

THE FACTORS AFFECTING THE ADOPTION OF SELF-SERVICE TECHNOLOGIES IN
MOBILE TELECOMMUNICATIONS INDUSTRY IN TURKEY



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TURKEY**

BY

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PLAGIARISM

I hereby declare that all information in this document has been obtained and presented in accordance with academic rules and ethical conduct. I also declare that, as required by these rules and conduct, I have fully cited and referenced all material and results that are not original to this work.

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ABSTRACT

Technology is no longer just a driver but a necessary platform for future development. Delivering outstanding customer service has become a fundamental part of almost every company's rules book. Self-service technologies are defined like “technological interfaces that enable customers to produce a service independent of direct service employee involvement” (Meuter, Ostrom, Roundtree, & Bitner, 2000). Self-service is a good and effective way of empowering the client. Besides allowing consumers better autonomy over the service, SSTs also decrease workload and expenses of service providers. This study aims to understand the factors which effect adoption of Self-Service Technologies in mobile telecommunications industry in Turkey. Studies in the literature cover a variety of industries such as mobile banking, marketing and internet shopping. However, there is no study that analyzes self-service applications in the telecommunication sector in Turkey. Davis's (1989) Technology Acceptance Model establishes the foundation of structural model. Model includes perceived usefulness, perceived ease of use, attitude toward use, and behavioral intention. Compatibility is included from Roger's Diffusion of Innovation Theory. Personal innovativeness, system availability and perceived security are considered as other determinants of the technology acceptance process. Primary data is collected via online questionnaire. 314 of answers in questionnaire were used for analysis. Normality test is done to understand how the data is distributed. Then, factor and reliability analyses are followed by correlation and regression analysis. Each scale used in the questionnaire has good level of validity and reliability.

Key words: Technology acceptance model, self service applications, mobile communications

ÖZET

Teknoloji artık yalnızca bir itici güç değil, gelecek için gelişim ve ilerleme için gerekli bir platformdur. Müşterilere sıra dışı bir hizmet sunmak, neredeyse her şirketin kural kitabının temel bir parçası haline geldi. Self servis teknolojileri, “müşterilerin, doğrudan hizmet çalışanlarının katılımından bağımsız bir hizmet üretmesini sağlayan teknolojik arayüzler” olarak tanımlanmaktadır (Meuter, Ostrom, Roundtree ve Bitner, 2000). Self servis, müşteriye güçlendirmenin iyi ve etkili bir yoludur. SST'ler, tüketicilere hizmet süreci üzerinde daha iyi bağımsızlık sağlamanın yanı sıra hizmet sağlayıcıların iş yükünü ve giderlerini de azaltır. Bu çalışma, Türkiye'de mobil telekomünikasyon endüstrisinde Self Servis Teknolojilerinin benimsenmesini etkileyen faktörleri anlamayı amaçlamaktadır. Literatürdeki çalışmalar mobil bankacılık, pazarlama ve internet alışverişi gibi çeşitli sektörleri kapsamaktadır. Ancak Türkiye'de telekomünikasyon sektöründe self servis uygulamalarını inceleyen bir çalışma bulunmamaktadır. Davis'in (1989) Teknoloji Kabul Modeli, araştırma modelinin temelini oluşturmaktadır. Model, algılanan fayda, algılanan kullanım kolaylığı, kullanıma yönelik tutum ve davranışsal niyeti içermektedir. Uyumluluk, modele Roger'ın Yeniliklerin Yayılması Teorisi'nden dahil edilmiştir. Kişisel yenilikçilik, sistem kullanılabilirliği ve algılanan güvenlik, teknoloji kabul sürecinin diğer belirleyicileri olarak kabul edilmiştir. Birincil veri toplama işlemi çevrimiçi anket yoluyla gerçekleştirilmiştir. Anket 327 katılımcı tarafından tamamlanmış, 314 cevap analiz için kullanılmıştır. Verilerin nasıl dağıldığını anlamak için normallik testi yapılmıştır. Güvenilirlik ve faktör analizlerinin ardından korelasyon ve regresyon analizi uygulanmıştır. Ankette kullanılan her ölçeğin geçerlik ve güvenilirliği iyi düzeyde çıkmıştır. Sonuç olarak, algılanan fayda, algılanan kullanım kolaylığı, algılanan güvenlik ve sistem kullanılabilirliği, kullanıma yönelik tutum ile doğrudan ve önemli bir ilişkiye sahiptir.

Anahtar kelimeler: Teknoloji kabul modeli, self servis uygulamaları, mobil telekomünikasyon

To my dear family



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ABBREVIATIONS

1G	: First Generation
2G	: Second Generation
3G	: Third Generation
4G	: Fourth Generation
4.5G	: 4.5 Generation
5G	: Fifth Generation
ATM	: Automated Teller Machine
ABPRS	: Address Based Population Registration System
ANOVA	: Analysis of Variance
CSP	: Communications Services Provider
DOI	: Diffusion of Innovation
GSM	: Global System for Mobile Communications
ICT	: Information and Communication Technology
IoT	: Internet of Things
KMO	: Kaiser-Meyer-Olkin
M2M	: Machine-to-Machine
OTT	: Over-The-Top
PTT	: Posta ve Telgraf Teşkilatı
SST	: Self-Service Technology
TAM	: Technology Acceptance Model
TBSS	: Technology Based Self Service
TPB	: Theory of Planned Behavior
TRA	: Theory of Reasoned Action
TTAŞ	: Türk Telekomünikasyon Anonim Şirketi
TUIK	: Turkish Statistical Institute
UTAUT	: The Unified Theory of Acceptance and Use of Technology

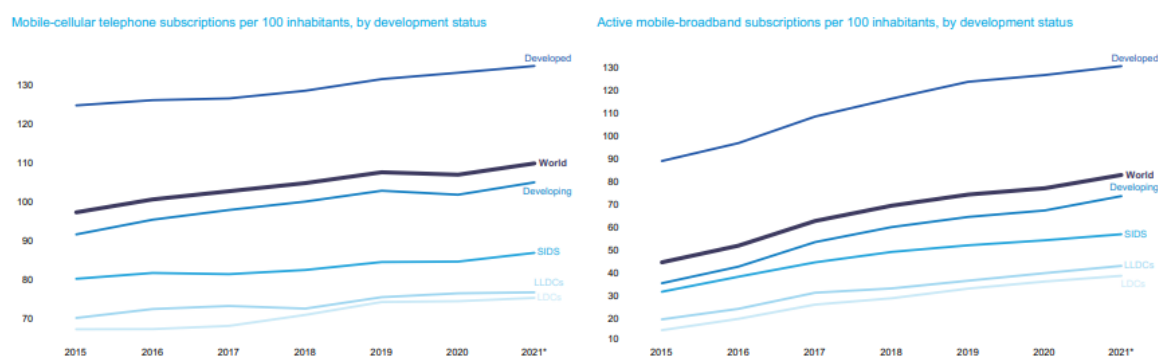
1. INTRODUCTION

The rapid progress and the increased reliance on technology affect consumers in different ways. They have led to major changes in the consumer demands, needs and the way they behave. In the last 15 years, advancements in “Information and Communication Technology” (ICT) and rapid proliferation and usage of smart technologies have influenced people's lives. It caused many traditional habits of people to change both in the world and in our country. In response to this, companies had to make significant changes in their products and services in order to respond sophisticated requests and expectations of consumers by taking innovative steps.

Definitely, mobile devices are one of the most successful and highly accepted products in the digital age (Aydin & Burnaz, 2016). According to International Telecommunication Union’s report, in both developed countries and in low-income markets where fixed phone and broadband infrastructure is poor, mobile devices are highly owned and number of mobile cellular subscriptions are increasing year by year and reached up to 110 subscriptions per 100 people (International Telecommunication Union, 2021). In other words, the amount of mobile devices in the world has exceeded the amount of people as in the below figure.

Figure 1

Current status of mobile telephone and mobile broadband subscriptions



From International Telecommunication Union (2021)

With the proliferation of mobile devices, their features have improved and they have become essential parts of everyday life along with the advancements in related technologies and investments. Correspondingly, the share and importance of mobile devices in accessing the internet is growing as another important aspect of daily life (Aydin & Burnaz, 2016). According to Information Technologies and Communications Authority's report, amount of mobile internet usage increased by 30% in 2021 compared to the same quarter of previous year (Bilgi Teknolojileri Ve İletişim Kurumu, 2021). Data presented on We Are Social & Hootsuite's Digital 2022 Turkey Report shows that 95.5% of internet users in Turkey use mobile phone to access the internet (DataReportal, 2022).

Our digital foot print has expanded rapidly over the past 10 years. Information technologies have expanded to numerous everyday issues and the use of information technology based products and services has gained more and more broad currency. Video calls and online messaging with someone from anywhere in the world has become possible with a single click. Many things, such as making banking transactions without going to the bank, purchasing a new electronic device from a different country, shopping for groceries on the internet have become ordinary and are rapidly replacing traditional practices. Thanks to the mobile internet, along with smart phones and tablets, time and place constraints have been eliminated and it is now commonplace to make these transactions while sitting at home or playing in the park with our kid.

In today's digital world, companies are questioning their business models, products and services, the experience they provide to their customers with changing customer behaviors, the speed of technological progress and increasing digitalization. Studies conducted in the period from 1980s to 2000s show that new capital investments made by nearly half of enterprises are about ICT (Venkatesh, Morris, Davis, & Davis, 2003). Relentless innovation is the key to achieve a sustainable competitive advantage in the

competitive markets. On top of allowing consumers better autonomy over the service process, SSTs also decrease the workload of service providers (Ding et al, 2007). Many researches show that consumer self-service solutions decrease costs, improve productivity, increase performance, and turn prospects into consumers. Desired results are achieved with successful investments. However in case of failure, hard situations are encountered such as financial losses and employee dissatisfaction. As positive and negative thoughts regarding technology exist among people, inadequate use of technological systems cause troubles even investments are increased by companies. Low utilization of technological systems and services has been regarded as a primary issue behind the “productivity paradox” associated with low returns on corporate investment in new technology (Venkatesh & Davis, 2000). The study of users' problems related to technology adoption has become a high priority research question because information technologies are not utilized adequately despite its current advantages.

Rapid developments in wireless technologies and widespread use of cell phones encourage firms to invest heavily in the creating of mobile self service applications. However, the rate of adoption of these mobile services is lower than expected and is still in developmental stage. Especially in developing countries, the diffusion of new digital technologies may remain low and productivity gains slow down. There are customers who do not trust self service technologies and prefer other methods due to their risk perception. As a result, understanding and establishing the circumstances for people to accept information technology remains as a significant and prioritized research subject (Venkatesh & Davis, 2000). Since the 1970s, the information systems literature has focused on studies on the means and reasons that leads people to adopt technology. Several theories have emerged as a consequence of studies about the usage of information technologies made by various scholars (Venkatesh et al., 2003).

The structure of company-consumer relationship is changing fundamentally with comprehensive digital implications for organizations and consumers. One of the most significant effect of technology's rising importance is an increase in self-service technologies, which require consumers to deal with technological systems rather than company employees (Meuter et al., 2000). However, there has been limited scientific study on people's willingness to utilize such systems. (Parasuraman, 2000).

Meuter et al. (2000) were the researchers who mentioned the word “Self-Service Technologies” (SSTs) for the first time. They identified as “technological interfaces that enable customers to produce a service independent of direct service employee involvement”. The word and its definition have acquired considerable attention among other researchers in subsequent studies as Dabholkar and Bagozzi (2002), Curran and Meuter (2005).

In our country, banks and mobile communication companies are the service companies that use technology most effectively. They created websites and mobile applications to respond the requests and needs of the customers. Customers who are using digital channels put a premium on experience in addition to the products, services and information delivered on time and according to their needs. Along with technology, SSTs also entered the field of marketing and specifically influenced the number and quality of communication and contact points with consumers. There is strong relation between technology, SSTs and customer experience and they transformed customer experience from start to finish. Nowadays, as expectations of the customers have changed with the progress in digitalization, more effective relations are established with customers and personalization have become a must for brands and companies.

The individual preference of consumers to choose a specific kind of product or service has been named as acceptance. (Kotler & Keller, 2006). Customers are inevitably subjected to technological interfaces while using self-service technologies during the service delivery process. Customers' opinions about technology use will also influence their likelihood of adoption. Attitudes and actions of the customers influenced their intentions and usage of SSTs. This situation drew solid interest among scientists. SSTs didn't only change the understanding of traditional service delivery, which completely separates creation of the service and use, but they also changed the consumers' roles and mindset (Yang, Liu, & Ding, 2012). Customers expect autonomy and flexibility. They must have the option to search for the products and services on their own, and they need to do it anytime they want. For organizations, SSTs increased the competitive power of companies and profit levels significantly and enable them to provide better, more stable, customized services (Bitner, Ostrom, & Meuter, 2002).

Customers also get the advantage of SSTs like businesses, such as saving time and resources, decreasing reliance on time and place, faster resolution of complaints, more reliable service, without human interaction. Many ecommerce, finance, and informational websites fall within this category. Customers can make banking transactions, buy, and search healthcare issues at any moment, mostly performing their transactions faster than they could do face to face or over the phone (Bitner et al., 2002).

As the online experience turned out to be more sophisticated, service companies should understand that the internet is a bridge between businesses and consumers, offering better and more personal experiences to each user. Majority of service providers and sellers have started to utilize a range of technology that can allow clients to access services and purchase online without direct personal interaction. These digital interfaces have been referred as self-service technologies (Meuter et al., 2000). SSTs are able to meet the intensive

demands of customers and do better than alternative interpersonal service distribution channels because SSTs can provide more savings in resources, time or space. With digital interfaces, SSTs allow consumers to get service which is independent of interaction with staff in the service (Meuter et al., 2000). Furthermore, SST applications would generate a wide range of self-service solutions by being connected with internet. For example; digital kiosks, mobile banking, web-based electronic money transfer, telecommunications self-service applications and so on. Also, customers expect good quality from these technological services as much as they do from services provided by people. (Bitner, 2001)

In terms of the wider existence of technology in service delivery, it is important to consider the readiness of consumers to use technological solutions such as SSTs (Parasuraman, 2000). While customers are getting gradually knowledgeable in their digital experiences, they can reject such SSTs if they feel dissatisfied, even if the benefits are evident (Meuter et al., 2003). Influence of customers' personalities on adoption of emerging innovations or services should be considered to reliably assess customer experience and attitude, either in the field of work or at home (Parasuraman, 2000). Consumers' attitudes toward new technologies are commonly relies on the core positive and negative technical views as innovativeness, insecurity, etc.

Research that describes the major determinants of how consumers evaluate SSTs is still understudied. Currently, limited studies were conducted to investigate the factors affecting consumer's intention to adopt and use, or assessment of SSTs, as well as the resulting effects on behavior. The research gap is highly important because the number of clients who needs to serve themselves via technological interfaces is rising (Parasuraman, 2000). Also this is not only essential for only service companies, but also companies provide new products.

The purpose of this research is to determine what affects consumers' adaptation behavior of self-service applications offered by mobile telecommunication companies. There are few examples in the literature that examine technology adaption in different sectors. Studies in the literature cover a variety of industries such as mobile banking, education, healthcare, marketing and internet shopping. However, there is no study that analyzes self-service applications in the telecommunication sector in Turkey. There is a gap in the literature which investigates the characteristics of recent digital services, their position in customers' perspective and the relation of these services and acceptance of customers. Furthermore, following a detailed review of the literature, a model is developed in this thesis according to the constructs used in previous research. Finally, no study done in Turkey on this subject was found throughout the literature review. As a result, to the extent I know, this research was not performed with this population earlier.

2. DIGITAL REVOLUTION AND SELF SERVICE TECHNOLOGIES

2.1. Digital Revolution

The digital revolution has altered the economic system and society from the late 1980s. The rise of a digital age started by means of the expanding utilization of digital channels and portals as business strategies for providing products and services. The adoption and implementation of sophisticated digital technologies as 5G, IoT, big data and artificial intelligence indicates that we are transitioning from a hyper-connected to a digitalized world. (CEPAL, 2021)

The emergence of low cost mobile devices with higher data storage and the easy access to the internet has fundamentally altered several industries. Innovations which have a competitive impact have the ability transform existing markets in a short period of time. Only less than 20% of the major U.S. companies have retained their initial significance 50 years after the launch of Standard & Poor's 500 index in US. (Standard & Poor's, 2007). Many companies have vanished by being acquired by more successful rivals or lost their economic power due to not investing on a more innovative key business. This was a result of difficulties in introducing a new strategy or underestimation of the pace of innovations and changing market trends.

About 1990, introduction of World Wide Web represented another critical moment in the acceleration of globalization. The rapid advancement of ICT has removed the traditional dependency of services to the location and time. Modern digital services especially Internet-based services are gaining increasing share of value addition (Jetter, Satzger, & Neus, 2008).

Online communication tools were nearly uncommon among organizations twenty years ago but nowadays, business would be impossible without it. The current trend is toward a digitalized economy, with production and consumption patterns based on the integration of digital technologies in all economic, social, and environmental dimensions.

The digital economy provides customers the ability to access a wide range of information in a variety of goods and services and more efficient ways of online consumption. The transition to a digital economy implies that satisfying customers' requirements with smart devices, which are typically connected with advanced, highly tailored services. (CEPAL, 2021)

2.2. Definition and Categorization of Self Service Technologies

To thrive in today's quickly evolving competitive climate, businesses must constantly assess and refresh their goods, services, manufacturing processes, and technology. Technology has made to get service and buy products easier and more accessible, particularly in the areas of commerce, banking, and telephones. It also allowed us to manage time more efficiently (Hsieh, 2005).

The term "Technology Based Self Service" (TBSS) was coined by Dabholkar (1996). This term is often used by Bitner et al., (2002), and Meuter et al., (2003). Many studies about SSTs were conducted later on. Nevertheless, these studies highlighted used technologies instead of SST practices. According to Anselmsson (2001), TBSS are the activities or advantages that service providers offer on the basis of concrete technologies which enable consumers to get all or part of the service on their own.

SSTs are used in a wide range of applications, including cash machines (ATMs), self-service kiosks with various functions (payment kiosks, info kiosks and digital photo kiosks), vending machines, self-service gas stations, self-checkout systems in markets and airport check-in kiosks. Furthermore, many classic web based and mobile application services, such as mobile or internet banking, are classified as SST.

SST refers to technological interfaces that enable customers to generate a service without the need for direct interaction from a service personnel (Liu, 2012). To put it another

way, Globerson and Maggard (1991) stated SSTs as an innovative sales and service platform in which transactions are executed by customers without the necessity for direct touch between the consumer and the company. SSTs are technology interfaces that offer customers the opportunity to obtain service without requiring human involvement (Meuter et al., 2000).

Historically, almost all service interactions involved both an employee and a consumer (Meuter et al., 2000). So, in order to benefit from services in traditional service processes, customers must be present at the relevant service point and communicate with service personnel. This high level of interaction between the service provider and the customer results in variability in each service offered (Kotler & Keller, 2006), increased unit cost, and unpredictable changes in customer behavior as a result of interaction with service personnel. To avoid all of this, with the rapid advancement of technology, self-service technologies have begun take their place in the service process (Kılıç & Karaosmanoğlu, 2019). The use of SSTs in service delivery separates the provider's employees from the transaction and puts more responsibility on the client to complete the transaction. (Curran & Meuter, 2005).

