

EVALUATING THE MARKET POTENTIAL AND EXPECTED CONSUMER ACCEPTANCE
OF MOBILE VIRTUAL NETWORK OPERATORS
FOR THE TURKISH MARKET

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Thesis Abstract

Selen Özgür, “Evaluating the Market Potential and Expected Consumer Acceptance of Mobile Virtual Network Operators for the Turkish Market”

With the developments in technology, mobile telecommunications sector became one of the most successful industries that marked the last twenty years. While mobile phones became an inseparable part of consumers’ daily lives, mobile communication sector became influencing for all of the consumers as well. As the interests for the mobile communications sector increased and the mobile market matured, a new business model emerged: Mobile Virtual Network Operators (MVNOs), hiring services and radio spectrum from the mobile operators and reselling to the consumers. The purpose of this thesis study is to evaluate the consumer behavior towards this model, in Turkey.

The data; gathered from 280 participants with the purpose of evaluation of consumer acceptance towards MVNOs; has been run through descriptive, reliability, cluster, factor, ANOVA, independent T test, and correlation tests, in order to test the hypotheses and reach findings.

According to results, consumers have positive disposition towards MVNOs. In terms of services to be offered, whether mobile service or extra service, consumers are more interested in discount services.

TEZ ÖZETİ

Selen Özgür, “Türkiye’de Mobil Sanal Ağ Operatörleri için Pazar Potansiyeli ve Potansiyel Sanal Ağ Operatörleri ile ilgili Tüketici Tutumlarının ve Kabullerinin İncelenmesi”

Gelişen teknolojilerle birlikte mobil iletişim son yirmi yıla damgasını vuran bir sektör olmuştur. Mobil telefon, tüm tüketicilerin günlük hayatının vazgeçilmez bir parçası olurken, mobil iletişim endüstrisi de tüketicileri etkileyen bir sektör haline gelmiştir. Tüm tüketicilere ulaşabilen bir pazara sadece telekomunikasyon sektörünün değil, diğer tüm sektörlerin de ilgisi artmış ve pazarın da olgunlaşmasıyla birlikte mevcut operatörlerin hizmetlerini kiralayarak mobil servis hizmeti veren yeni bir iş modeli ortaya çıkmıştır: Mobil Sanal Ağ Operatörleri. Mobil Sanal Ağ Operatörleri, mevcut GSM operatörlerinden servisleri ve radio frekansını kiralayarak müşterilere yeniden pazarlayan bir iş modelidir. Mobil Sanal Ağ Operatörleri’ne Türkiye’de tüketicilerin tutumunun incelenmesi bu tezin ana amacıdır.

280 kişinin katılımıyla tüketicilerin potansiyel mobil sanal ağ operatörlerine karşı tutumunun incelenmesi için derlenen veri; tanımlayıcı, güvenilirlik, kümeleme, faktör, ANOVA, bağımsız T-testi ve korelasyon analizleri ile hipotezleri test etmek ve sonuçlara ulaşmak amacıyla kullanılmıştır.

Analiz sonuçlarına göre tüketiciler mobil sanal ağ operatörlerine olumlu bakmaktadırlar. Mobil sanal ağ operatörlerinin servislerden beklentileri ise, mobil servisler ve ekstra servislerde indirim yönündedir.

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ABBREVIATIONS

GSM	Global System for Mobile Communications
HLR	Home Location Register
MMS	Multimedia Messaging Service
MNC	Mobile Network Code
MNO	Mobile Network Operator
MVNA	Mobile Virtual Network Aggregator
MVNE	Mobile Virtual Network Enabler
MVNO	Mobile Virtual Network Operator
MSC	Mobile Switching Center
NRA	National Regulatory Authority
OECD	Organization for Economic Co-operation and Development
ISP	Internet Service Provider
SMS	Standard Messaging Service
SP	Service Provide

CHAPTER 1

INTRODUCTION

The importance of information sharing and communication is increasing and the nature of communication has been changing due to technological developments and market changes. Since the first GSM call in 1991, the mobile telecommunications market had an unprecedented growth in the last two decades. As the market matured, number of players in the mobile communication market, Mobile Network Operators (MNOs) increased. In order to function as a mobile operator, a company has to be granted with mobile communication license and needs to have allocated frequencies. As there are a lot of companies who want to be mobile operators whereas there are limited licenses to grant, and huge cost of infrastructure costs of mobile networks; new players as mobile operators without licenses, Mobile Virtual Network Operators, MVNOs, have found a place in the market.

MVNOs provide mobile voice and data services to end-users through commercial agreements with licensed mobile network operators. During the last decade, first European mobile communication market and the other markets witnessed the emergence of these new players.

Since 1999, with the launch of Virgin Mobile in UK, MVNOs became a popular model especially for the Western Europe mobile communication sector. Nowadays, MVNOs are not only in Western Europe or the US but penetrating rapidly all over the world. According to Informa (2009), there are 550 MVNOs and 85 million subscribers.

There are various MVNOs with different target consumer groups and market

strategies. These MVNOs, which became successful, created niches in terms of service, content and consumer groups.

In Turkey, mobile communications started in 1994 with Turkcell. As of 2011, there are three GSM operators in the market, Turkcell, Vodafone and Avea and an active MVNO, TTNET Mobile. Regulations in terms of licensing are completed; however, firms are waiting for the revenue tax regulations related to MVNOs. When the tax regulations are completed, MVNOs are expected to join the market in Turkey. Also, as start-ups for the MVNOs, there are four active pre-MVNO firms, which are functioning with revenue sharing agreements with the Mobile Network Operator, AVEA. These are: Galatasaray Mobile, Fenercell, Trabzoncell and Kartalcell. The future of the potential MVNOs in Turkey will be based mostly on the firms' identification of their target markets and marketing and positioning strategies.

This thesis study examines the market potential for Mobile Virtual Network Operators (MVNOs) and the expected consumer acceptance for this business model in the Turkish market. The major research questions handled in this study are:

- Do demographic factors affect consumer level of acceptance?
- Do mobile phone usage characteristics affect consumer level of acceptance?
- Does consumers' satisfaction from current GSM operator affect consumer level of acceptance?
- Can consumers be grouped in terms of mobile service usage characteristics?

- Do GSM operators' performance factors perceived by consumers affect consumer level of acceptance of MVNOs?

In light of these research questions, the most important contribution of this study is to provide a preliminary market analysis for an emerging service through understanding expected consumer acceptance toward it. From an academic perspective, it will contribute to the literature as an addition to the large set of studies examining consumer acceptance of various technological developments. Additionally, it can serve as an initial guideline for businesses that want to enter this market.

The study begins with a review of the current literature about the topic encompassing definitions of MVNOs, understanding types of MVNOs and value chain players in the MVNO market, studying the evolution of MVNOs and diffusion of MVNOs in the global market. Consequently, a theoretical model delineating a set of independent variables that might influence consumer potential to adopt MVNOs is proposed. The hypotheses emerging from the model are tested with the data collected from 280 individuals in Turkey, representing mostly the young and early adult segment of the population, which is a suitable group to study for this emerging business model. An online questionnaire has been used as the data collection tool and data analysis has been done including descriptive, correlation, cluster analyses, factor, ANOVA, and t-tests analyses to test the hypotheses. SPSS 18.0 statistical analysis software has been used for this purpose.

The outcomes of these analyses have shown the MVNO firms, extra services and switching factors which the consumers are eager to try. By finding significant

differentiations according to changes in consumer groups, targets and potential strategies of MVNOs for the Turkish market were found.

This thesis is composed of following chapters: Chapter 1 includes an overview of the study. Chapter 2 reviews the literature on MVNOs. Chapter 3 introduces the model and hypotheses of the study. Chapter 4 includes the research methodology of the study. Chapter 5 presents the findings and the results of the study. Finally, Chapter 6 includes discussions about the findings, implications of the study, limitations of the research, and guidelines for future studies.

CHAPTER 2

LITERATURE REVIEW

Since the emergence of MVNOs is a relatively novel phenomenon, most of the literature about this topic is about converging around a common definition, understanding types of MVNOs and value chain players in the MVNO market, studying the evolution of MVNOs and diffusion of MVNOs in the global market. This part of the thesis examines these subtitles in detail.

An MVNO is a business model that allows the companies from different industrial backgrounds to function in the mobile communications market. Any company, brand, institution, or person can be an MVNO by renting the necessary bandwidth from the network operators. In the mobile communications market, MVNOs should be able to provide added value to the existing offers in the market in order to attract consumers as well as to attract the MNOs in order to have the most possible agreement (Dahlen, Troneng, Deilkas, & Lag, 2001).

Definition of MVNO

There are many alternative definitions of MVNOs according to regulatory agencies. International Telecommunication Union, ITU (2001) defines an MVNO as a “service provider that provides the mobile service to the user without its own frequency and government-issued license.” Telecommunications Regulatory Agency in UK, Oftel (1999), defines an MVNO as “an organization which provides mobile telephony services to its customers, but does not have an allocation of spectrum.” The Japanese Regulatory Agency, MIAC (2002) defines an MVNO as “a telecommunication service provider that

provides the mobile communication service of the telecommunication service (including wholesale telecommunication service) provided by an MNO, but does not directly install the wireless station for the corresponding mobile communication service.” Office of the Telecommunications Authority in Hong Kong, OFTA (2001), defines an MVNO as “providing mobile communication service to customers through interconnection with the MNO’s wireless communication infrastructure.” Malaysian Communications & Multimedia Commission, MCMC (2005) defines an MVNO as “an organization that does not have assignment of 3G spectrum but is capable of providing public cellular services to end users by accessing radio networks of one or more 3G spectrum holders.” As seen from the list, definitions of MVNOs vary slightly from market to market because of differences in the scope of MVNO operations and dependency on MNOs to perform.

Compiling all of the above definitions, an MVNO can briefly be defined as a company that provides mobile communication services to customers by purchasing capacity or wholesale minutes from an MNO and selling under its own brand but does not have its own spectrum license and (usually) its own infrastructure (Dahlen et al., 2001; Ofcom, 2006; Haucap, 2006). Thus, MVNOs are much more than resellers of mobile services. Although MVNOs resell mobile services, they are distinguished from mere resellers by their brand appeals, and the services they provide within their original industry sectors for their mobile communication service customers.

According to Lillehagen et al. (2001), an MVNO is like an MNO, functioning with the same interfaces towards the customers, from a customer point of view. MVNOs need to consider which services to provide, which facilities to run and outsource, and what kind

of agreements it should seek with the partners in order to become attractive to the consumers.

Types of MVNOs

There are various categorizations of MVNOs in the literature.

MVNOs can be grouped into three types according to the regulatory definitions (Kim & Seol, 2007):

- Service Provider (SP) MVNOs: SP-MVNO provides mobile services with the host network operators' network equipment. Service Provider MVNOs are grouped into two: Tied Service Provider MVNO (TSP-MVNO) and Independent Service Provider MVNO (ISP-MVNO). ISP-MVNOs differ from TSPs in terms of having right to select network and sell at a differentiated price.
- Lite MVNOs: Lite MVNOs or Enhanced Service Provider MVNOs (ESP-MVNOs) partly or entirely depend on host network operators for the voice services; however they can also provide their own services additionally.
- Full MVNOs: Full MVNOs are independent in pricing policies; use their own brands, infrastructure and SIM cards.

MVNOs can be grouped into four types depending on the integration of MVNOs in the value chain (Kumar & Sagar, 2010):

- Branded Resellers: Branded Resellers are generally companies with high brand reputation which buy capacity from MNOs and sell to the customers via their own strategies and distribution channels. They may or may not provide customer care.

- Service Providers: Service Providers do not own any network elements, but provide billing, pricing, sales, marketing, and customer care.
- Enhanced Service Providers: Enhanced Service Providers offer the services which service providers offer, and VASs with their intelligent networks and application platforms.
- Full MVNOs: Full MVNOs provide all services of mobile operators, except access network.

Figure 1 shows the MVNO types according to the integration to the mobile value chain:

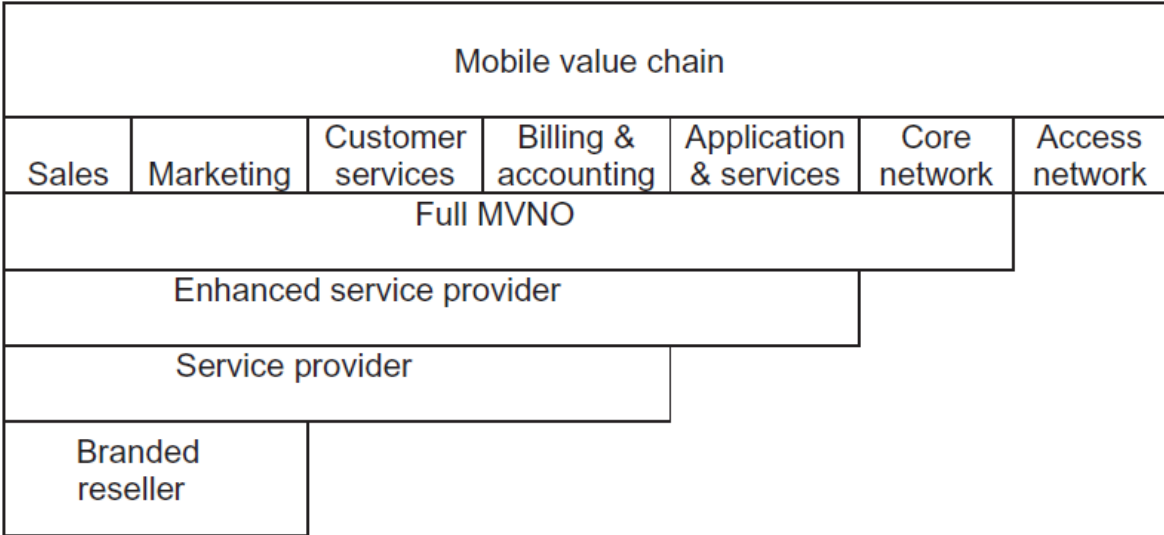


Figure 1- MVNO Categorization with respect to Value Chain (Kumar & Sagar, 2010).

MVNOs are grouped into three depending on where the company launching MVNO originates from (Lillehagen et al., 2001):

- Retailers: Retailers are the companies which enter the mobile industry from industries which are irrelevant to mobile communication industries. These companies can perform sales, distribution, billing, and customer management.

- Expanders: Expanders create new markets and niches in two ways: fixed network operator becoming mobile, or network operator expanding to a new geographical region.
- Integrators: An Integrator can be an application provider or internet portal provider which enters other layers to value network in order to have better grip on customer, enlarge market, increase the total value to customers, or seek new opportunities in new layers/markets.

MVNOs are grouped into two groups depending on the original business of the industry the companies stem from (Shin & Bartolacci, 2007):

- Operator-centric: Operator-centric companies are telecom based companies, thus have telecom corporate culture. These companies gain profit with only mobile services.
- Enterprise-centric: Enterprise-centric companies originate from industries different from telecom, thus have different corporate culture. These companies use MVNOs as an extra distribution channel for their brands and products.

Evolution of MVNOs

The first MVNO started in US in 1996 with TracFone Wireless (Takashi Mobile, 2006 c.f. Banerjee & Dippon, 2009). However, the MVNO phenomena started with the first successful MVNO, Virgin Mobile in UK. Virgin Mobile was established as a 50:50 joint-venture company between Virgin Group and Deutsche Telekom's One-2-One as the first MVNO in UK. With nearly 300,000 subscribers in the first seven months, Virgin Mobile became a success story with the fast and early profit of a start-up. Virgin Mobile is now operating not only in UK but also in Australia, France, India, Qatar,

South Africa, and the US. Since 1999, with the launch of Virgin Mobile in UK, MVNOs became a popular model especially for the Western Europe mobile communication sector. Nowadays, MVNOs are not only in Western Europe or the US but all over the world. According to Informa (2009), there were 550 MVNOs and 85 millions of subscribers globally. Since the launch of Virgin Mobile MVNOs emerged in the mobile communications market in three waves (Sekino et al., 2006).

