Technology and Immigration System: A New Paradigm for Improving Government Service Delivery in Tanzania

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Abstract

This paper explores how digital transformation has improved the delivery of immigration services. In contrast, this refers to the fact that, despite the existence of e-immigration services, there has been inadequate research to examine the e-immigration system in Tanzania. This paper explores the e-immigration portal, its advantages, and its challenges. Using a mixed method, data were collected from secondary and primary sources through document review, portal analysis, interviews, and questionnaires. Primary and secondary data show that e-immigration portals can be accessed using personal computers, smartphones, and internet cafes. Also, the time for applicants to receive passports and travel documents has decreased from more than seven days in the old manual system to three days on average in the new e–immigration system. Following the transforming government process, immigration service delivery has been improved by implementing the e–immigration system. Thee–immigration services offer advantages to users like online application, online payment, time-saving, and costs, but challenges like digital literacy, inaccuracy of information, feedback, and network problems impact the system's smooth operation. Here digital literacy campaign, feedback mechanism, applicant support desk, and digital service desk are recommended.

Keywords: *digital governance, e-immigration, e-government, e-services, Tanzania*

Introduction

The advent and growth of information and communication technologies (ICTs) have affected every walk of life in society and led to reform in delivering technology-based public services (Khelifi *et al*. 2020). Public service delivery has passed through a period of reforms to improve the accessibility and quality of public services. In the late 1980s and early 1990s, public service delivery in Tanzania experienced a period of deterioration partly due to world economic hardships. Most developing countries (Africa in particular) had to adopt some structural adjustment programs in order to restructure their economies because of a limited flow of capital

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and grants from the World Bank, International Monetary Fund, and Western donors (Zattler, 1989). This cut in capital flows forced most African countries to embark on cost-sharing programs in service delivery as one of the strategies to ensure the availability and quality of public services. However, improvements in efficiency and effectiveness of public services take time to realize and even more time to translate into effective delivery of public services (Ruguyamheto, 2005).

The immigration department was, in one way or another, affected by these economic hardships and, therefore, the development of public service delivery remained stagnant. The history of the development of public services delivery in the immigration department in Tanzania started with the enactment of the immigration ordinance of 1924 under the then Tanganyika British colonial rule. The law was used to manage migration matters up to 1948. In 1949, the department came to be known as the immigration and passport department as an independent department. Immigration services such as passports, citizenship, visa, and residence permits were the main mandate of the department. As services were in paper form, a range of application forms and procedures had to be completed for a customer to apply for services. Passports were issued in handwritten booklets, which varied in size as time went on. The evolution of Tanzania passports started with a British passport (Tanganyika) (1949–1961), Tanganyika passport (1962–1964), Tanzania pass (1964–1992), and Tanzania passport (1993–2017). Visas were issued in stamps at immigration entry points. Residence permits and passes were issued as leaflets, whereas personal information was in handwritten form. All these processes were through manual files whose storage and movements in the service delivery chain were slow. The time spent to accomplish a single immigration service application was ultimately long.

From the year 2005, the government initiated efforts to modernize immigration services. The passport issuance system changed into a semi-electronic service delivery system because application processes remained manual, but printing became electronic. Passports had a Machine Readable Zone (MRZ) where applicant information was stored in a specific data storage device (Larkotey *et al*., 2017). This change aimed to ensure the quality of the service and enhance national security due to fears of terrorism and other transnational crimes that emerged in the 2000s (URT, 2011; Habibu *et al*., 2019). The introduction of the residence permits issuance system in 2012 was a shift to semi-electronic service delivery in the issuance of residence permits to the foreigners residing in the country. Just as in passport procedures, residence permit

application processes remained manual but were printed with specific electronic features. It marked the route to the electronic service delivery in the department.

Furthermore, a visa administration system (VAS) was introduced. A visa sticker has to be generated from a specific computer system after swapping the applicant's passport in a specific device (URT, 2011). The visa applications process was upon arrival, and the application process was through VAS. This system could identify persons blacklisted in the system for security purposes.

The primary objective of the modernization of immigration services is to control security (Amiri, 2017; Wimalasiri & Jeyamohan, 2018; Putra & Arifin, 2020; Hanzlik & Kutylowski, 2021) in order to protect information systems from unauthorized access, use, disclosure, disruption, modification or destruction to provide confidentiality, integrity, and availability (Khelifi *et al*. 2020; URT, 2019b). After the terrorist attack of September 11, 2001, in New York, pressure the need to introduce and implement a "new security policy" (Malcık & Drahansky, 2012) at the airports and worldwide borders. The introduction and implementation of electronic immigration (e-immigration) system through e-passport, e-visa, e-permit, and e-border control management were demanded by the incident of the terrorist attack, identity fraud, and also to control illegal immigrants (Malcık & Drahansky, 2012; Wimalasiri & Jeyamohan, 2018; Habibu *et al*. 2019; Khelifi *et al*., 2020). Similarly, the new e-immigration system is expected to facilitate the control entry of terrorists and kept the country safe from illegal immigrants (Amiri, 2017; Habibu *et al*., 2019; Glouftsios & Scheel, 2021).

Given the fact that there have been growing "reported attempts of illegal immigration across a number of country borders" (Wimalasiri & Jeyamohan, 2018, p.15), e-passport, e-visa, e-permit, and e-border control management system is a newly established research area. Studies on the e-immigration system focus on mitigating the risks of the e-visa application system by building mobile applications containing the list of trusted companies to connect visa applicants with reliable agencies in the UAE (Khelifi *et al*., 2020). Wimalasiri and Jeyamohan (2018) examined and proposed a multistage of e-passport verification schemes based on biometrics, watermarking, and Radio Frequency Identification (RFID) in Sri Lanka. On their side, Putra & Arifin (2020) explored electronic border control of immigration and autogate at airports in Indonesia, while Malcık & Drahansky (2012) provided an insight into the security of biometric passports in the Czech Republic. In their article, Glouftsios & Scheel (2021) were concerned with technology,

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border security, and migration management illustrated through an encounter between a migrant and the visa information system. In Uganda, Habibu *et al*. (2019) analyzed users' concerns and threats to the biometric passport system, where the first biometric passports were planned for rollout in 2019.

