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**Citizens' readiness for proactive public services:
a case study from Azerbaijan**

Master's thesis

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Author's declaration of originality

I hereby certify that I am the sole author of this thesis. All the used materials, references to the literature and the work of others have been referred to. This thesis has not been presented for examination anywhere else.

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Abstract

The provision of citizen-centric public services is a trending topic. Particularly, proactive public service delivery is gaining momentum. Yet, this phenomenon is relatively understudied in academic research due to its novelty. Specifically, citizens' intentions and readiness to accept such services are untouched topics. However, consideration of citizens' acceptance is crucial to the successful implementation of personalized public service provision. Therefore, citizens' readiness towards proactive public services is investigated in this thesis. This work aims to define citizens' readiness for proactive public services and identify key factors influencing it. To this end, the author questions: how to define citizens' readiness for proactive public services?

The methodology of the thesis is a case study with a focus on the Childbirth allowance service in Azerbaijan, one of the first countries to implement proactive service delivery in practice. An in-depth review of public services and technology adoption literature was performed. To gather data, the author has conducted 4 qualitative interviews: two with government officials to have a view from the supply-side and two with citizens to have a demand-side view. Further, an online questionnaire was spread among Azerbaijani citizens to collect quantitative data.

The author has developed a theoretical approach based on a review of the existing literature on public services and technology adoption. The results of the interviews and questionnaires provided valuable insights. As a result, a model of citizens' readiness for proactive services was proposed by the author. To conclude, the author believes that citizens' readiness for proactive public services is formed as a result of their intention to accept and technical capabilities to accept such services.

This thesis is written in English and is 88 pages long, including 8 chapters, 6 figures and 4 tables.

List of abbreviations and terms

DOST Centre	Sustainable and Operative Social Security Agency
MLSP	The Ministry of Labour and Social Protection of Population
SSPF	State Social Protection Fund
TAM	Technology Acceptance Model
UTAUT	Unified Theory of Acceptance and Use of Technology
DOI	Diffusion of innovations (Theory)

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1 Introduction

This introductory chapter is intended to cover the context of the research and the problems standing in its epicentre. The considerations for the purposes of this work are given. Lastly, the thesis structure is briefly presented.

1.1 Background and problem statement

The fast-paced development of technological capabilities results in an increment of the service provision opportunities of governments across the world. Prevalent ICT developments moving at high speed enable both private sector and public sector players to innovate their service provision (Barrett et al., 2015). A major trend in public service provision is the application of a citizen-centric (people-oriented) approach. The identification and consideration of citizens' real needs are crucial to the successful implementation of the citizen-centric approach in public service provision (Scholta et al., 2019). Indeed, why develop a service that no one needs, no one perceives positively, and no one uses? Therefore, the needs and intentions of citizens towards public service must be studied and defined.

Over the period of the history, the main technological advancements, whether it was the construction of roads or the implementation of artificial intelligence, have aimed to improve existing processes, increase work efficiency, and decrease costs. Now, after long years of practicing digitalisation of public services, thanks to rapid technological developments, the public service provision can be taken to another level, i.e. proactive service provision (Scholta and Lindgren, 2019). This new idea of service provision, i.e. proactive public service provision, is citizen-centric by default (Linders et al., 2018; OECD, 2019; Sirendi and Taveter, 2016) The proactive service provision requires the governments to be able to anticipate life and business events. Availability of big amounts of data and technological advancements in terms of analytical capabilities enables the provision of highly personalized services (Lehrer et al., 2018; Chen et al., 2012). So far, mostly, the private sector firms actively utilize end-users' (customer) data to proactively

engage with them and offer their services (Chen et al., 2012). However, the idea of anticipatory governance became a topical theme among public governance and administration practitioners in recent years (OECD, 2021; European Commission, 2021). Particularly, there is an increasing trend among the governments both in developing and developed countries that intend to provide or already provide proactive services (OECD, 2017; e-Estonia Briefing Centre, 2017; Isabalayeva, 2019; Scholta et al., 2019).

Linders et al. (2018) have defined proactive governance as follows: “shifting from the ‘pull’ approach of traditional e-government—whereby the citizen must first know, decide, and seek out government services—towards a ‘push’ model, whereby government proactively and seamlessly delivers just-in-time information and services to citizens based on their needs, circumstance, personal preferences, life events, and location.” This definition gives a high-level understanding of the differences between traditional e-government services and proactive public services. Worthy of mention, considering those differences and specifics of the proactive public governance concept, it is not relevant to rely only on past e-government research to describe this concept. Thereby, various aspects of proactivity phenomena should be studied to develop a relevant model of citizens’ readiness for public services provided proactively.

E-government services can be considered successful only if citizens are willing to adopt and use those services (Al-Hujran et al., 2015). Existing literature on proactive services is mostly studied from an organisational perspective (Kuhn and Balta, 2020). However, one of the “human” prerequisites for the successful implementation of proactive e-services is the readiness of citizens to accept the concept of proactivity (Erlenheim, 2019). The public services do not only bring benefits for the citizens but also some legal and other obligations – so do the proactive services (Kuhn and Balta, 2020; Ritz et al., 2016; Xu, 2013).

The literature review of adoption studies showed that there is a comprehensive range of research has been done on the issues of technology adoption and acceptance both from the demand (i.e. end-users, citizens) side and supply (i.e. organisational) side (Titah and Barki, 2008; Lai, 2017; Taherdoost, 2018; de Vries et al., 2018). Also, there has been done a broad range of studies on e-government services adoption (Titah and Barki, 2008). However, most of the studies on the end-user’s adoption are limited to one or another subfield.

Considering the changing nature and tools of public service provision, technology acceptance models have to be innovated in accordance with new methods and forms of public service utilization (Sirendi et al., 2018). Noteworthy, there is no study that emphasizes proactive public services due to novelty of this phenomena. Good practice from one sector could not be a good solution in another, even very similar, sector (de Vries et al., 2018). Thus, models developed for general technology acceptance purposes or for specific e-government services could not be fully applied for proactive public services. It shows that there is an explicit need for specific research on readiness for proactive public services.

With respect to all the above mentioned, this research was aimed to redress the deficit by defining and developing a theoretical framework for the citizens' readiness for proactive public service provision. The practical outcome of this research is the "Model of citizens' readiness for proactive services". The results have implications both for academia and public sector.

1.2 Thesis outline

The thesis is divided into eight chapters. It starts with a short introduction explaining the background and states the problem standing in the foundations of this research. Then, the research methodology depicted in detail including the research questions and limitations of methodology. Further, the review of existing literature is presented in Chapter 3. After the literature review, the theoretical approach is characterized. Next, the case study followed by the results of the interviews and questionnaire were described. In Chapter 7, the author discussed the results of the research. Lastly, the conclusions are made in Chapter 8.

2 Research methodology

This chapter introduces the research methodology of this research - case study methodology. The author's decisions on research methodology are described and justified including the research process, case selection, and data collection. The limitations of the author's approach are given as well. The focus of this research is on the case of Azerbaijan.

2.1 Background

As discussed in the introduction of the work, the proactive service provision in the public sector is a relatively new and not a deeply researched area. Particularly, as mentioned previously, there is no specific research on citizens' readiness for proactive services (Erlenheim, 2019) and the existing literature on readiness issue from other fields are not fully applicable for proactive services. It shows the novelty of the research issue. The research problem under study has to be considered while defining the research approach (Creswell and Creswell, 2017). Qualitative research methods are relevant in cases of understudied phenomena or research topics (Saini and Shlonsky, 2012). Specifically, the use of the qualitative case study is principally significant for new theories, when the existing research cannot be cited and fully applied (Yin, 2017; Yazan, 2015; Kaarbo and Beasley, 1999).

Moreover, this research work is aimed to approach the issue of proactive public service acceptance from the citizens' perspective. In other words, the issue under study is tightly connected with human perceptions and attitudes. It gives to the issue of citizens readiness interdisciplinary and complex character involving research perspectives from various research fields. Although quantitative methods, such as surveys, could enable observation of a high-level statistical picture of the situation, they are not powerful enough to describe the practical experience of citizens. The case study method is one of the most suitable methods to study complex social phenomena (Yin, 2017; Yazan, 2015; Mills et al., 2010). In addition, the case study is one of the most used methods in e-government research (Yusuf et al., 2016).

According to (Denscombe, 2010), using varied sources enables to enhance the advantages of gathered data and consequently, the quality of insights. One of the strong points of the

case study is that it does not necessarily prescribe any of the data collection methods; rather it allows to use a variety of data sources depending on the specific research needs and goals (Denscombe, 2010). Thus, although the general research approach is qualitative, the author used the citizen questionnaire for the purposes of data triangulation. The author believes that the application of the citizen questionnaire as a supporting data collection method would enable to draw a connection between subjective insights gathered from the limited number of interviews and a relatively larger sample of target end-users. On top of that, it would serve as a good basis for further quantitative and/or comparative research on this topic.

2.2 Research process

In the initial phases of the research, a throughout literature review was conducted. The literature review enabled the author to identify the overall research approach, the main theoretical frameworks, and models as well as gaps in the previous studies. Briefly, the literature review was the main source of theoretical data from the previous research gathered for the purposes of this thesis.

A case from Azerbaijan was studied in order to gain insights into real-life realisation and implications of proactive public services. The author aimed to identify the general problems of the case and analytically examine the studied case based on the theoretical approach developed as a result of the literature review.

Later, semi-structured in-depth interviews were designed and conducted in order to gather data from the practice of the country under study. The Azerbaijani government officials involved in proactive public service provision and, in general, e-government were interviewed. Also, the author had interviews with the Azerbaijani citizens who have experienced Childbirth Allowance service in a proactive manner. In addition, the citizen survey was conducted with the aim of strengthening the research findings and opening up avenues for future research.

As a result of the research process, a conceptual model is developed. This model of citizens' readiness for proactive services would add research value to e-government studies by bridging the gap in the existing research of demand-side readiness for proactive services.

2.3 Research questions

Definition of research question has an utmost importance in order to conduct reliable research (Bryman, 2007). The research questions must be relevant from theoretical, methodological, and social perspectives (Lehnert et al., 2007). Hence, special attention was paid to the formulation of the research questions to achieve the aims of the master thesis.

The aim in most studies was to predict the use of technology or service. In contrast, this research is focused on the question of citizens' readiness, i.e., are citizens ready to accept the provision of proactive services from both technical and social perspectives.

For the purposes of this study, the author has developed the main research question (RQ) and four sub-questions (SQ) supporting the main research question. Owing to the complexity of the research issue, the sub-questions will support the overall research process and add value to the results of the master thesis.

RQ: How to define citizens' readiness for proactive public services?

The main research question represents the overall goal of the thesis. Defining a phenomenon will allow the author to get a complete overview of the issue and establish a theoretical model applicable to practical cases.

SQ1: What are the exceptional distinctions between traditional e-government services and proactive public services?

This question has a crucial role in the success of the research project. The proactive service provision revolutionizes the existing service provision in government. Given that fact, the separation of specifics of proactive service provision is necessary to properly figure out the factors affecting citizens' readiness to such services. As an illustration, could the widespread technology acceptance criteria "perceived ease of use" applied bearing in mind that in a case of proactive services the end-user has to perform (almost) no action – in other words, does not have to "use" the service. The literature review and qualitative interviewing will be the main tools to tackle this issue.

SQ2: What are the main factors affecting citizens' readiness to accept proactive public services?

This sub-question would allow distinguishing the main dimensions of citizens' intention to accept proactive public services. Further, these dimensions will be incorporated into the conceptual model and refined via the collected data.

SQ3: What are the key barriers for citizens to accept proactive service provision?

The second sub-question is aimed to clarify the key barriers standing on the way to acceptance of the proactive public service provision concept by the citizens. Identification of citizens' opinions which hindrances their intention to accept would enable to refine the proposed theoretical model and define clearer the citizens' readiness for proactive public service.

2.4 Case selection approach

The author has four main criteria while identifying the case to study. The criteria were following:

- Availability of information to conduct in-depth case study;
- Usage level of the service;
- Public importance of the service;
- Personal interest of the author;

First, Azerbaijan has been chosen as one of the few early adopter countries of proactive public services and currently serving its citizens in a proactive manner (E-Government Development Centre, n.d.; Isabalayeva, 2019; Ministry of Labour and Social Protection of Population of Azerbaijan, 2018). Furthermore, Azerbaijan is one of the first countries to implement a whole-of-government data exchange layer based on the Estonian X-Road (B.EST Solutions, 2018), which the author considers as a ground-founding factor for the proactive provision of government services. The government and especially the Ministry of Labour and Social Protection of the Population (hereinafter, MLSPP) pays significant attention to the development of proactive services (Abbasbeyli, 2019). It implies the willingness of government officials to share information on this topic. Which, in turn, satisfies the information availability criteria. Moreover, the political will shown by the government and active implementation means that the services provided proactively have public importance and a certain number of users.

The Childbirth allowance has chosen as a particular service for the case study since it best satisfies the aforementioned requirements. According to the statistics, this public service has highest numbers among proactive services, which also shows its public importance. Moreover, it is one of the firstly implemented proactive services according to the information given by the service provider.

Notable, the author also has personal interest in social benefits services since there are other countries providing such social services proactively (Erlenheim, 2019). It enables further comparative studies of the proactive service provision in different countries.

2.5 Data collection

As stated by (Gschwend and Schimmelfennig, 2007) "scientific research can be conceived of as a dialogue between theory and data." Thus, the author has carefully planned and implemented data collection procedures under the supervision of the academic advisor. The data collection for this research has been conducted via the in-depth qualitative interviews and a citizens' questionnaire. Below, the interview and questionnaire processes are discussed.