- First Wave: In the first phase, MVNOs have chosen the “build-your-own” approach to overcome their inexperience and get over the entry barriers in mobile communications market. Most of the MVNOs in the first phase had 50-50 joint-ventures with existing mobile operators.
- Second Wave: In this phase, a new business model emerged: Mobile Virtual Network Enablers (MVNEs). MVNEs enable MVNOs to offer services by providing to required infrastructure and related services with no access to end-user customers (Shin & Bartolacci, 2007). MVNOs launching after 2005 had the advantage of partnering with an MVNE. All the operations like network element provisioning, administration, operational support systems are handled by MVNEs, while branding and marketing of the services were performed by the MVNOs (Shin & Bartolacci, 2007). MVNEs had a crucial role in launching mobile services; however, they did not contribute to the higher levels like offer management and handset configurations in mobile service value chain or did not take role in commercial agreements with the MNOs. An example of this wave is the MTV (music television). MTV became an MVNO with the help of an MVNE.

- Third Wave: As the MVNEs did not take role in the higher levels of mobile market value chain, a new role emerged in order to handle the gaps, the MVNEs did not handle: Mobile Virtual Network Aggregators (MVNAs). While MVNEs handles operations, but not the branding, marketing, or the negotiations with the MNOs; the MVNAs will handle all of the requirements. With the usage of MVNAs, just the investment will be enough to launch the brands as MVNOs.

Sekino et al. (2006) also predicts the following firms, business categories, organizations, people, etc. are the candidates of the potential MVNOs in the third wave (Table 1).

Table 1- Potential Private Label MVNOs (Sekino et al., 2006)

Universities	Consumer Financial Services	Catalog and Mail Order
Ethnic Brands	Magazines and Newspapers	Broadcasting & Cable TV
Online Brands	Recreational Products/Activities	Sports Teams/Leagues
Religion	Gaming Equipment and Software	Casinos and Gambling
Enterprise	Professional Associations	Investment Services
Personalities	Causes & Advocacy Groups	Cable TV Channels
Celebrities	Small Wireline and Cable Operators	Motion Pictures
Hotels	Auto and Truck Manufacturers	Restaurant Chains
Airlines	Music Labels and Aggregators	Luxury Brands
Retail		

MVNO Value Chain

Telecom value chain used to be comprised of mobile network operators, service providers, application providers, and content providers, before the MVNOs entered the market (Shin & Bartolacci, 2007). The relationships between MVNOs and the other players in the mobile market is shown in Figure 2 below.

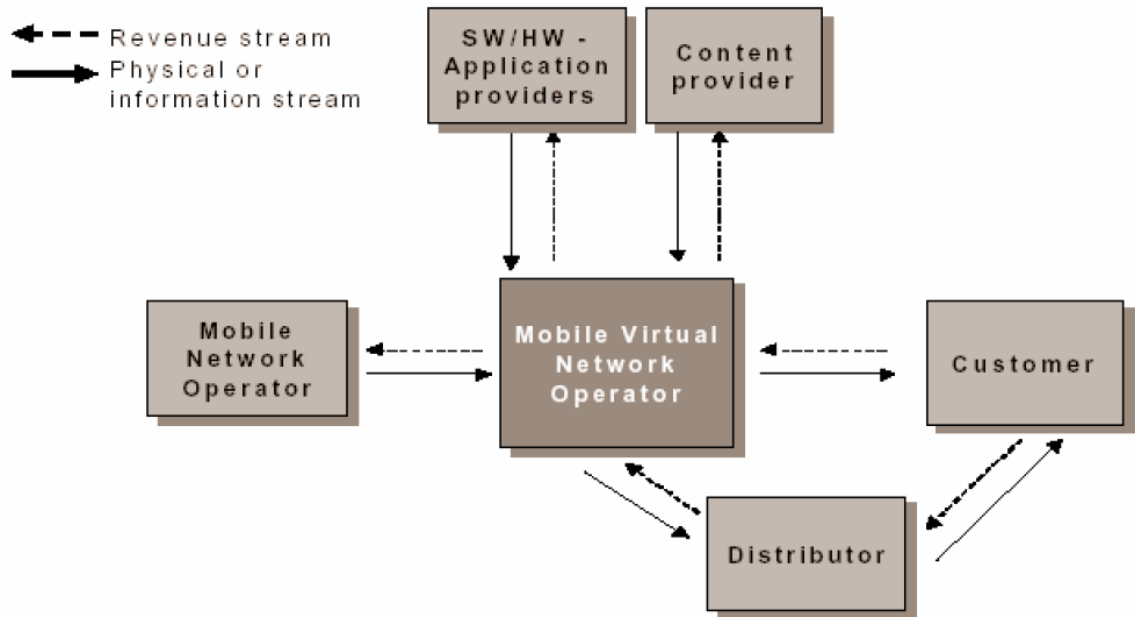


Figure 2- MVNO and the value chain (Sirat et al., 2008)

In order to analyze the attractiveness of the industry, Porters's five forces was examined as a standard approach in an analysis of MVNO business model (Lillihagen et al., 2001; Sirat et al., 2008). Michael Porter's framework consists of five forces influencing the industry: potential entrants, buyers, suppliers, substitutes, and existing competitors. Lillihagen et al. (2001) adds a new dimension, complementing the Porter model. When the customer values your product more than the other player's product, the player becomes a complement; when the opposite happens, the player becomes a competitor.

After the entrance of MVNOs in the market, a new role emerged for application aggregators who are in the ecosystem of the mobile markets and have close relationships with content and application providers, MVNEs, in the value chain (Shin & Bartolacci, 2007). Also, depending on the country, market, or the market various types of MVNO

players emerged. Differences between MVNO types such as lite-full or SP-ESP are based on the ownership of elements in the mobile communication value chain. Value chain for mobile operators consists of mainly: sales, marketing, customer services, billing, operation of the core network and operation of the access network (Kumar & Sagar, 2010). The relationship between MVNOs and MNOs vary by country, market, and the companies. The general relationship between the MNOs and MVNOs is given in terms of telecommunications services in the mobile market value chain in Figure 3 below:

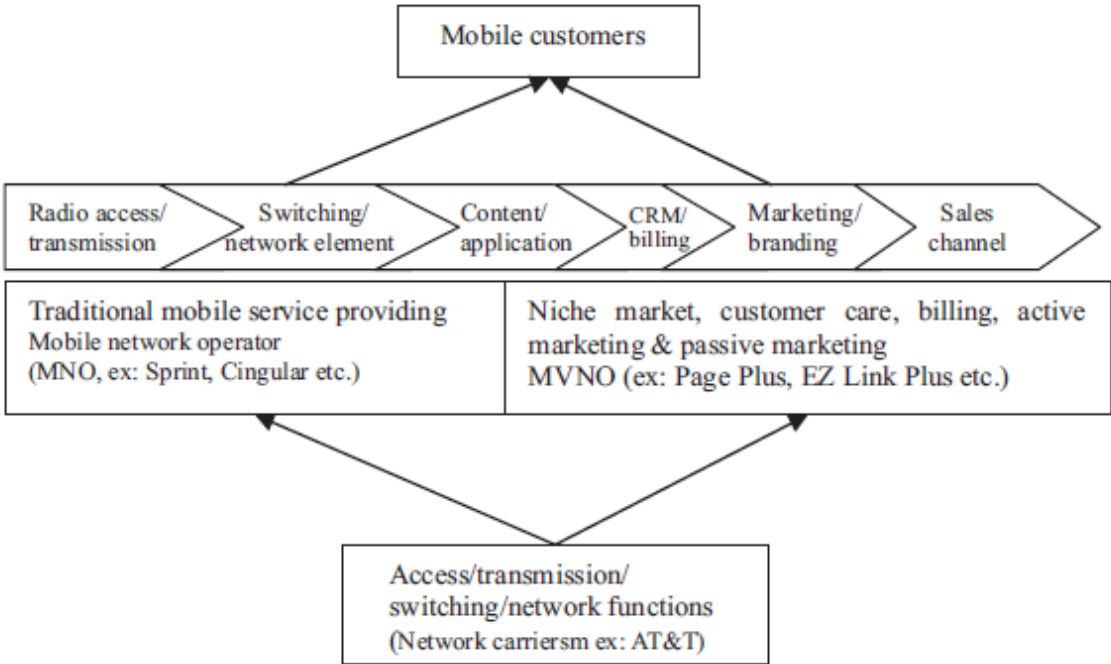


Figure 3- MVNO, MNO, and customers (Shin, 2010)

The Global MVNO Market and Diffusion of MVNOs

Mobile penetration rate has been increasing globally. The statistics of ITU (2010) reflect that, number of mobile subscribers went beyond five millions with a penetration rate of 116% in developed countries in 2010. As the mobile communication sector has been developing, the MVNO business sector is also growing. Increased number of MVNOs launched in recent years (Shin, 2010). Since the launch of Virgin Mobile in UK, MVNOs started to enter the telecommunication markets, starting with OECD countries. While MVNOs became successful in the US and Western Europe, the model has turned out to be a failure and not so competitive in some markets (Shin, 2010). Virgin Mobile in Singapore was an example of failure stories. Although Virgin Mobile is functioning globally in countries like US, France, South Africa or Australia, it had to shut down the operations in Singapore.

Lee et al. (2008) stated that there are four types of MVNO adoption policies in the EU: full adoption (Denmark, Netherlands, Norway, Sweden, and UK), partial adoption (Germany, Spain, Swiss), partial prohibition (Belgium, Portugal, France), and full prohibition (Italy).

Table 2 shows the status of MVNOs in selected developed countries in terms of number of MNOs, MVNOs and the ratio of MVNOs to MNOs.

Table 2- Status of MVNOs and MNOs in Selected OECD Countries as of 2007 (Lee et al., 2008)

Country	No. of MVNOs	No. of MNOs	Ratio of MVNOs to MNOs
United States	69	12	5.75:1
Germany	20	4	5:1
United Kingdom	19	5	3.8:1
France	18	3	6:1
Belgium	18	3	6:1
Netherlands	17	6	2.83:1
Norway	13	3	4.33:1
Poland	12	3	4:1
Ireland	11	4	2.75:1
Canada	8	6	1.33:1
Spain	7	3	2.33:1
Finland	7	4	1.75:1
Australia	7	5	1.4:1
Austria	7	5	1.4:1
Sweden	6	5	1.2:1
Portugal	5	4	1.25:1
Denmark	4	4	1:1
Italy	4	5	0.8:1
Japan	4	5	0.8:1
Czech Republic	3	3	1:1
Luxembourg	2	2	1:1
Switzerland	2	3	0.66:1

Banerjee & Dippon (2009) claim that there are common characteristics in the mobile communications sectors of many countries such as US and EU countries. These are: “multiple competitors, little or no advantage of incumbency, little or no (asymmetric) regulation, allocation of a critical resource (radio spectrum) through competitive bidding and auctions, provision of broadband and converged services, high or rapidly rising market penetration rates, emerging mode of choice for pursuing the goal of universal access, termination access monopoly in countries with calling-party-pays regimes, and ubiquitous fixed-to-mobile and mobile-to-mobile interconnection and domestic and international roaming agreements.” (Banerjee & Dippon, 2009)

Since US and Western European countries were among the first countries to witness the emergence of MVNOs, in order to examine the MVNO market, the countries should be examined separately.

- US: Tracfone was the first MVNO (Takashi Mobile, 2006, c.f. Banerjee & Dippon, 2009). It started offering simple prepaid service which was accepted in the market by budget-conscious people (Kumar & Sagar, 2010). With increased competition and introduction of MNP (Mobile Number Portability) in 2003, MNOs tried to differentiate themselves with niche market segments, so they turned to the MVNO concept. Music lovers (Virgin US), sports fans, children (Firefly), youth, rich segments were examples of the targeted segments. Cable providers, retailers, private investors, fixed operators, foreign operators, leading media companies are examples of different originating industries which MVNOs launched from (Sekino et al., 2006). As the market was competitive, FCC did not need to regulate the market. From March 2004 to March 2005 the greatest

increase with 67% in MVNO subscribers occurred in the market (Lee et al., 2008). It is expected that the US MVNO market will generate \$22.7 billion in revenue by 2011 (Shin, 2010).

- UK: In UK, MNOs had equal share of MVNOs as well as nearly equal shares in the mobile market. Niche segments with pre-paid and post-paid markets were popular. Virgin entered the market targeting young people in 1999, and reached a market share of 6% by the beginning of 2006 (Kumar & Sagar, 2010).
- Denmark: As there was significant market power in the market, MVNOs were mandated by the regulators to induce the competition in 2000. In this market, generally MVNOs pursued a low price strategy, which resulted in 50% fall in prices in 2003. In 2006, MVNO (Tele2, Telmore, Debitel, CBB Mobil and DLG Tele) subscriber rate was 26.8%, before some of them were acquired by MNOs (Kumar & Sagar, 2010).
- Norway: Due to having significant market power in the market, wholesale agreements with MVNOs were mandated in 2003. Chess and Tele2 gained significant market share, but later they were also acquired by MNOs (Kumar & Sagar, 2010).
- Finland: Like other Scandinavian countries, existence of significant market power lead to the emergence of MVNOs (Kumar & Sagar, 2010).
- Japan: Guidelines were given in 2002 but there were no MVNO-MNO agreements. After it was stated that MNOs should negotiate with potential MVNOs in 2007, Jupiter Communication and JCI (cable TV operator) emerged in the market (Kumar & Sagar, 2010).

- Turkey: In Turkey, mobile communications started in 1994 with Turkcell. Turkish Information and Communication Technologies Authority defined MVNOs with the requirements in 2009. Today, there are three GSM operators in the market, Turkcell, Vodafone and Avea and an active MVNO, TTNET Mobile. Regulations in terms of licensing are completed, however firms are waiting for the revenue tax regulations on the MVNOs. There are 30 firms with licenses as of date. When the tax regulations are completed, MVNOs are being waited to join the market in Turkey. Also, as start-ups for the MVNOs, there are four active pre-MVNO firms, which are functioning with revenue sharing agreements with the Mobile Network Operator, AVEA. These are: Galatasaray Mobile, Fenercell, Trabzoncell and Kartalcell.

Factors Influencing the Diffusion of MVNOs

According to Shin & Bartolacci (2007), MVNO diffusion is related to market maturity and industry structure. Lee et al. (2008) defines four exogenous factors that might influence the diffusion of MVNOs in the global market. These are: industry, regulation, technology, and consumer factors.

Industry Factor

According to Lee et al. (2008), competition level, market saturation, mobile penetration rate, and existing MNOs are the factors that influence the diffusion of MVNOs.

Mobile data service industry in the European market is horizontally integrated and has a market-driven structure with modular product architecture; whereas Asian countries are vertically integrated with an integrated product structure (Shin &

Bartolacci, 2007). According to the industry forecasts, MVNOs are predicted to be turning out to be more fragmented due to the power of brands and distribution and emergence of new aggregators which favor emergence of niche markets targeting small communities (Shin 2010).

Regulation Factor

Regulators do not impose on MNOs when the market is already competitive. Regulators try to induce competition via mobile number portability (MNP), price regulation of interconnection and regulation fees or supporting the entrance of MVNOs in the market. Besides, in most countries, MVNOs need a license to enter the market (Lee et al., 2008). In Denmark, Finland, and Sweden regulators commanded the emergence of MVNOs due to significant market power. In Hong Kong, regulation mandating was done only for 3G services (Kumar & Sagar, 2010). It is obvious that the Scandinavian mobile communication market, where regulatory bodies mandated MVNOs, hosted the rapid increase of MVNOs. From 2003 to 2004, as a result of regulations, there were almost 20 MVNOs in Finland and more than 20 MVNOs in Denmark mobile markets (Kiiski, 2006). In UK, in October 1999, “OfTel Statement on the Mobile Virtual Network Operator” declared that service providers could apply for MVNOs through commercial agreement with an MNO (Kim & Seol, 2007). The European Regulatory Authority’s guidelines for the National Regulatory Authority (NRA) directed to the examination of monopoly in the market periodically. If there was significant market power in the market, necessary moves like MVNOs have to be taken by the NRA to induce competition (Kumar & Sagar, 2010). In 2000, the Danish Regulatory Agency declared, MNOs having market domination power should open roaming and access services to

new MVNO service providers based on cost-plus method (Kim & Seol, 2007). Communication Law in Sweden entitles Swedish Regulatory Agency, PTS, to investigate disputes on domestic roaming or MVNOs. Also, the law states that, service charge should be decided by commercial agreements between the involved parties. Irish Regulatory Agency, ODTR, showed their support on the MVNOs with the introduction of MVNOs in 3G business rights requirements. ODTR declared MVNOs should possess at least one of MSC, HLR, MNC, or SIM card, in 2002. Japan MIAC announced guidelines about MVNO entry procedure, agreement with the MNO, telephone number management, agreement between MVNO and its users with “Guidelines about Application Relation of the Telecommunication Business Law and Radio Wave Law with Regard to MVNOs” in 2002. Ofta (2001) declared in the “Guidelines for applications for a Public Non-Exclusive Telecommunications Service (PNETS) license” that MVNOs with the PNETS license can access to 2G and 3G network service providers with commercial agreements in Hong Kong.

