaikutusten roolia palveluiden kuluttajien vaihtokäyttäytymisessä.

Avainsanat

Kuluttaja, vaihtokäyttäytyminen, matkapuhelin, älypuhelin, näppäinpuhelin, sosiaalinen vaikutus, sosiaaliset normit, vertaispaine, verkostovaikutus, mobiilipalvelualusta, käyttöjärjestelmä, sovellus, PPM-viitekehys, työntävä vaikutus, vetävä vaikutus, ankkuroiva vaikutus, määrällinen, laadullinen, data

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Thesis Contents

List of Tables and Figures

1. Introduction

Mobile phone can already be considered as a consumable. Basically everyone in the developed world has at least one. Based on the latest statistics of the ITU (International Telecommunication Union, 2014) the global mobile phone subscription penetration at the end of 2013 was about 6.8 billion, with the total world population of 7.1 billion. The diffusion of mobile phones increases so strongly that they have become the fastest adopted consumer products ever. Furthermore, the developing world has also joined in. A traditional hardwired telephone network has been skipped over in many developing geographical areas and the construction of the first telecommunication network has been launched by building a cellular network infrastructure.

Smartphones are rapidly replacing the traditional voice communication mobile phones, globally. A modern smartphone, however is useless without the appropriate software applications. In fact, a possibility to customize the functionality of a phone with freely chosen and wirelessly downloadable software functions, while being mobile, makes the phone useable the way the consumers want it to be. The software applications available largely define the utility factor and user value of the mobile devices. A mobile device has become a user interface and platform for the mobile services.

Since the phones, application software, cellular networks and the mobile service ecosystem in whole are such an important part of our daily lives, consumer behavior matters. A better understanding of the migration behavior of the service users would benefit many parties. The brand and design are the first visible features of the phones. However, the phone operating system software and the digital application marketplace - the underlying mobile service platform - inherently linked with the phone device layer may also have great important as a source of service switch factors. A consumer´s decision to opt a particular service platform,

even when it is seen as just a phone, ultimately defines the perceived usefulness and usability of the mobile phone. The academic research of the factors affecting this decision process, are scarce, and the knowledge such a research would provide has a strong commercial dimension as well. Additionally, could we, as consumers benefit from such knowledge? In this thesis the consumer´s switching behavior of mobile services is at the focal point. The influences of the consumer´s proximate and also wider social environment and the underlying behavioral dynamics are the primary topics of this research.

1.1. Background

The global cellular phone penetration approaches 100% so market growth is becoming slower. The academic emphasis has not been so much in technology adoption any more, but rather in technology post adoption processes, even when many phones in use are still classic, simple mobile phones used for voice communication. Nearly similar to the recent revolution of the mobile phone market penetration starting from the beginning of 90´s, vivid smartphone saturation is replacing it now. The traditional phones with keyboards and small passive displays are being superseded ultimately by touchscreen smartphones, which makes the technology adoption approach still relevant. Cheap smartphones enter the global market, so this technology adoption is an ongoing process.

The availability of the growing myriad of application software – apps - is the prerequisite for the concept of a smartphone to generate any particular value for a user. Apps can be downloaded mobile, almost totally regardless of time and place, with no physical connection for the mobile service provider. Due to the constantly increasing computational power modern smartphones can perform several tasks, which were just recently possible for only tabletop or laptop computers. In many aspects the smartphones can deliver even in such an extent, that as users of the mobile technology we have been increasingly able to transfer their daily ICT (Information and Communication Technology) routines from computers to smaller, mobile devices. This has happened as a result of the digital technology convergence, and it is increasingly liberating people from their fixed offices, homes and computers, which in turn will deliver them value added. Mobility really can be useful.

From a mobile phone manufacturer viewpoint, it is not viable anymore to develop the mechanics and operating system of a phone and sell these two bundled together as an independent standalone product. A smartphone now, is only one part of a more complex technological and business ecosystem, comprising several subsystems. For a manufacturer, a choice of the relating ecosystem is at least as important as the technology itself. The mobile phone operating system (e.g. iOS, Android, Maemo, Meego, Windows for Mobile, Symbian, Sailfish, etc.), phone user interface, mobile cellular network infrastructure and mobile service operator, are all relevant parts of this ecosystem. But, an especially central component of this ecosystem is the mobile application software market, which distributes the apps for users.

Typical mobile apps are, for instance games, bookstores, video services providers, navigation services, social networks, messaging, and utility software, such as torch, calculator, video- or music player, VoIP, sports activity trackers, healthcare apps, and so on. These services have phenomenally increased the usability of the mobile phones in recent years in such an extent that the availability of the apps seems to be an imperative dimension of the user´s phone selection criteria. All the apps are not available to all phone models or brands. The chosen application store defines the availability of the apps hence the mobile service platform decision defines the nature and utility level of a particular phone. The phone and service platform are bundled and the user sees them as one concept. The users select their electronics devices based on their needs, and also based on the other influencing factors. How does this selection process actually work? From the mobile phone business aspect, the cardinal questions are, how do consumers come up with a decision to select a particular phone, and what makes them to stay or switch to another brand or type of a phone? What triggers or inhibits their switching intentions?

1.2. Topic area and motivation

Mobile phones, operating systems and service platforms

Since the modern touchscreen smartphone, operating system (OS) and mobile application store are bundled together, the phone has practically become a platform for services. The most

common smartphone – OS - application store combinations at the moment and in the context of this study are the following:

iPhone – iOS – AppStore

Samsung – Android OS – Play Store

Nokia – Windows – Windows Phone Store

There are, has been and will be other combinations as well. However, some phone manufacturers produce phones with more than just one OS. Samsung, Nokia, Zte, Sony-Ericsson (or Sony) and HTC, for instance are such brands. At some points during the years 2012 – 2014 the consumers were offered those phone brands with at least Android or Windows Mobile OS´s, and also with older feature phone OS´s. In 2012 – 2014 the OS and application store have been inherently inseparable combination. These both are controlled by one platform owner. Apple is an exception compared to all other platform owners as it has had its control exclusively over the entire product-platform chain - the phone, OS and application store. Android and Play Store are sponsored by Google, and Windows Mobile OS and Windows Phone Store are controlled by Microsoft. When it comes to the earlier feature phones, the variety of OS´s has been much larger, Nokia´s Maemo, Meego and Symbian being just few examples of this. But the market is under a constant change. For many feature phones, popular especially during 2011, there were very little external applications provided, but the phones contained already many platform-like functions. Such phones can be seen as crossover devices in transition to smartphones. (Tilson, D., Sørensen, C. & Lyytinen, K., 2012)

Switching

From the human behavioral perspective, switch or no-switch, are both important as they both are more or less intentional acts of an individual, and they have consequences. When a consumer is switching the mobile device, is she/he also switching mobile service platform? Pragmatically thinking, no if the OS/apps marketplace remains the same. Then, the platform owner still has this user in the network. At the moment, due to the structure of the business the mobile service platform is not a user selectable standalone product, hence the phone represents the service platform. In the academic service switching context, the device – OS -

apps store combination should be understood as a mobile service platform. Whereas, behind practically every phone is a platform business model, which pivots the phone inherently to the mobile service platform. More precisely, every phone is a component of a mobile service platform business ecosystem. Hence, the phone switching behavior matters as the switch of the phone is always a platform choice decision, simultaneously.

Consumers are part of their social environment, hence subject to social influences, i.e. their surrounding social norms and peer pressures. These influences have a causal relationship with the acts of the people around, and they have conscious and unconscious effects on the consumers´ also on their product or service migration decisions. Other consumers and peers may have their hidden agenda, or they may be honest in their pursuit to affect to their own social environment. Also, their decisions may have an unconscious effect on the other consumers. These effects may be powerful and important as such.

Motivation

Academically, new digital technology adoption process is rather well studied and understood already. A popular Technology Acceptance Model, TAM (Davis, 1989) derived research has added the knowledge of technology adoption and pre-adoption. Rather, the post-adoption processes, such as the various reasons for staying in, or switching a phone type, brand and service platform would deserve a stronger emphasis. The majority of the users have already possessed several mobile phone models and product generations. The phone scene is very dynamic so the actual reasons behind the switching behavior of the phone users provide an interesting baseline for a study. Possibly, these reasons can be used as switch predictors in the future.

The digital technology development inherently accelerates. This is why a longitudinal analysis of the switching behavior, at this point is justified. How the different mobile service switching reasons have changed just recently, or have they? Most users switch, or are forced to switch the phone rather often. During the 80´s in the era of analog mobile phones worth a compact car, and at the beginning of the digital GSM mobile phone era around the 1990 and onwards, a

mobile phone was a durable good. Users did not basically switch phones. Rather, the phones were repaired. Ever since, switching the phone has become increasingly frequent hence, a phone has become a commodity. Switching a phone once a year or two is no rare occasion anymore. Additionally, it is not unusual now to own two or more phones. Obviously, this must be good business for someone. And it is. There are several groups with a logical interest to understand why the users stay with their present phones or why do they switch. The mobile service platform owners, application developers, advertisers, cellular network business, and the phone and ancillary manufacturers and distributors, all are affected by the consumer behavior.

Platform mediated ICT business models provide high earnings potential, since a platform is subject to the network externalities, or network effects. The prevailing mobile service platforms are competing with each other about the dominating position in the market. A platform success depends highly on the size of the user network. Tuunainen et al. (2012a) conclude in their research that social influences and network effects have causal relations and strong roles with the consumer mobile platform switching behavior, but suggest further research. The switching behavior of ICT service users has been academically studied in some extent, but the roles of social and network effects, as well as their relationships are not well known yet.

When asked so, the consumers typically emphasize the technical and technological features as drivers for mobile platform switching, especially in lead markets. This has been discovered in the earlier related studies (Tuunainen et al., 2012ab, Nykänen, 2013). Social reasons and the so called, same side network effects are seen by the consumers, to have very little influence on their switching behavior. The user behavior seems to indicate the opposite as well as some earlier research (Bansal et al., 1999). The consumers prefer to express explicitly that the opinions or actions of family members, friends, colleagues or other consumers, don´t have a significant effect on their purchasing decisions. However, some recent academic research indicates that this positive same side (consumer side) network effect is hidden, but stronger than the consumers initially reveal (Tuunainen et al., 2012a). The closest peers may think that the value of the device or the network of users increases if they can add their peer to this network hence they have their own agenda to connect their peers in. Also, fashion and other

trends are known to have an effect on consumers. The hidden influences provide one important basis for further research. A contradiction between user´s expressed and outsider´s observed attribute may be natural behavior where a user wants to see oneself as something different than actually is. This could mean that the choices made by the family members, friends and other consumers actually have much stronger influence on a ´switching behavior, than the consumers themselves actually know or want to express explicitly.

Referring to the findings of Tuunainen et al. (2012a) and Nykänen (2013) the cross-side network effect may not have so strong deviation between the expressed and the actual consumer behavior. Consumers seem to express that the good availability of the mobile applications in application marketplace has a strong positive relationship to their switching behavior. The availability of the mobile applications is generally seen by consumers as a very important service switch factor, hence the cross-side network effect, due to its powerful and inherent nature in platform mediated business provides an interesting basis for further research.

1.3. Research questions

The primary research question of the thesis is as follows:

> ***What are the roles of social and network effects in the consumer mobile service platform switching behavior?***

More specifically in the empirical setting, this study focuses on, how much, in which direction, and how fast – if any – the social issues and network effects have influenced the mobile service platform switching behavior of the students of a Finnish university, until the year 2014? This is a longitudinal, partly inductive study, comprising empirical survey data of three consecutive years. The survey data is extensive and there may be some moderating and mediating factors in the changes of the technological and business environment, in the changes of the attitudes towards the mobile services and switching, and in the roles and changes of the roles of other mobile service switching factors. Hence, another complementary and supportive research question with a wider scope was formulated. This is as follows:

What kind of trends and patterns emerge from the consumer mobile service switching survey data, during the three year survey period, 2012 – 2014?

1.4. Objectives and Research methodology

Objectives

The aim of this study is to add to the academic and practical level knowledge of the consumer switching behavior of the mobile services, mobile phones, and the mobile service platforms. Due to the limitations of detailed and specific related academic research available, a more thorough understanding of the social influences on switching behavior, as well as the contradictions between explicitly expressed and implicit but observable (tacit, hidden) social reasons, and the roles of cross-side and same-side network effects would serve the further academic research purposes and provide useful practical implications also to both, business sides and consumers. In some extent, the results could be applicable to service and product migration research more widely.

The general objective of this research is a better understanding of social aspects and their relation to network effects, affecting the willingness of users to switch away from a current, in to a particular new phone brand, type and mobile service platform. In a wider perspective, answers to the following questions will be searched: How does the participation of others in the communication network affect to a user? How does a user´s participation in a communication network affects to those others? Does it matter to others what a user chooses? Does it matter to a user what others choose?

Methodology

This is a longitudinal, partly inductive analysis combining quantitative and qualitative elements. The theoretical grounding is built on an academic literature review. The latest and closely related academic research is reviewed as well as the academic literature on the fundamental constructs. The switch questionnaire which has been used for collecting the empirical data from Aalto University, School of Business students in Helsinki, Finland by Professor Virpi Tuunainen, is used as survey instrument. This three year (2012 - 2014) sequential questionnaire survey data

is organized and analyzed. A modified PPM framework for mobile service platform switching is built on the theoretical grounding of Bansal et al. (2005) and in alignment with the survey data structure. This framework is used to organize the questionnaire qualitative results. Inductively, the recognized survey set switch factors are organized for the most suitable switch reason variables, which are used as basis for analyzing the survey data. All relevant questionnaire data is used and combined for provision of the supporting and the primary analysis. Qualitative and quantitative data are compared with each others, and they are analyzed separately as well. The results are then reviewed, and reflections with the related earlier academic research are provided.

1.5. Structure of thesis

There are 9 chapters altogether in this thesis. The introducing chapter provides the basic background information for the research. Topic area and motivation for the research are presented there, as well as the research questions and the objectives and methodology. Structure of thesis is provided here as well. In chapter 2 the closely context related earlier research is reviewed. Chapter 3 goes deeper into the theoretical grounding, providing definitions of the important concepts and introductions for the relevant theories and their applications. Also the basis for the analysis framework is introduced here. Chapter 4 is dedicated for the detailed information on the survey framework theory, which is further modified and presented in modified format later in this chapter. The empirical qualitative and quantitative data is introduced in chapter 5. Chapter 6 is dedicated for the research methodology description, and this method is put in practice in the following analysis, in chapter 7 where the emphasis is on the research questions´ subjects. In chapter 8 the results of the analysis are discussed and further refined. In the last chapter the conclusions are drawn, limitations of the study are provided and discussed, and the suggestions for further research are provided.

2. Earlier related research

This chapter is dedicated to a review of the earlier research of mobile service switching behavior, as well as for the related social influences research. This thesis is based on an empirical data of a questionnaire, called switch questionnaire, which is the primary tool used in the SWITCH project, in Aalto University School of Business, Helsinki, Finland. The questionnaire was made among the Aalto University business school Information Economy course students, during the years 2012 – 2014. Also a similar or almost a similar questionnaire was made in 2012 at the Oulu University, as well as in the same year at the University of Nebraska-Lincoln in USA and at the Punjabi University in India. Some yearly data of those surveys have been used as the basis of previous research. Three Bachelor´s theses, and a one Master's thesis (Jussi Nykänen, 2013 Aalto University, School of Business, 2013) have been published based on that data. The emphasis of these studies has been in the general understanding of Mobile Service Platform switching reasons from the consumer perspective. The most prominent findings by Nykänen in his Master´s thesis (2013) suggest that the main reasons pushing users to switch mobile phones were rational reasons like dissatisfaction with reliability and advanced functionalities, along with forced external influences. The reasons pulling users towards the new alternative were personal desires, advanced functionalities and subjectively perceived factors with social influences. Also, he discovered the brand influence and price value perceptions pulling towards the alternative choices. Also, he found some switch preventing elements, such as attachment to familiar advanced functionalities and subjectively perceived factors.

More precisely being an antecedent to this thesis´ subject was the research conducted by Tuunainen, Tuunanen, and Nah, 2012a. This research was also based on partly the same switch questionnaire data as the basis. It addressed the idea of hidden social influences in switching behavior of the users of the mobile service platforms. Furthermore, also it provided evidence

on these hidden social influences, linked with same-side and cross-side network effects. The findings of Tuunainen et al. suggest that the consumers explicitly express their platform decisions being built on rational reasoning, mainly on technical or pricing issues, and the respondents expressed strong family, friend and colleague influences in their mobile application software selection processes. However, these social influences are becoming implicit, hidden when the users were switching the mobile devices and the mobile service platforms. Mobile devices were also considered a component of the consumer´s personal social image. These findings motivate for further research of the peer influences on the switching behavior of the mobile service platform.

Additionally, Tuunainen, Tuunanen, and Nah, (2012b), did a research on the importance of social factors and device characteristics in customers´ mobile device switching, in lead and lag markets. They suggest that the social factors, namely subjective norms and peer pressure, have a bigger role in lag markets (markets, where smartphone adoption is still low) compared to the lead markets (smartphone adoption high). They are concluding that "as a smartphone adoption is becoming more mature in a market environment, mobile vendors may want to increase their emphasis on characteristics of mobile devices to consumers and downplay the role of social factors in marketing their products and services". This would mean, that the role of social effects is seen less important in lead markets, e.g. in Finland, when the device characteristics tend to have a bigger role instead.

Mainly the rest of the academic literature focuses on the subjects of technology acceptance and adoption. Lu et al. (2005) studied the social influences in relation to the user´s personal features, in their article of *Personal innovativeness, social influences and adoption of wireless Internet services via mobile technology*. They concluded that a certain degree of utilization of informal social networks and image impact are required for a successful implementation and promotion of wireless internet services via mobile technology. The user´s perceptions of usefulness and ease of use toward this technology were significantly attributed to social influences from the user´s social networks and the sense of image. The service or product

switching dimension is narrow in this research, but the knowledge it provides about relations of the social impact and technology adoption, are useful in the mobile phone switching context.

The most of the earlier research of mobile platform switching has focused on one sample of a particular moment. A time series based research on mobile platform switching is harder to find. There is a lot of such evidence available, that the speed of a change in the market of ICT and especially the market of mobile services and devices is high, and the gradient of product or service generation changes is getting bigger. Many changes happen already even in one year. How fast and what is the direction of the changes in a two-three year period? A time series analysis of mobile service platform switching would be a rational choice when relevant data is available.

3. Theoretical grounding

3.1. Mobile phones

A relevant distinction between feature phone and smartphone has been difficult, but this distinction is becoming easier as the smartphones are becoming dominating devices and the rather simple feature phones with keyboards are basically only seen in the low-end product segment nowadays. The older smartphone predecessors, the earlier crossover palm PC´s and also the keyboard/touchscreen phones are steadily disappearing from the market.

Mobile phone is a general term for a mobile communication device. Based on the usual definition in business and science, the concept of a mobile phone is divided in two distinctively different subgroups. This division is based mainly on the functional and technological features. A mobile phone, at the moment can be called either a simpler feature phone, or a more modern and complicated smartphone. A distinction between a feature phone and a smartphone is in many occasions somewhat blurry, as these designations are not ubiquitously and scientifically defined. However in general, a feature phone term can be seen describing a low-end phone, without any major applications, other than voice calling, SMS capabilities and simple, non-downloadable third party applications. These phones usually have a keypad, small display and no or just a primal touchscreen. Feature phones may have an internet access and limited multimedia support, and many of the devices are kind of crossover devices, which may fall in the classification aspect somewhere in the halfway of a feature phone and a smartphone categorization. Feature phones nowadays are considered either older technological generation mobile phones or more modern low-end mobile phones. These modern feature phones are targeted mainly to the emerging markets and low end users in developed markets. In excess, the new feature phones are ones that are provided for many special purposes and customer segments, such as special phones for elderly people with limited vision, mental or coordination

abilities. Also, feature phones are still designed for usage in e.g. harsh conditions and environment. The Oxford Dictionaries defines the feature phone in the following way:

> *A mobile phone that incorporates features such as the ability to access the internet and store and play music, but lacks the advanced functionality of a smartphone.* (Oxford Dictionaries, 2014)

This definition holds relatively well for the pre-smartphone era phones, and also for more modern low end mobile phones. A concept of "feature phone" is not available in the Oxford Dictionaries, but this concept is generally used in mobile communication literature. Feature phone is in general, considered as a more developed version of an entry level mobile phone.

Smartphones are more sophisticated mobile devices. These are fitted with extended data processing power, extended and potentially extendable memory, charged with a large touchscreen, developed multimedia and internet capabilities, as well as with higher price-tag and status compared to feature phones. Keypads are already rare in them and a higher wireless LTE (Long Term Evolution – 4G) data transmission speed is beginning to be more of a norm. The usage is based on mobile service platform architecture, where the third party mobile application stores and applications – useful and less useful ones – are the very heart of the device. Also, the platform philosophy enables many other parties, like application developers, advertisers etc. to join in the ecosystem. These phones used to be high-end products 2-3 years ago, but increasingly the technological progress and the economy of scale have lately enabled the manufacturers to launch also low-end smartphones, for increasingly younger users and for emerging markets. The definition for the term of a smartphone by the Oxford Dictionaries (2014) is as follows:

> *A mobile phone, that performs many of the functions of a computer, typically having a touchsreen interface, internet access, and an operating system capable of running downloaded apps.*

The definition is mostly appropriate, but due to a complicated structure of a smartphone, a more detailed definition would be useful. Gartner provides online a more thorough way of describing the concept of smartphone:

> *Smartphone is a mobile communications device that uses an identifiable open OS. An open OS is supported by third-party applications written by a notable developer community. Third-party applications can be installed and removed, and they can be created for the device's OS and application programming interfaces (APIs). Alternatively, developers must be able to access APIs through a discrete layer such as Java. The OS must support a multitasking environment and user interface that can handle multiple applications simultaneously. For example, it can display e-mail while playing music* (Gartner, 2014).

This explanation provides a more useful starting point, as this is the smartphone most users recognize at the moment. The respondents of this study have possessed both, the feature phones and the smartphones, though naturally, the distribution of feature vs. smart has changed in these three consecutive years studied. The major share of feature phones in the year 2012 has turned into the major share of the smartphones in 2014. This heavy increase in smartphones has increased the importance of the mobile services hence it has heavily increased the demand of such services.

