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Digital Municipal Service System

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Thesis abstract

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Digital Municipal Service System (DMSS) is an influential segment of e-governance, which provides citizen and business services through authenticity, cost-effectiveness, and social inclusiveness using information technology. Developed nations have succeeded in their planned target of DMSS, though developing countries are still on the way to achieving nationwide goals. Nevertheless, more research is needed regarding the issue. Hence, the study investigates the determinants of DMSS and its effectiveness. It considers a qualitative research strategy in the investigation following the subjectivism and interpretivism research philosophy and constructivist research paradigm. The data were collected through open-ended interviews with the IT specialists and a survey of 105 DMSS users in Bangladesh using Microsoft Teams and Forms. The thematic analysis was accomplished to make data patterns.

The empirical findings suggest that the effectiveness of DMSS depends on the quality and convenience of the digital service platform since those provide service utility for citizens. However, the study also indicates that citizens feel anxiety about using technology because of natural comfort, digital service risk, and complexity. The study shows that the consumption and resistance theory must consider accountability and transparency in digital service development.

The study suggests that organizations must focus on service quality and convenience to promote citizens for digital inclusion. They must also be transparent and accountable throughout the development process of a digital service platform, including technology infrastructure, cyber security, and digital literacy.

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Pictures, Figures, and Tables

Terms and Abbreviations

IT   Information Technology

ICT   Information Communication Technology

DMSS   Digital Municipal Service System

1 INTRODUCTION

The chapter presents an outline of the study. It briefly explains how government digital services could significantly improve the public lifestyle. Next, it reviews previous studies to determine the research gaps. Consequently, the research question, objectives, and scope are aligned with the research aim. The final part of this chapter demonstrates the key concepts and the study structure.

1.1 Background

Information and Communication Technology (ICT) has significantly changed government operations and how citizens receive government services (Mensah, 2018). The use of ICT to generate improvements in public service delivery has been a primary focus and driver for e-government service development (Dwivedi et al., 2017). Many benefits accumulate from the digital transformation of government services. This includes cost-effective delivery of services, integration of multiple services, reduction in administrative costs, a single integrated view of citizens across all government services, and faster delivery of services to meet citizens' demands (Dwivedi et al., 2017; Hossain et al., 2018). Despite these well-documented benefits, the utilization of e-government platforms is growing slowly (Xia, 2017) in developing countries (Liu et al., 2017).

Additionally, citizens' concerns over data privacy and security pose significant obstacles. They often hesitate to use online government services due to fears of data breaches and the potential misuse of their personal information (Carter & Bélanger, 2005). Governments must invest in robust cybersecurity measures and establish clear data protection regulations to build trust and encourage more widespread use of e-government platforms. Another challenge is the resistance to change within governmental institutions themselves. Bureaucratic inertia, a lack of political will, and insufficient training for government employees can impede the successful implementation of e-government projects (Heeks, 2003). Overcoming these internal barriers requires a concerted effort to promote a culture of innovation and continuous improvement within public sector organizations. Furthermore, the sustainability of e-government initiatives depends on ongoing investment and support. Governments must ensure that digital services remain updated with technological advancements and evolving user needs.

This involves initial funding, long-term financial commitment, and strategic planning to maintain and enhance e-government systems (Gil-Garcia & Pardo, 2005). Thus, while ICT offers significant advantages for public service delivery, addressing the digital challenges, data security, institutional resistance, and sustainability are crucial for the successful adoption and operation of e-government services. By tackling these issues, governments can better leverage technology to improve efficiency, transparency, and accessibility in public service delivery.

1.2 Research Gap

Information System (IS) scholars investigated e-government platform adoption and usage behavior in developed and developing countries (Dwivedi et al., 2017; Kumar et al., 2017; Kurfalı et al., 2017). However, the studies had various constraints. First, prior studies mainly concentrated on enablers (the factors that promote adopting and using e-government services) for building their theoretical frameworks (Dwivedi et al., 2017; Rana et al., 2016; Talukder et al., 2019). For instance, Talukder et al. (2019) have identified e-governance as an emerging trend in developing countries, and Bangladesh is one of them. While their studies focused only on behavioral intention to use the DMSS, they suggested further research on the users' intention of continuous usage, which is more important than a behavioral intention to use; this continuous usage intention depends on the effectiveness of DMSS. In addition, Kumar et al. (2017) found several determinants that influence the adoption of e-government services in India. They argue that there is an opportunity and suggest further extending the research to similar developing countries where e-governance is immature.

Second, very few studies incorporated the inhibitors (the factors that discourage adopting and using e-government services) in their research (Lee & Rao, 2007; Najmul et al., 2020). An individual's decision to adopt and use technology can be influenced by both positive (i.e., enablers) and negative (i.e., inhibitors) factors (Bhattacherjee & Hikmet, 2007). Especially when the information systems involve personal information security, a user may be more reluctant to try such a system. The existing studies have failed to shed sufficient light on the failure to adopt information systems (Sharma et al., 2018; Talukder et al., 2020). Despite the growing Internet penetration and massive investments, e-government platforms are not widely used by the citizens of developing countries (Lee et al., 2011). By evaluating previous studies and research, it was noted that there is little research on DMSS in the context of developing countries.

Therefore, the study aims to investigate DMSS in Bangladesh. It would consider enablers and inhibitor determinants of DMSS. Addressing this research gap would enhance the adaptation of e-government platforms (Najmul et al., 2020).

1.3   Research Questions and Objectives

In light of the research aim determined by research gaps, the study tries to answer the following research question because the answer would assist the organizations in understanding citizen inclusion into the Digital Municipal Service System (DMSS). Therefore, the main research question is: What are the influential determinants of DMSS effectiveness? To find the answer to this research question, the study's objectives are to identify the influential determinants of DMSS and to examine the role of those determinants on DMSS. From the theoretical perspective, the study answers the research question following the consumption value theory (CVT) and innovation resistance theory (IRT). Empirically, the study interviewed an IT company's managers and senior executives. Besides, it surveyed 105 DMSS users in Bangladesh to achieve the research objectives systematically, answer the research question, and reach the research aim or goal.

1.4   Scope of the Study

This research aims to investigate the determinants of DMSS and its effectiveness. The target audience includes IT professionals and general DMSS users. The entire project was for seven months. The study follows the inductive and qualitative research strategy for the investigation. It collected data through an open-ended interview with IT professionals from the case companies using Microsoft Teams. The IT firm is also renowned for different digital and technological solutions to many multinational companies. Besides, the study collected data from 105 DMSS users through a random sampling method since it is common in studies assessing the usage of e-government services (Kurfalı et al., 2017; Y.-S. et al., 2008) Microsoft Form is used as the survey tool to collect the responses. A questionnaire was sent by e-mail and shared on social media platforms during the survey. In addition, the names and identities of the respondents are not disclosed in the study.

1.5   Structure of the Study

In Chapter One, the study presents the background of DMSS and identifies several previous studies to find the research gap. Research questions and objectives have been developed to bridge the gap. Furthermore, the boundaries of this study are presented in the scope of the study. Chapter Two introduces the theoretical foundation of this research. It focused on the consumption value theory and innovation resistance theory as a foundation of the study. In Chapter Three, the methodology of the research is explained. This qualitative study strategy involves interviewing IT experts following a survey of general users of DMSS. Chapter Four briefly describes the case company, its products, and services, which helps to understand the relevance of selecting this company for the interview. Chapter Five reflects the data gathered through the survey questionnaire and open-ended interviews of the IT experts. Chapter Six analyses the data collected in the survey and through interviews. It analyses significant findings and provides interpretations of the data. Finally, chapter Seven presents the study's summary, which explains the study's limitations and shows the scope of future research in this field. The following figure outlines the chapters used in the study.

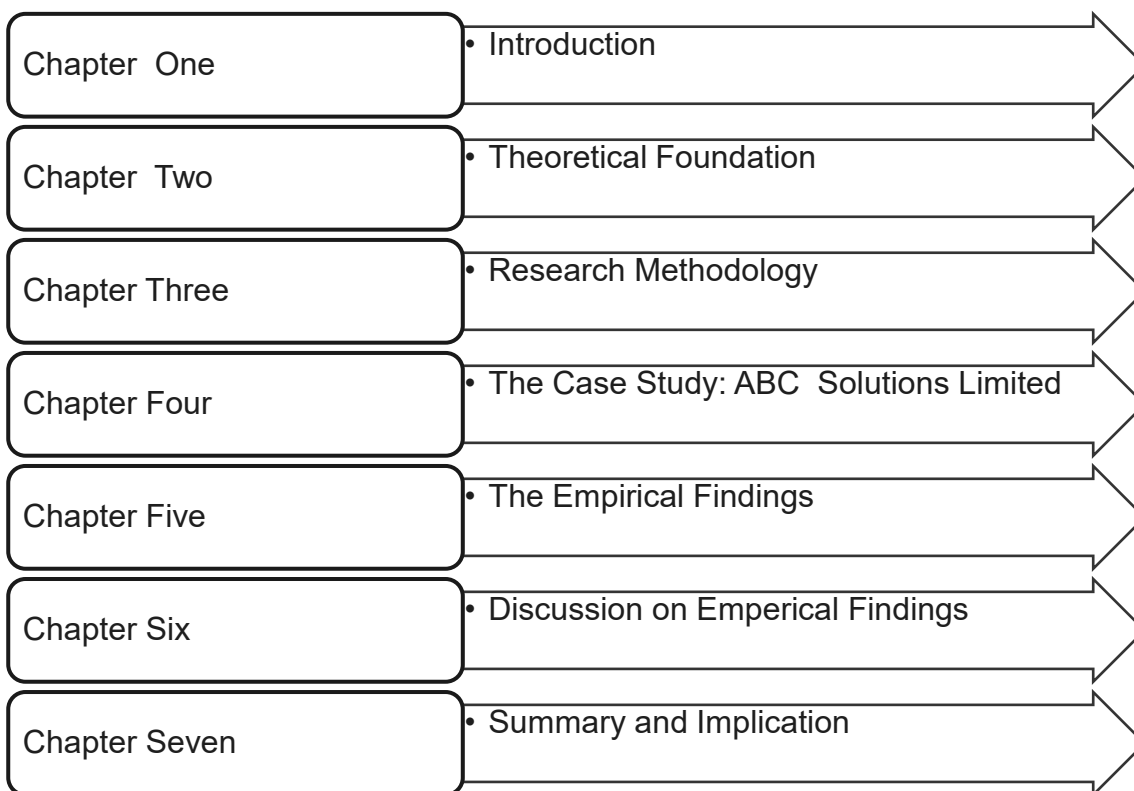| Chapter One | • Introduction |
Chapter Two	• Theoretical Foundation
Chapter Three	• Research Methodology
Chapter Four	• The Case Study: ABC Solutions Limited
Chapter Five	• The Empirical Findings
Chapter Six	• Discussion on Emperical Findings
Chapter Seven	• Summary and Implication

Figure 1. Structure of the Study.

2   DIGITAL MUNICIPAL SERVICE SYSTEM: THEORETICAL VIEWPOINTS

The chapter explains the consumption value theory (CVT) and Innovation Resistance Theory (IRT). Based on the theories, it tries to identify the determinants of DMSS. Finally, it proposes a conceptual model of DMSS determinants.

2.1   Consumption Value Theory (CVT)

As defined earlier, the enablers are the factors that encourage or discourage usage, depending on the situation (Cenfetelli & Rinald, 2004). The researcher adopted the value theory to identify the enablers. According to value theory, individuals attach different values to products or services, ultimately influencing their purchase or use decisions (Ramkissoon, 2009). To prevent measurement mistakes and have a better and deeper interpretation, it is essential to consider segmenting users based on their value systems rather than a single value (Sheth et al., 1991). CVT has three fundamental propositions: the individual's behavior is a function of various consumption values, the consumption values have different contributions in any purchase or use situation, and the consumption values are independent (Sheth et al., 1991).

In addition, the CVT was developed as a synthesis of the accumulated body of knowledge on consumer psychology to provide a taxonomy of the functional, conditional, emotional, social, and epistemic values that drive consumers' purchasing decisions across product and service categories. In brief, the CVT posits that consumer choice is a function of multiple consumption value dimensions, and these dimensions make varying contributions in different choice situations (Sheth et al., 1991). The CVT has been used to explain a wide range of consumption choices, from college courses (Stafford, 1994) to hedonic digital artifacts, such as mobile phone ringtones (Turel et al., 2010) and virtual items (Kim et al., 2011; Mäntymäki & Salo, 2015). Instead of reducing value to a single cost-benefit evaluation (Zeithaml, 1988), CVT-based literature (Mathwick et al., 2001; Sweeney & Soutar, 2001) has articulated the need for a more fine-grained analysis of how consumers value products and services. Hence, the CVT is an appropriate theoretical basis for classifying the values that users attribute to premium digital content services.

The CVT provides a guiding framework for context-specific theorization instead of a predetermined collection of variables and constructs (Davison & Martinsons, 2016). Thus, understanding the context of consumption provides the basis for successful employment of the CVT. As a result, the study is built upon the CVT's classification of consumption values and contextualizes the functional, conditional, social, and epistemic values derived from using e-government platform services. The researcher identifies six dimensions of value, namely, quality of platform, convenience value, social image value, inclusiveness value, conditional value, and epistemic value, that may enable citizens to use e-government platforms. The researcher has contextualized the consumption value as Service Utility Value in this research context (Sheth et al., 1991).
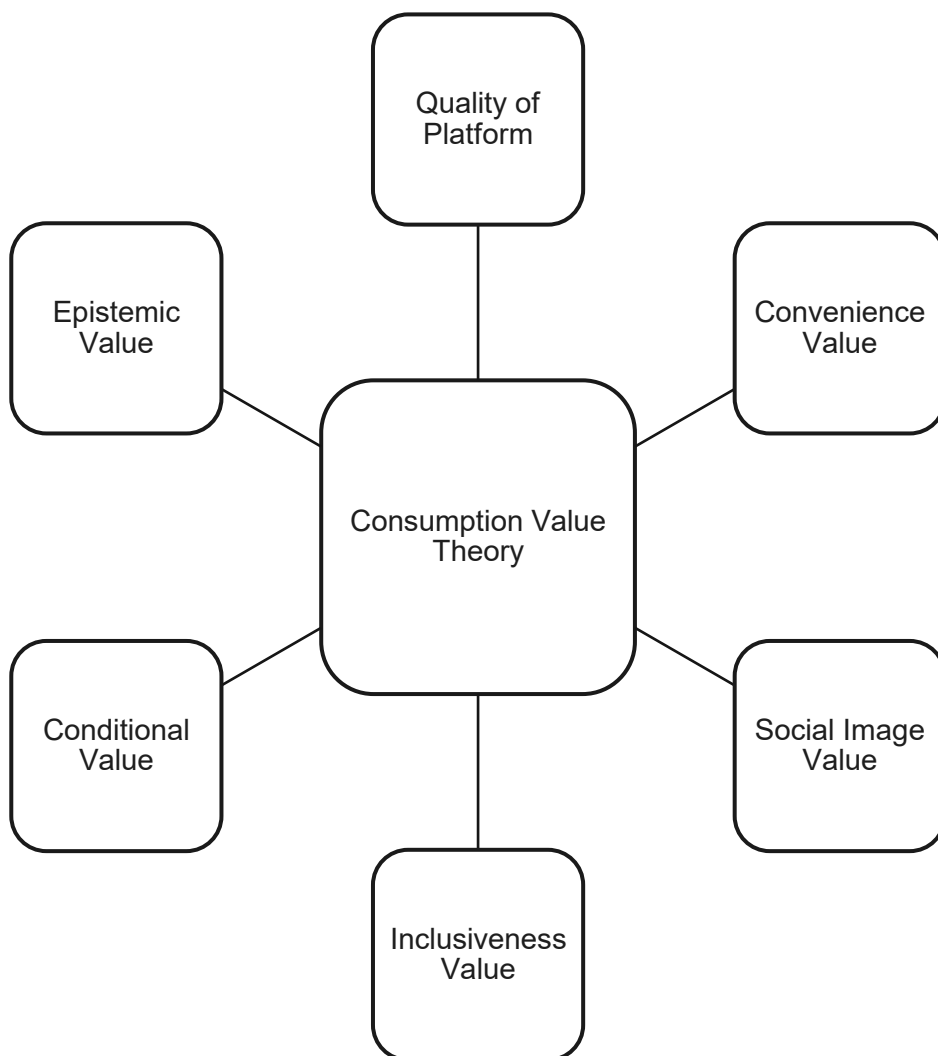
Figure 2. Consumption Value Theory (Sheth et al., 1991).

