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Nasser Alshawaaf and Basil Alzougool *

Faculty of Business Studies, Arab Open University – Kuwait Branch

* Correspondence: (balzougool@aou.edu.kw) (b.alzougool@gmail.com); Faculty of Business Studies, Arab Open University, Al-Ardiya Industrial Area, P.O. Box 3322, Al-Safat 13033, Kuwait

Abstract: Digital transformation in government services is seen as a progression towards offering more efficient and convenient services. In the wake of the COVID-19 pandemic, many governments worldwide have expedited the digitisation of their services to facilitate social distancing. Digital transformation encompasses the shift from manual, face-to-face services to automated, online-based systems. This process occurs in three stages: digitisation, digitalisation, and digital transformation. However, the varying stages of digital government implementation across countries impact service outcomes differently. Little research has been devoted to focusing on the outcome metrics crucial for the success of digital services, particularly in Kuwait. Moreover, although the existing literature has explored some metrics, specific metrics have been neglected. This study aimed to investigate current trends and preferences in digital government services usage using empirical quantitative data gathered from users of digital services in Kuwait. Specifically, the aim is fourfold: (i) to identify crucial outcome metrics for the success of digital services, (ii) to assess how users evaluate these services according to these metrics, (iii) to examine significant differences between digital transformation and digitalisation services, and (iv) to develop and validate a model for evaluating the success of digital transformation services. To achieve the study's objectives, 378 users of digital government services were surveyed quantitatively. This study found that users primarily access services through smartphones and applications, underscoring the need for mobile optimisation. There was a marked preference for real-time, automated services, with dissatisfaction for those requiring lengthy approval processes. Six key metrics were identified and grouped into three domains: service-related (customer satisfaction and service quality), convenience-related (accessibility and ease of use), and security-related (perceived security and perceived trust). Digital transformation services outperformed digitalisation services in five key areas: customer satisfaction, service quality, accessibility, ease of use, and perceived security, except perceived trust, which remained consistent across both service types. Several recommendations were proposed to advance government digital transformation services, boost efficiency, and enhance the user experience.

Keywords: digitisation; digitalisation; digital transformation; public sector; automatic processing; service process; efficiency

1. Introduction

The evolution of digital transformation can be traced back to the late twentieth century when digital infrastructure began to advance, encompassing telecommunications, software, and information technology [1]. Since then, numerous digital technologies have emerged, including computers, smartphones, social networks, artificial intelligence, the Internet of Things, big data analytics, cloud computing, blockchain, 3D printing, robotics, and virtual reality [2]. Both private and public sectors have adopted these technologies to enhance business models and achieve competitive advantages by optimising operations, improving service delivery, and enhancing user interactions. The progression of digital organisations has gone through three key stages: digitisation, digitalisation, and the current phase, digital transformation [3].

Digitisation involves converting traditional processes and activities, such as paperwork and mail, into digital formats using modern technologies to boost productivity and drive growth [4]. As

the foundational stage of digital transformation, digitisation converts physical objects into software, allowing organisations to rethink service processes designed initially for offline interactions [5]. For instance, Estonia's digital government offers e-residency, enabling non-Estonians to obtain a digital ID to access government services without requiring a printed ID [6].

Digitalisation represents a further evolution toward becoming a digital organisation. It goes beyond digitised objects by enabling interactions through digital platforms, such as online service applications, video calls, or chat-based communication with service providers, instead of traditional face-to-face interactions. This shift leads to changes in business models and the creation of new revenue streams [7]. Unlike digitisation, digitalisation focuses more on digitalising processes, workflows, and operations. For example, the healthcare sector now offers digital consultations, where patients receive medical advice remotely via video calls and prescriptions through text messages [8].

Digital transformation is the most comprehensive stage, signifying a fundamental reconfiguration of an organisation's business model through digital technologies with a broader societal impact [9]. In this phase, digital technologies become integral to an organisation's operations, processes, and outcomes [10]. Digital transformation integrates various technologies into the operational frameworks of economies, organisations, and individuals [11]. It can be understood in three key dimensions: creating value, optimising processes to enhance user experience, and building capabilities that support the entire digital structure [12]. For example, the United Kingdom consolidated thousands of government websites into a single online platform, simplifying citizens' access to government services, improving user experience, and reducing costs [13].

While numerous studies have focused on digitisation, digitalisation, and digital transformation in the private sector, fewer have explored these phenomena in the public sector. However, research interest in the public sector has increased after COVID-19, as digital transformation has become essential for governments to effectively address the health crisis, uncovering a range of opportunities and challenges [14]. Studies have made strides in understanding the impact of digital governments on work processes and outcomes. However, scholars continue to call for further research to examine specific outcomes achieved by different countries through diverse digital government approaches [15]. Other scholars have emphasised the need to investigate the effects of digital government on service delivery efficiency and quality of life [7, 16], as well as the digital processes and factors influencing the delivery of various government services [5]; [17]. Merely incorporating digital technologies is insufficient to achieve effective digital government—how these technologies are utilised determines outcomes [18]. When leaders of government agencies pursue digital government goals, they must understand the outcomes associated with different approaches to make optimal policy and technical decisions. This study responds to these calls by examining the outcomes of digital government in a country (i.e., Kuwait) that is socially, culturally, and economically distinct from those typically covered in existing research.

Given the context above and to the best of our knowledge, little research has been devoted to focusing on the outcome metrics crucial for the success of digital services, particularly in Kuwait. Moreover, although the existing literature has explored some metrics, specific metrics have been neglected. Hence, the present study aimed to fill the gap in the literature by adding more significant knowledge. Therefore, this study aims to investigate current trends and preferences in digital government services usage using empirical quantitative data gathered from users of digital services in Kuwait. Specifically, the aim is fourfold: (i) to identify crucial outcome metrics for the success of digital services, (ii) to assess how users evaluate these services according to these metrics, (iii) to examine significant differences between digital transformation and digitalisation services, and (iv) to develop and validate a model for evaluating the success of digital transformation services.

Hence, this study makes three contributions to the existing knowledge on digital transformation: First, the study thoroughly evaluates previous research on digital transformation to find the critical outcome metrics crucial for the success of government digital services. Second, this study assesses how users evaluate these services according to these metrics and examines any significant differences between digital transformation and digitalisation services. Finally, this study proposes a model that encompasses six metrics, divided into three domains: service-related (user satisfaction and service

quality), convenience-related (accessibility and ease of use), and security-related (perceived security and perceived trust). Previous research has overlooked these metrics and rarely examined them in a unified model.

The remainder of this paper is organised as follows. First, we review four key areas of literature to explore the applications of digitalisation and digital transformation in the public sector, the resulting outcomes in both public and private sectors, and the digital transformation progress in Kuwait. Next, we introduce a model developed based on the outcome metrics identified in the literature. Following this, we outline the research methodology. Subsequently, the results of the data analysis are presented. Finally, we conclude with a discussion of the potential implications and recommendations.

2. Literature Background

2.1. Digitalisation and Digital Transformation

Although digitalisation and digital transformation have been widely examined in the private sector, there has been comparatively little research on their application in the public sector. However, studies on the public sector have increased significantly following the COVID-19 pandemic. During this period, digital transformation became a necessity rather than an option for governments as they adapted to respond to the health crisis, revealing numerous opportunities and challenges [14]. Public sector digitalisation involves integrating digital technologies into government operations to enhance efficiency, transparency, citizen engagement, accountability, and public involvement [19]. For example, Denmark's digitalisation initiative has improved efficiency in delivering welfare services [20].