Also in mobile telecommunications industry, customers increasingly choose to access their Communications Services Provider (CSP) online instead of through a conventional call center or retail store. This evolving customer behavior puts increasing pressure on CSPs to guarantee that their online services or mobile applications provide 24x7 self-service. A dedicated Self Service mobile application provide a skillful platform for offering a variety of features such as: purchasing new services and add-ons; bill inquiry and payment ; managing usage; service management; online sales; getting promotions and top-up. Consumers can access to all account and service administration functions at their fingertips via any mobile device.

As the digital revolution has touched every aspect of our lives, academic scholars have highlighted the important role of technology in service delivery and number of studies on

SSTs increased. Therefore, a classification was required for SSTs. Curran and Meuter (2005) evaluated various types of SSTs according to adoption factors and found that the effect of investigated adoption factors differed depending on the kind of SST, supporting the necessity for SST classification by interface and purpose.

Actually, SSTs may be divided into multiple categories. Meuter et al. (2000) presented a categorization table as the scope of SSTs are expanding and usage rates are increasing. As shown in Figure 2, SST categories were defined by Meuter et al. (2000) according to two aspects: interface and purpose.

Figure 2

SST Classification by Interface and Purpose

Interface Purpose	Telephone/Interactive Voice Response	Online/ Internet	Interactive Kiosks	Video/CD*
Customer Service	•Telephone banking •Flight information •Order status	•Package tracking •Account information	•ATMs •Hotel checkout	
Transactions	•Telephone banking •Prescription refills	•Retail purchasing •Financial transactions	•Pay at the pump •Hotel checkout •Car rental	
Self-Help	•Information telephone lines	•Internet information search •Distance learning	•Blood pressure machines •Tourist information	•Tax preparation software •Television/ CD-based training

* Video/CD is typically linked to other technologies to provide customer service and transactions.

From Meuter et al. (2000)

According to the used interface; it is accepted that SST is classified into four categories. (Hsieh, 2005):

- **Telephone based or interactive voice response systems:** A variety of companies use these systems for customer orders, invoice information, and customer questionnaires. Banks, insurance firms, restaurants, cafes and also even colleges benefit from these.

- **Interactive kiosks:** They are placed in many malls, retail chains, airports, etc. Kiosks can assist customers in purchasing a product, getting information, printing boarding or baggage pass. In hotels, kiosks enable customers for easy and fast checkout.
- **Internet-Based or Online Connection Systems:** ATMs, internet banking, e-commerce, digital operators and invoice management systems are frequently used examples of online systems and they are getting increasingly popular. Nowadays, courier companies help in tracking items 24/7 a day.
- **Video Based Technologies:** This kind of SST is mainly used in education contexts. Companies use this medium to train their personnel, engage sales people with new goods and promote these new goods to customers. In a business-to-business scenario, these SSTs let clients to discover and practice products or services on their own at their leisure time. In the recent period, universities have also entered into the game by offering bachelor, postgraduate, and continues learning programs via video and CD forms.

Organizations deliver SSTs for a number of reasons, which are largely represented by the lines in Figure 1. In terms of purpose; SSTs are classified into three categories (Meuter et al., 2000). As first purpose, various sorts of customer service are already delivered via technology. Account inquiries, bill payment, frequently asked questions are some examples of customer service being delivered by SSTs. Yurtiçi Kargo's digital cargo tracking, Oracle's online assistance, and Akbank's phone and internet banking systems are some instances of expertise in this area (Meuter et al., 2000).

Transactions takes a second, SST market grows quickly. Customers may order, purchase, and get information from businesses without engaging with their personnel directly. Notable SST transactions include Hilton's check-in kiosks, Hepsiburada.com, insurance and retirement application of Allianz and internet based home rental booking by Airbnb.

According to latest reports, worldwide e-commerce sales for both consumer and business-to-business increased by 4% in 2019 compared to 2018 and reached to \$26.7 trillion. (Meuter et al., 2000) (UNCTAD, 2020).

The third purpose of SSTs is self-help, which describes the systems that allow consumers to study, get information, educate themselves, and get services by their own. Frequently asked questions of web sites, bill details applications, telephone-based medical support voice assistants and devices which are used as tour guide in museums and art galleries are a few examples. (Meuter et al., 2000).

Besides of these, some service types are offered with hybrid solutions that incorporate STT and service personnel, while others are offered with only SST. Passengers, for example, can check in using a kiosk at the airport. However, in order for the baggage to be delivered, it is necessary to contact the airline employees. (Castro et al., 2010).

2.3. Advantage and Disadvantages of Self Service Technologies

The telecommunications industry uses the capabilities of digital solutions in many ways to recognize and manage its customers, offer the right goods and services to their customers' demands, leverage alternative distribution channels and reduce their costs. In this competitive industry, IT technologies have become the most significant tool for professionals who are trying to reduce costs while enhancing efficiency and profitability. In this context, with its increasing usage day by day, self-service technologies are becoming more important for telecommunications industry.

In customer's perspective, customer self-service application in telecom is an innovative solution. This application should provide the customer additional service capabilities, functions, and value. In the meantime, the service provider will profit with the ultimate goal of lowering operating costs and improving service quality. (Panajotovic &

Odadzic, 2009) Self-service technology provides a considerable competitive edge in several areas, like efficiency, trust, shorter time to market, and lower labor expenses to telecom companies (Gültekin & Küçükkancabaş Esen, 2020).

Several companies attend the self-service trend without sufficient consideration. Clearly, self-service is a cost-cutting measure, however poorly designed and implemented SST can raise expenses and irritate customers. It's not only about increasing operational savings; it's also about increasing customer experience. The selected SST should be an extension of your company's existing business culture. (Hsieh, 2005)

In general, encouraging consumers to utilize digital technologies in service interactions is difficult. One of the most challenging use of technology has been removing for the company's employees from service delivery. This application of technology has a broad attraction to service providers since it helps to provide standardized service, cut labor costs, and extend delivery alternatives. However, if customers do not embrace it, it may be a big waste of resources. As a result, understanding how to effectively develop, maintain, and market new technological services is critical if we need to have the highest probability of customer adoption (Curran & Meuter, 2005).

According to Bitner et al. (2002) companies provide SSTs to accomplish three major objectives;

- **To decrease the cost of customer service:** Companies can reduce the amount of work at the customer care department by minimizing the number of incoming customer calls and transferring the majority of customer care activities and new product or service requests to the clients to digital channels. (Bitner et al., 2002).
- **To enhance customer satisfaction and retention:** The mobile self-service app is going to be the consumer's doorway to the service provider. CSPs can utilize this as a medium for increased consumer engagement as long as the contact is tailored and

secure. Customers mostly demand the digital alternative channels and will show their dissatisfaction by switching to a rival if it is not delivered. If the new technological solution is perceived to be superior in some manner to the old interpersonal one, customer happiness may actually rise. (Bitner et al., 2002).

- **Acquisition of new customer groups:** SSTs are used to open up new lines of communication with formerly unreachable customer groups. Traditionally, consumers were acquired from a certain geographic location or a limited customer group was being communicated. However, Digital SSTs enable businesses to significantly extend their client base. Many businesses find it highly enticing to send personalized offers to clients by building a comprehensive interaction suite through the mobile selfservice app. These will be presented to customers automatically when they enter the app, and their acceptance will increase the revenue. Boosting the marketing activities by using a discreet direct marketing tool to promote new products and services. Increase the amount of new customer orders by contacting to consumers with well-targeted, tailored offers right on their smartphones or desktop devices. (Bitner et al., 2002).

To briefly mention other advantages of SST applications; simplifying sales and troubleshooting, proactive outbound care, receiving customer feedbacks, improved capabilities for tracking customer experience, the capability to construct a consumer profile depending on the activities of the customer, streamlined business flows, resolving service or network issues in less time and profit rise (Panajotovic & Odadzic, 2009).

Obviously, there are some disadvantages as well as the benefits of these technologies. Given that one-to-one relationship with the customer is very important in some industries like retail, self-service practices that minimize the relationship with the customer may negatively impact the brand perception and loyalty of customers. There is a well-known business saying

that "customer is always right," which means that staff should prioritize the customers in order to attain maximum customer satisfaction and generate repeat purchases. Nevertheless, one unpleasant client or an unexpected negative mood might cause the general outcome to change, resulting in a disagreement, dispute, or even quarrel if the situation is unmanageable (Mexen, 2015).

As the usage of self-service technologies increases rapidly, so do the challenges arise as a result. SSTs are followed by businesses for a variety of reasons. However, in their hurry to deploy SST, businesses frequently overlook technological errors and the corresponding threat of losing consumers due to technological issues. Some of other challenges include: incorrect or missing data causes the process to slow down and stop for self-service consumers. Some SSTs are mostly easy to use with the control or assistance of employees. Also, the consumer is concerned about whether the information provided is stored in a secure environment etc (Collier, Moore, Horky, & Moore, 2015).

The technology employed must serve the consumer, and the strategies for appealing customers to adopt these technologies must meet the customer's legitimate concerns and perceived advantages (Curran & Meuter, 2005). While the possible advantages of SSTs are appealing, they will not be achieved until customers adopt and utilize the new technology. Customers are continuously looking for better purchase options. However, many businesses fail to understand their consumers' vision. What the consumer expects and what he feels he receives has a significant influence on their pleasure or discontent, as well as their tendency to return to your business or look for an alternative from rivals (Hsieh, 2005).

2.4. Service Dominant Logic

The service-dominant logic approach is a concept that emerged as an opposing perspective to the physical output-based, goods-dominated logic that has dominated

marketing for the last century and illustrates how marketing has evolved towards a service-oriented logic. Stephen L. Vargo and Robert F. Lusch introduced service-dominant logic in 2004 in their paper "Evolving to a New Dominant Logic for Marketing." (Vargo & Lusch, 2004). On the basis of the service dominant logic, the output of marketing and economic activity is service.

Service dominant logic suggests that the main objective is to personalize products, realizing that the customer is always a coproducer, and to achieve greater customer involvement in personalization in order to successfully meet his or her needs. It implies that physical evidence could be a constraint for many services, increasing prices and negatively impacting market value (Vargo & Lusch, 2004).

Self service technologies are researched in scope of service dominant logic recently as SST is also an good topic for thinking about the evolving roles of customers and service personnel. As well as the resources used by those characters to generate self-service outcomes are another important context (Hilton & Hughes, 2013).

SSTs particularly and purposefully increase the co-production role of consumers. As a summary, if the transaction is completed successfully by SST by integrating the consumer's operant resources with the operand resource (SST) offered by the company, the company will not need to offer operant resources (employees) while consumers are making transactions. Nevertheless, if the transaction fails, the provider would need to use employees to provide the operant resource required to accomplish tasks related to recovering the service (Hilton & Hughes, 2013).

The role of operant resources as the premise of strategic advantage is probably the most valid idea within S-D logic regarding to SST. This highlights the critical distinction between self-service and direct personal service in terms of used operant resources - consumers vs employees- (Hilton & Hughes, 2013).

3. TELECOMMUNICATIONS INDUSTRY

Telecommunications and network services have been one of the key technologies in the growth and development of people and technology and it will continue to be. If these communication channels and data transmission techniques were not available, we would most likely be living in a time when technology was not as sophisticated as it is now.

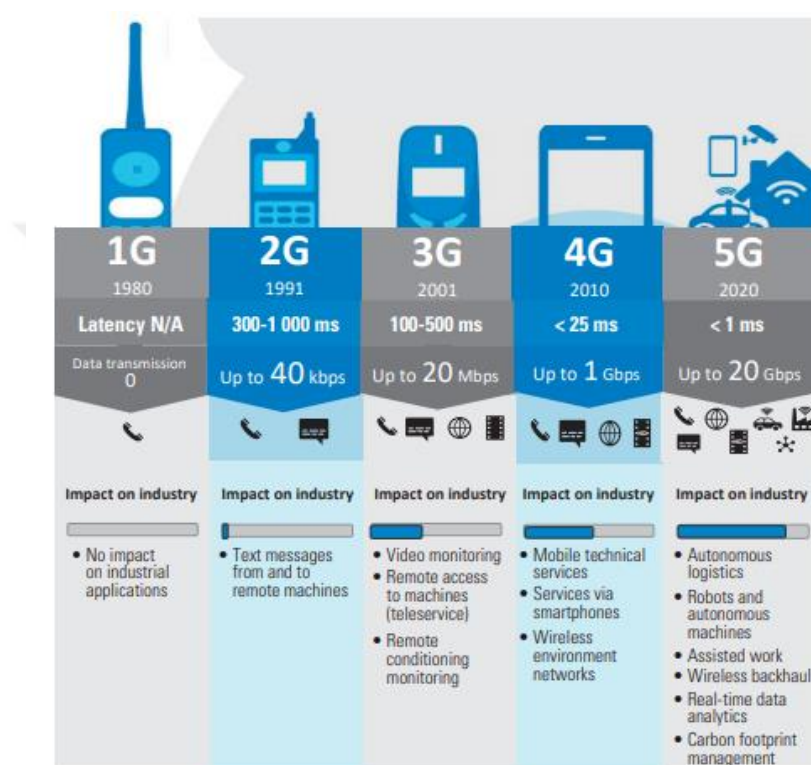
Mobile communication has attracted increasing attention in recent years as mobile technology has rapidly progressed from 1G to 5G. This reform is being implemented as a result of the need for service-compatible transmission technologies and a significant rise in telecommunications subscribers. The term "generation" refers to changes in the characteristics of the system, such as bandwidth, speed, data throughput, delay, and additional frequency bands (Vora, 2015).

Motorola exhibited the first portable mobile cell phone in 1973. In 1979, NTT established Japan's first commercial automated cellular network. After that Nordic Mobile Telephone (NMT) introduced the system in Denmark, Finland, Norway, and Sweden in 1981. Following this, the evolution of generations in mobile communication systems began as in the below figure. The first generation (1G) mobile communication network was analog, and it was utilized for voice calls. Its coverage capacity was poor. The second generation (2G) is the first digital technology that allows for text messaging. Following this came 3G, which offered multimedia capability as well as faster data transfer speeds and more capacity. The fourth generation (4G) blends 3G with fixed network to offer mobile internet, which is a development to deal with the constraints of 3G while also improving quality of service increasing capacity, and decreasing latency. 5th generation (5G), will be a considerable milestone in the mobile communications industry that will revolutionize the means people use smart phones in extremely high bandwidth and decreased latency. The superior connection quality with 5G will

alter industries ranging from finance to healthcare. 5G opens up the possibility of life-saving innovations such as remote surgical operations, telehealth, and life-changing innovations as smart transportation infrastructure like automated driving (Vora, 2015).

Figure 3

Development of Mobile Generations and Their Features

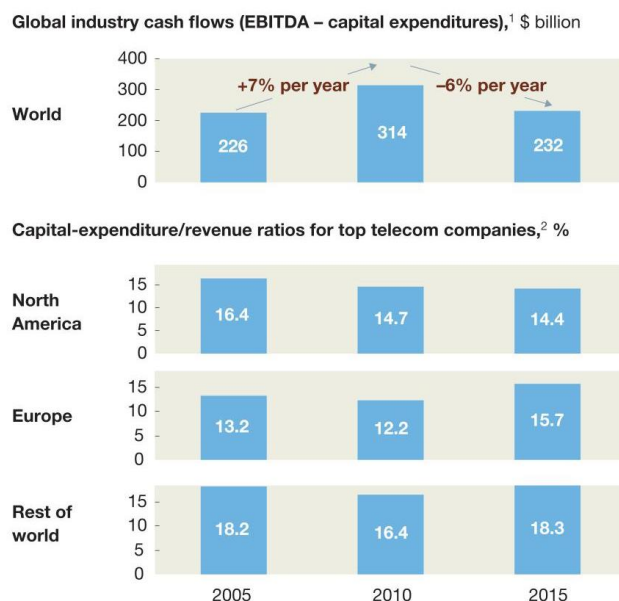


From ECLAC (2020)

The telecommunications industry initially started with the supply of the voice communications. However, improvements in the technology have changed the shape of the industry over the past two decades. The foundation of the competition in mobile communications has changed substantially. It has changed from economies of scale and reliability of networks to diversity and flexibility of the offered services. This irreversible transition is not investigated thoroughly in the literature. With the advent of OTT (Over-The-Top) services, smartphones platforms, digitalized technologies, new products and services have been introduced to the market which facilitated the competition.

Today, what matters for customers has changed with the digitalized world. The availability of mobile applications and other assistive features of mobile devices primarily affect the purchase decision of more customers. This trend is reflected on the perception of the customers about telco operators. Network coverage, voice quality, data speed and call drop rates are granted for most developed and developing markets. Therefore undifferentiated message, data and voice services is not the main part of the competition and this leads to a competition on revenue from these services. Having a mobile subscription plan is considered as prerequisite of supporting smartphones.

Telecommunications firms have had difficult few years. Since 2010, their income and free cash flow have declined by 6% annually as in the below figure. Mobile data consumption has spiked up as many new mobile phone customers have begun to spend more and more time online on their mobile phones. Companies reacted by substantially investing in their cellular networks, despite slowing subscriber growth. As a consequence, the overall return on investment for the big businesses has remained persistently low.

Figure 4*Cash Flow and Revenue Change Trend for Telecommunications Companies*

From Frisiani, Jubas, Lajous, and Nattermann (2019)

Significant advancements in data analytics, cloud computing and other areas of technology have been the proven combination of success for the sector. Mobile operators may realize significant cost reductions and capital increase while sustaining or even expanding their size by utilizing cutting-edge technological assets and self-service technologies along with contemporary management approaches. (Frisiani et al., 2019)

In terms of digital business, mobile carriers fall behind corporations in other industries. For instance, they have a lower online sales and transaction rates than retailers or insurance and banking organizations. Companies should follow the trends by not only closing this gap, they may increase financial success, customer experience and strengthen the competitive advantages.

Technology and the know-how required to digitize wireless operators are now accessible. These businesses can practically simplify, ease, speed up, and reduce costs in

practically every element of their company activities and customer interactions. A mobile operator may cut down the amount of calls it received by implementing smart systems to monitor and predict its customers' complaints and provide them opportunities to handle those problems by their own. The first step is self-care. Self-service guidance and automated tips on potential issues can assist consumers in resolving 75% of problems on their own. Customers may solve 15% more issues by using assistance of a chatbot, live chat or online forums. Roughly 10% of issues are left which will be handled by the most expensive support point; a phone contact with a customer representative. (Frisiani et al., 2019).

3.1. Mobile Telecommunications Overview in Turkey

It has been almost 23 years since Turkish government decided to develop an industry that would supply competitive mobile telecommunication services. Today, in the mobile telecommunications market, there are three player as mobile network provider in Turkey: Turkcell, Vodafone, and Turk Telekom. According to number of mobile subscribers, market share of Turkcell is 41 percent, Vodafone is 31,5 percent and Turk Telekom controls 27,5 percent.