2.2 Innovation Resistance Theory (IRT)

IRT is a popular theory that hypothesizes various barriers representing consumer resistance (Kaur et al., 2020; Talwar et al., 2020). The theoretical framework posits two significant categories of obstacles: functional barriers that impact consumption patterns and psychological barriers that result from conflicts between customers' attitudes and particular items (Kushwah et al., 2019). However, studies present three functional barriers: usage, risk, and value. On the other hand, there are two psychological barriers: image and tradition. This research employed value, use, and risk barriers to identifying the inhibitors that may cause users to resist DMSS. The researcher contextualized this theory as service anxiety in the context of the study (Ram & Sheth, 1989).

Figure 3. Innovation Resistance Values (Ram & Sheth, 1989).

2.3   Digital Municipal Service System (DMSS) Considering CVT and IRT

Municipal governments employ digital tools and platforms to administer and provide services to their citizens, collectively known as Digital Municipal Service System (DMSS). Municipalities first adopted digital technology by automating routine administrative tasks and launching web portals. With time, these systems have developed into all-encompassing platforms that in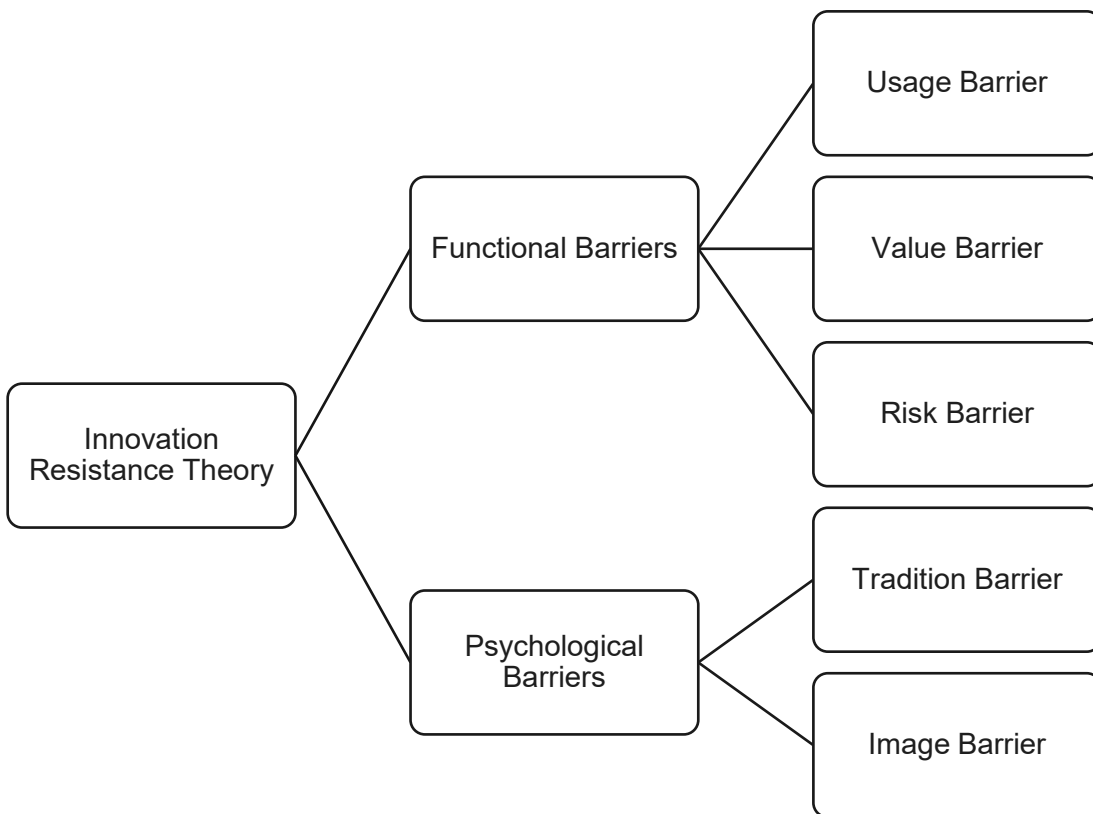clude various services, such as public safety, utility management, community involvement, and urban planning (Gil-Garcia et al., 2006). Centralized e-governance platforms, which provide citizens with online access to various municipal services, including bill payment, permit applications, and complaint submissions, are among the essential elements and technologies of the DMSS. The concept behind these platforms is to lessen administrative burdens and enhance the effectiveness of service delivery (Coursey & Norris, 2008). To interpret and analyze spatial data to support decision-making, municipalities employ Geographic Information Systems (GIS) extensively in urban planning and management (Brown, 2009). Big data and analytics are also utilized in fields ranging from traffic management to crime prevention to forecast patterns, optimize resource allocation, and pinpoint areas that require improvement in the provision of services (Manyika et al., 2011).

With digital technology, DMSS has become a disruptive force in urban government, improving municipal services' accessibility, efficiency, and transparency. However, several financial, sociocultural, and technological obstacles are concerned with how well DMSS is implemented in various international contexts. Gil-Garcia et al. (2007) state that old technology and insufficient internet access are two examples of the inadequate digital infrastructure that plagues many communities, particularly in developing nations. Training and educational initiatives are required since low levels of digital literacy among municipal employees and residents might impede the efficient implementation of DMSS (Venkatesh et al., 2003). One of the biggest obstacles facing smaller communities is money. Moreover, since municipalities depend increasingly on digital systems, protecting data security and privacy is a crucial problem that calls for strong cybersecurity measures and regulations to safeguard private data and preserve public Local circumstances. Governance structures impact how DMSS is implemented and performed in different places. Cities in North America that were early adopters of DMSS included New York and Toronto.

Although Toronto's 311 service offers a comprehensive platform for citizens to access municipal services and report issues, enhancing service delivery and civic engagement (Sieber & Johnson, 2015), New York City's open data initiative has improved transparency and encouraged innovation by making municipal data publicly accessible (Goldsmith & Crawford, 2014). Cities in Europe like Tallinn and Barcelona have made significant progress in DMSS; the e-governance platform in Tallinn streamlines administrative procedures and boosts competence, while Barcelona's smart city initiative integrates IoT (Internet of Things), data analytics, and citizen engagement tools to improve urban management and quality of life (Bakıcı et al., 2013).

However, the "Digital Bangladesh" program, introduced in 2009 and sought to incorporate ICT into every aspect of public service and administration, had a significant influence on Bangladesh's journey towards digital governance. This program has been essential in encouraging municipalities to use DMSS, improving service delivery, and increasing public involvement (Islam & Grönlund, 2011). In Bangladesh, DMSS includes several essential elements and technologies adapted to the region's specific requirements and limitations. Reducing the need for in-person trips to municipal offices, centralized e-governance systems give residents online access to a range of municipal services, such as bill payment, permit applications, and complaint registration.

Mobile applications have become crucial for providing municipal services because of the increasing usage of mobile phones, which allow residents to access information, report difficulties, and get updates quickly. Geographic Information Systems (GIS) are also utilized in urban planning and management; these systems enable municipalities to view spatial data and make well-informed choices on infrastructure development and resource allocation. There are several obstacles to overcome in adopting DMSS, from technological to socioeconomic to cultural. Many municipalities lack an appropriate digital infrastructure, such as obsolete technology and poor internet access, which makes it challenging to adopt DMSS successfully (Hossain et al., 2018). Strong regulations and procedures are required to safeguard private data and uphold public confidence in the face of growing cyber threats. Cybersecurity is still a major concern.

2.3.1 Service Utility Determinants of DMSS in Light of CVT

Functional value is a crucial component influencing customers' decisions to buy, according to Sheth et al. (1991). Sometimes, it is linked to being better than a substitute. As a result of characteristics like pricing, dependability, and durability, functional value is the perceived capacity of a good or service to achieve utilitarian, physical, or functional performances (Sheth et al., 1991). Therefore, to capture the functional value of the e-government platform, the researcher employed two concepts, i.e., the quality of the platform and convenience. First, the quality of the platform captures the characteristics of the e-government platform from the perspectives of its durability and reliability. A high-quality e-government platform is expected to generate value for citizens by providing timely information, offering services more conveniently and quickly that satisfy their needs, and allowing them to improve their productivity. Prior literature on value often included the quality of a product or service as one of the central functional values (Sweeny & Soutar, 2001).

Second, the platform's convenience value captures the performance dimension of a product's functional value. Traditionally, convenience was meant to refer to the immediate convenience of purchasing goods in locations convenient to customers, requiring minimum effort from the customer. Time-savings, as well as psychological comfort, are crucial elements of convenience (Pura, 2005). In e-government platforms, citizens can access various public services (i.e., pay water bills, hold taxes, get municipality certificates, Automated property management, and e-trade license facilities) through the platforms, thereby saving time. Previous research has demonstrated that perceived quality and convenience benefit users' attitudes toward services or products in many contexts (Choe & Kim, 2018; Jung et al., 2017).

The study proposes that citizens use an e-government platform based on its functional values, according to the value theory. As a result, the effect of functional value on stated e-government platform usage behavior can originate from the quality and ease of the e-government platform, resulting in citizens having a good attitude about utilizing the e-government platform. A person's perceived advantages from belonging to one or more distinct social groups are expressed in their social worth (Sheth et al., 1991). According to Sheth et al. (1991), an alternative acquires social value through association with one or more precise community groups positively or negatively. In the study, the researcher employs two concepts, namely, social image and inclusiveness value, that capture the dimension of social value.

First, through new technology, people can gain social status and image. As digitalization and digital transformation are recent phenomena in developing countries, they are getting more and more attention from the public. Therefore, using the latest digital service, such as the e-government platform, is considered fashionable, promoting one's self-image. Prior IS research has demonstrated that social image may influence behavioral intention to use an IS (Hsu & Chen, 2007; Li Y. & Shang, 2019; Lin & Huang, 2012). The researcher conceptualizes this value as the social viewpoint of DMSS. Second, an e-government platform can provide services to every citizen regardless of income and education level (Li et al., 2019). In other words, a government can provide public services to its citizens by treating everyone equally through an e-government platform. Therefore, the study adopts the concept of inclusiveness value to capture the social inclusion dimension and posit that it would influence citizens' future intention to use an e-government platform. Inclusiveness value refers to citizens' perception that the e-government platform increases the accessibility of public services and makes service delivery more open (Heiko & Baranauskas, 2011).

In a recent study, Li and Shang (2019) argued that inclusiveness value is one of the significant dimensions of an e-government system's overall value. They further argue that e-government plays a central role in the broader adoption of public services. By extrapolating this to the study context, the researcher suggests that inclusiveness value has a positive attitude towards using an e-government platform, and the study conceptualizes this value as citizens' social inclusiveness. The perceived usefulness of an alternative given a particular scenario or set of conditions that the decision-maker must consider is known as conditional value. (Sheth et al., 1991). This implies that when the value is strongly linked to the product or service's use in specific contexts, the conditional value arises (Wang et al., 2013).

Therefore, it might be derived from temporary functional or social value (Sheth et al., 1991) when the circumstances create a need. The e-government platforms offer many services for citizens in specific situations. For example, using the platform, citizens can pay different types of utility bills, tuition fees for education, and taxes. The government can encourage the use of the platform by providing discounts on the received services through the platform compared to traditional means. For example, the application costs for a passport or national identity card may be cheaper through the platform.

When a citizen is looking for a particular service and finds that the service is available on the e-government platform and, in fact, cheaper than the traditional means, the derived value can be viewed as a conditional value. Therefore, the study adopts the concept of conditional value and theorizes that it creates a positive attitude toward using the e-government platform. According to Sheth et al. (1991), the apparent benefit that arises from an alternative's ability to spark interest, offer novelty, or satiate a need for information is known as epistemic value. A new experience provides epistemic value. Therefore, services offered through an e-government platform are expected to provide epistemic value to the citizens receiving government services in traditional ways. Thus, the study adopts the concept of epistemic value in this research context. As Sheth et al. (1991) described, epistemic value is related to the desire for knowledge. In fact, according to prior literature, knowledge is recognized to have influenced all stages of individuals' decision-making (Laroche et al., 2001).

In the study, the comparative value of DMSS is considered. Prior studies have shown that epistemic value can influence an individual's usage decision of an IS (Hau & Thuy, 2012; Y. et al., 2019; Lin & Huang, 2012; O'Flynn, 2007). It is believed that the impact of epistemic value on the use of an e-government platform can be attributed to curiosity, novelty, and knowledge-seeking perspectives. Based on previous studies, the researcher has discovered the favorable impact epistemic value had on user attitudes (Choe & Kim, 2018; Jung et al., 2017). The researcher considers this fact an appealing value of the DMSS platform.