2.5.1 Literature review

An extensive range of relevant literature was studied by the author as a main starting point for the qualitative data collection. The reviewed literature was divided into technology acceptance literature and public service provision literature. Within each of these two main literature categories more specific and detailed sub-categories were defined.

The technology acceptance literature enabled the author to gather data from previous research and identify main factors to conceptualize citizens' readiness for proactive service provision. Whereas the scientific works on the public service allowed to grasp the essence of the proactivity concept and specify the fundamental differences between traditional e-government services and proactive public services. Overall, the literature review formulated a theoretical framework for this research.

2.5.2 Interviews

Interviewing is one of the most widely used sources of information and evidence within the case study research approach. (Yin, 2017) In accordance with this perspective, the

author considered case study research via qualitative interviews as the most suitable method to achieve the goals of the research work.

Moreover, the author believes that in order to understand what citizens do think of proactive services, how they feel about the topic, and what is their attitude, it is inevitable to give them a voice. Thus, not only government officials involved in development and provision of proactive services have been interviewed but also citizens who used those services have been interviewed. As recommended by (Yin, 2017), the author focused on posing "how" questions rather than "why" in order to eliminate the potential defensiveness of the interviewees.

The main criteria for interviewees from the public sector were the involvement in the provision of proactive public services. To better reflects the research needs of this work, the author decided to take interviews from the government officials involved in the provision of the proactive service which was taken for a case study within this thesis.

Organisation	Position	Involvement
MLSPP	Head of e-Services and Innovation	Directly to the development and provision of proactive services
MLSPP	Lead Analyst	Directly to the development and provision of proactive services

Table 1. Interviewees from the supply side. By the author.

Likewise, in terms of citizens, the author decided to interview persons who already experienced proactively provided services and particularly the service which was used for the case study within this work – childbirth allowance. In addition, the author aimed to take interviews from (1) both genders, (2) people living in different places, and (3) with different levels of education. The reason behind such criteria was to have a chance better examine the constructs proposed within the conceptual model by the author. Unfortunately, the author could not attract a female interviewee and a person living outside of Baku. The potential female interviewees contacted by the author rejected to participate for various reasons. Due to pandemics, the author was not able to visit the country. As a result, finding interviewees and getting agreement with them in distance became a challenge.

Gender	Place of Residence	Education	Involvement
Male	Baku	Bachelors	Received Childbirth allowance proactively
Male	Baku	Masters	Received Childbirth allowance proactively

Table 2. Interviewees from the demand side. By the author.

2.5.3 Questionnaire

The greatest importance for developing a successful research questionnaire has format. (Bradburn et al., 2004). The questionnaire was carefully prepared and conducted. As a best practice of recent years, it was decided to use basic digital survey tools, particularly Google Forms. This position also was supported by the affordability of this tool as well as easiness to use from the target audience's perspective.

In addition, the digitally conducted survey could allow collecting more accurate results since there is no time pressure for the responders and, thus, they can feel more comfortable (answer when they are available, spend more time on thinking, etc.).

The questionnaire comprises 30 questions. Two main types of questions used: dichotomous questions for collecting background information on respondents and Likert-scale questions to identify attitudes of respondents. Additionally, one open-ended question was given to enable participants to express their opinions.

2.6 Limitations

According to the “Bounded rationality” theory decisions made by humans are limited due to various reasons (Wheeler, 2020). Foundations of academic study are grounded on the decisions made by the researcher. Consequently, any research could have limitations. This research possesses several known and, most probably, unknown limitations and barriers. It is expected that additional hindrances may arise during the implementation of research work. This section describes the potential limitations of the methodological approach chosen by the author as well as his responses to minimize the negative effects of limitations.

Notable, along with its suitability for the purposes of this work, the case study research method has limitations as well. Although it is one of the most used qualitative research methods in academia, researchers have not yet reached a consensus on the planning and implementation of the case study, which prevents its full evolution (Yazan, 2015). To eliminate negative aspects of case study research methodology in a good manner, the best practices from previous research works have been analysed and applied based on the advice of the academic supervisor.

Another limiting point could be the fact that data gathered via qualitative interviews are subjective personal perceptions of interviewees. Previous research on the topic of proactive services (Erlenheim, 2019) correspondingly revealed this limitation. To minimize this potential data bias, the author included interviewees both from the supply-side (government officials) and demand-side (citizens) of the service provision.

3 Literature review

Any case study should begin with a comprehensive literature review with thoughtful attention to the research questions (Ravitch and Riggan, 2011). Thus, the author carefully approached the literature selection and review process. As described in the earlier parts of this works, the literature review is divided into several sections and sub-sections based on the specific topics of the literature.

3.1 Public services

The provision of public services is realized out by the means of various channels and ways of interaction might differ depending on the channel of provision (Erlenheim, 2019; Lindgren and Jansson, 2013; Abdelghaffar, 2010). Thus, each service provision mode is distinct and has its own specifics. This section is aimed to explore proactive service provision phenomena in the public sector and its distinctions from other modes of public service provision. To this end, the author briefly elaborates on e-government services and further moves towards life and business event services, which the author considers as backbone in transition to proactive service delivery. Lastly, proactive public services are discussed. These sub-sections enable the author to explain the reactivity - proactivity paradigm in the context of public e-services and the essence of proactive public services. In turn, the latter would enable to answer the second sub-question of this research work.

3.1.1 Traditional E-Government services

There are various perspectives on e-government (Yildiz, 2007). Moreover, there is lack of agreement on how e-services in the context of public services should be defined: the common terms used are “e-government service”, “digital services”, “e-service”, “public e-service”, etc. (Lindgren and Jansson, 2013; Yildiz, 2007). In this sub-section, the author elaborates on existing literature to give a high-level view on traditional e-government services and smoothly moves to reactivity-proactivity paradigm.

The OECD (2003) emphasizes on the reasons of developing e-government and defines it as “the use of information and communications technologies (ICTs), and particularly the Internet, to achieve better government”. According to World Bank (2015), e-government is “the use by government agencies of information technologies that have the ability to

transform relations with citizens, businesses, and other arms of government.” Holden et al. (2003a) define e-government as the provision of government information and services in the electronic format. Some business-oriented researcher defines e-government "as the relationships between governments, their customers (businesses, other governments, and citizens), and their suppliers (again, businesses, other governments, and citizens) by the use of electronic means" (Yildiz, 2007).

A good perspective is given by Lindgren and Jansson (2013); the researchers propose three-dimensional view and the term “public e-services” meaning electronic provision of public services by the government since it “encompasses most of the concepts used to denote electronic interfaces between governments and citizens”, where:

- “service” explains that it is an intangible good provided in return for a certain benefit, or on the basis of certain obligations.
- “public” shows the providers (public authorities, i.e. government) and recipients (public, i.e. the citizens).
- “e” constitutes the medium of provision, i.e. electronic channels;

The author agrees with the definition regarding its three dimensions underlying the term “public e-services” (electronic, service, public). At the same time, he believes the term “government” can be used as synonymous to “public” in this context and, thus, the term "e-government service" also explores the issue from the dimension proposed by Lindgren and Jansson (2013). Hence, both terms are used in this research synonymously.

Importantly, the e-government is not an immovable phenomenon, it evolves throughout history. The progress of public e-services is mainly driven by the request of (demand from) the end-users (citizens, businesses, other government bodies). The aim of governmental service advancement, ideally, should be provision of better services meeting the needs of citizens (Papadomichelaki and Mentzas, 2012). Plenty of research has been done on the e-government stage models describing how e-government services progressed (Hiller and Belanger, 2001; Layne and Lee, 2001; Moon, 2002; Gil-Garcia and Martinez-Moyano, 2007; Estevez et al., 2007; Scholta et al., 2019). In addition, several researchers have conducted comparative literature reviews on existing e-government maturity models (Almuftah et al., 2016; Kawashita et al., 2020). Some

researchers also focused on privacy and security topics within e-government domain (Beldad, 2011).

As stated above, the public e-services are evolving hand in hand with technology and end-user needs. West (2004) argued that e-government has a great potential for “enhancing democratic responsiveness and boosting beliefs that government is effective.” The main drawback of the existing literature on the stages of e-government development is the underestimation of the fact that technologies are constantly evolving and create opportunities for the provision of e-services in new, advanced forms (Kawashita et al., 2020). Besides, an important factor of e-government service quality - responsiveness – is poorly studied within existing maturity models (Andersen et al., 2011).

The studied literature explicitly constitutes the reactive character of traditional e-government services: the public authorities provide e-services based on the needs of the end-user as a result of an event that results in the request by the recipient (the service is provided only after the authority gets a request for it). This classic approach to public service delivery and may be referred to as “reactive” service provision (Erlenheim, 2019) or “pull” model (Linders et al., 2018). For instance, the years 2013-2019 are considered in Azerbaijan as the period for the provision of reactive government services (“Rəqəmsal Hökumət Quruculuğu: 3 illik hesabat tədbiri”, 2021).

From here, it worth discussing “events” that lead to the request of the services by the citizens. In the relevant literature and practice, these events are called “life and business events”. Service provision based on such events is considered as the next level in e-government service delivery. The notion of events will be discussed in the following subsection.

3.1.2 Life and business event services

Event-driven public service delivery has long been considered one of the most favourable modes of service provision (Leben and Vintar, 2003). The event-based service provision is mainly aimed at and has a great potential for simplifying citizens' interactions with governmental bodies (Goldkuhl and Röstlinger, 2014). The introduction of life and business event phenomena leads to a citizen-centred approach instead of a traditional service-oriented approach (Tambouris and Spanos, 2002).

According to Kõrge (2018), the event-based services phenomena originate from the life-cycle theory pioneered by economists Franco Modigliani and Richard Brumberg and, thus, comprehension of this concept would be beneficial to understand event-based services. For the purposes of this study, the author does not depict the life-cycle theory but rather focuses on the current state of the event services and its implications for this research.

Based on the life-cycle theory, it is argued the service need arise when a certain event (e.g. marriage, childbirth, etc.) happens in the life of the citizen (Erlenheim, 2019).

According to Estonian law, event services are defined as “... direct public services provided jointly by several authorities so that a person would be able to perform all the obligations and exercise all the rights conferred on the person due to an event or situation. An event service compiles several services related to the same event into a single service...” (Principles for Managing Services and Governing Information, 2017).

Based on the studied materials (Leben and Vinter, 2002; Tambouris and Spanos, 2002; Leben and Vinter, 2003; Goldkuhl and Röstlinger, 2014; Kõrge, 2018; Erlenheim, 2019; Having a child life-event service, n.d.), in practice, the life and business event-based services are commonly designed as follows:

- the government body categorizes and combines its services around the events that may happen in the life of their target audience;
- the citizens access the list of those life or business events on the given platform (website, application, etc.);
- by choosing the relevant event, the end-user gets a list of all services that they are entitled upon the occurrence of that particular event;

As mentioned in previous sub-section, the e-government services are constantly moving forward and event-based service delivery enables the development of the next generation public services – proactive service delivery (Sirendi and Taveter, 2016). Raising amount of citizens’ data available for government authorities coupled with increasing data processing capabilities of that institutions (Lehrer et al., 2018; Chen et al., 2012) allows to deliver proactive services based on the concept of the event-driven services. Thus, the

following sub-section are focused on proactive public services and its essence that makes it differ from traditional e-government services.

3.1.3 Proactive public services

Given the novelty of the concept of proactivity, the amount of work on this topic is relatively small. In existing literature, proactivity concept is applied mainly from two perspectives:

- proactive governance covering preventive and predictive policing issues (Bourgon, 2009; Hartmann, 2018; Flyverbom and Hansen, 2019).
- proactive service provision covering the practice of service delivery in the public sector (Ayachi et al., 2016; Kroonmäe, 2017; Linders et al., 2018; Körde, 2018; Erlenheim, 2019; Scholta and Lindgren, 2019; Scholta et al., 2019).

For the purposes of this work, the author mostly focusses on proactive service delivery.

OECD (2019) defines proactiveness in the context of government as "... ability of governments to anticipate, and rapidly respond, to the needs of their citizens." Scholta and Lindgren (2019) explore the effect of shifting towards proactive services and define proactive service provision as "... delivering service to a recipient without the recipient having to request".

Scholta and Lindgren (2019) have contributed to understanding the changes in e-government service delivery as a result of the addition of a proactivity component. Based on the three-dimensional framework developed by Lindgren and Jansson (2013), the researchers - Scholta and Lindgren (2019) - "summarize how proactivity changes understanding of digitally-enabled public service delivery".

Scholta et al. (2019) developed a new e-government stage model describing no-stop-shop service delivery including reactive, proactive, and predictive service delivery as dimensions of purposes of data use.

Kroonmäe (2017) illustrates proactiveness in three phases: offering, notifying, acting. However, the author does not fully agree with Kroonmäe (2017) because of the first phase which is described as "raising access and creating opportunities with providing many channels for services" since it is a standard duty of government to offer the most

convenient and efficient service provision options. In this regard, the author agrees with (Körge, 2018) on the views that basic aggregation of services on one platform and information provision does not necessarily constitute the proactive service provision, as well as the proactivity, implies minimal human interaction and intervention during service provision (ideally, seamless provision).

Several researchers approached the issue from service design spectrum. Sirendi and Taveter (2016) initially introduced the notion of service design to create proactive services; they highlighted that role of agent-oriented modelling in proactive service design. Later, Erlenheim (2019) explored the issue of proactive public service design based on case studies from Estonia and Australia. The latter is one of the most rigorous and reflective works in the field of proactive service delivery covering the topic from various perspectives and several case studies from real-life implementations. Another practically oriented study has done by Körge (2018) who conducted a case study of the Estonian Company Registration Portal and elaborated on the question how to design proactive business event services.

Albeit not using proactivity as a term directly, the study by Millard (2011) focused on universal and data-driven public service personalization provides great insights into the understanding of the idea behind proactive public service delivery.