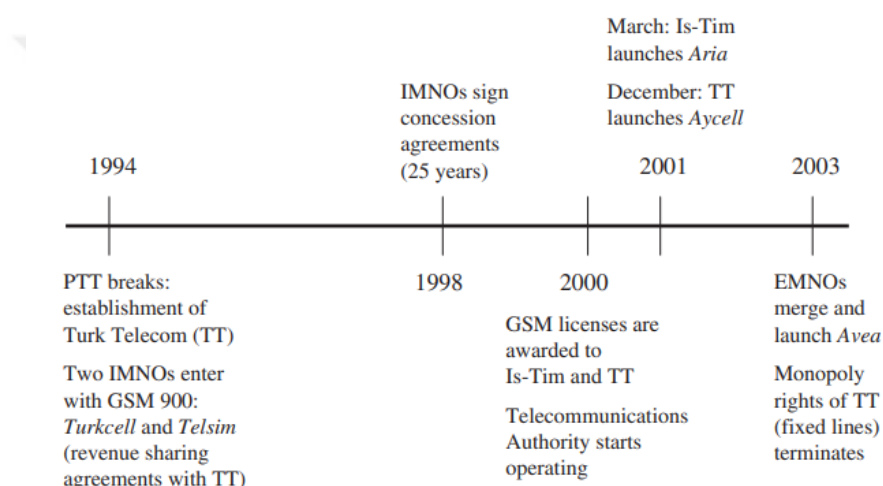
GSM (Global System for Mobile Communications) is the first thing that spring to mind when considering the mobile telecommunications sector. It was launched in Turkey on 23rd of February in 1994, with a phone call between President Süleyman Demirel and Prime Minister Tansu Çiller. Turkcell was the initial entrant in the mobile telecommunications industry in February 1994, followed by Telsim three months later in May (Yapıcı, 2007)

Similar to various European countries, telecommunication services were provided by a governmental monopoly (PTT) in Turkey. Since 1994, the information and communication technologies market in Turkey has been experiencing rebuilding to advance rivalry with liberalization of mobile telecommunications services. In 1994, cellular mobile communication

services was carried out as revenue sharing model between TTAŞ and other operators Turkcell and Telsim on 900 MHz – GSM frequency. In 1998, the revenue sharing agreements were changed with 25-year concession contract signed by the operators and the Ministry of Transport, which marked a significant turning point in the industry's growth as in the timeline in below figure. (Boynudelik, 2011) (Atiyas & Doğan, 2007).

Figure 5

Timeline of commencement of mobile telecommunications sector in Turkey



From Atiyas & Doğan (2007)

Following the duopoly phase, the government made a decision to adjudicate three additional GSM licenses for mobile communications at the end of 1990s. The tender was held in April 2000 and two of them were to be auctioned off to private companies. İŞ-TİM (Business Bank Telecom & Italia Mobile) was awarded the right of delivering services under the brand "Aria." As no bids were received for the second license, it was granted to Aycell Communication and Marketing Services A.Ş which is a subsidiary of Türk Telekom whose capital is entirely owned by the Turkish government, to provide mobile telecommunication services under the brand name "Aycell," at the same price as the first license. (Atiyas & Doğan,

2007). In this way, Turk Telekom would launched a mobile telecommunications business. Thus, in 2001, the Turkish Mobile Telecommunication market began to service with four businesses.

Since the authorities agreed to conduct an auction for new licenses, the two incumbent mobile network operators (IMNOs), Turkcell and Telsim (now Vodafone), had gained large first mover advantages compared to their customer bases. Furthermore, the extent of first-mover advantage rises in proportion to the duration of the incumbency time. (Atiyas & Doğan, 2007).

On the other hand, due to challenges as a result of their late entry into the market in comparison to their competitors, Aria and Aycell have chosen to merge under the roof of TT&TİM. On June 23 2004, they entered to the market with the Avea brand name as a combination of Aria and Aycell trademarks. In December 2005, with a tender, the Savings Deposit Insurance Fund (TMSF) sold Telsim to the British corporation Vodafone. Furthermore, on January 27, 2016, the Avea, TTNET, and Türk Telekom brands were merged under the one brand "Türk Telekom," and the Avea began using the "TT Mobil" brand name following that date. (Kar, 2018). So, the number of actors in the mobile telecommunications service has fallen to three and the industry reached to its status of today.

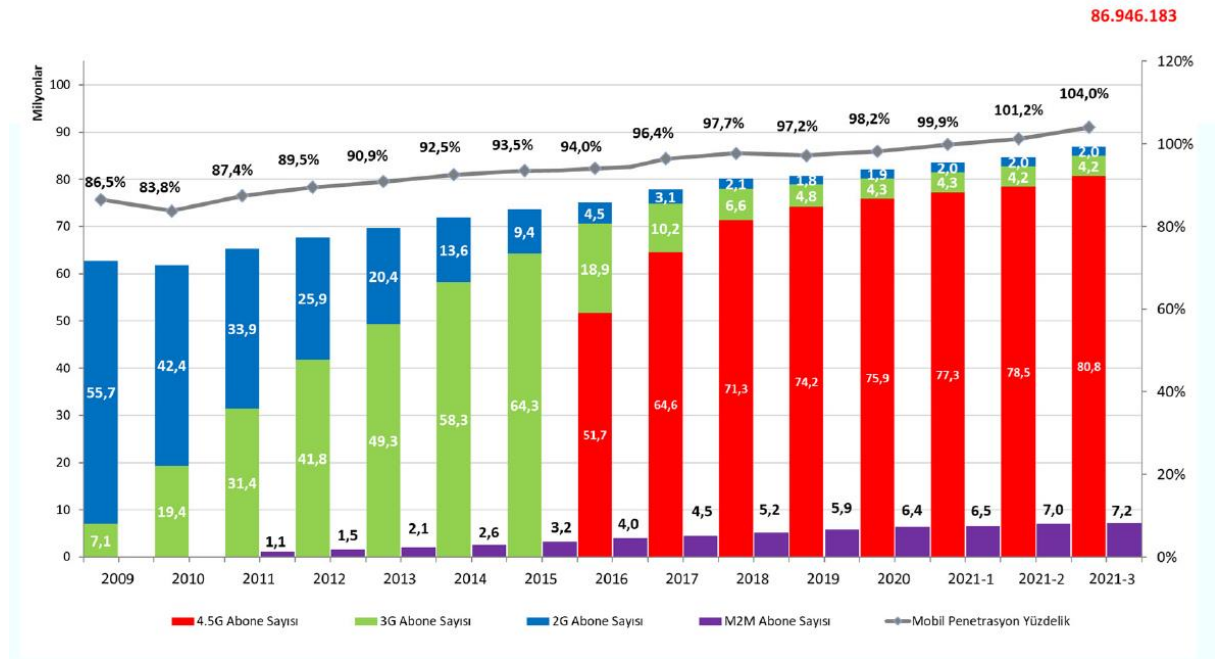
The enactment of Law No. 4502 in 2000 was the first regulatory step toward the liberalization of Turkey's telecommunications sector. With this law, the Ministry of Transportation established the Telecommunications Authority which has the authority to control rates, taxes, interconnection, and access (Boynudelik, 2011).

As of the end of September 2021, there were a total of 86.946.183 mobile subscribers, including machine-to-machine communication (M2M) subscribers, which corresponds to a prevalence rate of approximately 104 percent. Without M2M communication and 0-9 age group, the mobile penetration rate was 112.4 percent. Below figure shows the number of 2G,

3G and 4.5G mobile subscribers and mobile penetration rates over the years (Bilgi Teknolojileri Ve İletişim Kurumu, 2021).

Figure 6

Number of Mobile Customers and Mobile Penetration Rate



From Bilgi Teknolojileri Ve İletişim Kurumu (2021)

Below figure includes user data and trend for 3G and 4.5G services. 3G service is started to be offered in July 2009 and reached 65.949.652 subscribers by the end of March 2016. However, with the implementation of 4.5G on 1st of April 2016, there was a rapid transition from 3G to 4.5G subscription. Number of 3G subscribers decreased to 4.176.529 by the end of September 2021 while the number of 4.5G subscribers increased to 80.750.906 (Bilgi Teknolojileri Ve İletişim Kurumu, 2021).

Figure 7*User Data and Trend for 3G and 4.5G Services*

	2020-1	2020-2	2020-3	2020-4	2021-1	2021-2	2021-3
3G Abone Sayısı	4.625.682	4.516.854	4.441.941	4.330.089	4.273.821	4.212.094	4.176.529
4.5G Abone Sayısı	75.371.952	75.362.689	76.464.852	75.860.370	77.262.009	78.465.174	80.750.906
Mobil Bilgisayardan İnternet (Toplam)	504.001	492.903	487.885	490.313	468.057	459.953	456.076
Mobil Bilgisayardan İnternet (4.5G)	267.086	252.266	252.262	262.331	287.282	277.570	273.397
Mobil Cepten İnternet (Toplam)	62.348.364	62.596.692	64.538.655	65.139.424	66.347.319	67.857.214	69.276.392
Mobil Cepten İnternet (4.5G)	38.904.703	39.381.341	40.742.201	42.350.884	57.238.669	57.935.567	59.021.477
Mobil İnternet Kullanım Miktarı, TByte (Toplam)	1.397.404	1.610.586	1.775.536	1.911.720	1.921.503	2.109.343	2.310.787
Mobil İnternet Kullanım Miktarı, TByte (4.5G)	1.318.587	1.513.920	1.644.551	1.824.046	1.840.929	2.019.472	2.185.527

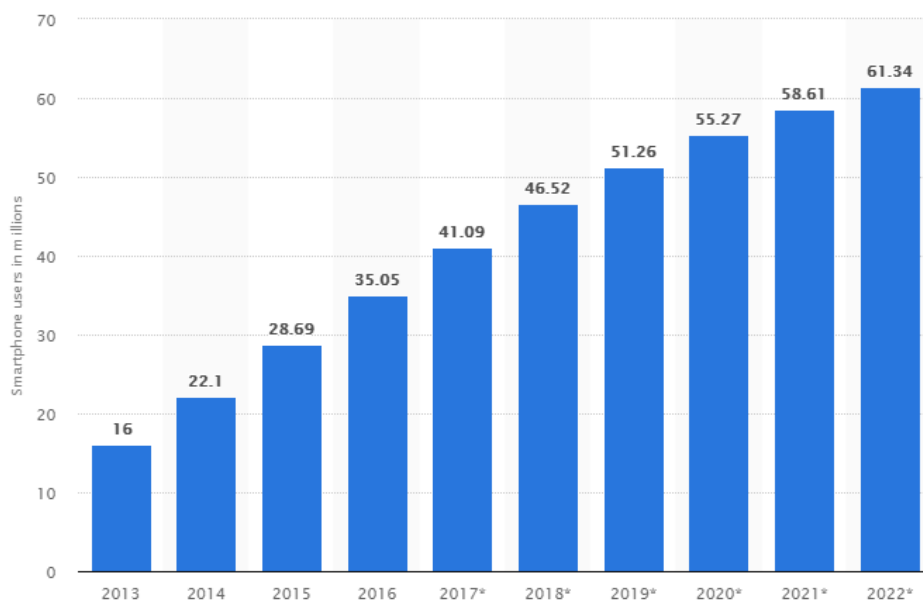
From Bilgi Teknolojileri Ve İletişim Kurumu (2021)

GSM technology grew faster than anticipated. As indicated by projections when the mobile telecom sector initially began to service, number of GSM subscribers was estimated to reach one million by 2000. Strangely, this objective came true before the finish of 1997. The aim, which had been updated and raised to 4 million, was met in early 1999. In the year 2000, the number of mobile phone subscribers has exceeded 16 million (Kar, 2018). This implies that cellular communications is one of the fastest developing and the most beneficial fragment of the ICT industry in Turkey.

Tagged as the first mobile broadband technology, 3G was introduced in Turkey in 2009 and great investments were made by the operators. All mobile operators have successfully performed the installation of 4.5G infrastructure, Turkey has been one of the countries that invest most in 4.5G technology among the neighboring countries. 4.5G technology is launched in April 2007 in Turkey. Thanks to the developing technology, increasing data speeds and the applications developed for smartphones enabled the data traffic on the mobile internet to grow exponentially. In the third quarter of 2021, the total amount of mobile internet usage was 2.310.787 TByte, and the total amount of mobile internet usage of 4.5G users was 2.185.527 TByte (Bilgi Teknolojileri Ve İletişim Kurumu, 2021).

The Turkish mobile communication sector is one of the most concentrated in Europe, with three carriers, Turkcell, Vodafone, and TT Mobil according to their market shares (Atiyas & Doğan, 2007)

As a developing country, digital trend described in the previous section is being observed in Turkey and changing the shape of telecommunications business. Forecasted smartphone users graph below from Statista shows increasing trend of smartphone adoption in Turkey regarding to young population of the country. Also, data presented on survey of Statista performed in Turkey in 2020 about device preference used for internet connection shows that 97% of participants said that they use a smartphone with an internet access on a regular basis (Statista,2020). Accordingly, data usage from mobile and all other connected devices increases and telco operators needs to invest more on network which leads to diminishing margins in a price sensitive environment.

Figure 8*Smartphone Adoption in Turkey*

From “*Number of smartphone users in Turkey from 2013 to 2022*” by The Statistics Portal, 2017. In the public domain. (<https://www.statista.com/statistics/467181/forecast-of-smartphone-users-in-turkey/>)

3.2. Self Service Technologies in Turkey

Digitalization began in rich nations, where it influenced people's lifestyles, and subsequently spread to underdeveloped countries such as Turkey. With the rise of digitalization, internet-based apps have impacted people's daily lives, like online shopping and financial services. While Turkey may be considered a late adopter of modern mobile technologies, Turkish businesses have been rather swift in adapting and enhancing internet-based solutions and products to local demands. (Kuzuluk, Balkaya, & Güner, 2018)

One of the widely used self-service technologies is Automated Teller Machine (ATM) in Turkey. It has been launched in 1967 and it was firstly placed in London for Barclays

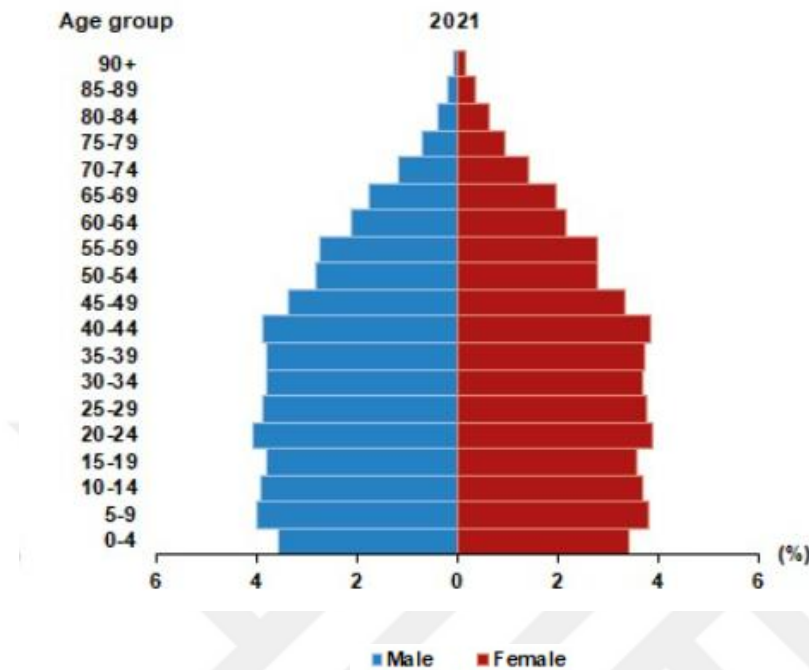
Bank. First ATM was installed in 1982 in Turkey by Türkiye İş Bankası with the name of Bankamatik.

As it is known, large-scale use is a prerequisite for successful investment in information technology. Therefore, the more profitable use of SSTs is dependent on customer adoption of these technologies, which increases their ubiquity. Some self-service technologies, which are very highly used in developed countries, have recently begun to increase its prevalence and to be adopted by consumers in developing countries such as Turkey, which has a young population structure.

According to Address Based Population Registration System (ABPRS) statistics of TUIK (Turkish Statistical Institute), population of Turkey increased by 1.065.911 individuals in 2021 over previous year, reached up to 84.680.273 as of December 31, 2021. Also, the population is quite young, having 22.4 percent of the population aged 0–14 as in the below figure which demonstrates the population's age - gender distribution (TURKSTAT, 2021).

Figure 9

Variations in Age-Gender Distribution in Turkey, 2021



From “Variations in Age-Gender Distribution in Turkey, 2021”. In the public domain.(
<https://data.tuik.gov.tr/Bulten/Index?p=The-Results-of-Address-Based-Population-Registration-System-2021-45500&dil=2>)

Moreover, according to J.P. MORGAN (2020) report, Turkey has the youngest population among European countries, having a mean age of 32,2 and 39 percent of citizens is under the age of 24. When these younger generations become customers, mobile phone based and social commerce and other digital services will undoubtedly outpace traditional approaches.

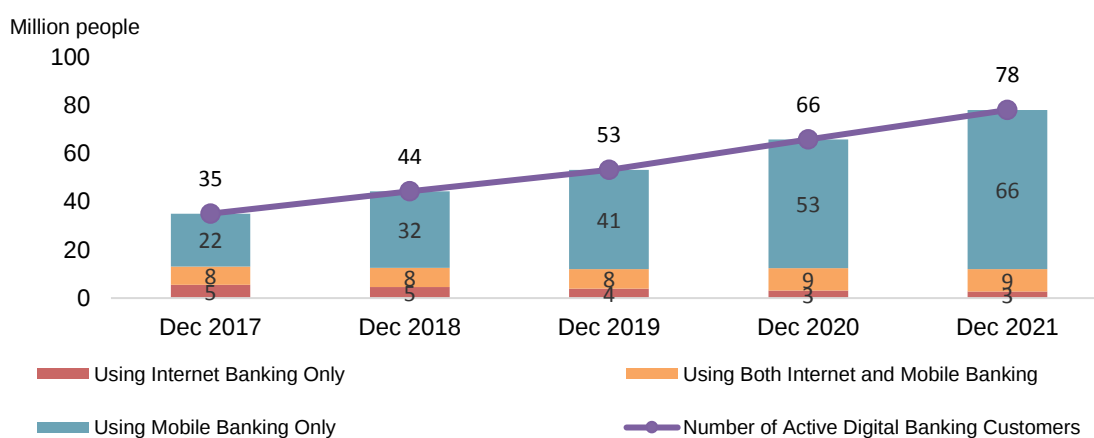
While some consumers consider self-service technologies easier or more convenient to use, individuals who prefer to contact a person are often uncomfortable with technology. As a result, it is required to conduct a more in-depth investigation into the elements that may influence customers' usage of these technologies. So that, companies may realize that investments in self-service technologies are expenses that needs to be incurred by companies

(Gültekin & Küçükkancabaş Esen, 2020). As an example, young and technologically savvy population in Turkey would readily embrace mobile banking and self service telecommunication applications. Even though, senior citizens are unable to keep up with the spread of these services. The seniors is the most important market group that will shape the future of goods and services. It is critical to get elders involved in the digitalization movement. As population projections of Turkey for 2040 shows that proportion of senior citizens in Turkey will roughly doubled, their preferences and expectations should be taken into account enough. (Kuzuluk et al., 2018)

One of the most popular self-service technologies is digital banking. Its usage increased rapidly in recent years in Turkey. According to the “Digital, Internet and Mobile Banking Statistics December 2021” report of The Banks Association of Türkiye (2022), the total number of active digital banking users (individual and corporate) reached 77.932.000 individuals between October and December 2021. Yearly increasing trend in digital banking usage is as in the graph. The overall number of active digital banking users (individual and corporate) increased by 12.255.000 as against the previous year. (The Banks Association of Türkiye, 2022)

Figure 10

Active Digital Banking Users



From The Banks Association of Türkiye (2022)

Another example of self-service application, which is similar to mobile banking applications in terms of usage and method, is mobile applications offered by telecommunication companies to their customers. All of the three mobile operators provide mobile self service applications to their customers. Yanımda is the name of Vodafone's application. Dijital Operatör is the name of Turkcell's application. Online İşlemler is the name of Türk Telekom's application.