2.3.2 Service Anxiety Determinants of DMSS in View of IRT

First, the traditional barrier is about status quo bias, which describes why individuals prefer to continue current situations rather than switch to new courses of action (Samuelson & Zeckhauser, 1988). Samuelson and Zeckhauser (1988) claimed that psychological commitment, cognitive misperceptions, and rational decision-making can explain the status quo. Polites and Karahanna (2012) argue that people remain devoted to and persistent in utilizing the established system even when there are superior options or incentives to switch. Hoque and Sorwar (2017) proposed that individuals rely on their past behavior and may thus need to perceive the relative advantage of a new system better. The traditional barrier is expected to negatively bias a user's perception of a new system and cause lower intentions to use it.

Individuals with traditional barriers tend to decrease the volume and diversity of information and rely on past behavior. For example, when using e-government platforms, citizens may prefer to manually visit local government offices to access and use public services instead of using the platform. Therefore, these citizens may have lower intentions to use the e-government platform. The researcher has considered this phenomenon of traditional comfortability resistance in the context of the study.

Second, prior literature suggests that 80% of Internet users are concerned about making their identities known on the web (Rana et al., 2015; Schaupp & Carter, 2010). Therefore, an individual's perceptions of the risks of online transactions are vitally resistant to adopting and using electronic services (M. et al., 2020). Following this, the study adopts the concept of risk barrier in this research model. According to the study, the risk barrier is the idea that one may lose money while pursuing a goal. (Warkentin et al., 2002). Prior empirical evidence has shown that risk barrier negatively influences individual's intention to use technology in general (Gefen et al., 2003; Johnson et al., 2018; Susanto & Goodwin, 2011) and e-government (Dwivedi et al., 2017; Shareef et al., 2011; Sulaiman et al., 2012). The researcher has identified this fact as a service risk. Finally, the Usage barrier occurs when a new product or service forces users to change their current usage patterns, i.e., habits and routines practices (Ram & Sheth, 1989). It is an emotional aspect of technology usage that adversely reacts to IT use. Although an e-government platform is designed for all citizens, many need to become more familiar with IT and, therefore, are afraid to use it. The incapacity or lack of confidence to handle and use technology is the root cause of usage obstacles (Oyedele, 2007).

According to earlier studies, usage restrictions might negatively impact behavioral intentions toward IS use (Li et al., 2019; Talukder et al., 2020). If citizens are afraid or nervous about using the services through the e-government platform, they tend to have a negative attitude toward using e-government platforms (Dyck & Smither, 1994). The study also considers this to be a complexity of usability.

2.4   Theoretical Model of DMSS

Service utility includes the quality of the platform, its convenience, its social viewpoints, the citizen's inclusiveness, appealing value, and comparative value with traditional services. Service anxiety includes traditional comfortability resistance, service risk, and usability complexity. DMSS effectiveness indicates attitude, satisfaction, and intention to use.
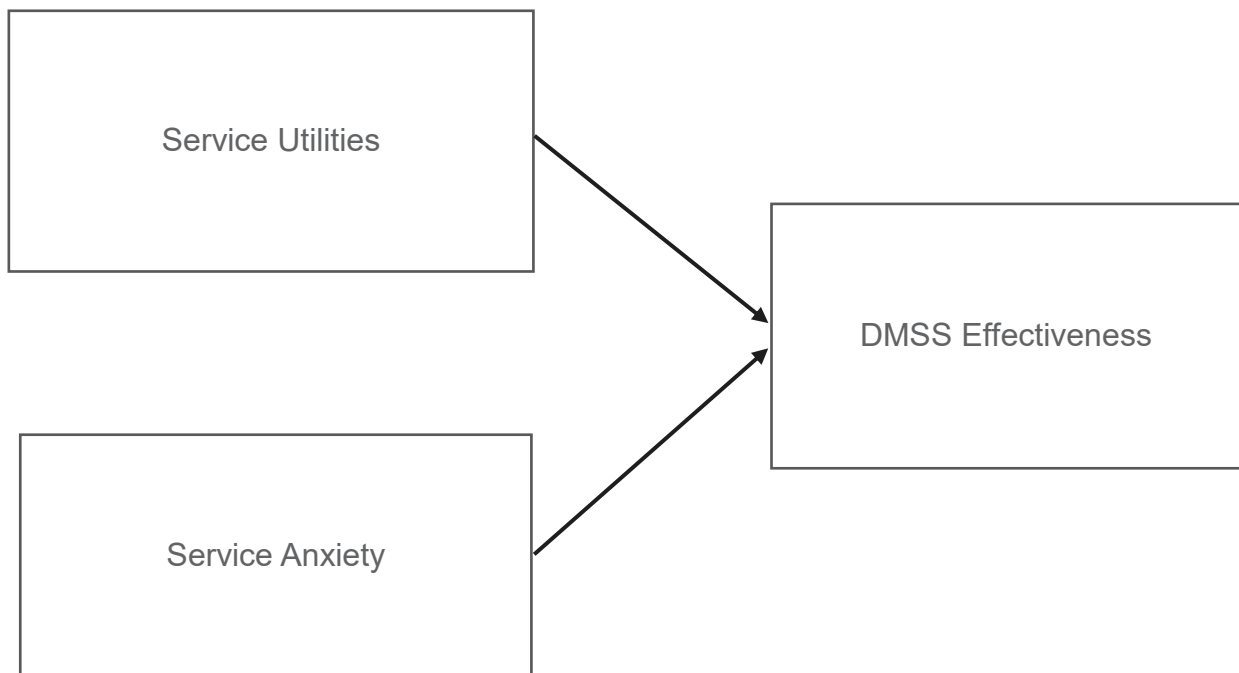

Figure 4. Research Model.

3 RESEARCH METHODOLOGY

The chapter first explains a research philosophy. Then, the study focuses on the research approach, strategy, and design. After describing data collection and analysis methods, the study depicts validity, reliability, and ethical considerations.

3.1 Research Philosophy

Research philosophy is a process or practice of a researcher to collect, rearrange, summarize, analyze, and interpret data or information to solve the problem (Wilson, 2014). The study tries to investigate the determinants of DMSS effectiveness. Since this is a human-oriented problem influenced and constructed through social interactions and individual experiences, the study considers subjectivism according to ontology. To solve this problem, the researcher emphasizes interpreting the context and subjective meanings according to epistemology. Since the research constructs the theory, it follows a constructive research paradigm. Conversely, rather than testing the existing hypotheses, the study focuses on developing insights and theories based on empirical data on DMSS, and that is why the research is considered an inductive research approach. Consequently, the researcher follows a qualitative research strategy since it provides deep insight into the problem, flexibility, and variety in data collection and pattern (Radović-Marković, pp. 164–181, 2023). Since there has been very little research on DMSS, a qualitative strategy would help to generate more insightful information through flexible discussions. Thus, this research used interview and survey methods, considering a case company, ABC Solutions Limited, an IT firm. The interview is open-ended, and the survey questionnaire is structured. The data were collected through Microsoft Teams and Microsoft Forms, respectively. Finally, the researcher has applied thematic analysis as a data analysis technique to make patterns from the empirical data.

3.2   Research Approach, Strategy, and Design

This research tries to find the determinants of DMSS effectiveness. The study uses an inductive research approach instead of a deductive one (Hyde, 2000). Therefore, it follows a qualitative research strategy. Its target is to recognize IT professionals' thoughts, feelings, and opinions on the effectiveness of DMSS. Besides, it considers the end-user level. Thus, the researcher uses an inductive approach and qualitative research strategy to find the answers from human experience regarding the various issues of DMSS. However, qualitative research strategy has several advantages over quantitative research, including in-depth information, flexibility, and variety in data collection methods (Radović-Marković, pp. 164–181, 2023). However, there are considerable limitations to qualitative research. Results or findings might not be easily generalized since the sample size is significantly small and considers a specific context for in-depth analysis (Cornell, 2022). Additionally, it is time-consuming and labor-intensive, and it lacks statistical analysis, which is responsible for business and challenges the validity and acceptability of the findings (Denzin & Lincoln, 2000; Wilson, 2014).

As mentioned earlier, the study was conducted in Bangladesh to find which factors are responsible for the well-functioning of DMSS. Thus, the interview method tries to discover new facts that might trigger the advancement of DMSS. Both the survey questionnaire and open-ended interviews were used to gather data. Using descriptive analysis, the survey questionnaire systematically measured the individuals' characteristics or thoughts. The following Figure 5 gives an overview of the research methodology.
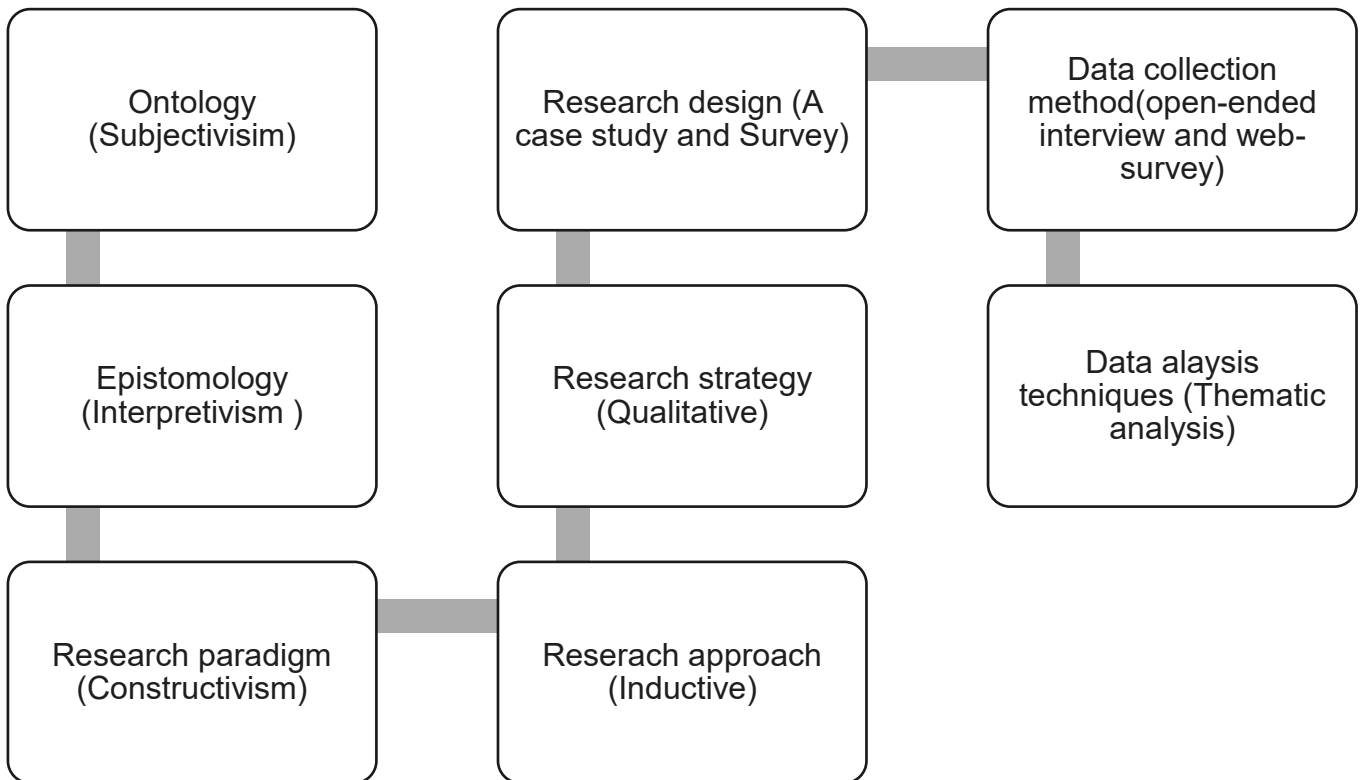
Figure 5. Research Methodology (Wilson, 2014).

3.3 Data Collection and Analysis Method

A survey questionnaire was sent to different users to understand the users' experiences. Based on these responses, the researcher interviewed experts from an IT firm to investigate the effectiveness of DMSS further. In the study, a survey questionnaire is used to understand the effectiveness of DMSS by assessing the user feedback based on the different consumption values. The items used to measure the various constructs have been carefully selected from the existing literature and then modified for the context of e-government in Bangladesh. A seven-point Likert scale is used to collect information for the constructs, where seven indicates "strongly agree" and one means "strongly disagree" in the questionnaire design. The survey questionnaire has two parts. The first part contains five queries about the participant's demographic information: name, gender, age, and education.

The second part has 34 items concerning the nine constructs of this research model. The study distributed the questionnaire through social media and email, and answers were collected through Microsoft Forms (see Appendix 2). The researcher conducted an open-ended interview using Microsoft Teams to identify cases of DMSS effectiveness. The interview was conducted in an IT firm in Dhaka, Bangladesh, and two senior IT professionals with more than 15 years of diverse experience in the industry shared their valuable insights. The interviewees' profiles and interview questions are being asked and are available in Appendix 8 and 9, respectively. Qualitative research strategy is the understanding of thought, experience, and concepts articulated in words, which helps a researcher have in-depth insight regarding an inadequately denoted theme (Streefkerk, 2019). Hence, the researcher focuses on underlying issues or factors that influence the effectiveness of DMSS. The researcher examines the data and information through thematic analysis to determine or analyze the significant theme or patterns. Thematic analysis has evolved as a part of the qualitative analysis methodology. The survey questionnaire has been analyzed using Microsoft Excel and described interpreting methods. The results were analyzed manually since the data set of 105 respondents was small and simple. Also, qualitative data analysis tools were not used due to the research's time constraints.

3.4   Validity, Reliability, and Ethical Considerations

In qualitative and quantitative research, reliability, validity, and generalizability are essential for verifying and assessing variable measures to assure data quality, research design procedures, and overall study quality (Adams et al., 2014). While validity measures the accuracy of the measurements, reliability is the consistency of measurements. The credibility and generalizability of research findings depend heavily on ensuring high validity and reliability. According to Golafshani (2003), validity guarantees that the study accurately captures the phenomena under investigation, resulting in significant and precise findings. A high level of dependability lowers the possibility that random mistakes may impact the results by indicating that the findings are consistent and repeatable. Researchers must carefully plan their tools and processes to increase validity and reliability. To do this, meticulous planning, pilot research, and statistical methods are used to assess and improve measuring instruments (DeVellis, 2016).

The researcher used items from existing literature to measure the constructs to assure the validity and reliability of this research. Moreover, the interview was conducted with experienced professionals in the industry to ensure the validity and reliability of the study.

Since qualitative research strategy is centered around the needs of humans, it requires active participation to obtain accurate and pertinent data in a condensed amount of time. Individuals can choose how much information they want to divulge (Nii et al., 2023). Researchers must carefully manage this dynamic to ensure they have all the necessary information. Orb et al. (2001) stress how crucial ethical issues are to take precedence in qualitative research strategy. In addition to safeguarding responders, ethical procedures make it easier to get essential data. By upholding strict ethical guidelines, researchers may establish a reliable atmosphere that motivates participants to provide insightful information. The method guaranteed that the information gathered was genuine and voluntary. The case firm provided the necessary interview approvals and guidelines, demonstrating their dedication to ethical research techniques. By upholding ethical norms, it has been possible to guarantee the respondents' rights and secrecy, which promoted an atmosphere of openness and confidence. Ethical care is crucial to qualitative research because it protects participant welfare while facilitating high-quality data acquisition.

