

# Adaptation to Internet-Based Services by Seniors in Turkey

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## **Abstract**

The motivation of this article is to analyze and define the barriers and opportunities in senior people's adaptation to the Internet-based services in Turkey. Digitalization has emerged in developed countries where people's lifestyle was molded by it, then the technology diffused to the developing countries including Turkey. With this emergence, internet-based applications have entered into people's daily life activities such as shopping and using banking services. However, Turkey can be seen as a late-adopter of these digital technologies, yet Turkish companies have been fairly quick in adaptation and improving internet-based services to local needs. Today, many young and middle-aged users in Turkey are using above-mentioned services, and they take internet-based applications for granted in their daily life activities. On the other hand, senior people could not catch up with the diffusion of these kinds of internet-based services. There seem to be barriers to the adaptation of elderly people to the digitalized world and it seems to prevent usage of internet-based applications which makes accomplishing those tasks easier. A design researcher's perspective can point out opportunity areas and provide innovative solutions to overcome barriers to adaptation. In this study, our approach is to conduct ethnographic interviews with senior people in Turkey in order to understand how they use internet-based services and how digitalization in this aspect is affecting their life. The second part of this study is to understand internet-based service providers' perspective. By conducting interviews at service provider companies, we aim to understand their approach regarding the inclusion of senior users. As a result, service providers and end users will be examined simultaneously, therefore deeper analysis and conclusions will be obtained. To our knowledge, there is no research study investigating adaptation to internet-based services of seniors in Turkey from a design research perspective. As a conclusion, this study investigates the barriers in the adaptation of internet-based services by senior people in Turkey, and the study aims to find opportunities where design can help with the integration of the digital world and senior people.

***Keywords: digitalization, digital adaptation, internet-based services, seniors of Turkey***

# 1 Introduction

The world is living in the era of technology and the importance of digitalization increases day by day. This leads to a high usage of certain devices and platforms and changes the lifestyle of the ones who can adapt to it. Also with the advancement of technology human lifespan extends hence, senior population increases in higher amounts. Consequently, in a world where the ones that cannot adapt to the rapid improvements of technology become alienated and these are being the seniors who will constitute the majority of the world population. As stated in the article “Towards digital inclusion – engaging older people in the ‘digital world’” it can be seen that information technologies are distributed inconsistently among both the countries and the societies (Olphert, Damodaran & May, 2005). The senior market is the most significant market segment that will redefine the future of products and services. It is crucial to include seniors in this digitalisation process. This also applies for Turkey, by 2040, number of seniors in Turkey will be nearly doubled, yet their wishes and demands are not considered at an adequate level (Nüfus Projeksiyonları 2018-2080, 2018). As Turkey itself being a late adopter of “digital” the seniors of Turkey are also far behind when compared to the younger population. Thus the reason why this article is focused on Turkey is that, as Turkish design students, we are living through this process of adaptation and being young and aware of the developments we believe that a designer’s point of view can alter the course of events. Therefore, the motivation of this article is to be able to define barriers in adaptation to Internet-based services by seniors in Turkey and to be able to determine opportunity areas in order to be able to solve pain points. This adaptation also defines the adaptation to the digital world. By applying design research methods and analysing the data dependly we are able to define those barriers. Mace, Hardie and Place (1991) state that “The design profession holds the key to empowering people with all types of physical or cognitive disabilities to integrate as fully as possible into the mainstream of daily life”(p.30). We are using this key to find the barriers of usage in Internet-based services and adaptation preventions to digitalization. To do that, we have done ethnographic research at seniors’ houses, and street interviews at Kadikoy, Istanbul. Moreover, an interview is conducted with a former employee of an Internet based service provider in order to comprehend the approach of the providers towards seniors. This way both sides of the equation are examined to achieve what is proposed as the motivation of the article.

## 2 World vs. Turkey

### 2.1 Demographic Change

The population on the earth is 7.63 billions and some research points out that the number will be 9.21 billions in year 2040. Parallely, according to a census made by Turkish Statistical Institution, 8.7% of Turkey’s citizens (7.163.154 people) are people who are older than 65. This ratio, according to the estimations, is predicted to be nearly doubled to 16.3% (16.373.971 people) in year 2040 (Türkiye İstatistik Kurumu, 2018). This increase of the senior population around the world and Turkey affects some changes on the age pyramid. In results of these changes, investments and studies of the country are reshaped accordingly. Moreover, studies in this field will get more importance.

## 2.2 Internet Usage

In the last 20 years, in result of technological progress, the internet has become a part of human life. Through these demographic changes, the internet has begun to influence the senior population. Today, the number of people who use internet is 3.773 billion, 50% of the world (Turkay, 2017). This number increases daily and the internet penetration of the public raises accordingly. This increase is apparently monitored also in Turkey. 60% of the population in Turkey, roughly 48 million people, is using the internet (Turkay, 2017). The main focus of internet usage on the world and Turkey is social media. On earth, 74% of the internet users are actively using social media and this ratio is 82% for Turkey (Kantarci, Ozalp, Sezginsoy, Ozaskinli & Cavlak, 2017). Briefly, social media usage is placed first as internet usage both on the world and Turkey. In addition to this, seniors are mainly affected by this usage, as we will discuss it thoroughly in the discussion part.

## 2.3 Internet-Based Services

According to the definition of Business Dictionary (Online Business Dictionary, 2018), the definition of services is “Intangible products such as accounting, banking, cleaning, consultancy, education, insurance, expertise, medical treatment, or transportation.”. With the widespread usage of internet, great breakthroughs have occurred in these services too by online tools. In this article, these services which are based on the internet are described as “Internet-Based Services”. For example, internet-based services are online banking services, e-commerce websites, etc.