Ayachi et al. (2016) elaborated on the barriers of traditional public e-services and proposed a proactive service provision framework capable to proactively make recommendations to citizens based on data from citizens' social media accounts. Although this study is a worthy example of the proactive notification stage, this framework has obvious limitations. The author considers that:

- social media data is not a reliable and sufficient source for proactive service provision since not all citizens use social media and/or not all of them share relevant personal information there;
- usage of citizens' data from social media could bring out data a range of data protection and human rights issues.

Kuhn and Balta (2020) explored another understudied field of proactivity concept – quality of such services – and proposed analysis framework which could be used to

evaluate proactively provided services. The framework proposed within that research has valuable implications for the quality assessment of proactive services. The main drawback of this work is that it has been studied mainly from the perspective of civil servants, and to explore the views of end-users, the existing literature in the field of quality of public services was used.

The Estonian e-State Charter or "Everyone's rights in e-state" (2018) describes proactive service delivery by giving a brief definition coupled with a short example. The charter puts an emphasize on the citizens' right for privacy and willingness to be proactively served as prerequisite for the delivery of proactive e-government services. Additionally, Estonian law defines proactive service delivery as "... direct public services provided by an authority on its own initiative in accordance with the presumed will of persons and based on the data in the databases belonging to the state information system" (Principles for Managing Services and Governing Information, 2017).

To conclude, the proactive public service is considered a novel and, thus, understudied field. Yet, the existing literature allows explaining the phenomena and its differences from traditional public e-services. In turn, the comprehension of the phenomena and its distinctions enables the author to develop a theoretical approach for citizens' readiness towards proactive public services.

3.2 Technology acceptance and readiness

Technology acceptance issues have been among topical research areas for several decades. Huge amount of research has been done on the issues of technology. The author divides literature on this issue into two main categories:

1. Grounding theories and models standing in the core of the studies conducted in this field.
2. Extension and replication models aimed to add value to initial grounding theories by extending with new variables and/or replicating them into different contexts.

This section describes existing works on technology acceptance and readiness in general as well as in specific areas of application including e-government.

3.2.1 General technology acceptance

For the purposes of this study, the author defined several core theories developed specifically with focus on technology. The author does not provide a detailed description of the preceding research works (which were not initially developed for technology acceptance issues) to meet the scope limitation of this research.

Technology Acceptance Model (TAM) is one of the widespread theoretical frameworks and, in fact, substantial amount studies have been based on this work. Initially theory was developed within the PhD thesis by Fred D. Davis at Massachusetts Institute of Technology in 1986 (Davis, 1986). This model derives its origins from the Theory of Reasoned Action. Ajzen and Fishbein's Theory of Reasoned Action (TRA) (Ajzen and Fishbein, 1980). The work is concerned with the actual use of technology. In its basics, it is a model examining how users accept and use a technology incorporating the two main factors: Perceived usefulness and Perceived ease-of-use which together form the Attitude Toward Using information systems, and, in turn, it forms the actual use of system (Davis, 1986). Davis did used "Attitude Toward Using" technology and did not include "Behavioural Intention" into his initial model arguing that "In the user acceptance testing context, measurements of subjects' motivation to use a new system would take place directly after demonstrating the system to the user. Thus, the time required to form an intention would not be expected to elapse prior to measurement." (Davis, 1986).

Later, the model has been developed further both by the Fred D. Davis himself (Davis, 1989; Davis, 1993) and other scientists (e.g. Adams et al., 1992; Venkatesh and Davis, 2000; Venkatesh et al., 2003; Venkatesh and Bala, 2008).

In his later works, Davis tended to use “Intention to use” as a main variable mediating effects of “Perceived Usefulness” and “Ease of Use” on the “Usage behaviour” (Venkatesh and Davis, 2000; Davis 1989). Also, in (Venkatesh and Davis, 2000) the authors decided to include “Subjective Norm” variable from Theory of Reasoned Action which initially was not used in (Davis, 1989) arguing that it has slight effect on “Behavioural Intention”.

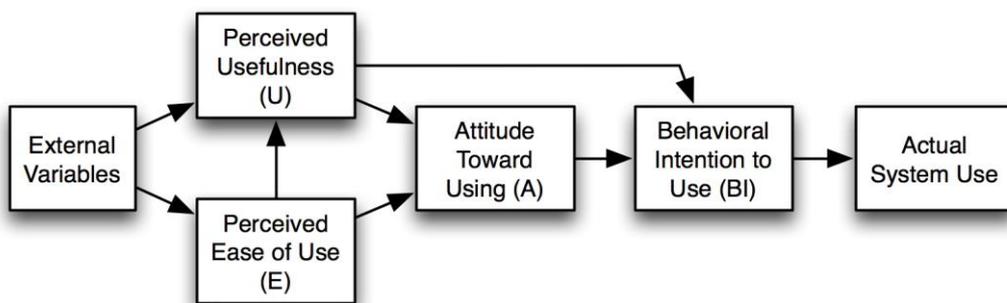


Figure 1. TAM by Davis (1989).

Later, TAM was extended by adding independent variables determining the “Perceived Usefulness” which included subjective norm, image, job relevance, output quality, result demonstrability as well as two moderators “Experience” and “Voluntariness” (Venkatesh and Davis, 2000).

Further, (Venkatesh and Bala, 2008) developed the 3rd extension of TAM (TAM3) without participation of Fred D. Davis, where the researchers added independent determinants of “Perceived Ease of Use” and argued that there are no crossover effects meaning that determinants of “Perceived Usefulness” have no influence on “Perceived Ease of Use”, and vice versa.

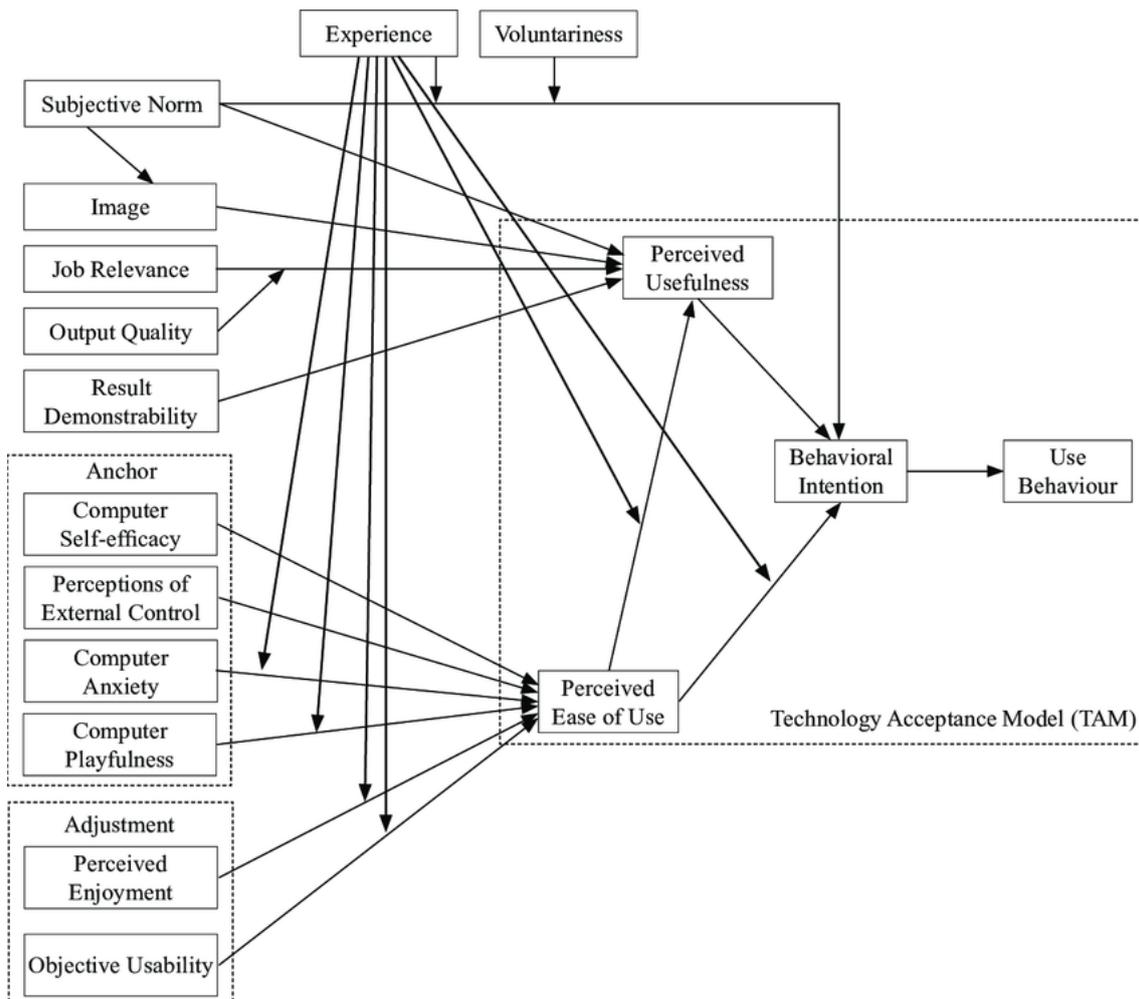


Figure 2. TAM3 extending the TAM and TAM2. By Venkatesh and Bala (2008)

Another core theory used in many of the technology acceptance studies is Diffusion of Innovation Theory (DOI) which was firstly proposed in 1962 and edited several times since then. It is a continuously advanced theory explaining how, why, and at what degree new concepts and technology disseminated (Rogers, 2003). Rogers (2003) identifies five stages of adoption of innovations with four main four main elements: innovation, communication channels, time, and social system.

The author considers that the main differences between DOI and TAM are about their application areas: TAM is applicable mostly for assessing the actual use of particular technology mediums (tools, software, etc.), whereas the DOI has a broader spectrum and can be applied in a wider context of any kind of innovation. Besides, the TAM was developed with a focus on the application within the narrower work environment, while

the DOI was aimed to describe the adoption of innovations in the wider social systems. Last but not least, DOI shows adoption stages over time.

Another piece of well-known theory is the “Unified Theory of Acceptance and Use of Technology” developed by Venkatesh et al. (2003). This work was based on the review of the eight existing models, that is - the theory of reasoned action, the technology acceptance model, the motivational model, the theory of planned behavior, a model combining the technology acceptance model and the theory of planned behavior, the model of PC utilization, the innovation diffusion theory, and the social cognitive theory (Venkatesh et al., 2003). This model consists of 4 core variables – performance expectancy, effort expectancy, social influence, and facilitating conditions – and 4 moderating variables – gender, age, experience, and voluntariness of use. Notwithstanding its shortcomings, the UTAUT model is an important concept because it incorporated 8 existing models and was validated based on a massive data set.

Model	Factors or Variables	References
Theory of Reasoned Action	Attitudes, Subjective Norm, Intention, Behaviour	Fishbein and Ajzen (1980)
Technology Acceptance Model	External Factors, Perceived Usefulness, Perceived Ease of Use, Intention to use, Actual Systems Use	Davis (1986), Davis (1989)
Theory of Planned Behaviour	Attitudes, Subjective Norm, Perceived Behavioural Control, Intention, Behaviour	Ajzen (1985)
Diffusion of Innovation Theory	Voluntariness, Image, Relative Advantage, Compatibility, Trialability, Visibility, Result Demonstrability, Ease of Use, Rate of Adoption	Rogers (2003)
The Unified Theory of Acceptance and Use of Technology	Performance Expectancy, Effort Expectancy, Social Influence, Facilitation Conditions	Venkatesh et al. (2003)

Table 3. The main models of technology acceptance. By the author.

There are some other models developed and used for the purposes of answering technology acceptance issues, however, for the purposes of this research, the author

decided to review them not separately but within Venkatesh et al. (2003) which incorporates most of them.

3.2.2 E-Government acceptance

A multitude of research has been done on the adoption of e-government and public e-services. The researchers covered the issue from various perspectives. A few studies have been aimed to explore the state of the issue by conducting a literature review of existing papers on e-government adoption (Titah and Barki, 2008; Zhang, Xu and Xiao, 2014). In addition, de Vries et al. (2018) conducted a literature review of innovation adoption in the public sector that touched the e-government as one of three main studied sub-fields in the paper.

One of the main differentiations is whether the study examines adoption from the government side (within the government) or adoption of e-government by citizens. For instance, such studies as (Alghamdi et al., 2011) have consider e-government readiness assessment in developing countries mostly from the supply-side of services and proposed seven detailed dimensions. Although the research by (Alghamdi et al., 2011) is good from the perspective that it assesses the developing countries, it has limited implications for this study due to the focus on readiness issue from the government organisations perspective but not the citizens side of the problem. Lots of other researchers approached the issue from the supply-side (Holden et al., 2003a; Titah and Barki, 2008; Zhang, Xu and Xiao, 2014). All these works contribute to the research agenda. However, all of them possess a similar problem – lack of understanding from the end-users viewpoint. Thus, to comply with the scope of this work, the author mainly focused on the literature studying the topic from the citizens' perspective.

Noteworthy, prior research is primarily based on the models described in subsection 3.2.1 of this thesis. Some researchers applied solely one of the widespread models, such as Technology Acceptance Model (Belanche et al., 2012; Sebetci, 2015; Mensah & Mi, 2017), UTAUT (Alshehri, 2013), Theory of Reasoned Action (Belanger and Carter, 2008) and Theory of Planned Behaviour (Ozkan and Kanat, 2011).

A substantial part of the studies has utilized a mixed approach by integrating several models (Gilbert et al., 2004; Carter and Belanger, 2005; Dimitrova and Chen, 2006; Karavasilis et al., 2010; Shareef et al., 2011; Xie et al., 2017). Furthermore, a few

scientists approached the adoption issue from slightly different perspectives instead of using the common adoption models (Doong et al., 2010).

