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*The Wallet of Digital Citizens:  
Online Payment Adoption in the Developing Countries' Public Administration  
- Case of Egypt*

A THESIS SUBMITTED BY

Ahmed Elmasry

TO THE

*School of Global Affairs and Public Policy*

SUPERVISED BY

*Shahjahan Bhuiyan*

Spring 2023

*in partial fulfillment of the requirements for the degree of  
Master of Public Policy*

## **Abstract:**

Online payment methods play a crucial role in helping digital citizens interact and receive the e-government services. Citizens' tendency to accept online payments in the public sector is a vital factor in implementing successful e-government services. Therefore, this study aims to investigate the behavioral, institutional, and social aspects that influence citizens' tendency to accept the usage of digital payments in the Egyptian public sector. To achieve this objective, the study relies on conducting in-depth interviews with citizens who belong to different age, social, and educational backgrounds, in addition to policy experts and public employees. Meanwhile, the study adopts the lens of the UTUAT model to analyze the different dimensions that affect citizens' perceptions and attitudes towards the issue. The findings of the study confirm the assumptions of the UTUAT model and highlight the importance of trust and inclusion as key factors in influencing citizens' behavioral intentions.

# Acknowledgment

“Every man dies, but not every man truly lives” – William Wallace

Throughout my life, I was so lucky to be surrounded by people who encouraged me to truly live, even if this would take me to sail against the wind. For this, I am deeply indebted to those who shared the journey with me. I would not be able to keep sailing without your support, guidance, and love.

I could not have undertaken this journey without the support of my family who made tireless efforts to make me reach this point. They taught me that goodness is the highest aim which anyone could pursue. Through the process, we should not lose this value; because once we lose it nothing would really matter afterwards.

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# Chapter One

## 1 Introduction

### 1.1 Preface:

The rise of the internet and its digital technologies has contributed to transforming social interactions and structures into digital forms in the various economic, social, and political domains (Sebastian & Diaz, 2021). This transformation has significantly changed the types and shapes of social interactions and perceptions, paving the way for the emergence of new concepts, values and ideas in the field of public administration. Among the traditional relationships that have been impacted by the internet access and the online public sphere is the relationship between the government and citizens and their interactions within the public administration and public policy systems (Sebastian & Diaz, 2021). Over the past decades, the prevalence of digital technologies and their unprecedented applications led to the emergence of the concept of e-government, which refers to transforming the public services and practices into the digital space, allowing citizens to interact with the government in a timeless non-physical environment (Grönlund & Horan, 2005). Meanwhile, the concept of citizenship has also changed to include new forms of public participation called “digital citizenship”, which refers to citizens who have the knowledge and skills to digitally engage with the government and use online public and private services (Bokov & Abezin, 2019, p.446).

Among the essential knowledge and skills required for utilizing the full potential of e-government and digital citizenship is the ability to use digital financial transactions. Through the literature, many relevant scholars have clarified the importance of e-payments in enhancing the implementation of e-government services, allowing digital citizens to actively participate and engage with the various online public services (Azmi et. al, 2016; Hasan et. al, 2015; Treiblmaier



et. al, 2006). Moreover, several studies have argued for the positive outcomes of using digital payments as a primary source for government to citizens (G2C) payments such as social security and pensions payments (Al Marzooqi et. al, 2017; Csáki et. al, 2012; Klapper & Singer, 2017). It is important to highlight that in this study online/digital payments refers to the financial transactions that happen fully online with no physical interaction to receive goods and services. Meanwhile, the study focuses on the online payments within the public sector where citizens pay online in order to receive public goods and services.

Studying citizens' attitudes toward the adoption of online payments in the public sector in the developing countries poses a great opportunity to predict the future of digital citizenship and e-government in this context. Such studies could also contribute to clarifying the level of citizens' trust in adoption of technology in the public sector and its implications on the public administration and bureaucracy (Al Zaharni et. al, 2017; Berdykhanova, 2010; Mahmood 2014). This study focuses on the case of Egypt as one the developing countries in the African and Middle Eastern region. The findings of this study could be applicable to other developing and transitional countries inside or outside the region that have similar demographic and socio-economic and political characteristics.

By focusing on the Egyptian context, despite the government's ambitious e-government plan, the low penetration rates of e-payments pose a challenge for the full implementation of the Egyptian e-government program (Ghoneim, 2021, p.5). According to the Central Bank of Egypt (2022), only 11% of the eligible Egyptians made payments using digital financial services in 2020. Meanwhile, despite the pioneering attempts to launch one of the first e-government programs in the MENA region in 2001, the progress of the Egyptian e-government program was way behind the expectations compared with other countries in the region (Ayman & Abd Al-

Azim, 2016). On the top of the reasons that caused this is the low rates of using online payments (Gebba & Zakaria, 2015). Therefore, it is crucial to study the different aspects that influence citizens' tendency to adopt and use online payments in the public sector. This is due to its importance and effects on the digital citizenship and enhancing the engagement with the e-governments in the developing countries.

## **1.2 Research Problem:**

This research primarily aims to address how the behavioral, institutional, and social aspects influence the wide adoption of digital payments in Egypt within the public sector. Although many governments around the world are seeking to utilize the full potential of e-governments, the successful implementation of e-government is still challenging and complicated in developing countries due to technical, structural, social, and behavioral reasons (Almukhlifi et al, 2019, p. 397; Teo et. al, 2014, p. 100). This study seeks to explore the aspects that relate to the usage of e-payments within the public sector due to its importance for shaping the future of digital interaction between citizens and governments. As highlighted by Gebba & Zakaria (2015), among the main challenges for e-government in Egypt is the low financial inclusion rates and weak reliance on digital payments, especially among the less privileged citizens (p. 18).

Accordingly, this study attempts to highlight citizens' experiences with regard the usage of online payments in the public administration and shed the light on the key access and usage issues. The study also examines the social and behavioral factors that shape Egyptians' perception of e-payments. Meanwhile, the study investigates citizens' perspectives on the benefits and risks of adopting digital payments in the public administration. The last component of the research seeks to provide policy recommendations to enhance the role of government and

its initiatives in creating a conducive environment for digital payment adoption. In this context, the study adopts the lens of the Unified Theory of Acceptance and Use of Technology (UTAUT) to interpret citizens' experiences with the usage of digital payments within the public sector and its implications on efficiency, access, effectiveness, and transparency of public services.

### **1.3 Research Objectives:**

Few published scholarships have addressed the concept of digital citizenship within the Egyptian context and its implications for the Egyptian public administration practices. (Kiwani, 2021; Ghobashi, 2022). That is why, this study aims at exploring a specific aspect of digital citizenship that relates to e-payments and citizens' tendency to use them in the public administration. This aspect is highly vital for achieving comprehensive digital transformation. Unless citizens have the required knowledge, skills, and access to online payment tools, they will not have the ability to use public services and integrate with the digital ecosystem. Therefore, it is important to emphasize that an efficient digital transformation process will not be attained by only concentrating on enhancing the digital infrastructure and applications without improving citizens' access to online payment methods.

To achieve this objective, the study investigates how Egyptian citizens perceive digital payments within the public sector based on their lived experiences. This investigation is guided by the four dimensions of the UTAUT model. The first dimension explores citizens' perspective on the impact of e-payments on improving the efficiency of the public services. The second dimension outlines how they perceive the complexity of using e-payments. The third dimension highlights the role of social influence in promoting the usage of e-payments within the public sector. Finally, the fourth dimension clarifies required facilitating conditions to successfully implement the online payments system.

The findings of this study could assist policymakers in formulating a clear vision on how citizens perceive e-payments in general; and their perception and attitudes towards replacing cash with e-payment methods when dealing with e-government services. The outcomes of this study could provide useful insights that could be generalized to other developing countries that have similar characteristics and demographic features to Egypt.

#### **1.4 Research Question:**

Based on the aforementioned objectives, the research question of this study is the following:

**Main Question:** How do the social, behavioral, and institutional aspects influence the wide adoption of digital payments in the Egyptian public sector?

To fully answer this question and understand its context and various aspects, the study seeks to address and highlight the following dimensions by answering a set of sub-questions:

- **Access & Skills:** Do citizens have adequate access to online payment methods? Do citizens have essential digital skills/awareness to use online payments? Is the online payment portal easy to use or does it involve complex procedures?
- **Perceptions & Attitudes:** How do the cultural and behavioral factors shape Egyptians' perception of using online payment methods? How do Egyptians feel about using online payment methods for citizen to government (C2G) payments?
- **Policy & Regulations:** How can the government create a conducive regulatory environment for digital payments? How can the government address the institutional challenges in front of digital payments?

#### **1.5 Significance of the Study**

Throughout the literature, limited studies addressed the digital financial aspect of digital citizenship and their implications for e-governments in developing and transitional countries,

particularly in Egypt (Gelb et. al, 2020; Siong Tan 2021). Accordingly, this is the main reason behind choosing the current research topic. Most of the published literature focuses on the impact of e-government on issues such as transparency, democracy, active participation, etc (Basu, 2004; Bannister & Connolly, 2011; Snoeck et. al, 2017). On the other hand, few studies tried to consider whether citizens are ready to use e-payment methods to receive e-government services in developing countries (Meaza, 2016, Treiblmaier et. al, 2006, Sahi et. al, 2021)

By looking at the Egyptian case, it could be noticed that there are a limited number of studies examined the usage of digital payments within the public sector and its implications on public administration practices and citizens' satisfaction (Rezk & Halim 202; Lukonga 2018). Therefore, it would be important to explore how citizens perceive the usage of online payment methods within the public sector in developing and transitional countries and what factors influence their perception and behavior. This would be a crucial part to understand the future of e-government and digital citizenship in the context of the developing and transitional countries that have similar characteristics to Egypt.

The study also aims to provide recommendations for policymakers and public servants who are involved in designing and implementing e-government initiatives. The findings of this study will help them gather relevant information and insights that could assist them in developing citizens-centered and users-friendly digital services that considers the perspectives of citizens and end-users. Therefore, this could enhance the performance and the outcomes of the Egyptian e-government program and provide reliable insights that could be used by other developing countries in the African and Middle Eastern region and beyond. Since the concept of user-centricity is vital in the technology design world, designing public digital portals based on

the needs of citizens should be a priority for policymakers and public officials who are concerned about implementing the digital transformation programs.

The study also opens the door for future studies that seek to explore digital citizenship in developing countries by highlighting a number of behavioral and institutional phenomena that need further investigation. Such research plays a significant role in highlighting the future of digital citizenship and its implications on the public administration and bureaucratic practices. The future research could focus on the other aspects of digital citizenship and how it affects the traditional interactions and relationship between citizens and the government in the context of developed and developing countries.

# Chapter Two

## 2 Literature Review

### 2.1 Introduction:

This chapter illustrates the published literature that tackles the topic of online payment methods and their implications on the realization of digital citizenship and e-government. The chapter begins with defining and explaining the key concepts and ideas that will be addressed in the study. Therefore, the chapter explains the meaning of digital citizenship and provides background on the development of the concept. Then the chapter clarifies the meaning of digital payments and identifies their shapes and types. The chapter also explains the meaning and definitions of e-government and e-inclusion in the context of the study. After that, the chapter discusses the value of digital payments for supporting the implementation of e-government and sheds the light of several issues in this regard. The chapter then moves to illustrating the implications of digital financial inclusion on citizens and governments on the international and national levels. At the end, the chapter focuses on the Egyptian context. Therefore, the chapter highlights the status of digital financial inclusion in Egypt and its main challenges; then explains the historical background of the Egyptian e-government program and the current modernization programs and initiatives.

### 2.2 Digital Payments and the Transition into Digital Citizenship:

#### 2.2.1 Internet and the Development of Digital Citizenship:

In his iconic book “Sociology at the Crossroads,” Marshall (1963) defined citizenship as the individuals' right to participate in social activities and heritage and live-in accordance with a set of rules and standards that exist in society (p.74). In this regard, Marshall's (1963) definition outlines that citizenship contains several types of social, political, and civil membership rights.

Meanwhile, Cogan (2000) highlighted five fundamental features of citizenship that revolve around sharing identity, receiving certain rights, fulfilling duties, engaging in public affairs, and acknowledging social morals and values. All these features are produced from individuals' membership in traditional geopolitical institutions and organizations such as national states. Nevertheless, the unprecedented level of digital developments and technology prevalence has allowed individuals to engage in cross-border social activities that are not constrained by geographical boundaries or limitations (Chen et al., 2021, p. 1).

Digital technologies are continuously evolving rapidly to be more integrated with our contemporary lives in a way that diminishes the boundaries between our real and virtual worlds (Bokov & Abezin, 2019, p. 443). As a result, this has led to the emergence of a new form of citizenship known as Digital Citizenship (Chen et al., 2021). This form includes interdisciplinary fields such as psychology, sociology, media, law, politics that seek to define and explain the pattern of citizens' behaviors and activities on the Internet (Chen et al., 2021). Across these disciplines, several terms have been used to describe and refer to digital citizenship such as digital wellness, digital literacy, and digital etiquette. However, there was no clear identification or explanation of the distinction between these terminologies and their conceptual purposes (Chen et al., 2021).

It is important to state that there is no universally acknowledged definition for digital citizenship. To explain the reason, Henry et al. (2021) argued that this is because the concept has been developed by several social scientists and internet scholars to highlight the practices of digital inclusion and exclusion in the time of globalization, social networking and digital transformation. In their pioneering study, Chen et al. (2021) reviewed the conceptualizations and terminology of digital citizenship in 350 papers that addressed the topic from different



disciplinary perspectives (p. 1). Chen et al. (2021) concluded that digital citizenship conceptualizations could be divided into 2 interrelated dimensions: competence-centered and participation-centered (p.10). In his definition that focused on the participation-centered dimension, Ferrari (2013) described digital citizenship as the innovative and critical utilization of information technology in attaining objectives attributed to work, education, entertainment, and public participation (as per Frau-Meigs, 2021, p. 14). On the other hand, in their broader definition that considered the two dimensions, Bokov & Abezin (2019) indicated that a digital citizen is a person who has the basic knowledge and skills to use digital platforms to interact with other people, participate in society, communicate with government institutions, and consume digital content meaningfully (p. 443). In order to establish digital citizenship, citizens should have suitable skills and access to the internet as well as an appropriate understanding and knowledge of digital literacy, digital rights principles and digital security rules (Bokov & Abezin, 2019, p. 443).

According to the Council of Europe (2019), digital citizenship is a framework that guides the way citizens use internet technology and behave online by outlining what users need to know, do and be to benefit from the Internet (p.3). In 2016, the European Union launched the European Digital Competence Framework for citizens of the member states, which consists of five key areas containing 21 necessary digital competences. These five areas include: Information & Data Literacy, Communication & Collaboration, Digital Content Creation, Safety, and Problem Solving as presented in table 1:

- Table 1: Digital Competencies Key Areas

Key Area	Digital Competencies
Information and Data Literacy	<ul style="list-style-type: none"> <li>• Browsing, searching, and filtering data.</li> <li>• Evaluating data, information, and digital content.</li> <li>• Managing data, information, and digital content.</li> </ul>
Communication and Collaboration	<ul style="list-style-type: none"> <li>• Interacting through digital technologies</li> <li>• Sharing through digital technologies</li> <li>• Engaging in citizenship through digital technologies</li> <li>• Collaborating through digital technologies</li> <li>• Managing digital identity</li> </ul>
Data Content Creation	<ul style="list-style-type: none"> <li>• Developing digital content</li> <li>• Integrating and re-elaborating digital content</li> <li>• Copyright and licenses</li> </ul>
Safety	<ul style="list-style-type: none"> <li>• Protecting devices</li> <li>• Protecting personal data and privacy</li> <li>• Protecting health and well-being</li> <li>• Protecting the environment</li> </ul>
Problem Solving	<ul style="list-style-type: none"> <li>• Solving technical problems</li> <li>• Identifying needs and technological response.</li> </ul>

Source: European Commission, 2016, p. 4

In the current study, the focus is on the financial aspects of digital citizenship and the role of e-payments in enabling citizens to access e-government services and contribute to the digital economic ecosystem. In this regard, Treiblmaier et al. (2006) argued that e-payments are a fundamental pillar for implementing effective e-government adoption; otherwise, citizens would not be able to benefit from the e-services that require money transactions such as paying fees, fines or taxes (p.1). Therefore, it is important to address the concept of digital financial inclusion of citizens on the Internet and identify its benefits and opportunities for citizens and governments.

### 2.2.2 Background of Digital Payments:

The prevalence of the Internet technology around the world has led to the emergence of electronic commerce, which is a business environment that enables electronic transactions of information and services (Hsiao-Cheng, YuKuo-Hua & HsiPei-Jen Kuo, 2002, p. 331). As a result, this encouraged the development of a new digital payment methods that allow the transaction of money over the Internet as a replacement to cash payments (Khan et al., 2017, p. 256). By looking at the literature, several scholars have tried to define the Electronic Payment Systems. For example, Abrazhevich (2004) defined online payments as a fiscal commitment between a buyer and service provider through using electronic infrastructure. Ogedebe and Jacob (2012) simply defined electronic payment as a sort of exchanging money through the Internet medium. Similarly, Shon and Swatman (1998) described electronic payment as any money exchange activity that takes place over electronic channels. Hord (2005) also considered online payment as any type of non-cash payment that does not contain a paper cheque.