Digital transformation in the public sector focuses primarily on developing new methods for service delivery, with government priorities centred on achieving economic and social outcomes [21]. It aims to streamline user experiences by redesigning services to meet evolving needs. One study identified a critical aspect of digital transformation—automated decision-making, where decisions are made instantly after a user submits a service request [22]. The study found that interconnected systems equipped with algorithms enable the automation of government services, allowing the system to analyse input data and deliver a formal decision to the service recipient immediately.

However, the public sector's digital transformation faces several challenges that require effective solutions [23]. The first challenge pertains to managing digital transformation, which includes convincing leadership of its importance and addressing the lack of digital skills among the workforce [11]. The second challenge involves technology-related issues, such as seamless system integration across various government agencies with distinct functions [24]. The third challenge relates to users, including their digital literacy levels and the potential increase in unemployment as digital services replace traditional human services [25]. The fourth challenge concerns user privacy and data protection, as sensitive information could be vulnerable to cyberattacks [26]. These combined challenges have led to several cases where public sector digital transformation has failed to deliver the anticipated results [27].

Digital transformation in the private sector refers to integrating digital technologies across all business areas to boost efficiency, innovate processes, and improve customer experience. It has become a strategic priority for companies to survive and thrive in a highly competitive global environment [28]. Digitalisation is reshaping business operations, enhancing competitiveness, and fostering innovation. It enables companies to increase productivity and safety through data-driven insights, providing them a competitive edge and operational efficiency [29]. This transformation is especially critical for developing service industries, as it enhances communication, improves service quality, and strengthens competitive advantages by modernising business processes [30]. In the service sector, key impacts include process automation, the use of artificial intelligence, and improved customer engagement strategies [31].

Both public and private sectors that have implemented digital changes have witnessed growth, primarily due to enhanced efficiency and effectiveness achieved through virtual communication and

task automation [11, 23]. These benefits manifest at various levels, including economic and organisational (see Table 1). At the macroeconomic level, digital transformation has contributed to higher export volumes and increased annual economic growth rates [11]. The appeal of digital transformation stems from its numerous advantages, which promote development across countries, organisations, and societies. According to the Saudi Arabian government [32], digital transformation offers benefits such as digitising work processes, providing more opportunities for growth, modifying work models, enhancing process efficiency, reducing technical errors, accelerating the launch of new services, improving work quality and performance, boosting labour productivity, enhancing service experiences, and maintaining sustained user satisfaction.

At the organisational level, digital transformation has numerous benefits, including improved services, optimised processes, stronger relationships, better policies, and an enriched digital environment [5]. In social organisations, digitalisation fosters innovation by enabling new revenue streams that support their social missions, creating a synergy between commercial and social activities [33]. It also helps reach a broader audience, achieving social objectives at a lower cost through virtual experiences instead of physical expansion. For organisations, digitalisation offers vital advantages such as reduced production costs, faster operations, improved access to skilled talent, lower transaction costs, and the ability to deliver personalised services that meet consumer needs [34]. In the public sector, digitalisation has increased productivity and efficiency for service providers while offering time savings and greater convenience for service recipients [35].

Table 1. Digital Services Benefits.

Digitalisation	Digital Transformation
Lower costs related to production, operations, human capital, transportation, and personalised services. It has increased productivity and efficiency. Users save time and are more convenient.	Transform work process. Development opportunities. Change work model. Increase efficiency and labour productivity and minimise errors. Higher performance. Improve user experience and satisfaction.

2.2. Outcomes of Digitalisation and Digital Transformation

Enhancing user experience is critical for organisations adopting digital transformation strategies [36]. For governments, the continuous improvement of services is essential to increase satisfaction among service recipients. Several factors influencing user satisfaction with digital government services have been identified, including security and privacy, trust, accessibility, awareness of available services, and overall service quality [37, 38]. Accessibility, in particular, has been emphasised in the literature and is defined by four main principles: permeability, operability, understandability, and robustness [39]. Furthermore, user acceptance is a critical measure of the success of digital government services. It can be evaluated through multiple dimensions, such as perceived usefulness, ease of use, perceived risk, trust, compatibility, external influences, interpersonal influence, self-efficacy, and facilitating conditions [40, 38]. A study by [41] examined the critical success factors for digital transformation to enhance user experience. The study identified several metrics categorised into process-related and service-related metrics. Process-related metrics include process automation, process optimisation, simplified customer processes, process transparency, and consistency of experience across different service channels. Service-related metrics include 24/7 availability, personalised services, self-service options, and service response time. These metrics are crucial for assessing the effectiveness of digital transformation initiatives in improving user experience and satisfaction with government services.

In this regard, most existing literature has concentrated on the private sector, highlighting various metrics for assessing these outcomes. Table 2 provides an overview of various metrics used to evaluate the outcomes of digital services from the user's perspective. As indicated in the table,

These metrics are categorised into three main groups: service-related metrics (e.g., personalised services, self-service options, and customer satisfaction), convenience-related metrics (e.g., process automation, process optimisation, accessibility, and simplified customer processes), and security-related metrics (e.g., privacy and trust). Each category is linked to several studies investigating or validating these metrics. While some metrics, such as customer satisfaction, ease of use, and perceived trust, have been widely researched, others, like self-servicing, process optimisation, and engagement-related metrics, remain underexplored. Addressing these gaps through comprehensive research would offer a more nuanced understanding of the outcomes of digital services from a user perspective. It could help guide more effective digital transformation strategies in the public and private sectors. Customer Satisfaction and Service Quality are among the most researched in the context of digital services, reflecting their central role in evaluating user experiences. Studies by [42, 43] have focused on these aspects extensively. Service quality, in particular, has been explored through multiple dimensions, such as reliability, responsiveness, and assurance, indicating a comprehensive understanding of its impact on user satisfaction. Ease of Use and Perceived Usefulness grounded in the Technology Acceptance Model (TAM) proposed by [44] have been widely examined in the context of digital service adoption and user acceptance [40, 38, 45, 46, 47, 48]. Their significance is emphasised in public and private sector studies, as they directly influence user adoption rates and satisfaction. Trust and security-related metrics are also well-covered, mainly because they are critical in determining users' willingness to engage with digital services. Numerous studies have explored perceived trust [40, 37, 49] and perceived security [50, 51], highlighting their influence on user confidence and satisfaction. Most studies examine these metrics in isolation. There is limited research analysing the interrelationship between different categories of metrics (e.g., how security-related metrics influence service-related and convenience-related outcomes). A more integrated approach could provide a holistic understanding of the factors driving user satisfaction and acceptance of digital services.

Additionally, the literature suggests that a holistic approach to considering all three categories is necessary to understand digitalisation outcomes fully. Metrics such as customer satisfaction, perceived trust, ease of use, and accessibility are essential for creating a positive user experience, while metrics like process automation and perceived security address the efficiency and safety of digital services. This comprehensive evaluation framework can guide governments and organisations in enhancing digital service delivery and meeting user expectations.

Table 2. Digital Services Outcome Metrics from User Perspective.

