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## **The Central Admission System in Tanzania: The Best E-Government Service Tool?**

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### **ABSTRACT**

*Tanzania introduced a central admission system (CAS) in the 2010/2011 academic year to solve perennial student placement problems in higher education institutions. Empirical studies considered CAS as the best e-government project in Sub-Saharan Africa. However, in 2016 the government prematurely banned the CAS. This study examined how and the extent to which CAS improved admissions of students in HEIs in Tanzania. The study employed a qualitative research design whereby seven interviewees and twelve informants were involved in data collection. Drawing from content analysis of interviews, focus group discussions, and document reviews, the findings revealed that the CAS went beyond automation of the processes; it transformed student admissions in the HEIs. The users of the CAS experienced transparent, participatory, responsive and reliable services. Despite some inherent socio-technical and institutional shortcomings, CAS remains the best student placement system in HEIs in Tanzania. Drawing from the findings, the government should re-introduce the CAS in Tanzania to improve student placement in higher learning institutions.*

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## 1.0 Introduction

Almost all countries have e-government strategies for improving service delivery (CARICAD, 2021 UN, 2022). E-government enhances good governance by promoting inclusiveness, participation, transparency, responsiveness and accountability (UN, 2020; CARICAD, 2021, UN, 2022). However, the implementation of e-government encounters inadequate ICT infrastructures and support from the leaders (UN, 2020, UN, 2022). There is also a mismatch between the technology and social features of e-government services (Bemile et al., 2014; Wilson & Mergel (2019). All of this makes e-government contribute less than expected towards achieving sustainable development in many countries (Dhaoui, 2022).

In the education sector, particularly in higher education institutions (HEIs), governments introduced e-government systems for managing student admissions. For example, in the Netherlands, the students used “Studielink.” In Texas in the United States of America, they used “Apply Texas” (Tong, 1995) and in Chile they used a centralised admission system in schools (Kutscher et al, 2020). The systems have to meet both the desire of HEIs to admit the best students and the dreams of students to pursue the best education programmes in the best HEIs (Bemile *et al.*, 2014).

The systems in the United States of America (Machado & Szerman, 2021); Brazil (Wilson & Mergel, 2019) and Tanzania (Fujo & Dida, 2019) increased the number of admissions in educational institutions. Online student placement systems reduced travelled distances to HEIs looking for and submitting admission applications (Bemile *et al.*, 2014; Tefurukwa 2019). Despite these achievements, the systems were imperfect, as other students had to physically visit HEIs (Tong, 1995; Li, 2017). Besides, they were slow and lacked or had inadequate feedback to keep up with student admissions (Li, 2017). All this resulted in unreliable services for the HEIs and the students as they continued to incur more costs.

Like other countries, Tanzania introduced several electronic systems in the education sector. One of these systems was the central admission system. Tanzania established CAS in the 2010/2011 academic year at the Tanzania Commission for Universities (TCU) to solve perennial issues such as admissions of candidates without minimum entry qualifications and multiple admissions in HEIs (TCU, 2011). Besides, the system aimed at stopping certificate forgery, corruption, and unnecessary costs (URT, 2019). Early evaluations portrayed CAS as a role model of e-government projects in Tanzania and Sub-Saharan Africa (CHE & AfriQAN, 2012; Bailey, 2014). In addition, the Government of Tanzania proudly presented CAS as one of the e-government flagship projects in the country (URT, 2016). Nevertheless, there were some complaints about the performance of the CAS. Some complaints revolved around the admission of students with no minimum required entry qualifications for HEIs (ITV-Tanzania, 2016). Eventually, the system was banned. Instead, students were advised to apply directly to HEIs. The abrupt termination of the CAS demonstrates misuse of government funds. It is also discouraging efforts towards launching and maintaining other e-government projects in the country

A few empirical studies on CAS between 2010/2011 and 2015/2016 (i.e., CHE & AfriQAN, 2012, Bailey, 2014 & Mahundu, 2016) shed light on CAS, though they do not squarely cover issues of student placements in HEIs in Tanzania. Even Mahundu (2016) who examined the

challenges facing CAS using socio-technical analysis, overlooked institutional aspects that determined the implementation of CAS. In addition, previous studies did not assess how and to the extent CAS facilitated student placements in HEIs in Tanzania. Therefore, this paper examined how and the extent to which CAS improved admissions of students in HEIs in Tanzania. Specifically, the paper sought to answer two questions: how did CAS improve admissions of students in HEIs in Tanzania and to what extent did CAS improve admissions of students in HEIs in Tanzania?