The history of electronic payments could be traced back to 1918 when the Federal Reserve Bank of the United States of America started a project to channel money by relying on telegraph wires (Naeem et al, 2019, p. 2). Over the years, the world witnessed a slow gradual transition towards adopting non-cash payment methods (Antwi, 2021, p. 1). However, the widest spread of electronic payments took place in the 1990s due to the proliferation of the Internet services. In 1994, the Stanford Federal Credit Union became the first entity to provide online banking to the public (Antwi, 2021, p. 1). Ever since, the usage of electronic payment methods has been increasing tremendously (Khan et al., 2017, p, 258).

Over the last decades, online payment has evolved to include several methods of payments such credit cards, debit cards, mobile payments, e-wallets, and e-cash. So far, **Credit**

**Cards** are one of the most prevalent electronic payment methods around the globe as it is distributed by banks and financial entities to users to perform payments through online channels (Naeem et al., 2019, p. 5). However, when it was first introduced, there were many security concerns regarding its safety. After that, credit cards started to gain popularity after the introduction of security features to secure the safety of each transaction which encouraged more clients to use it (Khan et al., 2017, p. 258). Overall, the ease of use is one of the main advantages of credit cards that accelerated their prevalence and adoption among users. Nevertheless, it is not a recommended method when users need to pay small amount of money because of the high fees of using the service (Naeem et al., 2019, p. 5). **Debit cards** are also another popular electronic payment method that allows users to make immediate payments for services and products (Naeem et al., 2019, p. 5). Unlike credit cards, debit cards withdraw the money directly from users' personal bank accounts without any intermediaries, which reduces the interest fees (Khan et al., 2017, p. 259). Moreover, debit cards are a more secured method compared to credit cards due to the extensive identification procedures implemented by banks (Khan et al., 2017, p. 259).

**Mobile Payments** have also evolved due to the recent developments in smart phones technology. Mobile payments allow users to make payments via their smartphones in an easy, accessible, and affordable way (Singh & Rachna, 2013). Moreover, they could be used to perform both online and offline and micropayment transactions, which gives it a high advantage. Meanwhile, **Electronic Cash** is another web-based system that gathers, processes and verifies users debit/credit card information automatically, then takes money from the clients' account and transfer it to the sellers' account electronically (Singh & Rachna, 2013).

Fintech is also another important term that is repeatedly used in the context of online payments. Zavolokina et. al (2016, p. 2) stated that there is a noticeable ambiguity regarding the

meaning of the term. According to Dapp et. al. (2014), fintech is a financial service that is empowered by internet technologies to enable: high efficiency, flexibility, cost decrease and promptness. On the other hand, Zavolokina et. al (2016, p. 2) also clarified that fintech could be used to refer to firms and start-ups that provide and enable such digital financial services. According to Arner et. al (2015), the term fintech emerged in the early 1990s and was associated to the “Financial Services Technology Consortium”, which is a project founded by Citigroup to enhance the cooperation in the field of technology. Currently, fintech is considered a tight mixture between technology and financial services (Arner et. al, 2015).

Across the literature, scholars have highlighted several criteria that could be used to evaluate the efficiency and effectiveness of each electronic payment method. **Applicability** is a key factor in assessing payment methods and it refers to what extent a specific payment method is accepted by users (Bauknecht et al., 2003). For example, Cash is the king of payment methods in several countries while other countries are more open to accept and deal with debit/credit cards. The **Usability** of a payment system is another important criterion that assesses the ease of use of a specific payment method by specific users to perform payments in an efficient, effective and satisfactory way (Alshira & Al Omari, 2020). If the payment method fails to provide all types of users with a seamless way to perform transactions with minimum effort, this would hinder its wide adoption. **Security** is another important angle that determines the future of payment systems (Alshira & Al Omari, 2020, p. 7093). Therefore, in order to earn users’ trust, electronic payment systems should prove high resistance to cyber-attacks and electronic counterfeiting. Moreover, electronic payment systems must avoid double spending through guaranteeing that transactions will only be made once. Since the electronic payments’ ecosystem involves different stakeholders such as banks, vendors, fintech operators, and so on. **Trust** is a

critical element that needs to be ensured. Users need to trust that these stakeholders will not use users' information and bank details against their interest (Bauknecht et al., 2003).

There are also more technical assessment criteria that need to be carefully considered. For example, **Scalability** is a dominant factor in assessing the efficiency of payment systems. As the demand on using the Internet for commercial purposes increases, the usage of electronic payments will grow as well (Bauknecht et al., 2003). Therefore, the electronic payment systems infrastructure should be scalable enough to accommodate the growing demand from users without the need for additional hardware installation from the users' side. Payment systems should also allow **Interoperability**, enabling as many parties as necessary to engage in the payment systems without limiting the service to specific organizations (Alshira & Al Omari, 2020, p. 7093). Meanwhile, it is also important to support **Convertibility**. As we witness the emergence of a new financial technology method on a regulator basis, it is important to ensure that money being transferred by one fintech method could be converted easily into the other fintech methods with no struggles. Finally, the degree of **Anonymity** provided by electronic payment methods is also a critical factor in the assessment (Bauknecht et al., 2003, p. 85). In a study conducted by the European Central Bank (2020, p.8), it was highlighted that one of the main factors that encourage people rely on cash payments is to maintain the privacy and anonymity of their financial records.

### **2.2.3 E-government and the Transition into Knowledge Society:**

It was evident in the literature that the Internet does not only affect societies and individual citizens but also governments and public administration practices. This led to the emergence and wide spread of the concept of e-government as more governments everyday are embarking on utilizing the Internet and other IT networks to engage with citizens, private sector, and even with other governmental and non-governmental organizations (Fang, 2002, p. 2).

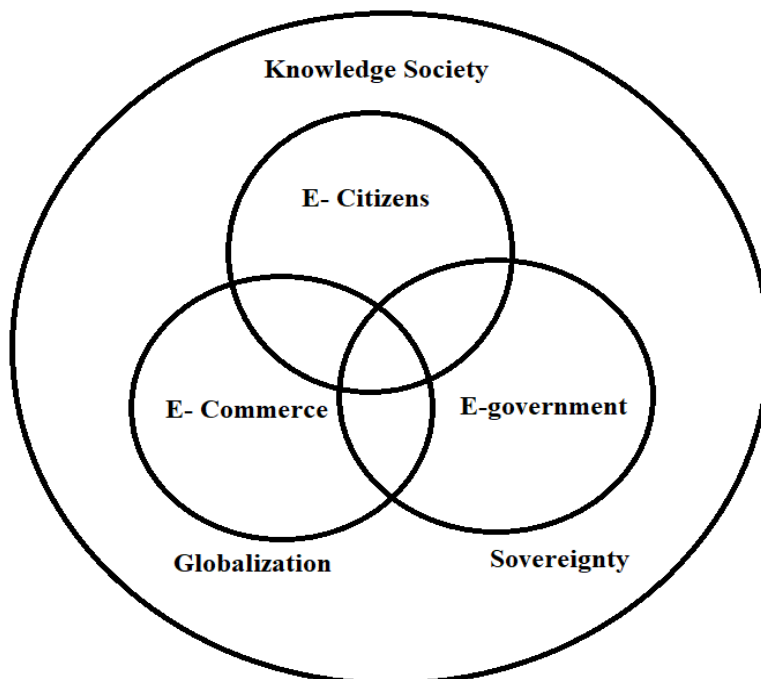
Across the literature, several definitions have been detected that considered different perspectives. One definition that was adopted by a U.S. agency defined e-government as “Government activities that happen through electronic channels between different levels of government, citizens, and the private sector, including: receiving and offering products and services; distributing and receiving orders; giving and acquiring information; and executing financial transactions” (Fang, 2002, p. 3). Meanwhile, Gartner (2002) defined e-government as the “ongoing optimization of service delivery, constituency participation and governance by transforming internal and external relationships through technology, the Internet and new media” (cited in Fang, 2002, p. 3). Another comprehensive definition was “the public sector’s use of ICT to improve data and information service delivery, encouraging citizen engagement in the decision-making process, and making government more trust, transparent, and useful” (OECD cited in Arief et al., 2020, p. 3).

In his study, Reddick (2005) emphasized on the importance of exploring and discussing the shape and nature of interaction between e-governments and e-citizens and their implications; rather than only focusing on addressing the supply-side of e-government that revolves around the number and types of public services offered online. Reddick (2005) concluded that e-government has enhanced the interaction between government and citizens as the majority of e-government users tend to engage with government services through the Internet more than the physical format (Reddick, 2005, p. 54). In a similar study, Evan and Yen (2005) stated that a successful implementation of e-government programs requires some changes regarding how governments and citizens consider and relate to each other (p. 208). Evan and Yen (2005) illustrated that while government employees and institutions used to have little incentive to fulfill citizens’ expectations, the digital transformation of public services would change government perspective

of citizens as they would be perceived as active users (p. 208). As a result, providing the best user-experience that fulfills their needs and expectations is an essential part of the process.

The literature also highlights that e-government should not only be addressed from a technical or governmental perspective but also the citizen side matters. In this regard, the concept of “Public Value” is very important as it represents citizens’ overall expectations regarding public services and government performance (Moore, 1995, p. 27). In their study, Abudelkarim and Ramli (2021) argued that there is a strong relationship between the citizens’ access to the Internet applications and the actual usage and the public value of the e-government services (p. 20). The more e-citizens who can use the Internet services the more increase will happen with regard to the value and volume of e-government services (p. 20). Moreover, Twizeyimana and Andersson (2019) stated that all e-government activities and policies should be assessed from the public value perspective and how government services, operations and actions benefit citizens (p. 174).

Figure 1: Knowledge Society Components





Source: Fang (2002, p. 6)

#### **2.2.4 E-inclusion in the Age of Digital Transformation:**

The study seeks to highlight the necessity of leaving no one behind during the digital transformation process. Throughout the literature, many scholars have addressed the importance of maintaining the accessibility and inclusion of internet services (Al-Muwil et al, 2019; Sofiane et al, 2007; Petrauskas et al, 2011). An equal opportunity should be given to everyone to receive, consume and interact with the internet services, including People with Disabilities and older generations (García-Crespo et. al, 2012). That is why, the Telecommunications Industry Association (1996) emphasized on the concept of accessible design which stands for maximizing the number of users who can benefit from the digital services regardless of their disability. Lazar et al., (2003) also argued that digital services should enable PwDs to interact and benefit from them in an accessible format.

In 1999, the Web Accessibility Initiative published a set of technical standards and procedures known as “Web Content Accessibility” (Ribera et. al, 2009). These standards represent guidelines that need to be followed in order to make the internet and its services accessible to everyone (Ribera et. al, 2018). Through the course of time, several versions of the guidelines were developed and published to meet the developments of the internet technologies (Web Accessibility Initiative, 2018). Currently, The WCA consists of four main principles stating that the online services must be: perceivable, operable, understandable, robust. Under these four principles, 12 guidelines outline the best approaches to achieve these principles (Web Accessibility Initiative, 2018). Inclusion of senior citizens is another important dimension that was tackled in the literature. According to Ciesielska et al. (2022, p.13), the topic of digital inclusion of elderly citizen is becoming a significant aspect of the discussions around social policies due to the increasing life expectancy rates and declining birth rates. After the

Coronavirus pandemic, the discussions on the best approaches to attain digital inclusion of senior citizens received noticeable attention. In their study that tackled the possible ways to enhance the digital inclusion of elderly citizens, Leea & Porumbescu (2018) argued that providing IT training and capacity building programs increase senior citizens ability to use e-government services. Meanwhile, Ferreira (2016, p. 38) argued that there is a big room for improving the digital inclusion of the senior citizens in the context of the developing countries.

### **2.3 The importance of digital payments for enabling e-government services:**

Currently, there is growing literature on the importance of e-payments in facilitating the transition into e-governments. Treiblmaier et al. (2006) highlighted that e-payments are essential to guarantee the full implementation of effective e-government systems as the goal of achieving fully developed e-governments would not be reached unless citizens would have the ability to safely and efficiently make online financial transactions (p. 38). In addition, Hasan et al. (2015) argued that the adoption of e-payments in the public sector would eliminate corruption, increase transparency, reduce citizens' direct interactions with public servants, and provides a reliable mechanism for citizens to report on corrupt practices, which leads to attaining the main targets of e-governments (p.54). Hasan et al. (2015) also stated that governments need to build digital payment gateways to enable citizens to fully use e-services and allow public authorities to collect revenues from the e-government services. On a related note, Azmi et al. (2016) claimed that the usage of e-payments within public administration would enhance citizens' perception of fairness and trust in the public entities, especially when the e-services would benefit citizens who have sensitivity to exchanging information and interactions with the public authorities (p. 407).

By looking at studies that addressed the adoption of e-payment in the public sector, it was observed that many scholars researched the topic within the context of developing countries. For

example, Zahari et al. (2014) investigated the factors that prevent citizens from using e-payments to receive public services, which, in return, hinder the efficiency of e-governments. Zahari et al. (2014) found that citizens' perception of the ease of usage and assumed risks along with their level of income are the main factors that affect citizens' willingness to use e-payments for paying the fees of public services (p. 43). Another study applied a mix methods approach to assess the effectiveness of the Tanzanian government program to apply e-payments for local revenue collection operations (Sasui & Metebe, 2021). The study concluded that applying e-payments has raised public revenues by 44.8% with decreasing administration costs by 27% in the period between 2015 and 2020 (Sasui & Metebe, 2021, p. 13). The study also highlighted that the system has enhanced the transparency of the local revenue collection process and improved trust between the government and citizens (p. 14).

The literature contains increasing discussion on the benefits of shifting the Government to Persons (G2P) payments such as wages and social financial transfers from cash into digital payments. Klapper and Singer (2017) stated that the transition to (G2P) digital payment would help governments reduce costs in the long term, especially when looking at large scale money transfers (p.213). Klapper and Singer (2017) also argued that digital payments would support governments in increasing the speed of payments, improving the security of financial transactions which would reduce the incidence of related crimes, and finally enhancing transparency and accountability (p.213). In a study that addressed the effectiveness of the Irish government program to use digital payments for social security transactions, Csáki et al. (2012) indicated that although some beneficiaries believed that cash is not the efficient way to receive social security payments from the government, they still prefer receiving payments in cash rather than e-payments because they were afraid to open bank accounts and expose their financials to

the government (p. 12). Csáki et al. (2012) also argued that measuring the impact of G2P e-payments should not only focus on the economic gains without considering the other variables (p. 1). In their study that examined G2P e-payments in Dubai, Al Marzooqi et al. (2017) argued that one of the main reasons for citizens' resistance to G2P e-payments is their fears of security breaches and lack of trust in online technologies (p. 1).

#### **2.4 Digital financial inclusion and its implications:**

Digital financial services brought by fintech and the other e-payment methods have become a key pillar in enhancing financial inclusion in developing countries and emerging markets (Khera et al., 2021, p. 4). Moreover, digital payments play an essential role in facilitating the digital transformation of services and societies as they shape the future of person to government (P2G) payments which would create wide positive returns on governments, citizens and the private sector (Fichers & Naji, 2021, p. 4). The more we approach the full transformation into digital-oriented societies, digital payments and financial technology services become essential aspects of such transition. However, before discussing the benefits and limitations of digital payment methods and the barriers in front of their wide adoption by a large number of citizens, it is critical to define the concept of financial digital inclusion (DFI).

According to Lauer and Lyman (2015) digital financial inclusion is defined as the use and access of traditional financial services through using digital means by excluded individuals. These digital financial services should be provided in a way that suits individuals' needs at a cost affordable for users and sustainable for service providers (Lauer & Lyman, 2015, p. 1). In simpler words, digital financial inclusion is about giving access to financial services provided by formal banks and financial institutions via digital channels that do not require direct interaction (Ismael & Ali, 2021, p. 4). Therefore, Ismael and Ali (2021) argued that digital financial

inclusion should be viewed as complementary to traditional financial inclusion rather than an alternative (p. 19). Meanwhile, Lutfi et al. (2021) provided another definition for DFI as they illustrated that it refers to the attempts to make digital payment services available and affordable to all citizens and entities despite their location, income, or institutional size.

Lauer and Lyman (2015) clarified that the existing model for digital financial service providers could be divided into four groups that have direct contractual relations with clients and users (p. 1). The first group consists of traditional banks that offer simplified ways to make money transactions and payments by using mobile phones or payment cards. The second group contains niche banks that provide limited financial services through using mobile devices or payment cards only (Lauer & Lyman, 2015, p. 1). The third group includes mobile network operators (MNO) that provide e-wallets and online money transfer services. Finally, the fourth group consists of non-bank and non-MNO fintech firms that offer different e-payment services (Lauer & Lyman, 2015, p. 1).