Customers can view their remaining usage and usage details, review and pay invoice, display and purchase smartphone, tariff and other personalized offers. They can make top-up and display their balance, control and change their service settings like roaming and 4,5G. They can take advantage of fast delivery and flexible payment advantages at e-shop platforms and get promotions and discount coupons from loyalty section. Moreover, they can use help and support pages, raise their requests and follow them easily. Additionally, customers can get support from the AI assistant whenever they need it, and they can easily do many things without having to call the call center or visiting a retail shop.

As the society becomes digitalized and technology evolves, the number of users who are regularly using these applications are increasing in parallel. According to press releases, the number of monthly active customers of Vodafone Yanımda mobile application reached 15 million and the number of daily visits reached 11 million, reaching its highest level ever in March 2022. Digital Operator's number of downloads exceeded 58.3 million and number of quarterly active users exceeded 23.3 million by March 2021. In a year, the number of unique users logging into Turk Telekom Online İşlemler increased by 18% over previous year, reaching 25 million. Also, the number of transactions continues to increase each year compared to the previous years.

The objective of this research is to discover the elements that influence self-service mobile app adoption with emerging digital technologies in mobile telecommunications business in Turkey.



4. TECHNOLOGY ACCEPTANCE MODELS

4.1. Diffusion of Innovation Theory

E.M. Rogers's Diffusion of Innovation (DOI) theory, established in 1962 and released at his book. It is one of the earliest social science models based on sociology used to explain the adoption of new technologies. Since 1962, several entrepreneurs, technologists and researchers have used his seminal concept to track the implementation and dissemination of innovations through the society.

Rogers described an innovation as a concept, process, or project that is considered as novel by a person or other element of adoption (Rogers, 2003) According to Rogers (2003), diffusion is “the process by which an innovation is communicated thorough certain channels over time among the members of a social system”. As specified in this description, there are four main aspects that are effective in spreading new ideas; innovation, communication channels, time, and social system.

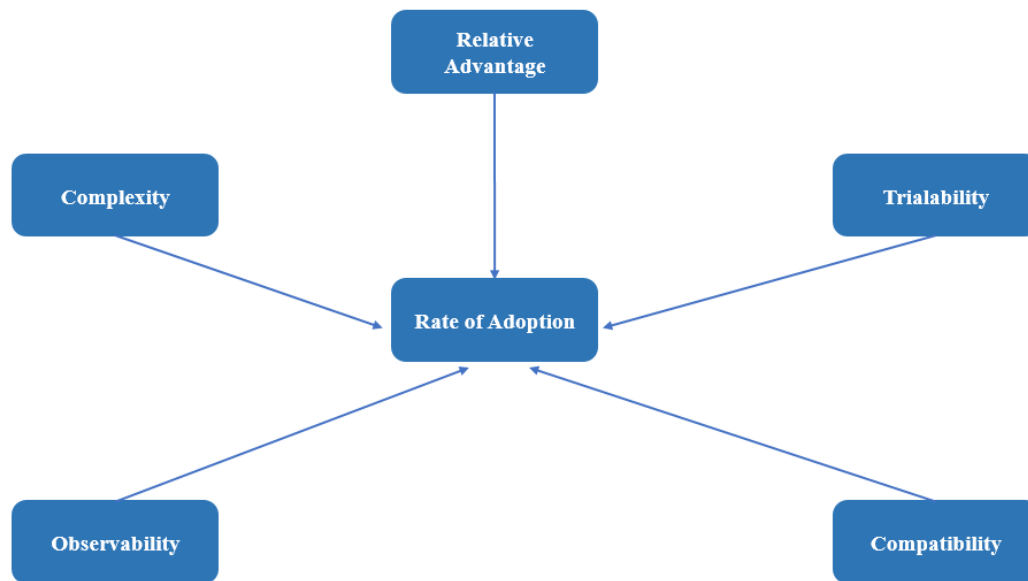
The communication channel is defined as the means by which the message and information are transferred among individuals. Communication channels are particular types of media and information resources that influence the spread of an innovation during the adoption period (Lin and Burt, 1975). Mass communication channels, interpersonal communication channels and interactive communication on the internet are important in the spread of innovations (Rogers, 2003).

The third dimension of innovation diffusion process is time. Time refers to the innovation decision process starts from the moment she receives the first information about innovation to her adoption or rejection of innovation. The term also includes the time elapsed for innovation's continuous use, and its relative early / late status according to the adaptation

within the society in a certain period (Rogers, 2003). Social system is the last element of the diffusion process. Rogers (2003) defined it as a group of interconnected parts involved in developing solution for a problem together in order to achieve a common goal. Individuals, associations, non-governmental organizations can be units or members of the social system (Rogers, 1983). As innovation diffusion occurs in the social system, information regarding the existence, features, and characteristics of an innovation passes through the social system who adopt this innovation (Agarwal & Prasad, 1998). An innovation that is incompatible with the social system's principles and values can't be accepted as easily as a suitable innovation.

While individuals accept innovations directly at times, it will not be embraced automatically if the knowledge provided about the innovation is insufficient. In this case, there is a chance to introduce complexity and confusion. Rogers emphasized the importance of specifically describing the novelty features in order to avoid this scenario. Rogers (2003) identified innovation diffusion mechanism as “an uncertainty reduction process” and he introduces characteristics of innovations leading to reduce uncertainty.

According to Rogers (2003), adoption is a choice to make maximum use of an innovation as the appropriate approach available by doing something different from what they have traditionally done. On the other hand, rejection is a “choice not to adopt an innovation”. Rogers classified the characteristics of the innovation into five categories; relative advantage; compatibility; complexity; trialability; and observability in Diffusion of Innovation Model as in the below figure.

Figure 11*Diffusion of Innovation Theory*

Adapted from: Rogers (2003)

Individuals' interpretations of these attributes, according to Rogers (2003), anticipate the pace of acceptance of technologies.

Compatibility is included in model from Roger's Diffusion of Innovation Theory. It is defined as the consistency between the current values, previous experiences and needs of individuals and groups with high potential to adopt (Rogers, 2003). It is an indicator of the willingness of consumers to adopt the new product (Taylor & Todd, 1995). The incompatibility of innovation with the social system's common principles, standards and traditions is a significant obstacle to its diffusion.

4.2. Theory of Reasoned Action

Theory of reasoned action is developed in 1975 by Martin Fishbein and Icek Ajzen. It is a theory based on social psychology to better understand the relationships between attitudes,

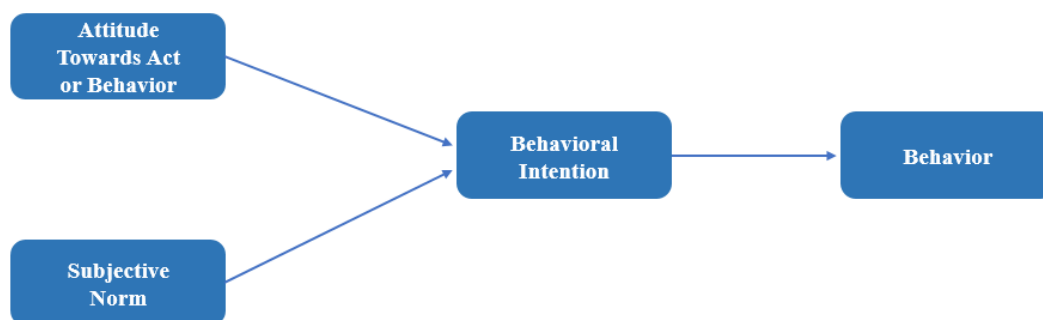
intentions and behaviors. It is a theory that centers on a person's intention to behave in a certain manner.

The main purpose of the theory is to explain the social behaviors that occur as a result of will. It has received a lot of attention in the area of customer behaviour and has been used to describe how people respond to various goods and services. The theory of reasoned action was designed to describe how a consumer's purchasing behaviour is influenced (Ajzen & Fishbein, 1980). Model is used by researchers in a variety of areas including health, marketing, psychology and communication in a variety of content and regions.

It is acknowledged in the theory that a particular behavior of a person is determined by intention of that person (Ajzen & Fishbein, 1977). Ajzen and Fishbein (1977) states that intention is single and primary determinant of behavior. Subjective norm and attitude are the variables used in the observation of intention as in the below figure. TRA differs from conventional attitude theories as it integrates social factors to the overall model. Furthermore, the inclusion of social factors expresses the discrepancy between intention and attitude.

Figure 12

Theory of Reasoned Action



Adapted from: Fishbein and Ajzen (1975)

Behavioral intentions, according to Fishbein and Ajzen (1977), are decisions to take steps in a certain way. They are instructions that guide people to exhibit a behavior and address both the course and the strength of the behavior.

Attitudes are the tendency to respond in a positive or negative way to an individual, good, idea, or environment. An intention is a plan or a probability that someone will act in a certain manner in certain circumstances. To describe behavioral intention, TRA explores attitudes toward of behavior, and also subjective norms of individuals and groups that may affect those attitudes.

Subjective norm is a concept related to the effect of the opinions of those around us: family, friends, coworkers, spouses, and so on. In regards to TRA, the perception or opinion of these groups or people is important for an individual whether they will they think that related behavior is right or not. So, while our attitude tells us to do something, other people's perceptions may drive us to do something different. It should be considered that how eager the people are to respond to their beliefs (Ajzen & Fishbein, 1977).

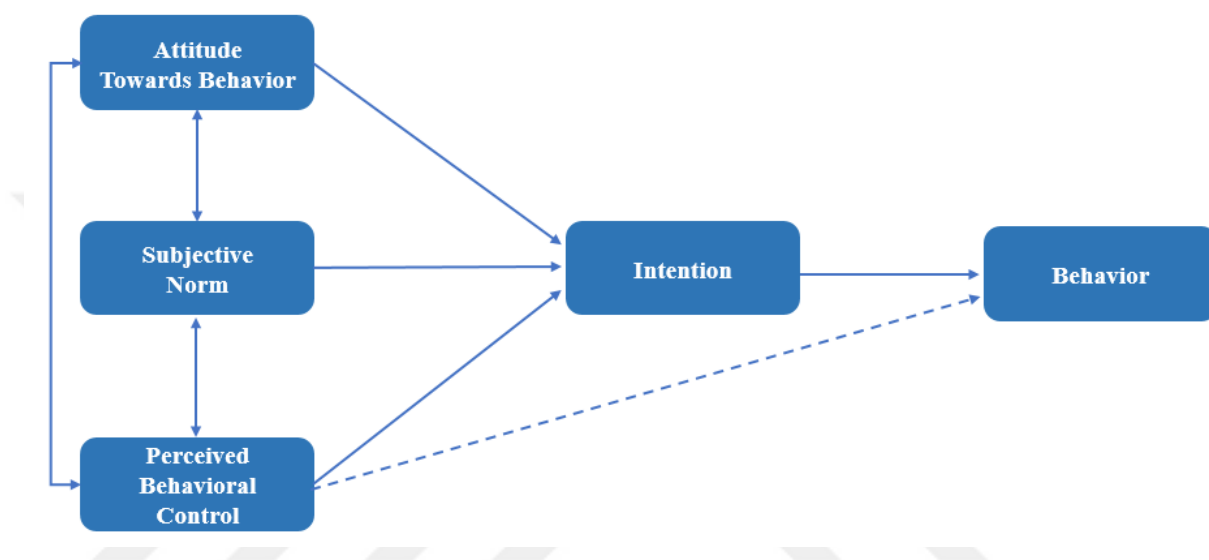
4.3. Theory of Planned Behavior

Theory of planned behavior (TPB) is established on base of TRA model including perceived behavioural control as a new factor. The key difference between these theories is that TPB provides higher possibility in recognizing an individual's attitudes that lead in the performed physical behavior. The main reason behind this accuracy is that behavior is not entirely voluntary and can't necessarily be controlled. As a result, perceived behavioral control was integrated into the model which considers whether an individual actually feels that she has control over the actions.

Essentially, TPB postulates that there are three key constructs which influence behavioral intention of an individual which are as follows; subjective norm, attitude and perceived behavioral control shown as the below figure.

Figure 13

Theory of Planned Behavior



Adapted from: Ajzen (1991)

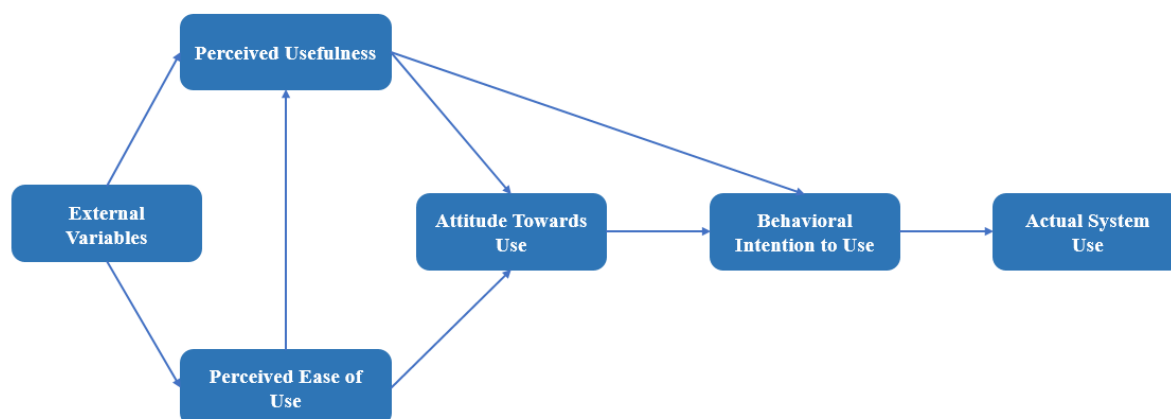
According to the model, behavioral intention is considered to be the most immediate indicator for performing a particular behavior. As the first variable of the model, the attitude toward behavior reflects how favorable or unfavorable a person considers the behavior. Subjective norm represents positive or negative responses received from his social environment - partner, family, colleagues - by the individual while performing the behavior. The final determinant of intention is perceived behavioral control and it is expressed as the perceived ease or difficulty of performing a behavior and refers to the perceptions of people's ability to perform a certain behavior.

Based on the idea of intentions generate the major force that influences actions and mediate the impact of other determinants, the model demonstrates how likely individuals are performing a behavior (Ajzen, 1991). In the theory, individuals think that they have higher perceived control over behavior when they have necessary resources, opportunities and equipment and they encounter less obstacles. (Ajzen & Madden, 1986). In summary, according to the TPB if the person has positive attitude and subjective norm of a behavior and strong perceived behavioral control with the necessary opportunities and resources, the behavior will take place (Ajzen, 1991).

4.4. Technology Acceptance Model

Technology Acceptance Model (TAM) is developed in 1986 by Fred D. Davis in his doctoral thesis to provide a theoretical perspective to understand the reasons of adoption or rejection of an information system in business environment by analyzing the perceptions of users. The model is based on Ajzen and Fishbein's (1975) Theory of Reasoned Action (Davis, 1986). The main difference between these models are while TAM was first developed for the acceptance of computer technologies and then used for the acceptance of different technologies in literature, TRA was developed to explain overall human behavior.

TAM is regarded as a helpful theoretical model that has been validated by a large body of scientific evidence. TAM describes adoption factors that can be generalized to many technological innovations and applied to the use of innovations (Davis, 1989). The purpose of TAM, according to Davis (1989), is to establish improved and valid measures for forecasting and describing the system use. It provides a general overview of the determinants of information technology acceptance across an extensive scope of technologies and users. The research concentrates on two key concepts, perceived usefulness and perceived ease of use, which are key indicators of actual system use as in the below figure.

Figure 14*Technology Acceptance Model*

Adapted from: Davis (1989)

Davis defined perceived usefulness as “the degree to which a person believes that using a particular system would enhance his or her job performance” (Davis, 1989). Perceived ease of use is expressed as “the degree to which a person believes that using a particular system would be free of effort.” (Davis, 1989). According to Davis, users are motivated to adopt a technology foremost due to the features it provides to them, and then how simple or difficult it is to perform such capabilities.

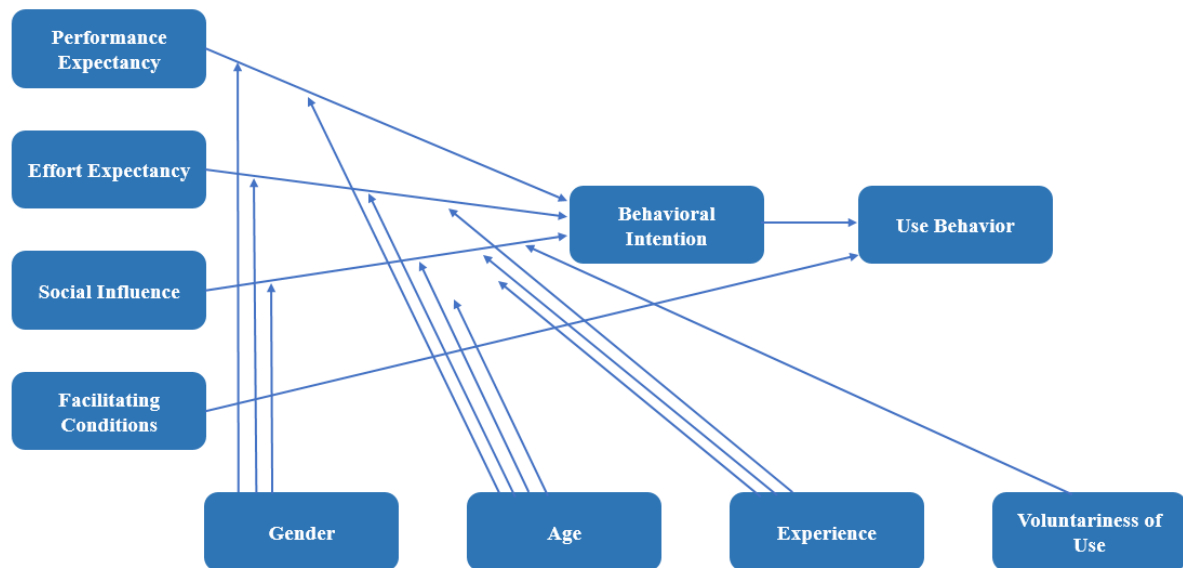
By a theoretical perspective, attitudes toward the use of technology determine the behavioral intention of individual in TAM. The attitude is influenced by the perceived usefulness and perceived ease of use variables (Davis et al., 1989). The TAM helps in understanding the exploratory power of perceived ease of use and perceived usefulness over intention (Venkatesh, 2000). Perceived ease of use causally affects perceived usefulness. Additionally, model's external factors have a direct impact on perceived usefulness and perceived ease of use.

4.5. Unified Theory of Acceptance and Use of Technology

Many alternative models for acceptance of information technology (IT) have emerged, each with its own collection of acceptance constructs. The Unified Theory of Acceptance and Use of Technology (UTAUT) was then established by Venkatesh et al. (2003) to facilitate understanding of the factors affecting acceptance of information technologies.

