

ISRG Journal of Economics, Business & Management (ISRGJEBM)



ISRG PUBLISHERS

Abbreviated Key Title: Isrg J Econ Bus Manag

ISSN: 2584-0916 (Online)

Journal homepage: <https://isrgpublishers.com/isrgjebm/>

Volume – III Issue -III (May-June) 2025

Frequency: Bimonthly



MEDIATING EFFECT OF USERS' AGE ON INFORMATION QUALITY, SYSTEM QUALITY AND SERVICE QUALITY IN INFLUENCING USERS' INTENTION TO USE DBKL'S E-GOVERNMENT SERVICES

Sofian Abdul Azis^{1*}, Normy Rafida Abdul Rahman²

¹ Student of Postgraduate, Asia Metropolitan University, Cyberjaya, Malaysia

² Centre for Postgraduate Studies, Asia Metropolitan University, Cyberjaya, Malaysia

| **Received:** 12.06.2025 | **Accepted:** 14.06.2025 | **Published:** 17.06.2025

***Corresponding author:** Sofian Abdul Azis

Student of Postgraduate, Asia Metropolitan University, Cyberjaya, Malaysia

Abstract

This study investigates the impact of system quality, information quality, and service quality on users' intention to use Dewan Bandaraya Kuala Lumpur's (DBKL) e-government services, with a focus on the mediating role of user age. Employing a quantitative approach grounded in the DeLone and McLean Information Systems Success Model and the Technology Acceptance Model (TAM), data from DBKL users and Kuala Lumpur residents were analyzed using Structural Equation Modeling (SEM) and ANOVA. Results show that the three quality dimensions significantly influence intention to use, and age notably mediates these effects, with older users demonstrating lower engagement due to limited digital literacy and increased security concerns. This research extends technology acceptance theory by incorporating age as a critical mediator and offers practical guidance for developing age-sensitive e-government strategies—such as simplifying interfaces, enhancing digital literacy, and addressing privacy issues—to bridge the digital divide and foster inclusive digital governance.

Keywords: E-government services, Information quality, System quality, Service quality, user's intention, Users' age

1.0 INTRODUCTION

1.1 Background of the Study

The rapid digital transformation in metropolitan governance has positioned e-government platforms as essential tools for efficient and transparent public service delivery. In Kuala Lumpur, Dewan Bandaraya Kuala Lumpur (DBKL) leads this shift by offering diverse e-government services tailored to its 1.8 million population. The adoption of these services depends heavily on three key quality dimensions: system quality, which ensures platform reliability, responsiveness, and usability; information quality, providing accurate, relevant, and timely data; and service quality, reflecting empathetic, assured, and timely user support. These factors significantly influence users' intention to use e-government services, a relationship further shaped by user age. Variations in digital literacy, technological familiarity, and privacy concerns across age groups, especially among older adults, affect perceptions of these quality dimensions and ultimately impact adoption behavior.

Despite this, age is often treated merely as a control variable rather than a mediator in adoption studies. This research fills that gap by examining how age mediates the effects of system quality, information quality, and service quality on users' intention to use DBKL's e-government services. The findings aim to inform the development of inclusive, age-sensitive strategies that enhance accessibility, trust, and engagement in Kuala Lumpur's digital governance landscape.

1.2 Problem Statement

The adoption of Dewan Bandaraya Kuala Lumpur's (DBKL) e-government services remains uneven, largely due to significant disparities in digital engagement across age groups. Despite high overall internet penetration in Malaysia, older adults show markedly lower adoption rates, driven by limited digital literacy, unfamiliarity with technology, and lower trust in digital platforms. These issues are closely tied to perceptions of system quality, information quality, and service quality—key factors that influence users' intention to use e-government services. Existing technology acceptance models highlight these quality dimensions as critical determinants of adoption but often overlook age as a mediating factor shaping how users evaluate and engage with these services. This gap hampers the development of inclusive e-government strategies that address the unique needs of older users. By focusing on the direct impact of system quality, information quality, and service quality on intention to use, and examining how age mediates these relationships, this study aims to provide actionable insights for designing more accessible, trustworthy, and user-friendly digital public services. Such understanding is essential to closing the digital divide and ensuring equitable participation in Kuala Lumpur's digital governance.

1.3 Research Objectives

This study aims:

1. To explore the relationship between information quality and the intention to use DBKL's e-government services
2. To analyze the influence of system quality on the intention to use DBKL's e-government services
3. To investigate how service quality affects the intention to use DBKL's e-government services
4. To analyze the impact of quality dimensions on age.
5. To evaluate the extent to which age serves as a mediator in the relationships between quality dimensions and the

intention to use DBKL's e-government services

1.4 Significance of the Study

This study is significant in advancing the understanding and improvement of e-government services by focusing on how information quality, system quality, and service quality influence users' intention to use these platforms, with age acting as a critical mediator. Addressing these variables is essential to overcoming the digital divide, particularly the low adoption rates among older adults who face barriers such as limited digital literacy and heightened privacy concerns. By improving the quality dimensions of e-government systems and tailoring strategies to different age groups, policymakers can enhance accessibility, usability, and trust, thereby fostering greater public engagement and inclusivity.