4 THE CASE STUDY: ABC SOLUTIONS LIMITED

This chapter describes the case company and its operating activities. It also outlines the company's products and services, market operation, and customer portfolio.

4.1 Description of the Case Company

ABC Solutions Limited, having its head office in Dhaka, Bangladesh, has been a leading provider of advanced technological solutions, products, and services since 2006. A group of intelligent individuals with extensive knowledge and exposure to information technology founded the firm. Young, talented business graduates and skilled engineers from globally recognized colleges participate. The company's resource staff has continuously offered dependable support services and consulting to a broad range of corporate houses, either as an executive or as a business partner or consultant. Experts from technical and functional fields collaborate here to provide appropriate business solutions for the given situation. It acknowledges functional knowledge's significance and how it concerns the creation of business solutions. They aim to become a preeminent technology company with extensive functional and commercial skills. It also expanded its operation through offices in Malaysia and India, indicating a strong presence in the global market. ABC Solutions Limited is devoted to transforming businesses through innovative and customized solutions that bring competence and effectiveness. ABC Solutions Limited has a comprehensive and versatile portfolio that serves various industries such as manufacturing, Fast Moving Consumer Goods (FMCG), financial institutions, and the telecom sector.

4.2 Products and Services

ABC Solutions Ltd. provides extensive products and services to optimize corporate operations in diverse sectors. Their CRM and customer Solutions enhance financial success, retailer cooperation, and customer engagement with cutting-edge CRM features. ERP Solutions offer an integrated ecosystem with modular architecture for effective information management and scalability. Fintech and financial solutions are designed to improve risk management, offer more responsive customer service, and build flexible investment banking platforms.

Telecom solutions include value-added services and international voice traffic management to improve telecom operations. The Transport Management System streamlines logistics through real-time tracking, optimized routes, and fleet management. HR solutions simplify HR procedures, including hiring, payroll, performance management, and employee engagement. Testing as a service provides end-to-end test administration, automation, and execution, guaranteeing excellent testing procedures. Infrastructure as a Service also provides scalable cloud infrastructure, data center administration, and IT infrastructure optimization to assist with company operations. ABC Solutions offers solutions to a range of industries, including FMCG (fast-moving consumer goods), manufacturing (streamlining operations and increasing production efficiency), financial institutions (offering risk management tools and secure financial solutions), and telecom (offering cutting-edge solutions to boost connectivity and operational efficiency).

ABC Solutions makes significant R&D investments to create cutting-edge IoT, blockchain, artificial intelligence, and machine learning solutions as part of its ongoing commitment to innovation. Their CSR efforts center on three main areas: education via endorsing STEM programs, community participation through volunteer work and collaborations with non-profits, and sustainability through eco-friendly practices and energy-efficient goods.

5 THE EMPIRICAL FINDINGS

This chapter describes the study's results and identifies DMSS indicators and their effectiveness. It also extends the explanation regarding public-private partnerships to improve DMSS effectiveness. The entire chapter is illustrated based on the collected data from interviews and surveys. During the data collection, the study used open-ended questions to interview two senior IT professionals and surveyed 105 DMSS Users.

5.1 Results of the Study

The researcher conducted a survey questionnaire to accumulate the responses of the DMSS users to understand their satisfaction level, which in turn reflects the effectiveness of DMSS, which was one of the main objectives of this research. A seven-point Likert scale is used to collect data for the constructs, where seven indicated "strongly agree" and one indicated "strongly disagree" in the questionnaire design. The various items are presented in Appendix 1.

An open-ended interview has been conducted to gain more insight from the expert's point of view. The interview also tries to reflect the effectiveness of DMSS, followed by users' responses. Following the research question regarding the effectiveness of DMSS, the three sub-objectives are identifying the significance of influential factors of DMSS effectiveness, recognizing possible strategic solutions to improve the service, and finding the opportunity for the private sector to work in such government projects to bring effectiveness, and convenience. The researcher interviewed two senior IT experts at ABC Solutions Limited.

5.2 Identifying Indicators of DMSS Effectiveness

Considering the research objectives, Two IT experts were asked: Do you think people use DMSS properly? If not, what could be the factors/reasons behind that? The interview answers are summarized accordingly from the interview notes.

> Despite the government's robust efforts to promote e-governance, it is not running properly. Among the various factors, limited infrastructure, inconsistency in service quality, and lack of digital literacy among mass people are some of the key challenging issues that concern the functioning of DMSS. (H1)

However, further limitations of DMSS are a complex user interface, lack of appropriate instruction for using the services, outdated information and system, lack of incentives, and trust issues, which are also observed to prevail. (H2)

The study also concluded a survey of over 105 respondents who encountered issues regarding inconvenience, bureaucracy, unresponsiveness, and insecurity (see Appendix 3). The following question is: How do you know the impact of DMSS in society regarding inclusiveness or social image?

While a system goes through a transformation, it is obvious that there will be challenges with how the user, i.e., society, reacts or responds and ensures that people from all classes (socio-economic and demographic) can use it. In the case of DMSS, since there are already some limitations to its functionality, it, in turn, makes it more challenging to ensure social inclusiveness. (H1)

To be more specific, people, especially those with a lack of technological literacy, face challenges when using digital services. On the other hand, the internet and facilities are too costly for some people, which is also a significant barrier to ensuring social inclusiveness. However, it is also a good sign that the young generation is proactively using DMSS, which creates a social image and eventually establishes social inclusiveness. (H2)

According to the survey responses, the researcher finds that only a few respondents agree that DMSS successfully promotes social inclusion (see Appendix 4). The next question is how would you interpret users' new way of doing things?

It is expected that people will try to explore new things. So, there is an opportunity to convince users to adopt DMSS if it can ensure proper functionality and reliability. Considering the growing interest in digital solutions and services, this norm of curiosity can play a vital role in improving the DMSS process. (H1 & H2)

From the survey result, the researcher also found that almost 80% of the users started using DMSS out of curiosity (see Appendix 5). The researcher also asks questions about factors that might inhibit the users from using or adopting DMSS. The first question is whether people sometimes feel anxious about embracing the new system. How do you see this impact on DMSS?

This is quite similar in the context of Bangladesh. People from Generation X are especially resistant to change and need help accepting new ways of doing things. This is a traditional barrier that is not surprising to prevail. Since the population size of this generation is significant, it influences the effectiveness of DMSS and needs strategic measures. (H1 & H2)

The survey findings show that most people agree that they cannot effortlessly use DMSS (see Appendix 6). Considering the recent phenomenon regarding cyber security, the researcher asks the next question. How would you interpret the importance and effect of cyber security risk in DMSS?

Since DMSS deals with crucial identification data, hackers or cyber attackers always make targets of this type of system. Thus, it can be easily understood how important it is to ensure proper security and risk management systems to ensure users' privacy. As mentioned earlier, digital literacy still has much more to grow among mass users; they might feel worried about any negative news regarding cyber-attacks, which might ultimately reduce their intention to use DMSS. (H2)

According to the survey results, approximately 85% of the respondents felt worried and insecure during online transactions (see Appendix 7).

5.3   DMSS Effectiveness

The researcher has asked Two questions here. First, why is DMSS not functioning well despite having ample opportunities?

Functionality and convenience are critical factors in making it more user-friendly. I observed a need for continuous monitoring and development systems to keep the service functioning. Moreover, while developing a project, it is important to consider stress testing, security, and scope for future development to serve more customers. This might be one of the reasons that when customers increase gradually, the system fails to serve. (H1)

We also observed that having proper feedback is important in improving the functionality of DMSS. The feedback usually comes from the user end. An active feedback monitoring system could help develop and keep the system functioning well. Active customer care support can be a solution here. (H2)

What factors are to be considered for strategic development?

Expert and efficient human resources are crucial for sustainable development in the DMSS. More technical people are already needed to support upcoming challenges. Another factor is improving infrastructure, i.e., affordable internet services, digital devices, uninterrupted power supply, etc., which are important to ensure sustainable development. (H1)

Addressing the technical knowledge gap is also a significant issue that needs to be addressed here. While developing software or web applications, how technology changes and whether this will fit there must be considered. Furthermore, motivation is also a factor in a healthy outcome of a project. Many government projects are done through short-term contracts by third parties, and they need to be motivated to work efficiently due to short-term contracts. (H2)

5.4   Public-Private Partnership (PPP) to Improve the Effectiveness of DMSS

Here, the researcher makes two questions. First, is it feasible to establish PPP to improve DMSS?

Since DMSS is a big project requiring continuous development, it is feasible for the private sector to collaborate with the government towards its development. Creating a place for accountability, competitiveness, and transparency might be possible. (H1 & H2)

What are the key challenges in such collaboration?

One of the main challenges is securing the data. Since DMSS is a public database with sensitive identification data, establishing a public-private partnership requires a firm policy and monitoring system. On the other hand, bureaucracy might discourage the private sector from collaborating on this project. (H2)

6 DISCUSSION ON EMPIRICAL FINDINGS

This chapter illustrates the discussions based on the empirical findings. The study interprets the determinants of DMSS and their effectiveness compared to previous studies.

6.1 Discussion on Research Findings on DMSS

The research tries to identify the determinants of the DMSS effectiveness in Bangladesh regarding user experience. Important findings show that convenience value considerably facilitates future usage by reducing the time and effort needed to use public services. The public values the ease of having one location to obtain all government services. High-quality services must productively address the demands of residents, and functional quality is essential. It makes the platform accessible to all citizens. The inclusiveness value improves platform utilization. Curiosity and a need for novelty also generate epistemic value, which concerns platform effectiveness. The most influential indicator of future technology use is technology anxiety because fear of technology prevents adoption. Despite the platform's benefits, privacy and security issues significantly impact adoption since many users prefer conventional, in-person interactions. The research additionally delineates critical components necessary to augment the efficacy of DMSS, such as infrastructure development, technical skill enhancement, acquisition of qualified personnel, establishment of competent monitoring systems, provision of user guidance, feedback collection, and execution of risk management protocols. It is essential to emphasize these elements, particularly in remote places with limited internet access. Cooperation between the public and commercial sectors is required to guarantee hardware and software availability and enhance connectivity. Bridging the gap can be achieved by improving digital literacy, especially among older individuals, by providing practical training through office service desks. To guarantee the successful installation and functioning of DMSS, dependable monitoring systems, thorough user manuals, and robust cybersecurity safeguards are essential.

6.2 Interpretation of the Determinants of DMSS Effectiveness

The researcher identified and compared several factors with the empirical findings following the existing literature. The study finds convenience value as a key enabler of the future use of e-government. This is because the e-government platform improves effectiveness, i.e., citizens require less effort or time spent, thereby making life easier by streamlining public services. Convenience value is gained through the IT services' speed and ease of use. An e-government platform is a one-stop service-providing platform; therefore, citizens appreciate convenient access to all government services in one platform. In prior literature, convenience has also been found to be an essential reason for online shopping and mobile banking services (Chiang & Dholakia, 2003; Pura, 2005).

On the other hand, the functional quality of the e-government platform is another significant predictor of future use of the e-government services. The study focused on DMSS, an e-government platform that provides online services to meet citizens' requirements, and suggests that a high-quality e-government service must be functionally advanced and technically easy for citizens to use. Henceforth, it is denoted that functional quality describes how well the content provided by DMSS achieves promised outcomes and satisfies citizens' requirements by carrying out desired transactions, including sourcing, trying, ordering, paying, tracking, and accepting.

Inclusiveness value is also an essential factor in the future use of the e-government platform. If the e-government platform provides public services for every citizen regardless of background, the probability that the platform usage is higher (Concilio et al., 2017; Y. et al., 2019). The research shows a connection between epistemic value and e-government future use intention. This outcome is inconsistent with a previous study in China, where urban residents could not identify green-certified products adequately (Liu et al., 2012). So, relying on novelty-seeking and curiosity considerations has been found necessary to consider the effectiveness of an e-government platform.

However, technology anxiety is the most significant predictor of future use, indicating that users' fear of technology negatively influenced their willingness to use e-government platforms. According to past research (Ahmad & Khalid, 2017; Talukder et al., 2020), adoption intention may be reduced if there is anxiety about technology. This result is consistent with that finding.

Likewise, the empirical result shows that unwillingness is the second significant predictor of future use, negatively influencing users' intentions towards the e-government platform. Based on their prior interactions with public services, the research found that Bangladeshi residents prefer using traditional routes to obtain them. Most Bangladeshi individuals favor in-person interactions instead of IT-based services like e-government platforms. They prefer to visit the local government office to access and use public services. Finally, the empirical result shows that perceived risk significantly impacts the intention to use the e-government platform in the future. This result is inconsistent with much prior research (Becker et al., 2017; Gao et al., 2015; Saa et al., 2018; Bhuasiri et al., 2016) argued that privacy risks lose their importance when users show more importance on perceived benefit toward the service.

In the study context, although citizens consider the e-government platform an easy, beneficial, accessible, and open system, the perceived risk is highly concerning in their decisions about its future use.

6.3   Explanation of DMSS Effectiveness

To bring effectiveness to DMSS, the study found various factors such as developing infrastructure, developing technical skills, skilled technical resources, effective monitoring system, enhanced information for user guidance, user experience feedback, and risk management are impactful in improving the effectiveness of DMSS. The following demonstrate these factors on DMSS. To ensure the Digital Municipal Service System (DMSS) functions effectively, it is crucial to have a well-rounded infrastructure in place. In Bangladesh, many rural areas need more internet access and cyber centers, which can hinder the operation of DMSS. Collaboration between the government and private sectors is necessary to improve infrastructure in these regions. The focus should be on expanding internet connectivity, establishing cyber centers, and ensuring the availability of hardware and software. By enhancing the infrastructure, people in areas can utilize DMSS effectively, bridging the gap and promoting equal access to healthcare. In Bangladesh, while younger individuals often have skills, many older adults need more proficiency in digital technologies and are hesitant about adopting them. This demographic typically prefers services for their needs. To address this issue, it could be beneficial for the government to create office service desks to introduce older individuals to digital services.

These desks would offer hands-on training and assistance to help them gain confidence and familiarity with tools. Encouraging adults to embrace these services could lead to increased usage of DMSS. As empirical findings indicate, a well-functioning and balanced infrastructure is essential for the proper functionality of DMSS. In Bangladesh, many rural parts are still underdeveloped, with internet and cyber centers concerned with the functionality of DMSS. Bangladesh needs more workforce to develop and maintain DMSS and other digital services. To ensure long-term growth and sustainability, it is crucial to have trained resources. This requires investing in programs that focus on enhancing skills. Universities and technical institutions might work with industry to create curricula that align with requirements.