These online tools were firstly used by American college students with an aim to do cannabis trade. This is the first example of what we can call E-commerce. As stated in the book named “What the Dormouse Said: How the Sixties Counterculture Shaped the Personal Computer Industry” by John Markoff (2006): “In 1971 or 1972, Stanford students using Arpanet accounts at Stanford University's Artificial Intelligence Laboratory engaged in a commercial transaction with their counterparts at Massachusetts Institute of Technology. Before Amazon, before eBay, the seminal act of e-commerce was a drug deal. The students used the network to quietly arrange the sale of an undetermined amount of marijuana.”

Actually, the era which this industry has progressed and used widely has begun around 1995 (Laudon & Traver, 2017). American company Amazon, which is founded by Jeff Bezos has been also established in this year. On the other hand, Turkey might be late for the progress of computers but not late for the Internet adaptation; latest versions of the Internet substructure systems are being installed consistently. By this way, the revolution which started in 1995 in USA comes to Turkey in 1997 and studies have begun with the influence of “Bilim ve Teknoloji Yuksek Kurulu” (Science and Technology High Council of Turkey) (Turkiye'de e-Ticaret Tarihcesi, n.d.). Therewith, in year 1998, Turkey's first e-commerce website hepsiburada.com goes in service (Turkiye'de E-Ticaret Sektoru, 2011). If 1995 is considered as the beginning point of the Internet sector of the world, it can be said that the service sector is included this sector in 2000-2007. After 2007, with the arise of smartphone usage the industry has grown up rapidly (see Figure 1). Turkey is late but adapting rapidly, and there are 15000 e-commerce websites established since hepsiburada.com founded in 1998. (Turkiye'de e-Ticaret Tarihcesi, n.d.).

This industry is still progressing both in Turkey and the world, and the number of users is increasing on a daily basis. In developed countries such as USA and Germany, e-commerce websites are used and preferred based on the convenience. However, in Turkey, they are used and preferred because the products are cheaper. (Kantarci & Ozalp & Sezginsoy & Ozaskinli & Cavlak, 2017). The reasons why seniors do not prefer to use e-commerce websites are explained on the following chapters in detail but in briefly, this is the main reason. The reasons why people in Turkey do not shop on internet is stated on figure 2. In these reasons Turkey is considered to take a big step towards progress.

### **3 Methodology**

The methodology of this article can be basically examined in four steps: Ethnographic research, intercept interview, meeting with Internet-based service provider and data analysis. Defined design is provided by the methodology of the question of how the researcher conducted the research in the context of the perspective of the researcher. A design researcher's perspective focuses on the user basically, and analysis the collected data from the users in order to be able to interpret the user behaviors and to form insights. Nevertheless, the key to solving problems is in the hands of people who encounter problems in daily life, and these problems are detected by linking them (Ideo.org, 2015). We could detect the adaptation problem which is described in the article when we examined the individuals over 65 years of age, at which point the methodology forms the basis of the barriers and opportunity areas we have defined.

Ethnography, a kind of field work, is a method based on collecting data on a participant where the participant is observed in his / her environment and he / she is performing ordinary activities (Brewer, 2000). We went to 6 different homes to experience this method and we were able to observe 8 different participants and interview them in their own environment. In addition, in order to create diversity within these homes we had the real chance to choose from different cities of Turkey. 3 houses from Muğla, 3 houses from Istanbul and 1 house from Ankara in which the interviews were held. These 8 seniors are named "Senior # 1, Senior # 2, ..., Senior # 8". The most prominent data of this research and the ones useful for the article are shared below under the according titles. After ethnographic research, we made an interview with all the participants. Their answer to "What are you using Internet for?" was mostly "social media". Usage rate of social media is already %82 at Turkey as stated before (Kantarci, Ozalp, Sezginsoy, Ozaskinli & Cavlak, 2017). This answer was not surprising that much but we tried to figure out why seniors are using social media while they are not using other Internet-Based services that much. During the ethnographic research we observed which objects seniors are using as digital at their home mostly.

5 to 10 minute street interviews were done with 25 people. The interviews were in a semi-conducted structure. There were predetermined questions and improvised questions depending on the participants' answers. Graphical data are retrieved from those pre-determined questions. These seniors are named as "Senior #9, Senior #10, ..., Senior #33". The findings of all the seniors were not used, some of which were directly addressed, but the evaluation charts were all given. One of the predetermined question was "What is the meaning of digital?" / "Can you define what does digital mean?" At Figure 3 the distribution

of the data is shown. Second predetermined question was “When did the digital enter your life?”. At Figure 4 shows the collected data.

For this step of the research, we contacted with the former UX/UI design chief of a big e-commerce website. (For the privacy of the firm, we are not allowed to mention the name of it) We asked her about the firm strategies and about how is the approach of the firm to seniors. For data analysis, we used affinity diagram (see Figure 8). Moreover, we used graphs to demonstrate our data collected from interviews and ethnographic research.

## **4 Findings**

### **4.1 Ethnography & Intercept Interview**

Senior # 1:

When her daughter buys a computer at 1993, he met with the computer, but he is very curious about the technology. He said that he went to an Internet usage course at 1994. He is still very related to technology. He follows Turkish online technology magazines like “ChipOnline”. He told that he started to use social media because of his daughter. She participated to political protests called Occupy Gezi. During those protests media was censored, so social media became the main media tool. To keep up with the news he started to use social media and he still uses.

Senior # 2:

She is still working as an English teacher. She is 73 years old. She uses social media as a tool to get the news of her children and grandchildren. Her siblings live in another country, so she thinks that by using social media she can keep up with them and knows what they are doing. Senior #1 and her still keep working, so they said that they do not have Internet connection at their home but their smartphone Internet is enough for them to use at home. Male senior said that they do not use television to watch channels, he said that he downloads movies at work and they watch them at home.