3.2. Platforms

Platforms are ICT intensive service innovations, and platform mediated services are becoming increasingly popular business model. Modern smartphones are just a basic foundation for the business they are embedded in. In order to generate value and utility around them they need to have an ecosystem where they can be a part of. This ecosystem constitutes of two or more groups of users, "sides" and it is called – based on the quantity of the sides in the network – two- or many-sided networks. The interaction between network users is facilitated by a platform and these networks are commonly referred as platform mediated networks. A platform enables a multitude of different actors to join in the system and produce or use

services. Platforms can be generated and maintained by one or more supporters. These are usually referred as sponsors. Academically, platforms provide rules and components (or infrastructure) to facilitate the interactions between two or more groups (Eisenmann et. al. 2006; 2010). The users join the network and seek utility from this action. The platform then, enables or facilitates the interaction between the users, if these two voluntarily decide to interact (Rochet & Tirole, 2003; 2004). The authors also provide useful information about platform pricing strategy and decisions since these are a very important tactical platform business decisions for the platform sponsor – in this context, for Microsoft (Windows phone store), Apple (AppStore) and Google (Android Play store). The platform owner or sponsor must get all sides of the business on board and here the pricing is a critical chicken-and-egg problem. Though, for instance Apple is well known for its premium pricing tactics it has still managed to maintain high level of sales and profit. The decisions, concerning the pricing issues such as, which side of market is charged and which side is subsidized, are already relatively fixed practices in mobile service platform business. These are business level decisions, but they may have their effects on the customer switching behavior.

Below, is an illustration of the structure of the many-sided markets facilitated by a service innovation platform (Tuunainen and Tuunanen, 2011; Tuunainen et al., 2009). Simultaneously, this illustration describes the IISIⁿ model developed by Tuunainen and Tuunanen (2011), to be used as a tool for service innovation platform analyzing purposes. In this research, the emphasis is on the mobile service user "side" and the same-side and cross-side network effects, shown in the figure.

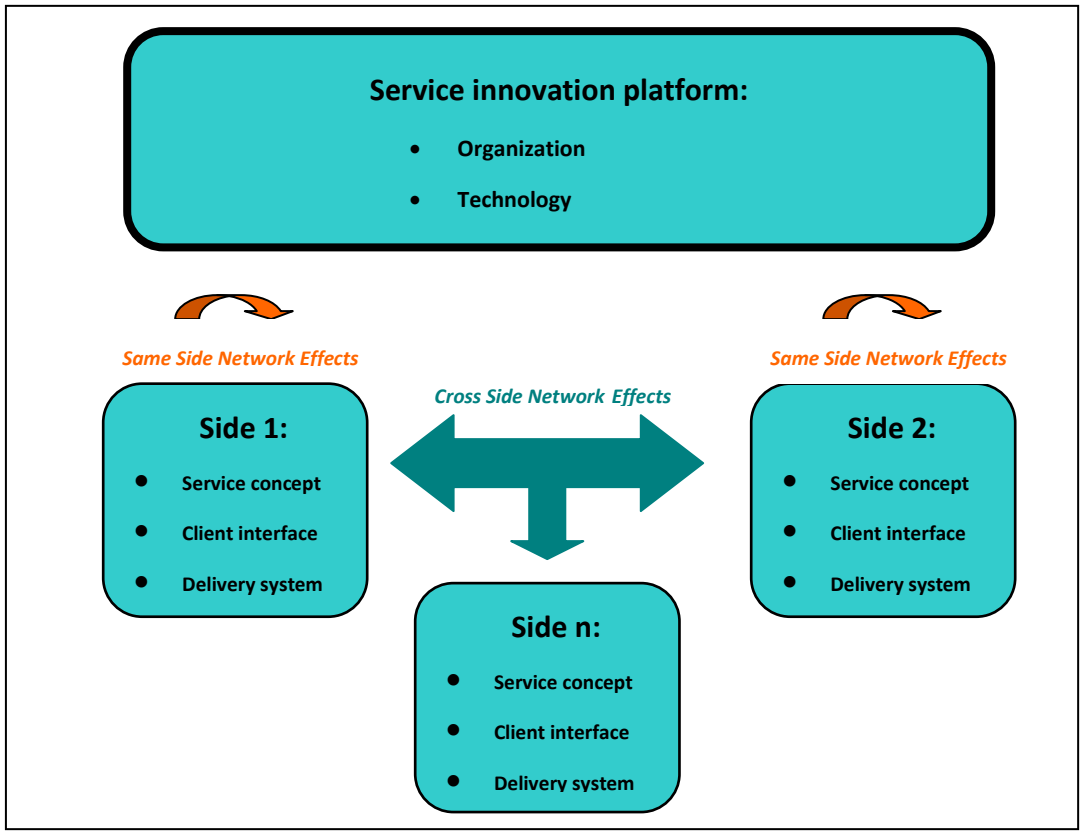

Figure 1 Many-sided service innovation platform

The platform, controlled by the sponsor is providing rules and components for the platform users, "sides" of the market that gain utility by interacting through the platform. Each platform is built on its distinctive organization and technology. In order to function as planned there must be a minimum of two sides in the platform, but increasingly there emerges platforms that comprise of many sides, hence label ⁿ in the model. The sides are interacting with each other and they may reap benefits generated by either same side or cross side network effects, or network externalities. Each side comprises service concept, client interface and delivery system which all are characteristic for that particular business side. In the case of a mobile phone OS and application store platform, one side is the consumer who uses the mobile phone. One of the other sides of the market is the mobile application developer. Both of these actors join the platform in order to gain utility, whether financial, mental, or other sort of. The more phone users join the platform, the more an individual phone user benefits from the platform. The network is getting bigger, more users bring their presence and contribution to the network, and

wider mobile application variety becomes available as more developers are tempted to join in. When a user benefits from another user joining the network, the effect is known as a positive same side network effect. Respectively, when a platform user joins to the other side and this act benefits a user on the other side, the effect is called a positive cross side network effect. An application developer joining the platform increases the selection of new applications, which in turn, benefits the phone user in the hope of more alternative applications. An increased supply may even lower the application prices.

What was described here is a two sided market. If another side, or actor is introduced to the market we´re talking about many sided market. An advertiser may join the platform. This advertiser is making a contract with the application developer, in order to deliver promotional advertisements together with the application developer´s apps. When the phone user base may expand which in turn, benefits the advertiser. We have another positive cross side effect. But, if another advertiser of the similar business joins in, there will be competition between these two advertisers. This may cut the benefits of the first advertiser hence the appearing of the second advertiser caused a negative effect for the first advertiser´s business. This effect is known as a negative same side network effect.

During the three year period of this survey, the mobile service platform user didn´t have too many options to choose from. Apple´s AppStore platform supports only Apple´s iPhone. Microsoft´s Windows Phone apps store supports several phone manufacturers, but windows phones – put Nokia aside – were scarce. Google´s Android Google play store also supports several phone brands, but at least during this survey Samsung has dominated the Android phone markets. Also, there are constantly several new mobile service platforms emerging. However, these platforms had not been publicly launched yet during the last year of this survey questionnaire, 2014 (Bergvall-Kårenborn et al., 2011). Whether, the previous Nokia operating systems, such as Symbian or Meego are mobile service platforms or just operating systems is not quite clear. These systems have been previously used especially in Nokia´s feature phones. From technological point of view they can be seen just as operating systems. However, from switching behavioral point of view these can be observed as platforms. Before the era of

genuine touchscreen smartphones and application stores, the feature phones performed partly feature phone, partly smartphone-like functions. During the first switch questionnaire year, 2012 many of the phones still were exactly this type of phones that could be seen as kind of "crossover" phones. A user chose such phone was also left with no choice than cope with the operating system provided by the phone manufacturer. The phone manufacturer then, provided mainly all extra software services for the phone. The provision of these services should be seen as a mobile service platform in service switching context.

Many third party app stores - application marketplaces – have been developed lately, so the platform market status is anything else but static. Especially, platform market dynamics is happening in China´s strongly emerging Android markets. These marketplaces are not part of Google´s ecosystem, but rather are run as rivals to Google. According the Strategy Analytics, Android platform has just recently, in Q2 2014 reached an 85% of the mobile service platform shipments in global markets (Strategy Analytics, 2014). This type of information, of course becomes obsolete very fast. However, this information illustrates well the dynamic nature of platform based service business, as it was just recently when Apple had the dominating position at the market. Baidu for instance, the China´s top search engine and Google´s rival, runs and expands its own standalone Android based Baidu App Store for mobile and PC. As the mobile market still keeps expanding, this type of concept will be expected obviously to spread outside of China. The ability to separate the mobile operation system and marketplace from each others, by lowering the market entry threshold this would provide new business insights and opportunities to smaller players as well (TechInAsia, 2014).

3.3. Network effects

How the participation of other users in the communication network affects us? How our participation in a communication network will affect others? Does it matter to others what I choose? Does it matter to me what others choose? Moreover, does it matter what I think? Does it matter to me, what others think? All these are relevant questions, and they carry the network effects and social influences embedded.

This chapter goes deeper into network effects, or demand side economies of scale, where this subject actually refers to. In the ICT intensive innovation business the network economy is strongly linked with the technology adoption, though the context of this research concentrates mainly on post-adoption processes. Most of the network literature focuses on the network owner or sponsor side decisions and economies, which is not highly relevant in the context of this study. However, some insights into the consumer side network literature is available by Katz & Shapiro (1994) and the platform sponsor side by Parker & Van Alstyne (2005; 2007; 2008). They realize how expectations, coordination and compatibility affect the three basic clusters of decisions in the systems competition literature. They examined the literature of the technology adoption decisions, product selection decisions and compatibility decisions. First, the success of a network depends on the amount of users adopting the new technology. How many institutions or market mechanisms arise to internalize the network externalities associated with the adoption will be important. Second, the product selection decisions of both, the network owners and consumers, was recognized in literature. What forces determine consumer´s choices, which products and variety are available, and who would like to be a "guinea pig" testing new systems or products? Finally, what´s the level of compatibility, how to position oneself in relation to it, who makes standards and how´s IPR affecting these decisions? Especially the first two decision clusters are the consumer´s concern with the mobile service platform selection decisions (Callaugher et al., 2002).

From the mobile application software developer´s side viewpoint, the application market apps selection depends obviously on the attractiveness of the mobile service platform in general. The particular platform would be attractive if there are plenty of apps buyers available. As when the users´ interactions are subject to the network externalities, the value of platform affiliation for any given user depends upon the number of other users with whom they can interact (Economides, 1996; Katz & Shapiro, 1985; Farrell & Saloner, 1985). The network effect is said to be direct when the number of the users in the network defines the utility of the product to each user. Indirect network effect exists when the link between consumer utility and the number of users in the network occurs through the increased availability of complementary products (Srinivasan et al., 2006).

The network users will be tempted to migrate towards the particular network if there are plenty of what they desire (apps in this case), and the service product developers will be tempted to join in if there are buyers and users for their apps. A user that joins the network increases the value for a developer, as well as a developer joining the network, increases the value for each user of that network. This is known as cross- side network effect. On the other hand, a new user increases the quantity of the users, who are potential customers for platform supporter and the apps developers as well. This, in turn will attract more application developers to develop more applications hence, the value of the network for another user increases. This is known as same-side network effect.

However, network effect is not only limited to positive effects. Liebowitz & Margolis (1994) recognize the concept of negative network effects. The positive effects are the main focus in literature, as the negative effects in literature are mainly rare sightings. They define, how "the goods exhibit a network externality wherever the consumer enjoys benefits or suffers costs from changes in the size of an associated network". These costs can be financial or emotional, time or effort. Whenever the growth of some side of the network limits the benefits of a user, the effect is negative. This is a useful concept as this can easily happen in a mobile phone network. Locally, a cellular network may be overloaded, or a user may feel uncomfortable using a "too popular of fashionable" platform or phone brand, when preferring staying emotionally individual and independent.

The value of a network for a consumer can affect the mobile phone buying decision. The network value for a user can also be shaped, not only due to the selection of apps, but also due to the other users´ linking functions of a phone or platform. In practice software, functions or features that work only between particular device models or brands, enhancing peer-to-peer communication, can generate value to the users and may increase the same-side network effect. ore importantly, this effect can be happen due to some social influence, like social norms, peer pressure, sense of appreciation, the sense of belonging to a subculture or group, or the sense of luxury, for instance. These issues have been studied in behavioral sciences. Some relevant behavioral insights are introduced later in this chapter.

3.4. Switching costs and multi-homing

Switching costs comprise learning-, transactional-, contractual/pecuniary costs. Learning costs are linked with the costs incurring due to the time and other issues spent on the new service or product and brand switching process. It is easier to choose a familiar brand. Transactional costs are resulting from closing costs of the previous service provider and opening costs of another one. These two types of costs associated with switching are reflecting the true social switching costs. The third cost type, contractual, pecuniary, or artificial cost is incurs due to the costs of taking part in contractual agreements (frequent customer programs, discount coupons, etc.) where she/he is penalized if switching, in relation to those who don´t switch. All these costs are increasing the customer Lock-In effect. In normal markets, rational consumers are subject to brand loyalty when facing choices between two or more similar products (Klemperer, 1987a; 1987b; 1995).

In the case of the mobile service platform decisions, the initial set-up costs and switching costs may be relatively low hence the lock-in effect is often low. Changing from a mobile phone brand to another is easily made. However, this is depending on the mobile operator and the service platform. One of the non-typical characteristics of Finnish mobile business is that the operator-phone bundling is relatively rare contract type. Most phones are purchased without a SIM card and the phones are not "SIM-locked". On the contrary, the operator-phone bundling is more of a norm say, in USA for instance. The lock-in effect is much stronger in the case of bundling and terminating the contract during the mobile contract period may become expensive. This increases the financial switching costs of the client remarkably. In Finland, switching the mobile operator and/or phone type or brand is easy in most cases. There may be barriers to switching, but they are mainly social or psychological, if the purchase price of a new phone is not taken into account. When any operator´s SIM card can be fitted to any phone, the chosen operator doesn´t bind the user to a particular phone and service platform. This results in lower switching costs of the service platform and decreases the lock-in tendency, since a consumer has several options to choose the services from (Nakamura, 2010; 2011).

Due to the low initial setup costs, in the case of mobile IT services, the user is not any more putting an emphasis to, whether to adopt a service or not, but rather, whether to stay with or switch from the present service. Therefore, the critical issue with the mobile IT services is the switching decision, when the adoption process is perceived relatively easy. (Lui, 2005). The reasons to stay or to leave with the service can be various. There are reasons that make the user want to leave the service used, and there are reasons that attract the user in other services not used yet. Also, there are reasons that keep the user in the present service. In order to be able to study these, partly conflicting reasons, a more organized approach is needed. In the next section such an approach is provided.

Compatibility of products is relevant in the relation to switching costs. Switching costs increase when a consumer wants to affiliate with a group or series of products, and desires her or his own purchases to be compatible with one another (Farrell & Klemperer, 2007). This is relevant when we are looking at Apple´s product strategy, for instance. There is evidence that the strong compatibility with a consumer´s own complements purchases in Apple´s case seems to work for Apple´s favor. In excess, it is also possible to reap benefits from the same-side network effects as well, when the compatibility with other consumers´ devices is strong. Farrell and Klemperer emphasize the combined dynamics of switching costs and network effects. They conclude that "these two link trades that are not controlled by the same contract; future trades in the case of switching costs, and trades between the seller and other buyers in the case of network effects".

Mono-/multi-homing

The platform adoption, operation and opportunity cost of time - time, effort and money consumed when establishing and maintaining the platform affiliation, are the "homing costs" of a user. Whether a user establishes a home in single or many platforms depends strongly on the homing costs. If the multi-homing costs are high, there must be a good reason for a user to affiliate with several platforms. Previous research suggests that whenever network effects are positive and strong, the users favor mono-homing (Eisenmann et al., 2006; 2010). In the case of mobile service platforms and mobile phones the homing costs and switching costs are relatively low, as indicated in this section earlier. Especially this is the case in Finland since the SIM lock-in

situation is relatively rare in mobile operator contracts. A combination of business phone and private phone, simultaneously in use is not very rare among the consumers in the survey set, hence multi-homing doesn´t seem to be as rare as indicated in some earlier studies, made outside Finland. Importantly however, the costs of this type of multi-homing are shared with the employer and employee hence, the Eisenmann et al´s conclusion will hold.

3.5. Behavioral theories and social influences

Technology adoption

The scientific approach to a question "why do we act the way we do" is provided in behavioral sciences. A practical implication to that question in this study would be a question, for instance "what enables or what inhibits, a feature phone user´s switch from feature phone to a smartphone?" The reasons are obviously many, but some theoretical support should be looked for. In human adoption literature, the theory of reasoned action (TRA), the theory of planned behavior (TPB) and the technology acceptance model (TAM) are all explaining the human behavior and provide a theoretical framework for explaining that behavior (Ajzen and Fishbein, 1980; Ajzen, 1985; 1991).

The theoretical models developed from theories of sociology and psychology, have been used for purpose of understanding technology acceptance and use. These technology adoption theories are widely presented in academic literature. The Technology Acceptance Model – TAM (Davis 1989; Bagozzi, Davis & Warshaw 1992; Straub Jr., D.W. & Burton-Jones, A., 2007) was developed as an extension to a popular Theory of Reasoned Action, TRA (Ajzen & Fishbein, 1980). TAM is reasonably applicable to information and communication technology in general, but also to mobile service switching research. The latest TAM derivative, a synthesis from eight theories and models, the Unified Theory of Acceptance and Use of Technology, UTAUT (Venkatesh et al., 2012) deals with both, the consumer and organizational adoption perspectives, as an exception to other technology acceptance models, which are primarily taking only an organizational approach. A further derivative, UTAUT2 was tailored by Venkatesh et al. to better suit consumer technology use context. In UTAUT2 model they recognize

altogether seven key constructs that influence the behavioral intention to use a consumer technology. Of these constructs, two most important ones in this thesis context are *social influence* and *hedonic motivation,* social influence being the most relevant. There are three personal factors, age, gender and experience that moderate the constructs in question. Social influence in this model refers to "extent to which consumers´ perceive that their important others (e.g. family and friends) believe they should use a particular technology". The model limits the "important others" to family and friends, which in most cases seems appropriate. However, looser interpretation, in the context of larger social networks, would be useful in order to see social influence sources as colleagues, other users, social media connections.

Social influence can be divided in two subgroups; *social norms* and *peer pressure.* In the earlier academic behavioral literature "subjective norms refer to a person´s perception of the social pressures placed on him or her to engage in a certain behavior", (Ajzen and Fishbein, 1980). Social norms are usually seen to have a more tacit, subtle effect on a person´s behavior, whereas peer pressure is rather direct and open influence. Kroeber-Riel et al. (2003) say "peer pressure, together with other social influences, exerts a pressure on the individual to behave in a way conformable to that of other group members". Ajzen et al. (1980) conclude that an individual´s behavior is influenced by the perceived expectations of the members of a social network and the individual motivation to fulfill these expectations. Hence the social norms and peer pressure may influence on the adoption and diffusion of an innovation (Joern et al., 2008). Bearden & Etzel (1982) expect the lower peer pressure with commodity consumption, which may apply to mobile phones well, whereas Kroeber-Riel et al. (2003) are concluding that less homogenous groups are exerting lower peer pressure, and more homogenous groups higher. The positive link between strong social influences and faster innovation adoption seems relevant in this thesis context, hence worth testing. Referring to the previous context related research, this would apply in some extent.

Hedonic motivation in UTAUT2 refers to fun and pleasure which is derived from using a technology. Hedonic motivation (perceived enjoyment as an academic concept) is found to influence technology acceptance and adoption and use directly (van der Heijden, 2004; Thong

et al, 2006), and to be important determinant of technology acceptance (Venkatesh et al., 2012). Speculatively, "fun and pleasure", linked with hedonistic pleasures, may have a further link to social influence, since an enjoyment, resulting from use may be associated with product related novelty, fashion, aesthetics and any perceived undefined "desire" to own a product. Innovativeness and novelty seeking add to the hedonic motivation to use. Venkatesh et al. conclude that as experiences of a service or product increases, the attractiveness of the novelty that contributes to the effect of hedonic motivation decreases and more pragmatic purposes for use will arise.

The subject of this study can be seen to emphasize primarily the post-adoption phase of technology use, since a mobile phone presents such a pervasive technology nowadays. However, there is also an important technology adoption component involved in this study, as many users, especially during years 2012 – 2013 were only just in the middle of an active process of switching from feature phones with keyboards and small displays, to the modern, larger touchscreen smartphones, and the software application products involved. This market transformation process can be seen as a typical example of the technology acceptance process. Otherwise, the switching behavior surveyed with the help of this switch questionnaire, mainly addressed the switching from (or not-switching) smartphone to another and especially from a mobile service platform to another. As the technology adoption of the mobile service platforms has already taken place in the case of the most of the respondents in this survey, it is more relevant to research the users´ switching behavior of the service platforms. In order to understand this behavior, the dominant migration paradigm, called push, pull and mooring - PPM framework will be applied.

Social image

Some earlier psychology and behavioral research suggests that perceived experiences of flow, enjoyment and especially social image, with technology are important variables when explaining the technology acceptance (Ajzen and Fishbein, 1980, Lu et al., 2005). In technology acceptance literature the instrumental theories of perceived usefulness and perceived ease of use are usually promoted as important attributes, but recently the role of those

aforementioned three variables has gained more attention (Lu et al., 2005). In the Diffusion of innovations literature (Rogers, 1995) social influences has been considered an important component. In this thesis context the concept of social effects, or social influences is referring to pressure perceived from an individual´s social environment, social network. Ajzen and Fishbein (1975) write about subjective norms, which in their opinion is "a person´s perception that most people who are important to him think he should or should not perform the behavior in question". The actions a person potentially chooses depend strongly on the support from the peers that are considered influential ones. Salancik and Pfeffer (1978) suggest that Individuals adapt the attitudes, behaviors and beliefs of their influential closest to their social context. Uncertainty about the expected consequences the innovation generates for potential adopters makes the individuals uncomfortable. This makes them to interact with their social network in order to seek consultancy by informational and normative social influences (Katz, 1980; Lu et al., 2005).

Karahanna & Straub (1999) identified and included image, (together with subjective norm and voluntariness) as one of three important elements in the construct of social influences, in the Theory of Reasoned Action, TRA. They found empirical evidence regarding social influences equivalent to subjective norm in TRA (Lu et al., 2005). The perceived value of a product for a consumer may also refer to many other attributes than just pragmatic usefulness and usability. Often the users can associate the mobile devices with attributes, such as appreciation, sense of luxury, sense of belonging into a group or subculture, or just sense of being in the forefront of technological development. The status value of a mobile phone per se is long since gone, but some social values associated for model, price appearance or brand may prevail. These are all attributes that may be associated with the social image of the user.