Since the implementation of the e-immigration system in Tanzania, there has been inadequate research to explore how it has been able to improve public service delivery. Amiri (2017) analyzed risk management strategies of e-immigration to ensure the system's safety against malware attacks. The above scenario poses a number of fundamental questions, which remained unanswered. One of those questions is whether the e–immigration system has improved service delivery in Tanzania. This article, therefore, focuses on exploring the e-immigration portal system and to uncover the advantages and challenges of the e-immigration (e-passport, e-visa, and e-permit) system for improving service delivery. In this way, the article seeks to contribute to the growing body of migration literature exploring how digitalization transforms government services through the e-immigration system. This paper attempted to address the following questions: i) how does the e–immigration portal operate in Tanzania? ii) what are the advantages of the e-immigration system in Tanzania? iii) what are the challenges of e-immigration services in Tanzania?

Review of Literature

Electronic Government

Digitalization and web-based technology have "changed the outlook and function of the public administration by transforming government processes and external interactions" (Putra & Arifin, 2020, p.138). Digital government services aim to enhance and simplify the administration of public service delivery that is reliable and citizen-centric based on available ICT tools (Larkotey *et al*., 2017; Shiyo *et al*., 2018). Electronic government (e-government) is defined as "the use of ICTs for new designs or redesigns existing information processing practices to achieve better governance, and sending electronic services to companies and citizens" (Putra & Arifin, 2020, p.138). E-government services make government operations and process more "transparent and more effective for citizens and businesses, and provide a variety of benefits for the community at large such as reducing services' time and connecting businesses and citizens to government information at any time" (Dewa & Zlotnikova, 2014, p.37). The inversion of e-government has attracted more attention to government, politicians, administrators, and policymakers on how such applications can be shared, interacted with, and integrated (Lupilya, 2015; Habibu *et al*.,

2019). Transformation focuses on government, business productivity, and the social-economic paradigm of implementing e-government projects (Lupilya, 2015).

The development of e-government systems helps generate and disseminate information and strengthen the attitude that citizens are customers and that their satisfaction makes the government exist (Shiyo *et al.*, 2018). E-government services mean all services which public institutions deliver by electronic means (URT, 2019b). E-government helps to make better communication between businesses, citizens, and their governments. E-government helps to simplify processes and makes access to government information programs and services easier for the public. It puts the government services online, offering accessibility and enhancing the quality of services in terms of time, content, and accessibility (Alshehri & Drew, 2010; Rosie, 2015; Shiyo *et al.*, 2018).

Electronic systems and services are not well established in most developing countries (Dewa & Zlotnikova, 2014; Rosie, 2015). It makes it challenging to manage migrants and provide immigration services. Some studies show that while most of the developed countries are in the final stages of the transformation of government services, developing countries are still in the early stages of e-government development (Dewa & Zlotnikova, 2014). The e-government improves public service delivery, which is relevant and sufficient to meet people's expectations of easy access, efficiency, and effectiveness (Rosie, 2015) and deliver quality and responsive services to the public (Lupilya, 2015).

On the other hand, e-government has some challenges (Larkotey *et al.*, 2017). Although these challenges hinder the successful implementation of e-government, they do not make its implementation void. E-government initiatives continue to be a solution to most service delivery deficiencies that existed during the old government service delivery systems (Habibu *et al.*, 2019). These challenges include information and communication technology infrastructure, privacy, security, top management support, resistance to change to electronic systems, collaboration, lack of qualified personnel and training, digital divide, culture, and high cost of laying down the systems (Alshehri & Drew, 2010; Honade *et al.*, 2018; Punithavathi & Geetha, 2019). In this context, the e-government program needs collaborative initiatives between stakeholders and qualified personnel as well as periodic training, massive investments, and needs to be protected against cybercriminals and to protect the rights of service users. Rosie (2015) offers almost the same challenges and points out other challenges to lack equality in public

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access to the internet and the ability to access computers due to illiteracy, hence the need for customers to get assistance from service officers.

Despite the challenges of e-government services, Yang (2017) observed that China local governments had started a new style of service delivery in recent years. The use of e–applications such as WeChat, Weibo, and other Chinese domestic applications has improved the way people interact with the government. This makes it easy for them to access government services and information on time. Since WeChat added public services to its platform in late 2014, its users have experienced unprecedented convenience in their daily life. Unlike Weibo, WeChat has combined government e-services thoroughly with its existing platform functions from messaging to payment. Until the first half of 2017, there were mainly two ways to activate public e-services on WeChat: (i) a unified city service platform providing dozens of public services in cities, and (ii) a mass of government official accounts in which citizens can check information and enjoy one-stop-service from different departments (Yang, 2017).

Electronic Immigration Services

E–immigration is an electronic service delivery system, whereby most application processes for immigration services are through the use of information and communication technologies (ICTs), particularly the internet, as a tool for delivering better government services to the citizens, businesses, and employees (Alshehri & Dew, 2010; Wimalasiri & Jeyamohan, 2018). According to the UN (2017), developed countries enjoy high-quality services, including immigration services, due to the application of electronic services. Nevertheless, they enjoy high-security conditions because of the use of electronic services and control systems. There is an increase in world migration in recent years. According to the UN (2017), between 1990 and 2017, the number of international migrants worldwide rose by over 105 million. However, much of this increase occurred from 2005 to 2017. That is why this increase in migration needs to be managed by sophisticated service systems.

In Europe and other developed states, the ability to handle this increasing number of migrants from developing states such as those in Africa is high because these states have already implemented e–immigration since the 2000s (Larkotey *et al*. 2017; Honade *et al*., 2018). E–immigration systems in most developed countries had security consciousness rather than customer orientation (NAO, 2007). Here e-immigration has simplified the operation of e-gates in most European countries. NAO (2007) argued that the "e-passport project is part of the identity

and passport service's wider program to improve the security of passports" (p.23) in the United Kingdom. In this, the UK and US e-immigration systems are, therefore, more of security ones though, through that, customers and other users benefit from accessible, efficient, and effective services.

Electronic Immigration Services in East Africa

In East Africa, the State summit in March 2016 instructed the rollout of "biometric passport in all the member states (Burundi, Kenya, Rwanda, South Sudan, Tanzania, and Uganda) with each member having a 1-year phase-out of the existing national and community passports and adopting biometric passports in their place" (Habibu *et al*., 2019, p.1). Electronic immigration service is stated in the East African Community (EAC) Regional Strategic Framework for e-immigration 2014/15-2019/20 (EAC, 2014). This framework outlines the major areas of concern that EAC member states must work closely within the immigration sub-sector in order to ensure the achievement of the common market and customs union protocols (EAC, 2014). Article 5 (2b) of the EAC common market protocol envisages easing the cross-border movement of persons within the region and adopting an integrated border management system. With an operational regional e-immigration strategic framework, it is possible to lift internal borders and introduce an external border encompassing all partner states (EAC, 2014).