(Al-Hujran et al., 2015) added value to the adoption literature by exploring the understudied (in the context of e-government adoption) factor - public value, which can simply be characterized as the benefits and convenience of public service for citizens. Al-Hujran et al. (2015) as well as Khalil (2011) studied how the national culture affects the citizens' readiness for e-government. Another interesting piece of work is done by Boyer-Wright and Kottemann (2009) which relates citizens' e-readiness to the general country environment by depicting the following factors: prosperity, technological innovativeness, higher education, internet development, internet rationalization, internet penetration. Although, the study by Boyer-Wright and Kottemann (2009) was not focused only on e-government readiness, the author of this thesis believes that this paper has implications for the study of proactive public services adoption.

Barriers to and enablers of e-government services innovation also have not been left without attention (Gilbert et al., 2004; Pieterse et al., 2007; Meijer, 2015). Belanche et al. (2012) brought into discussion the role of citizens' individual moral standards and lifestyle as moderating factors in the adoption of e-government by integrating them into Technology Acceptance Model. Pieterse et al. (2007) added value to the research by exploring personalization of e-government services and issues related to access, trust, control, and privacy as main potential obstacles to better adoption of e-services in the public sector.

A special attention should be paid to the trust factor. Trust is addressed by several researchers as a topical issue for the adoption of e-government services (Warkentin et al., 2002; Abdelghaffar, 2010; Ozkan and Kanat, 2011; Belanche et al., 2012; Xie et al., 2017).

Shareef et al. (2011) made a great contribution by examining an issue from service maturity perspective: the researchers tried to answer to the question whether factors affecting citizens' adoption of e-government services differ while the service maturity level changes. Abu-Shanab (2017) illustrated such factors as e-government familiarity and trust through conducting two surveys with two different samples. The author of this

thesis believes that e-government familiarity could be also described as the level of awareness.

Chan et al. (2020) explored the effect of service design on citizens' attitudes towards e-government service: the researchers aimed "to identify key design characteristics of e-government services and examine how citizen perceptions of these characteristics influence service experience outcomes."

A number of studies focusing solely on the public e-services readiness cases of local governments in different countries (Holden et al., 2003a, 2003b; Voutinioti, 2013; Manoharan and Ingrams, 2018; Chen and Kim, 2019; Kaya et al., 2020).

To sum up, the e-government acceptance and adoption theme has been addressed from various perspectives and by a diverse range of approaches. Although none of the above-mentioned works describe proactive public e-services, the author believes that their results have implications applicable to the adoption model for proactive services.

3.2.3 Specific cases from other sectors

End-users' readiness to accept and adopt is a key prerequisite for success of any technological innovation. Thus, these issues are addressed not only in terms of e-government but also in many other fields. However, this thesis is about e-government services, it is worth to have a look on adoption literature from other sectors. The author considers that due to changing nature of public service delivery in e-government (e.g. from "pull" to "push", etc.), the models used in other sectors could benefit the research.

In a study of financial technologies adoption across countries by Frost (2020) several factors explaining why users accept or reject such innovations. One of such factors is unmet demand (Frost, 2020) which is particularly interesting for the author of this thesis and is addressed within this research.

Gefen et al. (2003) affirm that in the context of online shopping such variables from TAM as perceived usefulness and perceived ease of use combined with the trust factor "explain a considerable proportion of variance in intended behavior". Further, the means and ways of how online for building online trust were described: "(1) a belief that the vendor has nothing to gain by cheating, (2) a belief that there are safety mechanisms built into the Web site, and (3) by having a typical interface, (4) one that is, moreover, easy to use."

Considering the globalization of e-commerce purchases, Ashraf et al. (2014) extended TAM with trust and perceived behavioural control; later, the researchers applied the developed model to different cultural contexts to assess similarities and variations in perceptions of people from the diverse cultural background. Last but not least, several researchers specifically examined privacy and security issues in e-commerce acceptance both from the risk perspective (Miyazaki and Fernandez, 2001) and the trust perspective (Belanger et al., 2002).

Wang et al. (1998) studied users' concerns regarding privacy in web marketing. This research showed that how personal data was collected, how it is used as well as users' opportunities to control their own data play a significant role in terms of ensuring user privacy. Additionally, the researchers emphasized that acts of privacy invasion (e.g., spamming, etc.) via the collected data have a big negative influence on user's confidence about data security.

In addition, Narayanan et al. (2012) studied how people's concerns regarding fraud crimes affect the adoption of purchases made on the web: it was revealed that fear of fraud is a significant factor influencing user's attitudes toward making online purchases.

4 Theoretical approach

This chapter intends to indicate the author's theoretical approach towards understanding citizens' readiness for proactive public services. Firstly, a brief introduction to the author's theoretical ideas is given, then details are distilled within respective sections.

4.1 Introduction

The studied literature represents a variety of factors that may affect a person's readiness for a particular technology or innovation. Such factors included personal perceptions, social surroundings of a person, skills, technical capabilities, quality of technology, etc.

Based on the literature review, the author classified major factors in the context of proactive public services into three principal groups which are a social factor, technical factor, service quality. In turn, each of these groups include independent variables. Additionally, the author considered demographic factors as moderating variables. For the purposes of this thesis, the author has distinguished six main demographic factors: Age, Gender, Education (Literacy), Place of Residence, Internet Usage, e-Gov Usage. The author considers that these demographic factors affect social and technical factors as well as service quality at different phases and to varying degrees.

At the same time, the author acknowledges that the relationship between both dependent and independent variables as well as moderating factors is a complex issue. Considering this, the theoretical approach represents a generalization of variables based on the views of the author formulated as a result of conducted literature review. What matters is to understand these variables as a system (or group) since complex interaction between them is inevitable to the formulation of the overall citizen's readiness.

To this end, the author in no way seeks to present all the possible factors and interrelationships between them that affect the readiness of citizens, but presents the main patterns based on the existing literature and the data collected in the course of this research.

In the following sections of this chapter, the author elaborates on each of the above groups of factors in detail, describes the potential independent variables, and links his hypotheses to the results of existing literature on the relevant topics.

4.2 Social Conditions

As social beings, humans are surrounded by a complex range of social circumstances and conditions. The author combined the sociocultural and human factors affecting a person's acceptance of technology under the social conditions.

In total, 6 independent factors are determined that constitute the social conditions of the citizen. The author believes that all of these factors have its effect on the discussion of proactive public services adoption. Below each of them is uncovered and argued in detail.

The more a person knows about proactive public services, the more he/she is willing to accept such services. To rephrase it, the Level of Awareness is an influential factor. Several researchers mentioned awareness as an important factor affecting user adoption of e-government services (Abdelghaffar, 2010; Shareef et al., 2011; Alshehri, 2013). The results implicated that increased awareness of e-government services could have a positive influence on the adoption of e-government services. Additionally, Abu-Shanab (2017) introduced "e-government familiarity" as a factor driving higher adoption of e-government services. Warkentin et al. (2002) also mentioned that familiarity with e-government services positively affects citizen's trust (in turn, it moves towards adoption). The authors of this thesis think that in this context "familiarity" could be regarded as awareness of e-services.

The second variable proposed by the author is Peer Opinion. A person's acquaintances (family members, friends, etc.) experiences and opinions regarding a proactive public service might affect his/her attitude towards proactive services. Peer opinion plays a similar role as the Subjective Norm in TRA which was also introduced starting from the second version of TAM 2 (Ajzen and Fishbein, 1980; Venkatesh and Davis, 2000). Ajzen and Fishbein (1980) defined Subjective Norm as "person's perception that most people who are important to him think he should or should not perform the behaviour in question". Likewise, there is a "Social Influence" construct proposed within UTAUT by Venkatesh et al. (2003), which defined as "defined as the degree to which an individual perceives that important others believe he or she should use the new system."

However, there is a distinctive line between the constructs mentioned above and Peer Opinion. Subjective Norm is a "stricter" construct having patterns of "social pressure" to perform or not to perform an action, whereas Peer Opinion is more about referring to

other people's experiences and opinions while deciding independently. In addition, the author assumes that the importance of Peer Opinion is affected by demographic factors. For instance, a person living in a tradition-based community is more dependent on peers' opinions; or women in religious families might be more dependent on their family members' opinion. At the same time, the more educated people may have a more independent opinion; or people with higher income may depend on the opinion of influential people around them due to their "social status".

The next variables are one of the widely studied but at the same time complex issues – trust. Existing literature confirms that citizen trust has a positive effect on attitudes towards e-government (Warkentin et al., 2002; Titah and Barki, 2008; Abdelghaffar, 2010; Ozkan and Kanat, 2011; Belanche et al., 2012). Moreover, the personalized character of a service in the case of proactive service delivery increases the importance of trust (Pieterson et al., 2007).

Ozkan and Kanat (2011) divided trust as follows: party-based trust which is "trust in the government institution providing the e-service" and institutional trust referred to as trust in the "environment in which the transactions take place". In its turn, Abdelghaffar (2010) distinguished two dimensions of trust: trust in technology and trust in e-government. For the purposes of this work, the author divides trust as (1) trust in the service provider and (2) trust in the technological medium.

Proactive service delivery is based on the utilization of citizens' personal data. Thus, trust between citizens and government institutions has great significance (Bertot et al., 2016). On the other hand, proactive public services are through the utilization of novel AI-based technologies. It emphasizes the fact that a service recipient might also have concerns regarding the technology used if any problems occur. To this end, both the trust in service providers and the trust in technology have a role to play. It is important to note that whether or not trust is of great importance for a particular citizen might be influenced by many other factors (mainly demographic, but also the need for a service, the existence of alternatives, etc.).

One of the key elements of success in the rapid adoption of mobile financial technology applications (e.g. digital banks, payments, etc.) is the unmet demand for financial services (Frost, 2020). Drawing a parallel, unmet demand for public services (if exists) has a

positive influence on citizen's intention to accept proactive services. Namely, the government institutions do not have physical representation in each settlement of the country; usually, these are villages (where most people lack digital literacy). In the areas where no physical offices serve and people have a low level of digital literacy, the citizens must go to the nearest office in other towns to use a government service in a reactive way. Thus, in such cases, the citizens could be more willing to accept proactively provided services.

As known, digital technologies created opportunities for new types of fraud. Big amount of fraud cases is committed using the latest technological advances. Fear of Fraud affects people's decision-making while using digital technologies such as online purchases (Narayanan et al., 2012). Spamming through junk mail, mass direct email, etc. is among the widely spread privacy concerns that touch user's confidence in various technologies (Wang et al., 1998). In most cases, proactive services are provided through such channels as mobile SMS, e-mails, or e-service portals. For example, in the case of Azerbaijan, the main method is the SMS sent via mobile phone numbers. Considering all the above, in some cases proactive service delivery might be confused with fraud attempts and, therefore, a citizen's fear of fraud could mislead and affect his/her opinion on proactive public services.

The above discussed 6 factors are the main social factors that may affect a citizen's intention to accept proactive services. The author acknowledges that there are more factors that might exist, and these factors might influence each other as well as other constructs in a big variety of ways.

4.3 Service Quality

The service quality is an inevitable factor in success of any e-government service and has been studied deeply by many researchers (Barnes and Vidgen, 2006; Parasuraman et al., 2005; Papadomichelaki and Mentzas, 2012; Jiang and Ji, 2014; Kuhn and Balta, 2020).

Lessening of interaction (that is the main idea of proactivity phenomena) does not necessarily constitutes an improvement in the service quality (Kuhn and Balta, 2020). Therefore, the special attention should be paid to service quality factors in order to ensure better adoption of proactive services.

Based on the existing literature, the author has identified 7 factors that could have an influence on the citizens' intention to accept proactive services. To note, these factors are not proposed as quality dimensions of proactive public services but only as variables that might play a role in terms of the adoption of such services.

The way how service is provided plays a significant role in the service quality (Sousa and Voss, 2006). For example, if the government offers a particular service through the web portal in a mobile-dominated country – it might negatively affect citizens towards that service.

Several similar concepts have been introduced by various researchers. Sousa and Voss (2006) introduced “Service Delivery Channels” defined as “the means of communication through which a service is delivered to (or reaches) the customer”. Channels of service delivery are one of the main components of e-service (Jansen and Ølnes, 2016). Another interesting term is the “Service Delivery System” defined by Goldstein et al. (2002) as “the structure (facilities, equipment, etc.), infrastructure (job design, skills, etc.) and processes for delivering a service”. For the purposes of this research, the aforementioned factors are incorporated as mode of delivery which could affect a citizen’s perception of proactive service quality.

Usefulness has an influence on the level of quality of the proactive services. Usefulness has been explored both in technology adoption literature and service quality literature (Davis, 1989; Venkatesh and Davis, 2000; Venkatesh et al., 2003; Parasuraman et al., 2005; Barnes and Vidgen, 2006; Papadomichelaki and Mentzas, 2012; Jansen and Ølnes, 2016). Specifically, usefulness is one of the foundational constructs of TAM (Davis, 1989). In addition, the Relative Advantage from DOI could be interpreted as a similar idea to the usefulness concept (Venkatesh et al., 2003).

The data privacy issues have utmost importance in ensuring the quality of proactive services since these services are enabled by the availability of a huge amount of personal data as well as the capabilities to analyse it. A plethora of work both within service quality literature and technology adoption studies confirmed the importance of (data) privacy and security (Layne and Lee, 2001; Parasuraman et al., 2005; Barnes and Vidgen, 2006; Pieterse et al., 2007; Beldad, 2011). Given the big amount of personal and sensitive data

used for proactive services, ensuring the security and privacy of citizens' data has a significant influence on the service quality.