At a macro level, DFI and the transition into digital payments offer valuable opportunities to increase financial inclusion and integrate more citizens into the financial institutions. In return, this would enhance the national financial system stability, increase enterprises' access to financial resources, improve economic development and boost transparency to combat terrorism financing and money laundering (Lutfi et al., 2021, p.1).

From the individuals' perspective, Ozili (2017, p.330) highlighted that digital payment methods provide poor individuals, especially in developing countries, the opportunity to access banking services in an affordable, secure and convenient manner. It also contributes to reducing the costs of banking transactions, which would support the growth of e-commerce in addition to enhancing the national and international trade (Garrouch, 2021, p. 1574).

From the governments' perspective, Setor et al. (2021) argued that FDI and digital payments could be a vital tool for governments to reduce corruption and enhance transparency by eliminating the need for face-to-face or physical interactions, which could also lead to reducing black markets and narrowing the space in front criminal activities (p.3). However, Setor et al. (2021, p.7) also indicated that for FDI to be fully materialized, governments, especially in developing countries, must address several socio-technical issues relating to the lack of digital finance infrastructure, digital illiteracy, cultural perceptions, and poverty. Meanwhile, digital finance gives a platform that enhances the surge in aggregated spending which would help governments increase the tax revenue generated from the rise in the number of financial transactions (Ozili, 2017, p. 330).

## **2.5 Digital Financial Inclusion in Egypt:**

The financial technology industry is witnessing considerable growth as the number of fintech startups increased from only 2 in 2014 to 112 in 2021, making Egypt one of the top 4 African countries in this regard (Central Bank of Egypt, 2021). However, Egyptian economy remains heavily reliant on cash as the informal sector shapes almost 50% of the economic activities and cash payments constitute almost 55% of online purchases (Oxford Business Review, 2021, p. 25). Moreover, in 2020, only 8% of online transactions were made by e-wallets and just 27% of online purchases were done by cards (Oxford Business Review, 2021, p. 25). According to the Central Bank of Egypt (2021), only 11% of Egyptians rely on digital payment services. Kamel (2021) justified that the low online payment penetration rate is due to the low-level of financial inclusion in Egypt.

There are few studies that aimed to address the status of digital financial inclusion within the Egyptian context. In their paper, Ismael and Ali (2021) tried to explain the impact of

financial technology and digital payments on traditional inclusion. Ismael and Ali (2021) found that despite the low financial inclusion rates in Egypt, fintech seems to have a significant impact on increasing the rates of traditional financial inclusion (p. 28). Ismael and Ali (2021) also argued that the government should diminish digital inclusion barriers to include those who were excluded by the traditional financial institutions in order to fully utilize the full benefits of digital inclusion (p. 28). Moreover, they also noted that digital inclusion should be viewed as complementary rather than an alternative to traditional inclusion (Ismael & Ali, 2021, p. 28). Meanwhile, Hussein (2021) conducted a quantitative study using the World Bank Global Findex database to measure the relation between digital inclusion and financial inclusion in Egypt. Hussein (2021) indicated that the different fintech methods such as e-wallets and online card payments have a direct significant effect on traditional inclusion with a confidence level of 95% (p. 35).

Another interesting study was conducted by El Gohery (2019) to evaluate the implications of fintech on facilitating the accessibility, efficiency and availability of e-government services in Egypt. El Gohery (2019, p. 58) concluded that having bank accounts alone is not enough to enhance the efficiency of e-government services while the different types of e-payments have a significant effect on improving the efficiency, accessibility of e-government services but it does not really influence the availability. El Gohery (2019) recommended that the government could redesign its websites to facilitate the access and usage of e-payment for public services to all citizens.

## **2.6 Background of the Egyptian E-government Program:**

In 2001, the Ministry of Information and Communications Technology launched Egypt's E-government Program in coordination with the Ministry of State for Administrative

Development (MoSAD) (Zaied et al., 2017). The first Egyptian E-government Program consisted of two phases. The first phase (2001 - 2007) targeted facilitating the implementation of the digital transformation program through executing and assessing pilot projects while the second phase (2007 - 2012) aimed to expand the successful pilots on the federal level in addition to enhancing the administrative system in order to be integrated with the newly introduced digital system (Gebba & Zakaria, 2015). In 2004, Egypt launched its electronic portal, known as [www.egypt.gov.eg](http://www.egypt.gov.eg), which offered some services such as telephone billings, issuing birth certificates and so on (Gebba & Zakaria, 2015)

Although Egypt was among the first countries to launch its e-government program in the MENA region, the progress and outcomes was lower than other countries in the region (Ayman & Abd Al-Azim, 2016). For example, the UN E-Government Survey 2020 placed Egypt 111 out of 193 countries in terms of the e-government services which makes Egypt far behind other countries in the region such as Saudi Arabia that is ranked 43 and United Arab Emirates that ranked 21(p. 260). Interestingly, Gebba and Zakaria (2015) argued that the inefficient performance of the first e-government program was due to several legislative, economic, technical and cultural factors. Among the highlighted reasons was the low level of using online payment methods in addition to lack of trust in online payment as many Egyptians do not feel comfortable using electronic payment methods (Gebba & Zakaria, 2015). As a result, this has affected citizens' ability to use e-government services.

In 2018, the Egyptian government launched its second Digital Transformation Program to accelerate the transition into a digital economy and knowledge-driven society (IDSC, 2021). Accordingly, the government has spent around EGP 6 billion to enhance the technical infrastructure of the public sector through developing a fiber optic network linking almost 32,000



government buildings. The government also launched the Digital Egypt platform which aims to provide 550 e-services to all citizens across Egypt by 2024 (IDSC, 2021). Citizens can receive these services through paying the fees through payment cards and e-payment gateways. In 2022, President El Sisi inaugurated the first stage of Digital Egypt platform which allows citizens to access 130 e-services in the different fields (Alahram, 2022).

Throughout the literature, it could be observed that there is a lack of published qualitative studies that address the contextual factors that influence online payments and its implications on the realization of digital citizenship and e-government in developing countries. Understanding the cultural, behavioral, social, and institutional issues that affect citizens perception towards the usage of online payments in the public sector is a key factor in predicting the future of digital societies in developing countries. By looking at the Egyptian context, there is a scarcity in the scholarship that examine citizens' level of tendency to trust and accept the usage of online payments to apply and receive public services. The majority of the published studies focus on the availability of e-government services and its efficiency; but limited studies tackle citizens' acceptance of using online payments to receive these e-government services in the Egyptian context. As a result, this study uses qualitative approaches to understand the social, technical, and institutional variables that affect citizens trust in using online payments in the Egyptian public administration based on citizens' insights and experiences. The outcomes of this study are of value to policymakers and scholars who are interested in understanding the implications of online payments on digital transformation in Egypt and other developing countries that share similar demographic elements.

# Chapter Three

## 3 Conceptual Framework

### 3.1 Introduction:

As highlighted in the literature, citizens' acceptance of the adoption of online payments in the public administration is fundamental for the successful realization of digital citizenship and the implementation of e-government programs. If citizens are not willing to accept online payment methods, they will not be able to benefit from many of the e-government services. As a result, this would compromise their ability to interact digitally with the government, which is one of the cornerstones of digital citizenship. Accordingly, this increases the importance of understanding the degree of citizens' acceptance of financial technologies in the public administration. To do so, the study applies one of the technology adoption models to investigate Egyptian citizens' experience with online payments when interacting with the government.

Since the mid-20th century, the unprecedented level of advancement in technology applications and innovation has encouraged the emergence of technology adoption models and theories (Momani, 2020). These theories and models have been developed to present a framework that facilitates examining and understanding the reasons that make users accept or reject new technologies by addressing the technology's effectiveness, accessibility, complexity, and impact on users' lives (Momani, 2020).

Among the different models that were developed over the last decades, this study relies on the Unified Theory of Acceptance and Use of Technology. One of the main factors that nominated the usage of this model in the study is its ability to provide a multi-dimensional framework to understand the variables that influence citizens behavioral intentions to accept new technologies. Such a multi-dimensional framework is so helpful in developing deeper

understanding of the factors that affect citizens' perspectives regarding the adoption of online payments in the public administration. By looking at the Egyptian context, several studies relied on the UTAUT model to examine users' behavioral intention to accept different technologies (Esawe, 2022; Ali & Arshad 2016; Abdelhakima et. al, 2023). The significant value and accuracy of the results of these studies encouraged the current study to adopt the lens of UTAUT. However, it is important to mention that although most of the aforementioned studies used quantitative instruments, the current study relies on qualitative approach that aims to investigate the contextual factors of the issue.

### **3.2 Unified Theory of Acceptance and Use of Technology (UTAUT):**

The UTAUT model was first introduced by Venkatesh, Thong and Xu in 2003 as a result to their research project that aimed at reviewing eight technology adoption models (Lim et.al, 2019, p.80). These models include the Technology Acceptance Model (TAM), Theory of Planned Behaviour (TPB), the Theory of Reasoned Action (TRA), Innovation Diffusion Theory (IDT), Model of PC Utilization (MPCU), and Motivational Model (Lim et.al, 2019, p.80). Each of these models aimed at explaining different patterns of the human behaviors and intentions. Therefore, the UTAUT model was designed to present a unified framework that compromises the main characteristics and features of the aforementioned models (Lim et.al, 2019, p.80). According to Chao (2019, p. 3), the UTAUT is the most effective model for assessing the level technology adoption and acceptance.

Chiemeke and Evwiekpaefe (2011, p. 3) clarified that the UTAUT model has four main dimensions: Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), and Facilitating Conditions (FC). **PE** seeks to evaluate how far users believe that the new technology will help them improve the performance of a given process while **EE** assesses the degree of

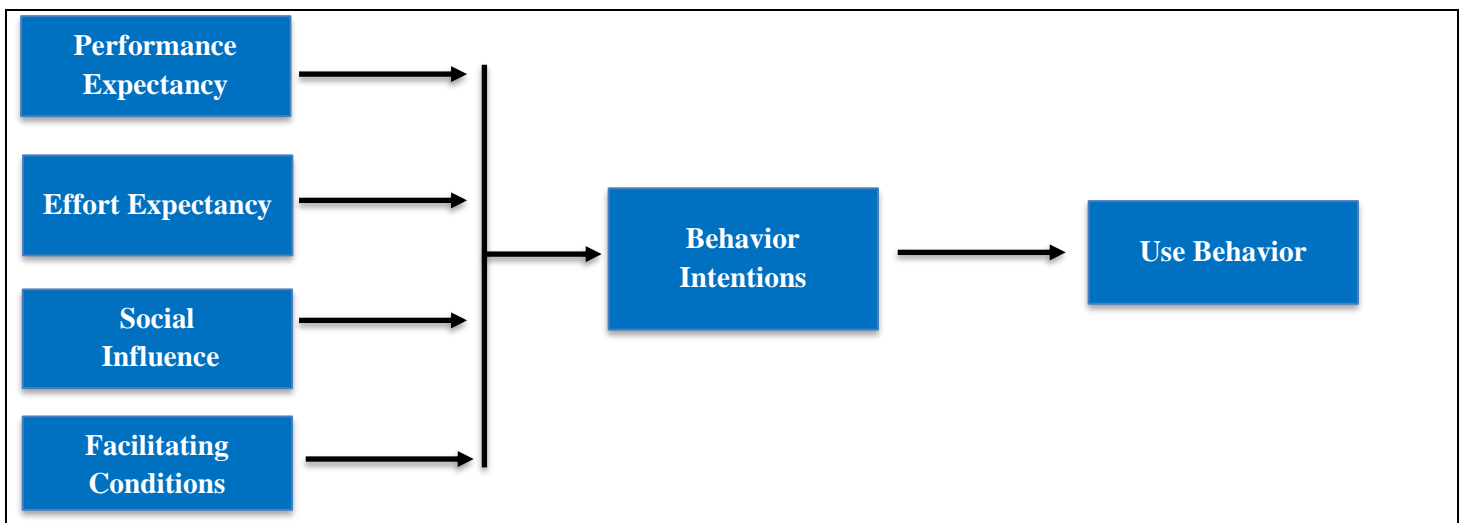
difficulty to use the new technology (Venkatesh et al., 2003). **SI** measures to what extent people think that it is important others believe they must use the new technology and **FC** represents the degree to which people think that specific institutional and technical infrastructure exists to support the reliance on a new technology (Venkatesh et al., 2003). Furthermore, the model also contains four other moderators that affect the use of technology which are the age, gender, experience, and desire to use the technology (Chao, 2019, p.3)

Several studies have used the UTAUT model to understand the reasons that support/hinder the adoption of digital payments in different contexts and countries. For example, Tang et al. (2014) applied multiple regression analysis to survey data to evaluate users' willingness to adopt digital payments in Malaysia within the scope of the UTAUT. Tang et al. (2014) found that users' perception of technology effectiveness and their ability to use the technology along with the available preconditions and infrastructure highly influenced users' acceptance of digital payments in Malaysia, which confirms the assumptions of the UTAUT model (Tang et al, 2014, p. 260). Another study was conducted by Baishya and Samalia (2020) to address the barriers in front of smartphone adoption by low-income citizens in developing markets through using the UTAUT model. The study resulted in similar findings that confirm the hypothesis of the UTAUT model (Baishya & Samalia, 2020, p. 1). In the African context, Gholami (2010) used the UTAUT model to investigate the factors that influence people's intentions to use e-payments in Nigeria, given the fact that the country has a low e-payment usage rate. Gholami (2010, p. 1) found that the assumed benefits, trust, social influence and other demographic factors affect users' willingness to use e-payment.

### 3.3 Research Model:

In this study, the UTAUT model is used to explore the factors that affect citizens' willingness to adopt digital payments to receive public services. Moreover, the study relies on the model to explain how this could influence Egypt's e-government program and its implications for the future of Digital Citizenship in Egypt.

- Figure 2: Unified Theory of Acceptance and Use of Technology



Source: Venkatesh et. al, 2003, p. 447

As per the model, my research revolves around 4 main dimensions. The first dimension, which relates to performance expectancy, seeks to understand how citizens' perception of online payment's impact on enhancing the performance of the public sector would affect their tendency to adopt it. The second dimension looks at how the amount of effort required to use online payment would affect citizens willingness to use it. On other words, the study would be looking at the ease-of-use and its implication on citizens decisions. The third dimension would address how surrounding social circles and networks influence citizens level of acceptance. Finally, the last dimension would discuss how the availability of required technical and institutional facilitating conditions affect citizens behavioral intentions.

# Chapter Four

## 4 Methodology

### 4.1 Research Design:

The study uses a qualitative approach to examine the different behavioral and institutional dimensions that affect the wide adoption of digital payment in the Egyptian public sector in light of the Unified Theory of Acceptance and Use of Technology (UTAUT). In general, qualitative research has been used widely in many fields and disciplines over the term of history as social research started with methods and approaches that could be described as qualitative research (Flick, 2018).

According to Denzin & Lincoln (2005, p. 3), “Qualitative research is a situated activity that locates the observer in the world. It consists of a set of interpretive, material practices that make the world visible. These practices transform the world”. Therefore, qualitative research seeks to examine phenomenon and issues in their natural conditions in order to understand and interpret issues in terms of their meanings to individuals by simply considering people’s attitudes and perceptions (Denzin & Lincoln, 2005, p.3).

The usage of qualitative approaches in the field of public administration could be traced back to the time of Max Weber, who emphasized on the importance of using qualitative evidence in order to understand human behavior (Weber, 1981, p. 151). Meanwhile, Riccucci (2009) argued that since the public administration can never be classified as a pure science that have similar characteristics to the physical and natural sciences, there is a significant need to apply different approaches and methods to study public administration as it is not only controlled by a paradigmatic base (p.9). In this regard, qualitative research provides reliable approaches and techniques that seek to focus on the social context in a way that sees the world as a holistic and

complex (Marshall & Rossman, 2016, p. 3). These qualitative approaches rely on systematic inquiry through considering insightful case studies, highlighting complicated personal journeys, and providing rich descriptions of participants' demographics. (Marshall & Rossman, 2016, p. 3).

Due to the lack of qualitative research that attempted to study the issue of applying online payments in the public sector in Egypt from a contextual perspective. This study aims to answer the different aspects of the research question through the lens of citizens. That is why, the study relied on gathering the insights and experiences of various citizens who belong to different age, educational, social categories. The rationale behind this variation was to observe the differences in thoughts and perceptions among the different groups, allowing the study to understand citizens' intentions to adopt the usage of online payments in the public sector. In addition, this helped the study to trace the different social, political, and economic factors that influence citizens' perception and how they affect them. The aim of this process was to provide insightful recommendations to policymakers through examining citizens' experiences and attitudes in a systematic way that empowers them to express their views and ideas. As a result, this could enable policymakers to develop more understanding of citizens' context and how to design citizens-centered policies that consider the needs of citizens.