The theory was built by an analysis and integration of the concepts of eight previous well-known models which are; Theory of Reasoned Action, Technology Acceptance Model, Social Cognitive Theory, Theory of Planned Behavior, Model of Personal Computer Use, Motivational Model, Combined Theory of Planned Behavior and Technology Acceptance Model and Diffusion of Innovations Theory. The purpose of the UTAUT is to describe user intentions to use an information system as well as corresponding usage behaviour.

According to the theory, there are four main constructs; performance expectancy, effort expectancy, social influence, and facilitating conditions which are direct antecedents of intention and usage behavior (Venkatesh et. al., 2003). Among these variables, social influence, effort expectancy and performance expectancy affect behavioral intention. Behavioral intention and facilitating conditions directly affect use behavior. Beside these, gender, experience, voluntariness and age are proposed as moderators of main relationships. The model is demonstrated in below figure.

Figure 15*Unified Theory of Acceptance and Use of Technology*

Adapted from: (Venkatesh et. al., 2003).

Effort expectancy has been implemented into the UTAUT model as a significant indicator of technology acceptance. Venkatesh et al. (2003) define effort expectancy as "the degree of ease associated with the use of the system". Performance expectancy refers to the degree of belief that the individual will obtain gain in overall performance with use of the system (Venkatesh et. al., 2003). Social influence is the degree to which a person senses that people who are important to her think that she should use the new technology. Facilitating conditions is expressed as "the degree to which an individual believes that an organizational and technical infrastructure exists to support use of the system".

5. RESEARCH MODEL AND METHODOLOGY

5.1. Aim of the Study

Because digital revolution has touched every aspect of our lives, the potential to benefit from self service technologies and understand the behaviors of customers about them is more valuable so now than ever before. Also, increased connectivity has provided dramatic advances in our personal and business lives. 4G technology and connectivity with the 5G in the near future will be the basis for true digital transformation.

Currently, mobile internet became an essential component of everyday life with its widespread use. It is ordinary for individuals to pay their bills while walking, purchase a plane ticket, or search for a product and compare prices. Research in neurology and psychology reveals how habits and preferences are formed during years and retailers and technology companies are trying to profit from it.

The purpose of this dissertation is to better understand the elements that affect adoption of self service technologies in mobile telecommunications industry in Turkey. Self service adoption is a critical topic to examine the service innovation and the new service and product delivery channels of companies.

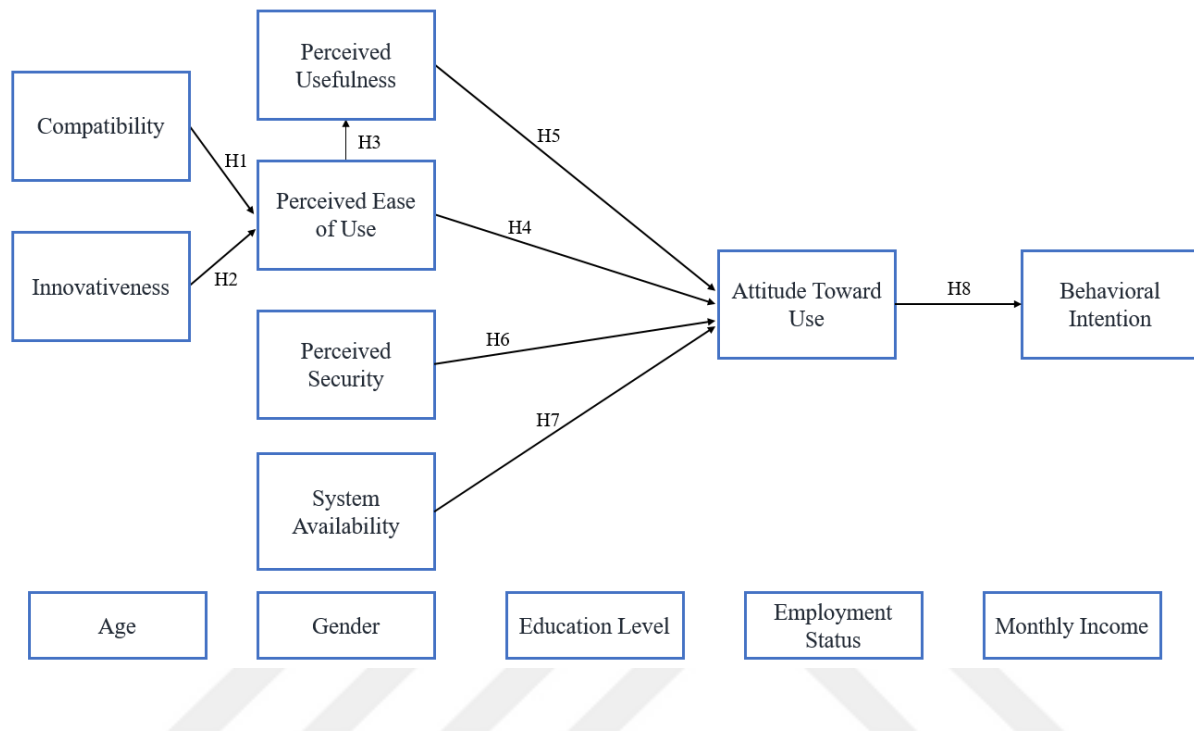
In the literature research performed in this content, it was seen that there are important relations between some variables. Two types of factors have been investigated within this research. First one is the variables that are found out during the literature research. Also demographic characteristics of customers are investigated to determine if there is a link between them and attitude toward use of self service and behavioral intention. This research will be useful for Turkish mobile telecommunication sector to understand the perception of the customers and critical factors which needs to be evaluated precisely while designing and delivering any part of the self service applications.

5.2. Research Model and Hypothesis

The aim of this study is to determine what affects the consumers' use and adoption behavior of self-service applications offered by mobile telecommunication companies. As explained in the previous chapters, there are instances in the literature that examine technological adaption in several industries, including mobile banking and online shopping. However, there is no research in Turkey that examines self-service applications in the telecommunications sector.

Davis (1989) established the Technology Acceptance Model, which was used to assess customer willingness to adapt and utilize self-service applications. Perceived usefulness, perceived ease of use, attitude toward use, and behavioral intention are the constructs of Davis's Technology Acceptance Model whose relations will be assessed. The impact of compatibility and innovativeness, which are included as external variables into the model, on perceived ease of use will also be demonstrated. The model includes new factors to Technology Acceptance Model such as perceived security and system availability. Furthermore, it will be examined whether technology acceptance varies regarding to the demographic features of the participants. Age, gender, education level, employment status, and monthly income are the demographic elements included in model which influence self service technology adoption in mobile telecommunications industry in Turkey.

The research model is represented in Figure 16, and the hypotheses are described as follows.

Figure 16*Research Model*

There are eleven hypothesis which will be tested regarding to this research that are listed below.

H1: Compatibility positively affects the perceived ease of use of the self-service application.

H2: Innovativeness positively affects the perceived ease of use of the self-service application.

H3: Perceived ease of use positively affects the perceived usefulness of the self-service application.

H4: Perceived ease of use positively affects the attitude towards the use of the self-service application.

H5: Perceived usefulness positively affects the attitude towards the use of the self-service application.

H6: Perceived security positively affects the attitude towards the use of the self-service application.

H7: System availability positively affects the attitude towards the use of the self-service application.

H8: Attitude towards the use of the self-service application positively affects the behavioral intention towards the adoption of the self-service application.

H9: There is no significant difference between gender groups in terms of attitude toward use of self service application.

H10: There is significant difference between age groups in terms of attitude toward use of self service application.

H11: There is significant difference between the users of different operators in terms of attitude toward use of self service application.

5.3. Research Methodology and Data Collection

Gathering information about changing demands, trends and strategies within the industry constitute the initial exploratory part of the research. Quantitative analysis making use of the primary sources construct the confirmatory part of the study.

Primary data collection is performed via questionnaire which is created by Google Forms to assess the effects of the variables indicated in the preceding section. Sample of this study is consisted of people who are customers of mobile telecommunication companies in Turkey using self service applications. Since the study is about technology adoption and mobile subscribers are distributed all over the country, it was considered that collecting the

data online would be more effective. The questionnaire link is sent by e-mail or WhatsApp messaging for one month in March and April 2022.

The questionnaire is divided into two sections of questions. The first section of the questionnaire collects information on the following topics: age, gender, education level, employment status, monthly income, mobile operator, type of the mobile subscription, frequency of self service application usage and purpose of SST usage. The second section is developed to assess participants' attitudes and intention regarding self service applications offered by mobile operators.

The items in the second section are adapted from the existing literature straightly or used with slight changes. The items from the literature are translated into Turkish and then checked by an English teacher to increase the accuracy of the translation. The second section contains 30 items related to the variables in the research model. Five point likert scale will be applied to all questions in the questionnaire for measurement.

In this dissertation, snowball and convenience sampling techniques are applied. In snowball sampling, the sample size increases by the referral of the respondents. One respondent directs questionnaire to the others in the same population. The questionnaire was completed by 327 participants. Nonetheless, as 13 of the answers were inconsistent or included missing values, only 314 of answers were used for analysis.

Table 1 contains a list items related to each variable, along with their original and Turkish references. Prior to the items, participants are informed about the scope of the research and the use of personal data. Following this part, participants are informed self service applications offered by Turkcell, Vodafone and Turk Telekom and usage areas of these mobile applications.

Table 1*Items in the Study and Their Corresponding Sources*

Variable	References	Abbreviation	Item
Perceived Usefulness	Davis (1989) Şiker (2011)	PU1	I perform my transactions in a shorter time by using self service applications.
		PU2	I would find self service applications useful.
		PU3	I would make my transactions easier by using self service applications.
		PU4	Using self service applications allows me to better control my information such as usage, tariff and invoice.
		PU5	Using self service applications allows me to be more productive in my transactions.
Perceived Ease of Use	Davis (1989) Yılmaz and Tümtürk (2015)	PEOU1	Self Service applications are easy to use.
		PEOU2	It is easy to learn how to use Self Service applications.
		PEOU3	The transactions in Self Service applications would be clear and understandable.
		PEOU4	It is easy to find the information or transaction I want to do in Self Service applications.
		PEOU5	I would be skilled in using Self Service applications and making my transactions
Compatibility	Schierz, Schilke, and Wirtz (2010) Türker and Okumuş (2019)	COMP1	Using the Self Service application fits well with my lifestyle.
		COMP2	Using the Self Service application fits well with the way I do my transactions about my mobile line.
		COMP3	I would appreciate to use Self Service applications instead of alternative delivery channels (e.g., contact center, dealer).
Innovativeness	Agarwal and Prasad (1998) Aydın and Burnaz (2016)	PI1	If I hear a new technology product or service is available, I would look for ways to experiment with it.
		PI2	Among my friends, I am usually the first one to try new technologies
		PI3	I like to experiment with new technologies.
System Availability	Parasuraman, Zeithaml, and Malhotra (2005)	SA1	Self-Service application is always available to make transactions
		SA2	Self Service application opens and runs right away.
	Durmuş, Erdem, Sağlık, and Akgün (2015)	SA3	Self Service application does not crash while using
		SA4	Self-service application does not freeze after I enter my transaction information and requests.

Perceived security	Schierz et al. (2010)	PS1	The risk of unauthorized third parties overseeing the transaction process is low in my transactions using Self-Service application.
	Türker and Okumuş (2019)	PS2	The risk of abuse of personal information (credit card, name, gsm no etc.) information is low when using self service application.
		PS3	The risk of abuse of transaction information (product, invoice, payment amount, name of company or persons) when making a payment with the self service application is low.
		PS4	I would find the self service application secure in the transactions I want to perform.
Attitude Toward Use	Venkatesh et al. (2003)	ATU1	Using self service applications is a good idea.
	Güner (2017)	ATU2	Using self service applications is fun.
		ATU3	I like using self service applications.
Behavioral Intention	Venkatesh, Thong, and Xu (2012)	BI1	I will continue to use self service applications in the future.
		BI2	I plan to use self service applications frequently in the future.
	Uğur and Turan (2016)	BI3	I will try to use self service applications in my daily life to make my transactions.

6. DATA ANALYSIS AND RESULTS

SPSS 22.0 is used for quantitative data analysis. Firstly descriptive analysis is applied to look at frequency distribution of demographics, used mobile operator and usage frequency. Next, normality test is done to understand how the data is distributed. Then, exploratory factor and reliability analyses are followed by correlation and regression analysis.

6.1. Descriptive Analysis of Respondents

The questionnaire was answered by 327 respondents. 13 of the answers were eliminated because they were incomplete or the responses were not meaningful. Frequency analysis is done according to obtained data. The objective of the frequency table is to provide information about the respondents' profile. Table 2 shows the demographic data of 314 individuals, which constitute the basis of this study and the quantitative analysis in this chapter.

Table 2

Demographic Characteristics of Respondents

Characteristic	<i>n</i>	%	Characteristic	<i>n</i>	%
Gender			Mobile Operator		
Female	141	44,9	Turkcell	90	28,7
Male	173	55,1	Vodafone	152	48,4
Age			Türk Telekom	72	22,9
13-17	5	1,6	Line Type		
18-24	48	15,3	Postpaid	277	88,2
25-34	80	25,5	Prepaid	37	11,8
35-44	100	31,8	Frequency of Use (Monthly)		
45-54	46	14,6	Less than 1	94	29,9
55 and older	35	11,1			

Educational level			1-3 times	126	40,1
Primary school	5	1,6	4-8 times	56	17,8
High school	37	11,8	9-12 times	15	4,8
College	42	13,4	13 and more	23	7,3
University	169	53,8			
Master-PHD	61	19,4			
Employment Status					
Unemployed	17	5,4			
Student	33	10,5			
Part-time	7	2,2			
Full-time	219	69,7			
Retired	36	11,5			
Searching job	2	0,6			

Note. $N = 314$ ($n = 50$ for each condition). Respondents are 37,5 years old on average.

6.2. Normality Test

Statistical techniques like factor analysis, regression, t tests, specifically parametric tests, are primarily relied on the assumption of normal distribution of data which is also known as Gaussian distribution. (Field, 2020) Determining the normality of data is a requirement for many statistical tests. Therefore, normality test was conducted to analyze if the data was normally distributed.

The major tests for determining normality of data are the Kolmogorov-Smirnov (K-S) test (7) and the Shapiro-Wilk tests. For small samples which are less than 50 The Shapiro–Wilk test is better suited, whereas the Kolmogorov–Smirnov test is used for sample size is equal or greater than 50. Findings of Kolmogorov-Smirnov test were evaluated because sample size of this research is 314. Data is regarded to be normally distributed, the null hypothesis is accepted, if $p > 0.05$ (Büyüköztürk, 2014).

Given that most of the social science questionnaires are done with 5 or 7 point Likert type scales, it is challenging to accept H0 hypothesis for normality. Therefore, Kurtosis-Skewness coefficients and Normal Q-Q plots should be interpreted too (Büyüköztürk, 2014). Also, according to Field (2020) without considering shape of the data, distribution is prone to be normal with big enough samples (> 30 or 40). Thus, the breach of the normality assumption should not cause severe issues.

Table 3

Normality Test Results of Variables

<i>Kolmogorov-Smirnov</i>			
Variable	Statistic	N	P
Perceived Usefulness	,189	314	,000
Perceived Ease of Use	,140	314	,000
Compatibility	,190	314	,000
Innovativeness	,117	314	,000
System Availability	,123	314	,000
Perceived Security	,136	314	,000
Attitude Toward Use	,163	314	,000
Behavioral Intention	,210	314	,000

The normality hypothesis stated for the variables were rejected based on the Kolmogorov-Smirnov test findings for all variables because significance level (P) is below 0,05. Moreover, descriptive statistics were also interpreted as a supplementary method to assess the normality assumption.

Table 4*Results of Descriptive Statistics in Summary*

Variable	Skewness	Kurtosis	Mean
Perceived Usefulness	-1,232	1,433	4,3064
Perceived Ease of Use	-,905	,632	4,1522
Compatibility	-,916	,285	4,1996
Innovativeness	-,664	-,264	3,7346
System Availability	-,689	-,003	3,8631
Perceived Security	-,501	-,458	3,7962
Attitude Toward Use	-,793	-,033	4,1019
Behavioral Intention	-1,029	,520	4,2113

Skewness is specifically a metric the absence of symmetry in the normal distribution. Kurtosis is a metric of how peaked a distribution is. According to Tabachnick and Fidell (2013), kurtosis and skewness values between ± 1.5 are acceptable to indicate the normality of the data. As shown in Table 4, the skewness and kurtosis coefficients of all variables are between ± 1.5 and this is an indicator of normal distribution (Tabachnick & Fidell, 2013).

6.3. Factor Analysis

There are eight scales in total which assess customers' intention to use and attitudes in this dissertation. These eight scales contain a total of 30 items. Factor analysis is a statistical approach for investigating the relationships among a set of observable variables as assessed by questions or items.

Factor analysis is a popular multivariate statistical approach that reduces number of connected constructs to small set of meaningful independent variables. Factor analysis simplifies a correlation matrix and a set of complex variables so that a scholar may better

understand the connection between items in a scale and the unobservable factors that the items may overlap (Kalaycı, 2017).

Exploratory factor analysis was executed for assessing compatibility of variables with the model and to facilitate understanding and interpretation of the relationship anticipated to exist between the variables. (Durmuş et al., 2018)

Factor analysis is mathematically complex and involves various and different aspects. Bartlett's sphericity and Kaiser-Meyer-Olkin (KMO) sampling adequacy tests were conducted to determine whether the data set was eligible and sample size is sufficient for factor analysis (Kalaycı, 2017).

KMO's possible values varies from zero to one. According to Durmuş et al. (2018) values of 0,5 and above are regarded "acceptable", while between 0,70 and 0,80 is interpreted as "good", 0,8 and above are considered as "excellent". As the KMO value gets closer to 1, predictability of the variables to each other increases. The Bartlett test of sphericity examines that if there is acceptable rate of relationship between variables. If the p value is less than 0,05, factor analysis can be performed (Durmuş et al., 2018).

Table 5*Results of KMO and Bartlett's Tests*

		Perceived Usefulness	Perceived Ease of Use	Compatibility	Innovativeness	System Availability	Perceived Security	Attitude Toward Use	Behavioral Intention
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		,871	,869	,720	,742	,827	,852	,715	,760
Bartlett's Test of Sphericity	Approx. Chi-Square	1082,009	992,982	491,451	507,424	821,223	1007,848	597,938	739,255
	df	10	10	3	3	6	6	3	3
	Sig.	,000	,000	,000	,000	,000	,000	,000	,000

Table 5 shows that KMO values off all variables are above 0,7 which is good and four of them are above 0,8 which is excellent. Furthermore, Barlett's sphericity test result is significant ($p < 0,05$). As a result, the findings in Table 6 demonstrates that, data format is appropriate for exploratory factor analysis.

When the results of exploratory factor analysis is reviewed, it was observed that each variable was grouped under a single dimension. All variables included into the model are loaded to eight factors. Table 8 illustrates the total variance explained and the resulting factor loads for each variable and each item. The lowest rate of total variance explained belongs to Perceived ease of use variable which is 72,635 percent. This result means that the explained variance rate is sufficient and explains majority of the variance of the scale.