Technology Factor

Since the main service MVNOs should serve is mobile services, the technological infrastructure is already set. Besides, technologies like 3G and WIMAX will create various VASs in addition to existing services. Also, technological improvements will enhance the quality of the services as well as enlarging the coverage areas for the services. The growth of 3G networks and the services to be provided by 3G technologies can create niche markets for the MVNOs (Lee et al., 2008). In addition, Anderson & Williams (2004) predicted that internet models already demonstrated by multimedia services, VoIP and wireless broadband technologies will create fragmentation with the

entrance of new players in the market. Also, Kiiski (2006) stated that 2G/3G laptop data cards or VoIP services over cellular combines with 2G and WLAN/3G will create business opportunities in the future. The potential MVNOs need to consider the technological developments in terms of services to serve while developing their business strategies.

Consumer Factor

Since MVNOs are directly related to end customers, the key strategies of MVNOs should be consumer focused. Lee et al. (2008) stated that, different strategic choices can occur in countries based on consumer demand with culture, age, population, ethnicity, and religion. In addition to these, emotional connection to mobile phones, consumers' perception of cost, function ability, usage simplicity, high-tech multimedia functions are also effecting consumers' perceptions (Lee et al., 2008). Besides, Cadre & Bouhtou (2011) argue that consumer demand is usually simplified in the literature; consumers' preferences or their choice of operators are not included in the studies.

According to Shin (2010), there is hope and enthusiasm for consumer oriented services of MVNOs, as well as fear of unstable mobile services. Although MVNO market strategies are based on consumers, there is no extensive study in literature about consumer preferences, how they are satisfied with current services, or what their expectations of future services are. Shin (2010) tried to answer the questions "How are consumers accepting MVNOs with what factors?" and "How do consumers perceive the MVNO services compared to MNO?" via the modified UTAUT model which tries to explain the "users' intention to use technologies and their usage behavior". Shin's

(2010) study related that “Perceived Usefulness” and “Perceived Ease of Use” turned out to be the main factors affecting consumer intentions towards MVNOs. Also, the study has shown that, social influence is more dominant in terms of individual’s intention to adopt MVNOs compared to the case of MNOs.

In addition, Lillihagen et al. (2001) emphasizes there is no difference between MNOs and MVNOs from the consumers’ point of view according to the definition of MVNOs. Depending on this, in order analyze the effect of the consumer factor on MVNOs, it is reasonable to analyze the consumer factor in the mobile communication market.

Consumer Acceptance of GSM Operators

MVNO services are indistinguishable from the host MNOs when the mobile services are compared, yet MVNOs should serve extra, special opportunities for the consumers while having the same qualified mobile and network services with MNOs.

A successful MNO/MVNO should have a loyal consumer base. Since the mobile communication services are not one-time purchases, consumer loyalty is very important. A study by Brown (2004) shows that acquiring new customers is more difficult and 12 times more expensive than retaining existing consumers (Seo, Ranganathan, & Babad, 2008). Thus, for the success of MVNO businesses, consumer loyalty is vital.

There are various studies about consumer loyalty in literature. Service quality and satisfaction (Lai et al., 2009, c.f. Kim & Lee, 2010) being the key factors, word-of-mouth (Gruen et al., 2006, c.f. Kim & Lee, 2010) having positive effect, emotions involved in services having strong relationship (Chebat and Slusarczyk, 2005; Lee et al.,

2008, c.f. Kim & Lee, 2010) are the variables as candidates for the antecedents of loyalty. In addition, Kim & Lee (2010) states the correlation of high service quality with high customer satisfaction, and high customer satisfaction resulting in high customer loyalty. Besides, studies have shown that, price, customer satisfaction, and loyalty are all interconnected (Hidalgo et al., 2008; Kukar-Kinney, 2006 c.f. Kim & Lee, 2010).

Kim & Lee's (2010) study on consumer loyalty has shown that corporate image, brand awareness, service price, and service are significant antecedents of consumer loyalty; while corporate image is the main factor creating the consumer loyalty in high-tech service markets.

Studies have shown that factors affecting consumer satisfaction in mobile market changes among countries. A study in Germany (Gerpott et al., 2001 c.f. Seo, Ranganathan, & Babad, 2008) resulted in network quality and price being the important factors, but not the customer support; whereas a study in South Korea (Kim et al., 2004 c.f. Seo, Ranganathan, & Babad, 2008) resulted in call quality, VASs, and customer support being important, but not the price, handset, and ease of procedures. Call quality turned out to be the only important factor in both countries in terms of customer satisfaction (Gerpott et al., 2001; Kim et al., 2004 c.f. Seo, Ranganathan, & Babad, 2008). Same studies have also investigated the factors affecting the consumer loyalty. In Germany, service price, mobile number portability, perception of benefits are most important, while Korean consumers put more importance in brand image, perceived service quality, and perception of switching costs. In addition to these, switching costs for French consumers; corporate image, low price, consistent quality for American

consumers were found out to be important factors affecting consumer loyalty (Lee et al., 2001; Lee & Uldago, 1997 c.f. Lai, Griffin, & Babin, 2009).

In Turkey, a comprehensive analysis was performed on the antecedents of customer loyalty by Aydın and Özer (2004). Corporate image, perceived service quality, trust, and switching costs with their scales were analysed in terms of antecedents. The results have shown trust to be the most important factor, while service quality turned out to be necessary but insufficient in terms of loyalty. Also, it was found that corporate image is important, but not significant for loyalty.

A study on university students' perception of mobile operators performance in terms of service quality, long calls, price, promotions/campaigns, creative services, trust on company, company image affecting the choice of mobile operators was conducted in Turkey (Savaşçı & Günay, 2008). According to the importance the students attached to the variables, service quality turned out to be most important factor, while company image turned out to be the least important one. Another study on students' mobile operator choice on Turkey was conducted in 2008 (Dündar & Ecer, 2008). Call rates and coverage area resulted to be the most important, while service quality and line fees turned out to be the least important factors.

MVNO Business Strategies

Porter categorizes business strategies into three groups: cost leadership, differentiation and focus. Cost leadership business strategies have the chance to bring highest revenue when they compete on undifferentiated products. Differentiating strategy resulting in new products and services can bring the MVNOs competitive advantage as well as brand loyalty. MVNOs can choose cost leadership, differentiation strategies, focus strategies to

target niche markets combinations of all to create their business strategies (Lee et al., 2008). When the strategies of the existing MVNOs are compared, it is clear that focus strategy is the most widely used strategy, alone and with the other strategies (Lee et al., 2008).

According to Sirat et al. (2006), MNOs negotiate with MVNOs, since these strategies create win-win situations for both of them: segmentation-driven strategies, network utilization-driven strategies, and product-driven strategies.

While entering the market, MVNOs need to make two strategic choices: level of network infrastructure and level of service differentiation (Smura, Kiiski, and Hammainen, 2007). Level of network infrastructure choice leads to different types of MVNOs like SPs or full MVNOs and determine the place of MVNOs in the value chain. Decision on whether to provide basic mobile services, or target the differentiated services define the target segments of the MVNOs to operate. Figure 4 shows the MVNOs with different strategies of level of infrastructure and service differentiation.

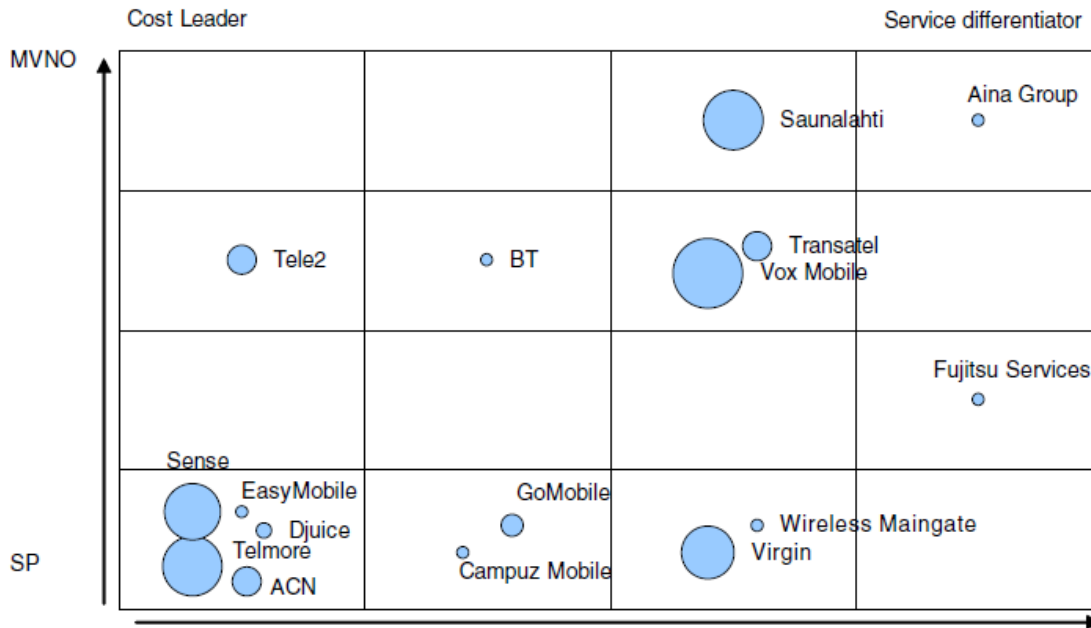


Figure 4- Virtual Operator Strategy Mix (Smura, Kiiski, & Hammainen, 2007)

Kumar & Sagar (2010) defines various strategies used by MVNOs and provides a list of companies utilizing these strategies.

- Discount: MVNOs offer low prices in this strategy. Examples: Tesco Mobile (UK); Tracfone (US)
- Niche: Segmentation strategy is used by MVNOs in order to create niches in the market. Examples: Lyca Mobile (UK); Virgin (US, youth); Firefly (US, children); Fujitsu Services (Finland, IT companies); Trident (Hong Kong, business travellers); ESPN mobile (US, school children); Disney mobile (US, school children)
- Brand extension: Companies from other industries with strong brand values and large customer bases choose this strategy. Examples: Virgin (UK, Australia, France, India, Qatar, South Africa, Canada, US); Carrefour (Spain); Globalia (Spain)

- Portfolio expansion: Fixed line operators, cable operators or ISPs choose this strategy to attract consumers with one bill and multivariate services. Examples: British Telecom (UK, internet provider); Euskaltel (Spain, cable TV provider); JCI (Japan, cable operator)
- Clustering approaches: MNOs use this strategy in order to perform in other geographical areas without any investment in license and network infrastructure. Examples: Lebara Mobile (Spain, originally MNO in UK); Tele2 (Denmark, originally in Sweden); Turkcell Europe (Germany, originally in Turkey)

Overall, in the literature, there is a great number of studies regarding MVNOs with respect to definitions, regulations, diffusion of MVNOs, etc. However, there are not sufficient studies on the consumer acceptance of MVNOs. This thesis study aims to examine the consumer acceptance MVNOs in Turkish market in which MVNOs have started to emerge recently. Since there are no studies conducted previously on MVNOs in Turkey, this study will be a guideline in order to evaluate the consumer acceptance of MVNOs.

CHAPTER 3

THEORETICAL MODEL AND HYPOTHESES

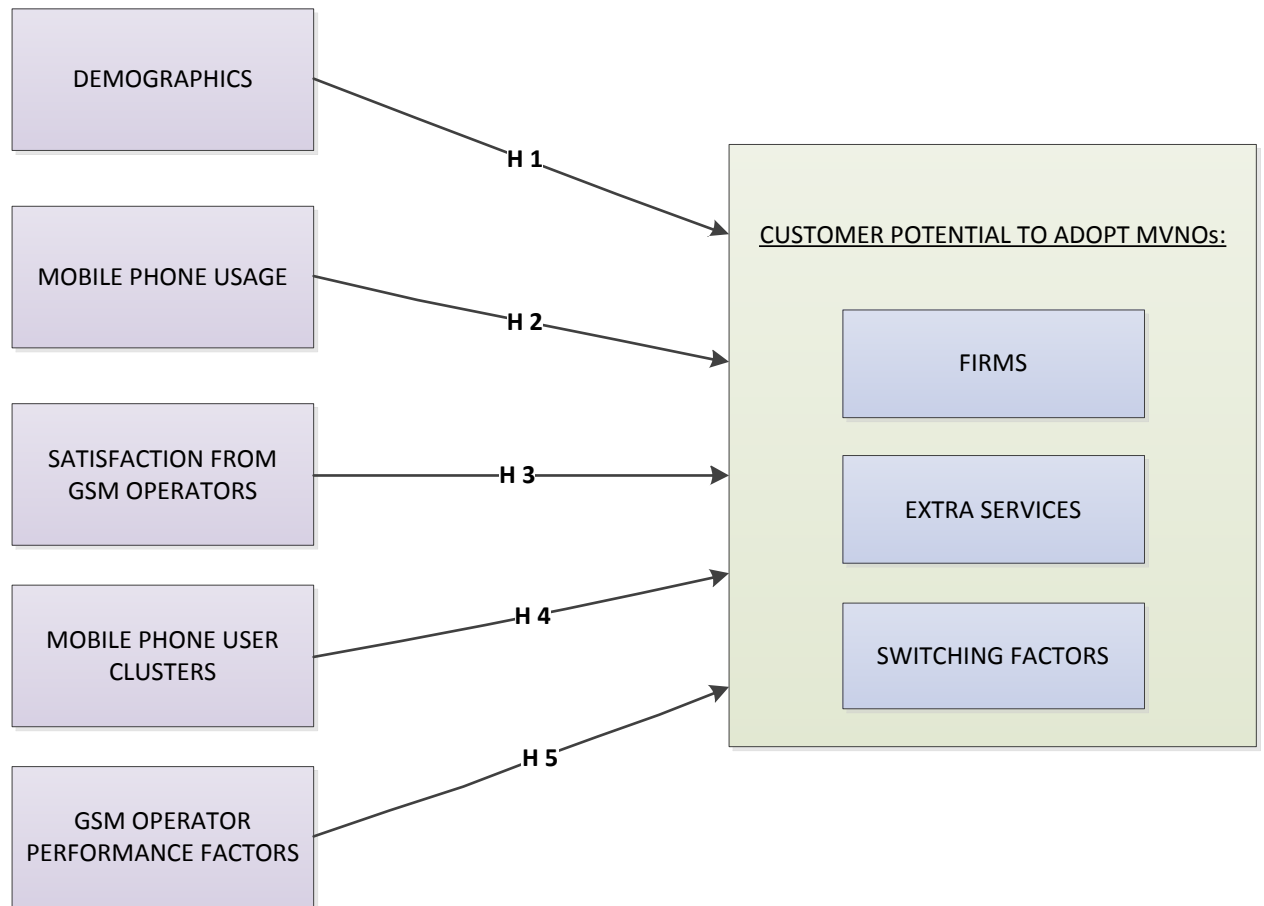


Figure 5- Theoretical model

In this part of the study, a theoretical model is proposed. Following sections contain a set of variables/scales which shape the characteristics of the study. The model is developed by using these variables, which are expected to explain basics of people's general attitudes towards the new MVNO business.

Demographic Characteristics of the Consumers

Since evolution of MVNOs can be considered as a niche market for mobile market, demographic profile analysis is one of the important factors to be used analyzing market behavior and profile.