However, it is also important to emphasize that sampling in qualitative research does not claim a high degree of sample representation (Barsoum, 2021, p.777). Instead, sampling in qualitative research aims to concentrate on specific cases that can explain or enhance our understanding of the examined issue (Neuman, 2011, p. 40). Accordingly, qualitative research could be classified as an interpretive approach, which concentrates on the meaning that people associate with their behaviors and actions (Barsoum, 2021, p.777)

## **4.2 Data Collection & Sampling:**

The study conducted a group of in-depth interviews that aimed at generating more contextual insights about the factors and elements that make citizens use/avoid digital payments. In total, the study conducted 25 interviews, representing the citizens and the government perspectives. Some of these interviews were done physically and other were conducted over the phone based on the availability of the interviewees. At the beginning, the study relied on personal connections to interview citizens who fit its initial demographic sampling criteria. After that, the study used the snowballing technique through asking interviewees to suggest potential participants who have relevant knowledge and experiences to the scope of the study. This empowered the study with the required sampling flexibility to reach interviewees who have valuable insights and experiences to share based on the emerging discussion items. This also allowed the study to consider interviewing new samples and categories that were not identified ahead of the data collection stage. As a result, this strengthened the depth and richness of the outcomes. Although there were a group of questions that were common across the different interviews, more questions were added based on the generated themes from the interviews. The aim of this was to cover the new inquiries and questions that emerged from citizens' interventions and clarification.

For the citizens interviews, a set of interviews were conducted with 20 interviewees who belonged to 4 age groups. The first age group consisted of those who were in the age category between 18 and 30 while the second group contained citizens aged between 31 and 40. The third group consisted of citizens who were between the ages of 41 and 50 while the last group contained senior citizens who were above 50. The rationale behind dividing the citizens into different age groups is to examine how the different age groups react to the questions and how



they perceive the issue of the study. The basic assumption was that the younger generations should have more access and skills to use the e-payment technology than the older generations. This could also affect their level of trust and reliance on the e-payment methods.

It is also important to mention that within of the different age categories, citizens came from different economic, social, and educational backgrounds. Some of the participants had a high level of education, graduated from a university, and even pursued post graduate studies, while others had middle or low level of education. Participants also had different employment backgrounds as some of them worked in the public sector while other participants worked for the private sector or were unemployed. The diversity of backgrounds was a key factor in providing a comprehensive view that consider the different perspectives. This was evident in the variation in the participants' views and reactions concerning the same points, which was helpful in ensuring the credibility and validity of the results.

Moreover, based on the emerging themes of the interviews, the study considered the inclusion of People with Disabilities (PwDs) and some experts in the field. The idea behind this within-category sampling was to observe how citizens with different backgrounds within the same age group perceive the issue of study and how it differs from one age group to another. In return, this should lead to a more comprehensive and holistic outcome as the results relied on a wide range of different experiences and perceptions.

After that the results of these interviews were shared with 2 government employees and 3 field experts who are concerned with digital transformation and the usage of online payments within the public sector. This stage aimed at collecting public servants' interactions and feedback on citizens' insights and perceptions in order to confirm or provide more clarification from the government's perspective. In addition, some of the public servants who were interviewed

illustrated how the government thinks of the citizens' attitudes and challenges and how the government are planning to address these challenges. Accordingly, this helped the study in formulating a set of policy recommendations that focus on the citizens' observations and perceptions but also consider the government perspective and assessment of the status quo.

For data analysis, relied on analyzing citizens' insights and perspectives based on the main dimensions of the UTAUT model. The purpose of this was to explore citizens alignment and agreement with the assumptions of the model. However, the study also partially used the grounded theory to investigate emerging themes and dimension that came out of the discussions and were not part of the model. The grounded theory is a prevalent methodology in the field of social sciences, which seeks to discover or develop a theory from the data after systematically collect and analyze them using the comparative analysis methods (Tie et al., 2019, p. 1).

According to Charmaz (2010, p. 155), grounded theory is useful in reducing preconceived insights and expectations about the research problem, being flexible and open to the different expectations to the phenomenon, relying on data analysis to build middle range theories. In general, all interviews were transcribed and coded using the triangulation technique. After that, the findings and outcomes were compared and analyzed in light of the UTAUT model, earlier literature, and the published reports on the topic. Moreover, the findings and initial analysis were shared with the interviewed sources to receive their feedback and comments to validate the findings.

As clarified earlier, since qualitative research does not claim sample representation, the main limitation of this study is that the results do not claim a representation of the whole population but rather provides descriptive insights that focus on the experiences and cases on specific individuals. Nevertheless, to address this limitation, the study tried to develop a flexible

sampling structure that include different participants who share different backgrounds and expertise to provide a sense of representation. At the same time, the study also followed the snowballing technique to interview more citizens based on the need.

#### 4.3 Interviews Key Themes:

The interviews tried to discover and examine citizens’ perception and attitudes towards the usage of online payment in the public sector through the lens of 5 main initial themes. However, throughout the interviews, more themes and areas of inquiries were added to the research’s scope. The initial themes used the conceptual framework of the UTAUT model which outlines the key dimensions that affect users’ tendency to use a new technology. The following table shows the key dimensions of the interviews scope of research:

- Table 2: Interviews Questions Key Themes

Theme	Research Scope
<b>Performance Expectancy</b>	How citizens’ perception of the online payments potential to enhance the efficiency of public administration affects their intentions to use it.
<b>Effort Expectancy</b>	How citizens’ perception of the complexity of the online payment methods affects their intentions to use it.
<b>Social Influence</b>	How networks and surrounding community influence citizens’ tendency to use online payments to receive public services.
<b>Facilitating Conditions</b>	How citizens perceive the existing online payment institutional and technical infrastructure in the public sector.

<b>Age</b>	How age affects citizens tendency to replace cash with online payment in the public sector.
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Source: Venkatesh et. al, 2003, p. 447

#### **4.4 Ethical Considerations:**

To meet the instructions and guidelines of the AUC's Institutional Research Board (IRB), the following ethical considerations were implemented throughout the data collection process. Ahead of the interviews, all participants were fully informed of the full details of the research questions and the used data analysis techniques in the thesis. Moreover, the names, titles, or any personal information that could expose the identity of my sources were anonymized to avoid any conflict or harm that could occur in the future for the participants. At a later stage, a brief recap of the emerging themes and main takeaways generated from the interviews were shared with each participant to increase the validity and credibility of the data and to receive participants' approvals on these items. Furthermore, the contact details of the researcher were shared with the participants to allow them to know whom to contact in case they have follow up questions in the future or to report any harm that occurred because of their participation in the study.

## **Chapter Five:**

### **5 Investigating Citizens' Perspectives and Lived Experiences:**

Since this study used the qualitative approach to address the issue of using online payments in the public sector, several in-depth interviews were conducted to add more depth to the findings. In this regard, this chapter seeks to outline and address the main issues and themes of discussion that were raised throughout the in-depth interviews.

The first section discusses citizens' perspectives on the impact of using payments on enhancing the efficiency of the Egyptian public sector. Afterwards, the second section examines the role of ease-use and user-experience in influencing citizens' tendency to adopt a new financial technology in the public administration. Moreover, the third section investigates how personal networks and surrounding community affect citizens' attitudes regarding the issue. The fourth section looks into the different institutional and technical conditions that are required to create a conducive environment for the adoption of online payment in the public administration. After discussing the main dimension of the UTAUT model, this chapter investigates other dimensions that emerged throughout the interviews. Therefore, the chapter discusses citizens' feeling of safety and trust and their effects on the issue. Meanwhile, the chapter also highlights the experiences of citizens with disabilities and those who do not have adequate digital skills.

In general, although a big number of the participants indicated that they use online payment methods in paying for goods and services, fewer participants mentioned that they use online payments for applying to public services. The reasons for this reluctance to use online payments in the public sector is due to several technical, institutional, and behavioral aspects that will be addressed in this chapter. Interestingly, despite the wide recognition of the online payment methods' benefits and positive implications, many participants reported their concerns

and doubts about the expediency of using them in the Egyptian public sector. It is was noticed throughout the interviews that there was a big variation regarding the level of trust in the adoption of online payments. While some participants showed high level of trust and excitement for the usage of online payments in the public sector, others expressed their lack of trust and confidence.

### **5.1 Online Payments and Enhancing the Efficiency of the Public Services:**

According to assumptions of the UTAUT model, one of the main factors that influences citizens' intentions to use/not use online payment methods in the public sector is their perception of how it will affect the efficiency of the process (Venkatesh et. al, 2003). If online payment methods could contribute to facilitating and improving the process which citizens have to go through to apply and receive public services, the number of citizens who rely on them would definitely increase. Many interviewees mentioned that they believe that the wide adoption of online payment would facilitate and enhance the process of public service delivery as they would not need to line up in long queues to pay for the public services which saves time and effort. A female interviewee who received a university degree and currently works in a government agency that regulates the pharmaceutical industry said that:

“Of course, the idea of paying online for the public services makes my life much easier. First of all, I did not need to take a day off in order to go to the relevant agency that implement the service. Furthermore, there was no need to take my car and experience traffic jam as I can easily finish the process online. However, the biggest advantage for me is that it would make me overcome the crowded public agencies as I had to wait for hours in the civil registry offices in order to issue a national ID. ( Respondent 8, November 2022).

By looking at the point raised by this interviewee, many flaws of the current bureaucratic system in Egypt can be identified. Due to the high demand on many public services and the limited number of offices that provide these services, many public offices are crowded with full of service users. Accordingly, service users or recipients have to wait for long hours in order to get their service done, and in many cases, they fail to finish their service in one day which requires them to visit the public offices more than once to get the job done. This forces many citizens to take days off in order to apply or receive basic public services such as receiving national ID, birth certificate or obtaining police clearance on criminal records. As a result, this poses a burden on service users as well as to their employers.

Another interviewee who holds a master's degree in public administration and familiar with the Egyptian bureaucratic system clarified the following:

“Few months ago, I needed to renew my driving license. Because I was not familiar with the process, I had to receive some help using my networks and connections. However, this did not really help me as I had to take a full day off in order to finish the process, which I found so time and effort consuming. If there was an option to pay online and complete the process online, I would not hesitate to use it. Even if this would cost more money. (Respondent 3, Interview, October 2022).

These insights of this interviewee confirm that the long queuing and time-consuming process is not pertaining to one government agency or specific public service. In fact, it is a prevalent feature of the Egyptian bureaucracy, which makes many citizens have serious concerns about the efficiency of the Egyptian bureaucratic system. That is why, some citizens see online payment as a solution to the flaws of the current system as it provides an alternative solution that facilitates the provision of e-government services which saves time, money, and effort.

The effects of online payments would also reach those who have no ability or access to online payment methods. One of the interviewees who is in his mid-20s elaborated on this point by stating that:

“I believe that paying online would benefit everyone, including those who have no access to online payment methods. If 50% of the citizens applied and paid for the service online, this would leave more space to those who have no access to the e-services, which will reduce the congestion at the public offices”. (Respondent 2, Interview, October 2022).

This perspective introduces online payment as a practical solution to solve one of the biggest challenges that faces the Egyptian public administration. Instead of increasing the number of public offices and public officials, encouraging more citizens to use e-services would benefit other citizens who are obliged to request the service physically. From the public officials’ perspective, this would also reduce the load of work and pressure since they will directly deal with fewer number of citizens. Accordingly, this should improve the efficiency of the offline and online services.

#### **5.1.1 Online Payments and Cost Reduction:**

Speaking of the indirect costs of the current offline public service processes, some of the interviewees who are in their late 30s and mid 40s highlighted that they cannot waste time in queuing for applying to public services. This is because of their work obligations as they hold executive and managerial positions, which obligates them to spend their time wisely. A 42-year-old male doctor who hold a very senior position at a reputable hospital that provides free healthcare services to citizens commented on the point of using online payments for public services saying:



“In general, I believe that people at my age are in severe need for online payments that enable online public service delivery because we hold executive positions that demands time and dedication. Therefore, our time is valuable, and we cannot afford wasting hours in order to receive public services that could be implemented in much easier ways. (Respondent 14, Interview, November 2022).

The opinion of the respondent 10 advocates for the need to consider the indirect costs which the implementation of the online payment systems could overcome. Although the quote focuses on citizens who are in executive and senior positions, the issue of indirect costs affects all citizens in the different stages of the career ladder. Therefore, from an egalitarian point of view, the e-government services should be considered as a solution that equally enhance the efficiency of the service for all citizens.

### **5.1.2 Online payments and Corruption Elimination:**

Other points that relate to enhancing the efficiency of the system revolves around the online payments’ ability to curb all forms of corruption, including bribery. The direct interaction between citizens and public officials opens the door for corruption and misuse of power as some public officials exploit their position in making profit. However, separating the service provider from the service beneficiary could set barriers against corrupt practices, which in return enhance the integrity, transparency, and efficiency of the system. One of the interviewees, who is in his 40s or 50s, spoke intensify about this point:

“The fact that I deal and pay directly to public employees opens the door for what I call it extra unofficial fees. These unofficial fees could be obligatory bribe that I have to pay to get the service done or voluntarily contributions that citizens give because they emphasize with the low-paid employees”. He also added that “One day, I went to pay for a specific service, and I was surprised when the employee gave me the

invoice because it was less than what I actually paid. At this point, I did not really understand the reason why there is a discrepancy between what is officially written in the invoice and what I actually paid.” (Respondent 14, Interview, November 2022)

This discussion highlights a very important aspect of the process’s lack of efficiency. According to the interviewee, the usage of online payments would reduce the costs of public services. This would occur because the fact that citizens would not need to pay any extra voluntarily/involuntarily unofficial fees. According to the Corruption Perceptions Index of 2021, which ranks corruption in given country on a scale from 0 (very corrupt) to 100 (very clean), Egypt’s scored 33 points out of 100 (Transparency International, 2021). The same index also ranked Egypt 117 out of 180 countries in the list while Denmark, Finland and New Zealand shared the first rank (Transparency International, 2021). As a result, the wide adoption of online payments in the public sector could curb corruption and strengthen the government’s ability to monitor the integrity and transparency of the system as all the transactions will be recorded and registered on the system.

### **5.1.3 Challenges and Obstacles:**

Despite the positive perception regarding how online payment methods could enhance the efficiency of the public service, some interviewees raised several legitimate concerns about the expected efficiency and effectiveness. One of these concerns pertains to the fact that not all the online public service are fully digital. Currently, the government’s online platform only allows citizens to apply and pay for several services online, but they still need to go to the public offices at some point to complete the process. This made many interviewees doubt the impact of online payment on improving the efficiency of the services. A 34-year-old female interviewee addressed this issue by saying:

“As long as I have to go to the public offices physically to receive the service, I see no point in paying online then. Actually, I prefer to pay cash in this case to make sure that my request is under processing.” She also added the following story “I needed to issue a copy of my graduation certificate. I heard that there is an option to apply and pay for the service online, which I did. However, I was so unhappy of this experience because I had to visit the alumni affairs office more than one time to receive my certificate”. (Respondent 18, Interview, December 2022)

This intervention sheds the light on a very critical point of the digital transformation process, which determines the effectiveness of e-government services. Online payment is one step in the digital transformation process that includes several components and dimensions. Therefore, unless the different components of the e-government services are available and integrated, the positive outcomes of online payment would be compromised and wasted. In this context, instead of improving the efficiency of the process, online payments could reduce the efficiency if it was not well-integrated with the other components of public services process.

#### **5.1.4 Performance Expectancy in the Lens of the UTAUT model:**

In general, by looking at the findings of the discussions, it could be observed that the responses of the interviewees confirmed the UTAUT model’s basic assumption. The theory argues that citizens will have more tendency to accept the usage of online payment in the public administration if they believe it would enhance the efficiency of the public services processes (Venkatesh et al., 2003). As it could be noticed from the interviews’ responses, citizens highlighted that enhancing the efficiency of the e-government services is a critical factor in determining their intentions to adopt online payment in the public sector. Therefore, online payments need to improve the effectiveness and efficiency of the e-government service delivery

process (Venkatesh et al., 2003). Otherwise, citizens will stick to going through the traditional process, which requires them to physically apply to the service and pay in cash.

## **5.2 Ease of Use as Driver for Online Payment Adoption:**

As per the UTAUT model, the ease of use of a specific technology plays a crucial role in determining the tendency of users to use or avoid this technology (Venkatesh et al., 2003). The more user-friendly any technology is the more users will be willing to use and adopt it in their everyday lives (Venkatesh et al., 2003). By exploring the online payment methods and their usage in the public sector, interviewed participants endorsed this assumption. The majority of them clarified that the extent to which a government platform is user-friendly determines their tendency to use this platform to apply and pay for the service online. They also added that the user experience and the quality of the website's design enhances their trust in the legitimacy and efficiency of the platform.