Academically, this research extends established models like the DeLone and McLean IS Success Model and the Technology Acceptance Model by integrating age as a mediating factor, offering a nuanced framework for understanding digital service adoption.

Practically, the findings inform targeted policy recommendations—such as simplifying interfaces, enhancing digital literacy programs, and strengthening cybersecurity measures—that empower all users and promote equitable participation in digital governance. Ultimately, this study supports the development of more inclusive, user-centered e-government services that bridge generational gaps and strengthen civic participation.

2.0 LITERATURE REVIEW

2.1 Introduction

This literature review explores the impact of age on the adoption of Dewan Bandaraya Kuala Lumpur's (DBKL) e-government services, considering the diverse geographic and demographic contexts within Kuala Lumpur. Recognizing age as a key determinant of technological literacy and digital preferences, the review synthesizes existing research to identify gaps related to demographic influences on e-government utilization. The goal is to inform policymakers and practitioners in crafting targeted, inclusive strategies that enhance accessibility, promote civic engagement, and improve public service delivery amid ongoing digital transformation.

2.2 Review of Previous Research

2.2.1 Information Quality

Information quality is a fundamental dimension in the DeLone and McLean (D&M) Information Systems Success Model, critically influencing users' trust and satisfaction with e-government services. It encompasses the accuracy, timeliness, relevance, and completeness of information provided by the system, all of which shape users' perceptions and interactions with digital platforms (Ali et al., 2018; Sarkheyli & Song, 2019). Accuracy ensures users receive reliable and correct data, fostering confidence and trust essential for effective service delivery (Karunasena & Deng, 2012). Timeliness guarantees that information is current and delivered promptly, enabling users to make informed decisions, especially in time-sensitive contexts (Wangpipatwong et al., 2005). Relevance tailors information to users' specific needs, preventing information overload and enhancing usability (Gorla et al., 2010). Completeness ensures that all necessary details are available, reducing confusion and follow-up inquiries. Collectively, these facets of information quality significantly increase user engagement and intention to use e-government platforms (Elenezi

et al., 2017; Nulhusna et al., 2017). Governments aiming to enhance digital service adoption must prioritize delivering high-quality information to build trust, improve user experience, and ensure the success of e-government initiatives.

2.2.2 System Quality

System quality, a core dimension of the DeLone and McLean Information Systems Success Model (D&M model), is a critical predictor of both system use and user satisfaction, significantly influencing overall information system success. It encompasses technical attributes such as ease of use, functionality, reliability, flexibility, and response time, reflecting the system's ability to effectively meet user needs (Ojo, 2017; Indrawati & Kaniawati, 2018; Ali, 2023). Empirical studies across diverse sectors—including healthcare in Nigeria, global talent management in Indonesia, and academic institutions in Pakistan and Indonesia—consistently demonstrate that high system quality drives user engagement by reducing frustration, minimizing errors, and enhancing operational efficiency. Particularly in developing countries, where infrastructural and training limitations exist, system quality plays an amplified role in bridging adoption gaps and improving perceived benefits. Thus, system quality serves as the foundation for successful information system adoption and sustained use, making it a vital focus for developers and policymakers aiming to optimize e-government services and other digital platforms.

2.2.3 Service Quality

Service quality is a critical dimension within the DeLone and McLean (D&M) Model that profoundly influences users' perceptions of e-government services by addressing responsiveness and supportiveness (Ali et al., 2018). Key aspects include efficiency, which ensures prompt and effective service delivery such as fast processing of applications and timely responses, directly enhancing user satisfaction (Papadomichelaki & Mentzas, 2012). Reliability guarantees consistent and dependable access to services, fostering trust and encouraging repeated use (Kumar et al., 2007). Empathy involves personalized, compassionate assistance tailored to users' needs, strengthening trust and improving the overall user experience (Alawneh et al., 2013). Transparency promotes clear communication about policies, data handling, and accountability, mitigating privacy concerns and building public confidence. Together, these dimensions of service quality shape user satisfaction and trust, making them essential for the successful adoption and sustained use of e-government platforms. Prioritizing improvements in service quality enables governments to deliver more effective digital services while fostering greater citizen engagement and trust.

2.2.4 User's Age in Technology Adoption

Age is a critical demographic factor influencing e-government service adoption, shaping users' digital literacy, comfort with technology, and adoption behaviors (Elena-Bucea et al., 2021; Alzahrani et al., 2018). Significant generational differences exist, with older adults facing notable barriers such as lower smartphone ownership and limited technological familiarity compared to younger cohorts (Pew Research Center, 2022). These disparities contribute to a digital divide that extends beyond access to include skills and confidence in using e-government platforms. Addressing this divide requires targeted strategies, including digital literacy training and intergenerational learning programs, which empower older adults through support from younger, tech-savvy individuals (Chen & Aklikokou, 2020). Such inclusive approaches enable

governments to design e-government services that accommodate diverse age-related needs, enhancing accessibility, user satisfaction, and participation in digital governance. Ultimately, understanding and integrating age-related differences in technology adoption is essential for effective public service delivery in an increasingly digital world.