Moreover, offering incentives to retain professionals locally could be beneficial. Developing a talent pool is vital for the progress and operation of DMSS. A reliable monitoring system is essential to uphold the functioning of DMSS. Observers note that such a system needs to be improved, impacting the reliability and effectiveness of healthcare services. The government should take steps to ensure accountability by establishing a monitoring framework. This could involve forming teams to oversee system effectiveness, conducting audits, and promptly implementing feedback mechanisms to address issues. An effective monitoring system would uphold service standards, ensure operations, and meet user needs within DMSS. The current lack of guidance within DMSS hinders its users' navigation. Survey findings reveal that over 90% of participants have encountered this challenge, pointing to a gap in user assistance and information sharing. To tackle this issue, the system should offer users easy access to guidance. This might involve user manuals, FAQs, instructional videos, and customer support services. By ensuring that users can access concise information, their overall experience can be improved, fostering acceptance of DMSS.

A worry highlighted by more than 90% of survey respondents is the insecurity experienced when conducting online transactions or handling personal data within DMSS. This concern is crucial as it impacts user trust and the system's overall efficacy. It is imperative to deploy efficient risk management protocols to address these risks. This includes cybersecurity measures, regular security assessments, and the education of users on online practices. By safeguarding data and ensuring transaction procedures, user confidence can be bolstered, contributing to the secure and dependable use of DMSS.

7 SUMMARY AND IMPLICATION

This chapter presents an overall conclusion on the study's findings. Then, it shows theoretical, managerial, and policy implications, considering the study findings. Subsequently, study limitations, practical implications, and suggestions for future research are discussed.

7.1 Summary

The study tries to find the factors that influence the effectiveness of DMSS. The researcher has concluded that functional value is the most substantial factor to be improved first through infrastructural development, skilled resources, effective monitoring for continuous growth, and Risk Barriers through risk management. It was also found that DMSS still needs to focus on social inclusiveness through integrating older generations. With these findings, the expected research goal has been achieved. However, the case company may use these findings to design and propose future projects to work with the government on DMSS.

The purpose of the study is to evaluate how well Bangladesh's Digital Municipal Service System (DMSS) functions from the user's perspective. This has been accomplished by looking at sub-goals, including identifying essential elements, developing strategic solutions, and investigating the possibility of public-private partnerships for sustainable growth. Consumption Value Theory and the Theory of Innovation Resistance served as the foundation for the theoretical framework. A survey questionnaire with a 7-point Likert scale is used to gather information from a sizable user sample to determine overall satisfaction. Open-ended interviews with IT specialists are also conducted to get ideas for enhancing DMSS. Users of DMSS are generally dissatisfied, according to the survey responses, with many mentioning difficulties such as unsolved daily issues, inconsistent service replies, unresponsive customer support, and severe security concerns. These findings spurred more research through expert interviews to determine the reasons behind and potential remedies for improving DMSS effectiveness in Bangladesh. Numerous significant variables influencing DMSS effectiveness have been found in the study. Because convenience value makes public services more straightforward and requires less work and time from individuals, it has emerged as a significant facilitator for using e-government platforms in the future.

Functional quality, or the e-government platform's operational and technological effectiveness, is also essential. The practical implementation of DMSS depends on providing citizens with high-quality, user-friendly services. Another important consideration is the platform's commitment to inclusivity, which guarantees that all users, regardless of background, may use it. The intention to utilize e-government services also revealed a positive link with the epistemic value associated with novelty and curiosity. However, the study discovered that users' reluctance to utilize DMSS platforms was significantly impacted by their concern about technology, which posed a significant obstacle to adopting DMSS. This result aligns with earlier studies that suggested technological fear may limit adoption intentions. Similar to the last example, a strong predictor of future use is a reluctance to utilize the platform due to a preference for conventional face-to-face interactions. Ultimately, users' intentions to use DMSS have significantly been impacted by perceived risk, particularly regarding security and privacy, even if they know the platform's advantages.

Several tactics have been suggested to enhance DMSS functionality. Strong infrastructure development is crucial, particularly in remote places without cyber centers or internet connectivity. Cooperation between the public and commercial sectors is required to develop the necessary facilities and increase connectivity. Users of DMSS may also rise by improving digital literacy, especially among older individuals, through education and assistance programs. Assuring the long-term viability of DMSS requires investing in developing technical capabilities and hiring competent personnel. To preserve service standards and customer happiness, it is essential to set up an efficient monitoring system to guarantee responsibility and quickly handle difficulties. Comprehensive user assistance may enhance navigation and the user experience overall. Examples of this include manuals, FAQs, and customer support. Ultimately, effective risk management procedures, such as cybersecurity safeguards and recurring security evaluations, may resolve security issues and foster user confidence, guaranteeing the safe and dependable usage of DMSS. Thus, boosting the effectiveness and acceptance of DMSS in Bangladesh requires resolving infrastructural shortcomings, enhancing digital literacy, building technical skills, assuring effective monitoring, offering user advice, and controlling risks.

7.2 Theoretical Implications

The theories of innovation resistance and consumer value provide a strong foundation for comprehending the conventional hurdles, risk barriers, inclusiveness, and functioning of the Digital Municipal Service System (DMSS). Combined with these ideas, the study's survey and interview results show that user happiness and consumption values are interdependent. Notably, the results of the interviews show how much accountability and openness influence the DMSS's overall functionality. These components boost the system's effectiveness and user adoption, improving user happiness and trust. According to the study, a deeper integration of accountability and transparency within the framework of consumer values might further strengthen the DMSS. By highlighting these elements, user issues may be more effectively addressed, increasing trust and pleasure. The DMSS may perform better due to this enhanced connection, becoming more dependable and readily available. Concentrating on these elements may create a more flexible and all-encompassing digital municipal service system, guaranteeing its long-term expansion and increased user acceptability.

7.3 Managerial Implications

The study found that more accountability and transparency during the planning and implementation stages are necessary to improve the effectiveness and sustainability of the Digital Municipal Service System (DMSS). Most of these projects are carried out via conventional government bids, frequently needing stronger accountability and monitoring systems. This shortcoming compromises the DMSS's dependability and efficacy. The study proposes that implementing a long-term Public-Private Partnership (PPP) might provide a strategic strategy to solve these concerns. In carrying out DMSS initiatives, a PPP model may improve supervision, guarantee more thorough monitoring, and encourage ongoing responsibility. According to this viewpoint, a PPP strategy may combine the advantages of the public and private sectors, promoting creativity, effectiveness, and openness. While private sector engagement can bring technical skills, cutting-edge technology, and efficient administration, public sector involvement guarantees respect for legislation and the public interest.

A PPP can help make the development environment for DMSS more responsive and dynamic by aligning the interests of the two sectors. In the long term, this cooperative approach may result in more robust and long-lasting digital health solutions, enhancing patient outcomes and service delivery.

7.4 Policy Implications

Under the direction of the consumption value and the innovation resistance theories, research on Digital Municipal Service Systems has unveiled several crucial issues that policymakers must resolve to improve DMSS adoption and effectiveness. The findings recommend policy implications concerning public-private partnerships, infrastructure development, inclusivity, risk management, user advice, and technical skill training. The government might prioritize increasing internet access, particularly in rural regions, to guarantee the operation of DMSS. Establishing cyber centers and ensuring hardware and software supply are only two examples of how public-private collaborations may be crucial in building the required infrastructure. Policies should be implemented to offer inexpensive and dependable internet services nationwide, focusing on encouraging private-sector investment in these regions.

This includes providing network coverage and subsidizing internet rates for underdeveloped areas. With an emphasis on older persons who are less adept with digital technology, the government should fund training initiatives to increase the digital literacy of all residents. This may be accomplished by creating office service desks offering direct guidance and support. Cooperation with universities and technical colleges is crucial to develop curricula that meet industry standards and provide a consistent supply of qualified workers to create and keep DMSS. Incentives to keep these experts in the nation should be part of policy. Also, a trustworthy monitoring system is essential to guarantee that DMSS services are effective, dependable, and satisfy user demands. Establishing monitoring teams, carrying out recurring audits, and implementing feedback systems are all necessary. Accountability procedures and performance criteria for service providers should be required by policy. It is essential to create regulations that guarantee DMSS provides public services to everyone, regardless of their financial situation. This might involve services and outreach initiatives specifically designed to meet the requirements of different demographic groups. If DMSS's design and execution consider the needs of all users, including impaired users, it will encourage greater acceptance and usage.

Moreover, it is imperative to close the user assistance gap by offering readily available user manuals, often-asked questions, educational films, and robust customer support services. Policies ought to mandate that to accommodate a variety of user groups, service providers deliver these materials in numerous languages and formats. Enhancing DMSS services requires procedures that guarantee ongoing user input is gathered and considered. Strict cybersecurity regulations must be created and enforced to safeguard users' private information and ensure safe online transactions. These regulations must include frequent security assessments, user education about safe online conduct, and the deployment of cutting-edge security methods.

Users' information must be protected against unauthorized access and breaches with provisions for user permission and transparency in data management if clear data privacy and protection policies are established. To maximize resources, knowledge, and creativity in enhancing DMSS, it is imperative to support policies that foster cooperation between the public and private sectors. This involves establishing structures for collaborative investments in technical skill development, infrastructure, and service provision. To augment these endeavors, offering tax exemptions, financial aid, and acknowledgment schemes to private enterprises for their involvement in creating and upkeep DMSS would work. To guarantee that DMSS satisfies the requirements of its inhabitants and advances sustainable development, the Bangladeshi government may significantly improve DMSS adoption and effectiveness by addressing these policy implications.

7.5 Limitations and Suggestions for Future Research

Although the study has illuminated several aspects influencing the Digital Municipal Service System's (DMSS) effectiveness, it is essential to recognize its limits. The principal limitation was the limited sample size, comprising just 105 participants in the survey, which might not furnish a thorough characterization of the circumstances. Furthermore, because of time and resource limitations, interviews were restricted to a single IT company. Unexplored external elements that could impact DMSS effectiveness include worldwide practices, economic downturns, and quick technological improvements. These restrictions imply that, despite their insightfulness, the findings could be more inclusive.

Further study is required to comprehend the DMSS effectiveness variables fully in the future. Quantitative analysis might be used in future research to assess the magnitude and effects of different variables correctly, and a more extensive and varied population should be included. This more comprehensive approach could make it easier to identify other essential components and offer a more robust framework for enhancing DMSS. Broadening the scope to consider economic and global practices would also be necessary to develop a thorough range of the variables influencing DMSS effectiveness.

BIBLIOGRAPHY

Ahmad, S. Z., & Khalid, K. (2017). The adoption of M-government services from the user's perspectives: Empirical evidence from the United Arab Emirates. *International Journal of Information Management, 37*(5), 367–379. https://doi.org/10.1016/j.ijinfomgt.2017.03.008

Ajzen, I., & Fishbein, M. (1980). *Understanding attitudes and predicting social behavior*. Prentice-Hall Inc.

Al-Gahtani, S. S., Hubona, G. S., & Wang, J. (2007). Information technology (IT) in Saudi Arabia: Culture and the acceptance and use of IT. *Information & Management, 44*(8), 681–691. https://doi.org/10.1016/j.im.2007.09.002

Allwinkle, S., & Cruickshank, P. (2011). Creating Smart-er Cities: An Overview. *Journal of Urban Technology, 18*(2), 1–16. https://doi.org/10.1080/10630732.2011.601

Anisimova, T., Mavondo, F., & Weiss, J. (2019). Controlled and uncontrolled communication stimuli and organic food purchases: The mediating role of perceived communication clarity, perceived health benefits, and trust. *Journal of Marketing Communications, 25*(2), 180–203. https://doi.org/10.1080/13527266.2017.1387869

Bakıcı, T., Almirall, E., & Wareham, J. (2012). A Smart City Initiative: the Case of Barcelona. *Journal of the Knowledge Economy, 4*(2), 135–148. doi:10.1007/s13132-012-0084-9

Bandyopadhyay, K., & Fraccastoro, K. A. (2007). The Effect of Culture on User Acceptance of Information Technology. *Communications of the Association for Information Systems, 19*. https://doi.org/10.17705/1cais.01923

Becker, M; Matt, C; Widjaja, T; Hess, T (2017). *Understanding Privacy Risk Perceptions of Consumer Health Wearables – an Empirical Taxonomy. In: 2017 International Conference on Information Systems (ICIS)*. Seoul, South Korea. http://aisel.aisnet.org/pacis2017/40

Bhandari, U., Neben, T., Chang, K., & Chua, W. Y. (2017). Effects of interface design factors on affective responses and quality evaluations in mobile applications. *Computers in Human Behavior, 72*, 525–534. doi: https://doi.org/10.1016/j.chb.2017.02.044

Bhattacherjee, A., & Hikmet, N. (2007). Physicians' resistance toward healthcare information technology: a theoretical model and empirical test. *European Journal of Information Systems, 16*(6), 725–737. https://doi.org/10.1057/palgrave.ejis.3000717

Bhuasiri, W., Zo, H., Lee, H., & Ciganek, A. P. (2016). User Acceptance of e-government Services: Examining an e-tax Filing and Payment System in Thailand. *Information Technology for Development, 22*(4), 672–695*. https://doi.org/10.1080/02681102.2016.1173001

Brown, M. M. (2001). The Benefits and Costs of Information Technology Innovations: An Empirical Assessment of a Local Government Agency. *Public Performance & Management Review, 24*(4), 351. https://doi.org/10.2307/3381224

Carpenter, S. R., & Brock, W. A. (2008). Adaptive Capacity and Traps. *Ecology and Society, 13*(2). https://doi.org/10.5751/es-02716-130240

Carter, L., & Bélanger, F. (2005). The utilization of e-government services: citizen trust, innovation, and acceptance factors. *Information Systems Journal, 15*(1), 5–25. https://doi.org/10.1111/j.1365-2575.2005.00183.x

Cenfetelli, R. T. (2004). Inhibitors and Enablers as Dual Factor Concepts in Technology Usage. *Journal of the Association for Information Systems, 5* (11–12), 472–492 https://doi.org/10.17705/1jais.00059

Cenfetelli, R. T., & Schwarz, A. (2011). Identifying and testing the inhibitors of technology usage intentions. *Information Systems Research, 22*(4), 808–823. https://doi.org/10.1287/isre.1100.0295

Chen, C. & Yao, J. (2018). What drives impulse buying behaviors in a mobile auction? The perspective of the stimulus-organism-response model. *Telematics and Informatics, 35*(5), 1249–1262. https://doi.org/10.1016/j.tele.2018.02.007

Chiang, K.-P., & Dholakia, R. R. (2003). Factors Driving Consumer Intention to Shop Online: An Empirical Investigation. *Journal of Consumer Psychology, 13*(1), 177–183. https://doi.org/10.1207/S15327663JCP13-1&2_16

Chiu, C.-M., & Wang, E. T. G. (2008). Understanding Web-based learning continuance intention: The role of subjective task value. *Information & Management, 45*(3), 194–201. https://doi.org/10.1016/j.im.2008.02.003

Choe, J. Y., & Kim, S. (2018). Effects of Tourists' local food consumption value on Attitude, food Destination Image, and Behavioral Intention. *International Journal of Hospitality Management, 71*, 1–10. https://doi.org/10.1016/j.ijhm.2017.11.007

Concilio, G., Molinari, F., & Morelli, N. (2017). *Empowering Citizens with Open Data by Urban Hackathons. 2017 Conference for E-Democracy and Open Government (CeDEM).* https://doi.org/10.1109/cedem.2017.28

Cornell, J. (2022, June 17). Qualitative Research Methods: Types, Examples, and Analysis. ProProfs Survey Blog. https://www.proprofssurvey.com/blog/qualitative-research/

Coursey, D., & Norris, D. F. (2008). Models of e-government: Are they correct? An empirical assessment. *Public Administration Review, 68*(3), 523–536.