Wang et al. (1998) discerned the lack of control over personal data as one of the biggest threats to user privacy. Likewise, Pieterse et al. (2007) argued that control over personal data matters when it comes to personalized e-services provided by government institutions. For the purposes of this thesis, the author defines control over personal data as citizens' knowledge on how their personal data is used, opportunities to request removal or change of personal data as well as opting-out options from proactive services. In fact, the best practices show that citizens should have opt-in and opt-out chances to ensure the quality of proactive services (Everyone's rights in e-state, 2018). Thus, options to control their personal data could have an impact perceived quality of proactive services.

Another widely mentioned factor is the responsiveness of the service provider (Miyazaki and Fernandez, 2001; Zeithaml et al., 2002; West, 2004; Parasuraman et al., 2005; Jiang and Ji, 2014). Even if a public institution has a contact details on the website, "they serve no purpose unless someone actually reads and responds to the messages that are received" (West, 2004). According to a multiple-item scale (E-S-QUAL) for measuring the service quality developed by Parasuraman et al. (2005), responsiveness implies "quick response and the ability to get help if there is a problem or question". Andersen et al. (2011) assessed e-government responsiveness from the user perspective and criticized existing e-government maturity models for paying low attention to the responsiveness issue.

Although the proactive services are aimed to be seamless and involve minimum or no interaction, it does not mean that the citizen should not have an option to contact the government institution. In fact, given the novelty of the proactive service delivery, the government institutions should possess high responsiveness to address unexperienced citizens' concerns timely. Accordingly, responsiveness is an important variable of the quality of proactive public services.

A crucial premise of proactive services is delivering public e-services tailored to the needs of citizens without their request. One of the key factors is the relevance of automated service offerings. If a person will be notified and offered "wrong" services, meaning that not relevant to their current needs - it will increase citizen's skepticism on proactive service delivery. Referring to the existing literature on technology adoption, this factor

could be tied up with compatibility from DOI defined as "the degree to which an innovation is perceived as consistent with the existing values, past experiences, and needs of potential adopters" (Rogers, 2003). Furthermore, Dimitrova and Chen (2006) introduced "Perceived Need" described as "personal relevance of e-government services". Likewise, "Personal involvement" and explained as "a citizen's perception of the relevance of e-Gov services based on inherent needs and interests" (Doong et al., 2010). Additionally, in the case of SMS-based e-government services, the service provider should send messages that are "... relevant to the target group, answer the target users' needs and interests, short and to the point, timely, up-to-date, and personalized according to individual user identities" (Susanto & Goodwin, 2013). Thus, the relevance of offered services may have an influence on the service quality perceptions of citizens.

A concept related to the Relevance of Offered Service is the Level of Personalization. Relevant services contribute to increase of the personalization. A proactive service in its essence has a personalization dimension since such a service is offered to citizens once a particular event happens in their life. The existing research demonstrates that citizens value personalization in public service delivery (Kolsaker and Lee-Kelley, 2008). Bertot et al. (2016) introduced personalization as one of the 7 innovations in public service delivery and focused on its potential to provide value to citizens. Thus, delivering the right services at the right time could increase the service quality perception of citizens. At the same time, a higher level of personalization might have a disproportional impact depending on the context.

4.4 Intention to accept a service

Based on the literature studied, the author considers that social conditions and quality of provided service may formulate his/her attitude towards proactive services and intention to accept the proactively provided services. Thus, the author introduces the intention to accept as a construct that combines the above mentioned two groups of factors. The discussion on the "Intention" within the technology adoption domain should inevitably include such an understanding as "Attitude". There is no absolute agreement on the role of a person's attitude towards technology in adoption models. Several research works find it as a crucial factor influencing an individual's intention (Ajzen and Fishbein, 1980; Davis, 1986; Davis, 1989; Al-Hujran et al., 2015), however, some scientists take the

opposite position and do not include it in their models (Venkatesh and Davis, 2000; Venkatesh et al., 2003; Venkatesh and Bala, 2008).

The main argument for excluding attitude from technology acceptance models is that a person with a negative attitude still may use the technology if it is important to achieve his/her goals (Venkatesh and Davis, 2000; Venkatesh et al., 2003). Interesting findings revealed by Karahanna et al. (1999): attitudes mostly matter in voluntary settings and mainly before actual experience with the system; after experiencing technology perceived usefulness plays a more important role in technology acceptance decisions. The findings from the last mentioned three studies show that the context (voluntary or mandatory) in which a decision regarding technology acceptance is made also matters.

The author agrees that attitude has an influence on intention in the case of proactive services but only in non-mandatory cases; if a person has to accept proactively provided services for any reason, he /she will accept it even with a negative attitude. To exemplify, a life event occurred and a person necessarily needs a public service that provided both reactively and proactively; this person has a negative attitude towards proactive services due to privacy or any other concern and, thus, thinks about option-out; however, if he is not able to trigger a reactive service for any unpreventable reason (illness, lack of time, etc.) - that person still would have to accept a service provider in a proactive manner. Therefore, for the purposes of this study, attitude is not included a distinct variable. At the same time, the author does not exclude the potential need for further research with a greater focus on the role of attitude as well.

4.5 Technical Conditions

A person's technical conditions play a role on his/her decision to accept a technology. If a citizen intends to accept proactive services but is not able to do it due to lack of technical capabilities - it hinders the readiness. A similar concept from the existing literature is "Facilitating Conditions" which is defined by Venkatesh et al. (2003) as "the degree to which an individual believes that an organisational and technical infrastructure exists to support the use of the system". However, the Facilitating Conditions concept is slightly broader and includes such factors as a person's skills to use technology, etc. On the other hand, in this thesis, technical conditions of citizens covers the question of whether an

individual possesses access to the relevant technical opportunities that is necessary for being served proactively without including his digital literacy skills in this construct.

In addition, Theory of Planned Behaviour, an extension of Theory of Reasoned Action, includes Perceived Behavioural Control. Ajzen (1985) added Perceived Behavioural Control in order to reflect possible factors that are out of the control of the person and might have a direct influence on actions and indirect influence on one's intention. The higher number of resources and possibilities positively affect the Perceived Behavioural Control of a person (Ajzen, 1985). However, similarly, to Facilitating Conditions and in contrast to Citizen's Technical Conditions, Perceived Behavioural Control is a wider concept which includes not only technical opportunities of the person but also range of other factors that is not controlled by the person himself/herself.

The author has identified three main technical conditions in the context of proactive public services: access to the Internet (Internet Penetration), access to telecom services (Telecom Penetration), and access to banking services.

- Internet Penetration, or access to the Internet, matters since depending on a proactive service (practically, in most cases) a citizen should access an internet portal or electronic email to get proactively notified or served by the government authority.
- Telecom Penetration, or access to the telecommunication services, questions (for the purposes of this work) whether a person has a mobile phone and phone number registered under his name through which he/she can be contacted by the government authority. The research on proactive service provision showed that some countries prefer to use SMS as a communication channel due to various legal, technical, and social contexts of the country (for example, Azerbaijan).
- Access to banking services, including both physical branches and digital banking services, matters since some proactively provided services include payments (e.g. allowances) provided to the citizens. Most countries prefer to transact such payments through banks due to a variety of legal and technical factors.

5 Case Study: Childbirth Allowance in Azerbaijan

This chapter is aimed to showcase the case studied by the author. First, the background and reasons behind choosing the studied service was given. Further, the chosen service is described in detail.

5.1 Background

The author selected the provision of childbirth allowance in Azerbaijan as a service for the case study. The general case selection approach including the author's main criteria is described in the Research Methodology chapter of this thesis. Below, the reasons for choosing this particular service are explained.

Briefly, the decision to study this particular service was made after interviewing the Head of e-Services and Innovation at the Ministry of the Labour and Social Protection of the Republic of Azerbaijan as well as studying material provided by the Ministry on the provision of proactive services.

According to the information provided by the Ministry, 35 services of the Ministry are provided proactively. The childbirth allowance is one of the first and priority services provided in a proactive way starting from October 2019. From October 2019 till March 2020, 183876 proactive service cases have been generated in the system of the Ministry. Of these, 111638 applications fall on the benefit of childbirth which accounts for almost 61% of all cases. 27371 applications were rejected for various reasons, 83967 new-borns' parents were provided with childbirth allowance in a proactive manner. A large number of the provision of this service proves its importance and actuality.

Moreover, as previously noted in this work, similar services are already implemented in other countries. For instance, once a newborn registered in the State Population Register the Estonian National Social Insurance Board (www.sotsiaalkindlustusamet.ee) automatically reviews and informs parents if they are entitled to any benefit (including childbirth allowance). Therefore, choosing the childbirth allowance as a case study was also motivated by the opportunities for further comparative research in this direction.

5.2 Service description

The general description of the childbirth allowance provision service is given in this section.

After the birth, the relevant information regarding newborn is provided to the Ministry of the Justice of the Republic of Azerbaijan (with the purpose to get Birth Certificate). Then, the Ministry of Justice (hereinafter, MoJ) enters the information on the new-born into the relevant information system. Then, the relevant information is automatically transferred to the MLSPP. The main data source is the child's birth certificate.

In turn, the MLSPP's system carries out an automatic inspection of the provided information in accordance with the requirements of the legislation. First, using newborn's Personal Identification Code provided by the MoJ, the MLSPP checks whether the childbirth allowance already made since rarely but still such repetitive data entry cases happen (according to the information provided by the MLSPP official). Later, the child's parents are identified based on existing information in the government databases. To mention, "ASAN Bridge", an interoperability system similar to Estonian X-road, is currently used for data exchange between and across government bodies in Azerbaijan.

At the next stage, the status of the child's parents in terms of labour and entrepreneurship is determined:

- If any of the parents has a job or/and involved in entrepreneurship activities, and, thus, made social insurance payments to the State Social Protection Fund, the allowance is paid at the expense of paid social insurance premiums by those parents.
- If parents are unemployed the allowance is paid at the expense of the state budget. At the time of the appointment, the information on the death of the parents (if it is a case) in the appointment shall also be clarified.

After all of the above procedures, the allowance is assigned to the child's mother (in the absence of the mother or in other exceptional cases to the father) and the parent is notified by SMS about which bank he/she will receive the benefit from. The allowance payment is made through a bank in the district where one of the parents is registered. Then, the parent receives benefits from the relevant bank branch by presenting an identity card.

Additionally, the parent could get a notification in the personal dashboard on the e-social.gov.az web portal if registered there. The importance of this option is that in cases when the citizens are not reachable via phone for some reasons, then they could get information via this portal. However, the usage level of the web portal is low and, thus, the SMS notification is the main method for informing about proactively provided allowance.

Interestingly, this service is still available in reactive form as well. The citizens are able to benefit from this service through DOST Centres of the MLSPP.

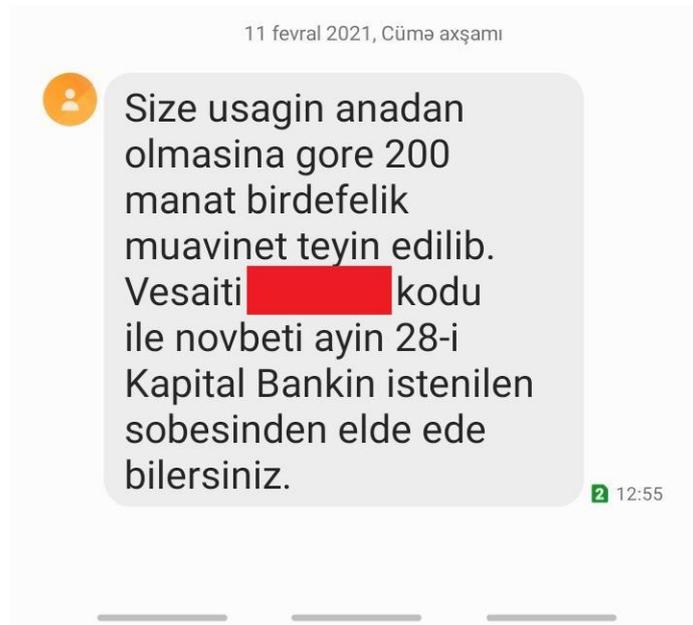


Figure 3. An example SMS from the MLSPP. Provided by the interviewee.

Figure 3. represents a real example of SMS that one of the interviewees got from the Ministry. The message contains information regarding the amount of the allowance, a reference code which should be used to receive money from the bank, the name of bank and date on which citizens can approach the bank. The message is short and clear with no additional details.