## **2.0 Theoretical Premises**

The paper subscribes to socio-technical theory and institutional theory to analyse how and the extent to which CAS improved student placement in HEIs in Tanzania. Theories provide a broader spectrum of explanations of social, technical and institutional perspectives of students' placement in HEIs as the subsequent sections reveal.

### **2.1 Socio-Technical Theory**

The main argument of the socio-technical school is that social and technical aspects are inseparable (Abbas & Michael, 2022). Social and technical aspects need the attention of each other because they are mutually related (Bostrom & Heinen, 1997; Mumford 2000; Abbas & Michael, 2022). The socio-technical school is the technical-non-deterministic approach, whose primary goal is social (Mumford & Weir, 1979; Abbas & Michael, 2022). Alongside this argument, two principles do exist in line with the implementation of e-government. One, the successful implementation of e-government is dependent on the interactions between technical and social aspects (Jerrahi & Swayer, 2014). However, it is dangerous to regard human beings as a machine. The e-government projects become unpredictable and had unintended non-linear relationships (Walker et al., 2007).

Drawing from the cardinal principles of socio-technical theory, the theory proposes advancing human needs before technology options (Abbas & Michael, 2022). Nevertheless, the needs and wants of the community are defined according to the social and local context (Wicander, 2011). It then follows that, in every social context, a challenge and its solution are vital parts of the transformation. Therefore, the implementation of e-government depends on technical and social factors (Abbas & Michael, 2022). For example, inadequate ICT equipment and low bandwidth are not only technical challenges but also, socio-economic problems in the implementation of e-government. The level of ICT literacy and financial ability may dictate the implementation of e-government services.

There are two prerequisites for the attainment of social goals in line with socio-technical school: First, there should be a positive attitude of experts on social perspective, and two, users should be involved in the processes (Langefors, 1973). This situation necessitates users to be identified and incorporated adequately for easy access and use of e-government services. The assessment of the needs must be done at the early stages to avoid problems that may result such as the negative attitude of the users before and after the commencement of the project. This process requires the involvement of the intended beneficiaries.

According to the socio-technical school, a complex system such as CAS managing Student placements in HEIs should be abstracted and split to analyse it. In this regard, CAS may be segregated into social and technical subsystems. The technical subsystems include all technical attributes such as ICTs equipment and the human elements that belong to the social system (Bakunzibake et al., 2019; Abbas & Michael, 2022). The social systems reveal decision-makers/policymakers, ICT experts, Admission Officers and students, and their roles in specific organisations. It also shows interactions among people and the ICT artefacts they employ to accomplish the desired task (Wicander, 2011). Despite its usefulness, the socio-technical school considers organisations as value-neutral. The approach neglects the reality that not all people can determine the type of technology in the MDAs and LGAs. Power and social structure in the organizations, and local and international communities may dictate the type of technology employed in public organizations (Nielsen (2016). Since e-government is implemented through various organizations, we further explain the implementation of e-government by subscribing to Institutional theory.

## 2.2 Institutional theory

Institutions may refer to “habits of life, particularly with the changes which the modern era brings in the industry and the economic organization of society” (Veblen, 1906:594); and “a complex of institutionalized role integrates (or status-relationships) which is of strategic cultural significance for the social system in question” (Parson, 1991:25). Conversely, as Al-Busaidy (2011) observes, scholars have not agreed on the meaning of institutions. Therefore, the current study subscribes to Scott's definition which states,

Institutions are social structures that have attained a high degree of resilience. They are composed of cultural-cognitive, normative, and regulative elements that, together with associated activities and resources, provide stability and meaning to social life. Institutions by definition connote stability but are subject to change processes, both incremental and discontinuous (2001:48-50).

