Assessment of the Effect of Users' Satisfaction with the e-Passport System on Service Delivery in the Tanzania Immigration Service Department

Rwegasira Dereck Bagenda[1]
Yustina A. Lianna[2]
Mzomwe Y. Mazana[3]

[1]bagendarwegasira@gmail.com
[2]lianayustina@yahoo.com/yustina.liana@cbe.ac.tz
[3]y.mzomwe@gmail.com/mzomwe.mazana@cbe.ac.tz

[1,2,3]Mathematics and Information Technologies Department, College of Business Education, Tanzania

…….…

ABSTRACT

The use of ICT is becoming a key tool for the government's institutions to enhance and fit their service delivery with the dynamic demands of citizens. Among them is the use of e-passport systems in delivering immigration services. This study was carried out to assess users' satisfaction with the e-passport system on delivering service in the Tanzania immigration services department. The study was guided by Delone and McLean IS success model (2003). The research used a descriptive research design with a quantitative approach, whereas members of the sample size of 166 including immigration staffs and e-passport applicants were chosen using a simple random sampling technique. Data were collected through questionnaires and analysed using multiple linear regression (MLR) with SPSS version 20. The results revealed that quality of e-passport system such as improved speed, intuitive interface and ease of navigation have a positive significant influence on user satisfaction with e-passport system. Information quality such as accuracy, completeness and up-to-date information found to have a positive impact on user satisfaction. The findings also, showed that user satisfaction is significantly enhanced with service quality of the e-passport system, especially on the consistency and reliability of the services. These three IS success factors played a significant role on user satisfaction with immigration department passport issuance in Tanzania. The study recommends that the immigration service department should prioritize funding to monitor and improve the e-passport system infrastructure. In addition to this, the immigration service department should streamline processes related to e-passport issuance to reduce waiting times and enhance the user experience.

Keywords: e-Passport, Information Quality, System Quality, Service Quality, User Satisfaction

…….…

I. INTRODUCTION

In the last few decades, the Information Communication Technology [ICT] field has witnessed great strands and development, and ICT has become widely used in various public institutions in developing countries (Agbo, 2015). The use of ICT is becoming a key tool for the government's institutions to enhance and fit their service delivery with the dynamic demands of citizens (Khelif et al., 2019). That is why the public sector was under increased pressure to digitise its operations for better, more efficient, and effective service delivery as a result of the astounding innovative developments and quick gains in ICT use in the private sector (Mbilinyi & Werema, 2018).

Nowadays, information systems are used by governments to better serve their citizens and have become one of the most significant means of communication in all social areas (Khairzada, 2020). One of the social areas is the use of e-passport systems by governments in delivering immigration services to their citizens. E-passports were first implemented in developed nations with greater emphasis on security than on the needs of user satisfaction (Kipingu and Shayo, 2021). For instance, in the UK and the US, e-passport systems are more security-focused, play a crucial role in the fight against terrorism, prevent identity theft, and users benefit from the accessibility and efficiency of the services (Kipingu & Shayo, 2021). Apart from security perspectives, developing countries started to think about user satisfaction line; from this perspective, the Malaysian government established the electronic passport purposefully to make sure that the government offers services that are reliable, faster, transparent, and consistent to satisfy their customers (Suhaimi et al., 2020). The introduction of e-passports helped the Malaysian government reduce bureaucracy and forgery, hence improving services, giving citizens more border security and safety. It also helped in the identification of imposters at the border point, and providing top-notch consular services to its citizens (Suhaimi et al., 2020).

The need for effective ICT usage is also becoming crucial in the Tanzania immigration service department (TISD). The TISD adopted an e-passport system in 2018 to offer high-quality services to the community to fulfil

users' needs according to their requirements and expectations (Kipingu & Shayo, 2021). However, studies conducted on e-passport systems are practically insufficient, and knowledge concerning e-passports is still low in Tanzania (Bakar, 2022). It is also reported that the majority of studies were conducted in developed countries where ICT infrastructure and internet are strong (Habibu et al., 2019). This means that their findings cannot be generalized in the Tanzanian context due to poor infrastructure and internet connectivity. In a similar vein, there is dearth in literature regarding the impact of the quality of the e-passport system (Kipingu & Shayo, 2021; Mbilinyi & Werema, 2018). Most of the available studies were conducted based on challenges and benefits and hence do not provide a clear insight on the e- passport system in Tanzania. Hence, this study focused on assessing the users' satisfaction with e-passport system on service delivery at the immigration service department in Tanzania.

1.1 Statement of the Problem

The East Africa Community (EAC) decided to create a resolution in 2016 to ensure that all of its member states adopt the usage of e-immigration services, as it was witnessed in various research studies that the development of e-government services enhances citizen and customer satisfaction (Sachan et al., 2018). Tanzania, as a member of the EAC, introduced a centralized integrated electronic immigration system in 2018 to replace the outdated stand-alone system, which had several issues, including the ability for people to forge passports, system downtime due to various system errors arising during passport processing, lack of transparency and accountability, poor information sharing, and passport issuance taking a long time due to difficulties in using the system (Kipingu & Shayo, 2021). Despite the introduction of the advanced electronic passport system, there is still a contradictory view on whether the system has managed to overcome the challenges of the old system on delivering services (Gregory, 2023, Mbilinyi and Werema, 2018). Review of literature indicates inadequate studies that have been done to evaluate the performance of Tanzania's e-passport system (Bakar, 2022). Yet, there has not been enough data collected to demonstrate how the e-passport has satisfied users with delivering public services since its introduction in Tanzania (Kipingu & Shayo, 2021). The study intended to assess users' satisfaction with the e-passport system on service delivery in the Tanzania immigration services department. The study provides significant recommendations to help the government and policymakers to monitor and minimise bureaucracy, increase accountability, enhance integrity, and promote a reasonable improvement of the e-passport system on service delivery in the TISD.