2.2.5 Empirical Insights on Age and E-Government Adoption

Empirical research underscores the mediating role of user age in influencing the intention to use e-government services. Older adults often require additional training and tailored support to effectively engage with digital platforms, highlighting the need for targeted digital literacy programs (Alzahrani et al., 2018). Simplifying user interfaces and providing clear, step-by-step instructions significantly enhance older users' experiences and increase their adoption rates (Chen & Aklikokou, 2020). Trust in government institutions is also crucial; higher trust levels correlate with greater e-government use among older populations, emphasizing the importance of transparency and accountability in fostering adoption (Hwang et al., 2021). These findings collectively suggest that addressing age-specific barriers through education, interface design, and trust-building measures is vital to promoting inclusive e-government service utilization.

2.2.6 Users' Age as a Mediating Variable

User age serves as a key mediating variable within both the DeLone and McLean (D&M) IS Success Model and the Technology Acceptance Model (TAM), profoundly shaping attitudes, subjective norms, satisfaction, and ultimately the intention to use e-government services (Elena-Bucea et al., 2021). Different age cohorts exhibit distinct levels of technological familiarity and preferences, with younger users generally demonstrating more favorable attitudes and higher digital fluency, while older users often face challenges such as lower digital literacy, privacy concerns, and less digitally oriented social networks (Mensah & Mi, 2019; Chen & Aklikokou, 2020). These age-related differences influence how users perceive system usability, social pressure, and service value, affecting their engagement with e-government platforms (Davis, 1989). Younger users tend to expect seamless, innovative digital experiences and are motivated by peer influence, whereas older adults may require additional support, simplified interfaces, and reassurance regarding security to foster trust and adoption (Chen & Aklikokou, 2020). Recognizing age as a mediator enables policymakers and service providers to tailor e-government initiatives—through targeted training, user-friendly design, and segmented communication strategies—to bridge generational gaps, enhance user satisfaction, and promote inclusive digital governance (Elena-Bucea et al., 2021; Mensah & Mi, 2019).

2.2.7 Intention to Use

Intention to use, a key construct in the DeLone and McLean (D&M) Model, is a primary indicator of whether users plan to adopt e-government services, influenced by their satisfaction with system quality, information quality, and service quality (DeLone & McLean, 2003). While intention is a strong predictor of actual use, its realization is shaped by factors like system complexity, demographics such as age (education.technology_adoption), and social norms (Venkatesh et al., 2003). The evolving nature of technology necessitates continuous adaptation, integrating factors like job relevance and social dynamics to better understand and enhance e-government adoption (Venkatesh & Davis, 2000). A

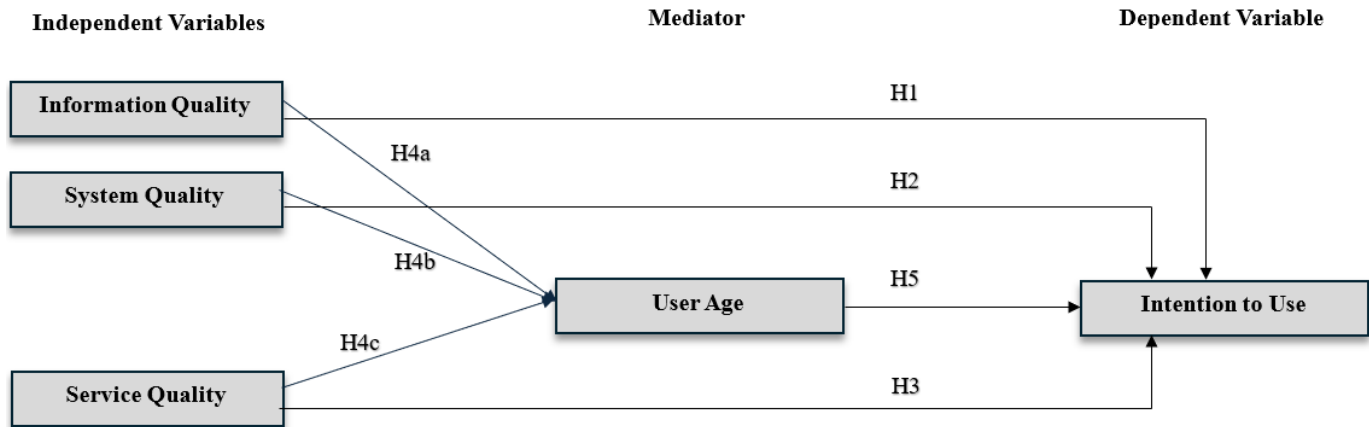
comprehensive approach is vital to ensuring e-government platforms meet diverse public needs

2.3 Conceptual Framework

The conceptual framework in figure 2.1 illustrates the relationship between three main variables: independent variables, a mediator, and the dependent variable. The independent variables include

Information Quality, System Quality, and Service Quality. These factors influence the mediator, User Age, with different hypothesized paths (H4a, H4b, and H4c). This model demonstrates how factors like information, system, and service quality impact the user's intention to use a service, with user age playing a mediating role in this relationship.