In line with this conception, institutions face three pillars of isomorphic mechanisms, which are coercive, normative and mimetic mechanisms, which correspond to regulative, normative and cultural-cognitive pressure respectively (Scott, 2008). The pillars and the elements of institutions determine the implementation of e-government projects in developing countries.

Institutional theory has two assumptions: Firstly, institutions matter (Fukuyama, 2007). In this instance, politics and policymakers depend on the institution context (Pearson, 1995). Institutions are likely to impede and support conditions for access, influence and mobilization because of the position they occupy while implementing e-government (Ashaye, 2014; Ramirez-Madrid et al., 2022). The realization of e-government may involve radical changes in business practices in MDAs and LGAs. Therefore, the inquiry on e-government services necessitates comprehending how such changes affect public institutions and the foreseeable challenges (Weerakkody & Dhillon, 2008; UN, 2022). Alteration of the structural component of the system, for example, the introduction of e-government services in MDAs and LGAs can lead to overall changes in the systems. Drawing from this theoretical framework, the paper identified the interrelationship and integration of public organizations involved and associated challenges that affect the whole process of placement of students in HEIs in Tanzania. The theory also suggests the steadiness of

beneficial outcomes in any institution, whereby the organization structure provides the function of socio-technical systems for the persistent outcome (Tolbert & Zucker, 1994). With this theoretical framework, the paper examined the degree to which the e-government systems have improved the management of SA in HEIs in Tanzania since the inception of CAS.

### **2.3 Coercive Pressure (regulative institutions)**

Coercive pressure is the collection of rules, policies and collective agreements whereby members' interrelationships with institutions are under the influence of basic rules and procedures of the institutional structure (Kondra & Hurst, 2009; Ramirez-Madrid et al., 2022). As far as the implementation of e-government is concerned, innovations in information technologies in public organizations are under the control of the government (King et al., 1994; Ramirez-Madrid et al., 2022). For example, through the guidance of Tanzania, the Communication for Regulatory Authority (TCRA) and E-government Agency (eGA) all MDAs and LGAs are assisted to implement e-government within the framework given which includes the e-government strategic plan, ICT policy, laws, rules and regulations (URT, 2009; 2015; 2016: UN, 2022).

### **2.4 Normative Pressure**

Authors in institutional theory describe normative pressure as the best practice (Liang et al., 2007) and professionalism (Powell & DiMaggio, 1991). Normative pressure is realized when an e-government project is labelled as a success or best practice among the competitors. In this conception, when online student placements in HEIs are implemented, all stakeholders receiving the services are somehow shaped. The implementation of a system such as CAS can change because of the influence of emerging norms and attitudes of the users (Liang et al., 2007). Researchers such as Powell and DiMaggio (1991) and Liang et al. (2007) agree that norms and participation of those who make decisions are fundamental and antecedent factors for quick technological change acceptance. In demonstrating an instance of this, Powell and DiMaggio (1991) suggest that taking the top executive officers vested with expertise in a job may influence institutional norms amongst the related group. Some MDAs and LGAs implemented e-government services because of the norms of successful MDAs and LGAs.

### **2.5 Mimetic Pressure**

Haveman (1993) and Scott (2008) identify mimetic/cultural behaviour as a distinctive aspect between the old and new visions of institutional theory. Scott (2008) opines that mimetic pressure stands for the output of the actual content of beliefs, ideas and values in the systems. The fundamental motive behind the mimetic pressures is a cultural-cognitive explanation whereby the internal processes of an organization are shaped by the external culture within the same environment (DiMaggio & Powell, 1991). Mimetic influence may lead to changes as an organization follow the structure, actions, economic plans and internal processes of other organizations in the same environment (DiMaggio & Powell, 1991).

There are several reasons for an organization to mimic others. Scholars (i.e., DiMaggio & Powell, (1983; 1991; Haveman, 1993; Teo et al., 2003) observe that organizations imitate others due to but not limited to having the same economic positions; being in the same industry; having

the same goals, objectives and challenges; and sharing the same customers due to advanced technology. Other reasons include gaining legitimacy status and controlling the broader social structure; circumventing unforeseeable problems; minimizing costs of research and development and avowing uncalculated risks (Teo et al., 2003; UN, 2022). This is how and why Tanzania introduced the CAS. The government intended to solve perennial student admissions problems in the HEIs.