Metrics	References
Service-related Metrics	
Customer satisfaction	[42, 43, 52, 53, 54, 55]
Service quality	[37, 43, 51, 56, 55]
Awareness of services	[37, 38, 49, 57]
Personalised services	[41, 58, 59]
Self-servicing	[41, 58, 60, 61]
Service response time	[41, 51, 52, 54]
Net promoter score	[42, 55, 62]
Compatibility	[40, 54, 55,58]
Daily active users	[42, 54, 63, 64]
Conversion rates	[42, 51, 54]
Abandon rates	[42, 49, 54, 55]
Convenience-related Metrics	
Ease of use	[38, 40, 45, 48, 65, 46]
Accessibility	[37, 39, 66, 67, 68].
Perceived usefulness	[38, 40, 51, 55, 59, 69]
Process automation	[41, 54, 55, 58]

Process optimisation	[51, 55, 69]
Consistent experience	[54, 55, 69]
24/7 servicing	[41, 51, 53, 54]
Understandable	[39, 66, 67, 68]
Customer effort score	[42, 51, 58]
Self-efficacy	[40, 55, 58, 70]
Simplified customer processes	[55, 58, 69]
Security-related Metrics	
Perceived trust	[37, 40, 49, 52, 54, 71, 72]
Perceived security	[51, 54, 71, 73]
Process transparency	[54, 61, 69]
Privacy	[37, 49, 54, 73]
Perceived risk	[40, 51, 52, 54, 70]
Facilitating condition	[58, 69, 70]

2.3. Digitalisation and Digital Transformation of Kuwait

Since the early 2000s, Kuwait has actively transitioned to online public services, investing in smart cities and digital infrastructure [74]. The COVID-19 pandemic in 2020 was a significant catalyst, prompting the government to focus on delivering digital services primarily through websites and smartphone applications to facilitate social distancing. This digitalisation has significantly improved government workflows, reduced paper-based processes, and streamlined approvals, leading to substantial time and resource savings [75]. For example, the Ministry of Health has established a digital presence on social media to promote health literacy [76]. Government agencies, including the oil and gas sector, have also embraced digital technologies. The Kuwait Oil Company, for instance, has initiated digital pilot projects to monitor and control oil fields remotely, maintaining production levels while reducing downtime [77].

However, Kuwait's digitalisation and transformation efforts face several challenges. Many government agencies encounter difficulties implementing digital transformation plans [78]. Despite an internet penetration rate of 99% of the population, only 53% have utilised digital government services [79, 80]. This study focuses on the Kuwaiti government and explores its ongoing initiatives to deliver digital services, address inefficiencies, and improve user satisfaction with traditional offline services. The progress of different government agencies varies, with services categorised into digitisation, digitalisation, and digital transformation (see Appendix A). The study emphasises digitalisation and digital transformation, particularly concerning digital public services related to issuing new permits, such as residency permits, or renewing existing information like civil IDs, which can either be completed instantly or require waiting for approval depending on the level of digital transformation involved.

Although studies examining the digitisation of organisations have demonstrated that digitalisation and digital transformation have tangible impacts on work processes and outcomes, they often overlook comparisons of the efficiency outcomes associated with different approaches. Mergel et al. [5] contend that the existing literature has primarily focused on digitisation, which involves converting paper documents into digital formats while neglecting a more comprehensive discussion on full-service delivery through digital transformation. Both digitalisation and digital transformation have altered public sector practices to enable online service provision. While research has made strides in understanding the effects of digital governments, scholars have called for further investigation into the specific outcomes associated with various digital government approaches in different countries [15]. Additionally, there are calls for research into the outcomes and impacts on service delivery efficiency and quality of life [7, 16]. Other researchers emphasise the need to explore the digital processes and factors involved in delivering various government services [5, 17]. Simply incorporating digital technologies within government is insufficient for realising the goals of digital governance; how these technologies are utilised significantly influences outcomes [18]. Thus, when

leaders of government agencies strive to achieve the objectives of digital governance, they need to understand the different approaches and the outcomes associated with each to make informed policy and technical decisions.

3. Theoretical Model and Hypotheses

Drawing on existing and related literature, a conceptual model was developed to identify the key outcome metrics critical for the success of government digital transformation services (i.e., completed entirely online and instantly) compared to digitalisation services (i.e., completed online but requiring approval that may take hours or days) (Figure 1). This model encompassed six metrics, divided into three domains: service-related (user satisfaction and service quality), convenience-related (accessibility and ease of use), and security-related (perceived security and perceived trust). These metrics have seldom been analysed together within a single model, particularly in the context of Kuwait. Therefore, this paper validates the model using empirical quantitative data gathered from users of digital services in Kuwait. The six metrics are described below:
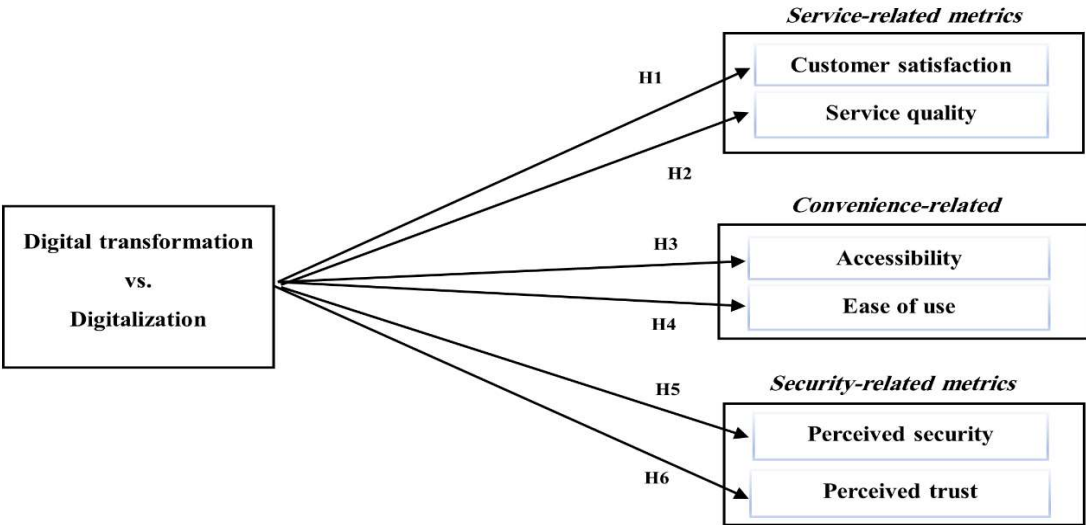

Figure 1. The research model.

3.1. Service-Related Outcome Metrics: Customer Satisfaction and Service Quality

Customer satisfaction refers to the degree to which users feel content with the service they have received or experienced. Verdegem and Verleye [81] argue that adopting a user-centered approach to providing government services is essential for widespread adoption. They developed and tested a model in Belgium, finding that satisfaction is influenced by various factors in the customer experience, including the usability of the software or application used to access the service, availability at any time, ease of finding the service, access costs, number of loading pages, availability of personal assistance, transaction security, usefulness of the information provided, and flexibility. Another method of measuring customer satisfaction involves assessing how much users appreciate and enjoy the service. This is often gauged by determining whether users will likely recommend the service to others based on their experiences. Users can be classified into three categories: detractors, passives, or promoters [82]. Detractors are dissatisfied users who have complaints about the service, while passive are neutral users who are satisfied but not enthusiastic and may consider switching to other service options. On the other hand, promoters have had a positive experience and are likely to suggest improvements and recommend the service to their social circles. Service quality serves as another critical metric for evaluating service-related outcomes. Digital service quality refers to the excellence of online services provided through websites or digital platforms. It encompasses various factors, including website design, user-friendliness, security, speed, and user support, all influencing customer satisfaction in the online environment. Research has shown that service quality affects word-of-mouth promotion and user-switching behaviour [43]. Additionally, a study highlighted that

download speed is a critical driver in enhancing digital service quality [56]. Based on these results and discussion, the following hypotheses were proposed:

H1: Digital transformation leads to higher customer satisfaction levels than digitalisation.