Through the EAC regional strategic framework for e-immigration, partner states have been encouraged to implement e-immigration systems and services to be in operation by 2020. As of recent, most East African states are in different stages of the implementation of e–immigration where Kenya, Rwanda, Tanzania, and Uganda are in different stages of the implementation of the e-immigration system since 2018 (Habibu *et al*., 2019). Both have started to issue passports in the collective format agreed in the EAC whereby all passports issued in the partner states have the title East African Passport followed by words that introduce respective states like The Republic of Kenya and Republic of Uganda. Likewise, in Tanzania, the identifier United Republic of Tanzania follows the East African Passport. Partner states are further integrating their systems through the operation of one-stop border posts where all immigration services and information can be found in one service building at the borders. Examples of borders with these service integrations in the East African region are Namanga and Horohoro-Lungalunga between Tanzania and Kenya, Rusumo between Tanzania and Rwanda, Mutukula between Tanzania and Uganda, just to mention a few.

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In 2014, the East African Community, through its secretariat, released a review report on the regional strategic framework for e-immigration 2014/15-2019/20, which among other things, provided the status of the infrastructures for e-immigration adoption in the East African member states intending to advise member states on the best way to implement e-immigration services (EAC, 2014). EAC member states were encouraged to fasten their strategies to prepare the infrastructures needed to make e–immigration implementable such as laying down the National Fibre Optic Cable known as the National ICT Broadband Backbone (NICTBB), which Tanzania accomplished in 2014. These efforts enabled the country to implement various e-government strategies, including e–immigration as directed in the EAC strategic framework for e–immigration.

Electronic Immigration Services in Tanzania

In Tanzania, e-immigration started to operate in January 2018 with the introduction of electronic passports. The second stage involved the introduction of an electronic visa. The third stage was about electronic residence permits. The fourth stage involved introducing electronic border management, which encompasses an integrated border management system between immigration headquarters and Zanzibar immigration head office, regional immigration offices, entry points, Tanzania embassies abroad, and district immigration offices (URT, 2019a).

E-immigration has been reflected in the National ICT Policy of 2003, which later incorporated the EAC framework on e-immigration. The adoption of e-government policy led to the establishment of the electronic government agency (e-GA) in 2013. The mandate of the agency is to administer e-government through the implementation of a nationwide e-government strategy. This strategy serves as a framework through which the objectives for electronic service provision are set down. Among the objectives set under this strategy are institutional framework, human resources capacity, government-wide electronic infrastructure, government-wide shared systems, e-service flagship projects, and e-government awareness.

According to URT (2017), the objective of e-government policy is to improve the quality of public services in order to meet the increasing demand for these services by the Tanzanian population. Among the targets of the objective of this strategy is to achieve a high percentage of users satisfied with e-services (URT, 2013). E–immigration is designed to serve various benefits, including defense and security; promotion of tourism; promotion of investment; strengthening

records and statistics management; facilitating and strengthening immigration service delivery; increasing efficiency and effectiveness, and reducing running cost (URT, 2017). This argument shows that the aspect of security is still vital in this newly introduced service delivery system. Furthermore, the system emphasizes increasing efficiency and effectiveness in immigration service delivery, which are the main emphasis in the new public services model.

Types of Electronic Immigration Services in Tanzania

Electronic immigration services are services offered by the immigration department by using electronic systems. These systems allow customers and officers to deliver services using computers and smart mobile phones. In the immigration department, the operating e-services include e-passport, e–visa, and e–residence permits. The border management system is not operating yet.

E–Passport

The electronic passport stores biographical information and biometric identifiers of applicants. The E-Passport is "comprised of an integrated chip. This chip inserted in the document's cover page contains biometric information of the passport holder" (Punithavathi & Geetha, 2019, p.342). The chip, when retrieved, recovers the holder's information in times of emergency, such as when the passport is lost (Abeyratne, 2013). In Tanzania, there are three main types of passports: *ordinary passports* for ordinary citizens who travel abroad for business, visits, treatment, religion, studies, and many other ordinary activities. There are also *service passports* for senior public servants such as permanent secretaries, senior public service leaders, and public institutions who travel abroad for official responsibilities. The third category comprises *diplomatic passports* for leaders with diplomatic statuses such as presidents, ambassadors, members of parliaments, ministers, and other people with such entitlements when traveling abroad for official responsibilities. One can possess more than one passport and use it to travel abroad based on the purpose of the travel. Except for the document that justifies the applicant's purpose of the journey, the entire requirements needed for the application of a passport are almost similar.

Applications for electronic passports for all types of passports are through the immigration portal. Through the portal interface, a customer makes his or her application, uploads essential documents, and makes partial payment of the passport fee. After that, the application form is ready for manual submission at a nearby immigration office. After submission and interrogation, full payment, fingerprint procedures, and internal processes start. Based on the observation of the

immigration officer, "passport may be ready for issuance to a customer within a day depending on the urgency of the customer's travel." Printed passports have a unique electronic chip containing the holder's important information. The information in the chip can be stored in the holder's smartphone for emergency consumption (URT, 2019a). Therefore, an e-passport "offers substantial benefits to the rightful holder by providing a more sophisticated means of confirming that the passport belongs to that person and that it is authentic, without jeopardizing privacy" (Honade *et al.*, 2018).

E–Visa

An applicant applies an electronic visa application in person or by a company representative on behalf of the applicant. Uploading of essential documents is also through the online submission system. Once applications are submitted, internal approval processes take place until a notification is communicated to a customer to allow him or her present in person to any nearby embassy of Tanzania abroad or entry point for visa verification (URT, 2019a).

E–Permit

Electronic residence permit applies the same processes as in e–visa. Application processes are the same in both private institutions and business companies, and government institutions. In addition, applications for the same are by institutions and companies employing foreign expatriates. Through the company application account, applicants have a place to follow the status of their applications through the system. After all application processes and approval, a payment procedure for residence permits follows. The issued permit document bears some security features that distinguish it from a mere document (URT, 2019a).