### 3.0 Literature Review

Online registration systems are proposed and designed for solving hindrances which students and HEIs encounter during admission sessions (Bemile et al., 2014; Secreto & Pamulaklakin, 2015). For instance, Bemile et al. (2014) observed that students at the Methodist University in Ghana travelled about 45 km between Tema and Dansoma to finalise their registration procedures. This is an unnecessary waste of resources such as human labour, time, paper and money in the absence of ICT-supported operations. According to Bemile et al. (Ibid), the old style of admissions in HEIs is a headache and time-consuming to maintain records by using pen and paper. Methodist University and some other HEIs worldwide have not yet integrated ICT into their admissions processes. Consequently, HEIs suffer from inefficiency and ineffectiveness (Bemile et al., 2014; Secreto & Pamulaklakin, 2015).

In the same vein, Fahmy (2007) observes that some online registrations are very useful; however, web-based systems at HEIs via the internet technically become slow and tedious when many students access the HEI web at the same time. Fahmy's (Ibid) concern is the use of computer-telephony integration technology to resolve the issue. According to Fahmy (2007) and Li (2017), not every online student placement system efficiently facilitates student placements in HEIs. The design and technology employed may not result in efficiency in student placements in HEIs. Hence, there is a need to assess the performance of available systems such as CAS in Tanzania.

E-government services may improve efficiency and effectiveness in government operations to satisfy the citizens (Kuldosheva, 2021). Secreto and Pamulakhalakin (2015) evaluated Online Student Portal (OSP) by examining its functionality, efficiency, appearance, ease of use and security at the University of Philippines-Open University. The study reveals that OSP enabled both the HEI and students to receive immediate confirmation of enrolment and generation of course lists once the registration ended. For instance, the feedback examination venues and lectures motivate students and save time for other important academic activities. The OSP enables students to keep track of their performance. Therefore, students plan accordingly and avoid frustrations that discourage them from registering for their respective programmes. With the integration of OSP, mobile phones and tablets could improve the accessibility of services. However, where access to ICT artefacts is still a critical problem, e-government services solely designed for personal computers and web-based technologies increase the costs, limit the scope and undermine the convenience of some users.

Administratively, the Unit of Evaluation and general examination (UEGE) can customize the reports they want. Thus, Bemile et al. (2014) proposed a model; Singh et al. (2016) and Gupta et al. (2017) proposed the application of the Automated Online College Admission Management System (AOCAMS) to solve manual admissions challenges. However, the researchers were vested with ICT skills to design and develop systems and socio-technical aspects. According to

the socio-technical approach, their solutions appear to be more inclined toward technological determinism. While Bemile et al. (2014) conclude that without the support of organisations, technology fails, other authors believe that automation of the process is all that matters most. All this demonstrates the sources of discrepancies between the system design and the actual performance of the organizations. Other studies (i.e., OECD, 2005; Abdelghaffar et al., 2010) reveal that HEIs had online and manual systems running concurrently. It is not easy to assess the improvement made by the online systems. Tanzania presents different perspectives because online student placements in HEIs were mandatory (TCU, 2011)

Regarding the level of online placement that can improve the situation, studies show the benefits. For example, online systems improved the processes by up to 40 per cent in the UK (Weerakkody et al., 2008). In Odisha in India, systems improved the process by about 50 per cent and somehow reduced corruption (Padhi, 2014). Thirdly, Secreto and Pamulakhalakin (2015) are in favour of technological determinism, which is in contrast to the socio-technical point of view. The social-technical approach stresses a combination of factors for the successful implementation of e-government. Though studies show some variations on the extent of improvements, it is worth noting that findings reveal some online placements had positive results.

Empirical studies on online CAS in Tanzania show varying results. CHE and AfriQAN (2012) conducted a study to identify good practices used by the TCU. The study used five criteria: objective clarity; positive impact on input, process and output/outcome; good practice sustainability in the short, medium and long term; resource availability; and applicability of the experiences to other countries. The findings indicate that CAS could stop certificates forgery and multiple admissions; support admission lifecycle management, and generate a predefined customized report. CAS regards technology as a panacea. CHE and AfriQAN (2012) examined CAS two years after its commencement. The current study examined the performance of CAS after five years.