1.2 Research Objectives

i. To examine the effect of e-passport system quality on users' satisfaction at the immigration service department in Tanzania.
ii. To examine the effect of the quality of information produced by the e-passport system on users' satisfaction with the issuance of passport services in Tanzania.
iii. To examine the effect of the e-passport system's service quality on user satisfaction with   immigration department passport issuance in Tanzania.

II. LITERATURE REVIEW

2.1 Theoretical review

The DeLone and McLean (1992) IS success model is among the most commonly cited models in the information system literature (Al-Kofahi et al., 2020). The model identified six dimensions of information system success, such as system quality, information quality, uses of the system, user satisfaction, and individual and organisational impact (Aldholay et al., 2018).

Various scholars claimed that the Delone and McLean Information System Success Model (1992) is not sufficient (Jeyaraj, 2020). They suggested that additional dimensions such as service quality should be incorporated into the model to measure information system success (Al-Kofahi et al., 2020). Ten years after the release of their initial model, DeLone and McLean (2003) provided an updated IS success model to include service quality to reflect the significance of service and support; intention to use as an additional metric to assess user attitude; and net benefits to replace individual and organisational impact.

2.2 Empirical Review
2.2.1 The Effect of System Quality on Users' Satisfaction

Normelindasari and Solichin (2020) investigated how system quality affects Webstudent applications user' satisfaction from among students at Budi Luhur University in Jakarta, Indonesia. The Delone and McLean IS success model was employed in the investigation. Data were collected using questionnaires from a sample of 6559 students.

The results showed that user satisfaction is impacted by system quality by 71.4%. This suggests that the system quality has a significant impact on users' satisfaction. A similar study was conducted by Kumar and Ata (2021) to determine if user satisfaction is impacted by the system quality. A sample size of 1000 people was chosen through purposive sampling. The data were tested using partial least squares structural equation modelling (PLS-SEM). The results showed that user satisfaction is directly and positively affected by the quality of the system. Nevertheless, some research, like that of Dutta and Saxena (2021), concentrated on the examination of consumer happiness using contemporary artificial intelligence technology platforms and used data collected from 400 respondents through questionnaires. The regression results revealed that user satisfaction was unaffected by system quality. This indicates that the two variables do not positively correlate to each other.

2.2.2 The Effect of the Quality of Information on Users' Satisfaction

Information quality is the system's capability to quickly and accurately provide the user with relevant and important information (Lutfi et al., 2022). A study conducted by Kurniawan et al. (2021) to analysed the impact of information quality on user satisfaction using a sample size of 104 students at Widyagama University of Malang in Indonesia. The study used primary data collected through a questionnaire and analysed using the path analysis technique. Findings showed that the quality of the information system had a direct impact on user satisfaction and loyalty. It was recommended for higher learning institutions should use study's outcomes as a reference to increase the quality of academic information systems and services provided to students. In the same manner, Pramudito et al. (2023) undertook a study to determine factors influencing user fulfilment with online ticket application. The study used purposive sampling techniques to choose a sample size of 175 respondents from a population consisting of people who frequently use online ticketing applications. In the study the end user computing satisfaction development model was used, which includes five variables (content, ease of use, format, timeliness, and accuracy). Furthermore, three DeLone and McLean variables (system quality, information quality, and service quality) were also included. The findings indicated that user satisfaction was positively impacted by the quality of the information. Moreover, (Achmadi & Siregar, 2021) assessed the impact of the information, service and system quality to user satisfaction of the masters' student using e-learning system in Jakarta. Data for this study were gathered using questionnaires, where by 451 students forming a sample size of 82 participants. The collected data were then analysed using Generalized Structural Component Analysis (GSCA). The findings demonstrated that the quality of the information is strongly influencing the user satisfaction of e-learning system, users become satisfied with the e-learning system when information provided is clear and correct.

2.2.3 The Effect of Service Quality on User's Satisfaction

According to a number of studies, service quality depend on how closely the actual level of service meets customer expectations (Rifai, 2022; Khairzada, 2020; Nguyen et al., 2020). It is considered that the quality a customer obtains determines his/her level of satisfaction. On this note, Nguyen (2020) looked into how switching costs, customer happiness, and service quality affected customers' inclination to stick with electronic banking services. In their study, data were collected from 227 online banking users using a questionnaire and then analyzed using the multivariate linear regression method. The findings revealed that the five elements of service quality; reliability, responsiveness, tangibility, assurance and empathy had the greatest influence on service quality, hence affecting customer satisfaction. Ameen et al. (2020), used the DeLone and McLean IS success model to examine the correlation between service quality, user satisfaction, and performance. The study used 147 employees of public institutions in UAE as the sample size. A questionnaire was used to collect data, and the structural equation model (SEM) was used to analyse the data collected. The results of the study revealed that the quality of a service had a positive impact on users' satisfaction. A similar study was done by Rifai (2022) to evaluate the impact of an electronic passport service administration system on public trust and satisfaction. The study used a sample of 100 respondents obtained through simple random sampling. Data were collected using questionnaires, and analysed by partial least squares (PLS) method. The findings showed that awareness of specific qualities of e-passport services can improve public trust and satisfaction.