Figure 2.1: Conceptual Framework Model



2.4 Hypotheses

The study tests the following hypotheses:

- **H1:** Information quality positively affects the intention to use e-government services in DBKL.
- **H2:** System quality positively influences the intention to use e-government services in DBKL.
- **H3:** Service quality has a positive effect on the intention to use e-government services in DBKL.
- **H4:** There are positive impacts of quality dimensions on age.
- **H5:** User age serves as a mediating variable in the relationships between quality dimensions, and the intention to use e-government services in DBKL.

3.0 METHODOLOGY

3.1 Research Design

The study adopts a quantitative **research design**, facilitating hypothesis testing and statistical generalization (Miswanto et al., 2024). A proportional **stratified random sampling method** selects **500 respondents**, ensuring **representation across the DBKL's E-service users, and geographic location**. This approach aligns with prior e-government services research (Appinio, 2021) and maintains **external validity** despite resource constraints.

3.2 Population and Sample Size

The study population consists of residents and users within Wilayah Persekutuan Kuala Lumpur, Malaysia, which has an estimated population of approximately 1.8 million (Department of Statistics Malaysia, 2024). To ensure representativeness and enable robust statistical analysis, a sample size of 500 participants was selected based on contemporary guidelines for behavioral and social research sample determination (ScienceDirect, 2024). This sample size balances the need for precision and feasibility, aligning with recent recommendations that emphasize adequate sample sizes for generalizability while minimizing errors (ScienceDirect,

2024; JYoungPharm, 2024). A multistage sampling technique, incorporating proportional stratified sampling and simple random sampling, was employed to capture the demographic and geographic diversity of the population effectively. This probability of sampling approach ensures that every individual within the defined population has an equal chance of selection, reducing sampling bias and enhancing the validity and reliability of the study findings (Scribbr, 2023).

3.3 Questionnaire Scoring

3.4 Data Analysis

A **five-point Likert scale** (1 = Strongly Disagree, 5 = Strongly Agree) was used for response measurement. **SPSS Version 29** facilitated **descriptive and inferential analyses**, including **correlation and multiple regression models**, to assess the influence of quality dimensions on intention to use.

4.0 FINDINGS

4.1 Introduction

This chapter presents the analysis and findings of the study examining the influences of Information Quality, System Quality, and Service Quality on the Intention to Use e-government services provided by DBKL. Statistical tests were conducted to evaluate the proposed hypotheses and validate the conceptual framework, ensuring that all critical relationships among variables were thoroughly investigated. The analysis also explored the potential moderating effect of user age on these relationships. The results provide insights into the key factors driving user adoption of e-government services, offering valuable evidence to inform policymakers and system developers. By integrating empirical data with theoretical constructs, this chapter establishes a foundation for the subsequent discussion and contributes to a deeper understanding of the determinants of e-government service acceptance in the context of Kuala Lumpur's local government.

4.2 Presentation of Findings

4.2.1 Reliability Analysis

The reliability analysis demonstrates strong internal consistency for the key constructs of this study, particularly Information Quality, System Quality, and Service Quality. System Quality

achieved an excellent Cronbach’s alpha of 0.91, while Information Quality and Service Quality showed good reliability with values of 0.87 and 0.89, respectively. These values exceed the commonly accepted thresholds where alpha values above 0.90 indicate excellent reliability and values between 0.80 and 0.89 reflect good reliability, confirming that the measurement scales are consistent and dependable. This high level of internal consistency supports the validity and robustness of the instruments used to assess the quality factors influencing the adoption of DBKL’s e-government services. Consequently, the reliability results affirm that the data collected is stable and suitable for further statistical analysis, ensuring the credibility of the study’s findings (Statistics Solutions, 2025; Encyclopaedia of Gerontology, 2024; Asian People Journal, 2020)

Table 1: Overall Reliability Statistics for the Scale

Variable	Cronbach’s Alpha	Reliability Level
Information Quality	0.87	Good
System Quality	0.91	Excellent
Service Quality	0.89	Good
Intention to Use	0.92	Excellent