E–Border management and control

Since the early 2000s, there is a proliferation of digitalization of border security and migration through "recording the comings, goings, and doings of travelers and migrants, often coupled with biometric recognition systems, the use of drones and satellites to monitor border zones" (Glouftsios & Scheel, 2021, p.123). In Tanzania, electronic border management is still in its initial construction stages. The aim is to connect and integrate all borders, embassies abroad, head office Zanzibar, regional and district offices with immigration headquarters in Dar es Salaam. This integration will help all immigration offices to have one immigration management system (URT, 2018).

Theoretical Framework of the e-Immigration System

New Public Management

In the 1980s, this model arose as a critique of old public administration models, which faced challenges, including poor performance of governments in public service delivery. The new public management model aimed to answer how the government can perform better and deliver on its key objectives. UNDP (2015) provides the underlying principles under which this model operates. They include attention to lessons from private-sector management; the growth both of hands-on "management" in its own right and not as an offshoot of professionalism, and of "arm's-length" organizations where policy implementation is organizationally distanced from the policymakers (as opposed to the "inter-personal" distancing of the policy/administration split (UNDP, 2015; Yusuph & Guohua, 2017). Other principles are a focus upon entrepreneurial leadership within public service organizations; an emphasis on input and output control and evaluation and performance management and audit; the disaggregation of public services to their most basic units and a focus on their cost management; and the growth of market competition and contracts for resource allocation and service delivery within public services.

Act of Parliament No.11 of 1995 established Tanzania Revenue Authority. It started its operations on July 1, 1996, to respond to the needs of new public management, including entrepreneurial leadership within public service organizations and emphasis on input and output control in public service delivery. New public management strengths lie in establishing government structures for financial management such as revenue authorities and internal audit units, which improved governments' capacity to collect revenue and ultimately finance service delivery. The National Audit Office and Audit Units in various agencies were established to cater to such needs of NPM (UNDP, 2015). However, the main weakness of this model was that it puts more emphasis on reforming the government structures to bear those in the private sector, forgetting to put people at the center as the main beneficiaries of public services (UNDP, 2015; Yusuph & Guohua, 2017).

New Public Governance

The new public governance model suggests that the government should be catalytic, a community-owned government, competitive government, mission-driven government, results-oriented government, customer-driven government, decentralized government, and market-oriented government (Osborne & Gaebler, 1992). These characteristics have catalyzed the government of Tanzania to undergo significant changes in service provisions. Although

immigration services have security bases, they contribute much to the country's economy, especially in attracting investments.

The new public governance draws its synthesis from the failure of new public management to place people at the center of public administration. It is not only the government or the market forces that determine service delivery but also the combination of various forces and interactions within society, which determines societal needs. This model stresses the importance of citizens' involvement in determining their fate in policy formulation and service delivery preferences (UNDP, 2015). Therefore, public administration should be centered to respond to people's needs for efficient and effective services. This model did not manage to put people at the center as was expected. This may be the case in Tanzania, where immigration service systems remained state-centered, focusing on security rather than the people. Therefore, this model lacked a customer-centered aspect and was replaced by the New Public Service model.

New Public Services

The principles governing new public service include building collaborative relationships with citizens and groups of citizens, encouraging shared responsibilities, disseminating information to elevate public discourse, and fostering a shared understanding of public issues, thereby seeking opportunities to involve citizens in government activities (UNDP, 2015). New public service emphasizes digital systems in the provision of public services. It starts with the premise that the focus of public governance should be citizens, community, and civil society (Denhardt & Denhardt, 2015). What makes new public service distinct is its emphasis on the use of technology in disseminating information to the citizen to share responsibilities with the people. The potential of new technologies for opening up government information to public access and scrutiny has gained considerable momentum with the advent of the new transparency agenda and the increasing sophistication and prevalence of digital governance (UNDP, 2015; Solong, 2017). In new public service, the primary role of the public servant is to help citizens' articulate shared interests and promote citizenship integrated with citizen discourse and the public interest rather than to attempt to control society (Denhardt & Denhardt, 2000; Habibu *et al.*, 2019).

The government has significantly adopted new public service in order to achieve efficient, effective, responsive, and equitable service delivery (Solong, 2017; Larkotey et al., 2017). Under new public service, changes from manual service delivery processes aimed to remove the old bureaucratic governance systems and introduce electronic systems, which increase efficiency,

effectiveness, and citizen access. New public service puts people at the apex of immigration service delivery, and citizens interact with their government in service delivery and information sharing through digital technologies (Denhardt & Denhardt, 2015; Putra & Arifin, 2020).

Materials and Methods

The article employed quantitative and qualitative research designs. Both designs were used because some data sources are descriptive and only need to be described in the report. The immigration portal as one source of data provides only descriptive information. Other sources of data, which are descriptive, include various documents which establish and provide information about the management of the e-immigration system, such as laws, regulations, and manuals. This article uses primary and secondary approaches to collect and access different sources of data. Secondary source focuses on various documents with information for the introduction of the e–immigration system was reviewed. These documents have preliminary information about the operation of the e–immigration system. The immigration laws and regulations, immigration newsletters, legal documents, magazines, and e–immigration project write-ups helped give relevant information about the system preparation and service delivery. Primary sources such as interviews and questionnaires were used as sources of data. Here, the focus is on the three e-immigration services: e-passport, e–visa, and e–residence permit. The researchers conducted interviews with well-informed immigration officers who offer services under the e–immigration system. Twenty-three respondents, including officers serving in the respective service sections such as passport, visa, residence permit, and ICT officers and public relations officers, were interviewed. Here traditional note-taking data recording techniques by using a pen and a notebook were deployed.

Questionnaires were administered to individual customers who applied for passports and those who had obtained their passports. In addition, questionnaires were administered to representatives of various institutions and companies who apply for visas and residence permits on behalf of foreign expatriates expecting to work in the country for their institutions/companies and individual customers. Here eighty questionnaires were distributed to various customers. Out of the eighty questionnaires, fifty-two questionnaires were administered to passport applicants, and twenty-eighty were administered to institutional customers applying for visa and residence permits. The researchers managed to meet institutional customers when they visited immigration offices in Dar es Salaam for immigration document submission or collection.