H2: Digital transformation results in higher service quality levels than digitalisation.

3.2. Convenience-Related Outcome Metrics: Accessibility and Ease of Use

Digital transformation entails significant changes in organisational practices, primarily focused on enhancing accessibility and ease of use. Accessibility ensures that digital content and technologies are designed and developed to accommodate individuals from various backgrounds. This includes creating systems compatible with assistive technologies and offering customisable interfaces for users with diverse needs. Improving accessibility fosters inclusivity and allows more individuals to participate actively in digital environments. The importance of accessibility became particularly evident during the COVID-19 pandemic, especially for people with disabilities, underscoring the necessity for technologies that enhance users' online experiences [67]. In industries such as banking, digital transformation has improved accessibility, resulting in greater convenience, speed, and reliability [66]. Digital accessibility ensures inclusiveness, enhancing user convenience and overall platform efficiency [83]. The evaluation of systems, technologies, and services is heavily dependent on ease of use, a critical metric related to convenience. Ease of use is essential for assessing digital projects, as a simple online system leads to a seamless and convenient user experience [45]. It significantly influences users' attitudes toward adopting technology, particularly in mobile learning environments. A study by [41] proposed several measurements for assessing the service process experience, including integrating different departments using a few digital technologies or platforms to reduce the steps required for completing transactions. Another important measurement is processing capacity, which refers to the ability of digital services to handle large and complex transactions that necessitate extensive personal data checks. These factors significantly impact users' intentions to continue using mobile learning applications. For example, in the healthcare sector, the usability of digital health solutions is closely linked to ease of use, contributing to greater convenience for patients managing chronic conditions [47]. Based on these results and discussion, the following hypotheses were proposed:

H3: Digital transformation provides greater accessibility than digitalisation.

H4: Digital transformation is easier to use than digitalisation.

3.3. Security-Related Outcome Metrics: Perceived Security and Perceived Trust

The literature suggests that perceived security and perceived trust are essential metrics for assessing security outcomes, particularly as security concerns rise with the growing adoption of digital technologies. Perceived security significantly influences the usage of mobile payment systems, with factors like perceived control and interface design enhancing users' sense of security [50]. For example, a study on digital transformation in Vietnamese universities revealed that perceived security directly affected students' adoption of digital services [51]. When users feel secure against cyber threats due to their knowledge and awareness of risks, they take fewer precautions [73]. Perceived trust is also a critical metric for evaluating security in digital transformation. Users' trust in the reliability and integrity of digital services is essential for mitigating feelings of uncertainty and risk [84]. Several factors have been identified to gauge whether users trust a digital service, including internet trust, disposition to trust, and perceived ability to use [84, 85, 86]. For instance, in Saudi Arabia, users' perceived trust in e-commerce was significantly affected by the security, reputation, and benefits associated with the digital service [49]. In the supply chain sector, safety assessments and certifications were critical in fostering trust in technological infrastructure for seamless operations [52]. A study in Korea highlighted that security in e-payment systems was a key factor

influencing trust, significantly impacting users' willingness to adopt such systems [71]. Therefore, security-related outcome metrics are vital for evaluating the effectiveness of digital government initiatives. Based on these results and discussion, the following hypotheses were proposed:

H5: Digital transformation offers higher security levels than digitalisation.

H6: Digital transformation is associated with higher trust levels than digitalisation.

4. Method

4.1. Research Instrument

The rationale for selecting this context is to assess the outcomes of two digital government approaches implemented within the same framework, with Kuwait identified as the focal point for this study. A cross-sectional survey was conducted among the population of Kuwait to achieve the study's objectives. Data were collected through an online, self-administered, voluntary, and anonymous questionnaire divided into three sections: (i) demographic information, including age and gender; (ii) questions regarding the digital services used, such as the name, level of automation, service recipient, device, and platform; and (iii) a combination of scales from previous studies resulting in 16 items measuring various variables. This includes six items assessing service-related outcomes (e.g., "I am satisfied with the app/website used to access online government services") [81], six items evaluating convenience-related outcomes (e.g., "I went through many steps and other platforms to complete the online government service") [41], and four items measuring security-related outcomes (e.g., "I feel uncertainty about the outcome of using online government services") [84, 85, 86]. While most survey questions were derived from the literature, some were developed by the authors to address gaps in existing research. Participants rated each item on a 5-point Likert scale, with 5 indicating strong agreement. Before public distribution, a pilot test was conducted with academics to gather feedback for improvement. The feedback was generally positive, with some suggestions incorporated to enhance the survey, such as adding more detail to the introduction to clarify the study's purpose.

4.2. Sampling Procedure and Size

The study's target demographic includes all individuals currently living in Kuwait. To ensure the collection of relevant data, a screening question was included to verify whether participants had previously used any digital governmental services within Kuwait. A purposive sampling method was employed to reach individuals with relevant understanding, utilising convenience and snowball sampling techniques. This approach facilitated the targeted recruitment of participants who met the study's criteria. The sample size was calculated based on a population of 4 million, using a 95% confidence level and a +/- 5% confidence interval, resulting in a required sample of 378 respondents, considered representative of Kuwait's population [87]. Six hundred nine individuals participated in the study, of which 378 respondents had used digital government services. Only their responses were included in the final analysis.

4.3. Data Collection Procedure

A link and QR code for the survey were created using Microsoft Forms, and the survey was open for approximately four months. Participants were recruited through online communications such as email and mobile chat applications. The QR code was also printed on research posters and displayed publicly at conferences and universities. The Information Technology Department at an educational institution was also asked to promote the survey through their online portals. The survey's cover page provided details about the study's nature, purpose, and instructions to ensure participants understood the questionnaire's objective. Anonymity and confidentiality were guaranteed, and the survey took approximately five minutes to complete.

4.4. Data Analysis

Data were analysed using the statistical package for social science (SPSS) software (version 19.0). Descriptive statistics were computed to summarise the data, with means, standard deviations, frequencies, and percentages calculated where applicable. The scales were evaluated using exploratory factor analysis and Cronbach's alpha. A t-test analysis examined the differences in outcome metrics between digital transformation and digitalisation services. Statistical significance was established at $p < 0.05$ for all tests.

5. Results

5.1. Demographic and Usage Characteristics

Table 3 provides a detailed summary of the respondent characteristics and their usage of online services. Among the 378 respondents, a majority were female (60.3), while males constituted 39.7%. The age distribution is notably balanced, with 48.1% of respondents aged 18-29 years and an equal percentage of 48.1% in the 30-44 years category. The remaining 3.7% were aged 45 years and above. Regarding online service usage, the Sahel App was the most widely used platform, with 61.9% of respondents reporting its use. The Q8Seha App follows, used by 20.1%, while 16.1% used the Kuwait Mobile ID, and a minimal 1.9% utilised other services. Regarding service automation, a significant majority of respondents (80.2%) used services that are fully completed online in real-time. In contrast, 19.8% encountered services requiring waiting periods of hours or days for approval. The primary use of these online services was for personal purposes, with 90.2% of respondents accessing services for themselves. In comparison, 9.8% used the services on behalf of others, such as family members or friends. Device usage data revealed that smartphones are the predominant device for accessing online services, utilised by 92.1% of respondents. Desktop PCs (3.2%), laptops (3.4%), and tablets (1.3%) were used by a smaller proportion of participants. Additionally, most respondents accessed these services through applications, compared to 19.8% who used websites. Overall, the findings illustrate a strong preference for smartphone-based applications, a balanced age demographic, and a trend toward immediate online service processing.