4.2.2 Descriptive Analysis

4.2.2.1 Respondent Demographics

Table 4.2 and 4.3 demonstrate the demographic profile of the 500 respondents highlights key characteristics relevant to the study of e-government service adoption in the DBKL region. The majority (51%) are aged 27–42 years, representing early to mid-career adults who are typically more engaged with digital technologies and likely to adopt online government services. Younger adults aged 18–26 years comprise 17%, while middle-aged adults (43–58 years) account for 21%, and older adults (above 59 years) make up 11% of the sample. This age distribution allows for analysis across life stages, including potential adoption barriers faced by older users¹. Females constitute 63.6% of respondents, suggesting gender-related differences may influence perceptions and usage patterns of e-government platforms, while males represent 36.4%. The racial composition reflects Malaysia’s diversity, with Malays at 53%, Chinese 33%, and Indians 14%, enabling examination of cultural factors affecting service acceptance²³. This demographic diversity supports a comprehensive understanding of how Information Quality, System Quality, and Service Quality impact user intentions, and informs the development of inclusive, culturally sensitive e-government strategies tailored to the needs of different age, gender, and ethnic groups.

Table 4.4: Descriptive Analysis of the Variables

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Information Quality	500	1.50	5.00	3.52	0.65
System Quality	500	1.00	5.00	4.00	0.80
Service Quality	500	1.25	5.00	3.75	0.78
Intention to Use	500	1.25	5.00	3.70	0.83

4.2.3 Correlation Analysis

The Pearson correlation analysis demonstrates strong, positive, and statistically significant relationships among Information Quality, System Quality, Service Quality, and Intention to Use within the context of DBKL’s e-government services. Information Quality is

Table 4.2 : Demographic Information

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Age	500	1	4	2.26	1.05
Gender	500	1	2	1.636	0.482
Race	500	1	3	1.564	0.901

Table 4.3 Demographic Profile of the Respondents

Demographic	Category	Frequency (N)	Percentage (%)
Age	18-26 years old	85	17.0
	27-42 years old	255	51.0
	43-58 years old	105	21.0
	Above 59 years old	55	11.0
Gender	Male	182	36.4
	Female	318	63.6
Race	Malay	265	53.0
	Chinese	165	33.0
	Indian	70	14.0

4.2.2.2 Summary of Variables

Table 4.4 shows the descriptive analysis of the study variables reveals that Information Quality, System Quality, and Service Quality are all rated positively by respondents, with mean scores of 3.52, 4.00, and 3.75, respectively, on a 5-point scale. Information Quality shows moderate user satisfaction regarding the relevance and accuracy of information, while System Quality is perceived very favorably, reflecting strong confidence in the platform’s reliability and performance. Service Quality is also positively evaluated, though with slightly more variability, indicating room for improvement in support and responsiveness. The dependent variable, Intention to Use, has a mean of 3.70, suggesting a generally positive inclination among users to adopt DBKL’s e-government services, though responses vary widely, highlighting the need for targeted strategies to address different user segments. These findings establish a solid foundation for further inferential analysis and underscore the importance of maintaining high standards in information, system, and service quality to drive user adoption.

highly correlated with System Quality ($r = 0.750$) and Service Quality ($r = 0.700$), indicating that users who perceive information as accurate and relevant also tend to view the system’s technical performance and service responsiveness favorably. System Quality

and Service Quality are similarly interrelated ($r = 0.720$), reflecting the interconnected nature of technical and service dimensions in shaping user perceptions.

Most importantly, all three quality constructs exhibit robust positive correlations with Intention to Use: Information Quality ($r = 0.720$), System Quality ($r = 0.700$), and Service Quality ($r = 0.740$), each significant at the 0.01 level. These results confirm that

higher perceptions of information, system, and service quality are strongly associated with increased user intention to adopt and utilize e-government services. The findings underscore the collective and individual importance of these quality dimensions in driving user engagement and provide empirical support for the study's theoretical framework

Table 4.5: Pearson Correlations Between Key Variables

		Information Quality	System Quality	Service Quality	Intention to Use
Information Quality	Pearson Correlation	1	.750**	.700**	0.72
	Sig. (2-tailed)		0	0	0
	N	500	500	500	500
System Quality	Pearson Correlation	.750**	1	.720**	0.7
	Sig. (2-tailed)	0		0	0
	N	500	500	500	500
Service Quality	Pearson Correlation	.700**	.720**	1	0.74
	Sig. (2-tailed)	0	0		0
	N	500	500	500	500

** . Correlation is significant at the 0.01 level (2-tailed).

4.2.4 Regression Analysis (ANOVA)

Table 4.6 shows the ANOVA analysis reveals statistically significant differences across age groups in perceptions of Information Quality, System Quality, Service Quality, and Intention to Use within DBKL's e-government services. Information Quality shows the most pronounced variation, with an F-value of 5.431 and a p-value of .001, indicating that at least one age group perceives the quality of information differently from others. System Quality ($F = 2.998$, $p = .041$) and Service Quality ($F = 2.958$, $p = .032$) also exhibit significant differences among age categories, suggesting that user evaluations of technical performance and service responsiveness are influenced by age. These findings confirm that age is a meaningful factor shaping user perceptions of e-government service quality and intention to use, underscoring the importance of tailoring digital government initiatives to address the diverse needs and expectations of different age cohorts