Davison, R. M., & Martinsons, M. G. (2016). Context is king! Considering particularism in research design and reporting. *Journal of Information Technology, 31*(3), 241–249. https://doi.org/10.1057/jit.2015.19

Denzin, N. K., & Lincoln, Y. S. (2018). *The Sage Handbook of Qualitative Research (5th ed.)*. Sage Publications.

DeVellis, R. F. (2017). *Scale development: Theory and applications*. Sage publications.

Donthu, N. & Garcia, A. (1999). The internet shopper. *Journal of Advertising Research, 39*(3), 52–58.

Dwivedi, Y. K., Rana, N. P., Janssen, M., Lal, B., Williams, M. D., & Clement, M. (2017). An empirical validation of a unified model of electronic government adoption (UMEGA). *Government Information Quarterly, 34*(2), 211–230. https://doi.org/10.1016/j.giq.2017.03.001

Dyck, J. L., & Smither, J. A.-A. (1994). Age Differences in Computer Anxiety: The Role of Computer Experience, Gender and Education. *Journal of Educational Computing Research, 10*(3), 239–248. https://doi.org/10.2190/E79U-VCRC-EL4E-HRYV

Eroglu, S. A., Machleit, K. A., & Davis, L. M. (2003). Empirical testing of a model of online store atmospherics and shopper responses. *Psychology & Marketing, 20*(2), 139–150. https://doi.org/10.1002/mar.10064

Fu, J.R., Farn, C.K., & Chao, W.P. (2006). Acceptance of Electronic Tax Filing: A Study of Taxpayer Intentions. *Journal of Information & Management 43*(1), 109–126. DOI: https://doi.org/10.1016/j.im.2005.04.001

Gao, Y., Li, H., & Luo, Y. (2015). An empirical study of wearable technology acceptance in healthcare. *Industrial Management & Data Systems, 115*(9), 1704–1723. https://doi.org/10.1108/IMDS-03-2015-0087

Gefen, D., Karahanna, E., & Straub, D. (2003). Trust and TAM in online shopping: an integrated model. *MIS quarterly, 27*(1), 51. https://doi.org/10.2307/30036519

Gil-García, J. R., & Pardo, T. A. (2005). E-government success factors: Mapping practical tools to theoretical foundations. *Government Information Quarterly, 22*(2), *187–216*. https://doi.org/10.1016/j.giq.2005.02.001

Gil-Garcia, J. R., Helbig, N. C., & Ferro, E. (2006). Is It Only About Internet Access? An Empirical Test of a Multi-dimensional Digital Divide. *Electronic Government,* 139–149. https://doi.org/10.1007/11823100_13

Gil-Garcia, J. R., Pardo, T. A., & Nam, T. (2015). What makes a city smart? Identifying core components and proposing an integrative and comprehensive conceptualization. *Information Polity, 20*(1), 61–87. https://doi.org/10.3233/ip-150354

Golafshani, N. (2003). Understanding Reliability and Validity in Qualitative Research. *The Qualitative Report*, 8(4), 597–606. https://doi.org/10.46743/2160-3715/2003.1870

Goldsmith, S., & Crawford, S. (2014). *The responsive city: Engaging communities through data-smart governance*. John Wiley & Sons.

González, M. E. A., Comesaña, L. R., & Brea, J. A. F. (2007). Assessing tourist behavioral intentions through perceived service quality and customer satisfaction. *Journal of Business Research, 60*(2), 153–160. https://doi.org/10.1016/j.jbusres.2006.10.014

Gupta, S., & Kim, H. W. (2007). The Moderating Effect of Transaction Experience on the Decision Calculus in On-Line Repurchase. *International Journal of Electronic Commerce, 12*(1), 127–158. https://doi.org/10.2753/JEC1086-4415120105

Hau, L. N., & Thuy, P. N. (2012). Impact of service personal values on service value and customer loyalty: a cross-service industry study. *Service Business, 6*(2), 137–155. https://doi.org/10.1007/s11628-011-0121-y

Heeks, R. (2003). Most eGovernment for Development Projects Fail: How Can Risks be Reduced? *eGovernment working paper, 14*. 10.13140/RG.2.2.21845.78560

Heiko, H., & Baranauskas, M. C. C. (2011). Towards a Design Rationale for Inclusive eGovernment Services. *International Journal of Electronic Government Research (IJEGR), 7*(3), 1–20. https://doi.org/10.4018/jegr.2011070101

Hoque, M. R. and Sorwar, G. (2017). Understanding factors influencing the adoption of health by the elderly: an extension of the output model. *International Journal of Medical Informatics, 101*, 75–84. https://doi.org/10.1016/j.ijmedinf.2017.02.00

Hossain, M. S., Sarker, A. R., & Karim, M. R. (2018). Challenges of digital infrastructure in municipalities: Issues of obsolete technology and poor internet access. *Journal of Urban Management and Governance, 12*(2), 102-115. https://doi.org/10.4102/sajim.v25i1.1703

Hossain, N., Talukder, M. S., Hoque, M. R., & Bao, Y. (2018). The use of open government data to citizen empowerment: an empirical validation of a proposed model. *Foresight, 20*(6), 665–680. https://doi.org/10.1108/fs-03-2018-0027

Hsu, J. S. C. (2014). Understanding the role of satisfaction in the formation of perceived switching value. *Decision Support Systems, 59*, 152–162. https://doi.org/10.1016/j.dss.2013.11.003

Huang, L. (2016). Flow and social capital theory in online impulse buying. *Journal of Business Research, 69*(6), 2277–2283. https://doi.org/10.1016/j.jbusres.2015.12.042

Hume, M., Mort, G. S., & Winzar, H. (2007). Exploring repurchase intention in a performing arts context: Who comes? Moreover, why do they come back? *International Journal of*

Nonprofit and Voluntary Sector Marketing, 12(2), 135–148. https://doi.org/10.1002/nvsm.284

Hyde, K. F. (2000). Recognizing deductive processes in qualitative research. Qualitative Market Research: *An International Journal, 3*(2), 82–90. https://doi.org/10.1108/13522750010322089

Islam, M. S., & Grönlund, Å. (2016). An international literature review of 1:1 computing in schools. *Journal of Educational Change, 17*(2), 191–222. https://doi.org/10.1007/s10833-016-9271-y

Johnson, V. L., Kiser, A., Washington, R., & Torres, R. (2018). Limitations to the rapid adoption of M-payment services: Understanding the impact of privacy risk on M-payment services. *Computers in Human Behavior, 79*, 111–122. https://doi.org/10.1016/j.chb.2017.10.035

Jung, J. H., Kim, H., & Yoon, H. H. (2017, April 30). The Influence of Consumption Values on Attitudes and Purchase Intentions of Consumers towards Gluten-Free Products. Korean *Journal of Food & Cookery Science. 33*(2), 218–227. https://doi.org/10.9724/kfcs.2017.33.2.218

Kaur, P., Dhir, A., Singh, N., Sahu, G., & Almotairi, M. (2020). An innovation resistance theory perspective on mobile payment solutions. *Journal of Retailing and Consumer Services, 55*, Article 102059. https://doi.org/10.1016/j.jretconser.2020.102059

Keller, E., & Fay, B. (2009). The Role of Advertising in Word of Mouth. *Journal of Advertising Research, 49*(2), 154–158. https://doi.org/10.2501/s0021849909090205

Kim, H., Gupta, S., & Koh, J. (2011). Investigating the intention to purchase digital items in social networking communities: A customer value perspective. *Information & Management, 48*(6), 228–234. https://doi.org/10.1016/j.im.2011.05.004

Kim, J. H., Kim, M. S., & Nam, Y. (2010). An Analysis of Self-Construals, Motivations, Facebook Use, and User Satisfaction. I*nternational Journal of Human-Computer Interaction, 26*(11–12), 1077–1099. https://doi.org/10.1080/10447318.2010.516726

Konuk, F. A. (2019). The influence of perceived food quality, price fairness, perceived value, and satisfaction on customers' revisit and word-of-mouth intentions towards organic food restaurants. *Journal of Retailing and Consumer Services, 50*, 103–110. doi: https://doi.org/10.1016/j.jretconser.2019.05.005

Kumar, R., Sachan, A., Mukherjee, A., & Kumar, R. (2018). Factors influencing e-government adoption in India: a qualitative approach. *Digital Policy, Regulation and Governance, 20*(5), 413–433. https://doi.org/10.1108/dprg-02-2018-0007

Kurfalı, M., Arifoğlu, A., Tokdemir, G., & Paçin, Y. (2017). Adoption of e-government services in Turkey. *Computers in Human Behavior, 66*, 168–178. https://doi.org/10.1016/j.chb.2016.09.041

Kushwah, S., Dhir, A., Sagar, M., & Gupta, B. (2019). Determinants of organic food consumption. *A systematic literature review on motives and barriers. Appetite, 104402.* https://doi.org/10.1016/j.appet.2019.10440.

Laroche, M., Bergeron, J., & Barbaro-Forleo, G. (2001). Targeting consumers who are willing to pay more for environmentally friendly products. *Journal of Consumer Marketing, 18*(6), 503–520. https://doi.org/10.1108/eum0000000006155

Laukkanen, T. (2016). Consumer adoption versus rejection decisions in seemingly similar service innovations: The case of the Internet and mobile banking. *Journal of Business Research, 69*(7), 2432–2439. https://doi.org/10.1016/j.jbusres.2016.01.013

Lee, J., & Rao, H. R. (2007). Perceived risks, counter-beliefs, and intentions to use anti-/counter-terrorism websites: An exploratory study of government–citizens online interactions in a turbulent environment. *Decision Support Systems, 43*(4), 1431–1449. https://doi.org/10.1016/j.dss.2006.04.008

Lee, J., Kim, H. J., & Ahn, M. J. (2011). The willingness of e-Government service adoption by business users: The role of offline service quality and trust in technology. *Government Information Quarterly, 28*(2), 222–230. https://doi.org/10.1016/j.giq.2010.07.007

Lee, T. H., Fu, C.-J., & Chen, Y. Y. (2020). Trust factors for organic foods: consumer buying behavior. *British Food Journal, 122*(2), 414–431. https://doi.org/10.1108/BFJ-03-2019-0195

Li, M., Dong, Z. Y., & Chen, X. (2012). Factors influencing consumption experience of mobile commerce. *Internet Research, 22*(2), 120–141. https://doi.org/10.1108/10662241211214539

Li, Y., & Shang, H. (2019). Service quality, perceived value, and citizens' continuous-use intention regarding e-government: Empirical evidence from China. *Information & management, 103197.* https://doi.org/10.1016/j.im.2019.103197

Lin, P.-C., & Huang, Y.-H. (2012). The influence factors on choice behavior regarding green products are based on the consumption value theorys. *Journal of Cleaner Production, 22*(1), 11–18. https://doi.org/10.1016/j.jclepro.2011.10.002

Liu, L., Ju, J., & Feng, Y. (2017). An extensible framework for collaborative e-governance platform workflow modeling using data flow analysis. *Information Technology for Development, 23*(3), 415–437. https://doi.org/10.1080/02681102.2017.1311832

Liu, Y., Li, H., & Hu, F. (2013). Website attributes in urging online impulse purchase: An empirical investigation on consumer perceptions. *Decision support systems, 55*(3), 829–837. https://doi.org/10.1016/j.dss.2013.04.001

Mäntymäki, M., & Salo, J. (2015). Why do teens spend real money in virtual worlds? A consumption values and developmental psychology perspective on virtual consumption. *International Journal of Information Management, 35*(1), 124–134. https://doi.org/10.1016/j.ijinfomgt.2014.10.004

Mäntymäki, M., Islam, A. N., & Benbasat, I. (2019). What driveInstitute.ng to premium in freemium services? A consumer value-based view of differences between upgrading to and staying with premium. *Information Systems Journal, 30*(2), 295–333. https://doi.org/10.1111/isj.12262.

Manyika, J., Chui, M., Brown, B., Bughin, J., Dobbs, R., Roxburgh, C. & Byers, A. H. (2011). *Big Data: The Next Frontier for Innovation, Competition, and Productivity*. McKinsey Global Institute .

Mathwick, C., Malhotra, N. K., & Rigdon, E. E. (2001). Experiential value: conceptualization, measurement, and application in the catalog and internet shopping environment. *Journal of Retailing, 77*(1), 39–56. https://doi.org/10.1016/s0022-4359(00)00045-2

Mehrabian, A., & Russell, J. A. (1974). *An approach to environmental psychology*. The MIT Press.