Also, no items are extracted from the analysis because the factor loads of all questions in the factor analysis was not low. The lowest factor load identified in the exploratory factor analysis among eight variables with 30 items was 0,775. As a result, factor loads for all of them are at a good and acceptable level in terms of describing the related variable.

Table 6

Total Variance Explained and Factor Loads of Items

Perceived Usefulness		Perceived Ease of Use	
Total Variance Explained %	74,049	Total Variance Explained %	72,635
Items	Factor Load	Items	Factor Load
PerceivedUsefulness_Q2	,895	PerceivedEaseOfUse_Q3	,881
PerceivedUsefulness_Q3	,891	PerceivedEaseOfUse_Q2	,880
PerceivedUsefulness_Q1	,889	PerceivedEaseOfUse_Q4	,873
PerceivedUsefulness_Q5	,847	PerceivedEaseOfUse_Q1	,828
PerceivedUsefulness_Q4	,775	PerceivedEaseOfUse_Q5	,796

Compatibility		Innovativeness	
Total Variance Explained %	79,796	Total Variance Explained %	80,940
Items	Factor Load	Items	Factor Load
Compatibility_Q2	,922	Innovativeness_Q1	,912

Compatibility_Q1	,891	Innovativeness_Q3	,899
Compatibility_Q3	,866	Innovativeness_Q2	,888

System Availability		Perceived Security	
Total Variance Explained %	78,048	Total Variance Explained %	81,971
Items	Factor Load	Items	Factor Load
SystemAvailability_Q2	,901	PerceivedSecurity_Q3	,936
SystemAvailability_Q3	,890	PerceivedSecurity_Q2	,927
SystemAvailability_Q4	,887	PerceivedSecurity_Q4	,879
SystemAvailability_Q1	,855	PerceivedSecurity_Q1	,878

Attitude Toward Use		Behavioral Intention	
Total Variance Explained %	82,441	Total Variance Explained %	87,280
Items	Factor Load	Items	Factor Load
AttitudeTowardUse_Q2	,937	BehavioralIntention_Q3	,944
AttitudeTowardUse_Q3	,920	BehavioralIntention_Q2	,935
AttitudeTowardUse_Q1	,865	BehavioralIntention_Q1	,924

6.4. Reliability Analysis

The accuracy and consistency of a measurement process are considered to as its reliability. Lee Cronbach introduced Alpha in 1951 to present a measure of a scale's internal consistency and it is reported between 0 and 1. Reliability allows the researchers to see how effective is the measurement instrument used in the questionnaire. Also level of relations among items in the questionnaire and detect problematic items which can be removed from the scale. (Thorndike, Cunningham, Thorndike, & Hagen, 1991).

At this point, Cronbach's Alpha coefficient was used to assess the internal consistency and reliabilities of all constructs. According to Durmuş, Yurtkoru, and Çinko (2018), Cronbach's alpha should be greater than 0,70. Findings of the reliability analysis are shown in Table 7.

Table 7

Results of Descriptive Statistics in Summary

Variable	# of Items	Cronbach's Alpha
Perceived Usefulness	5	,912
	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
PerceivedUsefulness_Q1	,721	,884
PerceivedUsefulness_Q2	,717	,881
PerceivedUsefulness_Q3	,683	,882
PerceivedUsefulness_Q4	,457	,913
PerceivedUsefulness_Q5	,586	,896

Variable	# of Items	Cronbach's Alpha
Perceived Ease of Use	5	,905
	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
PerceivedEaseOfUse_Q1	,561	,891
PerceivedEaseOfUse_Q2	,654	,876
PerceivedEaseOfUse_Q3	,678	,874
PerceivedEaseOfUse_Q4	,665	,877
PerceivedEaseOfUse_Q5	,484	,899

Variable	# of Items	Cronbach's Alpha
Compatibility	3	,872
	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Compatibility_Q1	,592	,825
Compatibility_Q2	,660	,771
Compatibility_Q3	,516	,862

Variable	# of Items	Cronbach's Alpha
Innovativeness	3	,880
	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Innovativeness_Q1	,632	,808
Innovativeness_Q2	,565	,851
Innovativeness_Q3	,598	,834

Variable	# of Items	Cronbach's Alpha
System Availability	4	,906
	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
SystemAvailability_Q1	,579	,893
SystemAvailability_Q2	,672	,868
SystemAvailability_Q3	,662	,875
SystemAvailability_Q4	,647	,875

Variable	# of Items	Cronbach's Alpha
Perceived Security	4	,926
	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
PerceivedSecurity_Q1	,627	,917
PerceivedSecurity_Q2	,762	,892
PerceivedSecurity_Q3	,783	,886
PerceivedSecurity_Q4	,629	,918

Variable	# of Items	Cronbach's Alpha
Attitude Toward Use	3	,893
	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
AttitudeTowardUse_Q1	,520	,909
AttitudeTowardUse_Q2	,739	,794
AttitudeTowardUse_Q3	,705	,824

Variable	# of Items	Cronbach's Alpha
Behavioral Intention	3	,927
	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
BehavioralIntention_Q1	,692	,911
BehavioralIntention_Q2	,732	,892
BehavioralIntention_Q3	,759	,877

According to Table 7, Cronbach's Alpha reliability coefficients of all constructs and items related to them are above the acceptable limit of 0,7. Therefore all of them are included to the study. Also, none of items needs to be removed from the scales. The lowest reliability value among all constructs is 0,872.

6.5. Correlation Analysis

Correlation analysis is a quantitative analysis approach to measure the intensity or degree of a linear relationship of two variables or the relationship of a variable with two or more variables, if any exists. Correlation does not refer to a causal link. In other words, correlation in a bivariate model, does not denote that one variable causes to the other (Kalaycı, 2017).

Correlation coefficients are calculated to obtain such estimations. Pearson's correlation coefficient "r," is the most common measurement to explore degree and direction of linear relationship between variables in an interval scale (Durmuş et al., 2018).

Correlation analysis is applied to determine how dependent variable changes with the change of independent variable. Negative relationship, it implies that increase in one variable leads to decrease in other. Positive relationship indicates that increase in one variable leads to, increase in other or vice versa. There is no relation between the variables if there is a high amount of dispersion and no patterns (Kalaycı, 2017).

The correlation coefficient is represented by "r". It has a range of -1 to +1. If the r is -1 or +1, this shows a perfect negative or positive relationship between two variables. As relationship of two variables gets stronger, the closer r is to 1, regardless of positive or negative. As the relationship becomes weaker, the r gets closer to 0. The Table 8 explains the categorization of r value according to the degree of relationship (Bryman & Cramer, 2009).

Table 8

Ranges of Pearson's Correlation Coefficient

r	Relationship
0,00 – 0,25	Very Weak
0,26 – 0,49	Weak
0,50 – 0,69	Moderate
0,70 – 0,89	High
0,90 – 1,00	Very High

Adapted from Kalaycı (2017)

The relationships between perceived usefulness, perceived ease of use, compatibility, personal innovativeness, perceived security and system availability system, attitude toward use, and behavioral intention variables which are investigated in this research are shown in the Table 9.

When the correlation table was analyzed, the weakest relationships are between innovativeness and perceived usefulness ($r=0,400$, $p<0,01$). The strongest relationship is between attitude toward use and behavioral intention ($r=0,843$, $p<0,01$). There is a positive high relationship among compatibility, perceived usefulness and perceived ease of use ($r=0,734$, $r=0,737$, $p<0,01$). There is a moderate relationship between perceived security and compatibility ($r=0,575$, $p<0,01$). Also, relationship between system availability and innovativeness is weak ($r=0,489$, $p<0,01$). All of the relationships indicated above are statistically significant.

Table 9

Results of Correlation Analysis

Variable	1	2	3	4	5	6	7	8
Perceived Usefulness	—							
Perceived Ease of Use	,724**	—						
Compatibility	,734**	,737**	—					
Innovativeness	,400**	,456**	,534**	—				
System Availability	,599**	,689**	,590**	,489**	—			
Perceived Security	,556**	,623**	,575**	,561**	,694**	—		
Attitude Toward Use	,706**	,704**	,718**	,557**	,679**	,705**	—	

Behavioral Intention	,674**	,619**	,703**	,509*	,637**	648**	,843**	—
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** . Correlation is significant at the 0.01 level (2-tailed).

6.6. Regression Analysis

Regression has become one of the most widely used techniques in the analysis of data in social sciences. Regression analysis is the practice of using a mathematical equation to describe the relationship between a dependent variable and an independent (simple regression) or numerous independent variables (Kalaycı, 2017). Regression is an efficient tool for summarizing the structure of a variables' relation and predicting probable values of the dependent variable (Bryman & Cramer, 2009).

The purpose of regression is to describe the association between two variables by drawing a line that closely matches the data. This is known as the "best fit line". There is just one line which minimizes the distances all the dots in a scatter plot from the line. As a result, predictions about anticipated values of the dependent variable for specific values of the independent variable can be made once best fit is known (Bryman & Cramer, 2009).

Simple and multiple linear regression analysis was applied to the variables to test the hypothesis and determine the impacts of variables to each other separately. All relations are found to be statistically significant.

6.6.1. Compatibility and perceived ease of use

The regression analysis is applied to see the effect of compatibility on perceived ease of use for self service application, results are described at below tables.

Table 10*Results of Regression Analysis - Model Summary of Hypothesis 1*

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,737 ^a	,543	,541	,53152

a. Predictors: (Constant), Compatibility

R^2 is frequently used to determine how well the model suggested by the regression equation reflects the data. R^2 which is known as coefficient of determination varies between 0 and 1 and shows the percentage of the variation in the dependent variable described by the independent variable (Bryman & Cramer, 2009). R^2 value in the model summary table is 0,543. So this means that, 54 percent of the change in perceived ease of use is explained by variation in compatibility.

Table 11*Results of Regression Analysis - ANOVA Table of Hypothesis 1*

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	104,619	1	104,619	370,310	,000 ^b
	Residual	88,145	312	,283		
	Total	192,763	313			

a. Dependent Variable: PerceivedEaseOfUse

b. Predictors: (Constant), Compatibility

The ANOVA table provides an F test for the model. The important values in this table are F and Sig (p). F indicates whether the model has predictive ability. Before interpreting the F value, significance level associated with F which is 0,000 should be considered. As

significance value is lower than the alpha level ($p < 0,05$), it can be said that this model is statistically significant and the model can describe the dependent variable perceived ease of use (Kalaycı, 2017).

Table 12

Regression Coefficients of Hypothesis 1

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1,223	,155		7,884	,000
	Compatibility	,697	,036	,737	19,243	,000

a. Dependent Variable: PerceivedEaseOfUse

The estimated values of the coefficients in the model and results of t test are presented at the coefficients table. 1,223 is the value of constant or intercept in the equation which is the point that the best fit line intersects the vertical axis. 0,697 is the value of regression coefficient which is the slope of best fit line. So, regarding to the table, one unit increase in compatibility results in a 0,697 unit rise in perceived ease of use. As a result, regression equation becomes as $y = 1,223 + 0,697x$. Since significance level of t test is $p = 0,000$ for constant and coefficient, the compatibility variable's coefficient is statistically significant (Kalaycı, 2017) (Bryman & Cramer, 2009). The tests revealed that there is a positive and significant relation between compatibility and perceived ease of use. H1 was accepted relying on the analysis findings.

6.6.2. Innovativeness and perceived ease of use

The regression analysis is applied for the impact of innovativeness on perceived ease of use for self service application, results are described at below tables.

Table 13

Results of Regression Analysis - Model Summary of Hypothesis 2

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,456 ^a	,208	,206	,69945

a. Predictors: (Constant), Innovativeness

R^2 value in the model summary table is 0,208. So this means that, almost 21 percent of the change in perceived ease of use is explained by variation in innovativeness.

Table 14

Results of Regression Analysis - ANOVA Table of Hypothesis 2

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	40,122	1	40,122	82,011	,000 ^b
	Residual	152,641	312	,489		
	Total	192,763	313	40,122		

a. Dependent Variable: PerceivedEaseOfUse

b. Predictors: (Constant), Innovativeness

When F value and significance level are interpreted, significance level associated with F which is 0,000 which is significantly low. As significance value is lower than the alpha level ($p < 0,05$), it can be said that this model is statistically significant and the model can describe the dependent variable perceived ease of use (Kalaycı, 2017).

Table 15*Regression Coefficients of Hypothesis 2*

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2,858	,148		19,286	,000
	Innovativeness	,346	,038	,456	9,056	,000

a. Dependent Variable: PerceivedEaseOfUse

The value of constant or intercept in the equation which is the point that the best fit line intersects the vertical axis is 2,858. The value of regression coefficient is 0,346 which means that one unit increase in innovativeness results in 0,346 unit rise in perceived ease of use. As a result, regression equation becomes as $y = 2,858 + 0,346x$. Since significance level of t test is $p = 0,000$ for constant and coefficient. Therefore the coefficient of innovativeness is statistically significant (Kalaycı, 2017) (Bryman & Cramer, 2009). The tests revealed that there is a positive and significant relation between innovativeness and perceived ease of use. H2 was accepted relying on the analysis findings.

6.6.3. Perceived ease of use and perceived usefulness

The regression analysis is applied for the impact of perceived ease of use on perceived usefulness for self service application, results are described at below tables.

Table 16*Results of Regression Analysis - Model Summary of Hypothesis 3*

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,724 ^a	,524	,523	,54384

a. Predictors: (Constant), PerceivedEaseOfUse

R^2 value in the model summary table is 0,524. So this means that, 52 percent of the change in perceived usefulness is explained by variation in perceived ease of use.

Table 17

Results of Regression Analysis - ANOVA Table of Hypothesis 3

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	101,731	1	101,731	343,966	,000 ^b
	Residual	92,277	312	,296		
	Total	194,007	313			

a. Dependent Variable: PerceivedUsefulness

b. Predictors: (Constant), PerceivedEaseOfUse

When F value and significance level are interpreted, significance level associated with F which is 0,000 which is significantly low. As significance value is lower than the alpha level ($p < 0,05$), it can be said that this model is statistically significant and the model can describe the dependent variable perceived usefulness (Kalaycı, 2017).

Table 18

Regression Coefficients of Hypothesis 3

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1,290	,166		7,793	,000
	PerceivedEaseOfUse	,726	,039	,724	18,546	,000

a. Dependent Variable: PerceivedUsefulness

The value of constant in equation is 1,290. The value of regression coefficient is 0,726 which means that one unit increase in perceived ease of use results in 0,726 unit rise in perceived usefulness. As a result, regression equation becomes as $y=1,290 + 0,726x$. Since significance level of t test is $p= 0,000$ for constant and coefficient. Therefore the coefficient of perceived ease of use is statistically significant (Kalaycı, 2017) (Bryman & Cramer, 2009). The tests revealed that there is a positive and significant relation between perceived ease of use and perceived usefulness. H3 was accepted relying on the analysis findings.

6.6.4. Perceived ease of use and attitude towards use

The regression analysis is applied for the impact of perceived ease of use on attitude toward use of self service application, results are described at below tables.

Table 19

Results of Regression Analysis - Model Summary of Hypothesis 4

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,704 ^a	,495	,494	,61391

a. Predictors: (Constant), PerceivedEaseOfUse

R^2 value in the model summary table is 0,495. So this means that, almost 50 percent of the change in attitude toward use is explained by variation in perceived ease of use.

Table 20

Results of Regression Analysis - ANOVA Table of Hypothesis 4

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	115,371	1	115,371	306,113	,000 ^b
	Residual	117,590	312	,377		
	Total	232,961	313			

- a. Dependent Variable: AttitudeTowardUse
- b. Predictors: (Constant), PerceivedEaseOfUse

When F value and significance level are interpreted, significance level associated with F which is 0,000 which is significantly low. As significance value is lower than the alpha level ($p < 0,05$), it can be said that this model is statistically significant and the model can describe the dependent variable attitude toward use (Kalaycı, 2017).

Table 21

Regression Coefficients of Hypothesis 4

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	,890	,187		4,761	,000
	PerceivedEaseOfUse	,774	,044	,704	17,496	,000

- a. Dependent Variable: AttitudeTowardUse

The value of constant in the equation is 0,890. The value of regression coefficient is 0,774 which means that one unit increase in perceived ease of use results in 0,774 unit rise in attitude toward use. As a result, regression equation becomes as $y = 0,890 + 0,774x$. Since significance level of t test is $p = 0,000$ for constant and coefficient. Therefore the coefficient of perceived ease of use is statistically significant (Kalaycı, 2017) (Bryman & Cramer, 2009). The tests revealed that there is a positive and significant relation between perceived ease of use and attitude toward use. H4 was accepted relying on the analysis findings.

6.6.5. Perceived usefulness and attitude towards use

The regression analysis is applied for the impact of perceived usefulness on attitude toward use of self service application, results are described at below tables.

Table 22

Results of Regression Analysis - Model Summary of Hypothesis 5

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,706 ^a	,499	,497	,61181

a. Predictors: (Constant), PerceivedUsefulness

R^2 value in the model summary table is 0,499. So this means that, almost 50 percent of the change in attitude toward use is explained by variation in perceived usefulness.

Table 23

Results of Regression Analysis - ANOVA Table of Hypothesis 5

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	116,175	1	116,175	310,370	,000 ^b
	Residual	116,786	312	,374		
	Total	232,961	313			

a. Dependent Variable: AttitudeTowardUse

b. Predictors: (Constant), PerceivedUsefulness

When F value and significance level are interpreted, significance level associated with F which is 0,000 which is significantly low. As significance value is lower than the alpha level ($p < 0,05$), it can be said that this model is statistically significant and the model can describe the dependent variable attitude toward use (Kalaycı, 2017).

Table 24*Regression Coefficients of Hypothesis 5*

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	,769	,192		4,002	,000
	PerceivedUsefulness	,774	,044	,706	17,617	,000

a. Dependent Variable: AttitudeTowardUse

The value of constant in the equation is 0,769. The value of regression coefficient is 0,774 which means that one unit increase in perceived usefulness results in 0,774 unit rise in attitude toward use. As a result, regression equation becomes as $y = 0,769 + 0,774x$. Since significance level of t test is $p = 0,000$ for constant and coefficient. Therefore the coefficient of perceived usefulness is statistically significant (Kalaycı, 2017) (Bryman & Cramer, 2009). The tests revealed that there is a positive and significant relation between perceived usefulness and attitude toward use. H5 was accepted relying on the analysis findings.

6.6.6. Perceived security and attitude towards use

The regression analysis is applied for the impact of perceived security on attitude toward use of self service application, results are described at below tables.

Table 25*Results of Regression Analysis - Model Summary of Hypothesis 6*

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,705 ^a	,497	,495	,61300

a. Predictors: (Constant), PerceivedSecurity

R^2 value in the model summary table is 0,497. So this means that, almost 50 percent of the change in attitude toward use is explained by variation in perceived security.

Table 26

Results of Regression Analysis - ANOVA Table of Hypothesis 6

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	115,721	1	115,721	307,960	,000 ^b
	Residual	117,240	312	,376		
	Total	232,961	313			

a. Dependent Variable: AttitudeTowardUse

b. Predictors: (Constant), PerceivedSecurity

When F value and significance level are interpreted, significance level associated with F which is 0,000 which is significantly low. As significance value is lower than the alpha level ($p < 0,05$), it can be said that this model is statistically significant and the model can describe the dependent variable attitude toward use (Kalaycı, 2017).