2.2.4 User Satisfaction

User satisfaction is a feeling that a person has when a product or service meets their expectations (Khairzada, 2020). Users will stick with the service, if they are happy with it; if they are not, their loyalty is not assured (Rifai, 2022; Khairzada, 2020). A study was conducted by Saleh (2019) to find out whether citizens are satisfied with the innovation of the online passport application service. The study employed a quantitative methodology, using 250 respondents as the sample size. The results suggested that each of the examined variable (access, technology, payment, process, and production) had a significant impact on user satisfaction. Elias and Lubua (2024) carried out

research to ascertain how system stability, usability, and functionality affect users' satisfaction with the system's applicability to service delivery. The research employed a quantitative approach and used a sample of 52 library users. Data were collected using a structured questionnaire. The analysis made use of Inferential statistics to determine the status of the proposed hypotheses. The study concluded that, the usability, functionality, and dependability of the system significantly impacted the user satisfaction. According to this study, these factors need improvement in order to provide users with sufficient support for the Library Management System and other organizational systems. Another study carried out by (Susanto et al., 2023) to look into the relationship between repurchase interest and customer satisfaction. A non-probability sample of 100 participants was chosen via purposive sampling and data were gathered using questionnaires. The researchers used structural equation modelling with partial least squares (SEM-PLS) for analyzing data. The findings showed that users' satisfaction is directly impacted by how well mobile banking services work.

III. METHODOLOGY

3.1 Research Design

In this study, a descriptive research design was used with quantitative approach. This design offers comprehensive information in connection with the subject matter of the study (Bryman and Bell, 2017). The quantitative methodology allowed us to make use of questionnaires to collect data on the current state of users' satisfaction with e-passport services. It also allowed producing numerical data that can be used to measure attitudes, opinions, manners, and other particular elements and extrapolate results from a broader sample size (Mohajan, 2020).

3.2 Study Area

The study was carried out at the Kurasini immigration office in the Dar es Salaam Tanzania. The Kurasini office was chosen as a study area due to the availability of data and its simplicity in collection. Furthermore, the office is servicing a large number of e-passport clients compared to other offices and is where the major equipment for the e-passport system was installed.

3.3 Population and Sampling

The population in this study, included immigration employees who frequently use e-passport system and the e-passport applicants. Because the population was not clear, it was considered infinite. From this population, following recommendations by Nirathron (2006) who notes that for an infinite population, a sample of 100 is adequate to be representative of the entire population, we selected 166 respondents using simple random sampling techniques to guarantee validity, accuracy, reliability; and avoid bias in the results (Mohajan, 2020). The 166 respondents had different demographic characteristics such as age, gender, level of education, and e-passport usage duration. The demographic information was presented in Table 1 of this study. These provided an overview of the nature of respondents that participated in the study.

Table 1
Summary of Demographic Information

Item	Categories	Frequency	Percentage %
Age	Below 19 years	44	27.3
	19-25 years	80	49.7
	26-50 years	37	23.0
Gender	Male	118	73.3
	Female	43	26.7
Level of education	Certificate	78	48.4
	Diploma	44	27.3
	Degree	20	12.4
	Master's degree	19	11.8
E-passport usage	Below 1 year	16	9.9
	1-3 years	62	38.5
	4-7 years	71	44.1
	7 years and above	12	7.5

Table 1 demonstrates that 73.3% of respondents were male. According to the demographics, the majority of the respondents (49.7%) were between the ages of 19 and 25, and a sizable chunk (48.4%) had certificate qualifications. In terms of e-passports usage duration, the largest group consisted of respondents with experience between 4 and 7 years (44.1%), followed by respondents who used the e-passport system between the ages of 1 and 3 years, and respondents below one year were 9.9%. The remaining respondents had 7 years and above (7.5%).

3.4 Data Collection and Analysis

In this study, data were collected using questionnaires. The questionnaire was divided into two parts. Part one employed closed ended-questions to collect demographic data, and part two used Likert scale questions to collect data from the research variables. Out of 166 questionnaires distributed to e-passport system users, only 161 (96.99%) were returned properly filled in. The collected data were analysed using multiple linear regression (MLR) analysis with the aid of Statistical Package for Social Science version 20 to examine how the research variables interact with one another.

3.5 Validity and Reliability
3.5.1 Validity

Face validity was carried out by anticipated respondents rather than experts. The tool was evaluated for face validity with five (05) respondents. These pilot respondents were not actual employees or clients who intended to use immigration services. Content validity was also applied to guarantee that the data instrument measures what is planned to measure. The content validity was measured using the content validity ratio (CVR), where five (05) experts in the field were used to validate the instrument.

CVR = (Ne - N/2) / (N/2) . Where CVR = content validity ratio, Ne = number of experts who answered "yes, relevant" and N = total number of experts. Therefore, CVR = (5-5/2) / (5/2) =1
The calculated CVR is 1 (> 0.79). This implies that the items used in the questionnaire are relevant.

3.5.2 Reliability

Data reliability was assessed using Cronbach's alpha to determine the internal consistency of the questionnaire items. The Cronbach's alpha values are displayed in Table 2

Table 2
Reliability Statistics

Variables	Cronbach's Alpha
System quality	0.781
Information quality	0.827
Service quality	0.821
User satisfaction	0.920

Table 2 includes four variables, along with their corresponding Cronbach's Alpha values. The Cronbach's Alpha value for system quality = 0.781, information quality = 0.827, Service quality had a Cronbach's Alpha value of 0.821 and that of user satisfaction was 0.920. The obtained Cronbach's Alpha values al all > 0.7 suggesting a stronger internal consistency among items measuring these variables in assessing user satisfaction.