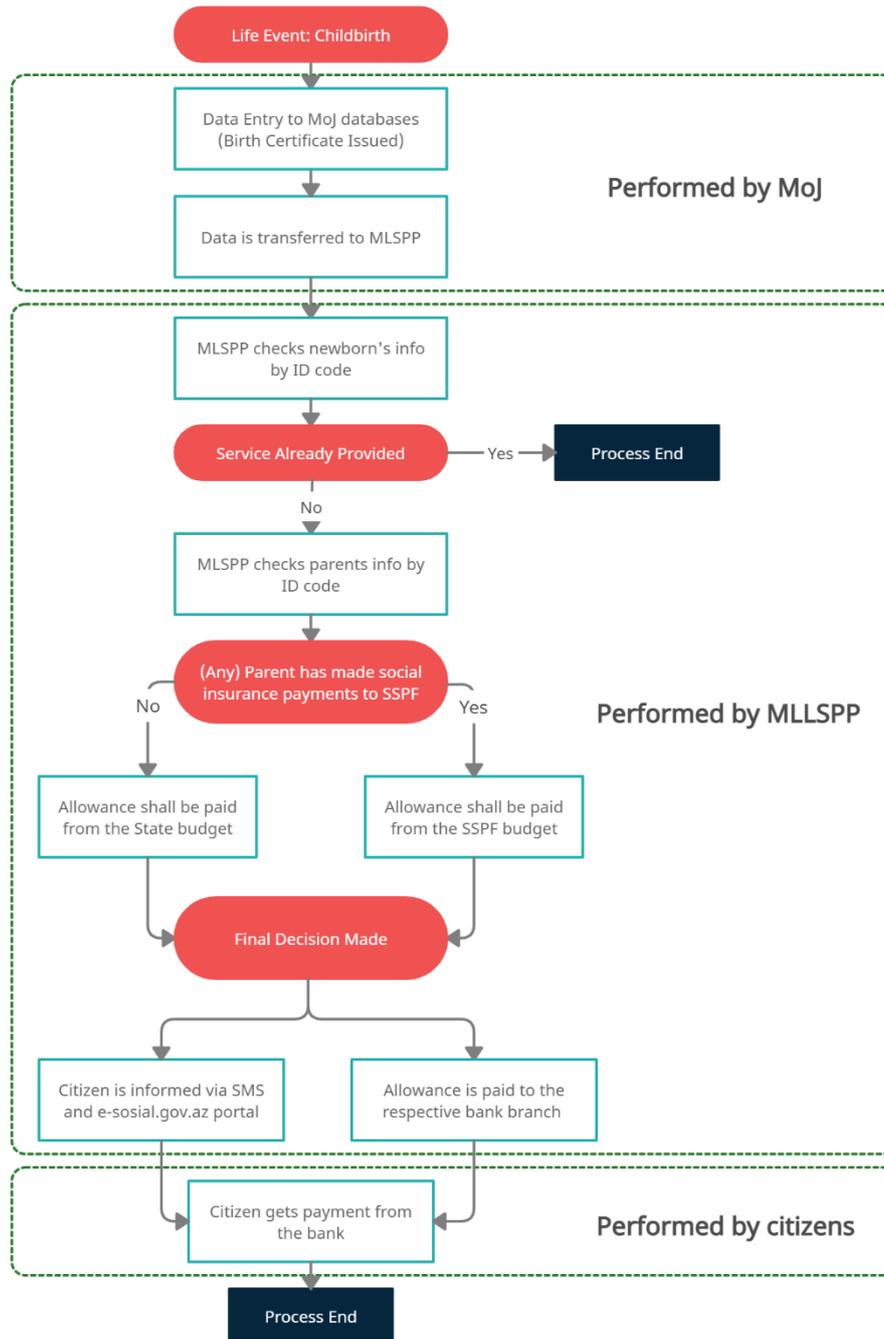


Figure 4. Childbirth Allowance Service Process in Azerbaijan. By the author.

Figure 4. depicts the process of proactive Childbirth allowance provision with regard to efforts related to each of the three main stakeholders involved in this service provision.

To conclude, this chapter and respective sections described and explained the proactive service investigated as a case study – childbirth allowance in Azerbaijan.

6 Results

This chapter represents the results from the qualitative interviews and questionnaire. After analysing the data gathered during the interviews and questionnaire, the author summarized the most important and relevant findings.

6.1 Interviews

The author has conducted 4 interviews to gain a deeper insight into proactive service provision in the case of Azerbaijan. The main value propositions of conducting interviews within this research were to understand the current situation and detailed overview of the proactive service provision in Azerbaijan as well as to understand the role of various factors affecting citizens' readiness for proactive services. First, the main results of interviews with government officials are given followed by the results of interviews with Azerbaijani citizens who received Childbirth Allowance in a proactive form.

The main topics of conversation during the interview with government officials were (1) the personal background of interviewees; (2) implications of proactive services for government and citizens; (3) factors affecting citizens' acceptance and readiness for proactive services. The same topics were discussed with the interviewed citizens with an addition of one more topic discussing (4) their personal experience with proactive public services on the example of Childbirth Allowance.

6.1.1 Interviews with government officials

The interviews results with the government officials involved directly in proactive service delivery depicted several interesting aspects. During the interviews with public servants, it was mentioned that the overall goal in the provision of proactive service (in terms of government's duties serving to its citizens) delivery was to increase the quality and value of proactive public services to the citizens.

According to the interviewees, "proactivisation" of service delivery in the public sector has benefits both for the government itself and its citizens. For the governmental institution (in the case of Azerbaijan), the proactive service delivery resulted in:

- diminishing the size of government by eliminating universal clerks and making the staff more specialized, which resulted also in cost reduction;
- decreasing the number of the physical offices, which resulted in cost reduction;
- decreasing number of corruption cases by minimizing citizen-officials communication;
- increasing governmental transparency internally (for citizens) and externally (for international partners: states, companies, NGOs);
- increasing citizens' satisfaction with public services provided by MLSPP.

According to the interviewees, for the citizens, it would mean more convenient public services by:

- eliminating the need to repetitively prepare and present data and documents either physically or electronically; solving the problem of problems faced during document preparation by citizens with low literacy level;
- lessening bureaucratic burden imposed due to nature of the reactive citizen-state relationship;
- reduction of corruption (bribe) cases by eliminating face-to-face communication with the public servants.
- Moreover, it solves the problem of leaving behind due to lack of knowledge of citizens' own rights and, particularly not being aware of services and benefits that they are entitled to.

A few interesting aspects were mentioned regarding the Childbirth Allowance. According to the interviewees, there are cases in which people do not know that they are already provided with Childbirth Allowance proactively. Part of these citizens was not aware of proactive provision and either called the Ministry or visited physical branches of several related government institutions (ASAN, DOST Centres, etc.). Another part of citizens was aware of the proactive services and called the MLSPP call centre to ask why they have not been provided proactively a particular service. As mentioned by the interviewees, in most cases, it happens that the citizens are already provided with the service but do not know about it.

Among the barriers, one of the interviewees mentioned legal issues, availability of data, and lack of digitalisation in a few partnering government organisations. To provide

personalized proactive public services it is needed to have sufficient data, and, in some cases, it is extremely hard to access such data since the organisation which should provide it does not have it in digital form. It creates additional workload and time loss.

Additionally, the interviewees expressed a point regarding potential hindrances of the legislation. In the viewpoint of one of the interviewees, the fact that Azerbaijan is a unitary republic makes it easier to implement proactive service delivery logic. The interviewee brought an example of another country with a federative organisation where the government has studied Azerbaijani experience in the provision of social benefits but still could not implement the same for many years.

The author also asked regarding citizens' opt-out/opt-in options for/from proactive services provided by the MLSPP. The interviewee said that according to the legislation there is such an option, but they have not had any cases of opt-out so far. Thus, in the opinion of the interviewee, the opt-out option has no practical importance (at least in the case of Azerbaijan). According to the interviewees, the government authorities could share data between institutions without asking consent of the citizen every time with the exception of the cases when personal data of the citizen can potentially be transferred out of government (e.g., to banks, insurers, etc.). Related to this, for the majority of the services that are provided by the MLSPP no citizens' confirmation asked. As an example, in the case of Childbirth Allowance, the MLSPP provides on its own initiative and only informs the parents that they received Childbirth Allowance. One of the interviewees reasoned it by the fact that almost no one would reject a payment benefit from the government (in the case of Azerbaijan) and, moreover, the MLSPP did not have any citizen concerns regarding this issue.

Regarding technical conditions' role in citizens' readiness for proactive services, the public servants mentioned that access to the banks can play some role in the cases of people in the villages, but no issues have been raised so far. It was added it is reasonable for many people to go to the nearest bank office to receive payment even if the bank is located far and, moreover, making payment by bank transfer is the only choice "due to legal requirements". Additionally, as stated previously, they have cases with people not receiving SMS notifications. Thus, not having a phone number registered under own name may be a hindrance in some cases. Yet, they are already working on this issue and plan to introduce the following solution: "Basically, we want (and plan to introduce it

soon) the MoJ to get and provide us with actual phone numbers of the parents while the parents provide other necessary information for registering to get a birth certificate”.

6.1.2 Interviews with citizens

The interviews taken with the citizens who received Childbirth Allowance in a proactive manner provided insightful facts as well.

When asked about their experience with proactive services, one of the interviewees mentioned that he was wondered when heard they received SMS regarding payment and, first, decided to call and ask the MLSPP about received SMS. As was said by him: “Honestly, I did not expect that government may give us something without our request”. The interviewee mentioned that he did not have information on proactive service delivery previously and was planning to prepare a document for the Childbirth Allowance application. The interviewee, in general, described his experience as positive with the exception of few aspects. For example, the payment was received after around a month and he considered this time too much since “people who get a child might need that assistance urgently after a birth to have some cash during the hard period”.

Another interviewee indicated that they did not any messages first: “after a very short research I found that now this service is provided proactively and preparing documents are not needed anymore”. However, the interviewee and his partner were confused and called the MLSPP call centre to clarify why they did not get Childbirth Allowance. The interviewee mentioned that as a result of the call, the MLSPP informed them that they already received it and provided them with the code to receive a payment from the bank. In addition, the MLSPP confirmed that they have sent a message to the number registered under the name of the child’s mother. However, the interviewee was sure that they did not get any SMS; then he added that “maybe the message was sent to one of the other numbers of my wife which she does not use at that time”.

The interviewees considered the majority of the factors proposed in the theoretical approach of this thesis within this thesis reasonable. However, it can be seen from their answers that the importance of this attitude may change from a person to person depending on the real-life circumstances of that person.

The interviewee who holds a bachelor's degree mentioned that such factors as data privacy, convenience, trusted relationship with government is definitely important; yet, in his mind, a case when citizens need a service these factors are moving to the second plan: "...I can give my own example. When I got a child, I needed more money since having a kid is very costly today. So, I was even ready to prepare documents, stay in long queues, and even pay part of benefit as bribe if I have had any chance to receive additional money...".

The other interviewee mentioned the following regarding the question on the factors affecting citizens' readiness for proactive public services:

- Personally, for him peer opinion in terms of family or friends has a little difference since he thinks that "people often are not objective" and "cases may differ from one person to another based on his life situation". However, he would consider experience of people with the same context and issues even from social media and web forums.
- Personal data is very important. Moreover, it would be very good if government will be open and transparent in explaining which data is collected and with whom they are sharing. At the same time, he acknowledged that he was not able to find information on data governance when he was searching about Childbirth Allowance on the web.
- Trust in government matters but in the case of developing countries such as Azerbaijan, citizens "just have to ask the government for services" since they have no alternatives. He mentioned that he also has concerns regarding data security and does not fully trust the government, he still accepted this payment because of the "economic circumstances".

Additionally, both interviewees agreed that they would be happy to receive highly personalized services but one of them mentioned that he would approbate it more if he knows details of how the government achieves this personalization. The interviewee mentioned that: "If government checks my personal messages without my intention to provide me with highly personalized services, then I would say thanks but no need. Of course, if the government asks me to consent and offer personalized services on legal data, then I would be glad to receive such a service".

Interestingly, the interviewees expressed a similar to public servants' opinion regarding the opt-out option. The citizen idea would be summarized as follows: governments do not ask when they fine or give a penalty (an example of “proactive service”) and citizens have no chance to opt-out from these “services”; thereby, when government provides some benefits on its own initiate – no one in Azerbaijan would like to opt-out.

Noteworthy views were given to the question regarding Fear of Fraud. The interviewee who received a message repeated that he was wondered when his wife first got message and was not sure whether it is real or not; a result he contacted the MLSPP to get clarify it. The other interviewee said that it Fear of Fraud might affect his attitude, but he has enough literacy to check whether it is real of spam: “I can check the number from which received the message, what is said and asked in the message, etc. Based on it I can contact the relevant authority to clarify if I suspect any fraud potential”.

6.2 Questionnaire

To better cover the real situation in Azerbaijan as well as gather additional quantitative data, the author conducted a web-based survey among Azerbaijani citizens. The survey was conducted in the Azerbaijani language since the target group was Azerbaijani citizens. The survey was conducted for 2 weeks.

A total of 227 respondents participated in a survey. Noteworthy, 38 of respondents have received Childbirth allowance. A necessary demographic diversity was achieved as seen in Table 3.

The main demographic data collected were the gender, age, education (also can be assessed as literacy level within this thesis), and place of residence of the respondents. Collection of the aforementioned quantitative demographic factors served to the reaching the goals of this study since demographic factors play a significant role in the theoretical approach developed by the author of this thesis.

n = 227			
Factor	Response	Frequency	Percentage
Gender	Male	114	50,2 %
	Female	112	49,3 %
	Prefer not to response	1	0,5 %
Age	Under 18	5	2,2 %
	18-29	150	66,1 %
	30-45	60	26,4 %
	46-60	12	5,3 %
Education (Literacy)	Secondary School	43	18,9 %
	Bachelor's	128	56,4 %
	Master's	44	19,4 %
	Doctoral	10	4,4 %
	Prefer not to response	2	0,9 %
Place of Residence	Baku (Capital)	150	66,1 %
	City (Regional)	33	14,5 %
	Village (Baku)	12	5,3 %
	Village (Regional)	32	14,1 %

Table 4. Demographic Profile of Respondents. By the author.

Questionnaire results show that, in general, awareness of proactive services and understanding of this phenomenon is quite low. Only 9,7% of respondents have detailed information on proactive services, whereas 39,6% heard about it but do not know details and slightly more than half of the respondents have not heard about proactive services at all. Notable, the usage level of e-government services (thus, awareness and understanding) are higher compared to proactive services. 69,6% of respondents have used e-government services at least once.