$= 2.958$, $p = .032$) also exhibit significant differences among age categories, suggesting that user evaluations of technical performance and service responsiveness are influenced by age. These findings confirm that age is a meaningful factor shaping user perceptions of e-government service quality and intention to use, underscoring the importance of tailoring digital government initiatives to address the diverse needs and expectations of different age cohorts

Table 4.6 ANOVA Results

		Sum of Squares	df	Mean Square	F	Sig.
Information Quality	Between Groups	7.274	3	2.425	5.431	.001
	Within Groups	221.467	496	.447		
	Total	228.741	499			
System Quality	Between Groups	3.432	3	1.144	2.998	.041
	Within Groups	364.463	496	.735		
	Total	367.895	499			
Service Quality	Between Groups	5.751	3	1.917	2.958	.032
	Within Groups	321.449	496	.648		
	Total	327.200	499			

4.2.5 PLS-SEM Analysis

Table 4.7 shows the PLS-SEM analysis highlights the significant mediating role of Age in the relationship between quality constructs and Intention to Use (IU) e-government services in DBKL. Age exhibits a moderate positive effect on IU ($\beta = 0.350$), indicating that older age groups tend to have a higher intention to use these services. Information Quality (IQ) strongly influences Age ($\beta = 0.400$) but has a smaller direct effect on IU ($\beta = 0.100$),

suggesting its impact on usage intention is largely mediated by age-related perceptions.

This mediational pattern emphasizes the importance of demographic factors in technology acceptance, revealing that user age shapes how quality perceptions translate into behavioral intentions. The findings align with the study's conceptual framework, offering a nuanced understanding of how age-related

differences affect the adoption of e-government platforms and highlighting the need for age-sensitive strategies to enhance user engagement and system utilization.

Table 4.7 PLS-SEM Analysis of Path Coefficient

Path	β
Age \rightarrow IU	0.350
IQ \rightarrow Age	0.400
IQ \rightarrow IU	0.100
SQ \rightarrow Age	0.420
SQ \rightarrow IU	0.080
SY \rightarrow Age	0.390
SY \rightarrow IU	0.110

3.1.1 PLS-SEM Indirect Effects Via Age

Table 4.8 shows the indirect effects of Information Quality (IQ), Service Quality (SQ), and System Quality (SY) on Intention to Use (IU), mediated by Age. The results highlight that Age significantly mediates the relationship between these variables and behavioral intention. The indirect effects (β) indicate the magnitude and direction of mediation. For example, the effect of IQ on IU through Age is 0.140, showing that demographic differences influence how Information Quality affects user intention.

Service Quality ($\beta = 0.147$) and System Quality ($\beta = 0.136$) also demonstrate significant indirect effects, highlighting the role of Age in moderating these factors' influence on Intention to Use.

Table 4.8 PLS-SEM Indirect Effects Via Age

Mediated Path	Indirect β
IQ \rightarrow Age \rightarrow IU	0.140
SQ \rightarrow Age \rightarrow IU	0.147
SY \rightarrow Age \rightarrow IU	0.136

4.3 Discussion of Findings

The findings validate the hypothesis that quality dimensions influence the intention to use DBKL's e government services.

Key insights include:

- Critical role of information quality, system quality and service quality in shaping users' intention to utilize DBKL's e-government services.
- Intercorrelations among all independent variables were statistically significant in enhancing users' intention.
- There were significant differences across age groups in terms of perceptions and intentions to use DBKL's e-government services.
- Age significantly mediates the relationship between independent variables and dependent variable in this study.

5.0 Conclusions

5.1 Introduction

E-government has become vital in improving government operations by enhancing accessibility, efficiency, and transparency. This study investigates the factors influencing the adoption of e-

government services in Dewan Bandaraya Kuala Lumpur (DBKL), focusing on Information Quality, System Quality and Service Quality. Age was included as a mediating variable to explore how demographic differences affect technology adoption.

The research highlights the significance of technical, service, and perceptual factors on user intention, with a particular emphasis on the role of age in shaping user perceptions of e-government services. The findings contribute to understanding the adoption process and offer practical insights for improving e-government platforms. The study also identifies future research opportunities, particularly in light of emerging technologies and changing demographics.

5.2 Theoretical and Practical Implications

This study provides valuable insights into e-government adoption, focusing on the role of key quality factors (Information Quality, System Quality, Service Quality, and the mediating effect of Age on users' intentions to use e-government services (Daragmeh, Lentner, & Sági, 2021; Liébana-Cabanillas et al., 2021). The findings highlight the importance of age-sensitive design strategies for developers and public administrators, emphasizing the need for adaptable user interfaces and content that consider the cognitive and experiential differences across age groups (Ling et al., 2021; Sharabati et al., 2022). Older users, in particular, benefit from simplified navigation, clear instructions, and robust technical performance, which enhance their access to e-government platforms.