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An accidental sample involved eighty customers who visited the respective offices for service application or immigration document collection. Each service applicant who appeared in the immigration offices had an equal opportunity to participate in responding to a questionnaire only because he/she had an application to submit or an immigration document to collect. Other respondents got an equal chance to respond to questionnaires only because they were waiting for their documents, mainly passport applicants. Purposive sampling was used in order to interview technical persons of immigration officers in various service desks such as five in the passport section, five in visa, and five respondents in the residence permits. Also, a purposive sample was used to interview six ICT officers and one public relations officers to explore their experience in terms of advantages and challenges about the–immigration system.

This research was geographically delimited to the Dar es Salaam region, particularly at immigration headquarters and the Dar es Salaam regional immigration offices. Dar es Salaam was selected due to the existence of vast e-immigration service applicants compared to other regions. Most individuals and companies benefiting from e-immigration services are located in Dar es Salaam. This region provides an opportunity for the researchers to have a wider range of responses because it is a "referral place" for immigration service applicants from other centers or regions. Therefore, the scope of this article provides an analysis of the e-immigration portal, advantages, and challenges to establish to what extent the modernization process improves service delivery compared to the old manual system of passport, visa, and work permit application.

Results and Discussion

Accessing E–Immigration Portal System

An analysis of the immigration system shows four categories of services offered through an e-immigration portal in Tanzania. These include e-passports, e-visas, e-residence permits, and e-border management and control. It is worth noting that three immigration services are operational through this portal, with the exception of electronic border management and control services. The main information found in this portal is an entry option that users use in accessing the e–immigration system for immigration services. One of the ICT officers cited that in order for the applicants to access the e-immigration portal is required to have: (i) a personal computer,

laptop, or a smartphone or access point with such devices, (ii) internet access or smartphone bundles to allow access to the website, and (iii) a bank card with electronic money services or a cellular phone and sim card registered with financial services such as Airtel Money, M-Pesa, Tigo Pesa, Hallo Pesa, Ezy Pesa or T-Pesa.

Further, the ICT officer elaborated that:

> *The ability to have access to digital devices and mobile financial services allows one to use the portal to apply for immigration e-services. For a customer to access any immigration service online, have to click on the specific service. If a customer needs to apply for a passport, visa, or residence permit, will click on the e-services and chooses the respective service to apply. When clicking over the passport application form, allow a customer to fill in the necessary information for the system to create an identification number for the application. The required information for the e-immigration system to create an identification number includes mobile phone number, location of the applicant, and place of application. When this information is submitted, the system creates an application identification number for the e-passport application service. When the user clicks on the new application option, the system displays an application form that has to be filled in accordingly by providing relevant and correct information.*

Filling application information requires one to be literate in computer and know how to read and write, especially *Kiswahili* language for passport applicants. It is worth noting that the e-passport application form is in the *Kiswahili* language only because all passport applicants must be Tanzanians, and every Tanzanian is presumed to be conversant in the national language and even those who have got Tanzanian citizenship by naturalization according to the Citizenship Law of 1995. Nevertheless, if the applicant is illiterate may be assisted by a trusted person in filling the form. The completion of the application form makes the system create a control number to allow the customer to make an initial payment amounting to twenty thousand Tanzanian Shillings. Afterward, "*the application form must be printed and presented to the immigration officer for interrogation and completion of payment upon acceptance of the application by the immigration officer*" (Interview, 2020). Immigration officers use the same portal to access the system in a different manner by using specific system accounts for each officer.

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In addition, it reported by one immigration officer that there are aspects that determine access to the immigration portal, such as the stage in getting into the portal, the type of devices used to access the portal, and the cost of making an application. The stages involved in getting into the portal are straight forward as one of the passport customers observed that:

> *It is very smooth to get into the portal from the first stage to the last because it directs the user to the next stage in filling the application form. The portal gives directions for filling the respective e-passport application form, attaching basic documents, payment of particular service, online submission of the application, and printing the completed passport application form. All these stages are simple and straight, such that most applicants with basic computer knowledge can do. The portal has different signs and colors to demarcate some options and attract users. This alerts the users to be extra careful with some important or compulsory spaces to fill in the information. In general, the portal and its contents and procedures are organized in such a way that customers can access and use it easily.*

In order to access e-immigration services, computer or smartphone devices must be enhanced with the internet, either in a wired or wireless form. Desktop computers, mobile phones, and smartphones are used as tools for delivering government services to citizens and businesses (Alshehri & Dew, 2010). Here study survey data shows that applicants who use office desktop computers or laptops to access the portal constituted 22.5% and those who use smartphones were 28%, while 48% neither use their own/office computers nor smartphones, but used to incur costs in the internet cafes to access the portal. The costs incurred by customers to access the portal through internet cafes increase the costs of the application.

Customers who use the internet cafes represent a considerable portion of users of the system who deserve to get smooth access to the system by enjoying low costs for making applications as stipulated by the e-government policy of 2017, which targets the reduction of running costs (URT, 2017). Here customers who use internet cafes, 48% of them paid between one thousand to five thousand Tanzanian shillings, 33% paid six thousand to ten thousand, and 17% paid eleven thousand to fifteen thousand Tanzanian shillings. This implies that the costs for accessing the portal through internet cafes, though somewhat affordable, can cause service applicants to fail to

access the portal. Hence, the cost to access the e-immigration portal should be relatively affordable to the majority of the applicants.

The group of respondents who used old manual and new electronic systems could differentiate between the two systems in service delivery. Table 1 presents applicant's responses on the number of days they had to wait for their passport document after processing the application show that in the old system, those who had to wait for 1–3 days were 10%, 4–6 days, 19%, 7–10 days 56% and 15% over 10 days. This shows that few applicants received their passports within the range of one week as the majority got their documents in the period of more than one week. Still, some were getting their passport in more than ten days as observed by the immigration officer that "*perhaps those who got their passport within the range of one week maybe those with emergency trips, including official trips, students and those attending medical treatment abroad*" (Interview, 2020).

Table 1: Old manual system and new e-immigration system, N=80

	Number of days			
	1-3 days	4-6 days	7-10 days	Over 10 days
Old manual system	10%	19%	56%	15%
New e-immigration system	31%	22%	42%	5%

Source: Field data, 2020

In addition, Table 1 shows the case of new electronic immigration services. Here the findings show that, of the 80 respondents who responded to the same question, 31% received their passport documents within the range of 1–3 days, 22% obtained their documents in 4–6 days, 42% got their documents within 7–10 days, and 5% got their documents more than ten days. This means that the number of applicants who got their documents within 1–3 days has increased dramatically from 10% in the old system to 31% through online immigration services. Reduction in the number of days for customers to get their documents to an average of less than seven days has been the promise of the immigration client service charter of 2017. It can be observed that the number of applicants who received their documents within one week has also increased, whereas those for more than ten days have dropped from 15% to 5%. This data implies that there is a significant improvement using electronic immigration service delivery.