IV. FINDINGS & DISCUSSION

4.1 The Effect of e-Passport System Quality on users' Satisfaction at TISD

The first objective was to examine the effect of the e-passport system's quality on users' satisfaction at the immigration service department in Tanzania.

Table 3a
ANOVA Results

Source	Sum of squares	df	Mean Square	F	P-value	*R-square
Regression	51.382	5	10.276	27.226	P<0.001	0.47
Residual	58.506	155	.377			
Total	109.888	160				

Table 3b

Regression Coefficients Results

Factors	Coefficient	Standard error	t-value	p-value
Constant	0.084	0.534	0.158	0.875
System integration	0.157	0.076	2.068	0.040
User interface and ease of navigation	0.392	0.169	3.105	<0.001
Ease of use and learnability	0.114	0.052	2.211	.029
Improved speed and processing time	0.283	0.067	-1.238	.018
Reduction in system errors	0.180	0.077	2.325	.021

Multiple regression analysis was used to examine the influence of e-passport system's quality on user satisfaction with e-passport system. In examining this variable, various system quality factors, such as system integration, user interface and ease of navigation, ease of use and learnability, response time and system errors were considered. Table 3a presents the multiple regression results of these factors. The findings of the regression indicate the five factors explained 47% of the variance ($R^2 = 0.47$, F (5,155) = 27.226, p<0.05, See Table 3a). Table 3b demonstrated the relationship between these factors.

Regression results as presented in Table 3b illustrates that system integration had a positive significant influence on users' satisfaction with e-passport system ($\beta = 0.157$, p<0.05). Therefore, system integration with other government agencies significantly enhance e-passport system users' satisfaction. Similar study carried out by Yauri (2022), found that integrating system with other government agencies significantly influencing user satisfaction, and allowing for easy sharing of information across different agencies. Through linking the e-passport system with various government databases, authorities can verify the authenticity of travellers' identities and detect any security threats more effectively. For instance, the Tanzania e-passport system is integrated with NIDA and RITA systems for verification of nationality and birth certificates respectively.

Regarding user interface and ease of navigation of e-passport system, the regression results indicate a positive significant relationship on user satisfaction with e-passport system ($\beta=0.392$, p<0.001 see Table 3b). This indicates that user interface and ease of navigation significantly influencing users' satisfaction. This entails that users are pleased with the user interface of the e-Passport system at the immigration department in Tanzania due to its user-friendly design. The system was designed to be intuitive and easy to navigate, allowing users to understand and complete their passport application procedures without encountering any major challenges. The present findings are consistent with previous study's findings such as those Khairzada (2020), who found that the user interface and navigation of the system experienced noteworthy improvements in user satisfaction, a unit increase in system quality corresponds to a 39.2% increases in user satisfaction.

With respect to ease of use and learnability, the results in Table 3b show a positive, significant relationship between this factor with users' satisfaction ($\beta=0.114$, p<0.05, see Table 3b). These results signify that a unit increase in ease of learning and using the e-passport system is associated with 11.4% increase in user satisfaction. The results of this study align with Nguyen's (2021) findings that ease of use and learnability had a positive and significant impact on user happiness.

The findings displayed in Table 3b indicate that speed and processing time of the e-passport system, significantly influencing user satisfaction with e-passport system ($\beta=0.283$, p<0.05). These results indicate that a unit increase in speed and processing time leads to 28.3% increase in users' satisfaction. Furthermore, the results indicating that users who perceive a positive change in speed and processing time tend to have noticeable levels of satisfaction. The present findings confirm with (Phate, 2017; Hidayah et al., 2021) findings that users' satisfaction is significantly influenced by the response time, quickly responding systems enhance the overall user experience, making it easier and more efficient for users to access and use the system. Furthermore, Kipingu and Shayo (2021) reported that the introduction of the e-passport system in Tanzania, applicants had to wait for weeks or even months to receive their passports, but nowadays it took less than a week to receive passport.

With regards to reduction in system errors, the findings suggest that this variable is positively and significantly related with user's satisfaction with e-passport system ($\beta=0.180$, p<0.001). These results shows that a unit increase in system errors reduction in e-passport system corresponds with 11.4% increases in user satisfaction. Thus, users who experience fewer system errors tend to be satisfied with the e-passport system. Software bugs can lead to unexpected errors; in some cases, system errors may arise due to inadequate infrastructure, such as poor internet connectivity and power outages. These results disagree with those of Endwia et al. (2022), who found insignificant relationship between system availability due to free technical errors and user satisfaction. The author

explained that if an error occurred in a system, users can opt to re-visit the system after waiting for some couple of minutes.

Overall, user satisfaction has a positive significant relationship with system quality, i.e. each unit increase in this variable will result in higher user satisfaction. User satisfaction with the e-passport system is positively influenced by the collective effect of the system quality aspects such as system integration with other government agencies, user interface and ease of navigation, ease to learn and to use, improved speed and processing time, and fewer system errors. Based on these aspects, which all had a p-value below 0.05, it appears that system quality is statistically significant, meaning that users' satisfaction with the e-passport system increases with the system's quality.

4.2 The Effect of Quality of Information Produced by e-Passport System on user Satisfaction at TISD

The second objective of the study aimed to examine the effect of the quality of information produced by the e-passport system on users' satisfaction with the issuance of passport services in Tanzania.   The results are presented in Table 4a and Table 4b.