Table 3. Demographic and usage characteristics of the respondents (n=378).

Characteristics	Categories	Freq.	%
Sex	Male	150	39.7
	Female	228	60.3
Age range	18-29 years	182	48.1
	30-44 years	182	48.1
	45 years and above	14	3.7
Online service used	Sahel App	234	61.9
	Q8Seha App	76	20.1
	Kuwait Mobile ID	61	16.1
	Other	7	1.9
Service automation level	Requires waiting for hours or days to get approved	75	19.8
	It was entirely done online at the same time.	303	80.2
Used for	Myself	341	90.2
	Others / Father / Mother / Relative / Friend	37	9.8
Device used	Desktop PC	12	3.2
	Laptop	13	3.4
	Smartphone	348	92.1
	Tablet	5	1.3
Platform used	Application	303	80.2
	Website	75	19.8

5.2. Outcome Metrics of Digital Services

Exploratory factor analysis with principal components analysis and Varimax rotation on the multi-item measures was conducted to identify these items' outcome metrics (factors). This analysis was used to examine whether or not the load of the items on the specified metrics was predicted. The overall and individual item measures of sampling adequacy were high, indicating the appropriateness of the data for factor analysis (Table 4). The first outcome metric has three items and had loadings of 0.911 or more significant on this metric. Cronbach alphas were checked for the reliability of each metric and rendered a result of 0.91 for metric 1. This metric is labelled as user satisfaction following previous literature. The second outcome metric has three items and had loadings of 0.859 or more significant on this metric. Cronbach was 0.868 for this metric. This metric encompasses the service's recommendation, usefulness, and efficiency, providing a comprehensive view of its overall performance and quality. Therefore, this metric is labelled as service quality. The third outcome metric has two items and has loadings of 0.941, which is significant for this outcome metric. Cronbach was 0.87 for this outcome metric. This outcome metric reflects the ease of accessing the service and the ability to use it anytime. Therefore, it is labelled as accessibility. The fourth outcome metric has three items and had loadings of 0.594 or more significant on this metric. Cronbach was 0.671 for this metric. This metric encompasses the availability of online assistance, simplicity of using the service, and complexity or number of steps required. Therefore, it is labelled as easy to use, following previous literature. The fifth outcome metric has three items and had loadings of 0.913 or more significant on this metric. Cronbach was 0.927 for this metric. This metric captures the aspects of data safety, provider trustworthiness, and the security of the payment system. Therefore, it is labelled as perceived security, following previous literature. The last outcome metric has two items and had loadings of 0.847 or more significant on this metric. Cronbach was 0.676 for this metric. This metric effectively reflects the confidence in the service's outcome and the willingness to rely on alternative methods if trust is lacking. Therefore, it is labelled as perceived trust.

Therefore, six outcome metrics were identified and categorised into three domains: service-related metrics (user satisfaction and service quality), convenience-related metrics (accessibility and ease of use), and security-related metrics (perceived security and perceived trust). Key features of these metrics are provided in Table 4, which shows the number of items, mean, and standard deviation of each metric. The results are reported using the following scale: (i) high agreement (mean ≥ 3.85), (ii) medium agreement (2.35 ≤ mean < 3.85), and (iii) low agreement (mean < 2.35).

As shown in Table 4, participants vary in identifying these metrics. In this regard, the results indicated that respondents rated four of the six metrics highly satisfactory. Specifically, the metrics for accessibility (mean = 4.11), user satisfaction (mean = 4.08), perceived security (mean = 4.01), and service quality (mean = 4.01) received high mean scores, reflecting positive evaluations in these areas. Conversely, two metrics were rated with moderate agreement: ease of use (mean = 3.52) and perceived trust (mean = 3.06). These scores suggest that while users find the services generally satisfactory and secure, there are areas where improvements may be needed, mainly ease of use and trust. While respondents are usually optimistic about accessibility, satisfaction, security, and service quality, there is a noticeable difference in their perceptions of ease of use and trust, which may require further attention to enhance user experience.

Table 4. Factor loadings, Cronbach α, mean, standard deviation of the six identified outcome metrics of digital services (n=378).

The identified outcome metrics	Loadings	Cronbach α	Mean	SD
Service-related metrics				
User satisfaction		.910	4.08	.89
I am satisfied with the speed of loading the app/website of the online government service	.935		4.15	.95
I am satisfied with the app/website that I used to access online government service	.917		4.00	1.0

I am satisfied with the cost of the service	.911	4.10	.97
Service quality		.868 4.01	.88
I would recommend this service to my family, colleagues or friends	.913	3.97	1.02
The information provided in the app/website is useful for completing online government service	.898	4.20	.95
Online government services process large and complex data effectively and quickly	.859	3.88	.97
Convenience-related metrics			
Accessibility		.870 4.11	.92
I can complete online government service anytime	.941	4.10	.99
It is easy to find the app/website of the online government service	.941	4.12	.98
Ease of use		.671 3.52	.62
I can get online help/assistance while using online government service	.874	3.72	1.1
Online government service is simple to use	.868	4.12	.96
I went through many steps and other platforms to complete online government service* *(Reverse item)*	.594	2.72	1.2
Security-related metrics			
Perceived security		.927 4.01	.93
I believe online government service will keep my data safe and secured	.936	3.98	1.0
I tend to trust the providers of online government service	.934	3.99	.99
The payment system of online government service is protected and secure	.913	4.05	.99
Perceived trust		.676 3.06	1.1
I feel uncertain about the outcome of using online government service * *(Reverse item)*	.879	3.20	
I am likely to switch to other means next time, such as an agent or visit to complete government service * *(Reverse item)*	.847	2.92	

5.3. Digital Transformation vs. Digitalisation: Outcome Metrics Comparison

To test the proposed hypotheses, the independent t-test was conducted to identify significant differences in the outcome metrics (i.e., customer satisfaction, service quality, accessibility, ease of use, security, and trust) between digital transformation services (completed entirely online instantly) and digitalisation services (completed online, but approval takes hours or days) based on respondents' perceptions. Results are summarised in Table 5. The analysis revealed that the mean customer satisfaction score for digital transformation services (mean = 4.17, t-value = -3.789 p = 0.000) was significantly higher than for digitalisation services (mean = 3.74). This result supports H1, indicating that digital transformation is associated with higher customer satisfaction compared to digitalisation. Users report considerably higher satisfaction with services that have undergone digital transformation than those merely digitalised. Regarding service quality, digital transformation services scored significantly higher (mean = 4.10, t-value = -4.010, p = 0.000) than digitalisation services (mean = 3.66). This robust finding, supporting H2, underscores the superior service quality that digital transformation can provide, enhancing perceived service quality. Accessibility is a key factor, and digital transformation services scored significantly higher (mean = 4.21, t-value = -4.255, p = 0.000) than digitalisation services (mean = 3.71). This finding, supporting H3, highlights the better accessibility that digital transformation services can offer, making users feel more at ease and comfortable with the service. Regarding ease of use, digital transformation services (mean = 3.56, t-

value = -2.641, p = 0.009) were perceived as easier to use than digitalisation services (mean = 3.35). This supports H4, indicating a significant difference in ease of use favouring digital transformation. However, the difference in ease of use is relatively smaller compared to other metrics, and it was perceived moderately in both cases. The perceived security was higher for digital transformation services (mean = 4.06, t-value = -2.113, p = 0.035) than for digitalisation services (mean = 3.80). This supports H5, indicating that digital transformation offers superior security features. This suggests that customers perceive digital transformation services as more secure than digitalised services. There was no significant difference in perceived trust between digital transformation (mean = 3.06, t-value = 0.074, p = .941) and digitalisation services (mean = 3.07). This finding rejects H6, indicating no significant difference in perceived trust between digital transformation and digitalisation services. Although trust was perceived moderately in both cases, the lack of a statistically significant difference suggests that users perceive both service types with similar levels of trust.