Senior # 5:

This person lives alone, she always complains about being lonely. She keeps televisions on just to hear some voice at home, not to feel alone. She has graduated from high school many years ago. She is capable of using technological devices, but she confuses the meaning of digital. For example, she defines a vacuum cleaner as a digital device. She met with digital by her smartphone about 5-6 years ago. She got a Facebook account.

Senior # 6:

She uses mostly television but while watching television they are using their tablets or smartphones simultaneously. His son encourages her to use e-commerce services. She uses her tablet as a gaming device while watching television.

Senior # 9:

“I’m not conceiving what digital is.”

“To learn Internet-based services is a waste of time, I don’t have time for such things”

Senior # 10:

“If I would know that the digital world could enter my life that much, I would have learnt it 10 years earlier.”

“I do not understand how to use Internet”

He wishes to know better about the digital world but now he has lack of knowledge.

Senior # 11:

“Digital photos, images may be related to something about digital but I do not know it exactly.”

He already owns a photograph retailer, everything on the screen is digital according to him.

Senior # 12:

“Electronic and number computing things”

She told that she met with digital at 1986 which was a computer. She used to work as a manager at a bank. She only buys intangible products like anti-virus softwares from Internet, otherwise she prefers to buy by seeing and touching.

Senior # 16:

His grandchild pushes him to use Internet, and social media. He is a column writer at a local newspaper and he shares his essays on Facebook. He does not need to learn more about digital world, he believes that he has no time for such a things.

Senior # 17:

“I cannot abandon my habits, I do my bankings, shopping things as I learnt from my father.”

He believes that he cannot abandon his habits, he has a way of doing things.

Senior # 18:

She says that she does not need Internet-based services, because she uses local services to order her needs without going out of the house.

Senior # 19:

He thinks that he is not capable of understanding how Internet works and using those kinds of services because of his age.

Senior # 20:

Her children takes care of things that she is not able to do about digital world. She takes their support toward those kind of unknown issues.

Senior # 21:

She was accompanied by her daughter when we interviewed her. When we asked her why she is not using e-commerce websites her daughter interrupted and told that her mother can be tricked easily.

Senior # 23:

“I would like to learn how to use it, but who is going to teach me.”

She believes that she cannot learn digital world on her own, she need somebody to teach.

Senior # 24:

“I have time, but I have no patience to learn.”

Learning new things requires patience at his age.

Senior # 25:

While watching news on television, he encountered to a headline that defends that shopping from the Internet is not a viable thing to do because there were a cucumber instead of a smartphone inside the retailed box. For the frauds like that, he prefers to not to use Internet-based services at all. He thinks that he stay away from trouble and bureaucratic issues by doing that.

Senior # 28:

He directly tells that he has prejudice, he thinks that Internet is an illness.

Senior # 30:

One of her friends had ordered 3 couple of shoes and none of them fit. She heard that her friend could not return them in the given time because she were not able to leave house.

#### **4.2 Meeting with Internet-Based Service Providers**

- UI and graphic designers were designing according to their usage habits because of the lacking UX training.
- Designers build the website depending on their own age trends.
- Firms prefers to consider who has the money and who spends it online
- To learn something new is becoming hard for senior people
- They are trying to learn the digital world. Although they have learnt social media such as facebook, they do not prefer to use e-commerce websites.
- They prefer to use social media to keep pace with the changing world that they see on younger family members' life.
- Seniors prefer interfaces which do not have shortcuts, in contrast younger user of e-commerce websites prefer more convenient interfaces.
- The firm's target group is younger people according to marketing research that is why it does not have any approach for elderly
- There are many middle-aged people who are using interfaces like elderly
- One of the reasons why there are no approach for elderly is that the firm chose as a target group people who have the disposable income and certainly seniors are not those people in Turkey.

### **5 Discussion**

What is digital? When this question is asked to a senior, the answer seems to be superficial, but when a strong opinion is sought, seniors mostly cannot come up with an answer and this incognita constitutes the core of our research. The notion of “digital” being not understood by seniors is actually a proof that digital adaptation is still in progress. As a result of the research, Figure 3 demonstrates that this notion is not comprehended completely by seniors, therefore they cannot even know when they have first met digital.

At this point, early/mid/late adopters' definition at Figure 4 is constituted by distributed data in terms of objects and services in *their* digital definitions. This “meeting with digital

periods” overlaps with how much they can define “What is digital?”. In instant, Senior #12, according to herself, met digital in 1986 at where she works, a bank. She can be identified as an early adopter, correspondingly she knows what digital means. Knowing the definition of digital coincide with the meeting time of computer. This article was constructed by taking on these individuals who can barely define “digital” correctly as shown in Figure 3. The ones that can not describe the term “digital” like who thinks that TV was the key factor which introduced them to “digital”. As a conclusion of the data analyzed, we derived that proliferation of innovative objects and services are in correlation with adoption of the digital world. Herein, the adoption distribution is matched to these objects and services in three state descriptions depending on senior people’s perception of digital: 1) Computers, 2) Internet and 3) Smartphones. This “three division of adoption” is shown in Figure 6. Senior #5, in findings, thinks that digitalization has entered her life by her smartphone, hence she has definition problems of “digital”. As stated, seniors relate the entrance of digital world into their life with defined three divisions. Those divisions overlaps with their adoption time and this adoption time determines how well they can define what is digital or not.