Bailey (2014) also examined how TCU was using CAS. The study, among other things, evaluated one of the functions of TCU; quality assurance with a focus on student admissions. Findings indicated that applicants used less time and few application fees to complete the application process. This study informs the current study. It demonstrates that CAS is a successful case in quality assurance in the HEIs in Africa. However, according to institutional perspectives, these benefits do not go beyond automation to the transformation level. Though the study indicates the efficiency and effectiveness of CAS, it draws conclusions based on a few steps, mainly preliminary ones in processing Student Placements in HEIs. It does not link CAS with other systems and in the whole process of managing online Student Placements in Tanzania. It is important to examine how and the extent to which CAS integrated HESLB, NECTA, NACTE and HEIs to improve Student placements in HEIs in Tanzania.

Mahundu (2016) assessed the challenges facing CAS in HEIs in Tanzania. The main objective of the study was to provide a sociological interpretative analysis of the challenges. Though management of online Student placements in HEIs was not his objective, Mahundu observes that the CAS increased access to HEIs and saved costs and time because it significantly reduced delays at the start of the new academic year. This study is very relevant to the current paper as it

partly provides a theoretical premise (i.e., a socio-technical approach) for analysing e-government challenges. However, the study does not capture institutional issues: institutions are more likely to affect the implementation of e-government projects. This paper used institutional theory to examine institutional issues in the processing of online student placements in HEIs in Tanzania.

## **4.0 Methodology**

### **4.1 Research Design and Approach**

The qualitative research design was used. The design provides opportunities for mixed methods for data collection (triangulation) to ascertain the validity of the data collected through interviews and focus group discussions to capture the voices of individuals and facilitate the incorporation of the context to the meaning while interpreting the interviews. All methods were looking for sources of attitudes and perceptions of Heads of Department and users of e-government systems towards e-government implementation and use. It is within the context of attitude and perceptions that the implementations of e-government succeed or fail. It also allowed the researcher to use secondary data whereby government reports, journal articles and conference proceedings of the workshops on e-government were scrutinised.

### **4.2 Study Area**

This study was conducted at Mzumbe University in Morogoro region and University of Dar es Salaam, Tanzania Commission for Universities (TCU) and E-Government Agency (eGA) in Dar es Salaam region. Mzumbe University and the University of Dar es Salaam are the two oldest high-learning institutions in Tanzania with vast experiences in student admissions before and after CAS. The E-government agent is responsible for all matters related to e-government in Tanzania and TCU is the custodian of CAS.

### **4.3 Sample Size and Sampling Procedures**

Bearing in mind the context (see Kothari, 2004:176-7 and Babbie, 2008, 2010; 2011) the researcher, purposively seven (7) respondents were involved interviewees as follows. At TCU, the CAS expert and Admission Officer, at eGA, only one officer was involved at the University of Dar es Salaam and Mzumbe University, one student's Loan Liaison Officer, one Admission Officer, and one Student Organization representative were involved. Focus group discussions (FGDs) included 12 informants, six from each HEI whereby one program representative for each academic year was involved. The names were obtained from the Student Organization Offices.

### **4.4 Data Collection**

Primary data were collected through focus group discussions and in-depth interview guides. Focus group discussions and in-depth interviews were conducted to get the most insightful phenomena on the admission of students through CAS in Tanzania. Interviews captured the opinions based on the experiences of the interviewees, specifically TCU, MU and UDSM which were conveniently selected. All interviews lasted for 30 minutes. Focus group discussion involved conveniently selected students who applied for admissions through CAS and 6 students at each University. All FGDs covered the opinions of the informants based on their experiences with the application of CAS. FGDs lasted for one hour. Before taking part in the study consent

was sought from all the participants who agreed to take part and were informed of their right to withdraw at any time during the conduct of this study.

#### **4.5 Data analysis**

, automation, and online student admissions) the researcher reviewed official documents including reports, acts, and reports and categorised the obtained information into themes (i.e., e-government services, efficiency, effectiveness, transformation. The researcher transcribed and converted all responses from interviews and FGDs from Kiswahili to English text format before categorising them into themes under specific objectives.