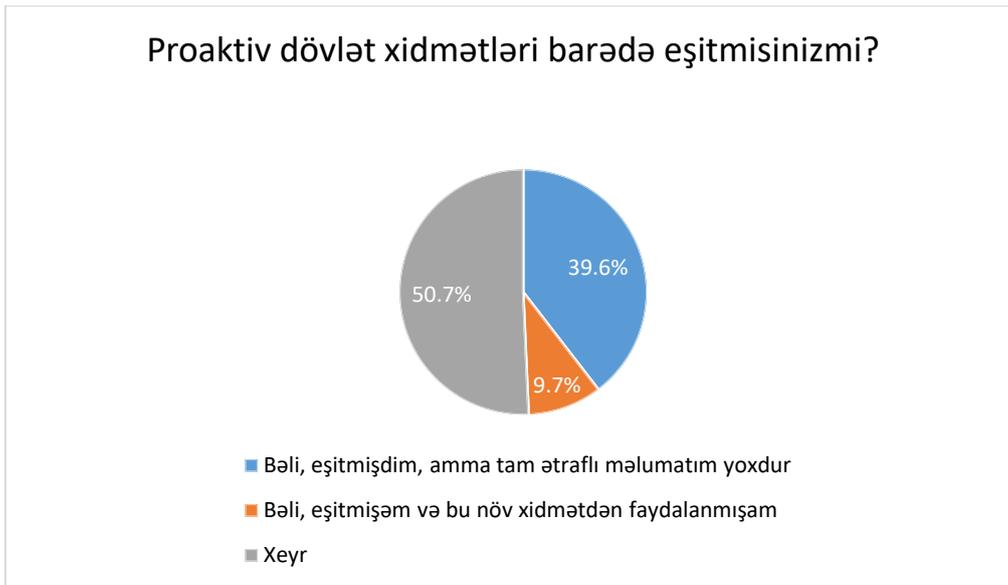


Figure 5. The chart on citizens' awareness level on proactive services

Interestingly, the level of web use is much higher than the level of utilization of e-government services. Although, 89% of respondents use the Internet often or very often, only ~20% of all respondents and ~22% of frequent internet users utilize e-government services frequently. Furthermore, even though 73% of all respondents are confident and skilled internet users, only 55,5% of confident web users do not have any difficulties when using e-government services.

Data also depicts that such demographic factors as age, gender, level of education, and place of residence have a role to play in the awareness and understanding of both proactive public services and e-government services in general. People's awareness rate seems to be proportional to their level of education. Citizens living in Baku and neighbourhoods are more aware and using such services. Younger people are more informed and better skilled in terms of such services than older generations. The following data statistically proves the above generalizations.

Among respondents who have heard about proactive services:

- Gender:
 - 48 of female respondents have heard, which accounts for 43% of all female respondents;
 - 63 of male respondents have heard, which accounts for 55% of all male respondents;

- Regarding age:
 - 85 of 18-29 aged respondents have heard, which accounts for ~57% of all respondents from this age group;
 - 23 of 30-45 aged respondents have heard, which accounts for ~38% of all respondents from this age group;
 - 3 of 45-60 aged respondents have heard, which accounts for 25% of all respondents from this age group;

- Regarding education:
 - 18 have secondary school as a latest obtained degree, which accounts for ~ 42% of all respondents with this level of education;
Note: it is possible that some of doing bachelors currently since 13 of them are 18-29 years old.
 - 59 have bachelor's degree, which account for ~46% of all respondents with this level of education;
 - 26 have master's degree, which accounts for ~59% of all respondents with this level of education;
 - 7 have doctoral degree which accounts for ~70% of all respondents with this level of education;

- Place of residence:
 - 80 of respondents lives in Baku (Capital), which accounts for ~53% of all people living in the same place;
 - 14 of respondents lives in Cities (Regional), which accounts for ~42% of all people living in the same place;
 - 7 of respondents lives in Villages (Baku), which accounts for ~58% of all people living in the same place;
 - 11 of respondents lives in Villages (Regional), which accounts for ~34% of all people living in the same place;

Among respondents who have used e-government services:

- Gender:
 - 73 of female respondents have used, which accounts for 65% of all female respondents;

- 84 of male respondents have used, which accounts for 73% of all male respondents;
- Age:
 - 111 of 18-29 aged respondents have used, which accounts for 74% of all respondents from this age group;
 - 41 of 30-45 aged respondents have used, which accounts for ~68% of all respondents from this age group;
 - 5 of 45-60 aged respondents have used, which accounts for ~42% of all respondents from this age group;
- Education:
 - 16 of them choose high school as a latest obtained degree, which accounts for ~ 37% of all respondents with this level of education;
 - 95 have bachelor's degree, which account for ~74% of all respondents with this level of education;
 - 36 have master's degree, which accounts for ~82% of all respondents with this level of education;
 - 9 have doctoral degree, which accounts for ~90% of all respondents with this level of education;
- Place of residence:
 - 123 of respondents lives in Baku (Capital), which accounts for 82% of all people living in the same place;
 - 16 of respondents lives in Cities (Regional), which accounts for ~48% of all people living in the same place;
 - 5 of respondents lives in Villages (Baku), which accounts for ~42% of all people living in the same place;
 - 14 of respondents lives in Villages (Regional), which accounts for ~44% of all people living in the same place;

Moreover, the majority of respondents who was served proactively either were not aware of it at all or do not have detailed information regarding such services. 39 people responded that they received a childbirth allowance after 1 January 2020 (which is provided proactively). However, only ~15% of them responded “Yes, I have heard and have detailed information” to the question “Have you heard about proactive services?”,

whereas ~44% of them said that they have heard about proactive services but do not have detailed information about such services and ~41% of them answered “No” (meaning that have not heard at all).

Approximately 22% of phone owners do not have a phone number registered under their name. Still, 28% of childbirth allowance recipients are those who do not have a phone number registered under their name. The percentage of people without phone numbers registered under their name is lower in the cities rather than in villages, respectively 20% and 36%. The difference in the numbers of males and females without registered phone numbers is not high (respectively, 25 and 28). However, males in this category are relatively younger than females: 88% of those males are aged between 18-29, whereas only 39% of females without phone numbers are aged between 18-29, and the rest of the females consist of older age groups.

Access to the internet and banking services is at a sufficiently high level: 85,5% of respondents have good or very good access to the Internet and 76,2% of respondents have good or very good access to banking services (either physical or digital).

Questions related to the social conditions clarified and mostly confirmed the importance of major factors. To start with, 74,5% of respondents stated that they would be more willing to accept proactive services if they are informed and aware of such services.

The main part of the respondents indicated that their peer's opinion (based on experience) would affect their opinion about proactive services. 65,7% of respondents stated that if their acquaintances had a positive experience with proactive services, they will be more willing to accept such a service. Only 5% of participants denied that their acquaintances' opinions play a role for them.

75,8% of respondents agreed that trust in the service provider could positively affect their intention to accept service from that provider. Further, 66,8% trust in the technological medium might influence their intention to accept service: if they know more and understand how the technological medium works, then they tend to accept that service.

Comparatively fewer participants (57,2%) agreed that if their needs for the public service are unmet, they will have more willingness to accept. Worth to note, 32,6% of respondents answered neutrally to this question.

A major part of participants (63%) would definitely feel cautious and regard it as spam if they receive a message/email stating that payment will be made to them by the state since they're entitled to it. The 32,2% might regard it as spam depending on the context. Only 4,8% of respondents stated that would not feel cautious about such a message.

Importantly, the results confirmed that service quality factors also could have a significant influence:

- 74% of respondents think that the convenience of the service delivery would positively affect their intention to accept proactive services.
- 80,6% of respondents agree that they will be more willing to accept proactive service if they perceive that service useful.
- 74,5% of respondents mentioned that if the privacy and security of their personal data will be ensured, then it would positively affect their opinion of proactive services.
- 70,1% of respondents agreed that control over their personal data matters for their intention to accept proactively provided service.
- 73,6% of respondents stated that they would be more willing to accept proactive service if the service provider timely and thoroughly answer their questions and concerns.
- 78,9% of respondents would be satisfied to receive a proactive service if the offered service correlates with their actual needs.
- At the same time, contrary to previous statistics, if the government provides them with a service that is highly needed for them without their request, 55,1% of respondents would wonder "How they know that I need it?" and feel slightly wary in this situation.
- However, 70,5% of respondents said that they would be more willing to accept personalized proactive service if they understand why and how technically the service is offered to them.

In addition to the questions above, a variety of useful responses were given to the open-ended question at the end of the questionnaire: "What can hindrance you from accepting proactive public services?"

Personal data privacy, confidentiality and security issues are among the top answers to the open-ended question. Yet, one of the respondents mentioned that “today our personal data are available almost everywhere, so I do not think that it should make a difference for us”. Further, such themes as lack of awareness, transparency, convenience, and usefulness were mentioned. Noteworthy, a few respondents mentioned that they would feel uncomfortable if government will trigger them too many times with irrelevant offers.

Trust concerns also were expressed by several participants. Interestingly, trust in service provider was mentioned several times, whereas almost nothing regarding trust in the technological medium was written by the respondents.

7 Discussion

In this chapter, the author discusses the results of the research and expresses his own view and implications. The results of the main endeavours carried out during the research - literature review, theoretical approach, case study, interviews, and the survey - are linked to better understand the issues under study.

7.1 Theoretical Approach

7.1.1 Introduction

To start discussing the result of the work, it is worth briefly present its goal and research questions. The main goal of this work was to define citizens' readiness for proactive public service. Thus, the main research question was the following:

- How to define citizens' readiness for proactive public services?

As was described in the previous parts of this work, the study topic - proactive public services are a novel concept. Even though these services are public e-services provided thanks to advances in technology, they definitely possess several important differences from traditional e-government services. Considering, the author decided that the existing theory from e-government literature sufficiently applicable. Thereby, to answer the aforementioned questions, it was, firstly, necessary to understand the phenomena itself and its distinctions, and the following sub-question was introduced:

- What are the exceptional distinctions between traditional e-government services and proactive public services?

Moreover, defining was not meant as identification of the concrete definition, or the philological description, or quantitative assessment of a particular state's citizens' readiness to a measurable outcome. It was meant to characterize the citizens' readiness for proactive services. In other words, defining citizens' readiness for proactive public services was aimed to bring out a comprehensive understanding of the issue through the identification of major propulsive factors and key barriers for it. To this end, the author asked the following sub-questions:

- What are the main factors affecting citizens' readiness to accept proactive public services?
- What are the key barriers for citizens to accept proactive service provision?

7.1.2 Literature review discussion

In its infancy, an extensive literature review was conducted. It was divided into two main domains - public services and technology acceptance - to better serve the research questions of the study.

First, public service literature specifically on e-government services was studied to understand them and determine definitions for the purposes of this work. The author has positioned public e-services in agreement with the three-dimensional approach of Lindgren and Jansson (2013); yet the author argued the similar nature and interchangeability of "e-government services" and "public e-services" terms in the context of this research. Above all, the reactive nature of e-government service was explored within this part of the literature review. In turn, it enables the author to move forward towards the life and business events concept laying in the foundations of proactive service delivery.

The study of life and business event concepts within this research contributed to the comprehension of the essence of the proactive services. According to Erlenheim (2019), a need for public services arises upon the occurrence of an event in a citizen's life (e.g. marriage, childbirth, etc.). The author agrees with the viewpoint above. However, the author thinks that citizens need services not only when a certain event happens but also when some decisions are made by the citizens. Of course, such a decision could be thought of as an "event". Yet, the important moment is that such decisions are not possible to predict. Therefore, it is significant to note since:

1. It enables a discussion on how proactive services are provided ("how it works?");
2. Acknowledges that not all public services could be provided proactively, and thus:
 - To ensure the quality of proactive services level of predictability should be assessed and the triggers should be clearly determined before making a decision on "proactivation" of a service;

Later, the author moves to the principal point - proactive service delivery. The literature review (including legal definitions) shows the inseparable nature of life and business event services. Most importantly, it depicts the primary aspect of proactive services. Namely, the will is a significant aspect both from the government side as an initiator of proactive service, and from the citizen side as a recipient of a service based on his/her legal rights.

The factors of the government's will and initiative state the main difference of such services from traditional e-government services - the citizens do not have to approach and request service, but the government should approach them once they need it (a life event occurs). To do so, the government utilized the personal data of citizens available in the databases of the government. Therefore, notification and consent are the next important facets as well which limits the government's will and initiative opportunities to defend citizen's rights. It is related to misuse of data, privacy, and security issues. Then, previously mentioned "based on legal rights" implies that the proactive service could be provided as soon as the right arises and only when a right arises. Moreover, it means citizens must accept a service prior to being served and have an "opt-out" opportunity from such services. For instance, if they feel doubts regarding data privacy.

All the above-discussed reviews and critical analyses of the literature enabled the author to answer the second sub-question of the research regarding the exceptional distinctions between traditional e-government services and proactive public services. Besides, it allowed grasping the essence of proactive service and lay the ground for further study of the factors which could have a voice in terms of acceptance of these services.

Next, a review of technology acceptance literature was conducted. The specific aims of this effort were to establish the theoretical approach of this study and answer the second and third sub-questions.

In view of the goals and scope of this thesis, the author studied readiness and adoption issues mostly from the demand side, i.e. end-users perspective. Moreover, due to the novelty of the proactive services, the author assumed that the existing literature neither on general technology acceptance nor on the e-government domain would not be sufficient for this study; and an all-side exploration of the issue is needed. Therefore, the literature review was divided into three phases: first, widely-applicable general

technology acceptance theories were researched and analysed; then specific studies on e-government services brought under focus; last but not least, specific cases from other sectors (e-commerce, fintech, etc.) were reviewed. After the literature review, the author's assumptions regarding the necessity of application of the academic works from various fields were confirmed.

Finally, a theoretical approach and conceptual model combining and based on a wide spectrum of relevant studies have been developed. The model is described and discussed in the Contributions section of this work.

7.2 Case Study Discussion

7.2.1 Introduction

The overall research methodology of this work was the case study methodology. Correspondingly, special attention was paid to the description and analysis of the chosen case. The case research for the purposes of this thesis was the Childbirth allowance service provided by the MLSPP in Azerbaijan. The reasoning and motivations for choosing this service are thoroughly described in respective parts of this work, and this section is intended only for discussing the result of the case study.