In spite of this division, in the era of digitalization, seniors can be accepted as adapted to a part of the Internet which is social media. Hence, even though these divisions have different adoption periods, social media creates a common ground for these seniors who define digital in discrete ways. As the primary and the secondary research demonstrates, seniors are mostly using social media. Based on the research we have done (Figure 5) 48.7% of seniors’ usage purpose is to access social media, it is discovered that this excessive usage is caused by the social media usage of families and friends. Families and friends consists of varieties of age groups and the age group that has the most intensive use of the internet in Turkey is the age group between 18-24 with 68%. This is followed by the age group of 25-34 with 59%. From the age of 35 the use of the internet is falling in individuals (Kantarçı & Ozalp & Sezginsoy & Ozaskinli & Cavlak, 2017). Therefore, this young age group encourages seniors to get involved with “digital”. For example, Senior #1 and Senior #16 have begun to use these mediums because of demonstration effect of their families, friends, etc. as stated in findings. At this point, for Senior #1 and #16, daughter and the grandchild are conceiving a triggering force for social media usage. We have described this as “push effect”. This push created by their dearests is accelerating the adaptation process of the seniors to digital age. At the same time, even though seniors think that they are lagging behind digital adaptation, they have an opportunity to catch up with this adaptation through social media. Since their relatives are using the social media, these fields automatically turn from a feared topic to a safe spot. This fear caused by obscurity is defined as unknown threshold, crossing this threshold is provided by confidence exhortation from relatives. Seniors are not afraid to enter this platform which is a trustworthy and reliable environment formed by their relatives. However, influence of “push effect” does not exist when it comes to Internet-based services, because there is no social integrity in which family and friends are involved. With the existence of the Internet in social life, it has become a matter of creating a new social space in people's lives (Senturk, 2017). On the basis of this topic, the internet offers a new living space for people and virtual environment shaped in this new living space. At this point, social media is the actual one which is providing a safe zone to form their own social identity, Internet-based services do not provide a trustworthy environment to shape this identity. As an inference, Internet-based services has no interactions that a social media provides like family, friendship relations, so



those kind of websites, applications, etc. do not assure a safe zone in which seniors can find an open space to adapt.

The most branched part of this research was the data analysis results of “Why they are not using Internet-based Services?” question. The affinity diagram (Figure 8) we formed gave us many answers to this question, and every one of them gives us another barrier to overcome. First of all, being over 65 years old is the most emphasized barrier. How good can seniors use a website is affected by being old and its effects on their cognition, mobility and vision changes (Cresci, Jarosz & Templin, 2012). Because of various cognitive and physical obstacles that these ages have brought along, they have not been able to adapt to the digital world as competently, for example Senior #19 in findings complain how these obstacles prevent them from adapting. Secondly, according to the participants, it is waste of time to learn to use the internet as Senior #9 stated. They either do not want to learn anything new in this aspect or they do not want to spend the rest of their limited time trying to learn. On the other hand, senior people are very bounded to their lifestyles and their daily life habits as Senior #17 quoted in findings. As Ardi (2012) states for seniors, “Although people are experiencing a transition to the modern lifestyle, they are not totally disconnected from their traditions and customs yet.”(p.20). Here we are talking about, their own traditions and also about Turkish traditions. As a Turkish tradition, people near to a mini-market hangs a basket from the window of the house with a shopping list in it, and the seller puts the wishes into the basket. The customer pulls the basket back with the shopping materials in it. This sounds like an unusual tradition but it is a good example to explain how Turkish habits form their own solutions and services in order to solve a problem. Here is the problem is shopping without leaving the house, like an e-commerce service promise. As in this example, senior people in Turkey create their own solutions in order to solve their service problems. For example, if the senior does not want to go outside, s/he arranges the worker of the nearest service provider and orders what s/he wants as Senior #18 does in findings. This situation creates a loop. Senior arranges the local services to provide the needs, the service provider gets better to correspond to the need and senior keeps using the local physical services. In this loop, seniors do not need any other ease as Internet-based Services. Moreover, these traditional local service solutions ads up to the reason why they do not need to adapt.

Depending on our findings, some of the seniors wish to learn about digital world and some never intends to get involved. This distinction is shown in Figure 7. Learning how to use Internet and Internet-based services is a very difficult thing to do according to the participants. They do not have patience to learn or they do not want to learn how to use it. In instant, for senior #19 & #24 claims that the lack of time for not learning how to use Internet. Even though they want to learn it, they think that they could not learn it by themselves because of their age. For example, Senior #23 wishes to learn Internet-based services but there is nobody to teach her. At 3 division of adoption, we defined that %50 of seniors meets with digital by smartphones (see Figure 3). This means that they have met with it about 6-7 years ago. They already learnt a digital technology newly. While younger people may learn about the internet and how to use it through formal education or through experience in the workplace, there are concerns that lack of skills and ability create a significant barrier to access for older people (Olphert & Damodaran & May, 2005). So they are not used to it and they do not have an environment to learn this is why they think they do not need to learn more about those technologies. They are not learning or not able to learn digital world except for the examples like Senior #1. Consequently, we categorized seniors as “wish to learn

seniors” and “no wish to learn seniors” depending on our data. Although they have problems and setbacks in learning if they could be able to adapt, using computers and Internet offers many advantages like preventing seniors from cognitive decline and improving autonomy and everyday functioning yet they delay to learn it or never want to learn (Ramón-Jerónimo, Peral-Peral & Arenas-Gaitán, 2013).