Table 27

Regression Coefficients of Hypothesis 6

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1,665	,143		11,635	,000
	PerceivedSecurity	,642	,037	,705	17,549	,000

a. Dependent Variable: AttitudeTowardUse

The value of constant in the equation is 1,665. The value of regression coefficient is 0,642 which means that one unit increase in perceived security results in 0,642 unit rise in attitude toward use. As a result, regression equation becomes as $y = 1,665 + 0,642x$. Since significance level of t test is $p = 0,000$ for constant and coefficient. Therefore the coefficient of perceived security is statistically significant (Kalaycı, 2017) (Bryman & Cramer, 2009). The tests revealed that there is a positive and significant relation between perceived security and attitude toward use. H6 was accepted relying on the analysis findings.

6.6.7. System availability and attitude towards use

The regression analysis is applied for the impact of system availability on attitude toward use of self service application, results are described at below tables.

Table 28

Results of Regression Analysis - Model Summary of Hypothesis 7

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,679 ^a	,461	,459	,63426

a. Predictors: (Constant), SystemAvailability

R^2 value in the model summary table is 0,461. So this means that, 46 percent of the change in attitude toward use is explained by variation in system availability.

Table 29*Results of Regression Analysis - ANOVA Table of Hypothesis 7*

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	107,448	1	107,448	267,093	,000 ^b
	Residual	125,513	312	,402		
	Total	232,961	313			

a. Dependent Variable: AttitudeTowardUse

b. Predictors: (Constant), SystemAvailability

When F value and significance level are interpreted, significance level associated with F which is 0,000 which is significantly low. As significance value is lower than the alpha level ($p < 0,05$), it can be said that this model is statistically significant and the model can describe the dependent variable attitude toward use (Kalaycı, 2017).

Table 30*Regression Coefficients of Hypothesis 7*

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1,636	,155		10,546	,000
	SystemAvailability	,638	,039	,679	16,343	,000

b. Dependent Variable: AttitudeTowardUse

The value of constant in the equation is 1,636. The value of regression coefficient is 0,638 which means that one unit increase in system availability results in 0,638 unit rise in attitude toward use. As a result, regression equation becomes as $y = 1,636 + 0,638x$. Since significance level of t test is $p = 0,000$ for constant and coefficient. Therefore the coefficient of

system availability is statistically significant (Kalaycı, 2017) (Bryman & Cramer, 2009). The tests revealed that there is a positive and significant relation between system availability and attitude toward use. H7 was accepted relying on the analysis findings.

6.6.8. Attitude towards use and behavioral intention

The regression analysis is applied for the impact of attitude toward use on behavioral intention of self service application, results are described at below tables.

Table 31

Results of Regression Analysis - Model Summary of Hypothesis 8

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,843 ^a	,711	,710	,46728

a. Predictors: (Constant), AttitudeTowardUse

R^2 value in the model summary table is 0,711. So this means that, 71 percent of the change in behavioral intention is explained by variation in attitude toward use.

Table 32

Results of Regression Analysis - ANOVA Table of Hypothesis 8

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	167,750	1	167,750	768,247	,000 ^b
	Residual	68,126	312	,218		
	Total	235,876	313			

a. Dependent Variable: BehavioralIntention

b. Predictors: (Constant), AttitudeTowardUse

When F value and significance level are interpreted, significance level associated with F which is 0,000 which is significantly low. As significance value is lower than the alpha level ($p < 0,05$), it can be said that this model is statistically significant and the model can describe the dependent variable behavioral intention (Kalaycı, 2017).

Table 33

Regression Coefficients of Hypothesis 8

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	,730	,128		5,693	,000
	AttitudeTowardUse	,849	,031	,843	27,717	,000

a. Dependent Variable: BehavioralIntention

The value of constant in the equation is 0,730. The value of regression coefficient is 0,849 which means that one unit increase in attitude toward use results in 0,849 unit rise in behavioral intention. As a result, regression equation becomes as $y = 0,730 + 0,849x$. Since significance level of t test is $p = 0,000$ for constant and coefficient. Therefore the coefficient of attitude toward use is statistically significant (Kalaycı, 2017) (Bryman & Cramer, 2009). The tests revealed that there is a positive and significant relation between attitude toward use and behavioral intention. H8 was accepted relying on the analysis findings.

Table 34 demonstrates summary of statistics and relations between variables explained by simple linear regressions.

Table 34

Summary Results of Simple Linear Regressions

Independent Variable	Dependent Variable	Beta	t	p	Constant	R Square	Result
Compatibility	Perceived Ease of Use	0,697	19,243	0,000	1,223	0,543	H1 accepted
Innovativeness	Perceived Ease of Use	0,346	9,056	0,000	2,858	0,208	H2 accepted
Perceived Ease of Use	Perceived Usefulness	0,726	18,546	0,000	1,290	0,524	H3 accepted
Perceived Ease of Use	Attitude Toward Use	0,774	17,496	0,000	0,890	0,495	H4 accepted
Percived Usefulness	Attitude Toward Use	0,774	17,617	0,000	0,769	0,499	H5 accepted
Perceived Security	Attitude Toward Use	0,642	17,549	0,000	1,665	0,497	H6 accepted
System Availability	Attitude Toward Use	0,638	16,343	0,000	1,636	0,461	H7 accepted
Attitude Toward Use	Behavioral Intention	0,849	27,717	0,000	0,730	0,711	H8 accepted

6.6.9. Multiple Regressions

The regression analysis is applied to identify the impact of variables in below model on attitude toward use of self service application, results are described at below table.

Figure 17

Multiple Regression Model 1

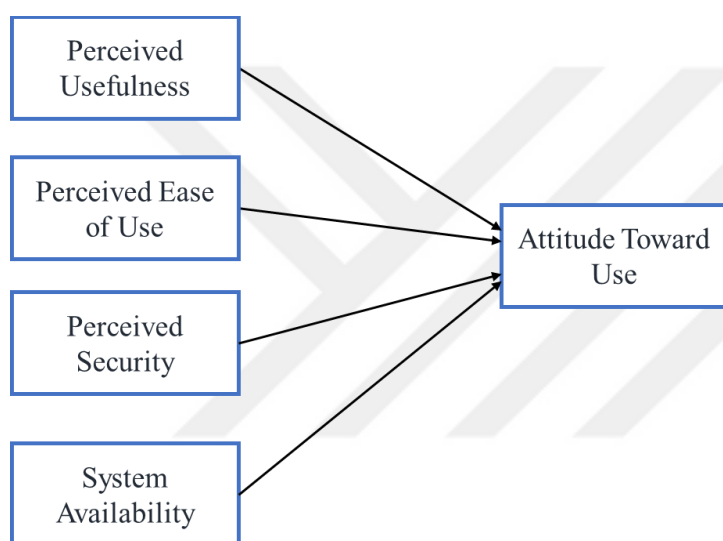


Table 35

Regression Coefficients of Model 1

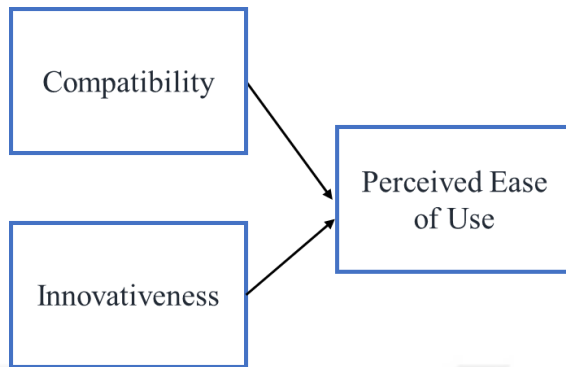
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	,182	,166		1,093	,275		
PerceivedUsefulness	,341	,053	,312	6,398	,000	,450	2,221
PerceivedEaseOfUse	,194	,060	,177	3,255	,001	,362	2,761
SystemAvailability	,142	,048	,151	2,945	,003	,472	2,119
PerceivedSecurity	,288	,043	,316	6,652	,000	,405	2,471

a. Dependent Variable: AttitudeTowardUse

The value of constant in the equation is 0,182, however the significance level of constant is more than 0,05. Since significance level of t test is $p < 0,05$ for all coefficients except constant. Therefore the coefficients of variables in the model are statistically significant (Kalaycı, 2017) (Bryman & Cramer, 2009). Table 35 demonstrates that perceived usefulness is the most powerful variable in explaining attitude toward use, having regression coefficient of 0,341. It is followed by perceived security, perceived ease of use and system availability respectively. Adjusted R Square of the model is 0,666. This indicates that 67 percent of the variation in attitude toward use is explained by independent variables in the model. Also, according to the ANOVA table in the results of multiple regression analysis of this model in Figure 17, model significance value is 0,000. As significance value is lower than the alpha level ($p < 0,05$), it can be said that this model is statistically significant (Kalaycı, 2017).

Multicollinearity occurs when two or more independent variables are strongly correlated that that they don't even provide distinct information in the regression model. The variance inflation factor (VIF) and tolerance was investigated determine if there is multicollinearity issue in the model. Hair, Black, Babin, Anderson, and Tatham (2010) argued that multicollinearity should be considered if the tolerance value is less than 0,20 and the VIF value is greater than 5. According to Table 35, there was no multicollinearity among the independent variables because all tolerance values were more than 0,20 and all VIF values were less than 5 as recommended by Hair et al (2010).

Another regression analysis is applied to identify the impact of compatibility and innovativeness on perceived ease of use for the model in Figure 18, and results are described at below table.

Figure 18*Multiple Regression Model 2***Table 36***Regression Coefficients of Model 2*

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	1,160	,158		7,356	,000		
Compatibility	,653	,043	,690	15,302	,000	,715	1,399
Innovativeness	,067	,034	,088	1,950	,052	,715	1,399

a. Dependent Variable: PerceivedEaseOfUse

The value of constant in the equation is 1,160. The significance level of innovativeness is slightly greater than 0,05, therefore it is not statistically significant. Significance level of t test is $p < 0,05$ for compatibility. Therefore the coefficients of compatibility in the model is statistically significant (Kalaycı, 2017) (Bryman & Cramer, 2009). Table 36 demonstrates that compatibility is the most powerful variable in explaining perceived ease of use, having regression coefficient of 0,653. Adjusted R Square of the model is 0,545. This indicates that 55 percent of the variation in perceived ease of use is explained

by independent variables of the model in Figure 18. Also, according to the ANOVA table in the results of multiple regression analysis of this model in Figure 18, model significance value is 0,000. As significance value is lower than the alpha level ($p < 0,05$), it can be said that this model is statistically significant (Kalaycı, 2017).

According to Table 36, there was no multicollinearity among the independent variables because all tolerance values were more than 0,20 and all VIF values were less than 5 as recommended by Hair et al (2010).

6.7. Differences of Variables According to Demographic Characteristics

Within the scope of the research, participants were divided into groups based on age, gender, education level, employment status, monthly income, mobile operator and usage frequency. In this section, an independent samples t-test and a one-way analysis of variance (ANOVA) were used to assess the differences among these groups regarding to compatibility, innovativeness, perceived ease of use, perceived usefulness, perceived security and system availability, attitude toward use and behavioral intention.

The independent samples t-test was used to compare two groups, and one-way analysis of variance (ANOVA) was used to compare three or more groups (Durmuş et al., 2018). The independent sample t-test is used to determine whether there is a difference in means between independent sample groups. The t-test examines if there is statistical evidence that one group differs significantly from the other group. Members of the two groups must be distinct and no joint members. (Kalaycı, 2017) In this context, gender participants was analyzed with the independent samples t-test.

In one-way ANOVA, there are two variables. One of them is the independent variable with categorical characteristics. The dependent variable, on the other hand, has metric features. The independent variable may contain more than two groups. One-way ANOVA

determines if there is a difference in the means of dependent variables between these groups.

The method is known as analysis of variance because it involves comparing two forms of variance (Kalaycı, 2017).

6.7.1. According to Gender

T-test is used to determine whether the means of male and female are statistically different from each other in terms of eight variables listed in the below table.

Table 37

Results of Independent Samples T Test

Gender	Female			Male			Levene's Test		t-test	
	N	M	SD	N	M	SD	F	Sig.	t	p
Innovativeness	141	3,6903	1,07323	173	3,7707	1,00166	,319	,543	-,685	,494
PerceivedUsefulness	141	4,3149	,77983	173	4,2994	,79552	,002	,961	,173	,863
PerceivedEaseOfUse	141	4,1660	,77569	173	4,1410	,79416	,291	,590	,279	,780
Compatibility	141	4,2175	,83380	173	4,1850	,82700	,066	,797	,345	,730
SystemAvailability	141	3,7926	,95476	173	3,9205	,88502	1,788	,182	-1,230	,220
PerceivedSecurity	141	3,7766	,96395	173	3,8121	,93586	2,615	,107	-,330	,741
AttitudeTowardUse	141	4,1182	,81663	173	4,0886	,90068	,217	,642	,302	,763
BehavioralIntention	141	4,2340	,81235	173	4,1927	,91294	2,143	,144	,419	,675

The results of Levene's test for equality of variances provides the information about whether the difference in the variances of two sample groups are statistically significant. All of the printed *p*-values of Levene's test in Table 37 are greater than 0,05, so the variances of

two groups are not statistically different. The findings of the t-test for equality shows the actual results of independent samples t test. As all results of Sig. 2 tailed (p) values are above 0,05 threshold for 95 percent confidence interval, it can be concluded that there is no significant difference in all variables between females and males (Bryman & Cramer, 2009). As a result, H9 is accepted.

6.7.2. According to Age Groups

As the age groups of customers are consisted of more than two sample groups, one-way analysis of variance (ANOVA) was used to compare the variables in Table 38 according to age groups.

Table 38

Results of Test of Homogeneity of Variances

	Levene Statistic	df1	df2	Sig.
PerceivedUsefulness	2,504	7	306	,016
PerceivedEaseOfUse	,963	7	306	,458
Compatibility	1,175	7	306	,317
Innovativeness	,498	7	306	,836
SystemAvailability	2,048	7	306	,049
PerceivedSecurity	3,025	7	306	,004
AttitudeTowardUse	1,816	7	306	,084
BehavioralIntention	2,516	7	306	,016

According to the findings in Levene's test for homogeneity of variances, the significance level of perceived ease of use, compatibility, innovativeness and attitude toward use are greater than 0,05. Therefore, the variances of age groups are homogenous for these

variables. Furthermore, ANOVA analysis is applicable for these variables (Bryman & Cramer, 2009).

Table 39

Results of ANOVA Test for Age Groups

		Sum of Squares	df	Mean Square	F	Sig.
PerceivedEaseOfUse	Between Groups	3,393	7	,485	,783	,602
	Within Groups	189,371	306	,619		
	Total	192,763	313			
Compatibility	Between Groups	6,562	7	,937	1,376	,215
	Within Groups	208,487	306	,681		
	Total	215,049	313			
Innovativeness	Between Groups	10,074	7	1,439	1,358	,223
	Within Groups	324,255	306	1,060		
	Total	334,328	313			
AttitudeTowardUse	Between Groups	5,676	7	,811	1,092	,368
	Within Groups	227,285	306	,743		
	Total	232,961	313			

According to the outputs of the Table 39, all of the significance (p) values are above 0,05 threshold for 95 percent confidence interval. Consequently, there is no statistically significant difference for perceived ease of use, compatibility, innovativeness and attitude toward use regarding to age groups (Bryman & Cramer, 2009). As a result, H10 is rejected.

6.7.3. According to Mobile Operators

As the mobile operators used by customers are consisted of three sample groups (Turkcell, Vodafone and Türk Telekom), one-way analysis of variance (ANOVA) was used to compare the variables in Table 40 according to mobile operators.

Table 40

Results of Test of Homogeneity of Variances

	Levene Statistic	df1	df2	Sig.
PerceivedUsefulness	,616	2	311	,541
PerceivedEaseOfUse	,230	2	311	,794
Compatibility	,524	2	311	,593
Innovativeness	1,733	2	311	,178
SystemAvailability	,374	2	311	,688
PerceivedSecurity	,008	2	311	,992
AttitudeTowardUse	1,633	2	311	,197
BehavioralIntention	6,732	2	311	,001

According to the findings in Levene's test for homogeneity of variances, the significance level of all variables except behavioral intention are greater than 0,05. Therefore, the variances of mobile operators are homogenous for these variables. Furthermore, ANOVA analysis is applicable for these variables (Bryman & Cramer, 2009).

Table 41*Results of ANOVA Test for Mobile Operators*

		Sum of Squares	df	Mean Square	F	Sig.
PerceivedUsefulness	Between Groups	1,419	2	,710	1,146	,319
	Within Groups	192,588	311	,619		
	Total	194,007	313			
PerceivedEaseOfUse	Between Groups	,309	2	,155	,250	,779
	Within Groups	192,454	311	,619		
	Total	192,763	313			
Compatibility	Between Groups	2,470	2	1,235	1,807	,166
	Within Groups	212,579	311	,684		
	Total	215,049	313			
Innovativeness	Between Groups	5,059	2	2,530	2,389	,093
	Within Groups	329,269	311	1,059		
	Total	334,328	313			
SystemAvailability	Between Groups	3,450	2	1,725	2,062	,129
	Within Groups	260,161	311	,837		
	Total	263,611	313			
PerceivedSecurity	Between Groups	3,699	2	1,850	2,076	,127
	Within Groups	277,131	311	,891		
	Total	280,830	313			
AttitudeTowardUse	Between Groups	3,586	2	1,793	2,431	,090
	Within Groups	229,375	311	,738		
	Total	232,961	313			

According to the outputs of the Table 41, all of the significance (p) values are above 0,05 threshold for 95 percent confidence interval. Consequently, there is no statistically

significant difference for perceived usefulness, perceived ease of use, compatibility, innovativeness, system availability, perceived security and attitude toward use regarding to used mobile operators (Bryman & Cramer, 2009). As a result, H11 is rejected.



7. DISCUSSION

In today's digitalized world, companies have to accommodate themselves with the pace of developments in technology. In this context, companies that lag behind others in terms of innovation speed confront with disruption or market share loss threads.

The world is changing, and organizations want to know how customers' behavior is changing and how their attitudes about technology are altering for the future. Mobile self service applications are one of the primary and ordinary parts of today's technology savvy people's lives who don't want to spend time for a task which can be completed online via digital devices. Even some companies are trying to create a new customer segment by offering digital only products and services in which all customer lifecycle is handled via digital channels. In return, the companies manage their expensive resources in human assisted channels more efficiently.

Currently, almost everyone has at least one mobile device, most often a smartphone. Rapid advancements in mobile technology and smartphones affect both consumers and businesses in practically all industries. Also it has become crucial in determining the digital strategies of the corporations. While this circumstance elevates mobile payment systems to a new level, it also generates a study motive to better understand the customer by investigating the application of new technologies in the field of marketing. In this circumstances, self service technologies gain a new remarkable position in the eyes of customers. It also generates an incentive to better understand the customer's demands and behaviors about application of new technologies in the field of marketing.

Self service mobile applications are digital front doors of the companies which give the customers a convenient and easy way to obtain information about available products and services, enable or disable services, make payments and submit problems. A customized

mobile application adds another point of contact for consumers and enhances experience for end users.