The results confirm that digital transformation services outperform digitalisation services across five metrics: customer satisfaction, service quality, accessibility, ease of use, and perceived security. However, the two service types have no significant difference in perceived trust. These findings highlight the advantages of digital transformation over digitalisation, underscoring its effectiveness in enhancing various aspects of the service experience.

Table 5. Differences in the identified outcome metrics between digital transformation and digitalisation services (n=378).

Table 5. Differences in the identified outcome metrics between digital transformation and digitalisation services (n=378)				
	Mean			
Identified outcome metrics	**Digitalization ^ (n=75)**	**Digital transformation^^ (n=303)**	**t**	**p**
Service-related metrics				
User satisfaction	3.74	4.17	-3.789	.000*
Service quality	3.66	4.10	-4.010	.000*
Convenience-related metrics				
Accessibility	3.71	4.21	-4.255	.000*
Ease of use	3.35	3.56	-2.641	.009*
Security-related metrics				
Perceived security	3.80	4.06	-2.113	.035*
Perceived trust	3.07	3.06	.074	.941
*Note: *p < 0.05, ^ Digitalization (Completed online, but approval takes hours or days)*				
^^ Digital transformation (Completed entirely online instantly)				

6. Discussion

The results provide a clear picture of current trends and preferences in online service usage: The Sahel App emerged as the most widely used platform, indicating its strong adoption and user preference. This suggests that the app effectively meets user needs and is likely well-regarded for its functionality and usability. The popularity of the Sahel App could be attributed to its user-friendly design, comprehensive features, or specific services it offers. Organisations might study its successful elements to replicate in their digital offerings. Most respondents used fully automated services and completed them online in real time. This reflects a strong preference for immediate processing and the convenience of not having to wait for approvals or additional processing steps. The demand for real-time, automated services highlights the need for efficiency and speed in online service delivery. Organisations should aim to minimise waiting times through enhanced automation and streamlined approval processes to improve user satisfaction. Implementing advanced technologies like AI and machine learning can facilitate faster service delivery. Addressing this issue can lead to a more efficient and user-friendly service experience. Smartphones are the predominant device for accessing

online services, highlighting their central role in users' digital interactions. This trend emphasises the importance of mobile optimisation in service design. Ensuring that online services are fully optimised for smartphones is critical. This includes responsive design, mobile-friendly interfaces, and efficient performance to cater to the growing number of mobile users. Most respondents accessed online services through applications rather than websites. This suggests a preference for dedicated apps, likely due to their convenience, personalised features, and better performance than mobile websites. Developing and maintaining high-quality applications can enhance user engagement and satisfaction.

Moreover, the results identified six outcome metrics and categorised them into three domains: service-related metrics (user satisfaction and service quality), convenience-related metrics (accessibility and ease of use), and security-related metrics (perceived security and perceived trust). The results also reveal a nuanced view of how users evaluate these services in terms of these six metrics, reflecting both strengths and areas for improvement. Both user satisfaction and service quality received high mean scores, indicating that respondents view digital transformation services positively in these areas. The high ratings suggest that these services meet or exceed user expectations regarding performance and reliability. Accessibility received a high mean score, reflecting users' positive evaluation of how easily they can engage with the services. Digital transformation often involves improving accessibility through multi-channel support and enhanced usability features, which likely contributes to these high ratings. Ease of use, while still positively rated, received only moderate scores. This indicates that users find the services somewhat user-friendly but see room for improvement. The modest difference between ease of use and other metrics highlights that while digital transformation has made strides in usability, there are still challenges to address. Perceived security was rated highly, suggesting that users feel confident in the security features provided by digital transformation services. This is crucial, given the increasing importance of data protection and privacy in digital interactions. Despite high-security ratings, the perceived trust received only moderate scores. This suggests that while users may feel secure, their overall trust in the service is not as strong. Trust is a complex metric influenced by factors beyond security, such as the service provider's reputation, transparency, and previous interactions.

Additionally, the results provide compelling evidence that digital transformation services are significantly more effective than digitalisation services in several critical aspects, including customer satisfaction, service quality, accessibility, ease of use, and perceived security. These findings highlight the substantial benefits of digital transformation over traditional digitalisation efforts, offering valuable insights for governments and businesses seeking to enhance their service delivery and customer experience.

The findings confirm that digital transformation is associated with higher customer satisfaction than digitalisation, supporting H1. These digital transformation services likely offer more intuitive interfaces, faster responses, and a more cohesive user experience, all of which contribute to higher satisfaction. It provides empirical evidence that a comprehensive digital transformation approach, as opposed to incremental digitalisation, can significantly enhance the quality of public sector services. This underscores the importance of adopting transformative strategies to improve citizen engagement, satisfaction, and service effectiveness. By focusing on digital transformation, government agencies can create more effective, user-friendly, and inclusive online services that better meet the needs of their constituents.

The findings indicate that digital transformation services achieve significantly higher service quality scores than digitalisation services, supporting H2. Digital transformation services outperform digitalisation services in terms of service quality. This finding highlights that digital transformation improves user satisfaction and substantially enhances the quality of service provided. Transformation typically involves technological upgrades, process improvements, and a focus on delivering higher value to customers. Enhanced service quality can stem from better reliability, efficiency, and effectiveness of the service, which are integral to digital transformation. It provides empirical evidence that digital transformation significantly enhances service quality compared to digitalisation. This finding highlights the benefits of adopting a transformative approach to service

delivery. It emphasises that investing in digital transformation can lead to more effective, efficient, and higher-quality services, ultimately improving the overall experience for citizens interacting with government services online.

The findings show that digital transformation services significantly outperform digitalisation services regarding accessibility, supporting H3. In other words, digital transformation services are more accessible than digitalisation services. This is important as accessibility ensures that users can effectively engage with services regardless of their location, device, or physical ability. Digital transformation often includes creating more accessible platforms and ensuring that services are available through multiple channels and devices, broadening user reach and improving service inclusivity. This finding underscores the crucial role that accessibility plays in the effectiveness of online government services. It highlights that digital transformation leads to significantly better accessibility compared to digitalisation. This underscores the importance of prioritising accessibility in digital transformation initiatives. Ensuring that online government services are accessible to all citizens enhances overall user experience, supports inclusivity, and aligns with the broader goals of equitable service delivery in the public sector. This finding also provides a strong rationale for focusing on comprehensive digital transformation to achieve more accessible and user-friendly government services.