In addition to all the reasons stated above, the “pull effect” is another reason why “wish to learn seniors” hold back from adapting to Internet-based services. “The push effect” of family and friends was the reason that encourages them to be involved, the opposite side of this effect forms a barrier in front of seniors to learn this digital world. We have defined this as the “pull effect”. As in the example stated in findings, Senior #21’s daughter was not encouraging her to use e-commerce websites. She thinks that her mother might have done something wrong and can be tricked easily. Family and friends denigrate Internet-based services, this “pulls” her down from using e-commerce services. In “the push effect”, social media was promoted but in this “pull effect”, Internet-based services are discredited. Because of this draw off, senior generates an “indirect prejudice” to Internet-based services. Moreover, seniors get affected by the things they see and hear about how they can be fooled easily because of their lack of knowledge. This is a consequence of “pull effect” in the way that, let alone being pulled down by family and friends. Seniors form an indirect prejudice caused by, former experiences of others, or what perceive, for example senior # 25 heard from a TV news, swindlers are sending cucumber instead of a smartphone. Another senior (#30) heard that online shopped shoes does not fit, and her friend were not able to return the shoes. Because of all those “heard things”, seniors prefer to take their guard with prejudices.

Last but not least, there are “no wish to learn seniors” who completely block themselves from the digital world. The seniors like senior #28 form a “direct prejudice” by telling themselves that they have an existing order of doing daily life activities and lifestyle in which they can compensate their needs without the requirement of any Internet-based services. Also there are examples like senior #20 who does not have the need to learn new ways of meeting their needs because she has other people doing these chores/burdens for her like her family and friends. As written previously the traditions and habits these people have builds a barrier in between them and alternative approaches like Internet-based services that can bring ease to their lives. We have defined these seniors as “no wish to learn” because they have a “direct prejudice” against these new digital ways and they do not want to learn anything about them. These seniors want to be able to touch and see what they are buying and they wish to be handed their bank receipt when they are making banking transactions; this statement also shows that trust issues can be seen as the main problem which creates biases and prevents seniors from wishing to learn anything related to digital. However, a matter of fact is that a recent survey found that older adults consider a successful aging a multidimensional experience with physical, functional, psychological, and social health (Phelan, Anderson & Lacroix, 2006), so to able obtain and sustain this, using computers and the Internet provides a possibility to train their brain, to deal with everyday problems, and to improve autonomy (Ramón-Jerónimo, Peral-Peral & Arenas-Gaitán, 2013). Accordingly, although the usage of Internet-based services could benefit seniors they still stay away from them because of their direct and indirect prejudice. The prime reason of both can be taken as “the unknown threshold”. For direct prejudiced seniors, as they live in an environment where they accommodate their needs by the help of the local businesses and traditional services they do not go looking for new ways. This situation prevents seniors from learning new approaches

even if they are easier and they become readily open to prejudices against these “unknown thresholds”. Consequently this prejudice is derived from obscurity which drags fear along with it. People tend to fear and distrust things they do not know well. Seniors are affected from this phenomenon largely because they are late adopters compared to younger age groups. More clearly, this “unknown threshold” is both the cause and the outcome of distrust, observed in seniors who prefer to stick to their prejudices instead of learning because of the reasons like above mentioned “pull effect” and age factors. In conclusion, we believe that trust factor is the main basis of the above mentioned barriers.

## **5.1 Trust Issues**

The seniors’ main behaviors, habits, and thoughts against Internet-based services and their reasons were discussed above. This research and observations has lead us to the conclusion that seniors have trust issues which are caused by various reasons. When the affinity diagram was analysed we have grouped these trust issues into 3 subtitles. These titles are the outward distrust, self-distrust and distrust to product.

### *5.1.1 Outward Trust*

The reason behind the indirect and direct prejudice is that seniors lose trust to outwards because of various reason. First of all a number of seniors think that there is no trustworthy medium when it comes to services in Turkey. Herein, the former UX chief of an e-commerce website states that the e-commerce based services providers does not have the intention or attempt to build a trust between seniors and Internet-based services. Seniors are not the target consumer for these e-commerce websites and they usually do not use these services, hence service providers does not work on this issue. On the other hand, to protect themselves from possible frauds who can trick seniors easily because of their lack of knowledge seniors choose to not trust and stay away from this digital world. The security of the Internet medium is another barrier for them. Tatnall and Lepa states that the older non-users thinks that the Internet is threatening, so they have concerns about security. 21% of over 65’s have concerns about security compared to 35% all adults (2003) So, this distrust is caused by the outward effects. As senior #25 states, by staying away and not using any Internet-based services they try to avoid any trouble that can even end up in lawsuits. The people that are not Internet users have the tendency to define this environment as very insecure and not private at all (Olphert & Damond & May, 2005). According to three division of adoption (see Figure 6), late-adopter are the likely to define the meaning of digital incompletely or incorrectly, because of the low usage rates this defining issue ads up to the “unknown threshold”. For seniors who have direct prejudice this unknown threshold is much difficult to overcome when compared to the seniors that wish to learn but have indirect prejudice. Lack of knowledge is the prime reason behind this situation. Those who actively reject use of the internet report a complete lack of interest, therefore it is one of the reasons that accounts for many older adults not using the internet. (Olphert, Damodaran & May, p.3, 2005)

### *5.1.2 Self-Trust*

Another issue is self-trust. As seniors get older they lose confidence because of the physical insufficiencies age brings. They think that their physical abilities are outdated and they can’t adapt to today’s lifestyle that is why they keep themselves out of the digital world. Seniors

tend to think that they are too late to start learning about digital or they do not need to learn it anymore because of their old age. Moreover, technology anxiety increases with age (Meuter, Ostrom, Bitner, & Roundtree, 2003). On the other hand, Their self-trust is broken because of “the pull effect”. Seniors’ family members or friend warns them not to use Internet-based services to prevent a possible swindle situation. But this barrier can be overcome by the encouraging behavior of their families as seen with Senior #6.