In his article of "Self-Image Bias in Person Perception (1983), Pawel Lewicky explains the concept of self-image bias as follows: "People differ in their self-images and this causes differences in their perception of other people. The more desirable the self-rating on a dimension, the more central that dimension is when perceiving others." That is, the factors of self-image we consider important, we tend to emphasize also in our perception of others.

Furthermore he concludes, that there is a lot of academic evidence, that "the self works to maintain high self-esteem and we are not only more likely to focus on ourselves but also to attend selectively to the good aspects of our behavior" (Markus, 1980). Inversely, in this context, for us it is important how we perceive ourselves and how others perceive us. This theory has a link to our social image and issues of switching behavior of "fashionable" products. In order to maintain high self-esteem with favorable actions we need to evoke and emphasize positive reflections of ourselves, in other people. And, the positive dimensions we appreciate in ourselves we also appreciate in others hence, with high probability we will communicate that to others. Furthermore, we tend to assume that others expect from us a behavior that we personally appreciate.

3.6. Theories of migration and PPM framework

Switching a product or a service into another has a distinctive analogy with human population migration, i.e. with human population changing the place of residence. This is generally accepted in business, and exploited largely in academic literature. Human migration literature is much older and more extensive than product or service migration literature. Migration is broadly defined by Lee (1966) as "a permanent or semi-permanent change of residence". The distance of the move or, whether the move is voluntary or not, is not restricted in this definition. Also, any distinction between external or internal move is not made. Each act of migration has its origin and destination, as well as intervening obstacles (Lee, 1966).A Push-Pull framework (Bogue, 1969; 1977) and the intervening Mooring extension variable (Lee, 1966; Moon, 1995) were originally developed in migration theories, for human population migration research purposes. When the similarity of switching behavior of a consumer of a product or a service was discovered by the academic economic researchers, the behavior of migrating population and the human migration theories were applied into switching research (Bansal et al., 2005). According the human migration research the decisions of migration are based on a person´s perception of push factors at the origin, pull factors of the destination, and the personal or environmental mooring factors. The mooring factors will inhibit or facilitate the

migration decisions (Moon, 1995). Based on the general consumer behavior research these three variable factors can be applied to consumer switching behavior environment.

Push

The push label stands for a research finding where "the migrants would leave when dissatisfied", first introduced by Julian Wolpert, as early as 1965 in his known "place utility"-concept. He concluded that "dissatisfaction with one´s current location is the major stimulus for beginning a search for another location". The push-factor refers to a negative relationship between the satisfaction perceived with the origin and the migration intentions of the population. Moon (1995) suggested that they are "the factors at the origin that are assumed to have a negative influence on the quality indicators of life". The push factors are perceived as place attributes of the origin that influence the migration decisions (Lee, 1966). In the service provision context the push factors motivate the user to leave the origin hence they are seen to have rather direct effects on the switching intentions of a consumer. Variables, like *satisfaction, perceived quality, value, trust, commitment and price* are often suggested to be associated strongly with the push attributes. High satisfaction, high perceived quality, high value and trust, and low price perception of the origin, are considered as negative push factors of the origin, i.e. these factors are not motivating the consumer to leave from the present service provider (Bansal et al., 2005). On the contrary, a low perceived quality and value, low trust with the origin and high price perceptions are associated as strong positive push factors

In the related literature, some authors are raising two perceptions of the origin above others. These two are perceived user satisfaction and perceived price equity (Lui, 2005). One can assume that factors like perceived quality, value, and trust for the provider are all logical determinants of perceived user satisfaction. Price, without doubt must be another relevant push-factor. The earlier suggests that since the price is important issue in migration models, it is also appropriate to consider pricing issues in service switching behavior. Bansal et al. (2005), based on the findings of Dabholkar and Walls, (1999) suggest that the users are more likely to switch if they perceive their current provider´s pricing high. All the aforementioned factors, the

high price perception excluded though, have a negative effect on the user´s service switching intentions.

Pull

In migration literature, the pull-label stands for the "positive factors drawing prospective migrants to the destination" (Moon 1995). Also, it is generally agreed that the pull-factors are "attributes that make the destination appealing to the migrants" (Dorigo and Tobler, 1983). Bansal et al. (2005; 1999) define that the Pull-factors are place-attributes, not characteristics associated with the migrant her/himself, which helps to distinguish the Pull-variables from Push- and Mooring-variables. Similarly to Push-factors, also Pull-factors have direct effects on switching behavior. A concept of "alternative attractiveness" presented by Jones et al. (2000) in service switching literature, suggests that "the positive characteristics of competing service providers influences positively the consumer´s switching intentions". The concept of alternative attractiveness has been widely recognized also by Bansal et al. (1999; 2005), Chang et al. (2008), Cheng et al. (2009), Hou et al. (2009) and Chiu et al. (2011). Based on that concept, Bansal et al. hypothesize that "the higher the alternative attractiveness of competing service providers, the higher the likelihood consumers will intend to switch service providers". The alternative attractiveness perceived is applicable research model, representing the pull factor here, as it postulates that "bigger benefits will be achieved if the switching is performed". Perceived alternative attraction covers reasonably all the reasons that make the destination service attractive.

Ye and Potter, (2007) suggest that the pull-factor should be divided into two, and later Ye, (2009) suggested three separate parameters. These three are relative advantage, perceived relative ease of use, and perceived relative security. Also, other variables have been suggested. However, for example in the migration and service switching literature by Jones et al. (2000) Bansal et al. (2005), Chang et al. (2008), Cheng et al. (2009), Hou et al. (2009) and Chiu et al. (2011), the concept of "alternative attractiveness" is considered as one relevant switching predictor, covering all these aforementioned three parameters as well. Typically in mobile services context a relative security is not considered an issue, hence that variable is not relevant

in this study. The relative ease of use of the new phone or platform are perceived high increasingly since the user interfaces of smartphones are developing into more user-friendly direction. Hence, perceived problems in the aspect of the ease of use are not expected to represent any significant barriers for switching.

Mooring

Even, as push-and-pull paradigm seems logical and relevant when explaining the consumer migration decisions, it doesn´t explain adequately the entire migration dynamics. Push and pull factors are features that are associated directly with the origin and destination alternative attributes. However, a human behavior is a little more complex than that, so more explanations were needed. Lee, (1966), Longino (1992) and later Moon (1995) acknowledged cultural, historical, social and personal factors that have a seemingly strong effect on person´s migration decisions. These factors altogether were labeled as "mooring factors", and the resulting concept was attached as a later extension into the earlier generated Push-Pull paradigm. Mooring factors neither, push or pull, but instead they influence the migration decision of a person so, that positive mooring factors anchor the person to the origin. Negative mooring factors, on the contrary facilitate the individual to migrate. When a positive mooring factor is strong, the user may stay with the current service regardless of relatively strong push and pull factors. Mooring variables are specific to individual´s switching situation and preferences, and they act as inhibitors or facilitators of switching, hence they can either attenuate or amplify the negative push- and positive pull factors.

The situational and contextual constraints may hinder migration even when push and pull factors are strong (Lee, 1966). Service and brand switching literature recognizes several typical variables that fit mooring effects concept. The most frequently introduced variables are *switching costs*, *variety-seeking tendencies, subjective norms i.e. social influences*, *attitudes toward switching and past behaviors* (Bansal et al., 2005). Referring to the primary research question of the roles of social effects, (or social influences) these effects in a consumer´s switching migration are inherently associated with mooring factors. Social influences are not place-attributes in same aspect as the push and pull factors inherently are. Instead, they have

an effect on the consumer´s attitudes towards migration hence, in the aspect of the social influences the mooring factor is the most important one. However, there is a notable variation difference in migration and service switching literature. The categorization of the "subjective norms", or "social influences" variable has been conceptualized in PPM literature in two different ways depending on the author.

Gardner as early as 1981, as well as Desbarats (1983) and Bansal et al. (2005) conceptualized subjective norms for mooring-variable, more modern literature by Cheng et al. (2009) and Lai et al. (2012) recognize the peer influence variable as pull-factor. The attention given to the subjective norms i.e. normative concerns in service literature seems rather limited, so the selection between these two "competing" decisions should be made. Should the social influences be seen as a pulling factor that attracts the consumer towards switching to the new service, or as a mooring-factor that shapes the consumers attitudes on switching or not-switching? Since the social influences are not place attributes, but rather they affect the attitudes of the individual towards the switching, positioning it for a mooring factor seems to serve the objectives of this study the best. Due to the emphasis on social influences in the context of this study it is relevant to explore briefly the chosen variables with the definitions and details provided by the academic literature, one by one in the following sections.

Switching costs can be either material or immaterial. They refer to the costs that incur to the user, and that the user subjectively experiences as costs that are a result of the decision to migrate. In the context of service platform switching, the switching costs might be say, costs of ending a bundled phone operator agreement and/or establishing a new one, cost of a new phone, transaction costs of shopping, or the time and effort required when learning a potential new phone, its operation system or app store use. Depending on how the user perceives these costs, they may inhibit (positive mooring-effect) or amplify (negative mooring-effect) the switching decision.

Social influences, or subjective norms refer to a person´s "perception of the social pressures placed on her/him to engage in a certain behavior" (Ajzen and Fishbein, 1980; Bansal et al.,

2005). Research on the social effects, such as peer pressure (or, peer influence) among others in service switching is limited. The positioning of subjective norms variables in PPM framework is not straightforward. Some recent service migration literature, for instance the research of mobile shopping switching (Lai et al., 2012) and social networking site switching (Cheng et al., 2009) position the peer influence variables as pull-factors, when in the earlier literature of consumer service switching behavior in general e.g. by Bansal et al. (2005) the social influences are positioned explicitly as mooring-factors due to the simple "place-attribute" definition criteria. This is more useful definition in this context.

Social image, or self-image (Lewicki, 1983), supported with the expressions, such as "fashion", "high profile", "luxury" or "status symbol", reported as switch factors are usually associated with social norms. In the technology adoption literature person´s relation to ICT fashion trends also pivots well with the stereotypes of early adaptors and laggards which may be conceptually confusing, since it could be perceived as a switch pull factor, the aforementioned place-attribute criteria in mind. However, when a consumer is saying, "I wanted to have a more fashionable phone", the underlying assumption is that this person is looking for social acceptance and better self-image, instead of a phone that is just fashionable instrumentally, per se. Hence, fashion should be seen as an instrument of self-image, and the pursuit for better self-image is driven by social influences of our environment. Lu et al (2005) position "image" as a factor of social influence, together with subjective norms. Self-image can conceptually be seen as a person´s "image" in this context. Consequently, issues of fashion trends are inherently social issues.

Variety seeking tendencies refer to a person´s general tendency to seek something new. It has been suggested by Ganesh, Arnold and Reynolds, (2000), that "service provider switching intentions will be positively related to a consumer´s past switching behavior and his or her propensity to seek variety in service experiences. They argue that consumer´s past switching behaviors influence and predict their subsequent behavioral intentions, and this has direct link to a person´s tendency to seek variety. Many consumers can be classified in two opposite categories in relation to this tendency. Several respondents in switch questionnaire are saying

that they feel themselves as either "early adaptors" (negative mooring factor) or as "laggards" (positive mooring factor), in relation to the mobile service platform switching, or adopting technology in general.

Attitudes toward switching and the past behaviors: The consumer´s relationship with service migration in general, is considered neither pushing nor pulling factor. How the individual perceives the switching in general and how does that attitude affect the decisions, is important (Ganesh, Arnold and Reynolds, 2000). Also Desbarats (1983) argues that "the migrants´ attitudes toward migration influence the migration decision". Based on this argument, a person who holds a favorable attitude toward migrating is more likely to migrate, and vice versa. Early adopters of technology are a solid example of a stereotype that holds this favorable attitude. Even under weak push and weak pull conditions this individual may have a high potential to migrate, due to this attitude. This person´s past behavior indicates a frequent switching. On the contrary, an individual with a reserved attitude and passive past switching behaviors may hold back the switching under strong push and pull conditions. Jackson (1986) was able to indicate that even when push and pull factors for group of people are the same, some may have more potential to migrate due to a family tradition of migrating behavior. Ganesh et al., (2000) speculated, that high propensity of variety seeking of the individual, and active past behaviors – family´s or individual´s - will have a positive effect on the individual´s future switching behavior.

The attitudes toward switching, past behaviors, and variety-seeking tendencies are all variables that can be easily become confused with pull-factors. As a service user feels urge or resistance to switch into something new due to one or more of these factors, they could be interpreted either as push or pull-factors, or as negative mooring factors. It may prove helpful to trust to the previously mentioned Lee´s (1966) argument that, whenever these three variables are not place-attributes by nature, referring to the origin or destination itself (but instead, associated with the migrant herself), they should be considered as mooring factors. However, in the more recent research the subjective norms are positioned as Pull-factors, and not as mooring-factors. Especially this is the case when the subjective or social norms are expressed as "peer influence" or "peer pressure" (Cheng et al., 2009, Lai et al., 2012). In the context of this research all the

social influences, however are considered as mooring factors. This is based on the more traditional literature interpretation, where the push and pull factors are conceptualized as place-attributes. As explained earlier push and pull factors are factors that can directly be seen as attributes of origin or destination (Lee, 1966). This provides solid classification criteria, as by Lee, (1966), Longino, (1992) and later Moon (1995) suggested, the mooring factors are not place-attributes, but rather "cultural, historical, social and personal factors that have strong effect on person´s migration decisions".

The moderating role of mooring-factor:

Mooring neither pushes nor pulls, but rather it influences the user´s decision to not switch or to switch. In the service migration literature it is generally accepted that the mooring variables have a substantial moderating effect between push- and pull-factors (Bansal et al., 2005). Even when push and pull variables are strongly facilitating a switch, in the presence of strong positive mooring variables the consumer may decide not to switch. Respectively, in the presence of strong negative mooring factors, the push and pull factors are amplified. For instance, in the case of low service satisfaction (strong positive push-factor) and high alternative service attractiveness (strong positive pull-factor), mooring factors, such as high switching costs or passive attitudes towards switching may inhibit the switch. Hence, Bansal et al. (2005) suggest that "the stronger the mooring variables the weaker the relationship between push-factor and switching intention", and, "the stronger the positive mooring variables the weaker the relationship between the pull-factor and switching intention" (Lee, 1966; Bansal et al., 2005). This makes sense and seems applicable since, often for example the switching costs or a person´s general attitude toward switching may be considered almost an insurmountable challenge in the case of switching of a phone. In the context of this study several respondents recognize that, as students they can or could only afford, or allow themselves to switch their phone when the previous or current phone has got lost, stolen or become technically irreparable. However, this is an extreme example of a positive push factor and, as mentioned earlier, such forced switches should not be considered as voluntary and relevant switching migration, in the service migration research context. Businesswise, this obviously has a higher

significance. The following chapter provides the more contextual approach to PPM migration framework.

Summary of chapter 3

In this chapter the academic theoretical grounding of each relevant construct and theory was introduced. The basic concepts of, mobile phones, platforms, network effects, switching costs and multi-homing, behavioral theories and social influences, and theories of migration were explained and discussed. The fundamental PPM framework was introduced at the end of the chapter.

4. PPM framework for mobile service platform switching

In this chapter the original of the unifying PPM framework for service migration by Bansal et al. (2005) is taken as a basic model framework for this thesis. After introduction, this framework is further modified for mobile service platform switching research purposes. The modified framework is constructed on the basis of the Bansal´s PPM framework, but the modification is performed the classified qualitative and quantitative switch questionnaire data as a starting point. The purpose of this modification is to enable a better fit for a more detailed review and study of the switch questionnaire time series data. The empirical description of each switch dependent variable contents are explained shortly and separately.

4.1. PPM framework for unifying service migration

Bansal et al. (2005) suggest a following framework in order to classify the switch predictor variables in consumer service switching, based on the service migration literature. All the variables are introduced in the academic research portion, in the previous chapter. This framework provides a relevant starting point for this study since the theoretical background of that framework is solid and the intended context is closely related to this thesis context. The switch variables are provided on the right side of the framework. Most of the service migration-specific switching factors can be categorized as one of those variables. Each variable is positioned for either push, pull or mooring factor, based on the selection criteria. Each factor is either resulting into the switching behavior, or hindering the switch.

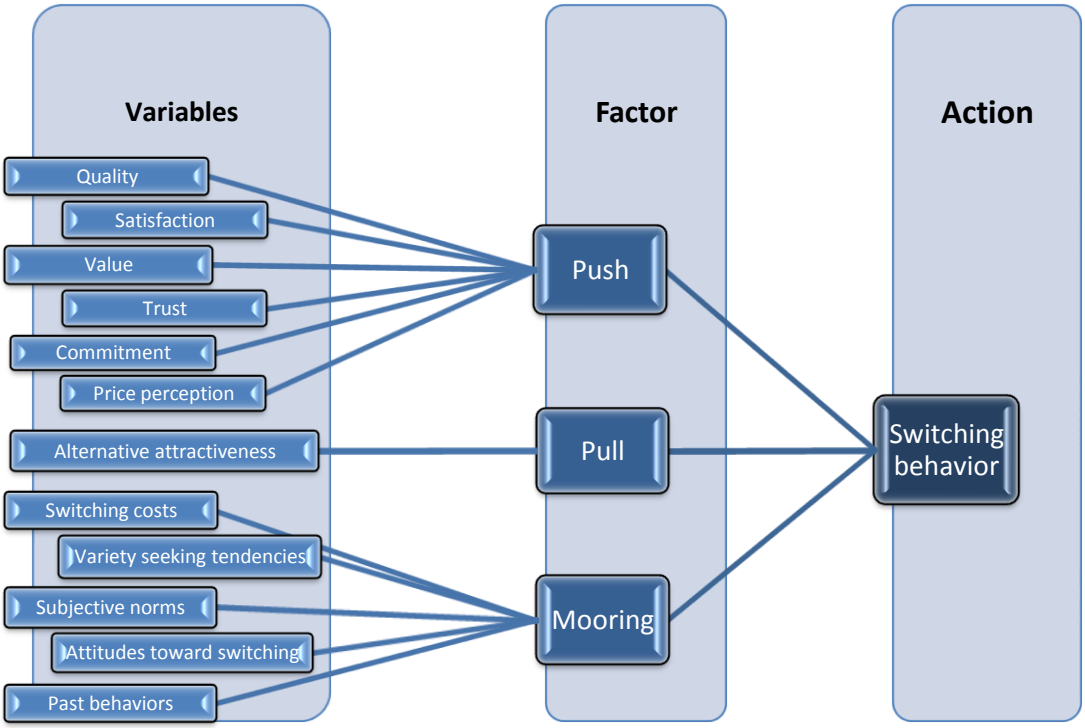

Figure 2 PPM framework for service migration (Bansal et. al., 2005)

The theoretical basis of the Bansal´s PPM framework is, in many aspects deviating from mobile service platform research context. Hence, a modified PPM framework for this research was constructed. This framework is introduced in the next section.

4.2. Modified research framework for mobile service platform switching

In comparison to the Bansal´s PPM framework, only the switch variables have been partly changed in order to fit them better with the mobile service platform context. All of the parameters of the personal reasons for switching or not-switching the respondents have provided in their open-ended responses to switch questionnaire. These were fitted in one of the aforementioned switch variable types. However the categorization is not straightforward since in several responses the underlying initial thoughts of a respondent are not easily interpreted. Whether the switch reason given in the particular answer should be classified as push-, pull- or mooring-factor, can be a somewhat controversial issue in some cases. Hence, there must be accepted a certain amount of subjective human interpretation when classifying the qualitative questionnaire results. Also, the best variables must always be chosen based on

the particular service migration context, as all the variables illustrated in the graph above don´t appear in all the different types of service businesses. That applies also to this switch questionnaire and mobile service platforms. In order to be able to classify the switch factors more in detail the following modified PPM framework for this particular context was formulated.

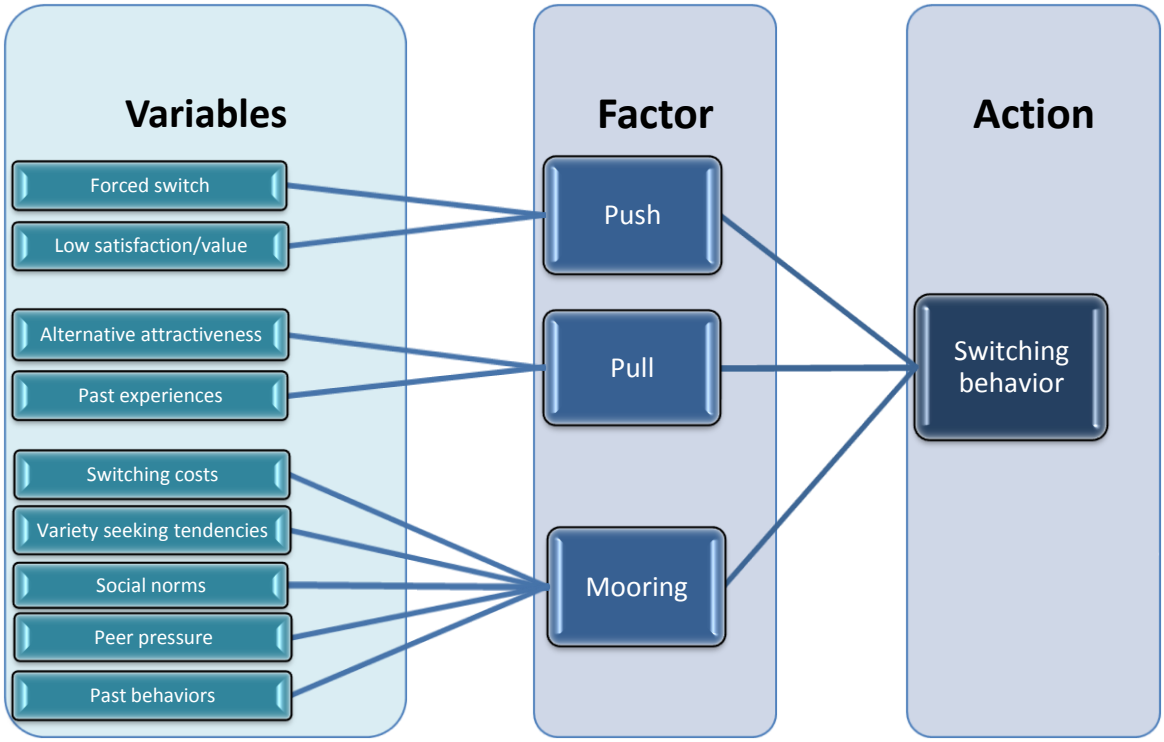

Figure 3 Modified research framework for mobile service platform switching

This framework represents more practical approach for mobile service platform switching context. The basis for validating the proper switch variables was taken from the switch questionnaire qualitative responses and quantitative questions. A table of all the major switch reasons of this survey is provided later in the chapter 7. This way the unnecessary and necessary variables were easier to identify and the better fit of the framework is secured. The emphasis of the refining process has been in social norms and peer pressure variables, which are positioned as mooring factors, since this supports the primary research question the best. Below are provided short explanations and reasoning on each dependent variable. Each PPM

switch variable includes factors that have been picked up from the qualitative, open-ended responses of the switch questionnaire. The theoretical grounding on these variables was provided earlier in this chapter but let´s review briefly each chosen variable again.