In reviewing the documents/reports the researcher used pre-established themes to identify data by taking excerpts of key points from the reports and briefings and analysed words, phrases, and sentences. In addition, concepts were coded and presented in different forms. After taking all key codes, conclusions were made from the analysed results. All core results were presented as findings about the quality of the processes for accessing CAS and the level of improvement made by the use of CAS.

#### **4.6 Reliability and Validity**

To ensure this, during the conduct of this study, the researcher strictly adhered to all procedures for establishing valid and reliable findings. The interview and FGDs guides for data collection were pre-tested before the actual data collection. Corrections were made to address all issues raised during the pretesting of the data collection tools. This also demonstrated the practicality of the approach in collecting data. It was established earlier that interview lasted for 30 minutes and FGDs an hour. During the analysis, reliability and validity were considered as well. First, the researcher used different instruments to measure the same concepts. The reliability of content was assured by making codes that could generate the same data over time and accuracy of classification of text from responses of interviewees, informants and documents. The data collected were analysed by using the pre-established themes under the study. The congruencies of data from all sources were checked. Information was compared and, in the case of divergences, the reasons were identified. To ensure validity, the researcher used synonyms to establish definitions of concepts. Secondly, the results and conclusions were correctly derived from the data. Thirdly, however, due to the nature of the study, results are not generalizable to other student admission systems, they are generalizable to theoretical premises applied in this study only.

### **5.0 Results and Discussions**

The study examined how and the extent to which CAS improved admissions in the HEIs in Tanzania. Findings drawn from focus group discussions, interviews and documentary sources demonstrate the manner and the extent to which CAS improved efficiency and effectiveness as the presentation and discussion of findings reveal.

#### **5.1 Access to Central Admission Systems**

The new mode of application at the beginning (2010/2011) required the applicants to use a scratch card upon payment as the guideline of the TCU (2012:4). The TCU continued to improve

its services every year. In 2015, for example, it incorporated M-Pesa, Tigo Pesa, Airtel Money, Ezy-Pesa, and Maxmalipo agents to CAS for more mobile money transactions. While this was ideal, the users of the CAS had the actual experiences as one of the respondents asserted,

I went to pay an admission application fee of Tshs. 30,000 to M-Pesa vendor. It was not far from home. The short message about the completion of the transaction was delayed. I went back home. In the afternoon, I went to the M-Pesa vendor again but in vain. He said I should wait. In addition, he explained that delays were due to a poor network that could not withstand many applications timely. In the subsequent years, mobile companies achieved advancements. Individual applicants could make payment transactions without the support of the agents and or vendors of M-Pesa, Tigo Pesa, Airtel Money, Ezy-Pesa, and Maxmalipo in Tanzania. To some extent, this eased the application for admission into HEIs.

Compared to the conventional mode of application, findings indicate that the applicants experienced technical challenges with CAS but the processes improved the payment of application fees. Even the application fee was decreased by 40 per cent. Other empirical studies that support these findings include Weerakody et al. (2008) and Fujo and Dida (2019) who reported that online registration systems can shorten traditional cycle time by over 50 per cent. Similarly, Hafkin (2009) confirms that a developing nation such as Tanzania requires only the minimum threshold of the technological infrastructure such as mobile phones to access e-government services. However, Mkude and Wimmer (2015) argue that mobile phone is still limited to some services; Wicander (2011) suggests it for Tanzania because it is a country with a costly e-government infrastructure but using phones is simple and readily available technology to manage education matters in Tanzania. In addition, online admissions bypass hindrances, which students and HEIs encounter during admission sessions and increase efficiency and effectiveness (Bemile et al., 2014; Secreto & Pamulaklakin, 2015; Singh et al., 2016; Gupta et al., 2017; Fujo & Dida, 2019; The Citizen 24 June 2022).