The demographic variables included in this study are:

Age, Gender, Education Status, Working Status, and Income

Mobile Phone Usage

Mobile Phone Usage characteristics signify the behavioral characteristics of the consumers. In order to analyze the potential for the MVNO acceptance, consumers' current mobile phone usage data is necessary.

The variables used in mobile phone usage part are:

- Smart phone vs. regular phone usage: In order to determine which services can be offered with respect to technologies like 3G, IPTV, WIMAX, findings about consumers' usage of smart phones are of prime importance.
- Number of lines: Consumers having more than one line may be more inclined to try new MVNOs.
- Type of lines: Having prepaid/postpaid lines may differentiate consumers' behavior towards new services and MVNO firms.
- Amount spent on mobile services: New tariffs and discounts may have an effect on consumers' attitudes toward acceptance of MVNOs.
- Current GSM company: Consumers using the current GSM operators may be more inclined to switching to the new MVNOs.

Satisfaction from GSM Operators

Consumers who have different levels of satisfaction from current GSM operators can have different levels of tendency toward new MVNOs and services. Consumers who are not content with their current GSM operators can be more inclined to switch towards new MVNOs.

Mobile Phone User Clusters

Mobile Phone User Clusters are generated by analyzing the results of mobile phone services used. According to findings, two types of clusters are found: regular users and high-tech users. By using these user groups, consumers' tendency towards MVNO firms and extra services can be calculated with respect to these groups' interests.

GSM Operators' Performance Factors

"GSM operators' performance factors" scaled in terms of tariffs, prices, competence and services evaluated by consumers may help to determine which factors are of importance towards acceptance of MVNOs and potential firms and services.

Expected Consumer Acceptance of Potential MVNOs

Consumer acceptance of MVNOs is one of the major factors determining the business success of potential MVNO firms. Consumer acceptance towards "Potential MVNO firms", "Extra services" to be offered and "Switching factors" towards new MVNOs will be measured according to variables/factors defined in our theoretical model.

Hypotheses

The hypotheses to be analyzed in this study are:

Hypotheses 1: Consumers with different demographic profiles are expected to have different attitudes towards acceptance of MVNO firms and services.

- Hypotheses 1a: Consumers with different age groups are expected to have different attitudes towards acceptance of MVNO firms and services.
- Hypotheses 1b: Consumers with different gender groups are expected to have different attitudes towards acceptance of MVNO firms and services.
- Hypotheses 1c: Consumers with different education levels are expected to have different attitudes towards acceptance of MVNO firms and services.
- Hypotheses 1d: Consumers with different working status are expected to have different attitudes towards acceptance of MVNO firms and services.
- Hypotheses 1e: Consumers with different income levels are expected to have different attitudes towards acceptance of MVNO firms and services.

Hypotheses 2: Consumers with different mobile usage profiles are expected to have different attitudes towards acceptance of MVNO firms and services.

- Hypotheses 2a: Consumers with more than one number of lines are expected to have different attitudes towards acceptance of MVNO firms and services.
- Hypotheses 2b: Consumers with prepaid and postpaid lines are expected to have different attitudes towards acceptance of MVNO firms and services.
- Hypotheses 2c: Consumers with different mobile service expenditure types are expected to have different attitudes towards acceptance of MVNO firms and services.

- Hypotheses 2d: Consumers with smart phones are expected to have different attitudes towards acceptance of MVNO firms and services compared to standard mobile phones.

Hypotheses 3: Consumers with different GSM satisfaction levels are expected to have different attitudes towards acceptance of MVNO firms and services.

Hypotheses 4: Different Mobile Phone User Groups are expected to have different attitudes towards acceptance of MVNO firms and services.

Hypotheses 5: “GSM performance factors” are correlated to attitudes towards acceptance of MVNO firms and services.

CHAPTER 4

RESEARCH METHODOLOGY

This part describes the technical details of the survey designed for this study.

Preparation of the survey questions, method and procedure of data collection, initial questionnaire, final questionnaire, variables and their measurement constructs, data sampling and analysis approach will be detailed.

Preparation of the Questionnaire

The purpose of the questionnaire was to gather consumers' perceptions and inclinations towards MVNOs in terms of potential firms, extra services and switching factors.

Since the term MVNO is a new subject, initially, a literature survey about this phenomenon was conducted. Global MVNO cases and current mobile market was analyzed. After these studies, initial version of the questionnaire was developed.

Later, the questionnaire was distributed to the immediate environment; firstly, to determine whether the survey is clear or not. According to respondents' responses, who read and answered the questions, the questionnaire was modified.

The Method and Procedure of Data Collection

The data for the questionnaire has been collected from 280 individuals in Turkey. The questionnaire was prepared through a survey preparation tool provider web site. The questionnaire was uploaded and circulated on the net; the respondents all answered the questions via the web link of the questionnaire which was sent to participants e-mails or shown on social participation sites.

The medium, the questionnaire distributed was internet. The respondents who have e-mail addresses, who use the internet on a daily basis were expected to answer the questions. So, the survey's target group was basically computer literate people and internet users. They were contacted through convenience sampling.

Since the term MVNO is a new term, target respondents were chosen to be people with technologically awareness. To have this group of people mostly university graduates and working people were targeted. Collection of the data was done through the Internet, by the use of the tool provider web site.

After the data was collected from the questionnaire was analyzed by using SPSS 18.

Questionnaire

The questionnaire was prepared in 6 parts and 7 pages, starting with the information about the MVNO term and the purpose of the survey on the cover page. According to the pilot study, the questionnaire took about 5 minutes to answer.

The Questionnaire consisted of:

- Part 1 – Individual's Demographics
- Part 2 – Mobile Phone Usage Characteristics Questions
- Part 3 – Mobile Service Usage Questions
- Part 4 – GSM Operators' Service Performance Questions
- Part 5 – Perception of Potential MVNO Firms Questions
- Part 6 – Perception of Extra Services to be offered by MVNO Firms Questions
- Part 7 – Perception of Switching factors Questions

Variables and Measurement Constructs

The first part of the questionnaire consists of 7 closed-ended and 2 open-ended questions about the demographics of the participants. These are:

- Gender
- Age
- Marital Status
- Having Child/ Children
- If the answer for the question above is yes, then how many?
- Education Status
- Occupation Status
- Job
- Income Level

The second part starts with an open-ended question about the brand of the mobile phone. Later, closed-ended questions about number of mobile phone lines, mobile phone line types, mobile phone expenditure levels, who pays for mobile phone bills and which of the GSM operators, are used by the participants were asked. According to their mobile phone brands, consumers were categorized as smart phone users vs. regular phone users. The question about who pays for the mobile phone bills was to determine if the respondent was independent or influenced by the benefactor/s. The last question was to determine whether the respondent is satisfied with his/her current GSM operator or not. The answer options were:

- I am satisfied with my current operator, I'm not thinking of changing it.

- I am satisfied with my current operator however, I may change it in case of attractive services/conditions offered.
- I am not satisfied with my current operator, I can change it.

In the third part of the questionnaire, how often the respondents use the predefined mobile services was asked by using a 4-point scale ranging from (4: very often, 3: occasionally, 2: rarely, 1: never).

In the fourth part of the questionnaire, how the respondents value GSM operator's performance on predefined factors was asked by using a 5-point scale ranging from (5: Very important, 4: Important, 3: Neither important nor unimportant, 2: Not Important, 1: Not important at all).

In the fifth part of the questionnaire, the potential and suitability attributed to various company types as MVNOs by consumers was asked by using a 5-point scale ranging from (5: Very High, 4: High, 3: Average, 2: Low, 1: Very Low)

In the sixth part of the questionnaire, how much the respondents are interested in predefined extra services to be offered by MVNOs was asked by using a 5-point scale ranging from 5 to 1 (5: Very Interested, 4: Interested, 3: Average, 2: Less Interested, 1: Not Interested).

In the last part of the questionnaire, it was asked, how much the predefined cases would be effective in switching from their current GSM operators towards MVNOs by using a 5-point scale ranging from 5 to 1 (5: Very Important, 4: Important, 3: Neither important nor unimportant, 2: Not important, 1: Not important at all).

CHAPTER 5

ANALYSES AND FINDINGS

In this part of the study; descriptive, reliability, cluster, factor, ANOVA and correlation analyses on SPSS 18 were performed to test the hypotheses and provide the findings.

Descriptive analyses were done for:

- Demographic characteristics
- Mobile phone usage characteristics
- Current GSM operators
- Satisfaction level with the current GSM operators

Reliability of the scales used in the survey has been analyzed by calculating Cronbach's Alpha levels.

K-means cluster analysis was performed to segment the consumers according to the importance they attach to mobile services.

Factor Analysis was performed in order to group the variables of "GSM operators' performance factors", "Extra services to be offered", and "Switching factors".

Differences between consumer groups' acceptance towards MVNOs were analyzed by performing one-way ANOVA analyses and independent sample T-tests.

Finally, it was studied whether there is any correlation between "GSM operators' performance factors" and "Extra service factors" or "GSM operators' performance factors" and "Switching factors".

Descriptive Findings

Demographic Profile of the Respondents

Table 3- Demographic Profile of the Respondents

	18-24	25-31	>31
AGE	98	158	23
	35%	56%	8%
	Female	Male	
GENDER	136	144	
	49%	51%	
	Single	Married	
MARITAL STATUS	241	38	
	86%	14%	
	High School Degree	University Degree	Post-Graduate Degree
EDUCATION	36	178	65
	13%	64%	23%
	No regular income	<2000TL (<1320\$)	>2000TL (>1320\$)
INCOME	45	108	122
	16%	39%	44%

Table 3 shows the descriptive findings of the five major demographic variables. Age, education and income levels are recoded from the original forms into less segmented levels. Originally, age levels were of the ranges: 18-24; 25-31; 32-38; 39-45 and 45 and more. According to the findings, the last segments for older than 31 years were merged into one segment with the outcome shown in Table 3. For the education part; there were three segments for the education status of below university graduate; which were primary school, secondary school and high school. Since there were no data for the primary and secondary school graduation level; these were again recoded into high school graduate. As for the income levels: there were seven levels of income increasing

with the ranges of 500TL. After the data is gathered and analyzed, the income levels were seen to be mainly below 2000TL and higher than 2000TL. Thus, the income levels are reorganized to be three levels; no income, below 2000TL and higher than 2000TL.

The sample consists of mainly young people in the 18-24 range (35%) and early adult in the 24-31 range (56%). According to the demographic statistics half of the Turkish population is younger than 29.2 (Turkish Statistical Institute [TurkStat], 2010); so the age range of the respondents refers to the half of the population; Turkish young urban population. It can be seen that 91% of the respondents are younger than 31 years old, who are relatively more technology-oriented and who can be assumed to have enough computer literacy and mobile communication service offerings, which meets the need of the study.

Depending on the results based on Address Based Population Registration System Results (Turkish Statistical Institute [TurkStat], 2010), the population consists of 50.2% male and 49.8% females. So, respondents' gender distribution is close to the Turkish gender distribution.

As the respondents are young urban generation, 86% of them have single marital status; which shows that the respondents are in the early stages of family life cycle. 87% of the respondents have university or post-graduate degree. A significant majority of respondents are university graduates; which means they are familiar with internet, telecommunication and technology.

More than 80% of respondents have a regular income (students do not have a regular income); which is more than 1500TL (1000 \$) per month. This level of income can be considered enough to pay premium prices for mobile services.

Table 4- Mobile Phone Usage Profile of the Respondents

	1 line	more than 1 line	
Number of Mobile Phone Lines	193	87	
	69%	31%	
	Prepaid	Postpaid	Both
Mobile Line Type	153	82	41
	55%	30%	15%
	<30TL/mo	30-60TL/mo	>60TL/mo
Mobile expenditure	45	123	112
	16%	44%	40%

Mobile services usage profile is also analyzed in the survey (Table 4). According to the findings 31% of the mobile phone users have more than one number of lines. No matter for what purpose the extra lines are used, it can be said that the respondents are able to compare different lines in terms of service levels, tariffs, competence, etc. 55% of the respondents have just prepaid mobile lines; which are easier to switch from, since they are not obtained with bills and they necessitate less legal documents. According to 2010 final report of Turkish Information and Communication Technologies Authority; 69% of mobile lines in Turkey are pre-paid.

Also 40% of the respondents pay more than 60 TL for mobile services monthly. In terms of new MVNOs and services to be offered, respondents with high mobile expenditures can be targeted with discounted prices compared to the current tariffs.

Table 5- Who Pays for the Mobile Service Expenditure?

	Oneself	Spouse	Family	Company	Others
Who pays for the mobile services	197	4	69	22	6
	75%	2%	26%	8%	2%

According to the Table 5, mostly respondents pay for their mobile bills. The outcomes, cumulative total of the percentages is higher than 100%, because some of the respondents have more than one mobile line: one for personal usage; one for business, which the company pays. The respondents who pay their mobile services dominate with 75%, so their opinions for the MVNOs and services can be taken into account.

Table 6- Current GSM Operators

	Avea	Turkcell	Vodafone
GSM Operator	93	169	55
	35%	65%	21%

In Table 6, current GSM operators of the respondents are shown. There are three mobile service providers in Turkey; so in terms of having all the views based on current mobile services, having respondents from all three operators was of importance. As Turkcell is the dominating mobile operator in Turkish mobile market; 65% of the respondents' using services from Turkcell is not surprising. Since there are respondents who have more than one mobile line, the sum of the percentages of GSM Operators is more than 100%.

Table 7- Satisfaction from Current GSM Operator

	Satisfied	Undecided	Dissatisfied
Satisfaction from GSM Operator	112	143	25
	40%	51%	9%

According to results of the respondents' answers for satisfaction from current GSM operators in Table 7: 40% of them are satisfied; 51% is content but can think of alternatives with attractive rates and services and 9% is not satisfied with their current GSM operator.

It can be concluded that, 60% of the respondents might have the potential to approach new alternatives.

Disposition of Respondents Toward using GSM Services

This part of the study attempts to find how often the respondents use GSM services, which are defined in the survey. These services include regular mobile communication, standard messaging and value added services which are now standard offers from mobile service providers.

Respondents were asked to answer the questions on a 4-point scale (4: very often, 3: occasionally, 2: rarely, 1: never).

Table 8- Mobile Services Usage

	Mean (over 4)	St. Dev.
Standard Calling Service	3.79	0.49
SMS	3.22	0.85
Internet connection via mobile phone	2.56	1.27
Facebook, Twitter, etc. applications	2.33	1.27
Broadcasts (news, weather, stock exchange services)	2.16	1.22
E-mail Services	2.10	1.26
MMS	1.62	0.76
Video Service	1.55	0.91
Video Calling Service	1.19	0.57

The results are shown in Table 8 with mean and standard deviations for each service.

According to the results, Standard Calling Service and SMS Service are the most frequently used services, whereas video calling services are the least used services.

Based on the results, it can be said that people use mostly standard calling services and SMS services.

GSM Company's Performance Importance Perception

In this part of the study, how respondents value GSM companies' services and qualities are measured with 18 variables on a 5-point scale (5: Very important, 4: Important, 3:

Neither important nor unimportant, 2: Not important, 1: Not important at all).

Table 9- Mean Values of GSM Companies' Performance Perception

	Mean (over 5)	St. Dv.
Discounted Calling Tariffs	4.78	0.45
Bandwidth	4.70	0.55
Discounted Calling Tariffs with all Mobile Operators	4.63	0.63
Customer Problem Solving Abilities	4.52	0.73
Discounted Calling Tariffs with predefined mobile numbers	4.20	0.97
Discounted SMS Tariffs	4.10	1.14
Call Center Services	4.04	0.95
Personalized Tariffs Opportunities	3.95	1.04
Customer Loyalty Programs	3.94	1.05
Tariff Variety	3.88	0.99
Participation in Social Accountability and Cultural Facility Programs	3.76	1.08
Creative and Pioneering Promotions	3.66	1.10
3G Services	3.65	1.19
Discounted Roaming Tariffs	3.60	1.33
VAS for making life simpler	3.54	1.16
Brand Value	3.52	1.13
Creative and Pioneering Advertisements	3.13	1.15
Broadcasting Newsletters (news, stock exchange)	3.07	1.20

According to results, “Discounted calling tariffs” are the most important, whereas “Broadcasting services” are the least important according to respondents’ perception.