4.2.1. Push factors

In the context of this questionnaire a typical push-factor, a factor that facilitates for switching, would be the situation where the technical functionality doesn´t meet the requirements set for the device or platform, by the user. Many respondents are reporting that the operating system crashes or the battery endurance is poor, or no mobile internet connection and browser is available. Also, a poor selection of mobile applications available in the application marketplace is mentioned in several responses. The last ones especially, is directly linked with the issue of dissatisfaction for the current service platform and is a signal of weak cross-side network effect utilization of the platform owner.

Forced switch refers to the cases where the previous phone has got stolen, lost, irreparably broken, or the bundled or R&D contract has ended or been terminated, are considered as special cases in the context of voluntary switching research. These "forced" switches are not fulfilling the criteria set for voluntary service migration hence these switches must be separated for a non-significant group of switch factors in this analysis. In such cases a user has not made a deliberate decision to migrate, but instead has been practically forced to migrate. Also, in the case of the change of an employer, or whenever the user has received a new business phone and has been expected to use that, the case is considered a forced switch in this study. Several respondents, when asked about the reason for a switch, answered that they have been offered a new phone by an employer, by a close person like a sibling or a parent (either as a present or second hand when replacing with a new phone), or by a phone manufacturer for R&D purposes. The user, who receives a free phone, faces no monetary switching cost hence is not a relevant customer, from the phone manufacturer point of view. However, someone else is paying for the phone anyway, and behind every free second hand phone donated, a new phone is purchased. What´s more important though, from the mobile service provider´s point of view every new entrant joining the network is a welcomed new network user. It is possible that the

respondents, who had received a donated phone, are statistically overly represented among the respondents of this switch questionnaire. This may be due to the demographic distribution of the respondents. The majority of them are studying full-time hence their financial resources may not be at the same level with the people at work.

Low satisfaction variables are the cases where a user´s previous phone had a notable malfunction, the user perceived the previous phone outdated, wasn´t happy about the apps availability and/or selection, or was not happy about the phone for some other, undisclosed reason. The availability of the apps has a direct link to the direct cross-side network effects hence this variable has some importance on the social influences aspect in this thesis.

4.2.2. Pull factors

Alternative attractiveness refers to a situation where a respondent wanted to switch to a smartphone, or desired some other advanced technology or better phone performance, wanted use apps, more or better apps, or a specific OS. Furthermore, factors such as a better device or software compatibility or better synchronization capability were positioned here. The compatibility and synchronization issues are directly linked with the same-side network effects. The answers of the respondents in switch questionnaire, associated with alternative attractiveness, are such as *"I wanted to try a smart phone with touch screen and internet"* or *" because everyone is using a smart phone nowadays"*, *"most of my friends stay online and use internet to contact each other instead of regular text messages"*, or *"in order to stay in contact with everyone I had to change my phone"*. Also*, "New model available, works a lot smoother"* was often mentioned as a wanted feature.

Past experiences, was added to the side of alternative attractiveness, due to their fundamental differences. It refers directly to the consumer´s positive earlier user experience on a specific previous phone brand or a specific phone model. This variable is recognized in the modified PPM as a positive pull factor, facilitating a switch. Past experience is often referred by the consumers also as "brand affiliation". A negative past experience would be considered as a negative pull factor in PPM framework, inhibiting switching and often expressed as will to

switch from a brand to another. Bansal et al. (1999) suggest that based on their literature review, satisfaction is an antecedent of switching intentions, so the user´s switching intentions can be predicted based on her/his past experiences of a service. In this context the past experiences is mainly referred to the positive experiences for a brand based on an earlier experience. Hsieh et al. (2012) associate past experiences directly with past behaviors, which in this thesis are separated due to their conceptual differences. Past behaviors as mooring effect refers rather to a concept where the past migrating behavior can be considered predictor of future behavior of a person. Hence past behaviors are not referring to the results of the choices, as is the case with past experiences.

4.2.3. Mooring factors

Switching costs refer to the user´s price perception of the phone. Switching costs were perceived low when a cheap phone or phone cell operator contract bundle was offered. Switching was also reported to be easy due to a same OS as on previous phone. These all are associated with a negative mooring factor, motivating to switch. High switching costs in the cases where high phone prices hinder the switch are listed here.

Variety seeking tendencies are referred to when a user wanted just "something new", wanted more fashionable phone, better design, or a new specific desirable phone became available. Often, the reason to seek variety is not disclosed by a respondent.

Social norms Importantly, the social influence for the switching behavior has been divided for two separate variables in the modified framework. Of these, "social norm" refers to subjective norms prevalent in the social environment. Public reviews, peers having more modern phones or a specific more advanced or fashionable phone, the recommendations or reviews given about a specific phone, or fashion statements are all categorized as social norm switch factors.

Peer pressure in the framework, refers to the direct signal of the expectations directed to a respondent by her/his peers. Peer pressure is a controversial concept, not the least because it becomes easily confused with forced switch. When an employer, for instance expresses explicitly the employee this should switch to a particular phone type or brand, this can be seen

as peer pressure. What is the level of social pressure put on a user, when a suggestion or an advice conceptualized for peer pressure, becomes a forced switch is hard to define unambiguously. The definition criterion was provided earlier in this chapter. However, in the context of this research forced switches are categorized as "special cases" and not as genuine social influence. A forced switch is distinguished from peer pressure so, that in forced switch a free will has left with very little margin hence, the switch doesn´t happen voluntarily. It is not taking place due to the free choice of the user when, on the contrary peer pressure is.

Past behaviors refer to the switching history of a user. Whether the user has a history of switching often (negative mooring factor) or history of avoiding switches (positive mooring factor), can predict the future behavior. Users that perceive themselves as early adopters or laggards are typical stereotypes that exist in survey data.

Summary of chapter 4

This chapter was dedicated for the detailed information on the service migration PPM survey framework and its background. The original Bansal´s PPM framework was further modified and presented in its modified format as the PPM for mobile service switching. Each of the three framework switch factors were discussed in detail and the reasoning for modification and alignment with the survey data structure was provided. The recognized survey set switch factors were organized for the most suitable switch predictor variables, which are used as basis for analyzing the survey data later in this thesis.

5. Empirical data

In this chapter, the survey instrument as well as the structure of the empirical research data is introduced. The qualitative and quantitative questionnaire parts are explained separately.

5.1. Switch questionnaire – the survey instrument

Empirical data was gathered by a means of a survey questionnaire, called Switch Questionnaire (see, appendix). This survey was conducted yearly in Finland, in 2012, 2013 and 2014, every January among students, participating at the Aalto University Business School Master's level course on Information Economy. There has been some evolution, especially between 2012 and 2013, the year 2012 questionnaire being slightly limited in some extent, compared to the years 2013 and 2014.

The survey questionnaire covers the major mobile phone and mobile service platform switching intension factors introduced below. Also some personal, respondent-specific details are asked. Characteristically, the mobile device always carries along a particular mobile service platform embedded. For a consumer, the mobile service platform is a mandatory, vital and desired component of a smartphone, and it can only be reached and used via the mobile device as a user interface. The platform is then not an option totally freely selectable by a user. In this research this is considered as default, and it is why the most of the questions in this questionnaire are formulated so that the emphasis is on the hardware dimension of the mobile device switching, and not about the mobile service platform switching. Thus, when making a decision to purchase a particular mobile device a user actually makes a binding decision of the choice of a particular mobile service platform. That doesn´t necessarily apply the other way round, as the user can decide about the choice of the mobile service platform, which then in most cases opens a variety of mobile device choices. However, this has not been the case with Apple iOS and Apple iPhones until now, and it was not the case during the period of this

questionnaire execution. Which one – the device or the service platform - is more important mobile device switching decision criterion, is beyond the scope of this research.

Here is the total questionnaire data structure in short:

- Time series of three years 2012, 2013 and 2014
- Sample sets: a total of 216 respondents; 69, 82 and 65 respondents per year
- maximum of 108 variables (answers) per each respondent
- total of 23 220 answers
- all answers are not relevant for this study

The data collected with this questionnaire provides some good insights in order to research the predictors of the consumer service migration factors. There are direct questions covering the issues of social influences, and same- and cross-side network effects of the consumer mobile service platform switching. There are also questions that don´t explicitly cover these issues, but which might provide weak signals when analyzed in detail. The following section provides the basic contents of the survey questions.

5.2. The questionnaire structure

The major first part of the questionnaire data is qualitative, comprising of 20 open-ended questions and the sub-questions of those. The last part is the only purely quantitative part of the questionnaire.

5.2.1. Qualitative part – open-ended questions

The respondents were free to formulate their answers according their preferences in the following, qualitative part:

About yourself

The respondents were asked for some general personal details, like gender, age, university program starting year and working status.

About your digital devices

The respondent´s devices, other than mobile phones, were listed here briefly. Devices, such as desktop, laptop or tablet computer, mp player, camera, gaming console and navigation devices are asked for. All the current mobile phones, their real owner´s, bill payer´s, and desired and non-desired features, as well as the reasons to select this particular phone are asked to be listed.

Switching your mobile/smart phone (in the past)

All the previous mobile phone brands and models, desired and non-desired features, and reasons for choice and switch are listed. Also, the conditions of the switch situation are asked. When did the respondent switched and how many mobile- and smartphones she/he has had altogether, are asked in this section.

Switching in the Future

Is the respondent planning to switch and when? If yes, the desired phone brands and models are asked to be listed. The potential switch reasons and desired features, apps and technologies are asked for.

Mobile phone service provider (Telecom operator)

The possible bundling with an operator, the operator details, possible switch and switch situation, as well as switch reasons are asked to be listed here.

Mobile service platform

Name the platform used, list the apps and the sources of ideas for apps, as well as the amounts of purchased free apps versus the paid apps per month.

Challenges in switching the phone

When switched previously, the respondent´s perceived challenges with the switch for a new device, service platform and apps are asked. Also, the time required to learn the use of the new device was probed.

In the following questionnaire quantitative part the respondents were asked to select their preferred level of importance of 17 different factors in switching the phone , from 0 to 5, the 0 referring to "Not at all important" and 5 referring to "Important to a very large extent".

5.2.2. Quantitative part

16 different factors of the phone, service platform or prevailing conditions affecting the switching decision are asked here. This is the only purely quantitative section of the questionnaire. The response options are provided in five-point Likert-scale structure.

6. Research methodology

In this chapter the methods for the research are introduced. This is an inductive, longitudinal study, combining quantitative and qualitative elements. The survey instrument, the switch questionnaire, described more in detail in the chapter 4 is divided in qualitative and quantitative parts. The qualitative part is the dominating part in the questionnaire. The survey data available comprises data of three consecutive years, 2012-2014. This data is used in a time series analysis. A three year time series is providing good background information when considering the switch reasons of the mobile platform users. Information on the major market trends, based on this data from the survey period is used when explaining the moderating and mediating factors for the potential changes in consumer service migration behavior, from the research question aspect.

6.1. Supporting data

An increase of the smartphone diffusion during the survey period of three years is expectable. Exact information on that is relevant as this is an issue of technology acceptance. Hence, the quantity of smartphones in relation to feature phones is examined and the distribution time series is displayed. Phone brand distribution information is analyzed as well. Each platform has its supporters and distinctive differences. These issues are expected have an effect on the platform switching intentions and decisions. The smartphone diffusion and brand distribution data are then reflected with the quantitative and qualitative data associated with the social variables and network effects.

6.2. Data analysis and classification methods – qualitative survey

The modified PPM framework for mobile service platform is used for classifying the qualitative questionnaire data. The responses given by the respondents, for the open-ended questions are

divided into 26 switch factor subgroups. This process can be seen as a coding process, as the messages of the responses are formulated in a more uniform format. Each subgroup is positioned in a corresponding switch predicting variable, in the PPM framework for mobile service platform switching. There are nine variables in the framework altogether. The qualitative questions that best describe the respondents´ attitudes towards switching in their past, are identified and selected for analysis. The frequency of responses expressing each factor subgroup is counted and the percentage of counts in respect of total amount of yearly respondents is displayed. The results of this process are illustrated in the Table 9 *Switch factors and PPM, qualitative data*. The resulting quantitative results are used in order to analyze the role of each switch predicting variable, as well as the temporal, time series development of these roles, emphasis being in social influences and network effects. Additionally, responses for the qualitative questions mapping the respondents´ relation to the expected future switching intentions and switch factors are used for analysis as well. This data is used for a comparison with the data from the past switching factors, expressed by the respondents. The purpose of this comparison is to test how well the respondents recognize the roles of different switch factors in their behavior.

6.3. Data analysis and classification methods – quantitative survey

The quantitative survey results of each survey year are classified and displayed in the Table 8 *Switch factors, quantitative data*. The medium and standard deviation of the perceived importance of each switch factor in this questionnaire part are calculated and analyzed. The three year time series trends are analyzed as well. The last quantitative question is actually mainly a qualitative one. The results of this question are analyzed simply, in order to chart what other switch factors the respondents perceive important, in excess the ones already asked.

6.4. Comparison of qualitative and quantitative survey results

Comparison of the quantitative and qualitative data is performed, the main focus being in the social and network effects. The quantitative part of the questionnaire provides well focused questions, hence the answers for those questions can be considered explicitly expressed. The

qualitative questions require some imagination from the respondents and these are formulated in a more informal way, hence the responses can be expected to reflect also implicit, hidden switch reasons. The complementary research question emphasizes the time series trends and patterns. Comparison of the three consecutive years is made based on both, the quantitative and qualitative data, and the focus is in the identification of the temporal changes in the data.

7. Analysis and results

It is logical to start the analysis by reviewing the market situation and identifying the big trends there. Some results of the switch survey can be explained by reflecting them with the market trends. In ICT enabled service business time scope can be short and big things may happen even in one year. The life cycle of a product generation is short hence even three year observation period is credible and gives a lot of information. It is important to realize that as the switch questionnaire was always conducted each January, the yearly results are reflecting the previous year´s situation of the respondents. So, the 2012 questionnaire, in many aspects actually reflects the 2011 market status and the attitudes of the respondents, and so forth.

7.1. Feature phone vs. smartphone

On the table below is illustrated the feature phones vs. smartphones time series during this survey period. On the "feature" and "smart" column is provided the quantity of a respective primary phone type of the respondent, on that particular year. The "%" column represents the phone type percentage of all phones that year.

Table 1 Feature phones vs. smartphones; time series 2012 - 2014

Year	feature (n)	%	smart (n)	%	total (n)
2012	28	41 %	41	59 %	69
2013	9	11 %	73	89 %	82
2014	1	2 %	64	98 %	65

The table reveals that the feature phones have been disappearing and the smartphones are replacing them rapidly in the surveyed set. The year 2012, based on the 2013 data, has been the strong year of the smartphone emergence. The following graph (Figure 4) visualizes this trend. However, many respondents were multi-homing at that time, using feature phones and

smartphones side-by-side. Though, this has no remarkable effect on the trends as the frequency of the primary phones can be considered relevant basis for an analysis.

A distinction between feature phone and smartphone is not exactly straightforward. This is the case especially with the 2012 data. Many phone types were "crossover" phones and even the users were not able to make this distinction unequivocally. In this study the definitions of feature phones and smartphones provided in section 3.1., were used.

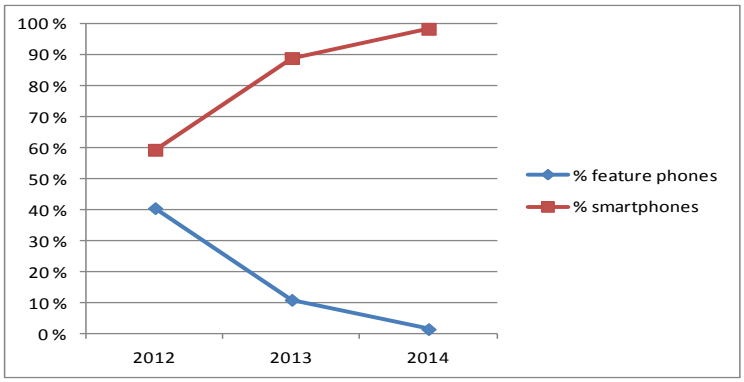

Figure 4 Transition of the market; from feature phones to smartphones

From the business point of view a period of 2012-2014 has been rather critical 3 year slice as the transition from feature phones to smartphones just took place. This technology adaptation and market transition process provides a background when explaining many issues of the attitudes towards switching the smartphones.

Some observations, made from the strong emergence of the smartphones, are listed below:

- smartphone saturation almost 100% in 2014 and diffusion has been rather fast; smartphones 2012: 41 phones from 69 phones total, 2014: 65 phones from 66 phones total.
- this caused the mobile service platforms becoming very important, which contributes to the motivation of this study
- network externalities were becoming more obvious and more important at the market
- this has provided some viable opportunities for the platform owners to grow

It goes without saying that the feature phones in some form can return. There is already some empirical evidence that a pure touchscreen technology is not able to satisfy all the needs of different user segments. Being the target group of this survey, the technology savvy university students, however have expressed their desires to migrate from feature phones to smartphones. There may also be a lot of variety seeking tendencies involved, and some counter movement may be taking place in the future, when the users have got used to the smartphones in their current format.

7.2. Brands

The phone brands were organized in the following table, in respect of their yearly frequencies. The absolute quantities are presented on the right side column and the percentage represents the share of each brand on a yearly distribution.

Table 2 Phone brand distribution of the survey set

	2012		2013		2014	
Brand	Qty.	%	Qty.	%	Qty.	%
Nokia	38	55.07 %	31	37.80 %	16	24.62 %
Apple	10	14.49 %	21	25.61 %	28	43.08 %
Samsung	12	17.39 %	21	25.61 %	19	29.23 %
HTC	5	7.25 %	5	6.10 %	1	1.54 %
Mototola	1	1.45 %	1	1.22 %	0	0.00 %
LG	2	2.90 %	0	0.00 %	0	0.00 %
ZTE	1	1.45 %	1	1.22 %	0	0.00 %
Siemens	0	0.00 %	0	0.00 %	0	0.00 %
Sony-ericsson	0	0.00 %	0	0.00 %	0	0.00 %
Blackberry	0	0.00 %	1	1.22 %	0	0.00 %
BenQ	0	0.00 %	0	0.00 %	0	0.00 %
Huawei	0	0.00 %	1	1.22 %	1	1.54 %
Total	69		82		65	

Below is a graphic illustration of the four most popular phone brands represented in the survey, based on the previous table. Only these four brands are displayed since the frequency of the other brands is only marginal.

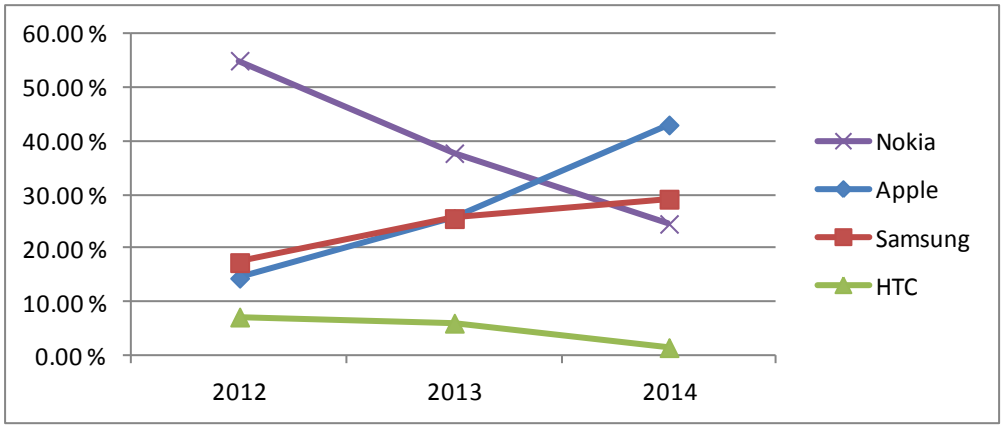

Figure 5 Phone brand distribution trends of the survey set

The yearly development of the popularity reveals some significant trends. The domination of Nokia at the beginning of the survey period has vanished. Instead, Samsung and especially Apple have increased their popularity among the respondents. HTC has had its share, but its presence has decreased. The most significant change is, without doubt the increasing Apple dominance. The significant increase in smartphone demand has benefited Apple the most. Apple has positioned itself clearly as a smartphone manufacturer. It had no feature production hence it had no burden of such history either. Most other manufacturers have produced also feature phones which may have delayed their smartphone entry. There is evidence that especially Nokia didn´t manage to maintain its market share during this emergence of smartphones as its smartphones couldn´t compete credibly with Apple and Samsung (Tuunainen, Tuunanen & Piispanen, 2011).

Following observations of the market situation, based on previous data are provided here:

- Nokia´s share among the respondents has been decreasing very fast, probably due to the lack of competitive smartphones and mobile service ecosystem at a critical phase of market development
- Apple and Samsung had their smartphones and ecosystems competitive at the critical moment
- Apple was obviously a driver for a smartphone diffusion, not just a follower, and it was able to exploit this role at the market

- platform dominance shift from Nokia Ovi to AppStore & Android Play shop has happened
- Samsung has managed to increase its share among the respondents but not quite as much as Apple

7.3. Cross-side and same-side network effect – analysis of qualitative data

This section is based on the analysis of the qualitative questionnaire part answers to following questions about the most recent phone switch:

1. What was/were the main reason(s) for you to select this specific phone model?
2. Explain in your own words, what were the reasons for the switch?
3. What was the situation and what were the reasons for the switch from your previous phone to your current phone?

When seeking for signals of data referring to cross-side network effects, firstly it is viable to assort all the answers where the respondents are referring to the importance of the availability of the mobile apps as one of their platform selection factor. The amount and perceived usefulness of apps are reflecting rather directly the level of the cross-side effects. The more apps developers are producing apps to a particular platform, the more useful the platform is perceived by the phone users. The following table illustrates the quantity and percentage of total yearly respondents who have provided answers who express signals of cross-side network effect as one of the reasons for their latest phone switch. Also, illustrated are the quantities and percentages of all hits divided for each respective platform. The hits were recorded so, that only one hit per each respondent was taken into account. This was applied always when a same respondent had expressed signals of cross-side network effect in more than just one qualitative part questions. The quantities and the percentages of the hits refer to the quantity of the individual respondents expressing the cross-side network effect. The brands refer to the user´s current phone brand.