A 24-year-old interviewee who identified himself as a heavy user of online payment methods for commercial purposes said:

“For more, the easier user experience I have, the more trust I have to use this online platform. If you compare the application of Fawry and Aman (Online Payment Apps), I prefer to use Fawry because it is much easier, and steps are pretty straightforward. On the other hand, Aman is more complicated, and I feel I get lost while I am using it.” (Respondent 1, Interview, October 2022)

A similar point of view was also raised by another interviewee who said:

“What makes me decide whether to pay online or cash is the amount of effort and time that I have to give. When I find myself need time to understand the steps and how to do it, I usually decide to go and pay it cash”. (Respondent 12, Interview, November 2022)

These comments were made by a young well-educated service user who can be classified as a tech-oriented citizen. By looking at older citizens who have less technology knowledge and capacity or the victims of digital divide, particularly in developing countries, the issue of ease of use would be much more crucial. In their study that aimed to examine the different factors that affect online payment adoption across the different generations, Riskinanto et al. (2017) found that the perceived ease of use is the most significant variable in influencing online payment adoption across the different age groups.

In the past, the Egyptian governmental website was known for lack of interaction and user-centricity as it did not consider the provision of a user-friendly interface. In their study that conducted a content analysis to a group of Egyptian public website, Youssef and Morsy (2017, p. 7) clarified that most of the governmental websites only passes the first stage of the e-government maturity model which is known as the Information stage . At this stage, the website only provides static information with minimum interaction between the citizen and the government (Youssef & Morsy, 2017, p. 7). Another study was conducted by Abdelsalam et al. (2011) to analyze the maturity of 22 local governments' websites in Egypt and they found that most of the local governments' websites are still in the first stage of maturity with limited provision of e-services.

This perception was evident in the interviews as many of the participants expressed their concerns and doubts about the public websites in terms of designs and user-experience. One of the Interviewees who explained why he was not keen on exploring the governmental e-services by stating:

“Based on my experience with the government, they usually fail to produce online platforms that are user-friendly and have good quality. Whenever I use a government website, I also fear it may crash, or something would go wrong. Compared to the

private sector, the quality of the design and the interface of the government's website are not that good". (Respondent 5, Interview, October 2022)

The interviewee also added the following:

"I heard that there has been a possibility to issue the national ID online, so I tried to apply and pay for it online. However, I felt that there have been lots of details and steps and could not understand what to do. Therefore, I decided to go to the ID office and ask for the service physically because I felt it would have been easier this way."

(Respondent 20, Interview, December 2022)

This comment reflects a serious issue regarding the citizen's perception about the ease of use of the government digital services and their level of reliability. However, it is important to also mention that the Egyptian government has recently launched Digital Egypt platform to provide on single window to digital public service in accordance with the international standards in order to overcome this issue.

### **5.2.1 Standardization and Discrepancies in the Digital Public Services:**

Interestingly, despite the Egyptian government efforts to standardize and gather all the public digital services on one platform, several key e-services are still offered through different platforms by the time of writing this study. One of these services was the electronic tax filing, which was recently introduced and enforced by the Ministry of Finance to improve tax collection process and curb tax evasion. This service is not yet offered through Digital Egypt platform but rather through the Tax Authority Website. Regarding the user-friendly design of this platform, one of the interviewees who works in an accounting firm and uses this website frequently to complete tax filling reports for her clients stated:

"I see the process of paying the taxes electronically is a bit complicated as the platform forces you to go through several steps which makes some users get lost.

That is why, I used to draw guidelines and instructions to help my clients navigate through the platform and complete the tax payment process. (Respondent 11, Interview, November 2022)

On the other hand, other interviewees who used Digital Egypt platform to apply and pay for one of real estate registry services expressed his satisfaction and happiness about the process. He said the following:

“I want to make a power of attorney to one of my relatives and I heard I can do it through Digital Egypt platform. Therefore, I decide to try the new digital service because I do not like to waste my time and energy queuing at the public offices. So far, I have very good impression about this experience as I managed to apply for the service and pay online with no complications. However, I had to go to the real estate registry office to sign some documents and receive the letter. (Respondent 4, October 2022)

These different experiences highlight a serious issue with regard to the discrepancies of the user experiences between the different public digital services. As a result, this affects citizens’ perception of the public digital services in general and how far it could be considered user-friendly and accessible. Standardization of the government’s portals designs, and interfaces is a key aspect in enhancing citizens’ perception and experiences. Especially when it comes to online payment, the interviewed participants reported they feel more comfortable and secure when they go through online payment process which they are familiar with. The more standard procedures and steps they have to follow in order to complete the transactions, the more comfortable they feel about using online payments. That is why, the International Telecommunication Union along with other International stakeholders launched the Govstack initiative to help governments standardize the software and design specifications for public digital portal in order to enhance

user experiences and accessibility across the different portals on the local and international levels (Govstack, 2022).

### **5.2.2 Online Payments and Effort Expectancy:**

All in all, throughout the interviews, participants confirmed the assumptions of the UTAUT model regarding the effect of effort expectancy on the technology adoption. The majority of respondents clarified that their perception about the ease-of-use of online payments methods influence their intentions to rely on them in the public administration. It was also argued that the users' experiences play a significant role in affecting citizens' tendency to adopt online payments. Accordingly, many of the interviewees argued that the government need to consider the development of easy-to-use online platforms; and most importantly, make sure that the online process is standardized across the different public entities.

### **5.3 Social Influence & Online Payment Adoption:**

Based on the assumption of the theory, the prevalence of a specific technology in a given community or society plays an important role in influencing citizens' or service users' tendency towards using this technology (Venkatesh et al., 2003). Financial technology is no different than this case. Therefore, by bringing the UTAUT model into the scope of the study, the more positive experiences people report about using online payment, the greater number of citizens would be encouraged to use these financial technologies. The interviewed participants confirmed that when it comes to money, people prefer to carefully listen to others' experiences and comments. The word of mouth shapes a critical part of citizens tendency to use online payments when they request digital public services. One of the interviewees illustrated that her close circles played a big role in encouraging her to use online payments by saying:

“For me, I believe that people around me influences my decision to use or avoid digital technology, especially when it comes to money. For example, I heard from my



friends that paying the natural gas bill online is much easier than the regular cash method. Ever since, I have been using online payment to pay the utility bills.”

(Respondent 16, Interview, December 2022)

Another interviewee who believed in the importance of social influence in expanding the reliance on online payments in the public sector stated

“Recently, more and more people are paying their driving fines online due to the positive feedback that this service has been receiving from citizens. If I had a car, I would have been using this online service because of the nice experiences that I receive from my network. (Respondent 13, Interview, November 2022)

As it could be observed from the aforementioned quotes, social influence positively influences service users for the acceptance of online payments. As positive experiences and feedback leave good impression on citizens’ tendency to use online platforms to pay for public services, negative experiences lead to even greater impact causing big resistance to the usage of online portals. That is why, governments need to consider citizens’ experiences seriously and make sure the governmental online portals have adequate citizens’ satisfaction levels. Otherwise, this would challenge government’s efforts to encourage citizens to embark on using online payments.

The lack of awareness and strategic public awareness campaigning is also another point that strengthened the role of social influence in affecting citizens’ attitudes. Due to the limited presence of national awareness campaigns that explain to citizens how to access online payment methods to receive public services, many citizens rely on users’ experiences as their main source of credible information. Moreover, many citizens are not aware of all the available public services that could be paid online and how to request these

services. A well-educated interviewee who works in the development sector commented on this issue by saying:

“Media and the government have a vital role in raising people awareness on the available digital services that the government offer. The government should design outreach strategy to educate citizens on how to use these online payment services in a safe way instead of letting them be a victim of fraud and cybercrimes.” (Respondent 7, Interview, October 2022)

Accordingly, the development and implementation of public and outreach strategies is a key factor in influencing the public opinion towards the usage of online payments in the public sector. Providing a credible and accurate information about the available services helps citizens build informative opinion regarding the usage of e-government services and promotes trust in them.

One of the interviewees also highlighted a critical issue on the voluntarily nature of using the online payment methods. In some public offices, the government forces citizens to use their debit or credit cards as they do not accept cash anymore. However, because some infrastructure and lack of awareness issues, some citizens have negative perception regarding the usage of cashless payment methods. Therefore, the government needs to be careful before forcing citizens to use the online services. The interviewee commented on this point by saying:

“If the government started to force citizens to use e-services and pay online before making sure that all the required technical considerations are well-handled, this could cause technical issues that would inflict citizens’ tendency to use the e-services” (Respondent 17, Interview, December 2022)

Creating a conducive environment for digital transformation that could guarantee the implementation of digital transaction is a fundamental component of increasing citizens trust in the system. If citizens experience technical challenges that hinder the efficiency of the system, this will create negative public opinion against it. As a result, this would compromise the results of the government's media and outreach campaigns as citizens have tendency to value the experiences of their networks and social circles over the official statements. Therefore, before embarking on designing and implementing any media campaigns or branding strategies, the government needs to ensure that the required technical infrastructure is operating effectively and efficiently. Otherwise, such outreach efforts would have negative effects on the system reputation and perception.

#### **5.4 Facilitating Condition for the Online Payment Adoption:**

In the UTAUT model, the availability of the required facilitating conditions is fundamental to guarantee the adoption of specific technology by the users. Accordingly, the absence of such facilitating conditions will hinder the acceptance of technology by the end-users. Therefore, for online payments to be successfully adopted in the public sector, a set of institutional and infrastructural conditions must be available. The lack of such institutional or infrastructural conditions would affect the efficiency of the system which would in return reduce citizens' tendency to rely on online payment methods. The institutional conditions consist of the presence of regulatory and legislative frameworks that allows online payments, existence of adequate human digital capacity at the citizens and public servants levels, and availability of institutional standard operating procedures for handling issues and problems. On the other side, the required technical infrastructure includes the availability of reliable internet infrastructure,

secure government portals and servers, and efficient electronic money transaction applications and systems.

#### **5.4.1 Technical Facilitating Conditions:**

When the interviewees were asked about their opinion regarding the existence of facilitating conditions in the Egyptian context, many of them showed legitimate concerns and doubts. The majority of them indicated that they do not believe that the Egyptian public sector has technical infrastructure that is required to facilitate the adoption of online payment. One of the interviewees indicated that the government intentions to encourage online payments only is not enough. This should be accompanied with a comprehensive vision that considers the available infrastructure and the other technical capacities. In this regard, she stated:

“When the government decided to develop the education system, they came up with an ambitious plan to distribute electronic tables to all students in the different stages of the education system. The idea was to empower students at young age to use digital technology and get rid of the traditional textbooks. However, the outcome was catastrophic as they realized after distributing the tables that many schools did not have electricity and not even Internet”. (Respondent 11, Interview, November 2022)

As this example might be irrelevant but it provides a good case on how ambitious plans that do not meet the limitations of reality lead to disappointing results. When looking at the public online payment portals, the government needs to guarantee that these systems are designed and developed based on the international specifications and standards in order to guarantee its efficiency. This point is critical as citizens’ tendency to use these online payment methods depends on their perception of the technical and institutional infrastructure. Commenting on this issue, one of the interviewees who works for the government and familiar with the conditions of the public institutions stated:

“Many of the public offices they do not have access to the Internet. Many of them, they do not even have functioning computers. Therefore, it is impossible to integrate these public offices to the online system unless they get renovated and equipped with the required digital infrastructure.” (Respondent 8, Interview, November 2022)

She also added that:

“If you look at people in the rural areas, many of them do not have access to sufficient internet networks. Therefore, how come you ask them to use online payment methods to receive public services.”

By looking at the international reports, although Egypt ranks among the top performing African countries in terms of ICT development, the country has a less advanced rank on the international level. According to the United Nations 2022 E-Government Development Index (EGDI), which considers the quality of online services, status of digital infrastructure, and human digital capacity, Egypt ranks 103 out of 190 countries. In the United Nations E-Participation Index (EPI), Egypt ranked 107 out of 190 countries in 2022. This shows that Egypt still has a long road to enhance its digital infrastructure in order to meet the international standards for digital transformation.

#### **5.4.2 Institutional Facilitating Conditions:**

The interviews also tackled the institutional aspects of the issue. One of the main concerns that were repeatedly expressed in the interviews was the absence of clear mechanism for solving problems and complaints that could take place. Participants clarified that they are not sure what exactly to do or whom to contact in case of a problem. They also indicated that they do not trust that anyone in the governmental entities will take their complaints seriously and follow up with them to solve the problem. This creates some doubts about the institutional capacity of the public administration to build an online payment system that puts citizens in the center of the

operations. The sense of trust in the institutions capacity to solve problems and set effective follow up mechanisms is one of the essential facilitating conditions for digital transformation. In one of the interviews, a participant explained her hesitation about using online payment in the public sector by saying:

“Every time I plan to use online payment to apply for a government service, I think about what will happen if the transaction did not successfully show up in their system. Or whom I should talk to if the server crashed while after I paid for the services. This makes me a bit hesitant to use online payment to pay for expensive public digital services.” (Respondent 12, Interview, November 2022)

This negative feedback about the trust in the technical support system may justify some of the citizens’ reluctance to use online payment, especially for expensive services. The system must provide a mechanism that grants citizens’ rights. This system needs to be responsive to citizens’ complaints and demands. This problem-solving mechanism and standard operating procedures also need to be clear and well-communicated to all stakeholders and should outline whom to be held accountable for solving the problem.

Another experience was shared by one of the interviewees which also explains citizens’ concerns:

“I paid for the train tickets online, but I needed to refund the tickets during the grace period. However, the process of refunding seemed impossible. I had to go physically to one office to submit a request, then go to another department to follow up on the process. It was a hectic experience” (Respondent 15, Interview, December 2022)

It is worth noting that the issue of refunding is a serious challenge when citizens pay online to receive public services due to bureaucratic and regulatory challenges. For many services, the fees of the service do not only go to a single entity but to several public

entities. Therefore, when citizens pay online, the money get deducted automatically and allocated among the relevant entities. This makes the process of refunding so challenging in case citizens need their money back.

The technical capacity of public officials who supervises the process is also a fundamental dimension in guaranteeing the success of the online system. The interviewees raised reasonable questions regarding the willingness and the capacity of the public officials to handle the digital transformation process. Many of the interviewees expressed their doubts about the technical capacity of the current public servants to deal with online processes and digital technologies in general. These doubts and concerns could be justified through the comment of this interviewee:

“I believe that the majority of the public officials are not qualified enough to implement digital processes as they lack the basic digital knowledge. For example, I needed an urgent public service. However, when I went to the public office, the employee their told us, the system is down. Because I was travelling abroad in two days, I had to wait until the problem is solved. After some time, I offered to help them if there is anything I can do. When they allowed me to check the problem, I was shocked to discover that the problem was basically a paper that was stuck in the printer. For this reason, the employee told everyone that the system is down because the printer was not working. (Respondent 3, Interview, October 2022)

Since people are the core of any public administration process, this story highlights a serious challenge that tackles the digital transformation in the public sector. Enhancing the digital capacity of the public sector’s employees should be seen as essential as improving the digital infrastructure. According to the OECD, the Egyptian public administration consists of 6.5 million employees, accounting for 24% of employment (OECD, 2018, p. 45). This percentage is

three times higher than the average rate recorded in other developing countries (OECD, 2018, p. 45). The reason for this inflation in the number of employees in the public sector could be linked to the social pressures and demands caused by the political protests between 2011 and 2014 (OECD, 2018, p. 45). By looking deeper into the public administration workforce, it could be noticed that one third of the public employees in Egypt were in the age group of 48-60 (Barsoum & Abadalla, 2020, p. 2). This makes them less digital oriented than younger generations of public employees. In their study that relied on the Labor Market Panel Survey of 2018, Barsoum & Abadalla (2020) clarified that the number of employees with university degrees constitutes only 50% of the total employees in the age group between 18 and 35; meanwhile, in the age group of 36-47 the percentage is 42% and only 32% of employees in the age group of 48-60 have university degrees.

As a result, when we think about the facilitating conditions that support the transition into using online payments in the public sector, we need to consider the technical, human, and institutional aspects. This is because digital transformation is a dynamic overlapping process that needs integration between the noted aspects. Missing any of these elements would lead to a flawed process that would hinder the efficiency of the system. In return, this would lead to an uncondusive environment for the adoption of online payments in the public sector.