Table 4a
ANOVA Results

Source	Sum of squares	df	Mean Square	F	P-value	*R-square
Regression	37.849	4	9.462	20.491	P<0.001	0.34
Residual	72.039	156	.462			
Total	109.888	160				

Table 4b
Regression Coefficients Results

Factors	Coefficient	Standard Error	t-value	p-value
Constant	1.757	0.686	2.560	0.011
correct and simple to understand	0.496	.221	3.152	0.002
Accessible and up-to-date information	0.165	.262	2.248	0.005
Complete and reliable information	0.154	.061	1.881	0.030
Relevant information content	0.111	.227	1.048	0.021

Multiple regression analysis was used to examine the influence of quality of information on the user satisfaction with e-passport system. The findings of regression revealed the four factors, including Correct and simple to understand, accessible and update information, complete and reliable information, and relevant information contents explained 34%% of the variance ($R2 = 0.34$, F (4, 156) = 20.491, p<0.001, see Table 4a). Table 4b shows the relationship between these factors.

With regards to correctness and simplicity in understanding information. The regression results as shown in Table 4b show that correctness and simplicity in understanding information had a positive significant effect on users' satisfaction with e-passport system ((β=0.496, p<0.05). This indicates that a unit increase in correctness and simplicity in understanding of information leads to 49.6% increase in users' satisfaction This indicates that quality of information produced by the e-passport system has an effect on the users' satisfaction. These results demonstrate that the information produced by the e-passport system is clear and in presentable format, simplifying the interpretation and understanding of the process for e-passport users. Therefore, the more accuracy and simplicity in understanding the information, the greater the user satisfaction with the e-passport system at TISD. The present findings are linked with Rifai (2022) findings, who reported a substantial positive association between simplicity in using the information and user satisfaction. Also, Aziz et al. (2021), found that users' satisfaction is positively impacted by ease-of-use of information.

On the aspect that the e-passport system provides up-to-date information that can be accessed on time when needed, the results shows that, this variable had a positive significant effect on user satisfaction (β=0.165, p<0.05, see Table 4b). The results showed that a unit increase in this variable tends to satisfy users by 16.5%. Timely accessibility and up-to-date information are important for the e-passport system's usefulness. Through having real-time access to updated information, the Tanzanian immigration department will be able to confirm the legitimacy of the passport and the identity of the traveller more efficiently. This reduces the likelihood of fraudulent activities such as forgery. These results are backed by (Al-Okaily et al., 2021), who showed that real-time access to a complete and up-to-dated information tend to satisfies users of the systems.

Regarding to completeness and reliability of information, the results indicate a significant positive impact on the user satisfaction (β=0.154, p<0.05, see Table 4b). A unit increase in information completeness and reliability leads to 15.4% change in the users' satisfaction. Thus, the e-passport system should furnish complete and trustworthy data to support decision processes. This implies that Tanzania's e-passport system utilizes advanced technology to guarantee that the data it generates is complete and reliable and can be used by officers for decision making. The study findings are supported by Wahyudi et al. (2017), who reported that reliability in information produced has a noteworthy favourable effect on user satisfaction. The more complete and reliable information the higher the user satisfaction and the readiness to utilize the e-government system.

Regarding to relevancy of information content of e-passport system, the results indicates a significant positive influence of this variable on user satisfaction (β=0.111, p<0.05, see Table 4b). Results reveals that a unit increase in relevant information content leads to 11.1% increase in the users' satisfaction The system equips users with the necessary information to perform their tasks effectively, such as the provision of online guidelines and system manuals, to help users of the e-passport system understand how to complete tasks or to serve as a reference in case they run into trouble using the system, these findings are consistent with Aziz et al.(2021) results who found a positive significant influence of information content to user fulfilment.

The overall user satisfaction is positively influenced by the cumulative effects of aspects of quality of information produced by the e-passport system. Generally, the e-passport system prioritizes providing accurate, clear, timely, relevant, and complete information to maximize user satisfaction and the system's effectiveness. All these information quality aspects had p-values below 0.05. This implies that information quality significantly influences the user's satisfaction with the e-passport system. Focussing on these key information quality dimensions, increasing the quality of information produced by the e-passport system will strengthen the system and improve the overall user satisfaction.

4.3 The Effect of e-Passport Service Quality on user Satisfaction at TISD

The third research objective entailed to examine the effect of the e-passport system's service quality on user satisfaction with the immigration department passport issuance in Tanzania. Multiple regression results are presented in Table 5a and Table 5b.

Table 5a
ANOVA Results

Source	Sum of squares	df	Mean Square	F	P-value	*R-square
Regression	11.617	4	2.904	4.837	P<0.05	0.15
Residual	93.662	156	.600			
Total	105.280	160				

Table 5b
Regression coefficients Results

Factors	Coefficient	Standard Error	t-value	p-value
Constant	6.742	0.582	11.577	<0.001
Consistent and reliability of the services	0.286	.171	4.022	<0.001
Confident on service providers' commitment, competence, and knowledge	0.173	.055	1.324	0.017
Quick response and timely solutions	0.112	.074	1.508	0.034
High quality infrastructure and equipment	0.158	.094	1.621	0.036

Multiple regression analysis was used to examine the influence of service quality on the users' satisfaction with e-passport system. The findings of regression revealed the four factors such as

Consistent and reliability of services, competence on service provider's commitment, competence and knowledge and quick response and timely solutions are explained 15% of the variance ($R2 = 0.15$, F (4, 156) = 4.837, p<0.05, see Table 5a). The relationship between this variable and user satisfaction is presented in Table 5b.