Perception Towards Potential MVNO Firms

In Table 10, the findings of respondents' likeliness to get mobile services from the list of the possible MVNO firm categories is shown. Categories of the firms are gathered from global MVNO firms which are not in mobile communications business mainly. The scale of potential MVNO firm types was made of variables with of 5-points intervals (5: Very High, 4: High, 3: Average, 2: Low, 1: Very Low).

Table 10- Mean Values of Perception Towards Potential MVNO Firms

	Mean (over 5)	St. Dv.
Internet Service Providers	3.76	1.15
Cable/Pay TV Service Providers	3.19	1.20
Banks	3.02	1.29
Airlines	2.84	1.31
Media Companies	2.78	1.28
Gross Markets	2.65	1.28
Gross Malls	2.61	1.23
Healthcare Companies	2.56	1.32
Automotive companies	2.14	1.19
Sports Clubs	2.09	1.24
Celebrities	1.83	1.09

It can be seen in Table 10 that "Internet service providers" are the companies which the respondents are to get mobile services firstly.

Perception of Extra Services to be offered

In Table 11, respondents' acceptance towards the extra services that can be offered by potential MVNO firms is detailed with mean values from a 5-point scale (5: Very Interested, 4: Interested, 3: Average, 2: Less Interested, 1: Not Interested).

Table 11- Mean Values of Perception Towards Extra Services

	Mean (over 5)	St. Dv.
Discounts for the MVNO's owning malls/markets	4.07	1.04
Promotions for the MVNO's owning malls/markets	4.04	1.05
Niche Services for Customer Hobbies/Interests	4.01	1.12
Niche Services for entertainment/social life	3.99	1.11
Niche Services for Customers who work	3.85	1.17
Niche Services for Customer Age Groups	3.83	1.19
Niche Services for Customers who travel often	3.79	1.24
Niche Services for Customer Social Groups	3.48	1.25
Niche Services for Children	2.65	1.29

According to results from the means of the "Extra services", "Discounts" are the most high-potential "Extra services"; whereas niche services for children are the least interested services. Most of the respondents, 86% of the people, are single, so it is normal for the respondents to be least interested in "Niche services for children".

Tendency to switch from Current GSM Operator

In Table 12, respondents' tendency to switch from current GSM operator to the new MVNO operator, in cases of the factors detailed below, is shown in terms of mean

values with a 5-point scale (5: Very Important, 4: Important, 3: Neither important nor unimportant, 2: Not Important, 1: Not important at all).

Table 12- Mean Values of Perception Towards Switching Offers

	Mean (over 5)	St. Dv.
Discounted Tariffs	4.63	0.75
Qualified Mobile Services	4.56	0.74
Varied Mobile Services	4.44	0.85
Personalized Mobile Services	4.04	1.09
Brand Value	3.58	1.18
Brand/Person/Firm Having vital Role in Life	3.55	1.24

According to results of Table 12, people are more inclined to switch from the current GSM operators, in cases of “Discounted tariffs”. Also it can be seen that, respondents put high value to “Qualified mobile services” and “Varied mobile services”.

Reliability / Internal Consistency of the Survey Items and Scales

Reliability of the survey items have been provided by using consistency analysis with Cronbach’s Alpha. All of the scales have Cronbach’s Alpha values bigger than 0.7 (Table 13). So, all of the multi-item scales used in the study are reliable measures.

Table 13- Reliability / Internal Consistency of the Survey Items

Survey Items	Number of items	Cronbach's Alpha
Importance of Mobile Services	9	0.844
Importance GSM Performance	18	0.844
Perception of potential MVNO firms	11	0.900
Importance of Potential Extra Services	9	0.897
Importance of Switching Factors	6	0.765

Multivariate and Group Difference Findings

In this part of the study, the findings of the statistical models, which were conducted in order to test the hypotheses of the research, are detailed. The models that were applied to test the hypotheses were Factor, Cluster and ANOVA analyses.

Cluster Analyses of Mobile Services' Importance

Consumers can be segmented according to the level of importance they attach to characteristics of mobile services they use. The cluster analysis is performed on the data about the level of importance attached to nine mobile services characteristics. In this section, 272 mobile service users are clustered into two groups by the importance they attach to mobile services as the base of the segmentation.

A K-means cluster analysis has been performed to segment mobile service users into two groups according to the importance they attach to mobile services.

In this study, the non-hierarchical K-means cluster has been done. At the third iteration, K-means cluster has generated two segments. The minimum distance between initial clusters is 9

Table 14- Iteration History

Iteration	Change in Cluster Centers	
	1	2
1	3.899	3.629
2	0.148	0.147
3	0.000	0.000

Although, clustering was tried with more than two groups; the two-group clustering resulted in the most meaningful differences with a very reasonable distribution of the sample (Table 15), so this method was selected for interpretation and further analysis.

Table 15- Final Two-Group Cluster Sizes

Cluster	1	111
	2	161
	Valid	272

The final cluster centers, which represent the mean importance of each mobile service characteristics over 5 is shown in Table 16.

Table 16- Final Cluster Centers and Differentiation Power of Each Factor

Importance Attached to Mobile Services	Final Cluster Centers		Differentiation Power of Each Factor in Cluster Analysis	
	1	2	F	Sig.
Standard Calling Services	3.89	3.72	8.53	0.004
Video Calling Services	1.37	1.07	19.58	0.000
SMS	3.31	3.16	2.10	0.148
MMS	1.95	1.40	37.68	0.000
Internet connection via mobile phone	3.83	1.68	647.01	0.000
Email Services	3.36	1.22	612.63	0.000
Video Services	2.14	1.12	120.45	0.000
Facebook, Twitter, etc. applications	3.52	1.48	455.11	0.000
Broadcasts (news, weather, stock exchange)	3.35	1.32	573.06	0.000

Analysis of the characteristics of these two cluster shows that there are distinctly two different mobile services segment since the significance factor is below 0.05 for each of

the services. Based on the importance, the respondents attach to mobile services; two consumer groups can be identified. These segments can be named as high-tech mobile users and standard mobile users. The differentiation between these two segments can be seen with the difference they attach to the last five mobile services: “Internet connection via mobile phone”, “Email services”, “Video services”, “Facebook, twitter, etc. applications”, and “Broadcasts (news, weather, stock exchange)” (Table 16). There is no significant difference between the segments for the first four mobile services, which are: “Standard calling services”, “Video calling services”, “SMS”, and “MMS”. First cluster; high-tech users consists of 111 people and the second one consists of 161 people (Table 17).

Table 17- Final Distribution of Mobile Service Users

	Frequency	Percentage
High-tech Mobile Service Users	111	41%
Standard Mobile Service Users	161	59%
Total	272	100%

According to the findings of cluster analysis, it can be concluded that; there are two mobile user segments which are distinctively different from each other in terms of their attitude towards high-tech mobile services.

Cluster 1: High-tech Mobile Service Users

This consumer group attaches more importance to all mobile services. The differentiating factor comes with the high-tech services; which usually require smart-phones. The high tech services: “Internet connection via mobile phone”, “Email services”, “Video services”, “Facebook, twitter, etc. applications”, and “Broadcasts

(news, weather, stock exchange)” create the difference in terms of value attached to them. The difference between the users with respect to these services is significant.

Table 18- Comparison Table for High-Tech Mobile Service Users

High-tech Mobile Service Users	Comparably High, compared to Standard User	Comparably Low, compared to Standard User
Standard Calling Services	3.89	
Video Calling Services	1.37	
SMS	3.31	
MMS	1.95	
Internet connection via mobile phone	3.83	
Email Services	3.36	
Video Services	2.14	
Facebook, Twitter, etc. applications	3.52	
Broadcasts (news, weather, stock exchange)	3.35	

Cluster 2: Standard Mobile Service Users

Standard mobile service users attach lower importance than the high-tech mobile service users to all the variables of mobile services. People in this group put great importance to “Standard calling services” and “SMS” services close to high-tech mobile service users. They also do not value “MMS” or “Video calling services” like the high-tech mobile users. “MMS” and “Video calling services” may seem to be more technologically developed, however, these services are not used as widely as the other services, no matter how technologically aware the users are.

The most important part, which differentiates the standard mobile service users and high-tech mobile users is the use of high-tech mobile services: “Internet connection via mobile phone”, “Email services”, “Video services”, “Facebook, twitter, etc.

applications”, and “Broadcasts (news, weather, stock exchange)”. The importance, standard mobile services users give to these services and the high-tech mobile users give to these services, create the differentiation between the clusters (Table 18 & Table 19).

Table 19- Comparison Table for Standard Mobile Service Users

Standard Mobile Service Users	Comparably High, compared to High-tech user	Comparably Low, High-tech user
Standard Calling Services		3.72
Video Calling Services		1.07
SMS		3.16
MMS		1.40
Internet connection via mobile phone		1.68
Email Services		1.22
Video Services		1.12
Facebook, Twitter, etc. applications		1.48
Broadcasts (news, weather, stock exchange)		1.32

Factor Analyses

In this study, there are many variables in the questionnaire. Since measuring and analyzing all these variables is difficult, factor analysis is used in data reduction to identify a small group of components that explain the characteristics of the variables. Therefore, factor analysis has been run for the three main parts of the questionnaire.

GSM Companies’ Performance Factors

A factor analysis has been run to decrease the dimensions of GSM Companies’ Performance Variables with respect to the principal components method. In this analysis, Kaiser-Meyer Olkin (KMO) measure of sampling adequacy is 0.830 and

Bartlett's test of Sphericity, another measure of sampling adequacy, is found to be significant at the 0.001 level. As the KMO measure is higher than 0.05 and Bartlett's test of Sphericity results in 0.001; it can be confirmed that the sample size is adequate to run this factor analysis (Table 20).

Table 20- KMO and Bartlett's Test for GSM Operators' Performance

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.830
Bartlett's Test of Sphericity	Approx. Chi-Square	1508.242
	Df	153.000
	Sig.	0.000

According to the results of the factor analysis, 60% of total variance is explained by classifying eighteen variables into five major factors (Table 21). Varimax rotation has been used to see which variables load together.

Table 21- Total Variance Explained for GSM Operators' Performance

Component	Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %
1	3.012	16.734	16.734
2	2.321	12.894	29.628
3	2.137	11.872	41.500
4	1.897	10.537	52.037
5	1.502	8.344	60.381
Extraction Method: Principal Component Analysis			

Factor analysis has shown that there are major five components in terms of GSM companies' performance in Table 22. These are: 1-Brand, Prestige and Advertising, 2-

VAS and 3G, 3- Competence and Customer Care, 4- Tariff Variety and Prices, 5- Discount Opportunities. Although, one of the variables, “Discounted SMS tariffs”, had a lower factor loading; it was included to the factor “Tariff variety and prices”.

Table 22- Factor Loadings According to Rotated Component Matrix for GSM Operators’ Performance

GSM Company Performance Factors	Variable	Factor Loadings
Brand, Prestige and Advertising	Creative and Pioneering Advertisements	.807
	Brand Value	.760
	Participation in Social Accountability and Cultural Facility Programs	.711
	Creative and Pioneering Promotions	.690
VAS and 3G	3G Services	.774
	VAS for making life simpler	.721
	Broadcasting Newsletters (news, stock exchange)	.688
	Customer Loyalty Programs	.506
Competence and Customer Care	Customer Problem Solving Abilities	.808
	Call Center Services	.755
	Bandwidth	.649
Tariff Variety and Prices	Discounted Calling Tariffs	.734
	Personalized Tariffs Opportunities	.608
	Tariff Variety	.573
	Discounted SMS Tariffs	.385
Discount Opportunities	Roaming Tariffs	.789
	Discounted Calling Tariffs with all Mobile Operators	.510
	Discounted Calling Tariffs with predefined mobile numbers	.466

F1: “Brand, prestige and advertising” factor is mainly based on the brand of the GSM service provider. Brand consciousness is an important factor for the consumers in terms of brand value, pioneering jobs and social accountability programs.

F2: “VAS and 3G” factor mainly refers to high-tech telecommunication services. 3G services, variety of VAS like broadcasting services are the main focus of this factor. “Customer loyalty services” may not be directly relevant to these services; however, awarding programs and promotions not only consist of basic telecommunication services, but also 3G and VAS.

F3: “Competence and customer care” factor refers to CRM performance and mobile service coverage of the providers.

F4: “Tariff variety and prices” refers to mainly to tariffs. Tariff variety, discounted tariffs or personalized tariffs are all included in this factor.

F5: “Discount opportunities” may look similar to “Tariff variety”, since F4 also consists of “Discounted calling tariffs”. However, F5 mainly consists of discounts in standard mobile service, which is standard calling. In this factor, the only important thing is the discounted calling. It may be calling abroad, calling another operator or calling predefined mobile phones. These are the standard tariffs, which can be found in all the GSM operators. Hence, tariff is not the case but price is the case in this factor.

Extra Services Factor Analysis

A factor analysis has been run to decrease the dimensions of “Extra services” to be Offered Variables with respect to the principal components method. Two major components were resulted with the Kaiser-Meyer Olkin (KMO) measure of sampling

adequacy of 0.867. Bartlett’s test of Sphericity, another measure of sampling adequacy was found to be significant at the 0.001 level. As the KMO measure is higher than 0.05 and Bartlett’ test of Sphericity results in 0.001; it can be confirmed that the analysis of the sample size is adequate to run this factor analysis (Table 23).

Table 23- KMO and Bartlett's Test for Extra Services to be Offered

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.867
Bartlett's Test of Sphericity	Approx. Chi-Square	1521.673
	Df	36
	Sig.	0.000

According to the results of the factor analysis, 68% of total variance is explained by classifying nine variables into two major factors (Table 24). Varimax rotation has been used to see which variables load together.

Table 24- Total Variance Explained for Extra Services to be Offered

Component	Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %
1	3.656	40.619	40.619
2	2.465	27.392	68.011
Extraction Method: Principal Component Analysis			

Factor analysis shows in Table 25 that there are two major groups in terms of “Extra services” to be offered according to the respondents’ perception. These are:

1-Personalized discounts and services, 2-Segmented services.

Table 25- Factor Loadings According to Rotated Component Matrix for Extra Services to be offered

Extra Services Factors	Variable	Factor Loadings
Personalized Discounts & Services	Discounts for the MVNO's owning malls/markets	0.898
	Promotions for the MVNO's owning malls/markets	0.895
	Niche Services for Customer Age Groups	0.770
	Niche Services for Customer Hobbies/Interests	0.742
	Niche Services for entertainment/social life	0.631
Segmented Services	Niche Services for Customers who travel often	0.826
	Niche Services for Customers who work	0.719
	Niche Services for Children	0.676
	Niche Services for Customer Social Groups	0.581

- F1: “Personalized discounts and services” refer mainly to services and discounts which target the consumer. These are: “Discounts for the MVNO's owning malls/markets”, “Promotions for the MVNO's owning malls/markets”, “Niche services for customer age groups”, “Niche services for customer hobbies/interests”, and “Niche services for entertainment/social life”.
- F2: “Segmented services” refer to Niche services for working and travelling people, for people with children or for social clubs. These niche services have a broader view in terms of service offer, compared to “Personalized discounts and services”.

Switching Factors Factor Analysis

A factor analysis has been run to decrease the dimensions of “Switching Factors Variables” with respect to the principal components method. In this analysis Kaiser-

Meyer Olkin (KMO) measure of sampling adequacy is 0.700 and Bartlett's test of Sphericity, another measure of sampling adequacy, is found to be significant at the 0.001 level. As the KMO measure is higher than 0.05 and Bartlett' test of Sphericity results in 0.001; it can be confirmed that the sample size is adequate to run this factor analysis (Table 26).

Table 26- KMO and Bartlett's Test for Switching Factors

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.700
Bartlett's Test of Sphericity	Approx. Chi-Square	613.448
	Df	15
	Sig.	0.000

According to the results of the factor analysis, 70% of total variance is explained by classifying six variables into two major factors (Table 27). Varimax rotation has been used to see which variables load together.