#### **5.4.3 The Political Dynamics of Change:**

To understand the institutional aspects that create uncondusive environment for digital transformation, the study interviewed some public servants and policy advisors who are concerned with the topic. Interestingly, participants indicated that some public servants are still resistant and even working against the digital transformation as they see digital transformation as a threat that would undermine their power and leverage. Moreover, some public agencies believe



that the integration of public services into one digital platform would reduce their position as the owner of the service, which brings power dynamics into the discussions. One of the public servants who directly works on the profile of digital transformation stated

“Change is a culture that need change in the perception and mindset. Unfortunately, not everyone wants to support the e-government and digital transformation as they believe that it is against their personal interest” (Respondent 22 , Interview, January 2023)

This intervention sheds the light on a vital scope of digital transformation which pertains to the institutional change and its implication on change of traditional power dynamics within the public administration. A serious discussion and analysis of this angle is highly required in order to address the issue from a pragmatic point of view that consider the internal political dimensions that would enhance or complicate the digital transformation process. This makes policymakers avoid falling into the trap of focusing only on the technical factors without paying adequate attention to the other dimensions.

To address the best solutions and mechanisms to mitigate the institutional resistance to change, more studies and research need to be conducted to provide in-depth analysis to the issue and introduce mitigation strategies. This poses important area of research for researchers in the intersection of technology and public administration. One of the participants who has wide experience in ICT legislation and digital reform and worked for several public institutions suggested the following approach:

“To confront the anti-change culture within the public administration, the government need to follow the sandwiching model. At the top level, the biggest heads in the public administration need to give strict directives on the necessity of adopting digital technologies in the public sector. At the down level, the public

administration needs to be fed with change agents who believes in the values of digital transformation and have the digital capacities to implement its requirements”  
(Respondent 24, Interview, January 2023)

According to the interviewee, the biggest advantage of this Bottom-Up and Up-Bottom approach is that it would create a suffocating environment for the anti-change groups of interest. From the top level, these groups would face high pressure from the senior levels in the public administration to be compliant with digital transformation measures and requirements. On the other side, they would experience competition from the empowered change agents who seek to introduce new digital instruments and tools to revamp the public sector. As a result, the high pressure from the senior level and high level of competition with the lower levels could urge the anti-change groups to accept the new reality in order to maintain their existence. However, it is important to indicate that such approach and other change models need to be carefully examined and tested to determine their pragmatic practicality and applicability to the different contexts.

### **5.5 The Issues of Safety and Trust:**

The feeling of safety and trust are essential elements of any digital process. According to Il Im et. al (2008), the perceived risks that are associated with the usage of a new technology play a crucial role in shaping users’ behavioral intentions. Meanwhile, Al alwana et. al (2018) argued that the level of perceived risks is a dominant factor in affecting users’ tendency to use online banking in Jordan. Therefore, by looking into scope of the study, if citizens feel safe to use the online payment system, they will avoid paying online which will have negative consequences on the implementation of the e-government program. Trusting the process is another fundamental pillar (Bahmanziari et. al, 2003). Citizens need to trust that the online payment process will lead to efficient results that would facilitate the delivery of public services.

Once they start doubting the efficiency and trustworthiness of the online system, the more resistance they would show to use these methods.

During the interviews, the participants highlighted two aspects that relate to the issue of trust. The first issue relates to their feeling of safety while using the online payment system and trusting that their bank information is safe. The second level pertains to trusting the process itself as the transactions will be successfully made and they would manage to receive the requested service on time.

#### **5.5.1 The Sense of Safety and its Impact:**

By looking at the first dimension that pertains to the feeling of safety, it is observed that there is a variation in the level of how people feel safe when paying online. So far, senior citizens could be considered among the main skeptical categories to the idea of using online payments in general. According to some of the comments from elderly citizens, they have fears of getting exploited if they use their bank information online. This feeling is due to their lack of knowledge about the proper steps and procedures to make online transactions, which makes them have the feeling of being vulnerable to cybercrimes and fraud. A retired 64-year-old respondent said when she was asked about this point:

“I do not encourage the usage of online payments in the public sector. Every day we hear stories about people who lost their money because someone managed to steal their bank card information. That is why, I feel it would be better to stay in the safe side and go through the traditional process (She refers to visiting the public offices to apply and pay for the public services in person)” (Respondent 21, Interview, December 2022)

The close analysis to this comment shows that the lack of knowledge and awareness on the best practices and procedures are one of the key reasons behind such resistance. As a result,

this encourages many of them to follow the rumors or decide to take the safe way and avoid using what they ignore. According to official statistics, the number of Egyptian citizens who are above 65 years old is more than 6 million citizens as of 2021 (UNDP, 2021). Since they were in urgent need of accessible and facilitated services, the e-government services could be a good option for them to receive public services in an easy and comfortable way. That was why, it was important to tackle the issue of expanding digital literacy among the elderly citizens seriously as they could be among the main beneficiaries of the digital services. However, without proper knowledge and awareness, they could be among the most vulnerable groups.

On the other hand, some of the interviewees expressed their fears of using online payment on the government's websites because of their knowledge and awareness. Because they knew what could happen if their personal information got to the wrong hands, they had concerns about fully trusting the system. This feeling came from what they called the lack of a clear data policy and information protection protocols and guidelines. This made them question who has the right to access their payment information and how these transactions are being handled. One of the interviewees who was in his middle-age and clarified that he used the online banking and online payment services frequently stated:

“Although I use online payments a lot in my daily life. I have several doubts and questions when I need to put my credit card information on a government website. This is due to the absence of clear data protection policy from most the governmental portal. Therefore, I always get the impression if my information got stolen, no one be held accountable”. (Respondent 9, Interview, November 2022)

This feedback sheds the light on a very important that also indicates a high level of cybersecurity awareness. The presence of a data protection and data governance guideline is an essential step to enhance people's trust in the system as they would believe that their online

transactions are backed by a strong regulatory framework that could guarantee the safety of their transactions. According to Kulaib (2021), although Egypt issued its first personal data protection law in July 2020, the government did not issue the executive regulation yet, opening the door for several criticisms regarding the effectiveness of the law and its ability to protect such personal information.

### **5.5.2 The Role of Institutional Trust:**

The lack of trust in the institutional capacity of handling online payment methods was also evident when the interviews addressed the issue of safety and trust. Some participants clarified that they do not trust that the government designs its platform and portals in a cyber secure way, which leaves them vulnerable to cyber breaches and crimes. This lack of trust in the security of the digital infrastructure increases the fears and the feeling of unsafety. Also, some participants commented that the technical errors that might take place make them hesitant to use online payment methods to receive public services. One of the participants who has a post-graduate degree and have high level of digital skills said:

“I was so happy when I learned that the government launched a new application that allows you to generate your COVID-19 vaccination certificates online. I was so excited to use the application. After downloading the app and paying the required fees online, a technical error happened and was not able to complete the registration process although I paid the required fees.” (Respondent 2, Interview, October 2022)

Another comment was stated by a 39-year-old citizen who has a university degree and works in the development field said:

“If I rate my trust in the government processes from 1-10, I would give it a 5. This is because every time I have to use any online public service, I always have the feeling that the transaction would not be successfully implemented, or a technical error

would happen. I think the reason for this was my belief that the government does not do something right till the end. There was always one piece missing in the process.”

(Respondent 17, Interview, December 2022)

This comment highlights a serious issue which pertains to the trust in the institutions and its implications on citizens’ perception. According to Bahmanziari et. al (2003), the Institution-based trust, which refers to citizens’ trust in the institutional setting that guarantees the service, is among the main factors that affect citizens decision to adopt a specific technology. As a result, citizens trust in the process itself and the institutions behind the process is a key element to implement the online payment system efficiently in the public sector. In this regard, the government needs to tackle the technical errors seriously and take into account the efficiency of the system. Otherwise, this could not only lead to the loss of citizens’ money and personal information but also their trust in the process and the public institutions.

As the interviews talked about the cybersecurity awareness side from the citizens perspectives, some questions were directed to ask participants about the opinion regarding the cybersecurity awareness among public servants. Interestingly, the majority of the interviewees responded with negative feedback as the lack of cybersecurity awareness among the public servants was one of the factors that make them do not trust the system on their personal information. One of the interviewees shared an experience which he claimed that it happens regularly:

“I went to the real-estate registry in order to receive a specific service. After finishing all the required procedures, the employee asked me to go to the cashier to pay and receive an invoice. When I went to the cashier, the lady told me they do not accept cash and I have to only pay with card. Until that point, everything was fine to me until she asked me to give her my card and my pin number as she refused to give me

the machine to do this step myself. When I asked why, her answer was she signed on this machine and if anything, happen to it, she will be legally responsible.”

(Respondent 19, Interview, December 2022)

This story and similar stories clarify that digital transformation requires a change of the culture. All stakeholders in the ecosystem should have adequate digital skills and most importantly cybersecurity awareness and knowledge. Otherwise, digital transformation processes could lead to unfavorable outcomes that could be easily avoided. The feelings of safety and trust is an essential cornerstone of building a conducive environment for digital payments and e-government in general.

### **5.5.3 Institutional Trust from the Perspective of Experts:**

As indicated in the previous section, the issue of trusting the efficiency of the public administration system is a fundamental factor to ensure the success of the e-government program. Therefore, the study interviewed a group of public servants and policy advisors who are concerned with digital transformation. The purpose was to understand how the issue of trust inflict the efficiency of the digital public services and what are ground reasons for the issue. A policy advisor who holds a PhD in the political economy and currently provides policy advice to the government in issues that relates to the innovation and digital transformation of the public sector explained this point by saying:

“The reason why some citizens do not have much trust in the e-government could be traced to two major reasons. The *first problem* was that citizens do not see the faces of the person who oversees issuing the services. In fact, people are used to face challenges and problems when dealing with the government in general. However, the situation gets more complicated when they interact with the government digitally because they expect challenges but due to the digital nature, they lose their ability to

identify and interact with the service providers directly. The second reason was that the developers of the digital public services play the role of the mediators between the service beneficiaries and the service owners. This makes them look like a powerless stakeholder who was tasked with coordination.” (Respondent 23, Interview, January 2023)

Interestingly, one of the biggest theoretical advantages of digital transformation is separating the digital beneficiaries from the service providers in a way that enhances the performance of the system and curb the corruption and the misuse of power. However, the lack of accountability and trust in the efficiency of the digital services could urge the citizens to avoid paying online for public services and go through the traditional channels. Despite the flaws and disadvantages of these traditional challenges, citizens can at least interact directly with the actual service providers and hold them accountable in case of a delay in the service delivery or the procedures. Accordingly, to solve this issue, enhancing the accountability of the e-government services would be a crucial step to enhance citizens' trust in using them. Providing more enforcement power to technical public servants who work on developing the digital solution is also another important measure that needs to be taken in order to change their role from being service moderators to service implementers.

## **5.6 Inclusion and Accessibility of Online Payment Systems:**

No one should be left behind in the digital world. This should be one of the fundamental pillars of the digital transformation plans and strategies. Throughout the interviews, many concerns, questions, and issues were raised by the participants regarding the accessibility of the current online payment systems and whether they enable different groups of citizens to benefit from such digital services. These groups include People with Disabilities (PwDs), older age



groups who have limited digital skills, citizens who have no bank accounts or other means of financial inclusion.

Due to the significant benefits which the e-government services could offer to facilitate the provision of public services, it is crucial for policymakers to consider the inclusion of these categories in their plans. This would give these groups a chance to access public services in a cheaper, easier, and more accessible way. In return, this would enhance the relationship between them and the government and would have positive outcome on their active participation in the society.

One of the main categories that need to be included in the online payment system is the PwDs. According to the Central Agency for Public Mobilization and Statistics (CAPMAS), there are around 12 million citizens with different disabilities in Egypt, representing almost 10% of the total population Central Agency for Public Mobilization and Statistics (CAPMAS) (Daily News Egypt, 2018). Therefore, it is of vital importance to seriously revise the current policies and rules to make it more inclusive to the PwDs. As part of the interviews, many participants spoke about this point, which encouraged the research to explore this topic more and conduct more interviews with people who suffer from disabilities.

By interviewing people with disabilities, their families or those who work in the field of inclusion, many challenges were highlighted and discussed. In a nutshell, most of the challenges which face PwDs in this domain could be divided into technical, institutional and behavioral issues. On the top of the technical was the inaccessibility of many of the governmental websites and the difficulty of the payment process for many of the PwDs, especially those who suffer from visual impairment. One of the PwDs who suffers from visual impairment but has good knowledge of using assistive technology to access the different websites said:

“Many of the governmental portals were not designed in an accessible way that enabled those who suffer from disability to use it. I guess when they developed these websites, they did not consider the PwDs. For example, many websites relied on the CAPTCHA system which is used to make sure that you are a human and not a robot. The problem is if you suffer visual impairment like me it is impossible to pass this test. However, there are other alternatives to this system that are more accessible to everyone”. (Respondent 10, Interview, November 2022)

The issue of designing and developing the online platforms in a more PwDs-friendly way is crucial in order to empower them to benefit from such the e-government services. Speaking of the online payment process itself, interviewees clarified that parts of process need some simple amendments. For example, the time given for users to put the OTP (spell out) code is short in some applications, which is a one-time password that service provider usually sends to the registered number of the users to verify their identity. Therefore, if the user has a disability with his fingers it takes him more than the allowed time. Interestingly, interviews indicated that simple amendments could fix this challenge. One solution is to expand the time given to complete this step. Otherwise, if this solution is not possible from a cybersecurity perspective, the system can bring the user back to the last step not to force them the process from the beginning.

In general, participants agreed that the best mechanism to avoid the technical issues that hinder accessibility of such e-government services is to include PwDs in the process designing and testing stage. This would allow web developers to create web interfaces that is user-friendly and accessible for everyone. Regarding this point specifically, one of the comments was:

“No one was speaking about the issues of us. We do not need anyone to think on our behalf but we rather to be included in the design-making and policy-making process

if they are serious about PwDs-friendly solutions and products”. (Respondent 6, Interview, October 2022)

This comment summarizes the best solution to create accessible digital products and processes. If the policymakers are serious about providing inclusive e-services, PwDs need to be included in the product development process. As mentioned before, most of the technical challenges could be easily avoid if simple amendments were considered. Therefore, adopting a user-centered approach which includes those with disabilities in the process-testing phases would empower the technical teams to be aware of the main issues and challenges. This would also direct their attention to the easiest solutions based on the feedback of the actual beneficiaries.

Another key institutional challenges in terms of the digital inclusion of the PwDs on the e-government platforms were the lack of enforcing regulations and the inconsistency in applying PwDs inclusion rules and guidelines. Over the years, the Egyptian government have issued different regulations and guidelines to support the inclusion of PwDs and encourage their active participation. However, not all of these guidelines and rules are adopted by all the public entities. The lack of consistency in the level of compliance creates a sort of confusion among the PwDs community. One of the clear examples on this issue was featured in this comment:

“The government kindly issued the “Integrated Services Card” for PwDs which give them lots of privileges on the top such as 50% discount in the public transports and the other public services. However, there was no way to validate the benefits of this card when you apply for the service online. You have to go to the office physically to show the employee the card because the online system does not recognize it.

Sometimes the public employees are not aware of the existence of such card or its benefits.” (Respondent 10, Interview, November 2022)

This example sheds the light on a serious issue that pertains to how to achieve compliance and coordination in terms of applying the policies that aim to support PwDs among the different public institutions. But most importantly, how to integrate such policies into the online systems and e-government services. The essence of the issue could be traced back to the inter-governmental coordination and communication among the public institutions. Therefore, there is a need to establish a national taskforce that monitors the implementation of the inclusion policies online and offline across the governmental entities.

When the interviews tackled how people with limited digital skills, especially elder age categories, see online payments. There was a consensus that e-government services and e-payment services would be of a great help for these categories given the fact that e-government services would facilitate their access to such public services. However, many interviewees from the older generation expressed their doubts and concerns about using them on their own due to their limited digital knowledge or their fears of misusing the technology in a way that could make them vulnerable to cyber fraud practices. A retired public-school teacher who was interviewed for this study said:

“Although I believe using online payments in the public sector could bring lots of benefits, usually I avoid doing them myself because I feel afraid of doing it since I was not aware of all the right procedures. Usually, I really on my son to help me with similar tasks.” (Respondent 21, Interview, December 2022)

When she was asked about the source of these fears, she stated the following story that happened to her:

“One day, I received a call from someone who said he works for a particular telecommunications company and he wanted to notify me that I won 2000 Egyptian pound. Because I was not able to understand what I need to do to receive my

financial award, I gave the phone to my son who immediately understood that was a fraud. (Respondent 21, Interview, December 2022)

These comments illustrate that some of the older citizens rely on a third party to receive assistance when it comes to digital matters. As were highlighted in the interviews, this assistance usually come from the family members or nearby Internet cafes and mobile services kiosks which they trust. However, this compromises the privacy of the citizens' information, especially if the service requires personal data such as the bank details. As a move to facilitate the access of digital services to older citizens, the Egyptian government launched an initiative to allow citizens to go to the Post Offices to ask for assistance regarding accessing the e-government services and pay for the service. This initiative aims to use the wide presence of the Post Offices, which exceeds 4000 office covering almost each part of Egypt, in providing trustworthy source of assistance to older citizens which ensures some safety and privacy.