The findings indicate that digital transformation services are perceived as more straightforward than digitalisation services, supporting H4. However, while digital transformation generally improves ease of use, the magnitude of this improvement is somewhat smaller compared to other metrics like customer satisfaction or service quality. The moderate perception in both cases highlights that ease of use remains a challenge both service types must address. Therefore, the relatively minor difference indicates that there are still opportunities for improvement. This finding is valuable as it highlights the need for continuous focus on user interface design and usability within digital transformation projects. Ensuring that online government services are both easy to use and effective in meeting user needs can help maximise the benefits of digital transformation and enhance overall service delivery.

The findings reveal that digital transformation services are perceived as offering superior security compared to digitalisation services, supporting H5. Security is a significant concern for users, especially in an increasingly digital world. This finding highlights that digital transformation improves various aspects of service delivery and enhances security features, which is a critical consideration for online government services. Digital transformation often involves the implementation of more advanced security protocols and technologies, which can contribute to higher perceived security. It provides empirical evidence that digital transformation enhances security compared to digitalisation. This finding is invaluable as it emphasises the importance of incorporating advanced security measures in digital transformation initiatives. Enhanced security features in digital transformation services likely include advanced encryption, better data protection measures, and more robust authentication processes. Ensuring high-security standards is essential for maintaining public trust, protecting sensitive information, and complying with regulatory requirements. The higher perceived security could contribute to greater trust in the service, although this is not reflected in the trust metric itself.

Interestingly, the study finds no significant difference in perceived trust between digital transformation and digitalisation services, rejecting H6. While both types of services are perceived with a moderate level of trust, the type of digital approach—whether digital transformation or digitalisation—does not significantly impact this perception. However, it proves that perceived trust does not significantly differ between digital transformation and digitalisation services. This suggests that despite the improvements in other areas, such as security and ease of use, users do not perceive a marked difference in trust between the two types of services. Factors beyond the scope of digital transformation, such as the service provider's reputation or historical interactions, might influence trust. This highlights the importance of implementing robust trust-building strategies that address user concerns, ensure transparency, and consistently deliver high-quality services. Understanding

that trust is a multifaceted issue can help agencies develop more effective approaches to enhancing user confidence and satisfaction with online government services.

7. Limitations and Future Research

Several limitations of the study could not be addressed due to constraints related to time and resources. Firstly, the cross-sectional nature of the survey necessitates further longitudinal studies to capture the evolving dynamics of digital transformation more comprehensively. Longitudinal research would offer insights into how digital transformation influences various aspects of service delivery over time. Secondly, using non-probability sampling restricts the generalizability of the findings, as the survey sample may not accurately reflect national trends. This limitation makes it challenging to apply the results to the broader population in Kuwait. Future research should employ probability sampling methods to ensure more representative and generalisable outcomes. Thirdly, the study lacks a unifying theory to explain its rationale, highlighting the need for further theoretical development in this area. Investigating underlying theories could provide a stronger foundation for understanding digital transformation. Finally, the study's reliance on limited outcome metrics may have excluded other vital indicators that could offer more in-depth insights. Future research should explore a broader range of metrics to achieve a more comprehensive understanding of digital transformation.

8. Conclusion, Implications and Recommendations

This study aimed to investigate current trends and preferences in digital government services usage in Kuwait, identify crucial outcome metrics for their success, and examine significant differences between digital transformation and digitalisation services based on user perceptions. A quantitative approach was employed to meet these objectives. Findings revealed that users primarily access services through smartphones and applications, underscoring the need for mobile optimisation. There was a marked preference for real-time, automated services, with dissatisfaction for those requiring lengthy approval processes. The study identified and confirmed six key outcome metrics, categorised into three domains: service-related (user satisfaction and service quality), convenience-related (accessibility and ease of use), and security-related (perceived security and perceived trust). It was also found that digital transformation services generally excel over digitalisation services in five key areas: customer satisfaction, service quality, accessibility, ease of use, and perceived security. However, both types of services exhibit similar levels of perceived trust, indicating that trust remains a relatively stable metric regardless of digital strategy changes.

Considering the above results, this study has several implications and recommendations. First, given that users predominantly access services via smartphones and applications, government agencies must prioritise mobile-friendly interfaces and ensure seamless functionality across various devices. This shift reflects changing consumer behaviour and signifies the need to adapt their digital strategies to enhance user experience and engagement. Government agencies should invest in responsive design and optimise their applications to function efficiently on various mobile devices. This ensures users can easily navigate and utilise services regardless of their smartphone model or operating system.

Second, the preference for real-time, automated services indicates an apparent demand for efficiency and immediacy in service delivery. Users have expressed dissatisfaction with services that involve lengthy approval processes, highlighting a gap between consumer expectations and current service offerings. To address this, government agencies should consider integrating advanced automation technologies and streamlining approval workflows to reduce processing times. Implementing real-time decision-making tools and automated responses can significantly enhance user satisfaction by providing quicker resolutions and reducing the need for manual intervention. This approach aligns with user preferences for speed and convenience and positions government agencies as responsive and customer centric.

Third, The study's identification of six key outcome metrics across three domains—service-related, convenience-related, and security-related—provides a comprehensive framework for

evaluating and enhancing service delivery. Each domain offers crucial insights into different aspects of user experience and satisfaction, guiding targeted improvements in service design and execution. In the service-related domain, focusing on user satisfaction and service quality is essential for ensuring that the core offerings meet or exceed customer expectations. High user satisfaction typically correlates with positive customer experiences and long-term loyalty, while service quality encompasses reliability, responsiveness, and overall effectiveness. To improve these metrics, government agencies should regularly solicit user feedback and conduct performance assessments to identify areas for enhancement. Implementing continuous improvement strategies, such as training service staff and refining service processes, can help elevate satisfaction and quality. The convenience-related domain, which includes accessibility and ease of use, underscores the importance of creating user-friendly and easily accessible services. Accessibility ensures that users with varying needs and abilities can engage with the service without barriers, while ease of use relates to the simplicity and intuitiveness of the service interface. To address these aspects, government agencies should focus on designing inclusive and easy-to-navigate interfaces, incorporating features like voice commands or large, clear buttons. Regular usability testing and incorporating user feedback into design iterations can also help enhance these metrics. In the security-related domain, perceived security and trust are critical for building and maintaining user confidence. Users must feel assured that their personal information is protected and that the service provider is trustworthy. To bolster these perceptions, government agencies should implement robust security measures, such as encryption and secure authentication processes, and transparently communicate their privacy policies and security practices. Regularly updating security protocols and addressing potential vulnerabilities is crucial for sustaining a high level of perceived security and trust among users.

Finally, the study's findings reveal that digital transformation services outperform digitalisation services in five critical areas: customer satisfaction, service quality, accessibility, ease of use, and perceived security. These results underscore the effectiveness of digital transformation strategies in delivering superior service experiences and highlight their benefits in meeting modern user expectations. To enhance digital transformation services and address identified areas for improvement, several key actions should be undertaken:

- The significantly higher mean customer satisfaction score for digital transformation services compared to digitalisation services   suggests that customers derive more value and are more pleased with services that undergo comprehensive digital transformation. This indicates that government agencies investing in digital transformation can expect to see a substantial improvement in customer satisfaction, which is crucial for customer retention and loyalty. To enhance customer experience and satisfaction, agencies should focus on personalization and robust feedback mechanisms. By leveraging innovations such as artificial intelligence, machine learning, and data analytics, these services offer more personalized and efficient interactions. Utilizing data analytics to tailor services to individual preferences can drive higher satisfaction and loyalty. Implementing effective systems for collecting and analyzing customer feedback will facilitate continuous refinement and improvement of service delivery.