### 5.1.3 *Trust to Product*

The formation of two types of biases arises from the fear that the product or service being purchased may not appear as thought or desired. In a sense it is a concern that not only people but also products can be misleading in connection with not trusting outside. The fact that the elderly can not find their money’s return is a reason for them to stay away from Internet-based services and not to waste money. With this insecurity, they refuse to adapt to a digital system that can make their lives much easier, leaving them out of this world. However, according to the survey, 84% of consumers who have never done online shopping think that online shopping is insecure, whereas only 16% of online shoppers do so. If you think that only 1 of 3 people who is using internet do online shopping, it is thought that people who hasn’t done any online shopping can have their sense of trust changing to a great extent with having an experience with the system (Kantarci, Ozalp, Sezginsoy, Ozaskinli & Cavlak, 2017). When the trust is established, internet based services turn from unknown zone to a place where they have experience and it turns out to be a trustful zone if the product is as expected. For example, Senior #12 does not trust to the tangible product that is bought from internet, so she only uses Internet-based services in order to but intangible products like anti-virus softwares. Briefly, “unknown threshold” defined before and the distrustful zone that this definition constituted can be overcome by the one time usage experience of Internet-based services. After this experience, if the product is as expected, the trust to those systems gets stronger.

## **6 Conclusion**

By 2040 most of the world population will be seniors. In Turkey the same situation is valid, yet seniors of Turkey having trouble with this adaptation process to digital world. This adaptation process has a significant role for the development of Internet-based services, because seniors are a whole new and unknown segment for Internet-based services. This article offers to find barriers of the adaptation to Internet-based services and define the opportunity areas with using the perspective of a design researcher. What we called Internet-based service is everything that makes people’s daily life activities easier like going to a bank or like shopping. Turkey met with those kind of services in 1998 with an e-commerce website called hepsiburada.com. In Turkey, seniors are not using those services in order to make life easier compared to middle-age group. We examined the barriers in front of this adaptation. From a designer’s perspective, the most important thing is to understand the user. We formed our methodology toward this essentials. There are 4 steps of our methodology. 1) Secondary research, 2) Ethnographic research at home, 3) Intercept interview, 4) Meeting with service provider. Interviews were done at the same area. Handicap of intercept interviews is, they are done approximately at the same area. This means that seniors’ income level, lifestyle, education level are similar to each other, yet we concluded that this does not make a difference at the reasons why they do not use internet-based services

except for the location effect. We analyzed the data of 33 people (8 people: ethnographic research, 25 people: intercept interview) by using affinity diagram. Finally, we have interpreted data titles, that formed by grouping the data in the affinity diagram, in the discussion part. First of all, in this part the meaning of the digital according to seniors is examined. The more accurate the definitions they made, we found that the sooner the digital entered their lives. When we looked for what this adaptation difference overlaps with, it matches with the entrance time of technological devices to seniors life. Depending on this overlapping, we made the definition of “three division of adoption” as early/mid/late adopters with the technological device matching (Figure 6). Despite this distinction, many seniors intersects at one common point: social media usage. While seniors abstain the usage of Internet-based services, most of them are using social media channels very actively. The safe zone that is formed by their families and friends provides this active usage, this is what we called “push effect”. While this influences them, the other side of it for Internet-based services turns down to be a discouraging affect called “pull affect”. In this case, for social media usage families and friends become catalytic for the adaptation of digital, but for Internet-based services the case is the opposite. This lack of safety of families and friends forms an unknown zone for seniors. We defined this as the “unknown threshold”. This zone is where seniors’ distrustful behaviors begun. One of these behaviors is to constitute different kinds of prejudice, there is basically insecurity and distrust on the basis of this prejudice. Once this threshold is exceeded, a trusting environment is formed. Those trust issues are categorized under three sub-titles: 1) Outward trust, 2) Self-trust, 3) Trust to the product. As a result of all this process and examination, trust issues became our most basic barrier. At this point, we have also identified opportunity areas for overcoming our most basic barrier and other barriers and to provide adaptation to digital world for seniors:

- Forming a safe zone with “push affect” with families and friend encourage like social media
- Structure of turkish traditions might overlap with the systems of Internet-based services
- Tv has a great influence on seniors, this communication channel can be used more efficiently to provide Internet-based service adaptation.
- Seniors have district life styles and a particular way of doing their daily life activities. This kind of emotional connections might be adapted to Internet-based services
- Time is an important value for seniors, using the emphasis of time that Internet-based services offer
- Change in firm policies toward seniors
- A proposed learning way or system of Internet-based services by self-taught
- Showing to seniors that Internet present many advantages like preventing people from cognitive decline and improving autonomy and everyday functioning (Sleger, van Bortel & Jolies, 2012)
- More tangible ways of payment, the distrust is caused by intangibility of the services
- UX/UI designers to design more senior friendly experiences and interfaces.

## 7 Figures

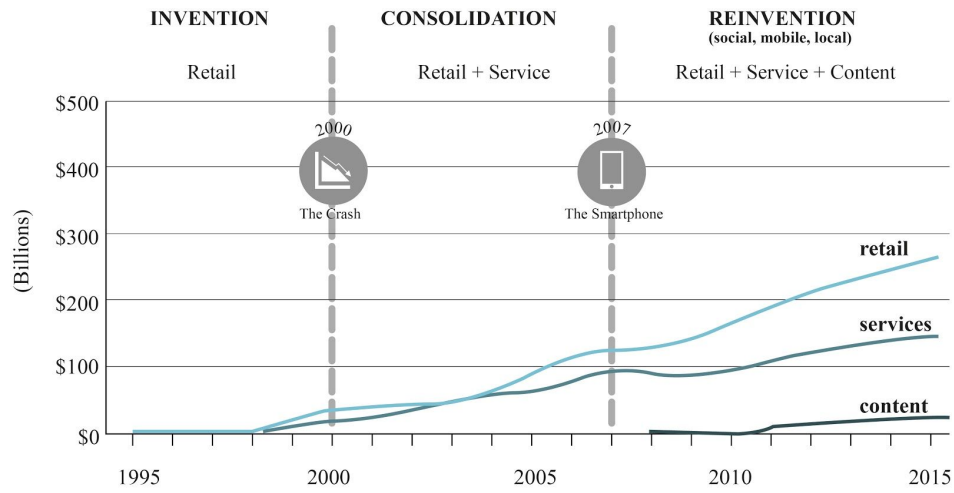


Figure 1. Periods in the development of e-commerce (Laudon, K. C., & Traver, C. G., 2017)