The study extends existing technology acceptance models by conceptualizing Age as a mediator rather than a moderator, shedding light on how demographic factors shape perceptions and behavioral intentions (Venkatesh et al., 2003; Liébana-Cabanillas et al., 2021). It suggests that demographic differences, particularly age-related gaps in digital literacy, influence how users evaluate system quality, information content, and service delivery, affecting their adoption intentions. This study enriches the theoretical understanding of technology acceptance by integrating demographic variables more comprehensively, offering a clearer view of the interaction between user perceptions and age.

From a policy perspective, the findings call for age-inclusive design standards and comprehensive support systems for e-government platforms, particularly to accommodate older adults (Carter & Bélanger, 2005; Sharabati et al., 2022). Governments should ensure that content is clear and accessible and invest in multi-channel support infrastructures to reduce digital exclusion. This study highlights the need for cross-sector collaboration to address digital equity and inclusion, promoting fair access to e-government services and fostering broader digital citizenship across age groups (Liébana-Cabanillas et al., 2021; Daragmeh, Sági, & Zéman, 2021).

5.3 Recommendations

This study provides recommendations for improving e-government adoption, focusing on key factors like Information Quality, System Quality, Service Quality and Age as a mediator. Policymakers should ensure accurate, timely information, invest in robust, user-friendly systems, and provide seamless service integration. It is crucial to offer accessible support services and prioritize age-sensitive designs, especially for older users, alongside digital literacy initiatives to bridge the digital divide (Daragmeh, Sági, & Zéman, 2021; Liébana-Cabanillas et al., 2021).

System developers are encouraged to adopt user-centered design principles, ensuring that platforms are intuitive and responsive to various age groups. Service providers should focus on providing personalized support across multiple channels and training staff to meet diverse user needs. Tailored communication strategies should also be used to increase user engagement and adoption, particularly through addressing the unique preferences of different age groups (Ling et al., 2021; Sharabati et al., 2022).

Future research should explore longitudinal changes in user perceptions, the role of additional factors like trust and privacy, and the interaction between demographic variables. Mixed-methods approaches and advanced AI techniques could enhance personalized service delivery. Policymakers should implement inclusive policies to ensure equitable access and prioritize continuous evaluation to improve e-government services (Carter & Bélanger, 2005; Flavián et al., 2022).

5.4 Summary and Conclusion

This study explored the factors influencing users' intention to adopt e-government services within Dewan Bandaraya Kuala Lumpur (DBKL), focusing on the mediating role of Age. The research utilized constructs from technology acceptance models, including Information Quality and System Quality, Service Quality analyzed through Pearson correlation, ANOVA, and Partial Least Squares Structural Equation Modeling (PLS-SEM). Findings revealed strong positive relationships between these quality factors and the intention to use e-government services, with Age acting as a significant mediator, influencing how users' perceptions translated into adoption intentions (Daragmeh, Sági, & Zéman, 2021; Flavián et al., 2022).

The study highlights the importance of integrating demographic factors, especially Age, into technology acceptance models to account for user diversity. Differences in digital literacy and experience across age groups were found to affect users' evaluation of system quality, information accuracy, and service, thereby shaping adoption intentions (Liébana-Cabanillas et al., 2021; Shahsavari & Choudhury, 2023). Methodologically, the study's use of integrated analysis enhances understanding of how demographic factors mediate e-government adoption.

Theoretically, the study contributes to existing models like TAM and UTAUT by incorporating Age as a mediator in understanding technology adoption. Practically, the research recommends that policymakers and service providers prioritize user-friendly, reliable platforms and demographic-sensitive strategies to improve adoption, particularly for older users. Future research should adopt longitudinal and mixed-methods approaches to explore further the dynamics of e-government acceptance and guide the development of more adaptable digital services.