Table 27- Total Variance Explained for Switching Factors

Component	Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %
1	2.265	37.742	37.742
2	1.937	32.285	70.027
Extraction Method: Principal Component Analysis			

Factor analysis shows that there are two major groups in terms of “Switching factors” according to the respondents’ perception. These are: 1- Price and competence, 2- Brand and image (Table 28).

Table 28- Factor Loadings According to Rotated Component Matrix for Switching Factors

Switching Factors	Variable	Factor Loadings
Price & Competence	Qualified Mobile Services	0.872
	Varied mobile services	0.837
	Discounted Tariffs	0.664
	Personalized Mobile Services	0.583
Brand & Image	Brand/Person/Firm Having vital Role in Life	0.915
	Brand Value	0.885

- F1: “Price & competence” factor refers to service, quality and competence. This factor consists of variables: “Qualified mobile services”, “Varied mobile services”, “Discounted tariffs”, and “Personalized mobile services”.
- F2: “Brand & image” factor focuses on the brand value and people’s perception of the brand. This factor consists of variables: “Brand/Person/Firm having vital role in life”, and “Brand value”.

Table 29 shows the summary of factors, resulted from the factor analysis of three main components of the model.

Table 29- Summary of Model Components' Factors

Model Components	Components' Factors
GSM Operators' Performance	F1: Brand, Prestige and Advertising
	F2: VAS and 3G
	F3: Competence and Customer Care
	F4: Tariff Variety and Prices
	F5: Discount Opportunities
Extra Services to be Offered	F1: Personalized Discounts and Services
	F2: Segmented Services
Switching Factors	F1: Price & Competence Factor
	F2: Brand & Image

ANOVA Analyses

In order to find out whether there is difference between different consumer groups with respect to their acceptances towards MVNO in terms of firms, extra services, and switching factors; one-way ANOVA analyses were run. Responses of consumer groups were analyzed in terms of demographic factors, mobile phone usage, satisfaction from current GSM operators, and mobile phone services. These groups with “Potential MVNO firms”, “Extra services” and “Switching factors” scales were analyzed in order to find any differentiating factor between groups towards these scales. In order to use one-way ANOVA analysis, there needs to be more than two groups; so consumer groups like gender, which have two subgroups, were not included in one-way ANOVA analysis.

The results of the findings are detailed below:

Age & MVNO Acceptance

Hypotheses 1a: Consumers with different age groups are expected to have different attitudes towards acceptance of MVNO firms and services.

The analysis between age groups and Consumer potential to use MVNOs were run in terms of firms, “Extra services” components, and “Switching factors” components. The results are detailed in Table 30 below respectively.

Table 30- ANOVA Analysis for Age Groups & MVNO Firms

		Mean (over 5)	F	Sig.
Internet Service Providers	18-24	3.69	.818	.442
	25-31	3.85		
	>31	3.61		
Cable/Pay TV Service Providers	18-24	3.20	.131	.877
	25-31	3.17		
	>31	3.30		
Gross Markets	18-24	2.91	3.040	.049
	25-31	2.50		
	>31	2.65		
Gross Malls	18-24	2.97	6.569	.002
	25-31	2.40		
	>31	2.57		
Banks	18-24	3.25	3.301	.038
	25-31	2.85		
	>31	3.26		
Healthcare Companies	18-24	2.78	4.294	.015
	25-31	2.36		
	>31	2.96		
Media Companies	18-24	3.04	5.346	.005
	25-31	2.57		
	>31	3.17		
Sports Clubs	18-24	2.29	3.175	.043
	25-31	1.92		
	>31	2.35		
Celebrities	18-24	2.02	2.521	.082
	25-31	1.70		
	>31	1.87		
Automotive companies	18-24	2.37	3.766	.024
	25-31	1.97		
	>31	2.39		
Airlines	18-24	2.98	3.799	.024
	25-31	2.68		
	>31	3.39		

Table 30 shows that, “Gross markets”, “Gross malls”, “Healthcare companies”, “Sports clubs”, “Automotive companies”, and “Airlines” have different consumer acceptance levels in terms of age groups.

Table 31- ANOVA Analysis for Age Groups & Extra Service Factors

		Mean (over 5)	F	Sig.
Personalized Discounts & Services	18-24	4.24	5.673	.004
	25-31	3.84		
	>31	3.89		
Segmented Services	18-24	3.46	1.132	.324
	25-31	3.40		
	>31	3.72		

Table 31 shows that, in extra service factor, “Personalized discounts & services” there is difference in consumer acceptance levels in terms of age groups. Also, as it can be seen in Table 32, the youngest age segment puts more importance to “Brand & image” as switching factors.

Table 32- ANOVA Analysis result for Age Groups vs. Switching Factors

		Mean (over 5)	F	Sig.
Price & Competence	18-24	4.50	1.126	.326
	25-31	4.38		
	>31	4.34		
Brand & Image	18-24	3.78	3.296	.038
	25-31	3.41		
	>31	3.63		

Education vs. MVNO Acceptance

Hypotheses 1c: Consumers with different education levels are expected to have different attitudes towards acceptance of “Potential MVNO firms” and “Extra services”.

According to education levels of respondents; all of them are at least high-school graduate and 87% of them are university graduate. Since the respondents are of high literacy levels, there was not a significant differentiation between education levels and consumer acceptance towards MVNOs. The results of ANOVA analysis has confirmed that there is no significant difference in terms of education levels with significance higher than 0.05 for “Potential MVNO firms”, “Extra services”, and “Switching factors”.

Income vs. MVNO Acceptance

Hypotheses 1e: Consumers with different income levels are expected to have different attitudes towards acceptance of “Potential MVNO firms” and “Extra services”.

Table 33- ANOVA Analysis for Income Levels & MVNO Firms

		Mean (over 5)	F	Sig.
Internet Service Providers	No regular income	3.61	.586	.557
	<2000TL (<1320\$)	3.79		
	>2000TL (>1320\$)	3.83		
Cable/Pay TV Service Providers	No regular income	3.23	.016	.984
	<2000TL (<1320\$)	3.19		
	>2000TL (>1320\$)	3.20		
Gross Markets	No regular income	3.28	7.351	.001
	<2000TL (<1320\$)	2.68		
	>2000TL (>1320\$)	2.43		
Gross Malls	No regular income	3.17	9.439	.000
	<2000TL (<1320\$)	2.76		
	>2000TL (>1320\$)	2.30		
Banks	No regular income	3.33	4.384	.013
	<2000TL (<1320\$)	3.17		
	>2000TL (>1320\$)	2.78		
Healthcare Companies	No regular income	2.96	5.352	.005
	<2000TL (<1320\$)	2.68		
	>2000TL (>1320\$)	2.28		
Media Companies	No regular income	3.05	6.371	.002
	<2000TL (<1320\$)	3.03		
	>2000TL (>1320\$)	2.48		
Sports Clubs	No regular income	2.29	1.854	.159
	<2000TL (<1320\$)	2.19		
	>2000TL (>1320\$)	1.93		
Celebrities	No regular income	2.36	7.454	.001
	<2000TL (<1320\$)	1.80		
	>2000TL (>1320\$)	1.64		
Automotive companies	No regular income	2.47	3.486	.032
	<2000TL (<1320\$)	2.25		
	>2000TL (>1320\$)	1.96		
Airlines	No regular income	3.07	1.156	.316
	<2000TL (<1320\$)	2.90		
	>2000TL (>1320\$)	2.74		

According to the results of ANOVA analysis in Table 33, it can be seen that for different income levels, consumer acceptance towards potential MVNO firms: “Gross markets”,

“Gross malls”, “Banks”, “Healthcare companies”, “Media companies”, “Celebrities”, and “Automotive companies” are also different.

In terms of extra service factors and switching factors, ANOVA analysis results in significance higher than 0.05; thus it can be concluded that income levels do not create a difference towards “Extra services” and “Switching factors”.

Mobile Service Expenditure vs. MVNO Acceptance

Hypotheses 2c: Consumers with different mobile service expenditure types are expected to have different attitudes towards acceptance of MVNO firms and services.

The analysis between mobile service expenditure ranges and Consumer Potential to use MVNOs were run in terms of “Potential MVNO firms”, “Extra service” components, and “Switching factor” components. The results are detailed in Table 34 below.

Table 34- ANOVA Analysis for Mobile Service Expenditure Levels & MVNO Firms

		Mean (over 5)	F	Sig.
Internet Service Providers	<30TL/mo	3.43	2.750	.066
	30-60TL/mo	3.75		
	>60TL/mo	3.91		
Cable/Pay TV Service Providers	<30TL/mo	2.91	1.407	.247
	30-60TL/mo	3.25		
	>60TL/mo	3.23		
Gross Markets	<30TL/mo	2.42	3.274	.039
	30-60TL/mo	2.87		
	>60TL/mo	2.50		
Gross Malls	<30TL/mo	2.36	2.791	.063
	30-60TL/mo	2.80		
	>60TL/mo	2.50		
Banks	<30TL/mo	2.91	.595	.552
	30-60TL/mo	3.11		
	>60TL/mo	2.96		
Healthcare Companies	<30TL/mo	2.38	.578	.562
	30-60TL/mo	2.63		
	>60TL/mo	2.55		
Media Companies	<30TL/mo	2.62	.586	.558
	30-60TL/mo	2.86		
	>60TL/mo	2.76		
Sports Clubs	<30TL/mo	1.82	1.646	.195
	30-60TL/mo	2.07		
	>60TL/mo	2.22		
Celebrities	<30TL/mo	1.67	.777	.461
	30-60TL/mo	1.82		
	>60TL/mo	1.91		
Automotive companies	<30TL/mo	1.93	.844	.431
	30-60TL/mo	2.19		
	>60TL/mo	2.18		
Airlines	<30TL/mo	2.42	3.351	.036
	30-60TL/mo	3.01		
	>60TL/mo	2.83		

As it can be seen from the results of ANOVA analysis in Table 34, in gross markets and airlines groups of different monthly mobile expenditures differentiate in the acceptance levels towards these firms.

Table 35- ANOVA Analysis for Mobile Service Expenditure Levels & Extra Service Factors

		Mean (over 5)	F	Sig.
Personalized Discounts & Services	<30TL/mo	3.79	2.365	.096
	30-60TL/mo	4.11		
	>60TL/mo	3.93		
Segmented Services	<30TL/mo	3.11	3.338	.037
	30-60TL/mo	3.52		
	>60TL/mo	3.50		

Table 35 shows the results of ANOVA analysis for “Mobile service expenditure levels” vs. “Extra service factors”. From the results, it can be concluded that disposition towards segmented services are different for consumers with different mobile expenditure levels. Consumers who pay lower mobile service fees do not give importance towards segmented services compared to consumers who pay more.

As for the switching factors, the significance value is higher than 0.05 for both cases; so there cannot be any differentiation for “Switching factors”.

Satisfaction from GSM Operator vs. MVNO Acceptance

Hypotheses 3: Consumers with different GSM satisfaction levels are expected to have different attitudes towards acceptance of “Potential MVNO firms” and “Extra services”.

In order to analyze Consumer’s MVNO Acceptance, satisfaction from the current GSM operators is analyzed with “Potential MVNO firms”, “Extra services”, and “Switching factors”. In order to have a detailed analysis, instead of factors, original variables for “Extra services” and “Switching factors” were used. After the analysis, it was seen that in acceptance towards some of the firms there is difference from the view

of satisfaction from GSM operator. These were “Internet service providers”, “Cable/Pay TV service providers”, “Gross markets”, “Gross malls”, “Banks”, “Media companies”, “Airlines” (Table 36).

Table 36- ANOVA Analysis for Satisfaction from GSM Operator Levels & Firms

		Mean (over 5)	F	Sig.
Internet Service Providers	Satisfied	3.46	6.819	.001
	Undecided	3.96		
	Dissatisfied	4.00		
Cable/Pay TV Service Providers	Satisfied	2.89	6.016	.003
	Undecided	3.35		
	Dissatisfied	3.56		
Gross Markets	Satisfied	2.32	7.367	.001
	Undecided	2.82		
	Dissatisfied	3.20		
Gross Malls	Satisfied	2.40	3.898	.021
	Undecided	2.70		
	Dissatisfied	3.08		
Banks	Satisfied	2.74	4.612	.011
	Undecided	3.21		
	Dissatisfied	3.20		
Healthcare Companies	Satisfied	2.37	1.970	.141
	Undecided	2.66		
	Dissatisfied	2.80		
Media Companies	Satisfied	2.52	3.895	.021
	Undecided	2.93		
	Dissatisfied	3.08		
Sports Clubs	Satisfied	2.00	.742	.477
	Undecided	2.11		
	Dissatisfied	2.32		
Celebrities	Satisfied	1.87	.205	.815
	Undecided	1.79		
	Dissatisfied	1.88		
Automotive companies	Satisfied	2.06	.448	.640
	Undecided	2.20		
	Dissatisfied	2.21		
Airlines	Satisfied	2.61	4.254	.015
	Undecided	2.94		
	Dissatisfied	3.38		

According to ANOVA analysis, there were no significant extra services to be offered in terms of satisfaction from GSM operator levels.

The only differentiating variable found for the switching factors is “Discounted tariffs”. The results of the analysis are shown in Table 37 below:

Table 37- ANOVA Analysis for Satisfaction from GSM Operator Levels & Switching Factors

		Mean (over 5)	F	Sig.
Discounted Tariffs	Satisfied	4.43	7.202	.001
	Undecided	4.76		
	Dissatisfied	4.80		
Brand Value	Satisfied	3.68	1.051	.351
	Undecided	3.55		
	Dissatisfied	3.32		
Brand/Person/Firm Having vital Role in Life	Satisfied	3.56	.152	.859
	Undecided	3.56		
	Dissatisfied	3.42		
Qualified Mobile Services	Satisfied	4.53	.284	.753
	Undecided	4.57		
	Dissatisfied	4.64		
Varied mobile services	Satisfied	4.42	.278	.757
	Undecided	4.44		
	Dissatisfied	4.56		
Personalized Mobile Services	Satisfied	4.01	.199	.820
	Undecided	4.05		
	Dissatisfied	4.16		

Independent Samples T-Test Analyses

Independent Samples T-Test Analysis is used to compare two means from independent groups. It is done by comparing the means of these independent groups. In order to compare consumer groups' disposition towards MVNO Acceptance, two grouped samples are analyzed with t-test. Consumer groups in terms of gender, working status, number of mobile phone lines, mobile phone line type, having smart phone, and mobile service user type are analyzed with t-test. The results of these analyses are detailed group by group.

Gender vs. MVNO Acceptance

Hypotheses 1b: Consumers with different gender groups are expected to have different attitudes towards acceptance of MVNO firms and services.

It is confirmed that there is a difference between males and females in terms of acceptance of MVNO firms and extra service factors according to independent samples t-test analysis results.

Females have more inclination towards accepting Gross Markets, Gross Malls, Healthcare Companies, and Airlines as MVNOs compared to males. This can be explained with shopping, healthcare and travelling interests of women. Comparatively, males have a higher tendency to accept sports clubs and automotive companies as MVNOs as seen in Table 38.

Table 38- T-test Analysis for Gender & MVNO Firms

Group Statistics			Independent T-test			
	Gender	Mean (over 5)		T	Df	Sig. (2-tailed)
Internet Service Providers	Female	3.75	Equal variances assumed	-.15	274	.880
	Male	3.77				
Cable/Pay TV Service Providers	Female	3.13	Equal variances assumed	-.69	273	.494
	Male	3.23				
Gross Markets	Female	2.87	Equal variances assumed	2.66	271	.008
	Male	2.46				
Gross Malls	Female	2.77	Equal variances assumed	2.09	270	.037
	Male	2.46				
Banks	Female	3.07	Equal variances assumed	.66	274	.508
	Male	2.97				
Healthcare Companies	Female	2.72	Equal variances assumed	2.05	275	.041
	Male	2.40				
Media Companies	Female	2.91	Equal variances assumed	1.60	272	.111
	Male	2.66				
Sports Clubs	Female	1.81	Equal variances assumed	-3.71	277	.000
	Male	2.35				
Celebrities	Female	1.78	Equal variances assumed	-.66	272	.508
	Male	1.87				
Automotive companies	Female	2.00	Equal variances assumed	-1.97	274	.050
	Male	2.28				
Airlines	Female	3.07	Equal variances assumed	2.91	275	.004
	Male	2.62				

In terms of services, it is observed that women are more interested in “Extra services” in general than men (Table 39).