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Advantages of the Electronic Immigration Services

Service delivery systems that existed before the implementation of e–immigration were supplied, installed, and managed by different entities whose objectives were centered on security issues rather than on the realization of customer satisfaction (Hanzlik & Kutylowski, 2021). This situation could not allow immigration services to meet the required standard of system integration for efficient and effective service delivery. There have been complaints from the public that the delivery of immigration services in Tanzania does not meet acceptable standards (URT, 2014). Specifically, the services did not meet the growing demand for quality services. Furthermore, immigration services systems were insufficient and ineffective in supporting immigration services management (URT, 2014). Electronic immigration systems became a tool for improved services to meet high immigration services demand and customer expectations (Larkotey *et al*., 2017; Habibu *et al*., 2019).

Sections 27–31 of the e-Government Authority Act of 2019 in Tanzania authorize government institutions, including the immigration department, to offer electronic services (URT, 2019b). The Act through Sections 29-31 insists on reducing paper works by innovating and digitalizing work processes and introducing electronic records and electronic payment (URT, 2019b). This Act allows any government institution to use service providers which offer electronic services such as payment services on behalf of the institution. It is through this venture that the immigration department uses mobile phone operators, among others, Tigo (Tigo Pesa), Airtel (Airtel Money), Vodacom (M-Pesa), Halotel (Halo Pesa), and Zantel (Ezy Pesa) to make payments for e–immigration services. This helps applicants pay their immigration service bills and, therefore, avoid long queues and time spent in banks.

The general e-government regulations of 2020 provide the interpretation of the Act for ease of implementation of the law. Regulation 40 (a) insists that the language be used to deliver e-government services to be friendly to users (URT, 2020). It further insists on electronic services being citizen-centered. In this case, the e–immigration system uses both English and the Kiswahili language to ensure easy accessibility. Regulation 40 (b) (i)–(iii) gives the means through which customers access the e-service system, including web-based technologies, mobile channels, and any other emerging technology (URT, 2020). All these are platforms through which this regulation aims to improve e-service delivery in Tanzania and e-immigration service.

The application for a visa to Tanzania is online from anywhere, anytime, where visas and permits are issued remotely and timely. Also, for efficiency in processing and getting services, mobile money services are available and deployed in making online payments of applicable service fees. As a result, the new system has reduced the time to fill online applications as well as the waiting time for the documents. Visa applicants make online applications wherever they are because "*visa applicants are not required to visit immigration offices during visa application. However, "those who are making applications through Tanzania embassies abroad, they go to the office once for biometric clearance*" (Interview, 2020). In this context, e–immigration service had cut down the costs of the application for various services. This is because an "*applicant visits the immigration office less frequently than ever before since most application processes are completed online*" (Interview, 2020). It has been pointed out by the respondent in visa section that, "*visa applicants abroad appear just once in embassies for biometrics, different from the old visa application system where they had to travel several times*" (Interview, 2020).

Immigration officers shared the view that the e–immigration system has reduced forgery by service applicants. This is elaborated by one of the ICT officers that:

> *Before online services, customers could forge documents or attachments for various service applications. However, in the present electronic system, the chances to submit forged documents are meager because the e–immigration system integrates other electronic systems used to issue various documents used as attachments to most immigration applications, including national identification number, taxpayer identification number, and birth certificate.*

On the other hand, the system has reduced the workload that immigration officers were experiencing before introducing the system. As observed by one immigration officer that "*using the new online immigration system, officers can now accomplish their daily application processing activities immediately and without carryovers*" (Interview, 2020). In this regard, respondents were asked to rate the general performance of the e–immigration system. Responses presented in Table 2 show that none of the respondents rated it low, 15% rated the system performance average, 45% rated it high, and 40% rated it very high in performance. This data depicts the general performance of the e–immigration to be high 45% and very high by 40% in general. This justifies users' satisfaction with the performance of the new e-immigration system.

Table 2: General performance of the new e-immigration system, N=80

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	Average	High	Very high
Respondents	12	36	32
Percentage	15	45	40

Source: Field data, 2020

The introduction of e-immigration has reduced the workload they used to have in the old manual system, and it is time-saving as they can attend more applications in a shorter time. Therefore, the work is simple because "*there is no need for officers to carry files to approving officers but just send them online*" (Interview, 2020). Similarly, "*there is no loss of files within the file movement process because it is online*" (Interview, 2020). This serves immigration officers time to allow them to work on more and more applications. As a result, in turn, it has "*improved work efficiency and the effectiveness of officers compared to their efficiency in the old manual system*" (Interview, 2020). The respondents interviewed reported that the system is efficient and effective in the passport, visa, and residence permit service delivery. Interviewed officers of the immigration department admitted that the system has made their responsibilities smooth and time-saving. As one of the immigration officers reported, "*the system has reduced the time to process one passport application and time for applicants to obtain their documents from the average of ten days to the average of five days*" (Interview, 2020). Passport applicants present themselves in immigration offices only during printed application document submission and passport document collection stage. On the other hand, the officials pointed out that "t*he new e-visa application system takes one to three minutes to attend and complete a single visa application submitted online*" (Interview, 2020).

Challenges of Electronic Immigration Services

One of the challenges presented by the respondents includes inaccuracy of the information provided by applicants during the online application process. Inaccuracy of information accounts for some cases of service delays and other inconveniences. Information needs to be accurate during the application. However, some challenges with the system include "*applicant knowledge on e-services, submission of incomplete applications, power cutoffs, network problems and language challenges for some applicants especially visa permit who do not know English*" (Interview, 2020).

Another challenge is inadequate information and knowledge about proper documents to be attached in the online submission system. There was a lack of options in the portal to add

missing documents after submitting the application form and a low space/byte for uploading supporting documents. Byte to upload applications documents more than fifty percent of residence permit and passport applicants pointed out this challenge. However, for visa applicants, it was rarely mentioned. The reason could be that the number of supporting documents required to be attached and uploaded for the residence permit and passport application are too huge than for visa application.