Interestingly, the interviewees also indicated that the online payment for public services is currently more expensive than the traditional public services. In some cases, citizens pay money for the Internet Cafes in return for their assistance, which adds extra indirect costs. For the older citizens who are retired or those have limited means of income, they would prefer to save extra money for their families and would go through the traditional process. A 55-year-old participant who has a long experience in development especially in rural areas said:

“As much helpful as the online payment services were, many of the less privileged people avoid using it due to high cost compared to the regular service. Therefore, I believed that the cost of the online service should not be more than 5% of the original fees or even cheaper.” (Respondent 13, Interview, November 2022)

Although the issue of the online services cost was not one of the considered issues before the interviews, the participants highlighted that it is important aspect that needs to be considered

when we look at the topic from the perspective of retired citizens and those who have limited financial resources. As indicated earlier, making the fees of the online payment cheaper than the cash methods could encourage more people to use online payment methods in the public sector.

# Chapter Six:

## 6 Conclusion and Policy Recommendations:

### 6.1 Conclusion:

The new internet technologies are affecting all the aspects of life in terms of how people think, work and interact with each other. This unprecedented change also influences the traditional public administration practices and how citizens and governments interact with each other. Online payment methods and financial technology are among the key factors that directly affect the performance and efficiency of e-government programs, and help digital citizens utilize the full potential of the internet and its digital services. The ability to use online payment methods is a fundamental digital competency that allows citizens to apply and receive the e-government services. Otherwise, citizens would not be able to benefit from the e-government services and their positive outcomes on the society and the efficiency of the public administration process.

Accordingly, it is important to pay meticulous attention to how citizens perceive online payment methods and what are the factors that shape their tendency to use online payments in their interactions with the government. Meanwhile, looking at the technical as well as the sociopolitical dimensions that cause such perception is of absolute value. This would help governments address the challenges and expand the opportunities of adopting the online payment system within the public administration in the developing countries.

This study aimed at answering how the different behavioral, and institutional aspects influence the wide adoption of digital payments in the Egyptian administration. To answer this question, the study examined citizens' perspectives and experiences with the online payment

portals of the public e-services. Furthermore, the study also looked into citizens' perceptions regarding the adoption of online payments in the public administration. The main objective of study was to understand the different factors and dimensions that shape citizens attitudes towards the issue and develop a set of policy recommendations based on their input. As a result, the outcome of the study would be helpful to governments and policymakers who are concerned with digital transformation, especially in other developing countries that share similar characteristics with Egypt.

By looking at the findings of this study, it was observed that several technical, behavioral and socio-political aspects influence citizens' tendency to use online payments within the public administration. One of the key aspects that influence citizens tendency is their perception of how the adoption of online payment would enhance the efficiency of the public services and the performance of the public administration. In general, many of the interviewees argued that the proper implementation of the online payments should improve the efficiency of the Egyptian public administration and enhance the service delivery process. Citizens indicated that online payment would facilitate the implementation of the e-government services by allowing citizens to apply and pay for the public services online instead of going physically and interacting directly with the public employees to receive the service. As a result, this should solve one of the biggest challenges of the current public administration system which pertains to overcrowding of the public agencies, which forces citizens to queue for long times to go through the process of requesting public services. This challenge is not related to specific one agency or service but rather a common issue across the different public agencies.

The ease of use is another critical element that constitutes citizens tendency to use online payment methods. Generally speaking, interviewees stated that they prefer to use easy and user-



friendly online platforms that are interactive and accessible. Therefore, the easier to use and more accessible a digital process is the more probability they would use it. Although some government online portals have a user-friendly interface, others do not provide an easy user experience which prevents citizens from using the online services. Accordingly, many of the interviewees argued that the government need to consider the development of easy-to-use online platforms; and most importantly, make sure that the online process is standardized across the different public entities.

Social influence is also indicated as vital element that encouraged citizens to trust the usage of online payment methods within the public sector. In case of the online payments, many interviewees mentioned that the opinion of their social networks plays an important role in encouraging them to overcome their concerns regarding the use of online payment system within the public sector. They indicated that when it comes to paying money, many people rely on hearing the experiences of others before embarking on trying the e-service, especially if it is expensive.

The in-depth discussions also clarified that there are different institutional and technical conditions within the public sector in order to create a conducive environment for the adoption of online payments. If such facilitating conditions are not available, this would undermine the efficiency of the system which could discourage the citizens from relying on online payments. The institutional conditions revolve around the availability of conducive regulatory frameworks, efficient human digital capacities, high level of coordination and cooperation. Meanwhile, the technical condition consists of a providing the required digital infrastructure to maintain the efficiency of the system.

Finally, the study also highlighted important issues and elements that need to be considered when addressing the adoption of online payments in the public sector. The feeling of trust and safety is among the main elements that shapes citizens tendency to use online payments in their interactions with the government. When citizens feel safe about the security of their personal data and bank information, they would show more tendency to use online payments. Moreover, citizens also need to trust the reliability of the public administration system and its digital operations. In other words, they need to feel safe that they will manage to seamlessly receive the needed public services after they complete the online transaction. Furthermore, the interviews also indicated that the government needs to consider the principles of accessibility and inclusion. Therefore, the government needs to find ways to integrate different groups of citizens when they design their digital transformation plans. These groups include elder citizens who do not have the required digital skills and competencies in addition to people with different disabilities and citizens who belong to the less-privileged communities. The inclusion of these groups in the digital ecosystem is important as they are among the main groups that could benefit from the outcomes of e-government services, which would positively impact their life.

## **6.2 Policy Recommendations:**

Based on the insights of citizens, current and former public employees, and digital transformation experts, the study offers a set of recommendations that aim to help policymakers develop inclusive policies and strategies to enhance the usage of online payments within the public administration in the developing countries. These recommendations could be classified into three main categories: Technical, Institutional, and Behavioral. The technical recommendations pertain to the technical requirements for the successful implementation of the online payment adoption. Meanwhile, the

institutional recommendation revolves around a set of regulatory and executive procedures governments could implement to create a conducive institutional environment for digital payments. Finally, the behavioral recommendations are about key digital capacities citizens need to have in order to benefit from the digital transformation efforts and to help them become digital citizens who contribute to the digital ecosystem.

- **Technical Recommendations:**

- **Standardizing E-government Designs and Online Payment Processes:**

Standardizing the process and the design of the public digital services and platforms would improve the citizens' user experience and would reduce their confusion and hesitation to use them.

- **Designing User-Friendly Interfaces:**

The designs of the online digital platforms need to provide easy to use interfaces that help citizens understand the required procedures and steps in an easy way. To do so, it is recommended to follow a participatory approach that include the feedback of the end users in the designing and development process. Moreover, it is important to test citizens' experiences on a regular basis to improve and update the online system based on their needs.

- **Considering Accessibility and Inclusion Measures:**

The process as well as the designs need to be accessible to the citizens with the different disabilities and challenges. Accordingly, it is necessary to survey the feedback and challenges of the citizens who have disabilities before and after the development of the digital processes. Furthermore, developers

also need to consider providing a simple interface that allows users with limited digital skills to follow the required procedures.

- **Designing Mobile Compatible Websites:** In developing countries, many of the users browse the Internet through their mobile devices. Therefore, it is important to design the websites in a way that it is compatible with the mobile nature. Moreover, it is also recommended to provide these digital services through a mobile application that is user-friendly.

- **Institutional Recommendations:**

- **Establishing Federal Digital Transformation Body:** To achieve an adequate level of coordination and standardization among the different public agencies, it is important to have a central body that set the rules and guidelines for digital transformation to ensure the standardization and integration of digital transformation services across the governmental entities. This should enhance the coordination and harmonization across the government.
- **Providing Client Support and Complaints Management System:** One of the biggest fears of citizens to pay online for public service is the lack of clear mechanism for complaints management. Therefore, governments need to introduce follow-up and client support service that enable citizens to follow up on their requests and help them solve any problems that may occur. This would increase citizens' trust in the online system and their satisfaction about the public administration performance.

- **Updating the Existing Regulatory and Legislative Frameworks:** In order to create a conducive regulatory framework for digital transformation, it is important to update provisions of the existing regulations and legislations to be compliant with the requirements of digital transformation. For example, in some cases, the existing executive regulations require the physical presence and signature of citizens to issue documents or receive specific services. Therefore, although citizens apply and pay for the service online, they have to physically visit the public offices to complete the process.

- **Behavioral Recommendations:**

- **Raising Awareness on the Available Digital Services:** The government need to develop integrated communication campaigns that raise citizens' awareness on the available digital services and the benefits of using them.
- **Developing Digital Literacy Outreach Model:** It is necessary to develop a strategy to increase the digital capacities of the citizens who have limited digital skills. This framework should identify the required digital competencies, the target groups, and the outreach model.

At the end, it is important to state that digital transformation is a comprehensive process that touches upon different social, institutional, and technical considerations. To the full potential of digital transformation, the perspectives and insights of citizens need to be seriously considered when developing e-government and digital transformation programs. This would guarantee the development and implementation of citizens-centered e-government programs that leave no behind and accelerate the transition into a digital society.

## References

- Abdelhakim, A. S., Abou-Shouk, M., Ab Rahman, N. A. F. W., & Farooq, A. (2023). The fast-food employees' usage intention of robots: A cross-cultural study. *Tourism Management Perspectives*, 45, 101049.
- Abdelsalam, H., ElKadi, H., & Gamal, S. (2011). Egypt local government websites maturity: current status. In *International Conference on e-Infrastructure and e-Services for Developing Countries* (pp. 102-112). Springer, Berlin, Heidelberg.
- Abdulkareem, A. K., & Ramli, R. M. (2021). Evaluating the Performance of E-government: Does Citizens' Access to ICT Matter?. *Pertanika Journal of Tropical Agricultural Science*, 29(3), 1507-1534.
- Abrazhevich, D. (2004). *Electronic payment systems: A user-centered perspective and interaction design*. Book. Dennis Abrazhevich – Eindhoven.
- Ahram Online. President Sisi inaugurates Digital Egypt platform. Ahram Online. (n.d.). Retrieved January 1, 2023, from <https://english.ahram.org.eg/News/471212.aspx>
- Al Masry Al Youm. (2018). The Government Employees Reached 5.2 million. Retrieved January 1, 2023, from <https://www.almasryalyoum.com/news/details/1322517>
- Alalwan, A. A., Dwivedi, Y. K., Rana, N. P., & Algharabat, R. (2018). Examining factors influencing Jordanian customers' intentions and adoption of internet banking: Extending UTAUT2 with risk. *Journal of Retailing and Consumer Services*, 40, 125–138.
- Ali, R. A., & Arshad, M. R. M. (2016). Perspectives of students' behavior towards mobile learning (M-learning) in Egypt: An extension of the UTAUT model. *Engineering, Technology & Applied Science Research*, 6(4), 1109-1114.

- Almukhlifi, A., Deng, H., & Kam, B. (2019, April). Critical factors for the adoption of e-government in developing countries: validation of a measurement model. In Proceedings of the 12th International Conference on Theory and Practice of Electronic Governance (pp. 397-407).
- Al-Muwil, A., Weerakkody, V., El-Haddadeh, R., & Dwivedi, Y. (2019). Balancing digital-by-default with inclusion: A study of the factors influencing E-inclusion in the UK. *Information Systems Frontiers*, 21, 635-659.
- Alshira, M., Al Omari, M. (2020). Analyzing and Evaluating Usability of Electronic Payment Systems (EPS) through End-User Acceptance Testing. *International Journal of Advanced Trends in Computer Science and Engineering* 9(5):7092-7100
- Alzahrani, L., Al-Karaghoul, W., & Weerakkody, V. (2017). Analysing the critical factors influencing trust in e-government adoption from citizens' perspective: A systematic review and a conceptual framework. *International business review*, 26(1), 164-175.
- Antwi, Samuel, A Comparison of the Stimulus Payment Approach of China and the United States in the Wake of COVID-19 (January 20, 2021). Available at SSRN: <https://ssrn.com/abstract=4229317> or <http://dx.doi.org/10.2139/ssrn.4229317>
- Arief, A., Sensuse, D. I., Latif, L. A., & Abbas, M. Y. (2021). Study on e-government integration: a theoretical and empirical review. In *IOP Conference Series: Materials Science and Engineering* (Vol. 1125, No. 1, p. 012028). IOP Publishing.

- Arner, D. W., Barberis, J. N., & Buckley, R. P. (2015). The Evolution of Fintech: A New Post-Crisis Paradigm?, (2015/047). Hong Kong
- Ayman, D. M., & Abdel-Azim, R. (2016, April). Adopting E-government as a strategic tool for economic development: Insights from Governmental websites in Egypt. Lisbon, Portugal: Conference of Eco Mod.
- Azmi, A., Ang, Y.D. and Talib, S.A. (2016), "Trust and justice in the adoption of a welfare e-payment system", *Transforming Government: People, Process and Policy*, Vol. 10 No. 3, pp. 391-410. <https://doi.org/10.1108/TG-09-2015-0037>
- Bahmanziari, T., Pearson, J. M., & Crosby, L. (2003). Is trust important in technology adoption? A policy capturing approach. *Journal of Computer Information Systems*, 43(4), 46-54.
- Baishya, K., & Samalia, H. V. (2020). Extending unified theory of acceptance and use of technology with perceived monetary value for smartphone adoption at the bottom of the pyramid. *International Journal of Information Management*, 51, 102036.
- Bannister, F., & Connolly, R. (2011). The trouble with transparency: a critical review of openness in e-government. *Policy & Internet*, 3(1), 1-30.
- Barsoum, G. (2021). Why is the public sector the employer of choice among women in the Middle East? A gendered qualitative inquiry into PSM in a global context. *Review of Public Personnel Administration*, 41(4), 771-791.
- Barsoum, G., & Abdalla, D. (2020, April). Still the employer of choice: Evolution of public sector employment in Egypt. In *Economic Research Forum Working Papers* (No. 1386).



- Basu, S. (2004). E-government and developing countries: an overview. *International Review of Law, Computers & Technology*, 18(1), 109-132.
- Bauknecht, K., Madria, S. K., & Pernul, G. (Eds.). (2003). Electronic Commerce and Web Technologies: Second International Conference, EC-Web 2001 Munich, Germany, September 4-6, 2001 Proceedings (Vol. 2115). Springer.
- Berdykhanova, D., Dehghantanha, A., & Hariraj, K. (2010, June). Trust challenges and issues of e-government: E-tax prospective. In 2010 International Symposium on Information Technology (Vol. 2, pp. 1015-1019). IEEE.
- Bokov, Y. A., & Abezin, D. A. (2019, September). Digital citizenship: Implementation in the modern world. In Competitive Russia: foresight model of economic and legal development in the digital age. International scientific conference in memory of Oleg Inshakov (pp. 442-448). Springer, Cham.
- Central Bank of Egypt. (2021). Egypt FinTech Landscape Report. CBE.  
<https://enterprise.press/wp-content/uploads/2022/02/Egypt-FinTech-Landscape-Report-2021.pdf>
- Central Bank of Egypt. (2022). Financial Inclusion Strategy (2022-2025). CBE report:  
[https://www.cbe.org.eg/\\_layouts/download.aspx?SourceUrl=%2FHighlights%2520Documents%2FThe%2520Central%2520Bank%2520of%2520Egypt%2520launches%2520the%2520Financial%2520Inclusion%2520Strategy%2520\(2022-2025\).pdf](https://www.cbe.org.eg/_layouts/download.aspx?SourceUrl=%2FHighlights%2520Documents%2FThe%2520Central%2520Bank%2520of%2520Egypt%2520launches%2520the%2520Financial%2520Inclusion%2520Strategy%2520(2022-2025).pdf)
- Chao, C. M. (2019). Factors determining the behavioral intention to use mobile learning: An application and extension of the UTAUT model. *Frontiers in psychology*, 10, 1652.

- Charmaz, K. (2008). Grounded theory as an emergent method. *Handbook of emergent methods*, 155, 172.
- Chen, L. L., Mirpuri, S., Rao, N., & Law, N. (2021). Conceptualization and measurement of digital citizenship across disciplines. *Educational Research Review*, 33, 100379.
- Chiemekwe, S. C., & Ewuekpae, A. E. (2011). A conceptual framework of a modified unified theory of acceptance and use of technology (UTAUT) Model with Nigerian factors in E-commerce adoption. *Educational Research*, 2(12), 1719-1726.
- Chun Tie, Y., Birks, M., & Francis, K. (2019). Grounded theory research: A design framework for novice researchers. *SAGE open medicine*, 7, 2050312118822927.
- Ciesielska, M., Rizun, N., & Chabik, J. (2022). Assessment of E-government inclusion policies toward seniors: A framework and case study. *Telecommunications Policy*, 46(7), 102316.
- Council of Europe. (2019). *Digital Citizenship and Your Child*. Report: <https://edoc.coe.int/en/human-rights-democratic-citizenship-and-interculturalism/7865-digital-citizenship-and-your-child-what-every-parent-needs-to-know-and-do.html>
- Csáki, C., O'Brien, L., Giller, K., Tan, K. T., McCarthy, J. B., & Adam, F. (2012). Cash or non-cash: that is the question-the story of e-payment for social welfare in Ireland part 2. In *Transforming Government Workshop Gov2012*.