With respect to consistent and reliability of e-passport services, findings revealed that this variable had a significant positive impact on user satisfaction (β=0.286, p<0.001, see Table 5b). A unit increase in this factor leads to 28.6% increase in users' satisfaction. This suggests that users are satisfied when the e-passport system provides consistent and reliable services. The consistency and reliability of the e-passport system in Tanzania, are mainly due to the standardized procedures implemented across all passport offices in the country. These standardized procedures

ensure that each applicant goes through a uniform process when applying for an e-passport, reducing the likelihood of errors or discrepancies in the issuance of passports. The results were linked to the observations made by Al-Nuaimi et., (2020) that the reliable services will increase the level of users' satisfaction with the service provided. In their study, they found that the higher the service reliability, the more the users' satisfaction.

With respect to service providers' commitment, competence, and knowledge. This variable had a significant positive impact on user satisfaction (β =0.173, p<0.05, see Table 5b). The present findings indicate that a unit increase in service providers' commitment, competence and knowledge leads to 17.3% increase in users' satisfaction. This implies that users are happier and confident in the competence and commitment of the service providers. The service providers demonstrate a strong commitment to ensuring the availability of the services, assistance when needed, security, and integrity of the e-passport system. This is evident through their investment in modern infrastructure and training for their technical team and e-passport users. The study results align with previous studies' findings such as Bakar (2022), who found that service providers commitment and competence is positively related to user satisfaction, Service providers are committed to ensuring that the e-passport services are available all the time.

Findings presented in Table 5b indicates that quick response to inquiries and timely solutions significantly influencing user satisfaction (β =0.112, p<0.05), indicating that a unit increase in responding to inquiries and providing timely solution leads to 11.2% increase in users' satisfaction This suggests that satisfaction of users increased when they receive prompt and effective responses to their inquiries. This entails that e-passport service providers in Tanzania are bound by regulatory requirements set by the government, including specific service level agreements (SLAs) that outline response times for enquiries and issue resolution. These findings have similar patterns with previous finding, for instance, Phate (2017) who acknowledges that e-passports involve sensitive personal and biometric data, and any delay or issue can compromise security. Rapid response is crucial to mitigate risks and ensure data protection.

On the basis of the fact that the infrastructure and equipment for the e-passport system are of high quality, well maintained, and well equipped, the variable demonstrates a significant positive impact on user satisfaction (β=0.158, p<0.05, see Table 5b). Thus, a unit increase in quality of infrastructure and equipment of e-passport system leads to 15.8 % increase in users' satisfaction. This suggests that user's satisfaction has increased when the e-passport system has high-quality infrastructure and equipment. E-passports contain biometric information, such as fingerprints and facial recognition, which require sophisticated and secure technology to ensure data integrity and protection against forgery. Equipment such as biometric scanners, cameras, and document printers needs to be reliable and durable to handle constant use in various environmental conditions. The study findings are linked to the study by Phate (2017), who noted that high-quality infrastructure is crucial for the e-passport system because of the sensitive nature of information it handles.

Overall, these results showed that aspects of the quality of services significantly affect the overall user's satisfaction. To optimize user happiness and system efficacy, the e-passport system's service should, in general, place a high priority on providing reliable, consistent, timely responses, and delivering a high quality-infrastructure. With p-values for each of these e-passport systems' service quality aspects being less than 0.05, it can be concluded that users' happiness with the e-passport system is influenced by the service quality of the e-passport system.

4.4 Overall Multiple Linear Regression Analysis: Users' Satisfaction with the e-Passport System on Service Delivery

Table 6a
ANOVA results

Source	Sum of squares	df	Mean Square	F	P-value *R-squared
Regression	102.777	3	34.259	756.419	P<0.001 0.935
Residual	7.111	157	.045		
Total	109.888	160			

Table 6b
Regression Coefficients Results

Variables	Coefficient	Standard Error	t-value	p-value
System quality	0.355	0.072	4.936	<0.001
Information quality	0.233	0.049	4.729	<0.001
Service quality	0.437	0.057	7.658	<0.001

Multiple regression analysis was used to examine the influence of system quality, information quality and service quality on user satisfaction with the e-passport system at TISD. The findings of the regression showed the three variables explained 93.5% of the variance ($R^2 = 0.935$, F (3,157) = 756.41, P<0.001, See Table 6a). Table 6b demonstrated the relationship between these factors.

In this study we found that system quality had a positive significant influence on users' satisfaction with e-passport system ($\beta = 0.355$, p<0.001). Thus, system quality factors, especially user interface and ease of navigation significantly enhances users' satisfaction with e-passport system at TISD. These results are consistent with previous studies, for example, Kumar and Lata (2021) found that user satisfaction is positively and significantly impacted with the system quality. Moreover, Khairzada (2020) indicated that the user interface and navigation of the system experienced noteworthy improvements in user satisfaction.

Regarding information quality variable, the regression results show a positive significant relationship on user satisfaction ($\beta = 0.233$, p<0.001 see Table 6b). This shows that information quality, mostly in accuracy and simplicity in understand the information produced by e-passport system, enhance users' satisfaction. Correctness, simple to understand and up-dated information are crucial factors in enhancing users' satisfaction. These results align with previous studies' s findings, for instance, Kurniawan et al., (2021) and Pramudito (2023) found a positive significant relationship between information quality and users' satisfaction.