## 5.2 Citizen Centricity

Ease of use and usefulness are also important quality features of e-government. Users would appreciate instructions that are easy to use in accomplishing the tasks of importance in the system. Responding to mechanisms that TCU used to make sure every student applied for admission in HEIs, one of the respondents had this to say,

Some secondary schools in Tanzania do not follow the government academic calendar. They finish their academic year very late. Their academic results were delayed too. Some applicants from government secondary schools still did not have their academic results when the application session started. Therefore, we open windows for old and new applicants as well. It is the reason the academic year 2014/2015 application season lasted very late (i.e., 2nd November 2015. The 2nd of December 2015 was the deadline for transfer applications. In addition, our system is simple to use because instructions are simple to follow. Instructions are in the English language. Most of the applicants use this language in schools. However, most of those who do not manage to go through the procedures, for example about 90 per cent of the applicants fail due to ICT literacy. Some of those who come here desperately present their cases but later find out that procedures are simple. I tell them to open their laptops or use their phones and slowly make them

read the instructions and complete the applications by themselves. They do not need to come here.

Drawing from the findings it is inferred that CAS is a citizen-centric system. This is a key feature of e-government services (UN, 2022). According to scholars (i.e., Bernard, 2013; Al-Kubaisi, 2014; Sigwejo, 2015; Fujo & Dida, 2019), CAS was designed to make citizens see the need and find CAS simple to use. This conforms to the cardinal principle of the socio-technical theory. The CAS was designed with the technical attributes of e-government services adequate for the community intended to use it (Bostrom & O'Donnell et al., 2003; Heinen, 1997; Mumford, 2000; Abbas & Michael, 2022). Contrary to the findings of other studies (i.e., Yonazi, 2010; UN, 2014; Sigwejo, 2015; URT, 2016; Gibreel & Hong, 2017; Harvey & Brazier (2022), this study found that the English language was not a problem at all. The CAS was for specific students who could read and write English. This approach results in efficient and improved service delivery (UN,2020).

#### **5.4 Automation and Transformation of Student Admissions**

One of the aims of establishing the CAS at TCU was to increase the speed and change the status quo. Findings from interviews reveal that efficiency and transparency increased and an applicant had a chance to make informed decisions. This was confirmed by a key Informant through an interview at TCU who commented,

In the early days, when we started CAS, applicants could submit their applications and see the results instantly. However, we stopped it due to several reasons. One, this style did not allow applicants to compete fairly. Secondly, the system was at all times busy making selections and receiving applications. We were overworking it. Alternatively, we run the CAS at specified intervals to allow fair competition from adequate applicants.

From the findings, it is inferred that most of the manual activities were automated and transformed. The applicants did not pay application fees through the banks and post offices. Neither did they go to the HEIs to collect application forms. These findings are similar to the findings in other previous studies. For example, e-government saves working hours as students could not travel to search for application forms, and spend time paying application fees to the banks (Sigwejo, 2015). Central admission systems' automated procedure saves money civil servants previously incurred (Zeuridis & Thaens, 2003). In addition, studies (i.e., Durkiewicz & Janowski, 2021; Dhaoui, 2022) reveal that such systems save time and money for travelling and staying in places of high learning institutions. Drawing from institutional theory, the success at this stage was the result of coercive influence. The rules and regulations guided the processes. For example, all applicants for admission to HEIs needed to use CAS (TCU,2010). Besides, according to socio-technical theory, the technology applied was appropriate for the users.

Further findings from the interview show that the Admission Officers with access to CAS were able to see and make informed decisions based on the trend of applications for each programme during the application season as one of the Admission Officers observed:

I can access the CAS anytime when the system is open. However, sometimes they close the system when they want to make selections or do some technical work in the system. During the application session, I can get into the system and analyse the various issues.

For example, some programs may have attracted a few applications up to half of the application period. I can inform my boss whether we should advertise some programs to get higher preferences or adjust the minimum entry qualifications.

Drawing from the findings it can be inferred that the CAS transformed student admission services by bringing in the design and process of the services that met the wishes and expectations of services users. The CAS created competitive student placements in all HEIs in Tanzania. That is why, having the minimum entry qualifications matters, but making close follow-ups of the admission trends was very important. An applicant was responsible for re-applying immediately based on the information CAS offered if one failed to secure admission in the previous attempt. The Admission Office had to devise a new approach to attract more applicants. Drawing from the findings, the information processed by CAS enabled the key stakeholders to make informed decisions.