- Daily News Egypt. (2018). 2.61% of Egyptians have disabilities in 2017: CAPMAS.  
Retrieved January 1, 2023, from: <https://dailynewsegypt.com/2018/12/03/2-61-of-egyptians-have-disabilities-in-2017-capmas/>
- Dapp, T., Slomka, L., AG, D. B., & Hoffmann, R. (2014). Fintech—The digital (r) evolution in the financial sector. *Deutsche Bank Research*, 11, 1-39.
- Denzin, N. K., & Lincoln, Y. S. (Eds.). (2011). *The Sage handbook of qualitative research*. Sage.
- Esawe, A. T. (2022). Exploring retailers' behavioural intentions towards using m-payment: Extending UTAUT with perceived risk and Trust. *Paradigm*, 26(1), 8-28.
- European Central Bank. (2020). Study on the Payment Attitudes of Consumers in the Euro Area (SPACE). Report:  
<https://www.ecb.europa.eu/pub/pdf/other/ecb.spacereport202012~bb2038bbb6.en.pdf>
- Evans, D., & Yen, D. C. (2006). E-Government: Evolving relationship of citizens and government, domestic, and international development. *Government information quarterly*, 23(2), 207-235.
- Fang, Z. (2002). E-government in digital era: concept, practice, and development. *International journal of the Computer, the Internet and management*, 10(2), 1-22.
- Ferreira, S. M., Sayago, S., & Blat, J. (2016). Going beyond telecenters to foster the digital inclusion of older people in Brazil: lessons learned from a rapid ethnographical study. *Information Technology for Development*, 22(sup1), 26-46.

- Fichers, N., & Naji., L. (2020). Digitalising person-to government payments. Global System for Mobile Communications. GSMA Report.  
<https://www.gsma.com/publicpolicy/wp-content/uploads/2020/09/GSMA-Digitalising-person-to-government-payments.pdf>
- Flick, U. (2018). Designing qualitative research. Sage.
- Frau-Meigs, D., O'Neill, B., Soriani, A., & Tomé, V. (2017). Digital citizenship education: Volume 1: Overview and new perspectives.
- García-Crespo, Á., Paniagua-Martín, F., Colomo-Palacios, R., & Gómez-Berbís, J. M. (2012). E-inclusion for people with disabilities in e-government services through accessible multimedia. *International Journal of Information Systems and Social Change (IJISSC)*, 3(3), 37-51.
- Garrouch, K. F. (2021). Explaining the comparative perception of e-payment: role of e-shopping value, e-payment benefits and Islamic compliance. *Journal of Islamic Marketing*, Vol. 13 No. 7, pp. 1574-1588.
- Gebba, T. R., & Zakaria, M. R. (2012). E-government in Egypt: an analysis of practices and challenges. *International Journal of Business Research and Development*, Vol. 4(2).
- Gelb, A., Mukherjee, A., & Navis, K. (2020). Citizens and states: how can digital ID and payments improve state capacity and effectiveness?. Washington, DC: Center for Global Development.
- Ghobashi, N. A. (2022). The reality of digital citizenship according to university youth under Egypt's vision 2030. *The Egyptian Journal of Media Research*, 2022(81), 451-535.

- Gholami, R., Ogun, A., Koh, E., & Lim, J. (2010). Factors affecting e-payment adoption in Nigeria. *Journal of Electronic Commerce in Organizations (JECO)*, 8(4), 51-67.
- Gohary, E. E. (2019). The impact of financial technology on facilitating e-government services in Egypt. *Journal of Distribution Science*, 17(5), 51-59.
- Govstack. (2022). Who We Are. Retrieved January 1, 2023, from <https://www.govstack.global/about/>
- Grönlund, Å., & Horan, T. A. (2005). Introducing e-gov: history, definitions, and issues. *Communications of the association for information systems*, 15(1), 39.
- Hasan, M., Bhuiyan, M. Y., & Hossain, M. (2015). E-Pay: Improving Interaction between Government and Citizens in the Age of the Internet “A study on a developing country like Bangladesh”. *Journal of Business and Management*. Volume 17, Issue 3.Ver. I (Mar. 2015), PP 51-61
- Henry, N., Vasil, S., & Witt, A. (2021). Digital citizenship in a global society: a feminist approach. *Feminist Media Studies*, 1–18. doi:10.1080/14680777.2021.193726
- Hussein, H (2020). The Impact of Financial Technology on Financial Inclusion: The Case of Egypt. *Journal of Economics and Finance*. Volume 11, PP 35-51
- Im, I., Kim, Y., & Han, H.-J. (2008). The effects of perceived risk and technology type on users’ acceptance of technologies. *Information & Management*, 45(1), 1–9.
- Information and Decision Support Center. (2021). Egypt Digitalization In Alignment with Egypt vision 2030 for SDGS. Egyptian Cabinet.
- Ismael, D. M., & Ali, S. S. (2021). Measuring Digital and Traditional Financial Inclusion in Egypt: A New Index. *International Journal of Applied Research in Management and Economics*, 4(2), 13-34.

- J. Hord, "How Electronic Payment Works", [Online]. HowStuffWorks. Available:  
<http://money.howstuffworks.com/personal-finance/onlinebanking/electronic-payment1.htm>
- Kamel, S. (2021). The Potential Impact of Digital Transformation on Egypt. Economic Research Forum (ERF).
- Khan, B. U. I., Olanrewaju, R. F., Baba, A. M., Langoo, A. A., & Assad, S. (2017). A compendious study of online payment systems: Past developments, present impact, and future considerations. *International journal of advanced computer science and applications*, 8(5).
- Kiwan, A., Sheta, S., & Samaan, M. M. (2021). Challenges and Opportunities of Applying Digital Public Participation Tools in Urban Development Projects in Egypt. *MEJ. Mansoura Engineering Journal*, 46(2), 116-125.
- Klapper, L., & Singer, D. (2017). The opportunities and challenges of digitizing government-to-person payments. *The World Bank Research Observer*, 32(2), 211-226.
- Kulaib, A. (2021). Egypt's Personal Data Protection Law (PDPL) and where it stands according to the international standards. Association for Freedom of Thought and Expression: [https://aftegypt.org/wpcontent/uploads/2021/08/Eng\\_paper\\_Personal-Data-Protection-Law.pdf](https://aftegypt.org/wpcontent/uploads/2021/08/Eng_paper_Personal-Data-Protection-Law.pdf)
- Lauer, K., & Lyman., T. (2015). *Digital Financial Inclusion: Implications for Customers, Regulators, Supervisors, and Standard-Setting Bodies*. World Bank Publications.

- Lazar, J., Beere, P., Greenidge, K. D., & Nagappa, Y. (2003). Web accessibility in the Mid-Atlantic United States: a study of 50 homepages. *Universal Access in the Information Society*, 2, 331-341.
- Lee, J. B., & Porumbescu, G. A. (2019). Engendering inclusive e-government use through citizen IT training programs. *Government Information Quarterly*, 36(1), 69-76.
- Lim, F. W., Ahmad, F., & Talib, A. N. B. A. (2019). Behavioural intention towards using electronic wallet: a conceptual framework in the light of the unified theory of acceptance and use of technology (UTAUT). *Imperial Journal of Interdisciplinary Research*, 5(1), 79-86.
- Lukonga, M. I. (2018). Fintech, inclusive growth and cyber risks: Focus on the MENAP and CCA regions.
- Lutfi, A., Al-Okaily, M., Alshirah, M. H., Alshira'h, A. F., Abutaber, T. A., & Almarashdah, M. A. (2021). Digital financial inclusion sustainability in Jordanian context. *Sustainability*, 13(11), 6312.
- Magdy Rezk, W., & Halim, M. A. A. (2022). Financial technology (Fintech) in the Arab countries challenges and opportunities. *L'Egypte Contemporaine*, 113(547), 437-466.
- Mahmood, M., Osmani, M., & Sivarajah, U. (2014). The role of trust in e-government adoption: A systematic literature review.
- Marshall, C., & Rossman, G. B. (2014). *Designing qualitative research*. Sage publications.
- Marshall, T. H. (1963). *Sociology at the crossroads: and other essays*. Heinemann.

- Marzooqi, S. A., Nuaimi, E. A., & Qirim, N. A. (2017, March). E-governance (G2C) in the public sector: citizens acceptance to E-government systems-Dubai's case. In Proceedings of the Second International Conference on Internet of Things, Data and Cloud Computing (pp. 1-11).
- Meaza, S. (2016). Challenges and Prospects of E-Payment Services: in Commercial Bank of Ethiopia, Addis Ababa Area.
- Momani, A. M. (2020). The unified theory of acceptance and use of technology: A new approach in technology acceptance. *International Journal of Sociotechnology and Knowledge Development (IJSKD)*, 12(3), 79-98.
- Moore, M. H. (1995). *Creating public value: Strategic management in government*. Harvard university press.
- Morsy, M., & Abd El Aziz, R. (2017). Analysing Electronic Govern-ment Websites in Egypt using Content Analysis and Unified Modeling Language. *JRL of the Faculty of Commerce for Scientific Research*, Vol. 54 No. 2
- Mtebe, J. S., & Sausi, J. (2021). Revolutionization of revenue collection with government e-payment gateway system in Tanzania: A public value creation perspective. *East African Journal of Science, Technology and Innovation*, 2(3).
- Naeem, M., Hameed, M., & Taha, M. S. (2020). A study of electronic payment system. In *IOP Conference Series: Materials Science and Engineering* (Vol. 767, No. 1, p. 012008). IOP Publishing.
- Neuman, L. (2014). *Social Research Methods: Qualitative and Quantitative Approaches*. Pearsons



- OECD. (2018). Compact for Economic Governance Stocktaking Report: Egypt. OECD.  
<https://www.oecd.org/mena/competitiveness/Compact-for-Governance-Stocktaking-Report-Egypt-2018-EN.pdf>
- Ogawa, S., Khera, P., Ng, S., & Sahay, R. (2021). Is digital financial inclusion unlocking growth?. International Monetary Fund Publications.  
[.doi.org/10.2139/ssrn.4026364](https://doi.org/10.2139/ssrn.4026364)
- Ogedebe, P. M., & Jacob, B. P. (2012). E-payment: Prospects and challenges in Nigerian public sector. *International Journal of Modern Engineering Research*, 2(5), 3104-3106.
- Oxford Business Group. (2021). Egypt Financial Services: Covid-19 Recovery Roadmap.  
[https://mcit.gov.eg/Upcont/Documents/Reports%20and%20Documents\\_2052021000\\_EG\\_Financial\\_Services\\_CRR\\_Booklet.pdf](https://mcit.gov.eg/Upcont/Documents/Reports%20and%20Documents_2052021000_EG_Financial_Services_CRR_Booklet.pdf)
- Ozili, P. K. (2018). Impact of digital finance on financial inclusion and stability. *Borsa Istanbul Review*, 18(4), 329-340.
- Parmar, N., & Machhar, S. (2022). A study on the adoption of e-payment systems in india: A literature review. *Scientific Journal of Finance and Financial Law Studies*, 2(1), 1-12.
- Reddick, C. G. (2005). Citizen interaction with e-government: From the streets to servers?. *Government Information Quarterly*, 22(1), 38-57.
- Ribera, M., Porrás, M., Boldu, M., Termens, M., Sule, A., & Paris, P. (2009). Web Content Accessibility Guidelines 2.0: A further step towards accessible digital information. *Program*, 43(4), 392-406.

- Riccucci, N. M. (2008). The logic of inquiry in the field of public administration. *PUBLIC ADMINISTRATION AND PUBLIC POLICY-NEW YORK-*, 134, 3.
- Riskinanto, A., Kelana, B., & Hilmawan, D. R. (2017). The moderation effect of age on adopting e-payment technology. *Procedia Computer Science*, 124, 536-543.
- Sahi, A. M., Khalid, H., Abbas, A. F., & Khatib, S. F. (2021). The evolving research of customer adoption of digital payment: Learning from content and statistical analysis of the literature. *Journal of Open Innovation: Technology, Market, and Complexity*, 7(4), 230.
- Sahraoui, S. (2007). E-inclusion as a further stage of e-government?. *Transforming Government: People, Process and Policy*, 1(1), 44-58.
- Sebastián, E. M. M., & Díaz, J. B. (2021). Digital citizenship: fighting the digital divide. *European Review of Digital Administration & Law*, 2(1).
- Setor, T. K., Senyo, P. K., & Addo, A. (2021). Do digital payment transactions reduce corruption? Evidence from developing countries. *Telematics and informatics*, 60, 101577.
- Shon, T. and Swatman, P.M.C. (1998), "Identifying effectiveness criteria for Internet payment systems", *Internet Research*, Vol. 8 No. 3, pp. 202-218.  
<https://doi.org/10.1108/10662249810217759>
- Simonofski, A., Snoeck, M., Vanderose, B., Cromptvoets, J., & Habra, N. (2017, August). Reexamining E-participation: Systematic Literature Review on Citizen Participation in E-government Service Delivery. In *AMCIS*.

- Singh, P. R. I. Y. A. N. K. A., Supriya, N., & Joshna, M. S. (2013). Issues and challenges of electronic payment systems. *International Journal for Research in Management and Pharmacy*, 2(9), 25-30.
- Tang, C. Y., Lai, C. C., Law, C. W., Liew, M. C., & Phua, V. V. (2014). Examining key determinants of mobile wallet adoption intention in Malaysia: an empirical study using the unified theory of acceptance and use of technology 2 model. *International Journal of Modelling in Operations Management*, 4(3-4), 248-265.
- Teo, T. S., Srivastava, S. C., & Jiang, L. I. (2008). Trust and electronic government success: An empirical study. *Journal of management information systems*, 25(3), 99-132.
- Transparency International. (2021). Corruption Perception Index. Retrieved January 1, 2023, from [https://www.transparency.org/en/cpi/2021?gclid=Cj0KCQiAiJSeBhCCARIsAHnAzT\\_0THufpqcNKq7bZVwu6YLFjsszD7MOWalqbLY28V9eMCfQEKISZT0aAmqEEALw\\_wcB](https://www.transparency.org/en/cpi/2021?gclid=Cj0KCQiAiJSeBhCCARIsAHnAzT_0THufpqcNKq7bZVwu6YLFjsszD7MOWalqbLY28V9eMCfQEKISZT0aAmqEEALw_wcB)
- Treiblmaier, H., Pinterits, A., & Floh, A. (2006). The adoption of public e-payment services. *Journal of e-Government*, 3(2), 33-51.
- Twizeyimana, J. D., & Andersson, A. (2019). The public value of E-Government—A literature review. *Government information quarterly*, 36(2), 167-178.
- United Nation. (2020). UN E-Government Survey 2020. UN Library. <https://publicadministration.un.org/egovkb/en-us/Reports/UN-E-Government-Survey-2020>

- United Nations Population Fund. (2022). Egypt Population Dashboard. Retrieved January 1, 2023, from: <https://www.unfpa.org/data/world-population/EG>
- United Nations. (2022). E-Government Knowledge Basis. Retrieved January 1, 2023, from <https://publicadministration.un.org/egovkb/en-us/Data/Country-Information/id/53-Egypt>
- Venkatesh, Morris, Davis, & Davis. (2003). User Acceptance of Information Technology: Toward a Unified View. *MIS Quarterly*, 27(3), 425.  
doi:10.2307/30036540
- Venkatesh, V., Thong, J. Y., & Xu, X. (2012). Consumer acceptance and use of information technology: extending the unified theory of acceptance and use of technology. *MIS quarterly*, 157-178.
- Web Accessibility Initiative. (2018). Web Content Accessibility Guidelines. Retrieved January 28, 2023, from: <https://www.w3.org/WAI/standardsguidelines/wcag/#versions>
- Weber, M. (1981). Some categories of interpretive sociology. *The Sociological Quarterly*, 22(2), 151-180.
- Yu, H. C., Hsi, K. H., & Kuo, P. J. (2002). Electronic payment systems: an analysis and comparison of types. *Technology in Society*, 24(3), 331-347.
- Zahari, R. K., Ariffin, R. N. R., Zamin, N., & Noor, N. M. (2014). E-payment at the local government level: a study of Majlis Bandaraya Shah Alam and Majlis Daerah Kampar. *Planning Malaysia*, (3).

Zaied, A. N. H., Ali, A. H., & El-Ghareeb, H. A. (2017). E-government adoption in Egypt: Analysis, challenges and prospects. *International Journal of Engineering Trends and Technology*, 52(2), 70-79.

Zavolokina, L., Dolata, M., & Schwabe, G. (2016). The FinTech phenomenon: antecedents of financial innovation perceived by the popular press. *Financial Innovation*, 2(1), 1-16.