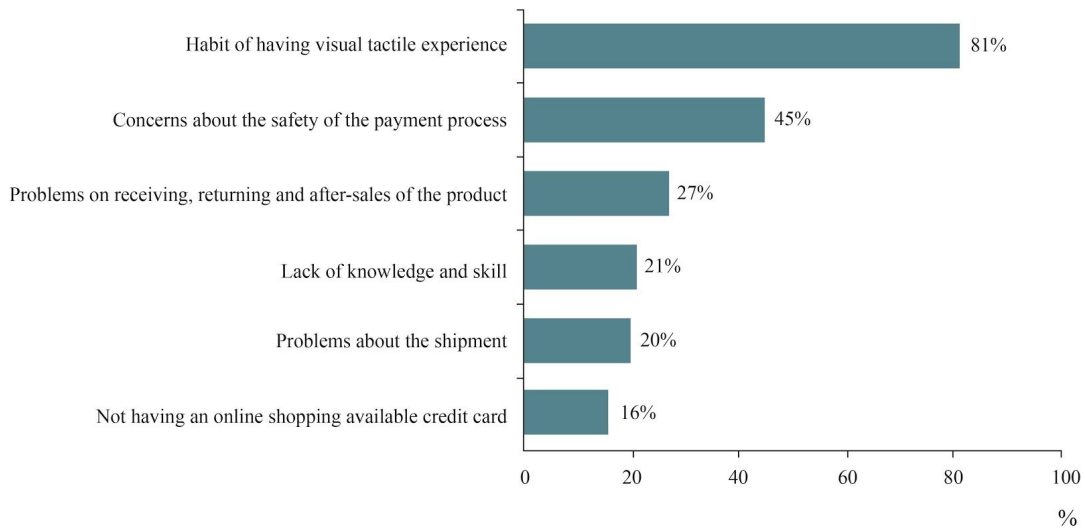
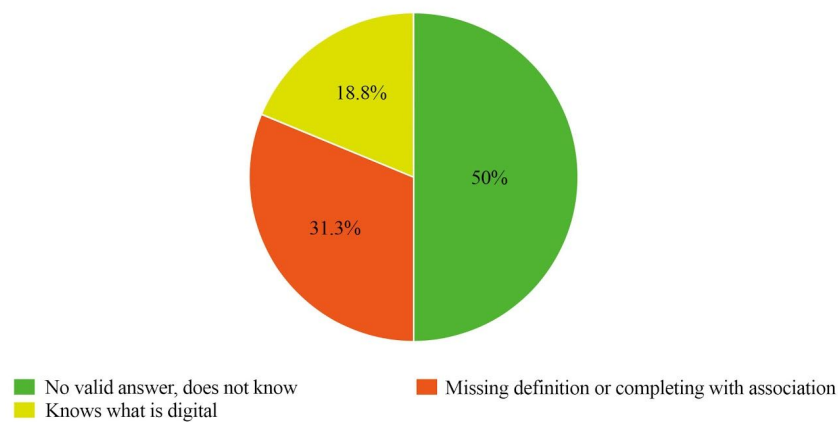
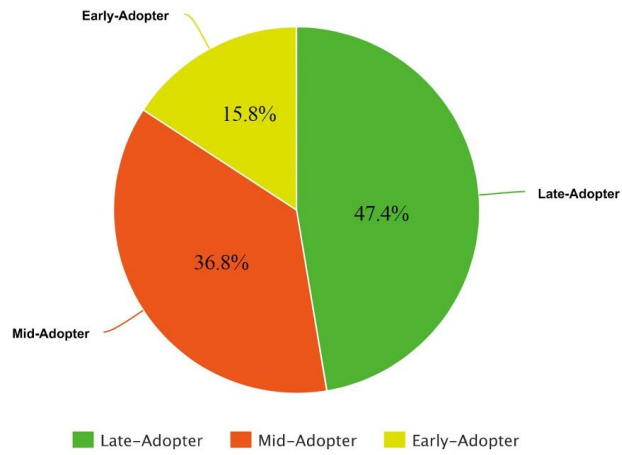


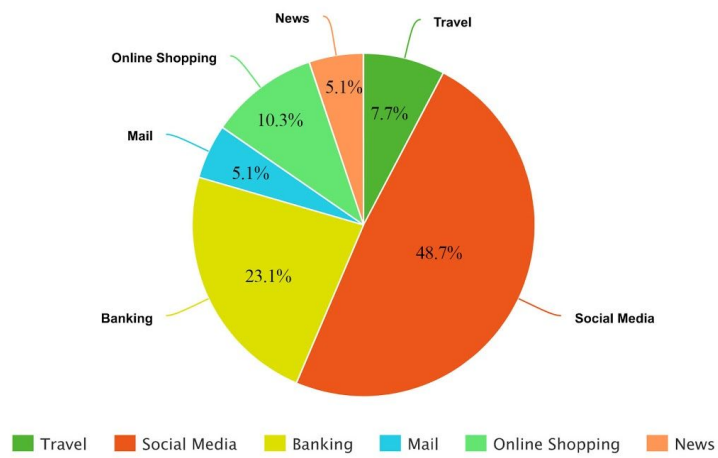
Figure 2. Reasons why people do not prefer online in Turkey (Kantarci, O., Ozalp, M., Sezginsoy, C., Ozaskinli, O., & Cavlak, C., 2017)