Also, 20% of the passport applicants pointed out that the system lacked options to either make corrections to the information provided or delete uploaded files after submitting the application. However, passport applicants are advised to verify the information and documents and then confirm before final online submission. This is because one of the immigration officers explained that "*the system is made so that any change of information after submission can only be done by responsible immigration officers*" (Interview, 2020). For the payment system, the e–immigration system has feedback and updates in passport payment platforms through cellphone messages and grant notice messages for visa or residence permit applicants through emails. However, applicants view this as inadequate as they needed a service notification at every application stage.

The dangerous risk in the e–immigration system is the risk of hackers and that of malware. The risk of malware may distort the system's operation to the extent that its effectiveness, efficiency, and security of data are endangered. Similarly, there are "security threats due to the fact that all biometrics features are usually very sensitive information that has to be appropriately treated" (Malcık & Drahansky, 2012, p.1). It is argued by one user that:

> *Accordingly, if not well protected, there is a risk of hackers interfering with the system's operation or diverging its identities to bear the identity of other systems. This situation is dangerous because it may contravene even the financial credentials of the system and hence endangers the security of the immigration system and customers' data.*

On the other hand, it is argued that "using biometrics to improve the system of travel documents is undoubtedly a crucial milestone" (Malcık & Drahansky, 2012, p.1). As one of the respondents supported that:

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The benefits of e–immigration range from security benefits as the system integrates with other security systems, improves tourism as tourists get their visas on time, encourages investors as residence permit processes are simplified, intending to minimize running costs on the part of the government. However, the threat associated with this system is that any connection errors may lead to data loss and delays in service delivery if it happens.

Despite the fact that the new application of digitalization of immigration system (passport, visa, permit, and border management) poses a number of security and privacy risks challenges, still, the e-immigration system can "reduce fraud, identity theft and will help governments worldwide to improve security at their country borders" (Wimalasiri & Jeyamohan, 2018, p.15). In addition, the chances of forgery and fake immigration documents can be minimized (Hanzlik & Kutylowski, 2021), and electronic immigration may play an important role in the following applications: "reducing illegal immigrations, cross-border security, provide smooth travel experience with online facilities, provide quick and protected border crossings, genuine trade practice, provide national security, and minimize identity theft" (Punithavathi and Geetha (2019, p.342-343).

Conclusion and Recommendation

The growth of digital transformation has managed to influence the implementation of e-immigration services. Here public services can better be delivered to citizens by using digital technologies. The e-immigration system has put citizens at the center of the immigration service delivery, thereby making maximum use of digital technology to access services through various digital means easily. This is because e-immigration portal analysis shows that the system has been very easily accessible by applicants. Immigration service delivery has been improved following the implementation of the e–immigration system compared to an old manual system. For instance, the system has removed some delays experienced by applicants in the previous manual system. Respondents have expressed their satisfaction with the new e-immigration services because 85% rated the level of performance of the e–immigration system high to very high. Also, the number of services has fallen from seven days on average in the old service system to three days on average for applicants to get a passport, visa, and residence permit under e-immigration. Through the analysis of the immigration portal, findings show that it is easy for

applicants to access the immigration portal despite the challenges of the network, costs, and digital literacy.

In addition, the old manual application system took too long for immigration officers to process service applications. There were few steps, but each step takes a long time to clear the process of application. In this old manual system, once the application is received, immigration counter officers interrogate the applicant. Upon the officer's satisfaction, the applicant gets a payment bill, which will necessitate applicants to go to the bank to queue up for a long time to make an application payment. The fingerprint was also a long exercise that consumed applicants' time because immigration officers used manual devices. Creating application files was also manual and required officers to manually find the files, make application assessments, and move manual files to approve officers. File movement also had some challenges, including the loss of files. However, the introduction of e-immigration services addressed most of the challenges encountered by immigration officers in service delivery. E–immigration has reduced the workload of the old manual system, and it is time-saving to attend more applications in a short time. Here there is no need for officers to carry files to approving officers but send them online without losing files. Also, the e-immigration system reduced the time to process one application and obtain their passport documents. This saves the time to allow officers to work on other applications. This, in turn, has improved service delivery compared to an old manual system.

The immigration department is advised to introduce applicant support desks in each immigration office. The immigration department can use this opportunity to introduce support desks operated by immigration officers, whereby it will perform support functions to users compared to the current one in private stationaries and internet cafes. These desks will give an official guide to applicants on the required documents, procedures for application, and dangers of forgeries. The desks will also help to reduce undue actions by fake personnel, mitigate fraudulent ways of getting immigration documents, and thus, make immigration services more professional, trusted, and reliable. This article suggests that service fees be used to support desks and motivate officers operating in the desks for better services. Also, ICT officers must ensure system improvement and maintenance periodically to make sure that challenges of the system are addressed. The portal analysis shows the system has an inadequate feedback mechanism to the immigration service applicants and even for the service users to evaluate the quality of service delivery. The improvements may include but are not limited to creating an electronic feedback mechanism that

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will provide information on the progress of passport application in every stage. This is because "feedback is considered an effective means for improving the performance of public utilities" (Deichmann & Lall, 2007, p.649).

References

Abeyratne, R. (2013). The ePassport — New Technology to Counter Security Threats. *Journal of Transportation Security*, 6: 27–42.

Alshehri, S., & Drew, S. (2010). Implementation of e-Government: Advantages and Challenges. Proceedings of the IASK International Conference E-Activity and Leading Technologies and InterTIC 2010. Retrieved from https://research-repository.griffith.edu.au/bitstream/handle/10072/40620/72631_1.pdf?sequence=1.

Amiri, H. (2017). Assessment of Risk Management Strategies for E-Government Services: A Case of Immigration Department and E-Government Agency in Tanzania (Unpublished Master Dissertation). University of Dar es Salaam, Tanzania.

Deichmann, U., & Lall, S.V. (2007). Citizen Feedback and Delivery of Urban Services. *World Development*, 35(4): 649-662.

Denhardt, R.B., & Denhardt, J.V. (2000). The New Public Service: Serving Rather than Steering. *Public Administration Review*, 60(6): 549-559.