Table 39- T-test Analysis for Gender & Extra Service Factors

Group Statistics			T-test for Equality of Means			
	Gender	Mean (over 5)		T	Df	Sig. (2-tailed)
Personalized Discounts & Services	Female	4.16	Equal variances assumed	3.12	278	.002
	Male	3.82				
Segmented Services	Female	3.56	Equal variances assumed	2.26	278	.025
	Male	3.32				

In terms of switching factors no significant difference was found.

Working Status vs. MVNO Acceptance

Hypotheses 1d: Consumers with different working status are expected to have different attitudes towards acceptance of MVNO firms and services.

It was found that, respondents who don't work, tend to accept "Gross markets", "Gross malls", "Banks", and "Celebrities" as MVNO firms compared to the working ones. As 70% of the respondents are working and 30% of the respondents are mostly students; "Gross markets" and "Gross malls" can be meaningful in terms of shopping and interest in celebrities as MVNOs can be explained in terms of being fans. However, this consumer group also has inclination to accept "Banks" as MVNOs. So, it can be said, working status partially creates difference towards acceptance of MVNO' s in terms of potential firms (Table 40).

Table 40- T-test Analysis for Occupation Status & MVNO Firms

Group Statistics			Independent T-test			
	Gender	Mean (over 5)		t	df	Sig. (2-tailed)
Internet Service Providers	Occupied	3.82	Equal variances assumed	1.02	269	.309
	Not occupied	3.67				
Cable/Pay TV Service Providers	Occupied	3.19	Equal variances assumed	.26	268	.792
	Not occupied	3.15				
Gross Markets	Occupied	2.52	Equal variances assumed	-2.30	266	.022
	Not occupied	2.91				
Gross Malls	Occupied	2.49	Equal variances assumed	-2.43	265	.016
	Not occupied	2.89				
Banks	Occupied	2.88	Equal variances assumed	-2.71	269	.007
	Not occupied	3.35				
Healthcare Companies	Occupied	2.50	Equal variances assumed	-1.17	270	.245
	Not occupied	2.70				
Media Companies	Occupied	2.67	Equal variances assumed	-1.82	267	.070
	Not occupied	2.98				
Sports Clubs	Occupied	2.05	Equal variances assumed	-.28	272	.779
	Not occupied	2.10				
Celebrities	Occupied	1.72	Equal variances assumed	-2.17	268	.031
	Not occupied	2.04				
Automotive companies	Occupied	2.10	Equal variances assumed	-.84	269	.400
	Not occupied	2.23				
Airlines	Occupied	2.79	Equal variances assumed	-.96	270	.338
	Not occupied	2.95				

Smart Phone Usage vs. MVNO Acceptance

Hypotheses 2d: Consumers with smart phones are expected to have different attitudes towards acceptance of MVNO firms and services compared to standard mobile phones.

The independent T-test analyses for smart phone usage were run in terms of firms, extra services and switching factors. In extra services for working people and people who travel often, smart phone usage created a gap in terms of means towards these services.

Table 41- T-test Analysis for Smart Phone Usage & Extra Services

Group Statistics			Independent T-test			
		Mean (over 5)		t	Df	Sig. (2-tailed)
Discounts for the MVNO's owning malls/markets	Smart Phone	4.15	Equal variances assumed	.81	239	.418
	Regular phone	4.03				
Promotions for the MVNO's owning malls/markets	Smart Phone	4.18	Equal variances assumed	1.45	239	.148
	Regular phone	3.96				
Niche Services for Customer Age Groups	Smart Phone	3.82	Equal variances assumed	.45	239	.655
	Regular phone	3.75				
Niche Services for Customer Hobbies/Interests	Smart Phone	4.20	Equal variances assumed	1.89	238	.061
	Regular phone	3.90				
Niche Services for Customers who travel often	Smart Phone	4.07	Equal variances assumed	2.86	238	.005
	Regular phone	3.57				
Niche Services for Customers who work	Smart Phone	4.08	Equal variances assumed	2.17	238	.031
	Regular phone	3.72				
Niche Services for Children	Smart Phone	2.88	Equal variances assumed	2.01	236	.045
	Regular phone	2.52				
Niche Services for Customer Social Groups	Smart Phone	3.68	Equal variances assumed	1.77	239	.078
	Regular phone	3.37				
Niche Services for entertainment/social life	Smart Phone	4.04	Equal variances assumed	.93	237	.353
	Regular phone	3.89				

The consumers who use smart phones are more inclined to use extra services for working and travelling people. Smart phones became the necessities, especially for people who do not work in stable places. So, the consumers' acceptance of extra services for working and travelling people makes sense (Table 41).

Number of Lines vs. MVNO Acceptance

Hypotheses 2a: Consumers with more than one number of lines are expected to have different attitudes towards acceptance of MVNO firms and services.

The key point in this analysis was, consumers who have more than one mobile phone line may be expected to have a higher inclination to accept MVNOs compared to the consumers with one mobile phone line.

In order to perform the analysis, data was recoded to one line or more than one line. However, the results have shown that, having one line or more than one line does not create any difference in terms of MVNO acceptance.

Type of Line vs. MVNO Acceptance

Hypotheses 2b: Consumers with prepaid and postpaid lines are expected to have different attitudes towards acceptance of MVNO firms and services.

T-test for type of mobile service lines was conducted to find out whether there is any difference in consumers' acceptance towards MVNO in terms of line type or not. According to the results it is found that type of line is not a differentiating factor for switching factors or extra services; but it has a differentiating role for the candidate firms. "Internet service providers" are found more suitable as potential MVNO firms by post-paid line users than the pre-paid line users.

Below Table 42 shows the results of this analysis in detail.

Table 42- T-test Analysis for Type of Line & Firms

Group Statistics			Independent T-test			
	Line Type	Mean (over 5)		t	df	Sig. (2-tailed)
Internet Service Providers	Post-paid	3.90	Equal variances assumed	3.24	231	.001
	Prepaid	3.40				
Cable/Pay TV Service Providers	Post-paid	3.22	Equal variances assumed	.82	229	.412
	Prepaid	3.09				
Gross Markets	Post-paid	2.67	Equal variances assumed	-.26	228	.798
	Prepaid	2.71				
Gross Malls	Post-paid	2.61	Equal variances assumed	-.28	226	.781
	Prepaid	2.66				
Banks	Post-paid	3.01	Equal variances assumed	-.41	231	.681
	Prepaid	3.09				
Healthcare Companies	Post-paid	2.50	Equal variances assumed	-.61	232	.543
	Prepaid	2.61				
Media Companies	Post-paid	2.80	Equal variances assumed	-.53	229	.599
	Prepaid	2.89				
Sports Clubs	Post-paid	2.04	Equal variances assumed	-1.66	233	.098
	Prepaid	2.33				
Celebrities	Post-paid	1.76	Equal variances assumed	-1.31	230	.191
	Prepaid	1.96				
Automotive companies	Post-paid	2.13	Equal variances assumed	-.39	232	.699
	Prepaid	2.20				
Airlines	Post-paid	2.89	Equal variances assumed	.90	231	.371
	Prepaid	2.73				

Mobile Service Users Clusters vs. MVNO Acceptance

Hypotheses 4: Different Mobile Phone User Groups are expected to have different attitudes towards acceptance of MVNO firms and services.

In this part of the study, initially found mobile service user clusters' disposition towards MVNO acceptance was analyzed. Mobile Service Users Clusters were analyzed with "Potential MVNO firms", "Extra service factors", and "Switching factors".

There were no significant results found for "Extra services" or "Switching factors". However, in terms of candidate firms; it was clear that high-tech users attribute great potential to "Internet service providers" and "Cable/Pay TV service providers" than the standard mobile service users. The results of the analysis can be seen in Table 43 below.

Table 43- T-test Analysis for Mobile Service User Clusters & Firms

Group Statistics			Independent T Test			
	Service User	Mean (Over 5)		t	df	Sig. (2-tailed)
Internet Service Providers	High-tech	3.96	Equal variances assumed	2.11	266	.036
	Standard	3.67				
Cable/Pay TV Service Providers	High-tech	3.39	Equal variances assumed	2.04	265	.043
	Standard	3.09				
Gross Markets	High-tech	2.61	Equal variances assumed	-.64	263	.524
	Standard	2.71				
Gross Malls	High-tech	2.63	Equal variances assumed	.01	262	.990
	Standard	2.62				
Banks	High-tech	3.05	Equal variances assumed	.06	266	.953
	Standard	3.04				
Healthcare Companies	High-tech	2.51	Equal variances assumed	-.49	267	.627
	Standard	2.59				
Media Companies	High-tech	2.83	Equal variances assumed	.46	264	.643
	Standard	2.76				
Sports Clubs	High-tech	2.14	Equal variances assumed	.68	269	.496
	Standard	2.03				
Celebrities	High-tech	1.90	Equal variances assumed	.76	264	.446
	Standard	1.79				
Automotive companies	High-tech	2.19	Equal variances assumed	.36	266	.716
	Standard	2.14				
Airlines	High-tech	2.89	Equal variances assumed	.22	267	.827
	Standard	2.86				

Correlation Analyses

Hypotheses 5: “GSM performance factors” are correlated to attitudes towards acceptance of MVNO firms and services.

Correlation analyses were performed to see whether there is any correlation between “GSM operators’ performance factors” and “Extra service factors” or “GSM operators’ performance factors” and “Switching factors”. Correlation Analysis using Pearson correlation coefficients was applied on the factorized data in order to discover any relationships between these factors.

As it can be seen from Table 44 below, “Extra service factors” are all positively correlated with “GSM operators’ performance factors”. Of the correlations, the most correlated factors were “Personalized discounts and services” and “Tariff variety and prices” and “Segmented services” and “Brand, prestige and advertising”.

Table 44- Correlation Analysis Between GSM Operators’ Performance Factors and Extra Service Factors

		Brand, Prestige and Advertising	VAS and 3G	Competence and Customer Care	Tariff Variety and Prices	Discount Opportunities
Personalized Discounts and Services	Pearson Correlation	.426**	.340**	.193**	.456**	.207**
	Sig. (2-tailed)	.000	.000	.001	.000	.000
Segmented Services	Pearson Correlation	.403**	.389**	.209**	.320**	.296**
	Sig. (2-tailed)	.000	.000	.000	.000	.000

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

Table 45- Correlation Analysis Between GSM Operators' Performance Factors and Switching Factors

		Brand, Prestige and Advertising	VAS and 3G	Competence and Customer Care	Tariff Variety and Prices	Discount Opportunities
Price & Competence	Pearson Correlation	.252**	.239**	.234**	.308**	.284**
	Sig. (2-tailed)	.000	.000	.000	.000	.000
Brand & Image	Pearson Correlation	.441**	.213**	.090	.248**	.122*
	Sig. (2-tailed)	.000	.000	.131	.000	.042

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

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

According to results from Table 45, it can be deduced that, “Switching factor”-“Price& competence” is correlated with all of the “GSM operators’ performance factors”. The most correlated factors are “Price & competence” with “Tariff variety and prices”.

The other “Switching factor”-“Brand & image” is also correlated with all of the “GSM operators’ performance factors”, except “Competence and customer care” factor. The most correlated “GSM operators’ performance factor” with “Brand & image” is “Brand, prestige and advertising” factor, whereas the least correlated factor is “Discount opportunities”.

CHAPTER 6

IMPLICATIONS AND LIMITATIONS

The purpose of this thesis study was to evaluate expected consumer acceptance towards Mobile Virtual Network Operators (MVNOs) in Turkey.

In this study, initially, MVNOs were explored in detail. The basics of MVNOs, MVNO markets, current MVNO firms, and potential MVNO firms were studied in the literature. After an extensive literature review, MVNO potential for the Turkish market was studied. According to these studies, a questionnaire was prepared and delivered online.

After the data was gathered; descriptive, reliability, factor, cluster, ANOVA, and correlation analyses were performed by using SPSS with 280 respondents' data.

One of the most important findings of this research was about the potential attributed to various types of firms to act as MVNOs. Results of the analyses have shown that, consumers attach a higher potential to "Internet service providers" as MVNOs.

Another important finding was about the extra services, consumers would expect from these new players in the market. It is found that, consumers have a great inclination to accept "discounts" as extra services.

In addition to the overall findings about MVNO acceptance, many group difference analyses were conducted to see whether there are differences between

consumer segments in terms of their acceptance of MVNO firms and services. Some significant differences were found.

Firstly, it was found that different age groups have different importance levels toward potential MVNO firms. Youngest consumer group, ages between 18-24, attach a higher potential to “Gross malls”, and “Gross markets” as MVNOs; whereas the oldest group, ages more than 31, see a great potential in “Healthcare companies”, “Media companies”, “Sports clubs”, “Automotive companies”, and “Airlines” to act as MVNOs. Also, the youngest ones have a great inclination to accept “Personalized discounts & services” as extra services.

Gender has a differentiating role in consumers’ disposition towards MVNOs. Females have a greater inclination to accept “Gross markets”, “Healthcare companies”, and “Airlines” as MVNOs; whereas males attach a higher potential to “Sports clubs”, and “Automotive companies” as MVNOs. Besides it was found out that women are more interested in extra services than men.

Since all of the consumers were at least high school graduate, and most of them were university graduates, there were no significant findings about differences in education levels.

In terms of working status, findings have shown that non occupied people see a great potential in “Gross markets”, “Gross malls”, “Bank”, and “Celebrities” to act as MVNOs than the occupied people.

The results of income levels vs. MVNO firms ANOVA analysis have shown that, people who do not have regular income have a great inclination to accept most of the

firms as MVNOs. These are: “Gross markets”, “Gross malls”, “Banks”, “Healthcare companies”, “Media companies”, and “Automotive companies”.

Consumers’ usage of smart phone created a differentiation in terms of acceptance towards extra services. People who have smart phones are more inclined to use extra services for people who travel and who work often. According to respondents’ inclination toward niche services for working and travelling people; target consumer group can be created for the potential MVNO strategies.

In terms of mobile phone line types, consumers who have post-paid line types have more positive disposition than the pre-paid line users towards the firms, “Internet service providers”. In Turkey, internet subscribers need to pay bills monthly, there is no pre-paid option for the internet subscribers. It is not surprising to see that people who have post-paid line types are more inclined to internet service provider firms. Additionally, in Turkey post-paid and pre-paid lines have the percentages of 31% and 69% respectively. (Turkish Information and Communication Technologies Authority) Also, post-paid mobile subscribers and internet subscribers are increasing day by day. In the view of their growth trends, “Internet service providers” as MVNOs have advantage in the market.

Consumers with monthly mobile service expenditures of the range between 30 TL and 60 TL are more interested in firms as MVNOs: “Gross markets” and “Airlines” and in segmented services of “Extra services”.

Since there were no mutually exclusive groups for GSM companies, which the consumers belong; any analysis in terms of GSM Operators was performed.

In order to understand whether satisfaction levels from GSM operators create any differentiation for consumer behavior towards MVNO, ANOVA analyses were performed for “Potential MVNO firms”, “Extra services”, and “Switching factors”. To study the effects of the variables, all of the variables in the questionnaire were included in the analyses, not the factors of the variables. In terms of satisfaction levels, people who are not satisfied with their current operators have more inclination towards the potential MVNO firms: “Internet service providers”, “Cable/Pay TV service providers”, “Gross malls”, “Gross markets”, “Banks”, “Media companies”, and “Airlines”. There were no significant extra services according to consumers’ satisfaction levels. On the other hand, “Discounted tariffs” turned out to be the obvious switching factor for unsatisfied consumers. Lack of differentiation in extra services may be due to consumers’ focus of main GSM services, or consumers haven’t still imagined about the potential extra services.

According to mobile services usage, two clusters were created: standard mobile service users and high-tech mobile service users. The analyses have shown that, high-tech mobile service users are more inclined to use “Internet service providers” and “Cable/Pay TV service providers” as MVNO firms than the standard mobile service users.