Further findings on the transformation of the admissions through the CAS were also revealed. Responding to the achievement made on admission by using the CAS, the System Analyst commented,

The number of Form VI graduates is between 38,000-40,000 students in HEIs. CAS created about 200,000 vacancies for admissions in all HEIs in Tanzania. Currently, some programs do not get any candidates. However, some competitive programmes such as medicine-related programmes are very few. For example, some students who pursue Physics, Chemistry and Biology chose medicine programs in all HEIs. While the total capacity for medicine programs in Tanzania is less than 1,000, the applicants were 12,000. The rest candidates applied for pharmacy programmes, but all health-related programs created 3,000 chances against 12,000 actual applicants. Such programmes are of higher priority to many students. Had not been for the use of the CAS, corruption would be rampant in HEIs. It would be chaotic. The use of CAS did create transparency. It integrated all admissions available and created a pool from which applicants could suitably choose a course that fits them better.

From the above, it is inferred that CAS went beyond the automation of conventional admission activities. It transformed key admission processes. The CAS did not just automate admission processes but transformed student placement services in HEIs in Tanzania (TCU, 2010). The use of CAS created a reliable and valid database, transparency, participation, accountability, responsiveness and innovations in the admission of students in HEIs in Tanzania (Mahundu, 2016; URT, 2016). Findings of previous studies reveal similar results. For example, Seddiky (2015), Fujo and Dida (2019), Dhaoui (2021) and Machado and Sherman's (2021) findings reveal that online student registrations and admissions can alleviate corruption by 93.3 per cent and increase data maintenance by 90 per cent. Additionally, it guarantees education quality and transforms human resources. The institutional framework provides that the transformation registered is due to normative and mimetic pressures (Haveman, 1993; Scott, 2008; UN, 2020; Durkiewicz & Janowski, 2021). Successful use of the CAS depends highly on bureaucrats' professionalism and ethical behaviours. The findings also reveal that TCU aimed at achieving efficient and effective processes for the best outcome. Therefore, by using Mintzberg's (1983) five parts (i.e., support staff, techno-structure, the executive, the strategic top, and operating core) of organizations, CAS extended from the lower level (i.e., support staff, and techno-structure) to the higher levels, the executive, the strategic top and operating core. Drawing from

the analysis, without normative and mimetic pressures, the CAS could only automate the process under the influence of coercive forces.

## **6. Conclusions**

The study sought to examine the manner and the extent to which CAS improved students' admissions in HEIs in Tanzania. By centrally admitting students, TCU increased admission vacancies for HEIs. The integration of CAS with NACTE and NECTE systems significantly reduced certificate forgery. The system facilitated the applicants' active participation and competition in the student admission processes. By design and application, CAS had inherent socio-technical and institutional features for improving student placements in HEIs in Tanzania. The CAS did not only automate accessing the application forms, but it also through transparent, participatory and responsive services transformed the selection and allocation of students to the right programmes at the right HEIs

## **7. Recommendation**

Findings indicate that the CAS did not only automate the processes for admissions in HEIs in Tanzania but it also transformed them. Applicants took an active part from the commencement of their applications to admissions into HEIs. The benefit to students and HEIs were never experienced before. The CAS is still ideal in Tanzania. Therefore, it is recommended that all these benefits should be revisited and presented by TCU to the Ministry of Education, Science and Technology to persuade the higher authorities to re-introduce the centrally applied admissions in HEIs in Tanzania.

## **8. Limitation and Further Studies**

The study used two higher education institutions only both of which are public institutions. Also, the study used a qualitative research design only. The approach is limited to the generalization of findings beyond the theories used. Further studies can apply surveys by combining private and public HEIs; apply quantitatively or mix qualitative and quantitative research design to extend understanding of online placement systems in improving efficiency and effectiveness in HEIs in Tanzania

## **9. Contributions to The Literature**

The study contributes to the scanty literature on e-government in Tanzania and developing countries by examining ICT-supported operations in terms of ways and the level of improvement of the student admissions in HEIs. Besides, the study advances socio-technical and institutional theories in explaining e-government phenomena.

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