With respect to service quality, the analysis shows a significant positive impact on user satisfaction with the e-passport system at TISD ($\beta = 0.437$, p<0.001 see Table 6b). This indicating that, a unit increase in service quality corresponds to a 43.7% increase in user satisfaction. The results suggest that service quality factors, in particular consistency and reliability of the e-passport services, Service providers' knowledge, competence and commitment positively influences users' satisfaction at TISD. Previous studies conducted by Rifai (2022) and Ameen et al. (2020) cemented on these findings that service quality had a positive significant impact on user satisfaction.

V. CONCLUSIONS & RECOMMENDATIONS

5.1 Conclusions

This study was carried out to assess users' satisfaction with the e-passport system for delivering service in the Tanzanian immigration services department. The research found that all independent variables of e-passport system quality, information quality, and service quality play significant roles on the users' satisfaction. The findings demonstrated that enhanced user satisfaction is a consequence of the e-passport system's increased quality, which also leads to an easier-to-use interface, easier navigation, faster processing, and fewer system errors. Furthermore, user satisfaction with Tanzania's e-passport system is positively and significantly impacted by the system's ability to give accurate and easily understandable information as well as updated, full, and reliable information as a result of improved information quality. But also, user satisfaction with the e-passport system is significantly influenced by all aspects of service quality, including prompt response to enquiries, timely solutions, consistent and reliable services, and availability of high-quality infrastructure and equipment. Therefore, according to the study's overall findings, it can be concluded that users' satisfaction is greatly influenced by the quality of the system, the information, and the services with the Tanzania's e-passport system.

5.2 Recommendations

The study recommends that the government should focus on improving the infrastructure necessary for the e-passport system to operate smoothly. Additionally, Policy makers should conduct regular assessments to identify areas for improvement and take corrective actions accordingly. The research suggests that the immigration service department should streamline processes related to e-passport issuance to reduce waiting times and enhance the user experience. This study recommends a detailed investigation be conducted to evaluate the effect of users' satisfaction with the e-visa system on delivering immigration services. The cost aspect has not been investigated in this study, and there is a need to comprehensively examine this aspect in relation to the e-visa system in service delivery at the Tanzania immigration department.

REFERENCES

Achmadi, A., & Siregar, A. O. (2021). The effect of system quality, information quality and service quality on user satisfaction of e-learning system. *The International Journal of Business Review (The Jobs Review)*, *4*(2), 103-120.

Agbo, I. S. (2015). Factors influencing the use of information and communication technology (ICT) in teaching and learning computer studies in Ohaukwu Local Government Area of Ebonyi State-Nigeria. *Journal of Education and Practice*, *6*(7), 71-78.

Aldholay, A. H., Isaac, O., Abdullah, Z., Alrajawy, I., & Nusari, M. (2018). Compatibility's function in the information system success model as moderating variable, *The Context of Online Learning Usage.* 2(1), 9–15.

Al-Kofahi, M. K., Hassan, H., & Mohamad, R. (2020). Information systems success model: A review of literature. *International Journal of Innovation, Creativity and Change, 12*(10), 104–128.

Al-Nuaimi, I. T. I., Mahmood, T. M., Khalid, O. W., & Alazzawi, A. K. (2020, April). An integrated model of the relation between E-service quality and user satisfaction in IHL. In *Journal of Physics: Conference Series.* 1529 (4,) p. 042072).

Al-Okaily, A., Al-Okaily, M., Ai Ping, T., Al-Mawali, H., & Zaidan, H. (2021). An empirical investigation of enterprise system user satisfaction antecedents in Jordanian commercial banks. *Cogent Business & Management*, *8*(1), 1918847.

Ameen, A., Al-Ali, D., Isaac, O., & Mohammed, F. (2020). Examining relationship between service quality, user satisfaction and performance impact in the context of smart government in UAE. *International Journal of Electrical and Computer Engineering, 10*(6), 6026-6033.

Aziz, A., Fauzi, I., Bangsa, J. R., Isnawati, S. I., & Universitas, N. W. (2021, May). The Influence of Informativeness, Information Format and Ease of use in the use of SIAKAD on User Satisfaction (Case Study of Ngudi Waluyo University Students). In *ICLSSEE 2021: Proceedings of the 1st International Conference on Law, Social Science, Economics, and Education, ICLSSEE 2021, March 6th 2021, Jakarta, Indonesia* (p. 460). European Alliance for Innovation.

Bakar, A., (2022) *Impact of e-passport system on the delivery of public services in the Tanzanian immigration department* (Masters dissertation, IAA).

Bryman, A., & Bell, E. (2017). *Business Research Methods*. London: Oxford University Press.

DeLone, W. H., & McLean, E. R. (2003). The DeLone and McLean model of information systems success: A ten-year update. *Journal of Management Information Systems, 19*(4), 9–30.

Dutta, J., & Saxena, S. (2021). Customer satisfaction analysis by recent artificial intelligence technology platforms. *PalArch's Journal of Archaeology of Egypt,* 18(1), 4640–4648.

Elias, J. D., & Lubua, E. W. (2024). The impact of usability, functionality and reliability on users' satisfaction during library system adoption. *The Journal of Informatics*, *1*(1), 13-21.

Endwia, S. M., Kusumawati, N., & Irawan, A. (2021). Factors influencing customer satisfaction and loyalty of online educational platform in Indonesia: Analysis of e-service quality factors. In *Proceeding Book of The 6th ICMEM 2021* (pp. 11-13). Bandung, Indonesia. August 11-13, 2021.