Table 3 Apps availability/quality as perceived switch factor

Apps mentioned as factor:	2012		2013		2014	
Signal of cross-side network effect, total	**15**	**21.74 %**	**22**	**26.83 %**	**17**	**26.15 %**
iPhone users	3	20.00 %	10	45.45 %	8	47.06 %
Samsung users	8	53.33 %	5	22.73 %	4	23.53 %
Nokia users	2	13.33 %	7	31.82 %	5	29.41 %
HTC users	1	6.67 %	0	0.00 %	0	0.00 %
Motorola users	1	6.67 %	0	0.00 %	0	0.00 %

During the three year time series the percentage and also the total quantity of cross-side network effect hits has increased slightly. The increase from 21.74% to 26.15% is statistically not very significant. In 2013 and 2014 data the smartphone diffusion was already very high, which explains the data of those years. However, the percentage of total respondents is relatively high even in 2012 data, which is surprising. This data reflects the switch factors of the year 2011, when there were still over 40% saturation of feature phones among the respondents. Possibly, so high percentage reflects the near future dominance of smartphones.

When the respondents were asked for the sources of information of the mobile applications, they explicitly expressed most frequently the friends and other peers being an important source for this information. The table 4 below illustrates the quantity, as well as the percentage of all the smartphone users, who expressed friends/peers as their source of apps information. On the right side columns there are also figures of all smartphones users and the total quantity of respondents, for reference. The source of apps information is not directly referring to the switch factors and peer pressure, but it can reflect indirectly the same-side network effects as a strong link to other smartphone users becomes more prevalent through the apps. Friends and other peers seem to distribute apps information effectively, which raises the awareness of the apps and may increase their importance. 68% to 88% of smartphone users mention friends as source of apps information, which makes friends the most important source. This is referring to a strong cross-side network effect, since new apps users tempt apps developers to deliver more contents.

Table 4 Peers as source of apps information

Year	from peers	%	smartphones	%	total
2012	36	88 %	41	59 %	69
2013	50	68 %	73	89 %	82
2014	46	72 %	64	98 %	65

When surveying for signals referring to same-side network effect, it was possible to assort the answers where the respondents are referring to the benefits of having a similar infrastructure, compared to their friends´ or family members´ or other peers´ mobile infrastructure. A similar technological or software infrastructure lowers the threshold of a user to communicate with a peer, with her/his own other ICT devices. The following table illustrates the quantity and percentage of total yearly respondents who have provided answers which express signals of same-side network effect as one of the reasons for the latest phone switch. Also, illustrated are the quantities and percentages of all hits divided for each respective platform. The data hits were recorded so, that only one hit per each respondent was counted. This was applied always when a same respondent had expressed signals of same-side network effect in more than just one qualitative part questions. The quantities and the percentages of the counts refer to the quantity of the individual respondents reflecting the same-side network effect.

Table 5 Compatible infrastructure as perceived switch factor

Compatibility important:	**2012**		**2013**		**2014**	
Signal of same-side network effect, total	**2**	**2.90 %**	**10**	**12.20 %**	**11**	**16.92 %**
iPhone users	1	50.00 %	8	80.00 %	11	100.00 %
Samsung users	1	50.00 %	1	10.00 %	0	0.00 %
Nokia users	0	0.00 %	0	0.00 %	0	0.00 %
HTC users	0	0.00 %	1	10.00 %	0	0.00 %

During the three year time series the percentage and also the absolute quantity of same side network effect hits has increased. The increase from 2.90% to 16.92% is statistically recognizable. As a side-remark, the share of the iPhone users expressing signs of same-side network effect as switch factor has increased from 50% to 100%.

7.4. Social influences – analysis of qualitative data

When searching for signals referring to the social influences, responses where the respondents are somehow referring to the social impact of friends, family members or other peers when having done their latest platform switch were counted. This section is based on the analysis of the same qualitative questionnaire part responses, as in the previous section:

1. What was/were the main reason(s) for you to select this specific phone model?
2. Explain in your own words, what were the reasons for the switch?
3. What was the situation and what were the reasons for the switch from your previous phone to your current phone?

A similar phone compared to the peers´ phone was seen important, necessary, or even mandatory, in many responses. This was mainly said to help with communication between the peers, but also less practical reasons like shame or sense of being less social, different, or sense of not-belonging to a social subculture or group, were said to drive the respondents to switch to a particular phone or phone type. Typically the respondents increasingly expressed that they have a feeling that everyone else around have a smartphone, or a particular brand of smartphone, when they themselves don´t possess one.

The following table illustrates the quantity and percentage of total yearly respondents who have provided answers expressing signals of the social influences as one of the reasons for their latest phone switch, in the aforementioned questions. Also, illustrated are the quantities and percentages of all data hits divided for each respective phone. The hits were recorded so, that only one hit per each respondent was counted, even when the same respondent had expressed peer pressure in more than just one qualitative questions. The quantity and the percentage of the counts refer, then to the quantity of individual respondents expressing the any approved type of social influences, whether social norms or peer pressure, as a switch factor.

Table 6 Social impact as switch factor

Social norms mentioned:	2012		2013		2014	
Signal of social impact, total	**7**	**10.14 %**	**18**	**21.95 %**	**17**	**26.15 %**
iPhone users	4	57.14 %	6	33.33 %	10	58.82 %
Samsung users	0	0.00 %	6	33.33 %	5	29.41 %
Nokia users	2	28.57 %	4	22.22 %	2	11.76 %
HTC users	1	14.29 %	1	5.56 %	0	0.00 %
Motorola users	0	0.00 %	1	5.56 %	0	0.00 %

During the three year time series the percentage of social impact hits in data has increased. The increase from 10.14% to 26.15% is statistically recognizable. As a side-remark, the share of the iPhone owners expressing the peer pressure as switch factor has been between 33.33% and 58.82%. One response from the more radical wing, though expressed direct peer pressure as follows:

> *"It was deliberately destroyed by some of my friends who don't appreciate feature phones. It was very old and had already become an object of jokes, and people who wanted me to switch to a smart phone decided to destroy it. Now we have free text messaging via iMessage."*

There´s also a weak signal of the same-side network effect in this response. Referring to no-cost iMessage mobile messaging service the respondent expresses that when joining the network it is possible to generate value added to oneself as well as to the other network users, especially the nearest ones. A peer-to-peer software compatibility inside the same brand utilizes the direct same-side network effects, so the peers that put pressure on this respondent are having their own agenda as well.

Below is the table that illustrates the frequency of each significant expressed social influence switch dependent variable factors, as well as the combined total amount and percentage of them. This is a partial clip of 5 social influences variables, from the Table 9 *Switch factors and PPM, qualitative data* that illustrates all the 26 switch predicting factors, provided later in this chapter.

Table 7 Social norms and peer pressure as perceived switch factor

year	2012		2013		2014			
respondents in total	69		82		65			
Expressed switch variable	qty	%	qty	%	qty	%	PPM Switch variable	Explanation
Good reviews from public sources	1	1.4 %	3	3.66 %	8	12.31 %	Social influences	**social norm**
Friends/peers had recommended a specific phone	2	2.9 %	6	7.32 %	6	9.23 %	Social influences	**social norm**
Friends/peers had more modern phones	2	2.9 %	5	6.10 %	7	10.77 %	Social influences	**social norm**
Friends/peers had already a specific phone	2	2.9 %	4	4.88 %	5	7.69 %	Social influences	**social norm**
Wanted more fashionable phone/design	7	10.1 %	5	6.10 %	7	10.77 %	Social influences	**social norm**
Ashamed of previous phone	1	1.4 %	4	4.88 %	0	0.00 %	Social influences	**social norm**
Friends/peers suggest/expect/demand to switch	1	1.4 %	3	3.66 %	1	1.54 %	Social influences	**peer pressure**

The percentages refer to the quantity of respondents having expressed each switch variable as a factor in for latest switch, in relation to the whole survey set. The results indicate that the percentages are not big but the trend has been a growing one. Good reviews, recommendations of friends, friends having a more advanced phone (usually smartphone related), and friends having a specific phone (mostly iPhone or Samsung) have all increased their importance each year. All these variables are the most significant indicators of the positive mooring effects of social norms. Unfortunately, these variable quantities cannot be combined for one universal variable of social norms since the resulting sum would not provide comparable information. One respondent may have expressed more than one of these variables as switch factor, which prevents this combining possibility. Still, the message can be interpreted from the numbers. The social norms exist in data, in six separate variables and their existence has increased in three years so, that half of them were expressed voluntarily by more than 10% of the respondents, the year 2014. The public or peer reviews were the most often cited variable, with over 12% in 2014. Only 2013 there were citations for being ashamed of the current phone, which may be linked with the smartphone emergence as these respondents usually had history of not switching often. 2014 99% possessed smartphones so there was no reason to be ashamed anymore.

This data reveals no significant indications to peer pressure. Peers suggested / expected / demanded to switch is cited only once in 2012 and 2014. Again, the pattern is similar to the variable of "being ashamed", as 2013 had the most hits of this variable, three altogether. Same reason may apply to this as well. 2014 there was no motivation to put pressure on peers as most of the users already owned smartphones.

Potential main reasons for planned switch in the future

Looking at the survey question no. 13 (appendix), the respondents are asked to explain in their own words, what kind of situation they would change their current phone and what would then be the main reasons for the switch. They were asked to be as complete and thorough as possible with their answers. Their responses were often long and detailed. The top three reasons for a planned switch were as follows:

1) phone gets broken (push factor)
2) someone gives a new phone for free (forced switch – push factor)
3) some remarkable technological improvements arise (pull factor)

Almost all of the expressed reasons for a planned future switch are rational ones, i.e. factors such as the phone technology, OS or applications. References to social issues, like e.g. social norms, peer pressure, fashion or aesthetics are scarce. Still, social influences are well represented in data of the expressed factors of the previous switch of a respondent. A conclusion from previous can be drawn: when planning future users are seeing or want to see themselves as rational entities. But when looking at past, they have made decisions much more based on social pressure. Many users don´t seem to be able or willing to forecast behavior triggered or amplified by social influences. However, based on other questions in qualitative data, there seems to be social impact, sometimes even strongly involved in the switching history of the respondents. The users just seem to prefer keeping this impact hidden or less important.

General additional observations based on qualitative switch data

- Some users prefer seeing themselves as early adaptors – they seem to have a history of switching often
- Some users prefer mechanical keypad still hence they often have history of switching only rarely. This, however is only recognizable in 2012 data, since 2013 most users had smartphones already.

- Several respondents complain their internet or processor "has become too slow", (especially in 2014 data) hence they prefer to have a new phone. The reason to that is though more obviously that the OS update software and software apps have become more extensive and "harder" to process. This is listed in "not happy with the phone" category. It may imply to the consumers´ lack of understanding all cause-and-effect relations of technically complicated products. Also, this may be used as a cover-up of alternative attractiveness variable in some cases.
- "Brand loyalty" is manifested frequently in 2012 for Nokia, but in 2014 for iPhones. Samsung users base their choices primarily on functionality related issues, and virtually no brand-related references prevail.
- "Wanted smartphone/advanced technology/better performance (tech issue/pull factor)" Usually this is for bigger display, touchscreen or mobile internet.

7.5. Quantitative and qualitative questionnaire time series data comparison

In the following section the switch questionnaire three year time series results are reviewed and interpreted. Some reflections separately and finally a more detailed comparison between the selected quantitative and qualitative questionnaire data are provided, and possible emerging trends are identified. An amount of uncertainty is inherently embedded with the qualitative data analysis results. Due to the "freedom of word" of the respondents, a certain amount of subjective interpretation after consideration has been used. The answers are not in any predetermined or standard format in that part of questionnaire, which brings in some more inherent risks with the interpreting. The PPM framework has been utilized in order to arrange these results in an understandable format. The quantitative results instead, are straightforward to organize and read. However, the logic behind their potential trends requires interpretation as well. The following table illustrates the combined quantitative results of each survey year. The attributes that best reflect the network effects or social factors are shaded.

Table 8 Switch factors, quantitative data

Quantitative attributes (Likert scale)	2012			2013			2014		
	n	Mean	SD	n	Mean	SD	n	Mean	SD
Number of apps available	69	3.10	1.27	80	3.53	1.10	65	3.62	1.11
Functionality upgrade/improvement (e.g. from non-smart to smart phone, or more functions)	68	4.09	1.10	80	3.94	1.06	64	4.14	0.87
customizability	69	n/a	n/a	79	3.13	1.05	65	2.85	0.97
Ease of use / user-friendliness	69	4.30	0.77	80	4.23	0.89	65	4.25	0.85
How the phone looks like	69	3.77	0.93	80	3.66	0.93	64	3.84	1.06
shape/size	69	n/a	n/a	80	3.91	0.83	65	3.98	0.98
Can be synchronized/interfaced (manually or automatically) with my other devices	69	3.43	1.25	80	3.78	1.15	65	3.83	1.11
new version	69	n/a	n/a	80	2.40	1.20	65	2.69	1.16
All my friends or my significant other(s) have a phone like this	69	1.77	1.09	79	1.91	0.91	65	1.97	0.93
Peer pressure (others expect me to have a particular phone)	69	1.64	0.92	80	1.96	1.06	64	2.11	1.06
Being in the forefront of development and always having the latest gadgets	69	1.77	0.91	79	2.26	1.26	65	2.23	1.07
A good deal / promotion	69	2.99	1.16	80	3.56	1.17	65	3.23	1.22
Good bundle	69	n/a	n/a	80	2.43	1.26	65	2.54	1.23
Problems with telecom provider (e.g. technical, customer service,…)	69	2.51	1.43	79	2.93	1.28	65	2.88	1.18
Problems with device vendor (e.g. technical, customer service,…)	69	2.70	1.23	79	3.38	1.20	65	3.11	1.06
I got the new phone as a gift or from my company	64	2.59	1.70	76	3.07	1.47	62	2.60	1.42
Other reason(s), please explain and rate its/their importance?	28			10			9		

The following table, based on the qualitative questionnaire part, is constructed from the respondents´ answers to questions:

1. What was/were the main reason(s) for you to select this specific phone model?
2. Explain in your own words, what were the reasons for the switch?
3. What was the situation and what were the reasons for the switch from your previous phone to your current phone?

These are those three particular switch questionnaire questions that best reflect the respondent´s switching history. This is not directly reflecting the respondent´s intention to switch, which is important to recognize. The actual switch situation reveals much more (and more honestly looking) information about the service migration, compared to the predicted future switch factors. The answers expressing the respondents´ switching history contain a wide variety of switch reasons, when on the other hand the predicted future switch factors mainly contain more subjective, pre-filtered data, given by the survey subjects themselves. There is an open-ended question in the questionnaire, where the respondents are asked to "explain in your own words, what kind of situation you would change your current phone and what would be the main reasons for the switch?" These answers are mostly comprised of rational reasons including technical and technological issues. Another popular reason is a desire to purchase

something new (variety seeking, in PPM framework). The following samples present some of the typical answers:

> *"I would switch to a new smartphone once my current phone stops working properly."*
>
> *"If at some point, I feel frustrated because of the low operation speed, I think it is a good time for me to change the phone. The new iPhone model has some really interesting features. I have seen that the new iPhone receive a lot of positive reviews."*
>
> *"Well if my current phone would break down or I found a good offer to buy new. Lumia or iPhone. So far I've liked my phone, but after 1,5 years I feel like it is time to upgrade in order to get new apps and stuff. WP7 is an old OS and can't offer much app-wise. Also better battery life would be great! Better camera."*

The respondents were surprisingly unanimous when predicting their switch factors of the planned future switch. Over 60% of them were planning to switch when the present phone gets broken or lost. This is of course natural, but as these cases are not fundamentally voluntary switching situations, these cases are categorized as special forced switch cases in this research. Interestingly, all the respondents almost entirely ignored the social influences for their switching behavior.

Taking into consideration the aforementioned issues, the following aggregated table is constructed based on the modified PPM framework, of the answers comprising of the past switching behavior of each respondent,. These answers better reflected the seemingly true nature of service migration. There´s a difference in this table, compared to the previous tables, *Table 3 Apps availability/quality as perceived switch* factor and *Table 4 Peers as source of apps information*, which are illustrating the network effect and social impact of peers. In this table all the hits in data were counted, hence a one respondent may have provided more than one hits that fit the social influences variable category. This table illustrates how many times each individual switch factor appears in the data. The numbers are thus deviating from the earlier tables.

Table 9 Switch factors and PPM, qualitative data

year	2012		2013		2014				
respondents in total	69		82		65				
Expressed switch factor	**qty**	**%**	**qty**	**%**	**qty**	**%**	**PPM Switch variable**	**Explanation**	**Effect**
Previous phone got lost/stolen	10	14.5 %	12	14.63 %	5	7.69 %	Forced switch	forced switch	positive
Bundle/contract ended	4	5.8 %	5	6.10 %	2	3.08 %	Forced switch	forced switch	positive
Got new phone for free	10	14.5 %	17	20.73 %	10	15.38 %	Switching costs	forced switch	negative
Previous phone malfunction	20	29.0 %	30	36.59 %	27	41.54 %	Low satisfaction/value	technical issue	positive
Felt previous phone outdated	12	17.4 %	20	24.39 %	14	21.54 %	Low satisfaction/value	technical issue	positive
Not available the apps I need now	2	2.9 %	3	3.66 %	1	1.54 %	Low satisfaction/value	**network effect**	positive
Not happy with the phone	4	5.8 %	9	10.98 %	15	23.08 %	Low satisfaction/value	voluntary	positive
Wanted smartphone/adv. technology or performance	30	43.5 %	37	45.12 %	27	41.54 %	Alternative attractiveness	technology issue	positive
Wanted applications or specific OS	17	24.6 %	22	26.83 %	17	26.15 %	Alternative attractiveness	**network effect**	positive
Better compatibility/sync/subculture	2	2.9 %	7	8.54 %	8	12.31 %	Alternative attractiveness	**netw. eff./lock-in**	positive
Good experience on same brand or model phone	0	0.0 %	16	19.51 %	15	23.08 %	Past experiences	repurchase	positive
Cheap/reasonable price offered	8	11.6 %	5	6.10 %	2	3.08 %	Switching costs	pricing	negative
Got good bundled offer	1	1.4 %	3	3.66 %	2	3.08 %	Switching costs	pricing	negative
Low switch costs, easy to use the same phone as before	0	0.0 %	0	0.00 %	1	1.54 %	Switching costs	perc. ease of use	negative
High switching costs/prices hinder switch	0	0.0 %	3	3.66 %	1	1.54 %	Switching costs	positive mooring	positive
Wanted something new/want to be up-to-date	10	14.5 %	13	15.85 %	12	18.46 %	Variety seeking tendencies		negative
New specific model available	1	1.4 %	5	6.10 %	8	12.31 %	Variety seeking tendencies		negative
Good reviews from public sources	1	1.4 %	3	3.66 %	8	12.31 %	Social influences	**social norm**	negative
Friends/peers had recommended a specific phone	2	2.9 %	6	7.32 %	6	9.23 %	Social influences	**social norm**	negative
Friends/peers had more modern phones	2	2.9 %	5	6.10 %	7	10.77 %	Social influences	**social norm**	negative
Friends/peers had already a specific phone	2	2.9 %	4	4.88 %	5	7.69 %	Social influences	**social norm**	negative
Wanted more fashionable phone/design	7	10.1 %	5	6.10 %	7	10.77 %	Social influences	**social norm**	negative
Ashamed of previous phone	1	1.4 %	4	4.88 %	0	0.00 %	Social influences	**social norm**	negative
Friends/peers suggest/expect/demand to switch	1	1.4 %	3	3.66 %	1	1.54 %	Social influences	**peer pressure**	negative
Switching history - switching often/early adaptor	0	0.0 %	4	4.88 %	5	7.69 %	Attitudes toward switching	past behaviors	negative
Switching history - not switching often	1	1.4 %	1	1.22 %	3	4.62 %	Attitudes toward switching	past behaviors	positive

Comparison of qualitative and quantitative data

Number of apps available; This question is relevant in the cross-side network effect aspect, and in the questionnaire this is the only quantitative question that refers to cross-side network effect. The perceived importance of apps availability has increased clearly in three years, though this increase has not been significant. Especially during 2013 when smartphones became explosively popular, the mean of the data increased seemingly from 3.10 to 3.53. This seems logical behavior since the utility level of a smartphone is primarily defined by the useful applications, and the users have started to appreciate the applications increasingly when they have adopted the smartphone technology. This reflects the importance of the network externalities, as the broadness of the mobile application selection is a critical mobile service platform feature and it has a direct link with the quality and quantity of the apps developers of a particular platform. The iPhone AppStore has had the widest selection of applications, marginally before the Google Android Play Store, and the yearly brand data of iPhone in this research supports the role of the network effects. The qualitative results don´t have a variable that would correspond directly with the apps and network effect, but the pull-factor variable

"wanted applications or specific OS" reflects the importance of the applications variety among the respondents. This variable was perceived important by several respondents, respectively 24.6% (2012), 26.83% (2013) and 26.15% (2014) of them. The smartphone saturation in the 2014 data was almost 100% so basically all users had already chosen their desired mobile service platform. At that point the users may have not paid that much attention on the application selection any more, hence the growth of the importance of this variable ended. All the three most important platforms had at that point a relatively sufficient apps selection, concerning the efficient use and the general utility level of a smartphone. The link between apps and social effects appears to be multidimensional. Peers change information of apps and the apps variety is perceived important by the users. These are supported by the data. Also, there are brand specific apps that support peer-to-peer communication, which has a link to sychronizability and compatibility issues of brands. These apps indicate the same-side network effect existence.

Functionality upgrade/improvement; There is no significant change observed here, during the survey period. In general, this was considered very important factor, at least amongst the technology savvy business students, the average in the Likert scale being every year. Most of the respondents expressed also in the qualitative part that one of the most, or the most important reason for the switch was or would be that they wanted a phone and/or platform with more advanced technological features. This is an obvious Pull-factor associated with the attribute of the destination. The percentage of the respondents mentioning this as a reason for a switch remained around 43% through all three years, which correlates well with the quantitative survey results. This increases the validity of the survey data. Technology is strongly associated with the mobile service business hence this type of result was something to be expected.