**Figure 3. Meaning of Digital**



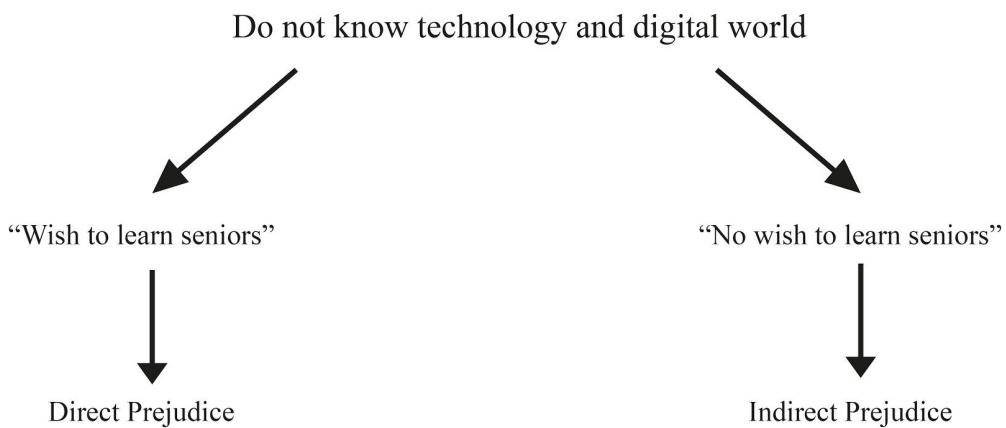
**Figure 4. Meeting with Digital**



**Figure 5. Usage Purposes of Internet**



**Figure 6. Three division of adoption**



**Figure 7. Seniors vs. their behavior toward technology**

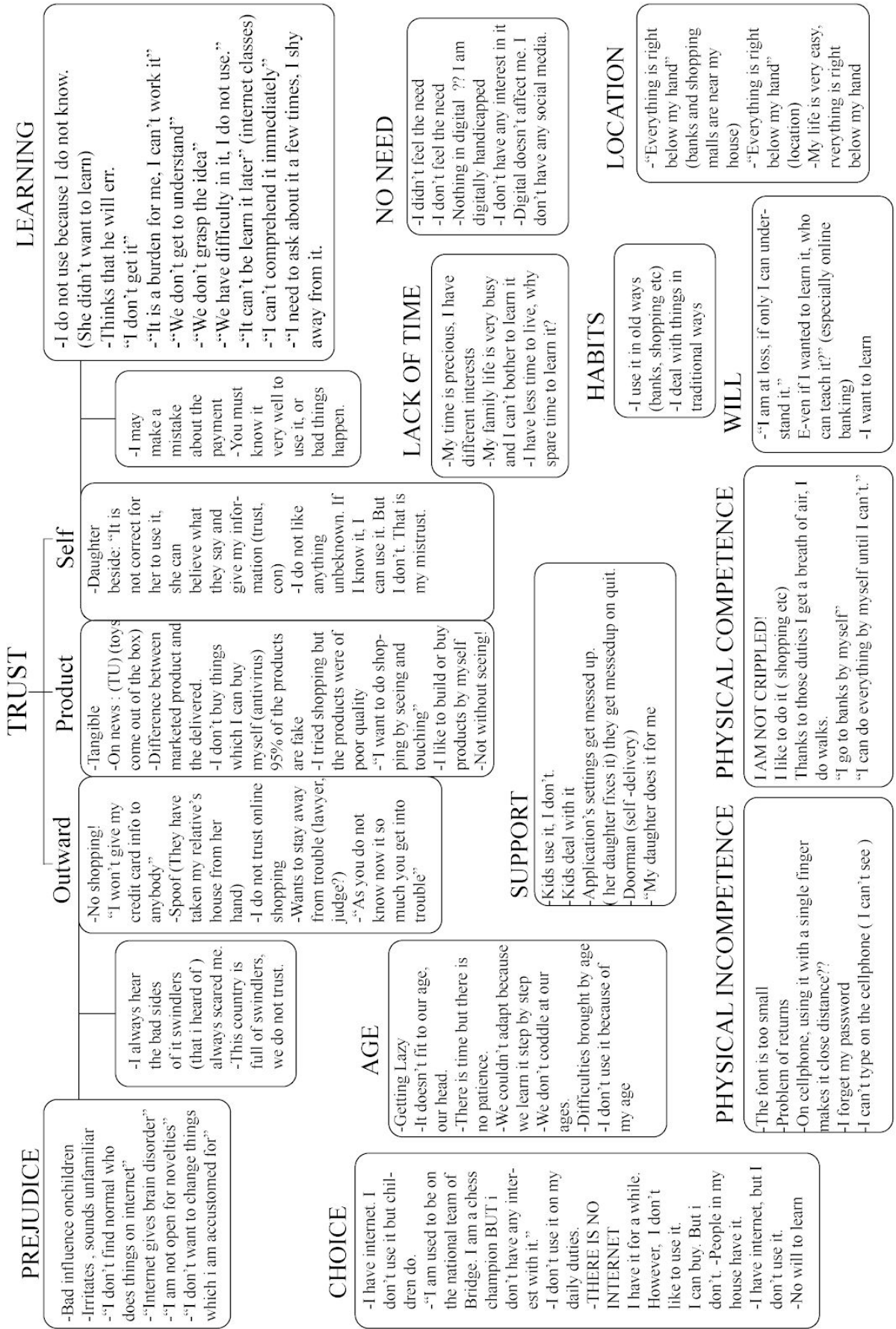


Figure 8. Affinity Diagram



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