The goal of this dissertation is to examine the factors affecting customers' adoption (behavioral intention) of self service applications which is a service innovation in mobile telecommunications industry. Therefore, information about digital revolution, self service technologies and mobile telecommunications industry is presented first, innovation and associated ideas is presented first, followed by detailed explanations of models and theories about diffusion, adoption and use of new technologies and innovations.

The theories related to the diffusion, acceptance, and usage of new technological services products have been reviewed, ranging from Roger's Diffusion of Innovation Theory, one of the oldest innovation adoption and diffusion studies, to Unified Theory of Acceptance and Use of Technology. Davis's (1989) Technology Acceptance Model establishes the foundation of the research model which includes variables as perceived usefulness, perceived ease of use, attitude toward use, and behavioral intention. Compatibility is included in the model from Roger's Diffusion of Innovation Theory. Personal innovativeness, system availability and perceived security are considered as determinants of the technology acceptance process in this study according to the reviewed previous researches.

Beyond being a widely explored model by academics, technology acceptance is an equally crucial topic for the success and growth of new digital product and services since it is significant for companies to thrive in a competitive environment and raise their profitability.

The increased usage of internet has driven the ways of marketing and selling products and services online by companies. To enhance quality of service and minimize expenses, almost all mobile telecommunications companies banks and financial institutions have introduced innovative applications like mobile self service. So these companies must identify

the elements that influence customer's attitudes and behavioral intention about the adoption and use of self service applications.

This study, like prior studies in the literature, aims to assess consumers' intentions to use self service applications and beliefs that influence their usage intentions in mobile telecommunications industry in Turkey. The research was conducted with a sample drawn from various genders, age groups and education levels. The primary reason for such a study on the mobile telecommunications sector is that; technology acceptance is widely studied in industries like mobile banking, mobile shopping and mobile payment but no related study was found out in this sector.

Statistical analyses were performed on the hypotheses generated by the research model. Factor analysis and regression analysis are executed to verify results of hypotheses about relations between variables. The findings of the study may be stated as follows:

All outputs in the research is obtained according to the answers of respondents to the questionnaire. Each scale used in the questionnaire has good level of validity and reliability. This demonstrates that outcomes of analysis are reliable. Most of the relations indicated and anticipated in the hypotheses and research model are resulted coherent with prior researches in literature.

In the studies which established the foundation of technology acceptance model, it was concluded that perceived ease of use had direct and positive effect on the perceived usefulness (Davis, 1989; Venkatesh & Davis, 2000). In accordance with these previous studies, it was revealed that perceived ease of use had direct and positive impact on perceived usefulness in this study too. Also, perceived usefulness and perceived ease of use should be involved in future studies because, as stated in the well-known acceptance models, they have significant and positive impacts on attitude and use intention. The results demonstrate that if customers think that the system to be simple and straightforward to use and they realize the benefits of

using self service applications, their intention to use have been reinforced. Therefore, mobile operators should inform consumers about the benefits of utilizing this digital services (saving time, quick transactions, keeping track of their accounts) and its advantages over traditional channels to increase the usage of self service applications.

Compatibility is the extent to which self service applications is accordant with pre-existing beliefs, behaviors, and experiences of customers. When the relationship between compatibility and perceived ease of use is examined, compatibility is found to predict perceived ease of use and they have a direct and significant relationship (Schierz et al., 2010).

Innovativeness is thought to be a measure of how rapidly and more likely customers embrace an invention in comparison to others. This concept is supported by the theory of Rogers's (2003) diffusion of innovations and Agarwal and Prasad (1998). During the regression analysis, it was observed that innovativeness has positive impact on perceived ease of use however it is not as much as compatibility. Also, when the characteristics of innovative people are considered, they may have information about the system, use it more simply, and gain more benefits from the system. So, in the further studies relation between innovativeness and perceived usefulness can be investigated.

Despite it is not an element of any technology acceptance theory, system availability has been proven to be an efficient factor for the adoption of self service application. It explains a considerable part of variance on attitude toward use. Future studies about technology acceptance should explore system availability's direct impact on attitude toward use and behavioral intention.

Especially when they are making financial transactions, one of the concerns that customers have to use self service applications is perceived security. Consumers may identify security risk as the probability of privacy violation in the adoption of electronic services because sensitive data like credit card information and personal information is used.

According to the results obtained in this study, it can be said that the relation between consumers' perceptions of security and attitude toward use is positive and statistically significant. This means that risk considerations may not be prioritized when introducing mobile payment systems. However, managers must concentrate on the long-term strategic plans mentioned in order to make mass market realization of self service applications (Schierz et al., 2010). To increase the level of perceived security, companies should implement two factor authentication and use signs of trusted authorities in the payment pages.

According to the original TAM model (Davis, 1986), as well as the models of Taylor and Todd (1995) attitude has a positive influence on behavioral intention. Attitude toward usage represents sentiments of favorability or aversion to use technology. Accordingly, the findings in this study show that attitude toward use is a significant impact on behavioral and one of the most powerful predictors of intention.

There are some limitations of this study besides of its contributions. It is obvious that the research has lack of generalizability as the study is built on a single industry. New studies may be applied to the factors mentioned in above sections in different business cases. Also the sample is consisted of 314 individuals by an online survey application. Therefore, equivalence in distribution of socio-demographic characteristics couldn't be achieved which is another limitation. On the other hand, this is an opportunity for the future researches. Achievement of homogeneity in education level and employment status in participants or a research focusing people belongs to one or two education level would contribute to the literature.

In this research, attitude toward use and behavioral intention to use are used as main dependent variables to understand the adoption of self service applications. In the future studies, actual usage can be considered as a variable for evaluation of adoption.

Finally, necessary effort was given to design the most appropriate model to evaluate the customers' sense of self service applications in regard to the selection of variables used. It can be useful to repeat the research with a different sample in a multicultural context to determine the cultural impacts as the sample in this thesis is consisted of people in Turkey.



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APPENDICES

Appendix A. Questionnaire

Anket Formu

Sayın Katılımcı,

Bu çalışma, kullanıcıların Mobil Telekomünikasyon firmaları tarafından sunulan Self Servis uygulamalarının kullanımı hakkındaki görüşleri incelemektedir.

Aşağıda bulunan anket, Yeditepe Üniversitesi, Sosyal Bilimler Enstitüsü, MBA yüksek lisans öğrencisi tarafından yüksek lisans tezi için kullanılacaktır.

Sizin tarafınızdan iletilen bilgiler sadece bilimsel bir çalışma için kullanılacak olup, gizli tutulacaktır. Lütfen aşağıdaki soruları dikkatlice okuyup, size en yakın olan seçeneği işaretleyiniz. Göstermiş olduğunuz ilgi için teşekkür ederim.

* Gerekli

Self Servis Uygulamaları Hakkında Genel Bilgiler

Mobil Telekomünikasyon Operatörlerinin Self Servis uygulamaları ile Mobil ve Evd İnternet aboneliklerinize ait tüm işlemlerinizi tek bir uygulama üzerinden gerçekleştirebilirsiniz.

Aşağıda örnek ekran görüntülerini bulabileceğiniz mobil uygulamaları kullanarak yapabileceğiniz işlemlerden bazıları;

- Tarifenizdeki ve paketlerinizdeki kalan kullanımları görüntüleme
- Faturalarınızı inceleyip ödeme, TL veya paket yükleme
- Tarife değişikliği, ek paket satın alma
- Hat ve cihaz ayarlarını kontrol edip güncelleme
- Size özel cihaz, uygulama ve paket tekliflerini inceleme
- Online mağazadan cihaz, aksesuar ve tablet, laptop gibi diğer teknolojik ürünler satın alma
- Yardım bölümünden talep ve sorunlarınızla ilgili bilgi edinme

Turkcell / Vodafone / Türk Telekom Self Servis Uygulamaları



Demografik Bilgiler

1. Yaşınız *

2. Cinsiyetiniz *

Yalnızca bir şıkkı işaretleyin.☐ Kadın☐ Erkek

3. Eğitim Düzeyiniz *

Yalnızca bir şıkkı işaretleyin.☐ İlköğretim☐ Lise☐ Yüksekokul☐ Üniversite☐ Yüksek Lisans ve Üzeri

4. Çalışma Durumunuz *

Yalnızca bir şıkkı işaretleyin.☐ Çalışmıyorum☐ Tam süreli çalışıyorum☐ Yarı süreli çalışıyorum☐ Öğrenciyim☐ Emekliyim☐ İş arıyorum

5. Bireysel Aylık Ortalama Geliriniz *

Yalnızca bir şıkkı işaretleyin.☐ 4500 ve altı☐ 4501 - 7000☐ 7001 - 9500☐ 9501 - 12000☐ 12001 - 14500☐ 14501 ve üzeri

6. Hangi Mobil GSM Operatörünü kullanıyorsunuz *

Yalnızca bir şıkkı işaretleyin.

- ☐ Turkcell
- ☐ Vodafone
- ☐ Türk Telekom

7. Kullandığınız hattın türü nedir *

Yalnızca bir şıkkı işaretleyin.

- ☐ Faturalı
- ☐ Faturasız

8. GSM Operatörünün sunmuş olduğu, işlemlerinizi kendiniz yapmanızı sağlayan Self Servis uygulamasını bir ay içerisinde hangi sıklıkla kullanırsınız

Yalnızca bir şıkkı işaretleyin.

- ☐ 1 defadan az
- ☐ 1 - 3 defa
- ☐ 4 - 8 defa
- ☐ 9 - 12 defa
- ☐ 12 den fazla

9. Mobil Self Servis uygulamasını hangi işlemlerinizi için kullanıyorsunuz (En çok kullandığınız iki tanesini seçiniz)

Uygun olanların tümünü işaretleyin.

- ☐ Faturasız hattıma lira yüklemek
- ☐ Fatura ödemek
- ☐ Ek paket satın almak
- ☐ Hattıma uygun tarife seçeneklerini görüntülemek / tarife değiştirmek
- ☐ Kalan kullanım haklarımı / kalan bakiyemi görüntülemek
- ☐ Telefon , tablet gibi cihazlar hakkında bilgi almak / satın almak
- ☐ Yaşadığım problemle ilgili bilgi ve destek almak
- ☐ Promosyon veya indirim kazanmak

Araştırma Soruları

Bu bölümdeki soruları, mobil telekomünikasyon şirketleri tarafından müşterilerin kullanımına sunulan mobil self-servis uygulamaları hakkındaki kendi durum ve düşüncelerinizi göz önünde bulundurarak cevaplandırınız. Tüm sorular için; cevaplar 5'e kadar derecelendirilmiştir ve ilgili ölçek aşağıda verilmiştir.
(1: Kesinlikle Katılmıyorum, 2: Katılmıyorum, 3: Kararsızım, 4: Katılıyorum, 5: Kesinlikle Katılıyorum)

10. Self Servis uygulamalarını kullanarak işlemlerimi daha kısa sürede gerçekleştiririm. *

Yalnızca bir şıkkı işaretleyin.

	1	2	3	4	5	
Kesinlikle Katılmıyorum	☐	☐	☐	☐	☐	Kesinlikle Katılıyorum

11. Self Servis uygulamalarını faydalı buluyorum. *

Yalnızca bir şıkkı işaretleyin.

	1	2	3	4	5	
Kesinlikle Katılmıyorum	☐	☐	☐	☐	☐	Kesinlikle Katılıyorum

12. Self Servis uygulamalarını kullanarak işlemlerimi daha kolay yaparım. *

Yalnızca bir şıkkı işaretleyin.

	1	2	3	4	5	
Kesinlikle Katılmıyorum	☐	☐	☐	☐	☐	Kesinlikle Katılıyorum

13. Self Servis uygulamalarını kullanmak güncel kullanım, tarife ve fatura gibi bilgilerimi daha iyi kontrol etmemi sağlar.

Yalnızca bir şıkkı işaretleyin.

	1	2	3	4	5	
Kesinlikle Katılmıyorum	☐	☐	☐	☐	☐	Kesinlikle Katılıyorum

14. Self Servis uygulamalarını kullanmak işlemlerimde daha verimli olmamı sağlar. *

Yalnızca bir şıkkı işaretleyin.

	1	2	3	4	5	
Kesinlikle Katılmıyorum	☐	☐	☐	☐	☐	Kesinlikle Katılıyorum

15. Self Servis uygulamalarını kullanmak kolaydır. *

Yalnızca bir şıkkı işaretleyin.

	1	2	3	4	5	
Kesinlikle katılmıyorum	☐	☐	☐	☐	☐	Kesinlikle katılıyorum

16. Self Servis uygulamalarının nasıl kullanıldığını öğrenmek kolaydır. *

Yalnızca bir şıkkı işaretleyin.

	1	2	3	4	5	
Kesinlikle katılmıyorum	☐	☐	☐	☐	☐	Kesinlikle katılıyorum

17. Self Servis uygulamalarındaki işlemler oldukça açık ve anlaşılırdır. *

Yalnızca bir şıkkı işaretleyin.

	1	2	3	4	5	
Kesinlikle katılmıyorum	☐	☐	☐	☐	☐	Kesinlikle katılıyorum

18. Self Servis uygulamalarında istediğim bilgiyi veya işlemi bulmak kolaydır. *

Yalnızca bir şıkkı işaretleyin.

	1	2	3	4	5	
Kesinlikle katılmıyorum	☐	☐	☐	☐	☐	Kesinlikle katılıyorum

19. Self Servis uygulamalarını kullanma ve işlemlerimi yapma konusunda becerikliyim. *

Yalnızca bir şıkkı işaretleyin.

	1	2	3	4	5	
Kesinlikle katılmıyorum	☐	☐	☐	☐	☐	Kesinlikle katılıyorum

20. Self Servis uygulaması kullanarak işlemlerimi yapmak yaşam tarzıma uygundur. *

Yalnızca bir şıkkı işaretleyin.

	1	2	3	4	5	
Kesinlikle katılmıyorum	☐	☐	☐	☐	☐	Kesinlikle katılıyorum

21. Self Servis uygulaması kullanmak ürün ve hizmet alma tarzıma uygundur. *

Yalnızca bir şıkkı işaretleyin.

	1	2	3	4	5	
Kesinlikle katılmıyorum	☐	☐	☐	☐	☐	Kesinlikle katılıyorum

22. Alternatif işlem kanalları (örn. çağrı merkezi, mağaza/bayi) yerine Self Servis uygulamalarını kullanmaktan memnun olurum.

Yalnızca bir şıkkı işaretleyin.

	1	2	3	4	5	
Kesinlikle katılmıyorum	☐	☐	☐	☐	☐	Kesinlikle katılıyorum

23. Yeni bir teknolojik ürün veya hizmet çıktığını duyduğumda onu denemenin yollarını ararım.

Yalnızca bir şıkkı işaretleyin.

	1	2	3	4	5	
Kesinlikle katılmıyorum	☐	☐	☐	☐	☐	Kesinlikle katılıyorum

24. Arkadaşlarım arasında yeni teknolojileri ilk deneyen kişi genellikle ben olurum. *

Yalnızca bir şıkkı işaretleyin.

	1	2	3	4	5	
Kesinlikle katılmıyorum	☐	☐	☐	☐	☐	Kesinlikle katılıyorum

25. Yeni teknolojileri denemeyi severim. *

Yalnızca bir şıkkı işaretleyin.

	1	2	3	4	5	
Kesinlikle katılmıyorum	☐	☐	☐	☐	☐	Kesinlikle katılıyorum

26. Self Servis uygulaması işlem yapmak için her zaman kullanıma hazırdır. *

Yalnızca bir şıkkı işaretleyin.

	1	2	3	4	5	
Kesinlikle katılmıyorum	☐	☐	☐	☐	☐	Kesinlikle katılıyorum

27. Self Servis uygulaması hemen açılır ve çalışır. *

Yalnızca bir şıkkı işaretleyin.

	1	2	3	4	5	
Kesinlikle katılmıyorum	☐	☐	☐	☐	☐	Kesinlikle katılıyorum

28. Self servis uygulaması kullanırken çökmez. *

Yalnızca bir şıkkı işaretleyin.

	1	2	3	4	5	
Kesinlikle katılmıyorum	☐	☐	☐	☐	☐	Kesinlikle katılıyorum

29. Self servis uygulaması işlem bilgilerimi ve taleplerimi girdikten sonra kilitlemez. *

Yalnızca bir şıkkı işaretleyin.

	1	2	3	4	5	
Kesinlikle katılmıyorum	☐	☐	☐	☐	☐	Kesinlikle katılıyorum

30. Self Servis uygulamasını kullanarak yaptığım işlemlerde yetkisiz üçüncü kişilerin işler süreçlerini izleme riski düşüktür.

Yalnızca bir şıkkı işaretleyin.

	1	2	3	4	5	
Kesinlikle katılmıyorum	☐	☐	☐	☐	☐	Kesinlikle katılıyorum

31. Self Servis uygulamasını kullanırken kişisel (kredi kartı, isim, gsm no. vb.) bilgilerin kötü niyetli kullanılması riski düşüktür.

Yalnızca bir şıkkı işaretleyin.

	1	2	3	4	5	
Kesinlikle katılmıyorum	☐	☐	☐	☐	☐	Kesinlikle katılıyorum

32. Self Servis uygulaması ile bir ödeme işlemi yaparken işlem bilgilerinin (ürün, fatura, ödeme miktarı, ödeme yapılan yer veya kişiler gibi) kötüye kullanılma riski düşüktür.

Yalnızca bir şıkkı işaretleyin.

	1	2	3	4	5	
Kesinlikle katılmıyorum	☐	☐	☐	☐	☐	Kesinlikle katılıyorum

33. Self Servis uygulamasını yapmak istediğim işlemler için güvenli bulurum. *

Yalnızca bir şıkkı işaretleyin.

	1	2	3	4	5	
Kesinlikle katılmıyorum	☐	☐	☐	☐	☐	Kesinlikle katılıyorum

34. Self Servis uygulamalarını kullanmak iyi bir fikirdir. *

Yalnızca bir şıkkı işaretleyin.

	1	2	3	4	5	
Kesinlikle katılmıyorum	☐	☐	☐	☐	☐	Kesinlikle katılıyorum

35. Self Servis uygulamalarını kullanmaktan zevk alırım. *

Yalnızca bir şıkkı işaretleyin.

	1	2	3	4	5	
Kesinlikle katılmıyorum	☐	☐	☐	☐	☐	Kesinlikle katılıyorum

36. Self Servis uygulamalarını kullanmayı severim. *

Yalnızca bir şıkkı işaretleyin.

	1	2	3	4	5	
Kesinlikle katılmıyorum	☐	☐	☐	☐	☐	Kesinlikle katılıyorum

37. Gelecekte Self Servis uygulamalarını kullanmaya devam edeceğim. *

Yalnızca bir şıkkı işaretleyin.

	1	2	3	4	5	
Kesinlikle katılmıyorum	☐	☐	☐	☐	☐	Kesinlikle katılıyorum

38. Gelecekte Self Servis uygulamalarını sıklıkla kullanmayı planlıyorum. *

Yalnızca bir şıkkı işaretleyin.

	1	2	3	4	5	
Kesinlikle katılmıyorum	☐	☐	☐	☐	☐	Kesinlikle katılıyorum

39. Günlük hayatımda Self Servis uygulamalarını işlemlerimi yapmak için kullanmaya gayret edeceğim.

Yalnızca bir şıkkı işaretleyin.

	1	2	3	4	5	
Kesinlikle katılmıyorum	☐	☐	☐	☐	☐	Kesinlikle katılıyorum