The extent of customizability of the phone; Not asked 2012, but slight decrease from 2013 to 2014. Perhaps, the smartphones are already customizable enough by default, due to the wide apps selection. Hence, the users don´t feel need to pay any particular attention on that issue any more.

Ease of use / user friendliness; This variable is perceived the most important. The user friendliness can be assumed, speculatively to be very popular variable among any customer profiles, not alone among the business students. The fact that the respondents considered this the most important variable every year of the survey is in dissonance in some extent with the qualitative survey results. When asked, what the respondents like about the phone they possess at the moment, at least most of the iPhone owners mention the ease of use as one of the first positive features. Other phone brand users mention that feature only occasionally. However, when asked about the reasons for a switch, almost no one sees the usability as a pull-factor of the new phone or platform. The technologically advanced features and the application selection seem to be overriding the ease of use as a dominating switch reason.

How the phone looks like aesthetically; The phone aesthetics was perceived very important factor in quantitative data. There is no relevant change observed during the survey period. Qualitative and quantitative data seem to behave in a different way. From 6,1% to 10,8% of respondents mentioned aesthetics being a negative mooring factor, i.e. motivating the switch. This is seemingly lower than in the quantitative data. Quantitative data mean is approximately 3,7 each year which indicates that the appearance of the phone is significant switch factor. Aesthetic value of a product has a link to social influence and acceptance issues as the looks of a phone is perceived as an issue of being expected and becoming appreciated by others. Aesthetics of the phone is categorized in the modified PPM as a mooring factor of social norm for the reason that it reflects the social image attribute by nature. The respondents expressed the aesthetics with expressions, like "cool" and "fashionable".

Shape and/or size of the phone; Not surveyed 2012 quantitatively, but only slight increase has taken place in 2013 and 2014 survey data. This is perceived the third important factor, only after the "ease of use/user friendliness" and "functionality upgrade/improvement", the average of importance being 3,91 and 3,98. This factor is not relevant in the context of this research so the qualitative survey results were not studied. However, the result in some cases may refer to social acceptance issue when the shape and size issues may reflect the overall perception of the

phone appearance, similar to the previous factor of aesthetics. Also this factor was categorized as a pull factor and not as peer pressure/mooring factor.

Can be synchronized / interfaced with my other devices; Based on the both, quantitative and qualitative results of this survey this one is increasingly important. The compatibility issue is strongly associated with the so called proprietary, or customer lock-in effect. A customer is dependent on the vendor of a service or a product, making the switching more difficult and costly. The quantitative importance of this variable increased seemingly simultaneously with the iPhone popularity, as it increased steadily from the average of 3,43 to 3,83 between 2012-2014. Also the qualitative results support that, as the data hits of pull-factor, usually expressed as "better compatibility and synchronizability" increased from 2,90% to 12,31% during the survey period. This comes as no surprise as the share of iPhones has increased as illustrated earlier, and Apple is well known for the high compatibility between its own brand devices. If a strong compatibility is appreciated by the users it is logical that such a product would sell. The compatibility between devices applies also in peer-to-peer situations, indicating that this factor has a same-side network effect association. When referring to the answers of the many iPhone owners´ in the qualitative part of the questionnaire, they expressed their desire to be able to sync, not only with their own, but especially with their friends´ devices. From this a conclusion can be drawn that the perceived ease of sync/interfacing between other, nearest users of the ecosystems has a causal relationship with the same-side network effects and the growing iPhone population. However, the compatibility issues often result in the aforementioned lock-in for the particular service provider´s ecosystem. Based on the qualitative survey data this is seen as, both positive and negative issue by the respondents. Still, statistically the majority of the respondents were considering this as a positive feature. The iPhone users were the ones to overemphasize the synchronization feature, when the other phone brand users didn´t mention that feature practically at all. On the other hand there were also some opposite opinions expressed. Here is one example of those provided:

> *"To avoid the lock-in situation in compatibility issues with other devices, I use Windows and Linux operating systems in my computers and I have a certain mind-set that I want the*

freedom to choose what kind of features and what applications I am using on my devices. In other words, I like to have complete control over the device, its software and possible maintenance. Android OS was the most versatile (at the time at least), the phone was fairly priced and Samsung brand doesn't have a negative echo in my mind of artificially locking in their customers in overpriced and/or technologically less capable products. A big part of the decision was also the huge amount of positive reviews of the model around the Internet".

The Apple users seem to appreciate the effortless synchronization and interfacing possibilities over many other features hence, this generates a strong Pull-effect towards the Apple ecosystem. There is a strong synergy between all the user´s devices of this particular phone brand, but also there is a strong same-side network effect between the users, as the connectivity between them is facilitated by using the same brand devices. This is the case especially, between the users who are the nearest ones for each others as there are social connectivity methods strongly supported by the device manufacturer. Easy connectivity with peers is perceived as an important benefit by most of the iPhone users, increasingly. Other platforms don´t seem to utilize that effect at all, or if they do, the effect is not visible in the survey data. One can speculate that this type of brand strategy with too strong lock-in effect utilization can also push some potential users away, but as long as a general compatibility with other brands is maintained, it may work for Apple´s benefit. When asked, why a respondent chose this particular phone, one iPhone user wrote this, very typical response:

"Reputation, familiarity, other devices such as Mac and iPad, the popularity of the brand".

This response has a strong indication to social norms as well, in the forms of "reputation and brand".

A new version of the brand I´m used became available; The question refers to variety seeking, but has a link to brand affiliation as well. This issue was not surveyed quantitatively in 2012. Slight increase of 0,29 of the average (from 2,40 to 2,69) on Likert scale has happened during 2013-2014. A new version is perceived important to a moderate extent by the respondents. The results seem to correlate somewhat with the qualitative survey results, since the direction of

change is same with both data. The amount of respondents (these are mostly the iPhone aficionados, again) expressing with their own words that the introduction of a new specific model to the market is facilitating their service switching intention, has steadily and nearly linearly increased from 1.4% (2012) to 12.31% (2014).

All my friends or significant other(s) have a phone like this; This question is particularly important from the social norms aspect, and it reflects, at least partly the hidden importance of the social impact for the switch behavior. The respondents perceived social norm/peer choices importance lower than average in quantitative part, when considering the platform switching. Only moderate but still constant increase in mean, from 1.77 to 1.97 has taken place during the survey period. The quantitative survey result standard deviation has decreased in three years, from 1.09 to 0.93 which means that the respondents have been increasingly unanimous in their opinions. The respondents did not express explicitly that the choices of their peers are very important, but this was expectable result based on the earlier related research by Tuunainen et al., (2012a). The quantified qualitative data (Table 7 Social norms and peer pressure as perceived switch factor) reveals, that there are comparable responses expressing the social norms followingly: "peers had recommended a specific phone", "peers had more modern phones" and "peers had already a specific (smart)phone", the statistical hits have increased from 2,9% to 9,23%, 2,9% to 10,77% and 2,9% to 7,69%, respectively. The trend is growing in all of them, but frequency is not very high. This correlates on an average level with quantitative data.

When reviewing further the qualitative questionnaire part´s results, firstly, over 26% of the respondents (Table 4 Peers as source of apps information) expressed their peers being an important source of application information. However, this doesn´t directly refer to switch reason and device itself, but rather is an indirect factor affecting the user´s perception of the particular platform, and also it is a signal of cross-side network effect´s prevalence. Secondly, the qualitative data hits, where respondents expressed effects of social norms of some form in their informal answers increased from 10.14% to 26.15% (Table 6 Social impact as switch factor) in three years. As the hits are recorded so, that only one hit per each respondent is

counted (unlike in table 7) even when one respondent has expressed social influence in more than just one qualitative questions, the quantity and the percentage of the counts reflect directly the quantity of the individual respondents expressing the social influences as a switch factor. Hence, table 7 provides a sort of detailed expression of basically same issue, when table 6 is containing the data of table 7 but the repeated expressions of same respondent have been filtered off.

The quantitative and qualitative responses don´t gauge unambiguously same parameters of social influence. The quantitative question is gauging the importance of the social influence when making the switch decisions, when the qualitative part expresses the frequency of the respondents´ social influence expression hits. These two separate results however, can be pulled together at some level. Since the tendency is increasing, over one fourth of survey set perceives social impact of some form as switch factor, and when over one fourth of them mention peers as source of apps information, simultaneously expressing this as one social mechanism affecting indirectly in their platform decision, social influence can be perceived at least as a relatively important direct and indirect decision making factor. Also, some respondents indicated that they value the ability to get connected with their friends and community more easily by acquiring a same brand phone (Apple) as their peers possess. Here´s a sample of 2014 questionnaire data:

> *"Apple has been known as the market leader in smartphones. Hence I have to say the brand is a major reason I chose this phone. Their quality is known to be consistent. A lot of my peers (friends, family) use iPhones so it is easier for me to connect with them by using an iPhone".*

The same-side network effect couldn´t be more explicitly expressed. Often, the most rationale reason expressed could be, like the users can sync with the rest of their own technology architecture. However, the issues like brand image are following imminently and many Apple users don´t even try to disguise this. Another respondent wrote that *"reference and social value"* were the drivers the latest iPhone switch. Such a passion and commitment are almost entirely absent in the responses of all the other brand users. Nokia had its share of this passion in 2012 and possibly before that, but this passion was almost nonexistent in 2013 data.

It is controversial, whether the qualitative responses, where a respondent referred to fashion issues when selecting a phone, should be considered as peer pressure or not. In this research these were not counted for peer pressure factors, as it is difficult to interpret these answers unambiguously. Several respondents expressed their affection for a certain brand or device very openly and directly, writing for instance, that *the iPhone is just so cool* or that *I wanted more fashionable phone.* Also, the *brand affiliation* was mentioned in several answers, and loosely this could also be considered as peer pressure factor. However, now these answers were classified as pull-factors, as in order to try to avoid too liberal interpretation of the results these were considered as the destination-specific parameters, classified as alternative attractiveness dependent variables. Had these answers become classified as peer pressure mooring factors, it would have been obviously looking statistically even more important. The fashion issue was considered important especially by the respondents that expressed an intention to switch to a particular brand in the near future, or that had already switched to one. The hits were concentrating mainly among the iPhone users.

Peer pressure (others expect me to have a particular phone); From the research question aspect, this question is an important one. In quantitative data this variable expressed some relatively clear increase in its perceived importance, throughout the three year period. However, it is not seen very important variable by respondents, but the increase in the perceived importance of peer pressure may be explained vaguely with an increase of importance of social issues in general. Such issues are social media, brand awareness (especially this is the case with iPhone), sense of belonging into a group or subculture, phone as an extension of social identity, and so forth. However, since "peer pressure, together with other social influences, exerts a pressure on the individual to behave in a way conformable to that of other group members" (Kroeber-Riel et al., 2003), in this context peer pressure variable is seen as a direct and open expression of will, in order to affect to another person´s choice. The qualitative data indicates that peer pressure, when separated so clearly from social, unspoken norms, has no remarkable role in switching behavior. Only 5 respondents during the entire survey period expressed open and direct peer pressure placed on them.

Being in the forefront of development and always having the latest gadgets; Not seen very important variable by the most, but some significant increase has still taken place during 2012-2013. This is obviously a mooring variable, equivalent to "variety seeking tendency" PPM variable as this is not a feature of origin or destination, but rather a typical feature of the migrant. The consumers with high tendency of variety seeking and intensive switching history reflect their active attitudes toward the service migration. Also the questionnaire qualitative part results reflect a steady increase in the switching history variable. The frequency of early adaptors of the qualitative questionnaire part increased from 0% to 7.7% during 2012-2014. Reasons to this are not obvious and inferential, but there is an increasing amount of respondents who clearly consider themselves as early adopters. One respondent recognized this feature, saying:

> *"I always want something better and I cannot be satisfied forever with the smartphone that I have at the moment. I would like to challenge myself keeping myself on the front line of technology development, which is exciting".*

Perhaps, the temporal cycle of ICT is generally becoming faster and shorter which also reflects to mobile phone consumption. However, not all are seeking variety. Another respondent expressed something completely opposite, though by responding:

> *" I would only switch it if my old one would be broken, or after, say, 5 years of usage".*

A good deal / promotion; There is a contradiction between the quantitative and qualitative results of this variable. In qualitative results the importance has increased first, but has then decreased a little for the year 2014. Still, it has been on a higher than average level. On the other hand there is a clear trend in its frequency in the qualitative part of questionnaire. The importance of price as a switch reason fell from 11.6% to 3.08% in these three consecutive years. The contradiction described is not easily explained. In quantitative part the standard deviation has been rather stable through all three years. This indicates that the increase in 2013 and decrease in 2014 might be real trends, and not just coincidence. Why the importance of cheap phone based on qualitative results, has been moving to the opposite direction, e.g. the correlation is low or nonexistent, is not logical. This may be just due to an interpretation error

or statistical inaccuracy of the qualitative results. The statistical significance of quantitative results is higher than of qualitative part of questionnaire.

A good bundle of a device and a telecom operator contract; This wasn´t surveyed in 2012. The importance has been stable during the two last consecutive years, as has been the standard deviation. Hence, there is no clear trend. The importance has been almost average during that time. The datasets of the corresponding variable in qualitative part are too small to provide any relevant information, and there isn´t any clear trend either.

Problems with telecom provider; The importance of this is perceived average. A small increase during 2012-2013 is observed, though some decrease is seen after that for 2014. This was not surveyed 2012 in the qualitative part but based on 2013 and 2014 results, the amount of users that had switched their telecom provider and that complained about their telecom provider service quality, during 2013-2014, fell from 16% to 14% of the survey target group. The quantitative and qualitative results correlate approximately as there was slight decrease in both results during the period surveyed. It is worth recognizing that this is not a pricing issue, but only technical or customer service issue. In 2012 there were still a lot of feature phones in the market. The mobile data needs were modest, which may explain the 2012 results. In 2013 the needs concerning the operator services were obviously higher as the saturation of smartphones was suddenly almost 90%. Most of the complaints in qualitative data were concerning directly or indirectly the problems with the data transmission speed. During 2013-2014 the smartphone saturation didn´t increase substantially, and the telecom operators had managed to build their infrastructure performance to better meet the market requirements.

Problems with device vendor; There is a sudden increase of the importance of this during 2012-2013. Also that can be linked with the rapid smartphone saturation, from 2012 to 2013. First generation smartphones represented novelty in technological aspects. Large displays increased problems with battery capacity and technically more complex devices had more faults. Also the constant, ever heavier OS upgrades rapidly degraded the device processor performance. These were the issues that gained the most attention in the questionnaire qualitative part, where the

"low satisfaction" linked with "previous phone malfunction" variable was surveyed (pull-factor). The amount of respondents complaining about these problems increased steadily from 29.0% (2012) to 41.54% (2014). This is not directly the same thing as "problem with device vendor" but these issues must have increased the customer reclamations during the surveyed period. In this sense the survey results seem logical.

I got the new phone as a gift or from my company; This is a strong pull-factor. Only one person wrote having been donating a free phone forward when not needing one. All the others were happy about the free phone. The quantitative and qualitative results correlate here almost perfectly by numbers. The importance of receiving a free phone was considered at little over an average, though 2013 this was considered substantially higher that 2012 and 2014. Also, 2013 20.73% users said they had received one. Price matters, of course. A very low monetary price or no price at all can be considered as an ultimately low switching cost. Though, there are also other variables – material and immaterial - that affect the switching costs of a service.

Other reasons(s), explain and rate their importance; Only 48 respondents out of 216 suggested other factors, 29/48 responses were provided in 2012 data. The smartphone diffusion was at hand, which may have affected the eagerness to provide voluntary suggestions. The suggestions comprised several different switch factors. The most frequent and important were the following ones: compatibility (synchronization options), applications quality and availability, peer influence (peers have a similar phone or brand), and technical features like battery performance and mechanical durability. Also mentioned were peer reviews, aesthetics/appearance (in relation to peers), "attractiveness", exoticness, novelty, "feel-factor" when handled, size (small phone but big display preferred), build quality, technical support, perceived usability, innovativeness, price, upgradeability, ethics in manufacturing and open SIM (non-bundled). Many seemed to appreciate issues of social influences, like opinions of peers as well as networking issues such as application and compatibility related features.

Summary of chapter 7

The survey data analysis was provided in this chapter. The supporting data of fundamental changes in the device technology, as well as the brands distribution in the market were briefly analyzed. Furthermore, an analysis of sources and effects of same-side and cross-side network effects were performed. In addition, social influences were analyzed similarly. Tables of qualitative and quantitative data, including time series analysis, were provided. Finally, a comparison of these two datasets was made, an emphasis being in social and network effects.

8. Discussion

There are two relevant market and technological trends in the data. The first one being that the smartphones replaced feature phones almost entirely in three years. The smartphone penetration was 98% in 2014 data, when it was 59% in 2012. The second big trend is associated with the phone brands, since Samsung and iPhone overtook Nokia in the brand popularity in three years. These trends have their impact on the markets and especially on the service users and their switching behavior. The social and network effects are linked with these market and technological trends and their derivative patterns in several aspects. The smartphone diffusion increased the platform business model importance. The focus transition from device-intensive feature phone usage to software-intensive application usage has changed the user switching behavior. This is a significant paradigm change from technology, business and user behavior aspect.

In the aspect of social effects, Tuunainen et al. (2012a) suggested in their earlier research of the social influences in switching mobile services, that it is likely that the explicitly expressed factors for a mobile service platform switch don´t manifest strong signals of peer pressure in the survey data. This conclusion is supported also based on the data and findings of this study. Also, the phone users have been reluctant to express openly, or possibly haven´t even recognized all the effects of social norms and to their switching behavior, when they are asked about this. Implicit expressions of social influences have been observed in the aforementioned earlier related studies. This seems to be the case also with this study. Implicit behavior is prevailing in the questionnaire responses for questions where the effects of social norms or peer pressure are not asked about directly, but where the respondents refer to their social environment and their perception about the platform choices they feel their social environment expects from them. "Implicit", hidden switch reasons often appear in issues of fashion, aesthetics, "coolness" and person´s social image. Often, it is complicated to make assumptions based on such a vague

written expressions. In many responses an implicit switch reason in data is appearing in a more subtle manner and surveying requires method of "reading between the lines" of the given answers. In these cases, though the risks of too liberal interpretation has been a risk.

Keeping the research question in mind, the attributes reflecting the social or network effects (Table 8 Switch factors, quantitative data) in the questionnaire quantitative section are the ones shaded in the table 8. All of these factors reveal some increase (though not very strong) in their perceived importance during the three year time series. Apps availability was becoming more important among the respondents every year. The synchronizability, and also decisions of friends and significant ones, as well as the expectations of others (peer pressure) were becoming increasingly important. The qualitative data seems to support these trends to some extent. Speculatively, since all the quantitative data that has direct or indirect link to social influences has increased in importance, this could be seen as a larger trend. Mainly, this seems to be linked with the major smartphone diffusion, and with the iPhone diffusion sub-trend. The roles of technological convergence, as well as the increasing demand for mobile social media, are not studied but these can be expected to have an effect on the increase of social effects role.

The conclusions of the study by Tuunainen et al. (2012b) suggested a decreasing role of social norms and peer pressure in lead markets, such as in Finland. Since the empirical data of this thesis is entirely from Finnish (lead) markets, no comparison with any data from lag markets was made. Each of the three year´s survey data revealed that the device characteristics (push and pull factors) were more important switch factors, compared to the social factors. This result seems to comply with the results of Tuunainen et al. (2012b). But, the increase of the role of the social factors simultaneously with the smartphone market diffusion appears to be in contradiction with the earlier research. However, this increase of the role of social effects in this case could actually be, more like due to the strong increase of the iPhone population and domination. The percentages of the most significant device characteristics-specific pull factors in qualitative data, such as *"wanted smartphone/advanced technology or performance"* and

"wanted applications or specific OS" have remained relatively even in each three year´s data, which supports this assumption.

Social effects seem to be strongly associated with the application software issues. A connection between apps and social effects is multidimensional, though. Peers are sharing information on apps, which is supported by the qualitative data. Peers are the most frequently referred source of apps information (Table 4 Peers as source of apps information). Apps availability is perceived very important, and increasingly so by the users, which is supported by the quantitative data. Furthermore, there are brand specific apps that support peer-to-peer communication, which links them to the same-side network effect. Other users of same brand increase then the value of the phone and the user network for a given user, which makes it useful to communicate these apps to peers.

Same phone type and brand as the peers possess, is considered as a benefit by many respondents. This has generated a strong brand affiliation among them. Especially this was the case with a strong brand, such as Apple that has the entire service platform control, since it is able to provide tools and services that link the same brand users together efficiently (Table 8 Switch factors, quantitative data). The users of other phone brands don´t manifest that type of same-side network effect, which is resulting into an assumption that a strong brand works here well as long as the high compatibility and easy synchronization among the same brand users is not considered as a limiting factor, when communicating with the peers that possess devices of any another brand. So, a certain amount of cross-brand compatibility is required but the trick is how to keep this in minimum in order to lock-in the brand aficionados. Apple appears to be the only brand to exploit the same side network-effect effectively.

Potential main reasons for planned future mobile service platform switch are: 1) phone gets broken (push), 2) someone gives a new phone for free (Pull), 3) some remarkable technological improvement arise (pull). The earlier research results in this aspect, by Tuunainen et. al (2012a) and Nykänen (2013) support this result. Pull factors have been the dominatin which, at least partly has been a result of the technological related emergence of large touchscreens, mobile

application-based service concept, and more effective mobile internet. Most of the respondents were tempted by these features in the phones they had switched to, or were about to switch. Almost no respondent mentioned anything about social influences or fashion trends, when asked about the reason for an upcoming phone switch. Still, social influences and fashion factors are well represented in the responses emphasizing the previous mobile service platform switch reasons. A conclusion from previous two observations is following: when planning the future switch, the users perceive or want to perceive themselves as rational entities. But when looking at their past switching behavior, they have made decisions based also on the social norms (not so much on peer pressure), appearing in their social environment. This can be interpreted so that the users are not able or willing to forecast their own behavior that is amplified by social influences. When asked about their future switching intentions, nearly all the reasons the respondents expressed were focused on pure technological issues, such as the phone hardware features, OS or applications. Practically no social impact was recognized at that point. There may be various reasons for this kind of behavior but perhaps people, in general, don´t want to perceive themselves as subjects of other people´s or system´s influence. Very rarely consumers seem to admit a commercial or other people ´s opinions have directly affected their purchasing decisions. Rather, they´d prefer to see themselves as unique individuals, capable of independent decision making. Additionally, there may be other reasons behind this. It is also possible, that it is difficult for an individual to project the social effects of the past into the present time. If the importance of the social factors in the past switches has been relatively low, the retrospective recognition of those factors, when predicting future switches is perceived not too relevant. Hence, the current social and fashion issues may be considered more important. However, it is not plausible that the social norms have previously had some influence in switch of over one fourth of the survey set, but it would be nonexistent in the next switch.