Finally the results of correlation analyses between GSM Operators’ Performance Factors and MVNO Firms and Services have shown that most of the factors are correlated to each other. The only unrelated factors are the “Brand and image”- “Switching factor” and “Competence and customer care”-“GSM operators’ performance factor”.

To sum up, this study has shown that consumer groups will have different attitudes towards MVNOs from the perspective of age, gender, occupation status, mobile phone line types, mobile service user types and satisfaction levels from current GSM operators. The most used service is the “Standard calling service” and “Discounted tariffs” or “Discount opportunities” as extra services are the most effective ways of drawing consumer attention towards MVNOs. There are four pre-MVNOs of Turkish most popular football clubs operating on the basis of revenue sharing agreements with mobile network operator, Avea. However, in any of the analysis for the MVNO firms sports club firms turned out to be significant in terms of acceptance.

In this study, respondents gave their opinions based on a business which they do not know, since there isn't an MVNO market in Turkey. This study was based on the consumers' attitudes towards potential MVNOs and services. Besides MVNO business is a relatively new business, there is very limited literature, especially on the subject of consumer acceptance of MVNOs. It is not clear that this attitude-based study will be a reflection of consumers' potential attitudes in Turkey due to these reasons. A detailed behavior-based analysis should be performed after the MVNOs become active in the Turkish mobile communication market in the future.

The sample in this study was mostly young and early adult. This sample was adequate, since the young people are more inclined to follow the technological improvements and eager to try new innovations. However, MVNOs should address a broader sample, like GSM operators. For this purpose, a new research should be conducted with a sample representing a more uniform population distribution of the Turkish people in the future.

APPENDICES

A-QUESTIONNAIRE (ENGLISH)

Dear Participant;

This Survey is conducted for the master thesis written by Selen Özgür, who is a graduate student of the Management Information Systems Department at the Boğaziçi University. This research has been done to measure an important development's potential value by consumers that has been expected to take place in Turkey's mobile communication market in the near future.

Coming soon, many well-known companies, brands and agencies will lease necessary technology from 3 GSM operators (Turkcell, Vodafone, Avea) which are now busy in the communication market, and in this way they will be able to they can directly offer mobile communication service to consumers. This application has already gone on many countries in the World and the arrangement of a similar structure in Turkey has rapidly continued.

This research has been executed to determine which company, brand and agency should be involved to this newly developing market with which kind of services. Survey can be filled by all mobile phone subscribers. To have proper results, all questions need to be answered.

Thank you for your patience and support.

For any further questions and opinions:

Selen Özgür: selen.ozgur@boun.edu.tr

Hande Kımiloğlu: hande.kimiloglu@boun.edu.tr

1. Gender:

Female	
Male	

2. Age:

18-24	
25-31	
32-38	
39-45	
45 and older	

3. Marital Status:

Married	
Single	

4. Do you have any children?

No	
Yes	

5. If your answer for the previous question is yes, please state number and age of your all children below:

6. Education Status:

Primary School	
Secondary School	
High School	
University	
Post Graduate	

7. Occupation Status:

Working	
Not Working	

8. Job:

9. Monthly income range:

I do not have a regular income.	
0-500 TL	
500-1000 TL	
1000-2000 TL	
2000-3500 TL	
3500-5000 TL	
5000 and more	

10. Please state your mobile phone brand/model below: (If you have more than one, please state each of them)

11. How many mobile phone lines/numbers do you have?

1	
2	
3	
4 and more	

12. What is the type of your mobile phone line?

Post-paid	
Pre-paid	
Both	

13. In which range is generally your monthly mobile phone expense?

Less than 30 TL	
30-60 TL	
60-90 TL	
90-120 TL	
More than 120 TL	

14. Who pays for your mobile expenses (more than one option can be filled).

Myself	
My Spouse	
My Family	
My Company	
Other	

15. Which one is your GSM operator? (If you have more than one, please mark all related options)

Avea	
Turkcell	
Vodafone	

16. Please mark the most suitable option to you, related the satisfaction about your GSM operator. (If you use more than one, please consider the one you use most)

- a) I am satisfied with my current operator, I'm not thinking of changing it.
- b) I am satisfied with my current operator however, I may change it in case of attractive services/conditions offered.
- c) I am not satisfied with my current operator, I can change it.

17. Please mark the option at the scale indicating your use of mobile communication services below:

	Very often	Sometimes	Rarely	Do not use
Standard Calling Service				
Video Calling Service				
SMS				
MMS				

Internet connection via mobile phone				
Email Services				
Video Service				
Facebook, Twitter, etc. applications				
Broadcasts (news, weather, stock exchange services)				

18. How important is the performance of a GSM company for you at those fields mentioned below?

	Very important	Important	Neither important Nor Unimportant	Not very important	Not important
Tariff variety					
Discounted calling tariffs					
Discounted calling tariffs with predefined mobile numbers					
Discounted calling tariffs with all mobile operators					
Discounted roaming tariffs					
Discounted SMS tariffs					
Personalized tariff opportunities					
Bandwidth (Coverage area)					
Call center services					
Customer problem solving abilities					

Customer loyalty programs					
3G services					
Broadcasting newsletters (news, stock exchange)					
VAS for making life simpler					
Brand value					
Creative and pioneering advertisements					
Creative and pioneering promotions					
Participation in social accountability and cultural facility programs					

19. Suppose that those companies, brands and agencies in the mobile communication sector, mentioned below, lease necessary technological substructure from GSM operators; (Turkcell, Vodafone, Avea) then directly purchase mobile communication service to consumers, and offer various special charming advantages of their own brands to consumers. In this case, how high would be the possibility of your decision that you give up using your GSM operator and preferring those choices of mobile communication services mentioned below?

	Very High	High	Average	Low	Very Low
Internet Service Providers					
Cable/Pay TV Service Providers					
Gross Markets					

Gross Malls					
Banks					
Healthcare Companies					
Media Companies					
Sports Clubs					
Celebrities					
Automotive companies					
Airlines					

20. Some samples are offered for the extra services that such new generation GSM operators provide to their subscribers as well as standard mobile communication services. Please mark how much you interest with this each kind of services on the scale.

	Very Interested	Interested	Average	Less Interested	Not Interested
Discounts for the MVNO's owning malls/markets					
Promotions for the MVNO's owning malls/markets					
Niche services for customer age groups					
Niche services for customer hobbies/interests					
Niche services for customers who travel often					

Niche services for customers who work					
Niche services for children					
Niche services for customer social groups					
Niche services for entertainment/social life					

21. Please state how much these factors mentioned below, would influence you to change your current GSM operator with a new generation GSM operator.

	Very Important	Important	Neither important nor unimportant	Not Important	Not important at all
Discounted tariffs					
Brand value					
Brand/Person/Firm having vital role in Life					
Qualified mobile services					
Varied mobile services					
Personalized mobile services					

B-QUESTIONNAIRE (TURKISH)

Sayın Katılımcı;

Bu anket Boğaziçi Üniversitesi Yönetim Bilişim Sistemleri Yüksek Lisans öğrencisi Selen Özgür'ün mezuniyet tezi için gerçekleştirilmektedir. Araştırma, Türkiye mobil iletişim pazarında yakın gelecekte gerçekleşmesi beklenen önemli bir gelişmenin tüketiciler açısından potansiyel değerini ölçmek amacıyla uygulanmaktadır.

Çok yakında, tüketiciler tarafından bilinen ve tanınan birçok firma, marka ve kuruluş, şu an mobil iletişim pazarında faaliyet gösteren 3 GSM operatöründen (Turkcell, Vodafone, Avea) gerekli teknolojik altyapıyı kiralayarak tüketicilere doğrudan mobil iletişim hizmeti verebileceklerdir. Bu uygulama halihazırda dünyada çok sayıda ülkede süregelmekte ve Türkiye pazarında da benzer bir yapının hazırlıkları hızla sürmektedir. Bu araştırma bu yeni gelişen pazarda hangi firma, marka ve kuruluşların ne gibi hizmetlerle yer almaları gerektiğini belirlemek amacıyla yapılmaktadır. Anketi bir cep telefonu abonesi olan herkes yanıtlayabilir. Araştırmanın sağlıklı sonuçlar verebilmesi için tüm soruların yanıtlanması gerekmektedir.

Değerli zamanınız ve katkınız için teşekkür ederiz.

Anket ile ilgili soru ve görüşleriniz için:

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1. Cinsiyetiniz:

Kadın	
Erkek	

2. Yaşınız:

18-24	
25-31	
32-38	
39-45	
45 ve üzeri	

3. Medeni durumunuz:

Evli	
Bekar	

4. Çocuğunuz var mı?

Hayır	
Evet	

5. Bir önceki soru için evet cevabını verdiyseniz, lütfen çocuklarınızın sayısını ve yaşlarını belirtiniz.

6. Eğitim durumunuz:

İlköğretim mezunu	
Ortaokul mezunu	
Lise mezunu	
Üniversite mezunu	
Lisansüstü mezunu	

7. Çalışma durumunuz:

Çalışıyorum	
Çalışmıyorum	

8. Mesleğiniz/İşiniz:

9. Aylık net gelir aralığınız:

Belirli bir gelir kaynağım yok.	
0-500 TL	
500-1000 TL	
1000-2000 TL	
2000-3500 TL	
3500-5000 TL	
5000 TL 'den fazla	

10. Lütfen cep telefonunuzun markasını belirtiniz: (Birden fazla cihazınız varsa lütfen her birinin markasını belirtiniz.)

11. Kaç adet cep telefonu hattınız (numaranız) var?

1	
2	
3	
4 ve üzeri	

12. Cep telefonu hattınızın tipi:

Faturalı	
Kontörlü	
Her ikisine de sahibim	

13. Aylık cep telefonu kullanım harcamanız genellikle hangi aralıktadır?

30 TL 'den az	
30-60 TL	
60-90 TL	
90-120 TL	
120 TL'den fazla	

14. Faturalı hattınız var ise fatura ödemenizi, kontörlü hattınız var ise ön ödemenizi kim yapmakta? (Birden fazla seçenek işaretleyebilirsiniz.)

Kendim	
Eşim	
Ailem	
Çalıştığım şirket	
Diğer	

15. GSM operatörünüz (Birden fazla operatörünüz varsa ilgili tüm seçenekleri işaretleyiniz.)

Avea	
Turkcell	
Vodafone	

16. GSM operatörünüzden memnuniyetiniz ile ilgili aşağıdaki seçeneklerden sizin için en uygun olanını seçiniz. (Birden fazla GSM operatörünüz varsa lütfen en sık kullandığınız markayı düşünerek yanıtlayınız.)

a) GSM operatörümden çok memnunum, değiştirmeyi düşünmüyorum.

b) GSM operatörümden memnunum ama bana daha cazip şartlar/hizmetler sunulursa başka bir operatöre geçebilirim.

c) GSM operatörümden memnun değilim, başka bir operatöre geçebilirim.

17. Aşağıdaki mobil iletişim hizmetlerinin her birini kullanma derecenizi ölçek üzerinde belirtiniz.

	Sık sık kullanıyorum	Ara sıra kullanıyorum	Çok nadir kullanıyorum	Hiç kullanmıyorum
Standart görüşme				
Görüntülü görüşme				
SMS (Kısa mesaj) alışverişi				

MMS (Resim, müzik, video içeren multimedia mesaj) alışverişi				
Cep telefonundan Internet'e bağlanma				
Cep telefonundan e-posta alışverişi				
Cep telefonundan TV, video izleme				
Cep telefonundan Facebook, Twitter gibi sitelere bağlanma				
Güncel haber, hava durumu, borsa, trafik gibi bilgi hizmetleri				

18. Bir GSM şirketinin aşağıdaki alanların her birindeki performansı sizin için ne derece önemlidir?

	Çok Önemli	Önemli	Ne Önemli Ne Önemsiz	Pek Önemli değil	Hiç Önemli Değil
Tarifelerinin çeşitliliği					
Görüşme ücretlerinin uygunluğu					
Sık kullanılan numaralarla indirimli görüşme olanağı sunması					
Tüm operatörlerle indirimli görüşme olanağı sunması					
Yurtdışı ile indirimli görüşme olanağı sunması					
Mesaj gönderme hizmetini uygun fiyata sunması					
Kişiyeye özel tarifeler oluşturabilmesi					
Kapsama alanının genişliği, gücülüğü					
Çağrı merkezi hizmetleri					
Müşteri sorunlarına kısa sürede çözüm getirmesi					
Cazip müşteri sadakati ödüllendirme programlarının olması					

3G hizmetleri					
Bilgi hizmetleri (güncel haberler, iş dünyası, vb.)					
Yaşam kolaylaştırıcı destek hizmetleri (şehir haritası, trafik, hava ve yol durumu, vb.)					
Güçlü bir marka imajı oluşturmuş olması					
Reklam ve tanıtım faaliyetlerindeki başarısı					
İlginç ve öncü promosyon kampanyaları yapması					
Sosyal sorumluluk ve toplumsal hizmet çalışmaları yapması					

19. Aşağıdaki firma, marka, kişi ya da kuruluşların mobil iletişim sektöründeki mevcut GSM operatörlerinden (Turkcell, Vodafone, Avea) gerekli teknolojik altyapıyı kiralayarak tüketicilerine doğrudan mobil iletişim hizmeti sattıklarını ve bu hizmet ile birlikte kullanıcılara kendi markalarına özel çeşitli avantajlar da sağladıklarını düşününüz. Bu durumda mobil iletişim hizmetini mevcut GSM operatörünüzden vazgeçerek aşağıdaki seçeneklerden almaya karar verme olasılığınız ne derece yüksek olurdu?

	Çok Yüksek	Yüksek	Ortalama	Düşük	Çok Düşük
Bir İnternet servis sağlayıcısı					
Kablolu/ücretli TV yayın sağlayıcıları (Digiturk, D-smart)					
Büyük süpermarket zincirleri (Carrefour, Migros gibi)					
Büyük departmanlı mağazalar (Boyner, YKM gibi)					
Bankalar					
Sağlık kuruluşları					

TV kanalı, gazete gibi yayın organları (NTV, Hürriyet, vb.)					
Futbol kulüpleri					
Ünlü kişilikler					
Otomotiv şirketleri					
Havayolu şirketleri (THY, Atlasjet, Pegasus, vb.)					

20. Aşağıda bu tip yeni nesil GSM operatörlerinin sundukları standart mobil iletişim hizmetlerinin yanısıra kullanıcılarına sağlayabilecekleri ekstra hizmetlere örnekler sunulmuştur.

Bu tür hizmetlerin herbirine ne derece ilgi gösterebileceğinizi ölçek üzerinde belirtiniz.

	Kesinlikle İlgilenirim	İlgilenebilirim	Kararsızım	Pek İlgilenmem	Kesinlikle İlgimi Çekmez
Kendi mağazası/markası için bana sağlayacağı indirimler					
Kendi mağazası/markası için bana sağlayacağı özel olanaklar, öncelikler					
Benim yaş grubuma yönelik olarak sunulabilecek özel hizmetler					
Hobilerim, ilgi alanlarım ile ilgili sunulabilecek özel, ilginç hizmetler					
Sık seyahat edenlere sunulan özel hizmetler					
Çalışanlara yönelik sunulan özel hizmetler					
Çocuklara yönelik sunulan özel hizmetler/avantajlar					

Ait olduğum belli bir sosyal gruba yönelik hizmetler/avantajlar (memleketim, mezun olduğum okul, vb.)					
Eğlence, sosyal yaşama yönelik avantajlar					

21. Mevcut GSM operatörünüz yerine bu tip bir yeni nesil GSM operatörüne geçmenizde aşağıdaki faktörlerin her birinin ne derece etkili olabileceğini belirtiniz.

	Çok Etkili Olur	Kısmen Etkili Olur	Kararsızım	Pek Etkili Olmaz	Hiç Etkili Olmaz
Fiyatının uygunluğu					
Marka değerinin/imajının prestiji					
Yaşamımda çok yeri olan bir marka, kişi, kuruluş, vs. olması					
Daha kaliteli mobil iletişim hizmetleri sağlaması					
Daha kapsamlı/çeşitli mobil iletişim hizmetleri sağlaması					
Daha kişiye özel mobil iletişim hizmetleri sağlaması					

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