- Digital transformation services provide notably better service quality than digitalisation services. It not only enhances the overall service experience but also improves the quality of the services offered. Government agencies aiming to differentiate themselves should focus on digital transformation to enhance their service quality and stand out. Enhancing service quality involves expanding service access through multiple channels, such as mobile apps, web platforms, and in-person options. This approach ensures users can engage with the service in the most convenient way for them. Additionally, focusing on user-centric design principles will improve the accessibility and usability of digital services, with regular updates and optimizations based on user feedback and usability testing.

- With digital transformation services scoring higher in accessibility compared to digitalisation services, it is clear that digital transformation makes services more accessible to users. This improved accessibility can lead to greater customer convenience and satisfaction, as users are more likely to find and use services that are readily available and easy to access. Leveraging the high ratings in accessibility involves showcasing the features that users appreciate. Highlighting these features in marketing and communication can reinforce positive perceptions and attract new users. Continuing to explore new technologies and methods to enhance accessibility will ensure that the service remains inclusive and user-friendly for everyone. This focus ensures that services are accessible to a broader range of users, including those with varying abilities and technical proficiencies. Government agencies should maintain this emphasis on user experience, regularly assessing and refining their digital tools to ensure they remain accessible.

- Although the difference in ease of use between digital transformation and digitalisation services is relatively smaller, digital transformation services are still perceived as easier to use. This implies that while ease of use is important, it is one of the less pronounced benefits of digital transformation compared to other metrics. However, it remains a valuable aspect, as easier-to-use services contribute to a more positive user experience. Governments agencies should recognize that while ease of use is a smaller benefit compared to other metrics, it still plays a crucial role in user satisfaction. They should support the development of digital transformation services that maintain high usability standards to ensure a positive user experience and encourage adoption. Simplify user interfaces and streamline processes to make services more intuitive and easier to navigate. Regular user feedback and usability testing can guide these improvements. Usability improvements are crucial. Regular usability testing and feedback collection should be conducted to pinpoint specific areas where the ease of use can be improved. Investing in redesigning user interfaces and workflows, ensuring that these changes align with user expectations, will help simplify interactions. Additionally, providing comprehensive training materials and support resources will assist users in navigating the services more effectively.

- Digital transformation services are perceived to offer better security features than digitalisation services. As these services often incorporate the latest security technologies and protocols, they are better equipped to address user concerns about data protection. Government agencies should continue to enhance their security measures and communicate transparently about their security practices to maintain high levels of perceived security. Government agencies that prioritize and effectively communicate the enhanced security of their services may gain a competitive edge and build greater trust with their customers. Maintaining high security standards is vital for user confidence. Regular reviews and updates of security protocols are necessary to address emerging threats and vulnerabilities. Staying informed about best practices in data protection and educating users on security measures will help reinforce their perception of security. This focus on security will complement the high ratings already achieved in this domain.

- The lack of a significant difference in perceived trust suggests that trust levels are similar across both types of services. This indicates that trust is a stable metric that does not fluctuate significantly with changes in digital strategy. This stability indicates that while trust is crucial,

it may be less sensitive to the specific digital approaches employed. Nevertheless, maintaining and building trust remains essential. For government agencies, this means that building and maintaining trust should be a focus independent of whether they are pursuing digital transformation or digitalisation. However, government agencies should continue to uphold high ethical standards, ensure data privacy, and provide reliable support to reinforce user trust. Beyond security features, work on building a trustworthy relationship with users through transparent communication, reliable service delivery, and effective customer support. Increasing transparency about data handling practices, privacy policies, and security measures is essential. Clear communication about any changes to these practices will help build user confidence. Maintaining a strong reputation through consistent service quality and positive user experiences is equally important. Addressing negative feedback promptly and constructively can also contribute to enhancing trust. Implementing and highlighting trust signals, such as third-party certifications and endorsements, will further reinforce users' confidence in the service.

In summary, digital transformation provides significant benefits over digitalisation in enhancing customer satisfaction, service quality, accessibility, and perceived security. However, the consistent levels of perceived trust across both digital transformation and digitalization services highlight the importance of maintaining trust regardless of the chosen digital strategy. Government agencies should focus on leveraging the strengths of digital transformation while continuing to uphold trust and security across all service offerings.

Appendix A

Appendix A. Digital Government Services Approaches for Individuals.

Government Agency	Service	Service Process	Category
Customs Administration	Mail tracking, Customs rate guide	Information retrieving	Digitisation
Public Institution for Social Security	Social security related services, Update information	Submit application	Digitalisation
	Issue certificates	Information retrieving	Digitisation
Public Authority for Housing Welfare	Housing related services, Update information	Submit application	Digitalisation
	Issue certificates	Information retrieving	Digitisation

Public Authority for Minors Affairs	Minors related services	Submit application	Digitalisation
Public Authority for Disability Affairs	Disability related services	Submit application	Digitalisation
Environmental Agency	Pay fines, Get permissions	Submit application	Digitalisation
Public Authority for Applied Education and Training	Application result	Information retrieving	Digitisation
Public Authority for Industry	Product release application result	Information retrieving	Digitisation
Public Authority for Manpower	Related services, Complete application, Inquiry	Submit application	Digitalisation
	Issue certificates	Information retrieving	Digitisation
Public Authority for Civil Information	Issue cards, Inquiry, Issue certificates	Submit application	Digitalisation
Public Authority for Anticorruption	Appointments	Instant	Digital transformation
Kuwait Municipality	Inquiry	Submit application	Digitalisation
	Pay fees online, Renew licenses	Instant	Digital transformation
Kuwait Credit Bank	Related services, Pay instalments , Issue certificates	Submit application	Digitalisation
Al-Zakat House	Donate	Instant	Digital transformation
Kuwait University	Application result	Information retrieving	Digitisation
Civil Service Commission	Inquiry of service status	Information retrieving	Digitisation
Ministries council	Issue certificates	Information retrieving	Digitisation
Finance Authority	Report case	Submit application	Digitisation
Ministry of Information	Apply for online publishing license	Submit application	Digitalisation
Ministry of Islamic Affairs	Issue certificates	Information retrieving	Digitisation
Ministry of Commerce and Industry	Related services for individuals	Submit application	Digitalisation
Ministry of Education	Exams seat inquiry, Results inquiry	Information retrieving	Digitisation
Ministry of Foreign Affairs	Pay online, Report case	Submit application	Digitalisation
Ministry of Interior	Issue certificates	Information retrieving	Digitisation
	Inquiry	Submit application	Digitalisation

	Pay fees and fines, Issue residency, Renew residency	Instant	Digital transformation
Ministry of Defence	Issue certificates, Inquiry	Information retrieving	Digitalisation
Ministry of Health	Renew medical license, Appointment, Sick leave	Instant	Digital transformation
	Issue medical license, Inquiry	Submit application	Digitalisation
Ministry of Justice	File a case	Submit application	Digitalisation
	Pay online, Related services apply, Inquiry	Information retrieving	Digitisation
Ministry of Electricity and Water	Pay bills, Update data, Related services apply, Request electricity	Submit application	Digitalisation
Ministry of Communication	Parcel and mail tracking	Submit application	Digitisation
	Pay bills	Information retrieving	Digitalisation

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