The mobile service platform switching behavior doesn´t seem to be uniform for all destinations. It might depend on the destination platform structure and nature. A destination platform sponsor that has been able to generate a strong brand and has a total control over the critical components, hence many "sides" of the market is more capable of utilizing the same-side

network effect and social impact of the peers to the users. The result may not be any surprise to anyone familiar with the business. At an early stage of the research it became obvious that there is difference in the switching behavior between the different phone and platform brand users. The users can be divided into two coarse, distinctively different subgroups in the platform switch decision factor aspects. The iPhone aficionados seem to emphasize emotions more than the other phone bran users, in their switch decisions. The social influences and same-side network effect are more important switch factors for them. They don´t seem to mind if the phone they desire, has a technological performance behind the competitors´ performance. This is not considered important, as the emotions and other benefits may overshadow the quantitative or technologically emphasized rationale in decision making. The years 2012 and 2014 data revealed that a way over half of the users that recognized the social environment´s influences in their switching behavior, were Apple iPhone users (2013 iPhone and Samsung were even in this aspect). The users of all the other brands cannot be called aficionados in the same sense, as their switch decisions clearly follow different pattern. The users of Samsung, Nokia and the other, minor brands rather seem to build their switch decisions on rational consideration, seeking for technological reviews and comparing the technological features of the competing destination alternatives. Nokia for sure, had still in 2012 data a rather strong user base and brand loyalty, presumably among the Finnish students. However, this brand affiliation vanished surprisingly fast in 2013 data. The reason for this may have been the fact that Nokia did not manage to bring competitive smartphones and cherished platform in the market (Tuunainen, Tuunanen & Piispanen, 2011) early enough.

Apple has managed to develop a strong community around its product with its iPhone, hence it seems to benefit from the network effect. The iOS and iPhone users seem to express some kind of "sense of belonging" in an iPhone subculture. This can be seen in questionnaire sections where the respondents were asked about their previous switches and also their future switches. Pull-factor variables, such as "new specific phone available" or "better compatibility/sync/subculture issues" revealed yearly increase in their popularity. These responses were almost entirely given by respondents who already had switched to iPhone. Also, when asked about the potential future switch reasons, iPhone owners were nearly only

respondents who clearly expressed their direct affection to the phone brand they´re using currently, and who were planning to switch to an iPhone again. Other phone owners were not that explicitly influenced by any particular brand. It is fair to say that the network effects and social effects have increased, but they mainly become apparent when the nature of the destination platform enables them to appear. Is it possible to hypothesize then, that the social effects could be, at least partly explained by network effects? If the users of new technology in network feel they would obviously benefit from new network entrants that would be an incentive to put social pressures on the entrant candidates. But, in this research data direct peer pressure is so limited that such hypothesis seems not valid. However, if for instance, the "mildest" cases of forced switch would have been categorized as peer pressure (this was subject to interpretation), instead of forced switching the peer pressure would have been clearly more visible. So it all goes down to the definition and classification of the constructs in the qualitative data.

The most important factor linked with the increasing role of social influences and network effects is the fast smartphone saturation at the market during the period of this survey, years 2012-2014. Since a smartphone is an inherent part of platform business ecosystem, the role of network effect seems to be increasing side-by-side with the smartphone market saturation speed. Smartphone is purchased due to its capabilities of being able to "socialize" beyond direct voice communication, to be in contact with peers and other world, often simultaneously. This may increase the role of social influence when switching a phone. Some platform owners and phone brands utilize the social and network effects better than others. Some consumers avoid strong brands and risk of lock-in. When Apple generates a strong community with the help of lock-in effect, are Samsung and other major brands that support open access OS´s, utilizing the customer lock-in aversion for their benefit? And, how could be the same-side network effects along with social effects utilized in such a case? This would provide some starting point for further research.

If the social impact is there but it is partly hidden and the consumers are not able or willing to recognize it and express openly, would there be an indirect social impact prevailing, then?

What if the explicit and implicit social norms, and peer pressure are shaping the consumer´s other, push, pull and mooring switch factors? The social environment would affect the consumer´s values, which in turn, would affect her/his needs. A user is not so happy with the current phone, and new features of a phone increase their personal perceived importance. Or, quite opposite, perhaps green values inhibit the user´s switching intentions, and so forth. Only, this paradigm shift happens as a background process, which makes it challenging to be recognized. Then, a questionnaire survey would not necessarily be the right tool to survey the social impact. This would call for some other type of survey, or at least the questions should be structured the other way.

As a summary for discussion, it is possible to conclude based on the results of this study that the users had a voluntary desire to switch to a new phone mainly due to the novel technological, device feature driven pull factors. Device features such as mobile internet, larger screen, touchscreen and better camera, were perceived important. Mobile internet has become especially important in the context of social influences. Several respondents expressed their perceived social pressures for switching for a smartphone, directly or indirectly with responses, like "I want a smartphone since everyone else around me has one already", or "Everyone else nowadays has a smartphone". Internet is a major enabler of application-driven platform business. Applications distribution is facilitated by cross-side network effects which are linked to social peer-to-peer communication, but not direct peer pressure. Internet and some key applications of social media are primarily enabled by smartphones. A social pressure, in this case the negative mooring factors of social norms, encourage to the adaptation and use of social media services, especially the mobile use of social media services. It has been the case during the survey period of 2012-2014 and this is seen in data. This has not been a platform-specific issue, since all the recognized mobile service platforms are capable of delivering these services. However, by many users, easy and effortless mobile peer-to-peer connectivity is perceived such an important factor, that it should be increasingly encouraged and enabled by platform-specific smartphone applications. This issue is subject to the same-side network effects, and happens at the moment especially among the Apple´s iPhone users. Platform-specific device and software compatibility and ability to synchronize with other same platform

ecosystem users, and especially the nearest ones, generates perceived social pressure to join the platform. Hence, the diffusion of new smartphone technology and social influences are having a connection.

If this is true, the fact that the smartphone saturation point is basically achieved and the growth has been leveled, this should also affect to the role of social effects. The results of this study suggest that, the social effects have had an increasing role in consumers´ switching behavior all along the survey period. Now, when practically every respondent has a smartphone in 2014, the role of social effects should have stabilized. Since there is no continuum in a form of the year 2015 data, it is risky to assume conclusively that this suggested relation of new technology diffusion and social effects is valid. This would reason the switch questionnaire of 2015.

As for the discussion about the implications to practice, would the results of this study then, apply to tablet computers ("A small portable computer that accepts input directly on to its screen rather than via a keyboard or mouse", Oxford Dictionaries, 2014) and phablets ("A smartphone having a screen which is intermediate in size between that of a typical smartphone and a tablet computer", Oxford Dictionaries, 2014)? These devices use virtually same platforms as phones do. However, the fashion, brands, diffusion and social image factors, among others may be different depending on the device characteristics, so these issues should be carefully considered upon applying the results of this research. These devices have a much shorter history compared to mobile phones, which may have resulted in a different market structure and price perception. Still, in the case of especially phablets, these are often used instead of smartphones since in most cases they are basically big smartphones. This would justify some applicability of the results of this study to them as well.

Summary of chapter 8

This chapter provided discussion of the analysis and logic behind the assumptions and conclusions. Social influences, network-effects, qualitative and quantitative data and analysis, as well as other important and related factors were discussed and summed up. Also, some speculative analysis was provided.

9. Conclusions

In this study the primary aim was to add to the academic and practical level knowledge of the consumer level mobile service platform switching behavior. An increase in understanding of the explicitly and implicitly expressed social influences on switching behavior, and of the roles of cross-side and same-side network effects was the primary research objective guided by the research questions of this thesis. This chapter is organized as follows: The supportive, complementary research question and answers to that are provided first. The primary research question with findings, follow. Then the conclusions are explained more in detail, and the implications to practice and theory, as well as suggestions for further research and limitations of this study are provided.

9.1. Summary of findings

The supportive, complementary research question is:

> ***What kind of trends and patterns emerge from the consumer mobile service switching survey data, during the three year survey period, 2012 – 2014?***

This is a question of a wider scope. The following findings provided tools for explaining the underlying factors of findings for the primary research question. The major trends and patterns are as follows:

- A major shift from feature phones to smartphones took place during 2012 – 2014. Smartphones replaced feature phones among the survey set, almost entirely. This caused a paradigm shift from device-centered phone use to software-centered usage, which in turn, affected the switching behavior and the role of social effects.

- Feature phone manufacturer Nokia´s dominance changed to Apple´s dominance in smartphones. This shift also, affected the switching behavior and the role of social effects.
- Pull factors were found to be the dominating variables in switching behavior. The novel technology-related pull factors, such as mobile internet, bigger screen, touchscreen and better camera for instance, have been the most important causes for a switch. The desire to have smartphone, advanced technology or better performance, as well as get involved with more mobile apps or a specific operation system, were evenly strong all the way through the survey period. However, compatibility and synchronizability of the devices and software, with peer´s devices were perceived increasingly important. This is directly associated with the strong increase of Apple device infrastructure among the survey set. This in general comply with the results of the earlier related research, based on partly the same survey data, by Tuunainen et al. (2012) and Nykänen (2013), where pull factor was found to be the strongest switch factor.
- Push factors were found slightly less important compared to pull factors, when looking for both the qualitative and quantitative results. The device-related, low-satisfaction push factors that drive the users away from current (or previous) phone, such as the phone malfunction, sense of phone obsolescence and sense of not being happy with the phone were considered increasingly important from 2012 to 2014.
- The switch favoring variety seeking tendencies (negative mooring) have been in steady growth. The underlying factors behind this development could be the increasing speed of product-cycles and consumerism. On the contrary, and logical to variety seeking tendencies growth, the price has had clearly decreasing importance in switching.

The primary research question of this thesis is:

What are the roles of social and network effects in the consumer mobile service platform switching behavior?

The findings of this research are providing answers to that question relatively well. Here are these findings in short:

- Social norms affect on the consumers´ switching behavior and the role is becoming more important. Over one fourth of the surveyed users expressed influences of social norms. The consumers recognize the role of social impact in their past behavior, but cannot see this role in their future decisions hence it is often partly "hidden".
- Only weak signals of peer pressure were found. Deliberate, compelling peer influencing is rare and it is not perceived affecting the decisions very much. However, the importance of peer pressure in switching decisions was increasing slightly during the survey period.
- Network effects are having an inherent and positive interdependence with social influences, and their role is increasing. The increasing role of social norms in mobile service platform switching behavior seem to be associated with the new smartphone technology diffusion process, facilitated by both, same-side and cross-side network effects.
- Network effects have a role in switching behavior, but there are brand-associated differences in the switching behavior between the users in relation to the switch factors, more precisely in relation to the role of social effects. A mobile service platform with proper design can exploit the role of social effects in the mobile service consumers´ switching behavior. Apple iPhone users manifest stronger social interdependency and same-side network effects facilitated by an intra-brand synchronizability, when compared to the other brand users. Cross-side network effects are facilitated by the availability and selection of mobile applications, which increases social user interaction peer-to-peer, which in turn increases the perceived attractiveness of a platform.

Conclusions in detail

Social effects were divided in two distinctively different factors based on their academic grounding. These are *social norms* and *peer pressure*. Social norms were found to have stronger impact on the consumers´ switching behavior. This effect is often explicitly expressed by

consumers, but its existence among the people is more subtle by nature. It is embedded in the structures of social relationships and the perception of social environment. Social norms exist in expressions like, "I´ve read good reviews", "all friends, family or all others have more modern phones, smartphones, or a specific new phone", "I want a more fashionable phone", or "I´m ashamed of my current phone". The role of social norms has become increasingly important during the survey period. On the other hand, only weak signals of peer pressure were found, though the effect of peer pressure in the switch decisions is increasing. Direct and deliberate influence peer-to-peer seems rare, but there is some temporal increase in the role of peer pressure based on the quantitative data. Peer pressure when expressed, comes out very directly and explicitly. Typically, the users said that friends, family or other peers expect, suggest or demand to switch". The consumers, don´t see much peer pressure in their lives. It is also possible that they don´t want to see it, but that is a more of a speculative issue, hence cannot be surveyed properly with a questionnaire.

The social influence is recognized by the consumers themselves in many cases, but they only recognize it after the switch has already happened. They are not able or willing to predict (or confess) the effect of social factors in their future behavior, even when they have a fresh example of such an effect in their recent history. The opinions and choices of others have an effect on consumer´s choices, but it is not fully recognized or wanted to be recognized.

Network effects were divided in two distinctively different factors; same-side and cross-side network effects. Both of these were discovered to have a significant role in service switching behavior. Network effects were found to be inherently linked with social effects. The same-side network effect was found to be linked especially with the compatibility and synchronizability of the mobile devices inside one brand infrastructure of the users and their peers. Cross-side network effect is most evidently linked with the apps marketplace. Apps are considered to have a very important role in smartphone usage, so the selection and quality are found to be important. If apps are perceived useful, the phone users share apps information vividly in their social environment, which in turn amplifies the cross-side network effect. Social media popularity increases this effect.

Same-side and cross-side network effects are inherently linked with social effects. The findings of this research support the conclusion that both of these have an increasing role in switching decisions. Same-side network effect is mainly linked with the cases, where phone users are valuing device compatibility with their peers. During the survey period, Apple users were becoming overly represented in the survey set, so also the signals indicating to this effect were becoming more frequent during this period. Also, with other phone brands, the mobile application software information exchange peer-to-peer is increasing, along with the increasing smartphone diffusion. This way the same-side network effect has at least moderate influence on the switching behavior.

The consumers inform each others about the apps of a particular mobile service platform, which affects their will to switch to this platform. The more there are users, the better the apps information diffusion and the more there are apps developers tempted to join in. Based on the results it is rational to conclude that the apps selection was considered very important and strong switch factor, by most of the smartphone users and also by the respondents planning to become one in the near future. Moreover the importance of the apps availability as switch factor increased during the survey period. This is a strong direct indicator of cross-side network effects. The more there are apps developers and apps, the more desirable apps and furthermore, the more desirable the platform is perceived by the consumers. The link with cross-side effects and social influences seems evident. When the variety and quality of apps selection affects the phone switch decisions, these decisions have been impacted by the social norms.

A widely desired smartphone feature of mobile internet is a major enabler of application-driven platform business, and the apps distribution and availability are facilitated by cross-side network effects. These effects have a link to communication between peers. Internet and social media key applications are enabled by smartphones. Social norms encourage the adaptation and use of the mobile social media services. This is not a platform-specific issue. However, easy mobile peer-to-peer connectivity is perceived such an important factor, that it is increasingly encouraged and enabled by special platform-specific smartphone applications, by the Apple

ecosystem users. This is exploiting the same-side network effects. Platform-specific device and software compatibility and ability to synchronize with other same platform ecosystem users generates social pressures to join the platform. Hence, the diffusion of new smartphone technology and social influences are having a connection. Additionally, issues of fashion, linked with social image bring in their own dynamics to the role of social effects in switching.

9.2. Implications to practice

The results of this thesis would provide some practical implications also to both, business sides and consumers. The platform owners can emphasize in taking the social effects into account, in order to reap benefits from both, the same-side and cross-side network effects. Platform can utilize the same-side network effect when the users of same brand appreciate easy connectivity and synchronizability between the peers using the same brand/platform. The devices should have a high level of compatibility inside the ecosystem in that aspect.

The platform owners and application developers should recognize the social, informal peer-to-peer information distribution as an active and dynamic marketing channel. The quality and quantity of apps are important, since the positive characteristics of these parameters enforce the cross-side network effects. Possibly, new technology diffusion may be facilitated when this particular technology responses to the social needs of the consumers. An increase in the demand and use of social media has increased the demand of mobile services, since consumers seem to have an increasing need to respond for their social needs in real-time.

As consumers we don´t seem to internalize fully the effects the people around us have in our mobile services consuming behavior. We could benefit if we would understand better the role of these social effects. Such knowledge could shape our perceived needs and have an effect on our choices, and the money and other resources consumed for the mobile services. Also, this knowledge could shape our social interaction between our peers, and also with our wider social environment, through the social media use, for instance.

9.3. Implications to academic research

A related academic research of such a specific issue is still rare. This would imply that the roles, the social effects play in the consumer mobile service use and switching, are not thoroughly understood. This study contributes to the consumer level academic research of mobile phone and mobile services switching behavior. The method of modifying the service migration PPM framework further for mobile service platform switching would provide one starting point option for a following service switching related research.

The results would serve the further academic research purposes to limited extent, if the results of this study could be further examined, evaluated and applied to the service migration research beyond the mobile phone switching, or social influences context. Also, this study, as a result of trying to add to that knowledge, simultaneously pursues to recognize and point out the gaps of the mobile service switching behavior knowledge and literature, especially in the context of social influences for switching.

The findings of this thesis might be applied, limitedly and with careful consideration also to the research of service switching behavior of other mobile devices, such as tablet computers since the platforms and apps of these are basically the same as with smartphones. However, the fashion, brands, diffusion and social image factors, for instance, may vary depending on the device characteristics, so the impact of these issues should be considered upon applying the results of this research. Furthermore, the synthesis of phones and tablets is at hand. The smartphones are becoming bigger and the tablets are becoming smaller, and they are packed with voice communication technology. These devices, informally called "phablets" are also utilizing the same mobile service platforms, as well.

9.4. Limitations of the study

This study has some important limitations. One of these is associated with the survey setting, namely with the sample of the questionnaire. The switch questionnaire was conducted among the university business school students. Hence, the heterogeneity of the respondents is limited which in turn, limits the margin and potential of the generalization of the results and

conclusions. The age of the respondents is relatively uniform, and their social status and state of living may be somewhat uniform as well. The fact that at least the majority of them are studying in business school may also bias their mobile service platform use and switching behavior, as well as their perception of the world around and living, especially and more precisely their perception of technology, communication, brands and social networks, for instance. The effects of age, gender, nationality and experience were not reflected with the results. Additionally, the sample sizes of each year, respectively 69, 82 and 65 were relatively small hence bigger samples in order to further validate the results would be appropriate.

The chosen set of respondents suits well in a research of this type. Young business students are known to be socially active and technology-savvy. They are willing and able to follow the mobile business and use the hardware, and they are able to utilize a wide range of technological features of their phones. They may not have the financial resources they would like to possess, in order to be able to express all their mobile communication needs. But they often have a wide network of peers and family members helping them to equalize their economical shortcomings.

The nationality of the most of the respondents is Finnish. This may have had some implications to the questionnaire results. A certain kind of loyalty to Nokia phones can be seen in, at least 2012 results which in turn has also affected to the choices of the mobile service platform. The nationality of a respondent is not asked in the switch questionnaire, hence the nationality distribution of the respondents is not actually known. This distribution must have varied between the years 2012 – 2014 though, this variation is not known. Possibly, either the loyalty to Nokia brand has evaporated during the years 2013 and 2014, or the nationality distribution of the respondents has altered remarkably from 2012 to 2014. Also, both of these variations may have taken place during these three years of the survey time series.

The survey data is only available for a three year time series. This is a short period for statistical analysis, but these particular three years cover a rather critical period in mobile technology and service business. Smartphones and mobile service platforms became ubiquitous during that time, and they superseded the feature phones completely. Thus this period during 2012-2014 is

relevant for a time series analysis. Year 2011 would have been interesting year, as the smartphones started to emerge in the market then. The service migration questionnaire data that year would have further added our understanding on the consumer switching behavior. A potential 2015 data would provide some useful information in order to evaluate the assumptions and conclusions made in this study.

A one relatively important thing wasn´t included or was clearly absent in this questionnaire. Respondents were asked about social norms in a positive aspect. In the quantitative section of questionnaire were statements, such as "all my friends or my significant others have phone like this" and "others expect me to have a particular phone". These refer to a positive image of a phone. In qualitative section, the answers concerning the social influence of peers were positive, without an exception. The respondents explained openly how positive comments they had heard from their peers, but negative reputation was nonexistent. Not a single peer comment or review about a negative image of a service or phone was mentioned. The users themselves were telling about their own phone or service dissatisfaction, but rarely anyone wrote about having heard so many negative opinions on a particular product that she/he decided not to purchase one. Hence, the influence of negative word of mouth is left without attention in this study. Still, many people must agree that the negative word of mouth spread out has generally a strong influence on the purchase decisions in business.

Bundling of the operator and the phone is rare in Finland, which may affect the switching behavior as switching has not major costs and the lock-in is rare. Bundling is seen more frequently in many other countries outside Finland. This is a Finnish mobile market curiosity and it changes the effect of the mooring component in the PPM framework.

When talking about the cross-side network effects, one side of the market is absent in the questionnaire data. Nowadays, the mobile service platforms are not just two-sided but rather, many-sided networks. In excess of platform sponsors, consumers and apps developers, there are also other sides, such as advertising companies, in the platform ecosystems. The companies that advertise in mobile applications were not covered in the switch survey, and neither did any

of the respondents mention the effect of the increasing advertising in the apps. However, there is some evidence that the ads may have a negative cross-side effect on the consumers. The more there are ads that cannot be avoided by the service user, the less apps utility some users may perceive. And, how the subjective norms are related to this issue? Perhaps the fact, that no respondent did voluntarily express the ads issue, might be signal of low importance. Still, since the ads are increasingly seen in apps this is an issue that would provide an important starting point for further research.

9.5. Further research

Smartphone diffusion among the survey respondents has basically achieved a full saturation. This could also have an effect to the role of social effects. The results of this study suggest that, the social effects have had an increasing role in consumers´ switching behavior every year of the survey period, and this has a connection to the positive smartphone diffusion rate. When practically everyone has a smartphone, the role of social effects should also have stabilized. Since the 2015 switch survey data doesn´t exist, it is difficult to assume conclusively that this suggested relation of new technology diffusion and social effects holds. A new switch questionnaire of 2015 would be needed in order to gain more information on that possible relation.

The roles of social effects as well as the network are not ubiquitously explained yet. What would be the role of fashion and brand issues in platform switching? How much is the emerging importance of social media and the related applications, smartphone camera (linked to social median apps), among other features, have an effect on the platform switching decisions. The implicit, hidden social influences would justify extensive research. There are implications in earlier, as well as in this research about a more important role of implicit social effects, but decisions about the research setting seems to be challenging. Hidden social influences indicate that the social norms may have indirect effects to other mooring variables, and especially to push and pull variables. Survey questionnaire is not the best instrument to study such effect hence, another method could be needed.