Mensah, I. K. (2018). Citizens' Readiness to Adopt and Use E-government Services in the City of Harbin, China. *International Journal of Public Administration, 41*(4), 297–307. https://doi.org/10.1080/01900692.2016.1263658

Najmul Islam, A. K. M., Cenfetelli, R., & Benbasat, I. (2020). Organizational buyers' assimilation of B2B platforms: Effects of IT-enabled service functionality. *The Journal of Strategic Information Systems, 29*(1), 101597. https://doi.org/10.1016/j.jsis.2020.101597

Nii Laryeafio, M., & Ogbewe, O. C. (2023). Ethical consideration dilemma: Systematic review of ethics in qualitative data collection through interviews. *Journal of Ethics in Entrepreneurship and Technology, 3*(2), 94–110. https://doi.org/10.1108/JEET-09-2022-0014

O'Flynn, J. (2007). From New Public Management to Public Value: Paradigmatic Change and Managerial Implications. *Australian Journal of Public Administration, 66*(3), 353–366. https://doi.org/10.1111/j.1467-8500.2007.00545.x

Okazaki, S., & Mendez, F. (2013). Exploring convenience in mobile commerce: Moderating effects of gender. *Computers in Human Behavior, 29*(3), 1234–1242. https://doi.org/10.1016/j.chb.2012.10.019

Orb, A., Eisenhauer, L., & Wynaden, D. (2001). Ethics in Qualitative Research. *Journal of Nursing Scholarship, 33*(1), 93–96. https://doi.org/10.1111/j.1547-5069.2001.00093.x

Oyedele, A. (2007). An empirical investigation of consumer control factors on intention to use selected self-service technologies. *International Journal of Service Industry Management, 18*(3), 287–306. https://doi.org/10.1108/09564230710751497

Polites, G. L., & Karahanna, E. (2012). Shackled to the Status Quo: The Inhibiting Effects of Incumbent System Habit, Switching Costs, and Inertia on New System Acceptance. *MIS Quarterly, 36*(1), 21–42. https://doi.org/10.2307/41410404

Pura, M. (2005). Linking perceived value and loyalty in location-based mobile services. Managing Service Quality: *An International Journal, 15*(6), 509–538. https://doi.org/10.1108/09604520510634005

Radović-Marković, M. (2023). Qualitative methods in economic sciences. In P. Liamputtong (ed.), How to Conduct Qualitative Research in Social Science (pp. 164–181). Edward Elgar Publishing. https://doi.org/10.4337/9781800376199.00016

Ram, S. & Sheth, J.N. (1989). Consumer Resistance to Innovations: The Marketing Problem and its Solutions. *Journal of Consumer Marketing, 6*(2), 5–14. https://doi.org/10.1108/EUM0000000002542

Ramkissoon, H., Nunkoo, R., & Gursoy, D. (2009). *How consumption values affect destination image formation. Advances in Culture, Tourism and Hospitality Research,* 143–168. https://doi.org/10.1108/s1871-3173(2009)0000003008

Rana, N. P., Dwivedi, Y. K., Lal, B., Williams, M. D., & Clement, M. (2015). Citizens' adoption of an electronic government system: Towards a unified view. *Information Systems Frontiers, 19*, 549–568. https://doi.org/10.1007/s10796-015-9613-y

Rana, N. P., Dwivedi, Y. K., Williams, M. D., & Weerakkody, V. (2016). Adoption of online public grievance redressal system in India: Toward developing a unified view. *Computers in Human Behavior, 59*, 265–282. https://doi.org/10.1016/j.chb.2016.02.019

Rödiger, M., & Hamm, U. (2015). How are organic food prices affecting consumer behavior? *A review. Food Quality and Preference, 43*, 10–20. https://doi.org/10.1016/j.foodqual.2015.02.002

Rodríguez-Torrico, P., San-Martín, S., & San José-Cabezudo, R. (2019). What Drives M-Shoppers to Continue Using Mobile Devices to Buy? *Journal of Marketing Theory and Practice, 27*(1), 83–102. https://doi.org/10.1080/10696679.2018.1534211

Saa, P., Moscoso-Zea, O., & Lujan-Mora, S. (2018). *Wearable Technology, Privacy Issues. Advances in Intelligent Systems and Computing,* 518–527. https://doi.org/10.1007/978-3-319-73450-7_49

Samakal, D. (2019). One-stop services of Eksheba, Ekpay, Ekshop launched. Samakal. https://ijsshr.in/v4i1/Doc/15.pdf

Samuelson, W., & Zeckhauser, R. (1988). Status quo bias in decision making. *Journal of Risk and Uncertainty, 1*(1), 7–59. https://doi.org/10.1007/BF00055564

Schaupp, L. C., & Carter, L. (2010). The impact of trust, risk, and optimism bias on E-file adoption. *Information Systems Frontiers, 12*(3), 299–309. https://doi.org/10.1007/s10796-008-9138–8

Shareef, M. A., Kumar, V., Kumar, U., & Dwivedi, Y. K. (2011). e-Government Adoption Model (GAM): Differing service maturity levels. *Government Information Quarterly, 28*(1), 17–35. https://doi.org/10.1016/j.giq.2010.05.006

Sharma, S. K., Al-Badi, A., Rana, N. P., & Al-Azizi, L. (2018). Mobile applications in government services (mG-App) from user's perspectives: A predictive modeling approach. *Government Information Quarterly, 35*(4), 557–568. https://doi.org/10.1016/j.giq.2018.07.002

Sherman, E., Mathur, A., & Smith, R. B. (1997). Store environment and consumer purchase behavior: the mediating role of consumer emotions. *Psychology and Marketing, 14*(4), 361–378. https://doi.org/10.1002/(sici)1520-6793(199707)14:43.0.co;2-7

Sheth, J. N., Newman, B. I., & Gross, B. L. (1991). Why we buy what we buy: A theory of consumption values. *Journal of Business Research, 22*(2), 159–170. https://doi.org/10.1016/0148-2963(91)90050-8

Sieber, R. E., & Johnson, P. A. (2015). Civic open data at a crossroads: Dominant models and current challenges. *Government Information Quarterly, 32*(3), 308–315. https://doi.org/10.1016/j.giq.2015.05.003

Stafford, T. F. (1994). Consumption values and the choice of marketing electives: Treating students like customers. *Journal of Marketing Education, 16*(2), 26–33. https://doi.org/10.1177/027347539401600204

Streefkerk, R. (2019, April 12). Qualitative vs. Quantitative Research | Differences, Examples & Methods. Scribbr. https://www.scribbr.com/methodology/qualitative-quantitative-research/

Sulaiman, A., Jaafar, N. I., & Aziz, N. A. A. (2012). Factors Influencing Intention to Use MYEPF I-Akaun. *World Applied Sciences Journal, 18*(3), 451–461. https://doi.org/10.5829/idosi.wasj.2012.18.03.407

Susanto, T. D., & Goodwin, R. (2011). User Acceptance of SMS-Based eGovernment Services. *Electronic Government,* 75–87. https://doi.org/10.1007/978-3-642-22878-0_7

Sweeney, J. C., & Soutar, G. N. (2001). Consumer perceived value: The development of a multiple-item scale. *Journal of Retailing, 77*(2), 203–220. https://doi.org/10.1016/S0022-4359(01)00041-0

Talukder, M. S., Sorwar, G., Bao, Y., Ahmed, J. U., & Palash, M. A. S. (2020). Predicting antecedents of wearable healthcare technology acceptance by elderly: A combined SEM-Neural Network approach. *Technological Forecasting and Social Change, 150,* 119793. https://doi.org/10.1016/j.techfore.2019.119793

Talukder, S., Chiong, R., Dhakal, S., Sorwar, G., & Bao, Y. (2019). A two-stage structural equation modeling-neural network approach for understanding and predicting the determinants of m-government service adoption. J*ournal of Systems and Information Technology, 21*(4), 419c438. https://doi.org/10.1108/JSIT-10-2017-0096

Talwar, S., Talwar, M., Kaur, P., & Dhir, A. (2020). Consumers' resistance to digital innovations: A systematic review and framework development. *Australasian Marketing Journal (AMJ), 28*(4), 286–299. https://doi.org/ 10.1016/j.ausmj.2020.06.014

Turel, O., Serenko, A., & Bontis, N. (2010). User acceptance of hedonic digital artifacts: A consumption value theory perspective. *Information & Management, 47*(1), 53–59. https://doi.org/10.1016/j.im.2009.10.002

Vazquez, D., Dennis, C., & Zhang, Y. (2017). Understanding the effect of smart retail brand – Consumer communications via mobile instant messaging (MIM) – An empirical study in the Chinese context. *Computers in Human Behavior, 77*, 425–436. https://doi.org/10.1016/j.chb.2017.08.018

Venkatesh, Morris, Davis, & Davis. (2003). User Acceptance of Information Technology: Toward a Unified View. *MIS Quarterly, 27*(3), 425. https://doi.org/10.2307/30036540

Wang, H.-Y., Liao, C., & Yang, L.-H. (2013). What affects mobile application use? The roles of consumption values. *International Journal of Marketing Studies, 5*(2), 11. https://doi.org/10.5539/ijms.v5n2p11

Wells, J. D., Parboteeah, V., & Valacich, J. S. (2011). Online impulse buying: understanding the interplay between consumer impulsiveness and website quality. *Journal of the Association for Information Systems, 12*(1), 3. https://doi.org/10.17705/1jais.00254

Wilson, J. (2014). Essentials of business research: A guide to doing your research project (2nd ed.). SAGE.

Xia, S. (2017). Does E-governance Matter for People's Trust in the Government?: Evidence from Shanghai, China. *World Journal of Social Sciences and Humanities, 3*(2), 26–34. https://doi.org/10.12691/wjssh-3-2-1

Zeithaml, V. A. (1988). Consumer perceptions of price, quality, and value: a means-end model and synthesis of evidence. *Journal of Marketing, 52*(3), 2–22. DOI: https://doi.org/10.1177/002224298805200302

Zheng, X., Men, J., Yang, F., & Gong, X. (2019). Understanding impulse buying in mobile commerce: An investigation into hedonic and utilitarian browsing. *International Journal of Information Management, 48*, 151–160. https://doi.org/10.1016/j.ijinfomgt.2019.02.010

Zolkepli, I. A., Mukhiar, S. N. S., & Tan, C. (2020). Mobile consumer behavior on apps usage: The effects of perceived values, rating, and cost. *Journal of Marketing Communications, 27*(6), 571–593. https://doi.org/10.1080/13527266.2020.1749108

APPENDICES

Appendix 1. Items to Measure the Constructs

Appendix 2. Survey Questionnaire

Appendix 3. Functional and Convenience Values

Appendix 4. Social Values and Inclusive Values

Appendix 5. Epistemic Values

Appendix 6. Conditional Values

Appendix 7. Risk Resistance Values

Appendix 8. Interview Questions

Appendix 9. List of the Managers (interviewees)

Appendix 1. Items to Measure the Constructs

Construct	Items	Source
Quality of the platform/Functional value (FV, 1-4)	I can successfully log on to the government website every time.	(Li & Shang, 2019)
	I can successfully visit the links on the home page.	
	The website lets me surf through relevant web pages effortlessly while performing my e-government transactions.	
	The function modules on government websites are arranged in a user-friendly way.	
Convenience Value (COV, 1-5)	Using DMSS is time-saving.	Gupta and Kim, 2007. Kim et al., 2010
	DMSS minimizes the effort.	
	Services can be availed anytime.	
	Services can be availed from anywhere.	
	Using DMSS is convenient because it is not complex to use	

Construct	Items	Source
Social Value (SV,1-3)	People who influence my behavior think I should use the DMSS.	Al-Gahtani et al. (2007). Bandyopadhyay and Katherine (2007). Chiu and Wang (2008); Fu et al. (2006).
	The government's encouragement affects my intention to use the e-tax filing and payment system.	
	My peer group affects my intention to use the e-tax filing and payment system.	
Inclusiveness Value (INV, 1–3)	Using a government website makes public service more available to more people.	Li, Y., & Shang, H. (2020).
	Using government websites is valuable to providing equal public service to all citizens.	
	Using government websites benefits disadvantaged groups more from public service.	
Epistemic Value (EPV, 1–3)	I used DMSS services to experiment with new ways of doing things	Donthu and Garcia (1999)
	I used DMSS services to test the new technologies.	
	I used the DMSS service out of curiosity.	

Conditional Value (CV1-4)	I value this service's information, which helps me get what I need in a particular situation.	Pura, M. (2005); Zolkepli et al., (2020)
	I value the accurate time information and interaction that this service makes possible.	
	I value the independence of place and time offered by using DMSS.	
	No matter what time or place it is, using DMSS can assist me in completing my tasks.	
Traditional Barrier (TB, 1-4)	I find it challenging to contact customer service at the DMSS.	Laukkanen, (2016)
	I find that getting information about DMSS is inadequate.	
	I find it challenging to get my problem resolved using DMSS.	
	I find that the service offered by DMSS is not very pleasant.	
Usage Barrier (UB, 1-4)	The DMSS solution is inconvenient because the internet and supporting facilities are not affordable.	Laukkanen, (2016)
	DMSS is not convenient because I cannot use it at any time.	
	DMSS is inconvenient because I cannot use it.	
	DMSS is not convenient because it is complex.	
Risk Barrier (RB, 1-4)	I fear that while using DMSS, I might mistype the bill information.	Laukkanen, (2016)
	I fear that while I am using DMSS, I may pay more money.	
	I fear that while using DMSS, I may need to pay the right vendor.	
	I fear that someone may hack my account while using a DMSS.	

Appendix 2. Survey Questionnaire

Dear participants,

I am a student of Master of International Business Management at SeAMK, Seinäjoki, Finland. I am surveying you to measure your experience using Bangladesh's Digital Municipal Service System. Please complete the questionnaire. According to SeAMK rules and regulations, the information you give is confidential and secure.

1. Name
2. Gender
3. Education
4. Occupation
5. Age
6. I can successfully log on to the government website every time.
7. I can successfully visit the links on the home page.
8. Using the website lets me surf effortlessly through relevant web pages while performing my e-government transactions.
9. The function modules on government websites are arranged in a user-friendly way.
10. Using DMSS is time-saving.
11. DMSS minimizes the effort.
12. Services can be available anytime.
13. Services can be available from anywhere.
14. Using DMSS is convenient because it is not complex to use.
15. People who influence my behavior think I should use the DMSS.
16. The government's encouragement affects my intention to use the e-tax filing and payment system.
17. My peer group affects my intention to use the e-tax filing and payment system.
18. Using government websites makes public services more available to more people.
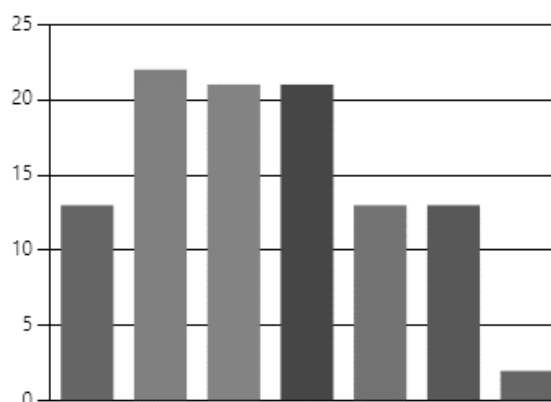19. Using government websites is valuable to providing equal public service to all citizens.