Denhardt, R.B., & Denhardt, J.V. (2015). The New Public Service Revisited. *Public Administration Review*, xx(xx): DOI: 10.1111/puar.12347

Dewa, M., & Zlotnikova, I. (2014). Citizens Readiness for e-Government Services in Tanzania. *Advances in Computer Science: An International Journal*, 3(4): 37-45.

EAC (2014). Regional Strategic Framework for e-Immigration 2014/15-2019/20. East African Community Secretariat, Arusha, Tanzania.

Glouftsios, G., & Scheel, S. (2021). An Inquiry into the Digitisation of Border and Migration Management: Performativity, Contestation and Heterogeneous Engineering. *Third World Quarterly*, 42(1): 123-140.

Habibu, T., Luhanga, E.T., & Sam, A. E. (2019). Evaluation of Users' Knowledge and Concerns of Biometric Passport Systems. *Data*, 4(58): 1-17.

Hanzlik, L., & Kutyłowski, M. (2021). ePassport and eID Technologies. In: G. Avoine, & J. Hernandez-Castro (eds.), *Security of Ubiquitous Computing Systems*. https://doi.org/10.1007/978-3-030-10591-4_5

Honade, S., Sarwar, A., Kanawade, S., & Hawle, A. (2018). Electronic passport using RFID. *International Journal of Innovative Science and Research Technology*, 3(2): 610-613.

Khelifi, A., Hashmi, S., Darwich, F., Ali, S., & Al Tenaiji, A. (2020). Smart Visa System with Improved Security Features. In: A.N. Al-Masri & Y. Al-Assaf (eds.), *Sustainable Development and Social Responsibility*. Volume 2, Advances in Science, Technology and Innovation. Springer Nature Switzerland, 251-262.

Larkotey, W.O., Effah, J., & Boateng, R. (2017). Development of E-Passport Application Portal: A Developing Country Case Study. *Twenty-First Pacific Asia Conference on Information Systems,* Langkawi.

Lupilya, E.C. (2015). E-government Strategic Plan Implementation in Tanzania: Learning from Challenges and Experiences from Kenya, Korea, India and Malaysia. *The Korean Journal of Policy Studies*, 30(2): 147-175.

Malcık, D., & Drahansky, M. (2012). Anatomy of Biometric Passport. *Journal of Biomedicine and Biotechnology*, 2012:1-9.

NAO (2007). Identity and Passport Service: Introduction of e-Passports. Report by the Comptroller and Auditor General, National Audit Office, UK. Retrieved from: https://www.nao.org.uk/report/identity-and-passport-service-introduction-of-epassports/.

Osborne, D.E.,& Gaebler, T. (1992). *Reinventing Government: How the Entrepreneurial Spirit is Transforming the Public Sector*. Plume, Addison – Wisley Publishing Company, USA.

Punithavathi, P., & Geetha, S. (2019). Cancelable Biometric Transformations for E-Passport Security. *International Journal of Engineering and Advanced Technology* (IJEAT), 9(1S3): 342-346.

Putra, BH, & Arifin, R. (2020). The Adoption of Border Technology of Immigration Control and Auto gates in Indonesia. *Science and Information Technology Journal*, 3(2): 137-148.

Rosie, S. R. (2015). Advantages and Disadvantages of e-Government Implementation: Literature Review. *International Journal of Technology Marketing*, 5(9): 18-34.

Rugumyamheto, J. (2005). The Enabling State and the Role of the Public Service in Wealth Creation: Problems and Strategies for development In Africa. Dar es Salaam, Tanzania.

Shiyo, N.E., Jeremia, Y., & Shayo, D.P. (2018). Digital Citizens at Work: Mapping Citizen m-Participation Cases in the Governance of Services in Tanzania. *Tanzanian Journal of Population Studies and Development*, 25(1&2): 77-101.

Solong, HA (2017). Actualization New Public Service (NPS) Administration in Public Service. *International Journal of Scientific and Research Publications*, 7(3): 505-513.

UN (2017). International Migration Report 2017. Department of Economic and Social Affairs, Population Division, United Nations. Retrieved from: https://www.un.org/en/development/desa/population/migration/publications/migrationreport/docs/MigrationReport2017.pdf.

UNDP (2015). From Old Public Administration to the New Public Service: Implications for Public Sector Reform in Developing Countries. Global Centre for Public Service Excellence, Retrieved from: https://www.undp.org/content/undp/en/home/librarypage/capacity-building/global-centre-for-public-service-excellence/PS-Reform.html.

URT (1995). Citizenship Law of 1995. United Republic of Tanzania

URT (2007). The Electronic Transactions Act of 2007. United Republic of Tanzania

URT (2011). Immigration News Issue No. 15. Special Edition for Fifty Years of Independence of Tanzania Mainland, Immigration Department, Ministry of Home Affairs, United Republic of Tanzania.

URT (2013). Tanzania e-Government Strategy, PO–PSM, United Republic of Tanzania.

URT (2014). Report for the establishment of an integrated immigration services system in the Immigration Department of the Ministry of Home Affairs in Tanzania: Introduction of e-immigration services in Tanzania, Main Report.

URT (2017). Immigration Client Service Charter of 2017. Immigration Department, United Republic of Tanzania

URT (2018). E–Immigration Information Manual of 2018. Immigration Department, Ministry of Home Affairs, United Republic of Tanzania

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URT (2019a). Immigration Newsletter No. June 17, 2019. Immigration Department, Ministry of Home Affairs, United Republic of Tanzania

URT (2019b). The e-Government Act No. 10 of 2019. United Republic of Tanzania

URT (2020). The e-Government General Regulations of 2020. United Republic of Tanzania

Wimalasiri, B., & Jeyamohan, N. (2018). An E-Passport System with Multistage Authentication: A Case Study of the Security of Sri Lanka's E-Passport. *Global Journal of Computer Science and Technology: G Interdisciplinary*, 18(2): 14-20.

Yang, Y. (2017). Towards a New Digital Era: Observing Local E-Government Services Adoption in a Chinese Municipality. *Future Internet*, 9(3):53. https://doi.org/10.3390/fi9030053

Yusuph, M. L., & Guohua, W. (2017). Challenges for implementing New Public Management Reforms in Local Government in Tanzania: Evidence from Six Selected Local Government Authorities. *Public Policy and Administration Research*, 7(6): 32-45.

Zattler, J. (1989). The effects of Structural Adjustment Programmes. Intereconomics, Verlag Weltarchiv, Hamburg, 24(6): 282-289.