According to the information provided by the MLSPP, the goal of the proactive service delivery (from a process view) in Azerbaijan is the appointment and provision of appropriate benefits, allowances, and pensions without an application of the citizens as soon as citizens right arises. In this context, the goal of Childbirth allowance is to provide parents who have a newborn with a one-time payment without their request once the birth is officially registered. Additionally, the MLSPP assumes and strives to ensure that proactive service delivery leads to increased transparency, minimized citizen-officials contact, and ultimately, improved citizen satisfaction.

The conducted case study showed that the overall goal of the service is achieved. As seen from Figure 4., the process is truly proactive and involves citizens only in the latest phase of the service provision (in fact, when the service is already provided). The process is simple at first and efficient at glance. Nevertheless, there are still problems associated. These problems have been broad character covering legal, organisational, technical, and social issues. The main problems identified are elaborated further.

7.2.2 Interviews and questionnaire results

The interview and questionnaire results all evidently proved the existence of awareness issues. However, it should be mentioned that the MLSPP regularly publishes informative press releases regarding proactive service provision with statistics added in. As showed interview and questionnaire data, although some citizens are informed about proactive services and in some cases approach the service provided if they did not receive a service proactively. Yet, this segment is only part of the whole society and awareness is a topical issue in regard to the majority of citizens.

Statistically, only 1/10 people have heard and had detailed information regarding proactive services in Azerbaijan, whereas 4/10 only heard about these services but have no idea what it means; and half of the respondents have not even heard about such services. Another interesting quantitative finding is that the main of respondents served proactively either were not aware of it at all or do not have detailed information regarding such services. During the conducted questionnaire, 39 out of 227 respondents said that they received a Childbirth allowance after 1 January 2020. Surprisingly, only ~15% of them have heard and possessed detailed information on proactive public services. It shows that awareness of the existence and understanding of proactive public services is quite low.

In turn, awareness jeopardizes the nature of proactive service delivery by involving reactivity in service provision process. As per interviewees (government), there are many cases when citizens call and ask why did not get a service proactively (those who aware) or ask in general how to apply (to receive) particular services (those who are not aware). Additionally, both interviewed citizens were not aware of proactive service delivery in the case of Childbirth allowance and as a result:

- one of them had a plan to collect documents and apply for Childbirth allowance since he got to know regarding proactive provision only after getting an SMS;
- another interviewee mentioned that he learned about the proactive mode of provision after a search on the Web and later called the MLSPP to clarify it;

The situation above shows citizens could spend unnecessary efforts for collecting documents and applying which makes meaningless the provision of a service in proactive

way. In other words, "reactive" stake increase in service process may increase since citizens spend efforts to seek information and get served that does have a place in the "as-is" service provision.

Another complex issue is about the way how service is communicated and provided to the citizens (mode of provision). In the case of Azerbaijan, the MLSPP utilizes SMS-based notification coupled with notification through personal dashboards in the web portal (e-sosial.gov.az). Very few of the people use the e-sosial.gov.az web portal to get informed regarding services offered. Only ~20% of all respondents and ~22% of frequent internet users utilize e-government services frequently in the context of 89% of regular internet users. Moreover, around 45% of users who are confident with internet usage, do not feel the same confidence to use e-government services. Thus, as case study research and data demonstrate, SMS is the most widespread option and, comparatively, better option. Yet, there are still problems associated with this method. In Azerbaijan, an ID card needed to buy a phone number and each phone number is registered under the name of its legal owner. As the survey data depicts, 1/5 of respondents owning a mobile phone but do not have a phone number registered under their own name. Simply, it means that, in the current process logic, the government in Azerbaijan is not able to contact those people since messages are sent to the numbers which are linked to particular citizens.

At the same time, survey data proves that 28% of Childbirth allowance recipients (after 1 January 2020) are those who do not have a phone number registered under their name. It adds another layer of complexity to the issue. The question arises: "How these people received a proactive service without having a phone number?". The author assumes that citizens who did not receive basically called the MLSPP to get service - the possibility and frequency of such cases were mentioned by interviewees (both from supply and demand sides). Such cases also threaten proactive service delivery and involves reactivity in the service provision process.

Notable, the MLSPP acknowledges this issue and as a solution works on improving the process by collecting the actual phone numbers of citizens: the MoJ will collect the phone numbers that parents are using during collecting data to provide Birth certificate and then transfer these phone numbers to MLSPP together with other relevant information. The author agrees that the solutions are a good one in short term perspective, however for the

long term, increasing the digital literacy and usage rate of e-government services should be prioritized for better service experiences in the future.

As mentioned previously in this thesis, ensuring citizens' right to opt-out from service is a best practice in proactive service delivery. In the case of Azerbaijan, the citizens' data could be transferred between government authorities without a need to ask consent of the citizen every time with the exception of the cases when personal data of the citizen can potentially be shared with the stakeholders out of government (e.g., to banks, insurers, etc.). Briefly, MLSPP does not ask for citizens' confirmation for the majority of the services that are provided and the interviewees (from government) mentioned that they do not consider the opting-out option as a significant aspect since no one would most probably reject a social benefit. However, the author believes that even though not used widely, the opt-out option has a place to be and, in fact, the public servants' opinion on this issue is not acceptance: it shows the slightly careless attitude towards citizens' privacy and security of personal data.

The author believes that there are still exists specific cases when a citizen may decide to opt out of public service. For instance, a person who plans to apply for a visa in another country could get rejected due to the fact that he/she receives a social benefit and, thus, probably has no sufficient funding for traveling: embassy could ask "why you received a social benefit if you have enough income; and if you do not have enough income how you plan to visit another country?". This case is a real problem in the context of developing countries such as Azerbaijan (where citizens need to obtain a visa to travel to Europe, the USA, and many other countries). Additionally, there might be social reasons not to receive allowance such as social status of the person, etc.

Also, one more problem mentioned by one of the interviewees (citizen) was the timing - the allowance was paid approximately after a month. However, as it is known from the MLSPP, the appointment of allowance is realized right after receiving information from the MoJ. Still, the payment is delayed for some time. This research did not go deeper into this particular issue due to lack of data (only one interviewee mentioned) and scope limitations of the thesis. Yet, the author considers that if there is such a delay problem, then it is definitely worth paying attention to since one of the aims in providing proactive service delivery is about improving service quality and timing (as mentioned previously).

7.3 Contributions

In this section, the author discusses contributions made to the research field and practical implication of this work. Special attention during this study was paid to the development of the conceptual model. The author has drawn upon existing literature to establish a theoretical approach. The case study, interviews, and questionnaire results helped to refine and develop this model. The gathered data, in general, confirms the value of factors mentioned within the theoretical approach of this thesis.

To start with, social factors play a crucial role in citizens' intention to accept proactive service. It was confirmed by the questionnaire results. Almost all of the factors described within theoretical approach was confirmed by majority of the respondents. The governments should emphasize on social conditions and enable improvement of social conditions that might affect citizens' intention to accept proactive services.

Moving forward to service quality, it worth to mention that almost all of the service quality factors received a positive response (+70%) from survey participants confirming that they influence citizens' perception of service quality. Therefore, it confirms that the governments should emphasize on improving and ensuring quality of the proactive public services. The author believes that if the services have enough quality, more people will have positive intention to accept these services. Especially, the government have to focus on personal data privacy, confidentiality and security since it was the most frequent concerns mentioned by the respondents and interviewees who received proactively provided service. Particularly, in the case of Azerbaijan, the author believes that there is lack of understanding the importance of the issue from the government side.

In addition, the influence of technical conditions on the citizens' readiness partly confirmed. As per interviewees, the lack of mobile phone numbers registered under their name could be a hindrance in proactive service delivery. It showed that access to telecom services (in the cases when citizens are notified via Message) matters. In addition, the access to the web is crucial since if a notification was not received by SMS, then citizens should check their personal dashboard on e-portal (or maybe check e-mails if notified by e-mail). Without having access to telecom and the internet, it would not be possible to be served proactively. Access factors highly influenced by the demographic factors, particularly by the place of residence: the people in urban areas have better access to all

of these services. Conversely, a person living in the mountainous village may not have an easy access to internet, etc. Additionally, access to the banking services matter. However, this factor is also highly affected by demographic factors. As interviewees confirms, accessing banks could hindrance mostly in regional villages but still the rate of such cases is very low. The author believes that the importance of this technical conditions may have different applications in different countries.

As a result of this study, the author proposes three main groups of factors influencing the main construct of this study, moderated by demographic factors, affecting citizens' readiness to accept proactive public services:

- Citizen's Social Conditions;
- Service Quality;
- Citizen's Technical Conditions;

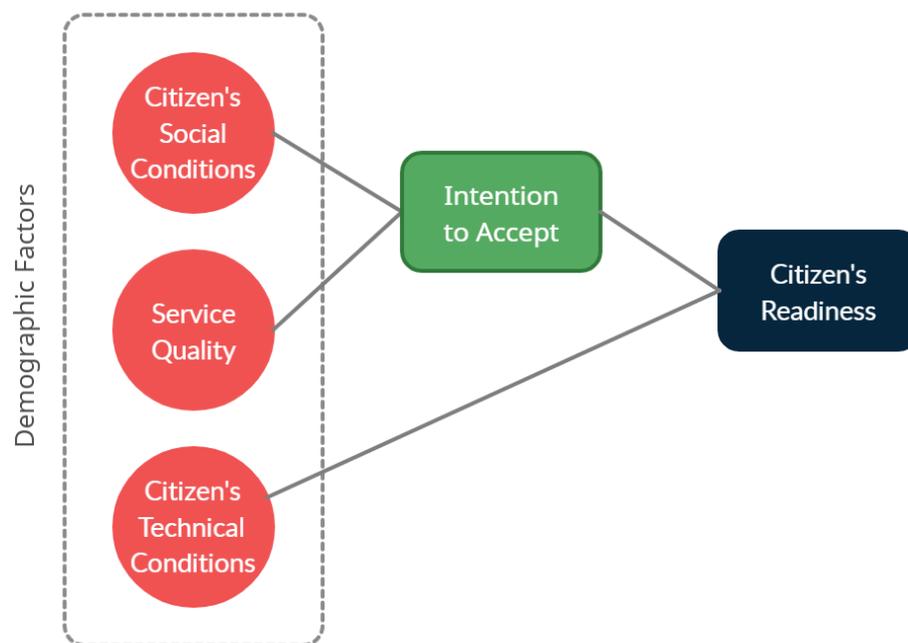


Figure 6. Model of Citizens' Readiness for Proactive Services. By the author.

The conceptual Model of Citizen's Readiness for Proactive Services was developed as a result of this study. As illustrated in Figure 6., the Citizen's Social Conditions and Perceived Service Quality are both dependent and independent variables:

- they are formed as a result of several independent factors (described in the following sections of this chapter);
- they together form another dependent variable – Citizen’s Intention to Accept proactive public services;

The third important dependent variable is the Citizen’s Technical Conditions which directly influences the main construct - Citizen’s Readiness.

To conclude, the author thinks that a citizen ready for proactive services - is a person who intends to accept such service and explicitly is able to accept the provided proactive service. In other words, if a citizen intends to be served proactively but have no access to relevant technical capabilities (e.g. internet) it means that that person is not ready to accept proactively provided service. Conversely, if citizen have access to relevant technical capabilities but do not want to be provided proactively – it means that this person is not ready for some reasons (concerns regarding the quality of service, or inappropriate social conditions). At the same time, the author acknowledges that there is more complex relationship between various factors of this model.

8 Conclusion and further research

This thesis was aimed to define citizens' readiness for proactive public service by identifying major factors and key barriers for it. The study showed that there is a complex range of variables affecting a person's readiness for proactive services. At the same time, it showed that the existing models are not applicable to proactive public services due to the essence of the proactive public services. Therefore, the author developed a theoretical approach based on the literature review of existing literature regarding general technology acceptance, e-governance services acceptance as well as specific technology acceptance cases from other domains. Moreover, a case of proactively delivered service - Childbirth allowance in Azerbaijan was studied. The case study gave good insight from the real-life implementation of such services. The results of the case study, interviews, and questionnaire presented valuable results as well.

As a result of the study, a conceptual model was developed. The model incorporates the main factors and depicts a high-level relationship between these factors and citizen's readiness for proactive services. The author argued that the social conditions of citizens together with the quality of provided proactive service formulate their intention to accept such services. Further, their technical conditions combined with their intention to accept such services define their readiness for proactive services. However, further research is needed to address questions that were out of the scope for this work but would benefit this research topic.

First of all, the author believes that extension of the conceptual model based on the cases of other countries is needed. The previous research on the proactivity concept (Scholta et al., 2019) states that there is a need for cross-national comparative research to draw a parallel on similarities and variance in the attitudes toward and readiness for proactive public services. Thereby, a study on the citizens' readiness to accept and use proactive services with the focus on the comparison of cases between different countries could make a positive impact on proactive public governance research. The author avoided conducting a comparative case study due to the scope and time limitation of this master's thesis. However, the author believes that the results of this work are well-suited for further comparative study. Moreover, due to importance of demographic factors, it would be useful to apply the model to the context of different countries to refine and improve it.

Moreover, the current state of regulation and legal grounds of proactive service provision in public sector is understudied. They could be a hindrance for proactive service delivery. For instance, Estonian Ministry of Economic Affairs and Communications has spent several years to obtain agreement with the government for providing proactive services without a need for asking citizen consent in each step of business processes and data sharing between various state agencies to ensure seamless service delivery (Vaher, 2020). A research work to identify legal perspectives of this phenomena on the cases of countries actively implementing it would:

- add value to theoretical research in many aspects including the identification of widely accepted official definitions;
- provide best-practices for government officials designing policies to enable proactive service delivery in the public sector.

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