20. Using government websites allows disadvantaged groups to benefit more from public service.
21. I used DMSS services to experiment with new ways of doing things.
22. I used DMSS services to test the new technologies.
23. I used the DMSS service out of curiosity.
24. I value the information this service offers, with the help of which I get what I need in a particular situation.
25. I value the accurate time information and interaction that this service makes possible.
26. I value the independence of place and time offered using DMSS.
27. No matter what time or place, using DMSS can assist me in completing the things I want to do.
28. I find it challenging to contact customer service at the DMSS.
29. I find it challenging to get information about DMSS.
30. I find getting information about DMSS to use inadequate.
31. I find that the service offered by DMSS is not very pleasant.
32. The DMSS solution is not convenient because the internet and supporting facilities are not affordable.
33. DMSS is not convenient because I cannot use it at anytime.
34. DMSS is inconvenient because I cannot use it.
35. DMSS is not convenient because it is complex.
36. I fear I might mistype the billing information through DMSS.
37. I am afraid that I might overpay the bill through DMSS,
38. I fear that while using DMSS, I may pay money to the wrong vendor.
39. I fear that while I am using a DMSS, someone may hack my account.

Appendix 3. Functional Values

8. Using the website lets me surfs effortlessly through relevant webpages while performing my e-government transactions.
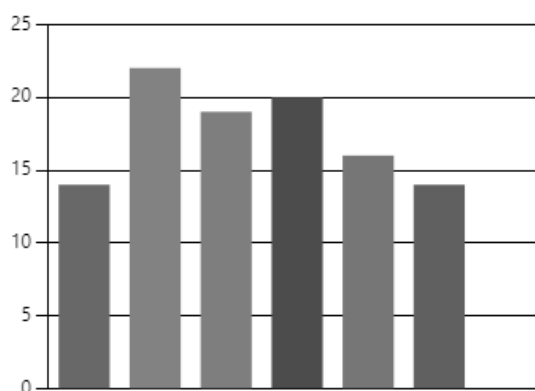
More Details

● Strongly disagree	13
● Disagree	22
● Somewhat disagree	21
● Neutral	21
● Somewhat agree	13
● Agree	13
● Strongly agree	2

9. The function modules on government websites are arranged in a user-friendly way.

More Details

● Strongly disagree	14
● Disagree	22
● Somewhat disagree	19
● Neutral	20
● Somewhat agree	16
● Agree	14
● Strongly agree	0

Appendix 4. Social Values and Inclusive Values

19. Using government website is valuable to providing equal public service to all citizens.

More Details

● Strongly disagree	10
● Disagree	6
● Somewhat disagree	25
● Neutral	25
● Somewhat agree	13
● Agree	22
● Strongly agree	4
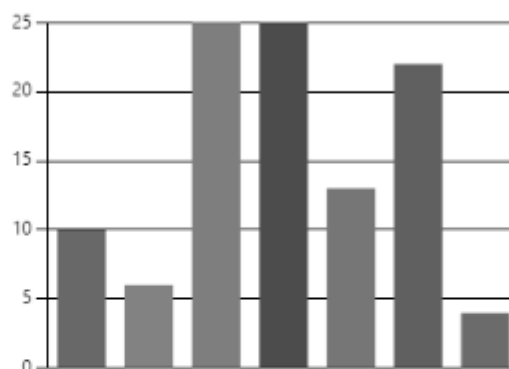
20. Using government website makes the disadvantaged groups benefit more from public service.
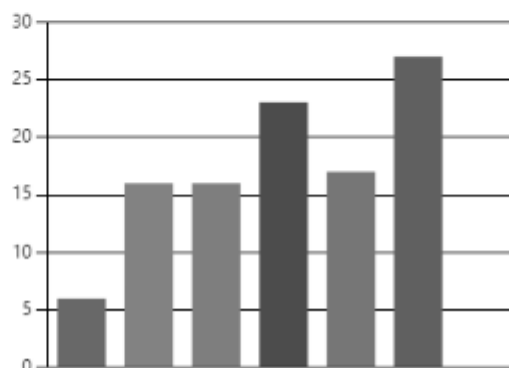
More Details

● Strongly disagree	10
● Disagree	17
● Somewhat disagree	25
● Neutral	21
● Somewhat agree	12
● Agree	19
● Strongly agree	1
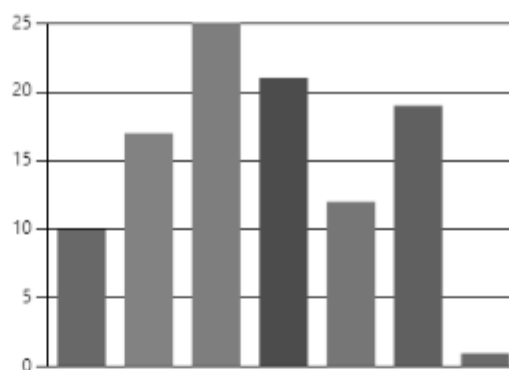
21. I used DMSS services to experiment with new ways of doing things.

More Details

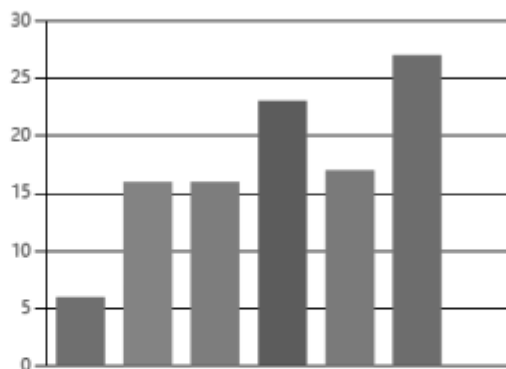|	
● Strongly disagree	6
● Disagree	16
● Somewhat disagree	16
● Neutral	23
● Somewhat agree	17
● Agree	27
● Strongly agree	0

Appendix 5. Epistemic Values

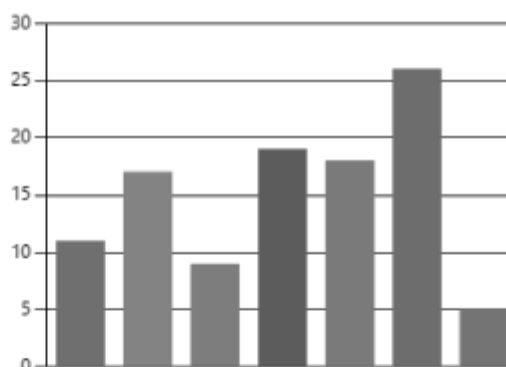21. I used DMSS services to experiment with new ways of doing things.

More Details

⬤ Strongly disagree	6
⬤ Disagree	16
⬤ Somewhat disagree	16
⬤ Neutral	23
⬤ Somewhat agree	17
⬤ Agree	27
⬤ Strongly agree	0

22. I used DMSS services to test the new technologies.

More Details

⬤ Strongly disagree	11
⬤ Disagree	17
⬤ Somewhat disagree	9
⬤ Neutral	19
⬤ Somewhat agree	18
⬤ Agree	26
⬤ Strongly agree	5

23. I used DMSS service out of curiosity.

More Details

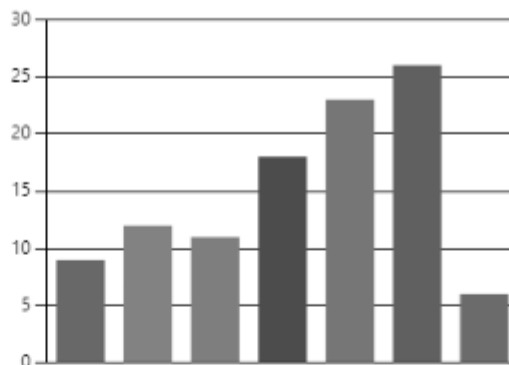|	
⬤ Strongly disagree	5
⬤ Disagree	15
⬤ Somewhat disagree	14
⬤ Neutral	20
⬤ Somewhat agree	21
⬤ Agree	27
⬤ Strongly agree	3
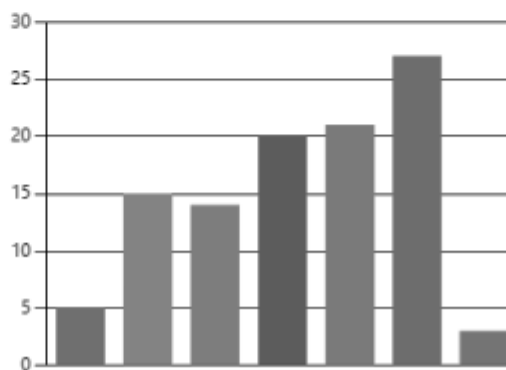
Appendix 6. Conditional Values

25. I value the real time information and interaction that this service makes possible.

More Details

● Strongly disagree	9	
● Disagree	12	
● Somewhat disagree	11	
● Neutral	18	
● Somewhat agree	23	
● Agree	26	
● Strongly agree	6	

26. I value the independence of place and time offered by the use of DMSS.
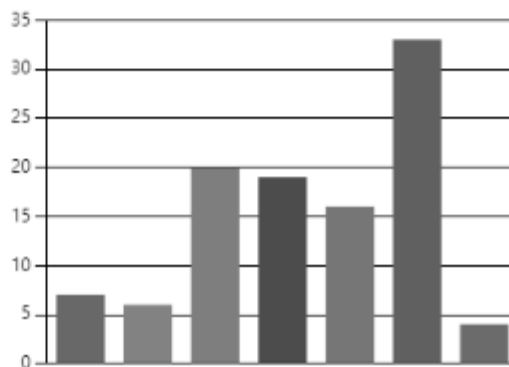
More Details

● Strongly disagree	5	
● Disagree	13	
● Somewhat disagree	13	
● Neutral	23	
● Somewhat agree	17	
● Agree	31	
● Strongly agree	3	
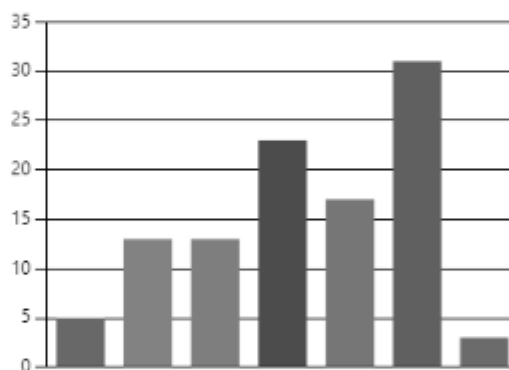
27. No matter what time or place is, using DMSS can assist me complete those thing that I want to do.

More Details

● Strongly disagree	7	
● Disagree	6	
● Somewhat disagree	20	
● Neutral	19	
● Somewhat agree	16	
● Agree	33	
● Strongly agree	4	

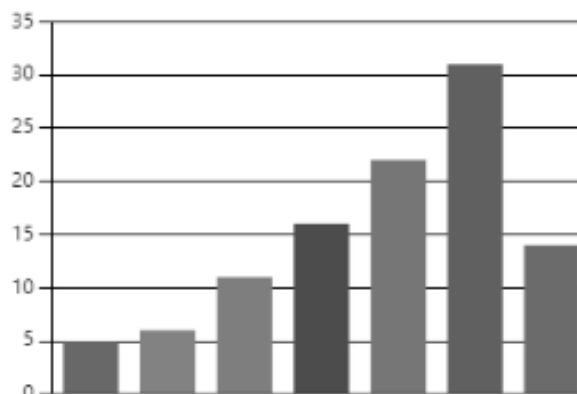## Appendix 7. Risk Resistance Values

37. I fear that while I am using DMSS, I may pay more money.

More Details

● Strongly disagree	5	
● Disagree	6	
● Somewhat disagree	11	
● Neutral	16	
● Somewhat agree	22	
● Agree	31	
● Strongly agree	14	

38. I fear that while I am using DMSS, I may pay money to the wrong vendor.

More Details

● Strongly disagree	5	
● Disagree	5	
● Somewhat disagree	12	
● Neutral	18	
● Somewhat agree	21	
● Agree	27	
● Strongly agree	17	
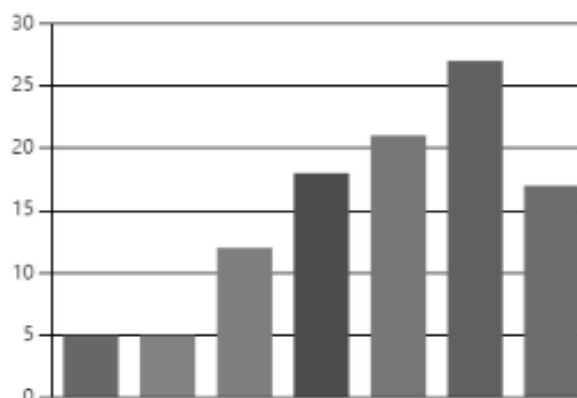
39. I fear that while I am using an DMSS, someone may hack my account.

More Details

● Strongly disagree	5	
● Disagree	12	
● Somewhat disagree	5	
● Neutral	8	
● Somewhat agree	17	
● Agree	39	
● Strongly agree	19	
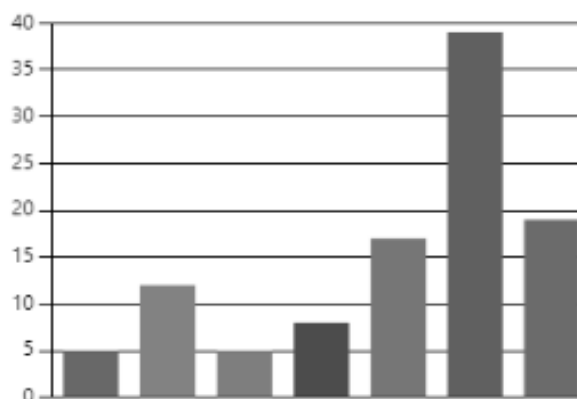
Appendix 8. Interview Questions

1. Do you think DMSS is functioning correctly?
2. What are the main factors that need to be improved for the proper functionality of DMSS?
3. How do you see the impact of DMSS in society in terms of inclusiveness or social image
4. How would you interpret users' new way of doing things?

5. People sometimes feel anxious about adopting new systems. How do you see this impact on DMSS?

6. Considering the recent phenomenon regarding cyber security, the researcher asks the next question. How would you interpret the importance and effect of cyber security risk in DMSS?

7. What factors are to be considered for the strategic development of DMSS?
8. Is it possible/feasible to develop the DMSS in collaboration with the government and private sector?
9. What could be the main challenges in such collaboration?

Appendix 9. List of the Managers (interviewees)

H1 (Manager 1)	He is the technical lead of the software firm ABC Solutions Limited. He has been in this industry for 13 years. He completed his BSc. in CSE from the International University of Business, Agriculture, and Technology (IUBAT). He also completed several professional courses in IT, such as cloud computing and database management. During his tenure, he also worked on several government projects, such as roads and highways, the Ministry of Agriculture, etc.
H2 (Manager 2)	He is the assistant manager and IT risk management expert, having worked in the industry for about ten years. He holds a BSc. in CSE from BRAC University in Bangladesh.