Gregory, J. (2023). *Assessing the Impact of E-Services on the Delivery of Quality Immigration Services* (Doctoral dissertation, IAA).

Habibu, T., Luhanga, E. T., & Sam, A. E. (2019). Evaluation of users' knowledge and concerns of biometric passport systems. *Data*, *4*(2), 58.

Hidayah, N. A., Fetrina, E., & Taufan, A. Z. (2020). Model satisfaction users measurement of academic information system using end-user computing satisfaction (EUCS) Method. *Appl. Inf. Syst. Manag, 3*(2), 119-123.

Jeyaraj, A. (2020). DeLone & McLean models of information system success: Critical meta-review and research directions. *International Journal of Information Management*, *54*, 102139.

Khairzada, P. M. (2020). Factors affecting online service quality and customer satisfaction in the Passport Department of Afghanistan. *(Unpublished Masters Dissertation).* Kardan University, Kabul.

Khelif, M. A., Lorandel, J., Romain, O., Regnery, M., & Baheux, D. (2019). A Versatile Emulator of MitM for the identification of vulnerabilities of IoT devices, a case of study: Smartphones. *ACM International Conference Proceeding* Series, July. https://doi.org/10.1145/3341325.3342019.

Kipingu, M. K, & Shayo, D.P. (2021). Technology and immigration system: A new paradigm for improving government service delivery in Tanzania. *PanAfrican Journal of Governance and Development (PJGD), 2*(2), 81–106.

Kumar, A., & Ata, L S. (2021). The role of website quality as a mediator between system quality and client happiness in online purchase: A developing country perspective. *Journal of Operations and Strategic Planning, 4*(1), 7–26.

Kurniawan, I., Ardianto, Y. T., & Hidayatullah, S. (2021). The effect of the information system quality, service quality, and user satisfaction on academic information system user loyalty. *International Journal of Scientific and Technology Research*, *10*(5), 350-355.

Lutfi, A., Al-Okaily, M., Alsyouf, A., & Alrawad, M. (2022). Evaluating the D&M IS success model in the context of accounting information system and sustainable decision making. *Sustainability*, *14*(13), 8120.

Mbilinyi, O., & Marwa Werema, S. (2018). Determinants of e-Government adoption in improving public services delivery in immigration department Arusha Region, Tanzania. *International Journal of Science and Research, 8*(6), 253-258.

Mohajan, H. K. (2020). Quantitative research: A successful investigation in natural and social sciences. *Journal of Economic Development, Environment and People, 9*(4), 50-79.

Nguyen, D. T., Pham, V. T., Tran, D. M., & Pham, D. B. T. (2020). Impact of service quality, customer satisfaction and switching costs on customer loyalty. *The Journal of Asian Finance, Economics and Business*, *7*(8), 395-405.

Nguyen, N. T. (2021). A study on satisfaction of users towards learning management system at International University–Vietnam National University HCMC. *Asia Pacific Management Review*, *26*(4), 186-196.

Nirathron, N. (2006). Fighting poverty from the street. *A Survey of Street Food Vendors in Bangkok*, 10-59.

Normelindasari, D., & Solichin, A. (2020). Effect of system quality, information quality, and perceived usefulness on user satisfaction of webstudent applications to improve service quality for Budi Luhur University students. In *4th International Conference on Management, Economics and Business (ICMEB 2019)* (pp. 77-82). Atlantis Press.

Phate, M. M. C. (2017). *A comparative examination of the Botswana and Lesotho e-passport implementation* (Unpublished Dissertation, Public Policy School).

Pramudito, D. K., Arijanti, S., RUkmana, A. Y., Oetomo, D. S., & Kraugusteeliana, K. (2023). The Implementation of End User Computing Satisfaction and Delone & Mclean Model to Analyze User Satisfaction of M. TIX Application. *Jurnal Informasi dan Teknologi, 5*(3), 7-12.

Rifai, R. (2022). Effect of service administration system electronic passport (E-Passport) towards community trust and satisfaction. *Journal of World Science, 1*(12), 1142–1153.

Sachan, A., Kumar, R., & Kumar, R. (2018). Examining the impact of e-government service process on user satisfaction. *Journal of Global Operations and Strategic Sourcing*, *11*(3), 321-336.

Saleh, C. (2019). The happiness of citizens with the online passport service Considering innovation in Indonesia from the standpoint of electronic governance. *International Journal of Management (IJM)*, *10*(6), 61-75.

Suhaimi, A. I. H., Noordin, N., & bin Ya'kub, M. F. (2020) Assessment of Malaysian e-passport PKI based on ISO 27000 series international standards. *Journal of Physics: Conference Series, 1551*(1), 012003). IOP Publishing.

Susanto, S., Wahyudi, F., Bangun, S., Nurdiani, T. W., & Purnomo, H. (2023). Analysis of The Influence of Service Quality on Customer Satisfaction and Its Impact on Reuse Intention of Mobile Banking Payment in E-Commerce Transactions. *MALCOM: Indonesian Journal of Machine Learning and Computer Science*, *3*(2), 274-280.

Wahyudi, F., Respati, H., & Ardianto, Y. T. (2017). Study on DAPODIK information system: User satisfaction as mediation of system quality and information quality on net benefit. *Information and Knowledge Management, 7*(7), 53-62.

Yauri, A. R. (2022). The Impact of Information Technology on Organizational Performance of Nigerian Immigration Service, *Kebbi State Command. Equity Journal of Science and Technology, 8*(1), 89–94.