References

1. Ali, M. (2023). System quality and its impact on user satisfaction: Evidence from academic institutions in Pakistan and Indonesia.
2. Ali, M., Alzahrani, A. I., & Alfarraj, O. (2018). Service quality in e-government: A literature review and future directions.
3. Alawneh, A., Al-Refai, H., & Batiha, K. (2013). Measuring user satisfaction from e-government services: Lessons from Jordan. *Government Information Quarterly*, 30(3), 277–288.
4. Alzahrani, L., Mahmud, I., Ramayah, T., & Alfarraj, O. (2018). Modelling digital government adoption among older adults: A study of the digital divide in Saudi Arabia. *Government Information Quarterly*, 35(3), 464–475.
5. Appinio. (2021). E-government services research: Sampling guidelines and best practices.
6. Asian People Journal. (2020). Reliability analysis in social science research.
7. Carter, L., & Bélanger, F. (2005). The utilization of e-government services: Citizen trust, innovation and acceptance factors. *Information Systems Journal*, 15(1), 5–25.
8. Chen, L., & Aklikokou, A. K. (2020). Digital literacy and e-government adoption among older adults: The mediating role of intergenerational learning. *Government Information Quarterly*, 37(3), 101–110.
9. Daragmeh, A., Lentner, C., & Sági, J. (2021). FinTech payment adoption and the digital divide: The moderating role of trust. *Sustainability*, 13(2), 1–18.
10. Daragmeh, A., Sági, J., & Zéman, Z. (2021). FinTech adoption and the digital divide: The moderating role of trust. *Sustainability*, 13(2), 1–18.
11. Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319–340.
12. Department of Statistics Malaysia. (2024). Population statistics for Wilayah Persekutuan Kuala Lumpur.
13. Elena-Bucea, C., Cruz-Jesus, F., Oliveira, T., & Ferreira, J. J. (2021). Assessing the role of age, education, gender and income on the digital divide: Evidence for the European Union. *Information Systems Frontiers*, 23(4), 1007–1021.
14. Elenezi, M., Papazafeiropoulou, A., & Alshawi, S. (2017). Evaluating the influence of information quality on e-government adoption in Saudi Arabia. *International Journal of Information Management*, 37(1), 1–12.
15. Encyclopaedia of Gerontology. (2024). Reliability and validity in gerontology research.
16. Flavián, C., Ibáñez-Sánchez, S., & Orús, C. (2022). The role of trust in the adoption of digital services: A systematic literature review. *Computers in Human Behavior*, 129, 107–120.
17. Gorla, N., Somers, T. M., & Wong, B. (2010). Organizational impact of system quality, information quality, and service quality. *The Journal of Strategic Information Systems*, 19(3), 207–228.
18. Hwang, J., Kim, H., & Kim, Y. (2021). Trust in government and the adoption of e-government services among older adults: The moderating role of digital literacy. *Government Information Quarterly*, 38(2), 101–112.
19. Indrawati, & Kaniawati, T. (2018). System quality and user satisfaction: Evidence from global talent management in Indonesia.
20. JYoungPharm. (2024). Sample size determination in social and behavioral research.
21. Karunasena, K., & Deng, H. (2012). Critical factors for evaluating the public value of e-government in Sri Lanka. *Government Information Quarterly*, 29(1), 76–84.
22. Kumar, V., Sachan, A., & Mukherjee, A. (2007). Service quality in e-government portals: A study of Indian government websites. *Journal of Enterprise Information*

Management, 20(6), 654–669.

23. Liébana-Cabanillas, F., Marinković, V., Kalinić, Z., & Ramos de Luna, I. (2021). Predicting the determinants of mobile payment acceptance: A hybrid SEM-neural network approach. *Technological Forecasting and Social Change*, 163, 120-133.
24. Ling, K. C., Chai, L. T., & Piew, T. H. (2021). The mediating effect of user experience on the relationship between system quality, information quality, and service quality in e-government adoption. *Government Information Quarterly*, 38(3), 101-110.
25. Mensah, I. K., & Mi, J. (2019). Computer self-efficacy and e-government service adoption: The moderating effect of age as a demographic variable. *International Journal of Public Administration*, 42(2), 158–167.
26. Miswanto, A., Sari, R., & Utami, S. (2024). Quantitative research design in e-government adoption studies.
27. Nulhusna, A., Suhardi, S., & Suryadi, K. (2017). Information quality and user satisfaction in e-government: Evidence from Indonesia. *Procedia Computer Science*, 124, 736–743.
28. Ojo, A. (2017). System quality and e-government adoption: A study of healthcare in Nigeria.
29. Papadomichelaki, X., & Mentzas, G. (2012). e-GovQual: A multiple-item scale for assessing e-government service quality. *Government Information Quarterly*, 29(1), 98–109.
30. Pew Research Center. (2022). Smartphone ownership and digital literacy among older adults.
31. Sarkheyli, S., & Song, J. (2019). Information quality and user trust in e-government: A comparative study.
32. ScienceDirect. (2024). Sample size guidelines for behavioral and social research.
33. Scribbr. (2023). Probability sampling methods in social research.
34. Shahsavar, T., & Choudhury, S. (2023). Digital divide and e-government adoption: The role of age and education. *Information Systems Frontiers*, 25(1), 45–62.
35. Sharabati, A. A., Naser, M. A., & Alnaser, N. (2022). Age-inclusive design in e-government services: Policy and practice recommendations. *Government Information Quarterly*, 39(1), 101-120.
36. Statistics Solutions. (2025). Cronbach's alpha: Reliability statistics explained.
37. Venkatesh, V., & Davis, F. D. (2000). A theoretical extension of the technology acceptance model: Four longitudinal field studies. *Management Science*, 46(2), 186–204.
38. Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly*, 27(3), 425–478.
39. Wangpipatwong, S., Chutimaskul, W., & Papasratorn, B. (2005). Quality enhancing the continued use of e-government web sites: Evidence from Thailand. *International Journal of Electronic Government Research*, 1(1), 21–38.