The role of the determinative criterion of choice of the consumers, in the aspect of the mobile device versus the mobile service platform, would provide an interesting and important further research issue. The consumers are increasingly aware of the importance of the platform, dependant of it, and the platform will increasingly define the usability and utility factor of a phone. This is especially the case when all phones are becoming increasingly similar to each others, in terms of functionality, quality and appearance. Also, several new service platforms are about to emerge and it is possible that the era of only few dominating mobile service platforms will soon be history. One could hypothesize that if the bundling of the device, operating system and service platform would become obsolete, a user could freely choose and combine them in the future. How would the switching process and social effects change when each component could be switched separately?

References

Ajzen, I. & Fishbein, M. (1980) "Understanding attitudes and predicting social behavior", Prentice-Hall, Englewood Cliffs, NJ.

Android Captures Record 85% Share of Global Smartphone Shipments in Q2 2014 (2014) Online. Available at: http://www.strategyanalytics.com/default.aspx?mod=reportabstractviewer&a0=9921

Ballon, P. and R. Hawkins, (2008) "*Standardization and Business models for Platform Competition: The Case of Mobile Television", International Journal of IT Standards and Standardization Research*, Vol. 7, No. 1, pp. 1-12.

Bansal, H.S. & Taylor, S.F. (1999) "The Service Provider Switching Model (SPSM): A Model of Consumer Switching Behavior in the Services Industry", *Journal of Service Research*, Vol. 2, No. 2, pp. 200-218, doi:10.1177/109467059922007

Bansal, H.S., Taylor, S.F. & St. James, Y. (2005) "Migrating to New Service Providers: Toward a Unifying Framework of Consumers´ Switching Behaviors", *Journal of the Academy of Marketing Science,* Vol. 33, No. 1, Winter 2005, pp.96-115.

Bearden, W.O. & Etzel, M.J. (1982) "reference Group Influence on Product and Brand Purchase Decisions", *Journal of Consumer Research,* Vol. 9, pp. 117-131.

Bergvall-Kårenborn, B. & Howcroft, D. (2011) "Mobile Applications Development on Apple and Google Platforms", *Communications of the Association for Information Systems,* Vol. 29, No. 1, article 30, pp. 565-580.

Block, J. & Köllinger, P. (2008) "Peer Pressure in Network Markets – An empirical investigation", Presented at the DRUID 25th Celebration Conference 2008, Available at: http://www2.druid.dk/conferences/viewpaper.php?id=62&cf=8

Callaugher, J.M. & Wang, Y-M. (2002) "Understanding Network Effects in Software Markets: Evidence from Web Server Pricing", *MIS Quarterly,* Vol. 26, No. 4, ProQuest, pp. 303-327.

Cheng, Z., Yang, Y. & Lim, J. (2009) "Cyber Migration: An Empirical Investigation on Factors that Affect Users´ Switch Intentions in Social Networking Sites", Unpublished paper presented at the 42nd Hawaii International Conference on System Science – 2009, Waikoloa, HI.

Chiu, H.-C., Hsieh, Y.-C., Roan, J., Tseng, K.J. & Hsieh, J.-K. (2011) "The Challenge for Multichannel Services: Cross-Channel Free-Riding Behavior", *Electronic Commerce Research and Applications,* Vol. 10, pp. 268-277.

Davis, F.D. (1989) *Perceived usefulness, perceived ease of use, and user acceptance of information technology.* MIS Quarterly, 1989, Vol 13, No.3 pp. 319-340.

Desparats, J. (1983) "Spatial Choice and Constraints on Behavior." *Annals of the Association of American Geographers* 73 (3): 340-357.

Economides, N. and E. Katsamakas, (2006) "*Two-Sided Competition of Proprietary vs. Open Source Technology Platforms and the Implications for the Software Industry",* Management Science, Vol. 52, No. 7, pp. 1057-1071.

Eisenmann, T., Parker, G. & Van Alstyne, M.W. (2006) "Strategies for Two-Sided Markets", *Harvard Business Review,* 2006, October. p. 92-101.

Eisenmann, T., Parker, G. & Van Alstyne, M.W. (2010) "*Platform Envelopment",* Harvard Business School, Working Paper 07-104, available at: http://ssrn.com/abstract=1496336

Farrell, J & Klemperer, P. (2007) "Coordination and lock-in: Competition with switching cost and network effects", Handbook of industrial organization, Vol. 3, pp. 1967-2072.

Farrell, J. & Saloner, G. (1985) "Standardization, Compatibility, and Innovation", *The RAND Journal of Economics,* Vol. 16, No. 1, pp. 70-83.

Fishbein, M. and I. Ajzen, (1975) "Belief, attitude, intention and behaviour: An introduction to theory and research" Addison-Wesley.

Fuentelsaz, L., Maicas, J.P. & Polo, Y. (2010) "Switching Costs, Network Effects, and Competition in the European MobileTelecommunications Industry", *Information Systems Research*, 2010

Ganesh, J., Arnold, M.J. & Reynolds, K.E. (2000) "Understanding the Customer Base of Service-Providers: An Eaxmination of the Differences Between Switchers and Stayers." *Journal of Marketing* 64 (July): 65-87

Gardner, Robert W. (1981) "Macrolevel Influences on the Migration Decision Process." In *Migration Decision Making:* Multidisciplinary Approaches to Microlevel Studies in Developed and Developing Countries, Eds. Gordon F. De Jong and Robert W. Gardner, Elmsford, NY: Pergamon

Gartner (2014). Online. Available at: http://www.gartner.com/it-glossary/smartphone/ [26.10.2014]

Hou, A.C.Y., Chern, C.C., Chen, H.G. and Chen, Y.C. (2009) "Using Demographic Migration Theory to Explore Why People Switch between Online Games", Unpublished paper presented at the 42nd Hawaii International Conference on System Science – 2009, Waikoloa, HI.

Hou, A.C.Y., Chern, C.C., Chen, H.G. & Chen, Y.C. (2011) " ´Migrating to a New Virtual World´: Exploring MMPORG Switching through Human Migration Theory", *Computers in Human Behavior*, Vol 27, No. 5,pp.1892-1903.

Hsieh, J.-K., Hsieh, Y.-C., Chiu, H.-C. & Feng, Y.-C. (2012) "Post-Adoption Switching Behavior for Online Service Substitutes: A Perspective of the Push-Pull-Mooring Framework" *Computers in Human Behavior,* Vol. 28, pp. 1912-1920.

ITU, "6.8 billion mobile-cellular subscriptions", Online. Available at: http://www.itu.int/en/ITU-D/Statistics/Documents/facts/ICTFactsFigures2013-e.pdf. [24.10.2014]

Kakihara, M. (2010) "Dynamic Revenue Model Design in the Online Services Business: Two Cases in Japan", AMCIS 2010 Proceedings. Paper 546, available at: http://aisel.aisnet.org/amcis2010/546

Karahanna, E., Straub, D. W., & Chervany, N. L. (1999). Information technology adoption across time: a cross-sectional comparison of pre-adoption and post-adoption beliefs. *MIS quarterly*, 183-213.

Katz, R. (1980) "Time and work: toward an integrative perspective", *Research in Organizational Behavior,* pp. 81-127.

Katz, M.L. and C. Shapiro (1994) "Systems Competition and Network Effects", *Journal of Economic Perspectives*, Vol. 8, No. 2, pp. 93-115.

Kim, B & Han, I. (2009) "What Drives the Adoption of Mobile Data Services? An Approach from a Value perspective", *Journal of Information Technology,* Vol. 24, pp. 35-45.

Klemperer, P.D. (1987a) "Markets with Consumer Switching Costs", *The Quarterly Journal of Economics,* Vol. 102, pp. 375-394.

Klemperer, P.D. (1987b) "The competitiveness of markets with switching costs" *Rand Journal of Economics,* Vol. 18, No. 1, pp. 138-150.

Klemperer, P.D. (1995) "Competition when Consumers have Switching Costs: An Overview with Applications to Industrial Organization, Macroeconomics, and International Trade", *Review of Economic Studies*, Vol. 62, No. 4, pp. 515-539.

Kroeber-Riel, W., Weinberg, P. & Gröppel Small, A. (2009) "Konsumenten-verhalten", 9, revised, updated and expanded edition, 2009, ISBN 978-3-8006-3557-3

Lai, J.-Y., Debbarma, S. & Ulhas, K.R. (2012) "An Empirical Study of Consumer Switching Behaviour towards Mobile Shopping: a Push-Pull-Mooring Model", *International Journal of Mobile Communications,* Vol. 10, No. 4, pp. 386-404.

Lee, E.S. (1966) "A Theory of Migration", *Demography,* Vol 3, No. 1, pp. 47-57.

Lewicki, P. (1983) "Self-Image Bias in Person Perception", *Journal of Personality and Social Psychology,* Vol. 45, No. 2, pp384-393.

Liebowitz, S. J. & Margolis, S.E. (1994) "Network Externality: An Uncommon Tragedy", *The Journal of Economic Perspectives,* Vol. 8, No. 2 pp. 133-150.

Lu, J., J.E. Yao, and C.S. Yu, (2005) "*Personal innovativeness, social influences and adoption of wireless Internet services via mobile technology", The Journal of Strategic Information Systems,* Vol. 14, No. 3, pp. 245-268.

Lui, S.M. (2005) "Impacts of Information Technology Commodization: Selected Studies from Ubiquitous Information Service", Doctoral Dissertation, Hong Kong University of Science and Technology, Hong Kong, available at: http://1bxml.ust.hk/th_imgo/b922694.pdf

Nakamura, A. (2010) "Estimating switching costs involved in changing mobile phone carriers in Japan: Evaluation of lock-in factors related to Japanś SIM card locks", *Telecommunications Policy,* Vol. 34, pp. 736-746.

Nakamura, A. (2011) "Estimating switching costs after introducing Fixed-Mobile Convergence in Japan", *Information Economics and Policy,* Vol. 23, pp. 59-71.

Nykänen, J. (2013) Understanding Reasons behind Mobile Service Platform Switching Behavior: An Inductive Analysis from Consumer Perspective, http://epub.lib.aalto.fi/en/ethesis/pdf/13230/hse_ethesis_13230.pdf

Oxford Dictionaries (2014). Online. Available at: http://www.oxforddictionaries.com/definition/english/feature-phone [26.10.2014]

Oxford Dictionaries (2014). Online. http://www.oxforddictionaries.com/definition/english/smartphone [26.10.2014]

Oxford Dictionaries (2014). Online. Available at: http://www.oxforddictionaries.com/definition/english/phablet?searchDictCode=all [22.11.2014]

Oxford Dictionaries (2014). Online. Available at: http://www.oxforddictionaries.com/definition/english/ tablet?searchDictCode=all [22.11.2014]

Parker, G.G. & Van Alstyne, M.W. (2005) "Two-sided network Effects: A Theory of Information Product Design", *Management Science,* Vol. 51, No. 10, pp. 1494-1504.

Parker, G.G. & Van Alstyne, M.W. (2007) "Platform Envelopment" Harvard Business School, Working Paper 07-104.

Parker, G.G. & Van Alstyne, M.W. (2008) "Managing Platform Ecosystems", *ICIS 2008 Proceedings.* Paper 53. http://aisel.aisnet.org/icis2008/53

Rochet, J.-C. and J. Tirole, (2003) "Platform Competition in Two-Sided Markets", *Journal of the European Economic Association,* Vol 1. No.4, pp. 990-1029.

Rochet, J.-C. and J. Tirole, (2004) "Two-Sided Markets: An Overview", available at: http://web.mit.edu/14.271/www/rochet_tirole.pdf

Rogers, E.M. (1995) "Diffusion of Innovations". 4th ed. 1995, New York: The Free Press.

Salancik, G.R. & Pfeffer, J. (1978) "Social information processing approach to job attitudes and task design", *Administrative Science Quarterly,* No. 23, pp. 224-253.

Saloner, G. & Shepard, A. (1995) "Adoption of technologies with network effects: an empirical examination of the adoption of automated teller machines", *RAND Journal of Economics,* Vol. 20, pp. 479-501.

Sarker, S. and J.D. Wells, (2003) "Understanding mobile handheld device use and adoption", *Communications of the ACM,* Vol. 46, No. 12, pp. 35-40.

Schepers, J. and M. Wetzels, (2007) "A meta-analysis of the technology acceptance model: Investigating subjective norm and moderation effects", *Information & Management,* Vol. 44, No 1, pp. 90-103.

Srinivasan, R., Lilien, G.L. & Rangaswamy, A. (2006) "The Emergence of Dominant Designs", *Journal of Marketing,* Vol. 70, pp.1-17.

Strategy Analytics, (2014) " Android Captures Record 85% Share of Global Smartphone Shipments in Q2 2014", Online. Available at: http://www.strategyanalytics.com/default.aspx?mod=reportabstractviewer&a0=9921 [6.11.2014]

Straub Jr., D.W. & Burton-Jones, A. (2007) "Veni, Vidi, Vici: Breaking the TAM Logjam", *Journal of the Association for Information Systems,* Vol. 8, No. 4, pp. 223-229.

TechInAsia (2014), "10 alternative Android app stores in China", Online. Available at: http://www.techinasia.com/10-android-app-stores-china-2014-edition/

Thong, J.Y.L., Hong, S.J. & Tam, K.Y. (2006) "The Effects of Post-Adoption Beliefs on the Expectation-Confirmation Model for Information Technology Continuance", *International Journal of Human-Computer Studies,* Vol. 64, No. 9, pp. 799-810.

Tilson, D., Sørensen, C. & Lyytinen, K. (2012) "Changes and Control Paradoxes in Mobile Infrastructure Innovation", available at: http://www.computer.org/csdl/proceedings/icmb/2011/4434/00/4434a026-abs.html [27.10.2014]

Tuunainen, V.K., Bastek, M. & Tuunanen, T. (2009) "A model for ICT Intensive Service Innovations in two-sided markets – Case Study of IPTV in a National TV Broadcasting Company".

Tuunainen, V.K., Tuunanen, T & Piispanen, J. (2011) "Mobile Service Platforms; Comparing Nokia OVI and Apple App Store with the IISIn model", Peresented at ICMB, The 10th International Conference on Mobile Business, 2012, Italy

Tuunainen, V.K. & Tuunanen, T. (2011) "IISIn - A model for analyzing ICT Intensive Service Innovations in Many-sided Markets", HICSS2011, Kauai, HI, USA, January 4-7, 2011.

Tuunainen, V.K., Tuunanen, T. & Fui-Hoon Nah, F. (2012a) "(Hidden) Social Influences in Switching Mobile Service Platforms", Unpublished paper presented at International Conference on Electronic Commerce 2012, Singapore.

Tuunainen, V.K., Tuunanen, T. & Fui-Hoon Nah, F. (2012b) "(Mobile Customer´s Switching Behavior: Comparative Importance of Social Factors and Device Characteristics in Lead and Lag Environments", Unpublished paper presented at the pre-ICIS 2012 SIG Services Workshop 20912, Orlando, FL.

van der Hejden, H. (2004) "User Acceptance of Hedonic Information Systems", *MIS Quarterly,* Vol. 28, No. 4, pp. 695-704.

Venkatesh, V., Morris, M.G., Davis, G.B. & Davis, F.D., (2003) User Acceptance of Information Technology: Toward a Unified View. *MIS Quarterly,* Vol. 27, No. 3, pp. 425-478.

Venkatesh, V., Thong, J.Y.L. & Xu, X. (2012) "Consumer Acceptance and Use of Information Technology: Extending the Unified Theory of Acceptance and Use of Technology", *MIS Quarterly,* Vol. 36, No. 1, pp.157-178.

Wolpert, J (1965) "Behavioral Aspects of the Decision to Migrate", *Papers of the Regional Science Association,* No. 15, pp. 159-169.

Ye. C., (2009) "Post-Adoption Switching of Personal Information Technologies: A Push-Pull-Mooring-Habit Model", Doctoral Dissertation, University of Illinois at Chicago, IL, available at: http://search.proquest.com/docview/305115093

Zhang, K.Z.K., Cheung, C.M.K., Lee, M.K.O. & Chen, H. (2008) "Understanding the Blog Service Switching in Hong Kong: An Empirical Investigation", Proceedings of the 41st Hawaii International Conference of System Sciences – 2008

Appendix

Questionnaire on SWITCHING mobile phones and mobile service platforms

About yourself:

1. What is your gender (female/male):
2. When were you born (year):
3. When did you start your University studies (degree program and year):
4. In addition to studying, do you also work (fulltime, halftime or occasionally)? If yes, proceed to answer (a) and (b) below. If no, proceed to #5.
   (a) What is the average number of hours you work per week?
   (b) Do you use a mobile device in your **work**?

About your digital devices:

5. Mark year of acquisition all the digital devices you're currently using (If you are not sure about the year of acquisition, please give an approximate):
   - Tabletop computer
   - Laptop computer
   - Tablet computer (e.g. iPad, Galaxy)
   - Mp3 player (separate from mobile phone)
   - Gaming device (Portable or gaming console separate from mobile phone)
   - Navigation, i.e. GPS, device (separate from mobile phone)
   - Camera (separate from mobile phone)
   - Other(s), what?

6. **What is/are your current mobile/smart phone(s)?** Please list in the table below all phones you currently have, as well as details about the ownership of the devices, who pays the phone bill, and whether you use the given phone for business or personal purposes (if both, please indicate main usage):

   Phone brand? (E.g. Apple, Samsung, Nokia…)

   Phone model? (E.g. iPhone 4GS, Galaxy II S, 3210...)

   Smart phone/mobile phone?

   Who owns the phone?

   Who pays the bill?

   Personal/business use?

   What do you like about this phone? Explain in your own words.

   What do you dislike about this phone? Explain in your own words.

What was/were the main reason(s) for you to select this specific phone model? Explain in your own words.

Switching your mobile/smart phone

Switching in the Past:

7. **What is/are your previous mobile/smart phone(s) prior to your most recent switch?** Please list in the table below all phones you had prior to the latest switch, as well as details about the ownership of the devices, who pays the phone bill, and whether you use the given phone for business or personal purposes (if both, please indicate main usage):

   Phone brand? (E.g. Apple, Samsung, Nokia…)
   Phone model? (E.g. Iphone 4GS, Galaxy II S, 3210...)
   Smart phone/mobile phone?
   Who owned the phone?
   Who paid the bill?
   Personal/business use?
   What did you like about this phone? Explain in your own words.
   What did you dislike about this phone? Explain in your own words.
   What was/were the main reason(s) for you to select this specific phone model? Explain in your own words.
   What was/were the main reason(s) for you to switch this phone for another phone? Explain in your own words.

8. **Explain** in your own words, what was the **situation** and what were the **reasons** for the switch from your previous phone to your current phone? (*Be as complete and thorough as possible*)
9. **When** did you last switch a mobile/smart phone (month/year)?
10. **How many** mobile phones and smart phones you have had altogether? *(If you don't remember exactly, give an estimate)*
    - Mobile phones (not smart phones):
    - Smart phones:
    - Total amount of mobile phones and smart phones owned:

Switching in the Future:

11. Are you **planning to get a new mobile/smart phone?**

    If **no**, please continue to the questions 13 and 14. If **yes**, please answer also the table below:

    Phone brand? (E.g. Apple, Samsung, Nokia…)
    Phone model? (E.g. Iphone 4GS, Galaxy II S, 3210...)
    Smart phone/mobile phone?
    Who will own the phone?
    Who will pay the bill?
    Personal/business use?
    What are the qualities that want you to acquire it? Explain in your own words.
    What are the qualities that make you doubt of acquiring it? Explain in your own words.
    What was/were the main reason(s) for you switch from your current phone to this particular model? Explain in your own words.

12. Approximately when do you intend to make the switch (month/year):
13. **Explain** in your own words, what kind of **situation** you would change your current phone and what would then be the **main reasons** for the switch? (*Be as complete and thorough as possible.*)
14. What kind of **features, applications or technologies** you would like to have in your phone in the future?

Mobile phone service provider (Telecom operator)

15. Was the purchase of your new phone **bundled with a Telecom operator** contract, (i.e. did you have to buy the Telecom contract together with your phone)?
    - If **yes**, which Telecom operator?
16. Do you have cell phone provider or are you using pre-paid? I have a provider.
    - If you do not have a cell phone service provider, what are the factors that will cause you to do business with or become a customer of a cell phone service provider?
17. Have you switched from another cell phone service provider in the past or is your current provider your first cell phone service provider?
    - If the former (i.e., you had a previous cell phone service provider), what were the various factors that caused you to switch to the current provider (be as complete in your answer as possible)?
    - If the latter (i.e., your current provider is your first cell phone service provider), what are the factors that would cause you to switch to another cell phone service provider (be as complete in your answer as possible)?

Mobile service platform

18. Which service platform do you use to get the apps for your phone (e.g. AppStore, Ovi, Android Market)?
    - What **kinds** of apps have you downloaded?
    - Where do you get **information or ideas** for apps to download?
    - What is the percentage of **free** apps among those you have downloaded?
    - What is the **average amount (€)** you spend on apps monthly?

Challenges in switching the phone

19. What were the major challenges you experienced when switching from your old phone to the new one, related to
    - the use of the new **device**?
    - the use of the **service platform?**
    - the use of **services and apps?**

20. How long did it take for you to **FULLY switch**, including transfer of all data, getting the apps, learning to use, being comfortable with the new device and platform?

Importance of different factors in switching the phone

On a scale of 1 to 5 where 1 means 'not at all' and 5 means 'to a very large extent',

1	2	3	4	5
Not at all	To a small extent	To a moderate extent	To a large extent	**To a very large extent**

21. **How important** (1-5) is each of the following factors for you to switch phone or in the selection of the new device?

- Number of **apps** available
- **Functionality** upgrade/improvement (e.g. from non-smart to smart phone, or smartphone with more functionalities)
- The **extent of customizability** of the phone (how much you are able to personalize your phone)
- **Ease of use** / user-friendliness
- How the phone **looks like** (aesthetically)
- **Shape and/or size** of the Phone
- Can be **synchronized**/interfaced (manually or automatically) with my other devices
- A new version of the **brand** I'm used to became available.
- All my **friends or my significant other(s)** have a phone like this
- **Opinion(s) of others, e.g. friends or family** (others expect me to have a particular phone)
- Being in the forefront of development and always having the **latest gadgets**
- A good **deal** / promotion (price of the new device)
- A good **bundle of a device and a Telecom operator contract**
- Problems with **telecom** provider (e.g. technical, customer service,…)
- Problems with **device** vendor (e.g. technical, customer service,…)
- I got the new phone as a **gift** *or* from my **company**
- Other reason(s), please **explain** and rate its/their importance?