EVALUATING RELATIONSHIP BETWEEN DIGITALIZATION AND PUBLIC SERVICE DELIVERY IN PUBLIC UNIVERSITIES, A CASE OF PUNTLAND STATE UNIVERSITY, SOMALIA

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ABSTRACT

Digitalization has undergone significant evolution, transitioning from a role of administrative support to becoming a strategic force within organizations. It now impacts governance and education, fostering innovation. By adopting digital practices, universities can break physical boundaries, engage with a global student base, and position themselves as international education providers. Digitalization has notably enhanced service efficiency in public universities. This study focused on assessing how digitalization affects the delivery of services at Puntland State University in Puntland, Somalia. It aimed to investigate the resources currently utilized in digital programs and their effectiveness in enhancing service delivery at public universities in Puntland. The study employed a case study approach centered on Puntland State University, involving 61,946 students,

10 department heads, and 5 digital department officers, selecting 227 individuals as respondents. Data were gathered through questionnaires and analyzed using a descriptive survey approach. Statistical evaluations were performed with SPSS, applying both descriptive and inferential statistics, and results were displayed via means, tables, frequency distributions, and percentages. The findings showed a moderate positive correlation between the quality of resources and service delivery in Puntland's public universities, with a correlation coefficient of 0.476 ($p < 0.05$). The study recommends that the scope of digitalization should be broadened to enhance service delivery and tackle digitalization challenges at Puntland State University to enhance service delivery at public universities in Puntland State University, Somalia.

INTRODUCTION

Background to the Study

Digitalization has progressively changed how public services are delivered, leading to the development of e-governments that utilize a distributed resources approach. According to Putra et al. (2018), the advent of the digital era has led to the creation of e-government, enabling governments to develop strategies that improve public service delivery through various multi-channel platforms. Sascha, Paul, and Norbert (2021) highlighted that merging information and communication technologies (ICT) with citizen data has facilitated the creation of e-governments.

Governments aiming to remain competitive globally in public service delivery are focusing on training, developing infrastructure, and synchronizing their strategies with digital transformation.

When exploring the integration of computer systems into educational settings, it's essential to acknowledge the deep connections between schools, learning, and computer technology. Initially, when computers were introduced into schools, there was a widespread assumption, highlighted by Mevarech and Light (2014), that computers would assume the role of the main instructor. This belief suggested that computers might replace the traditional roles of teachers, akin to robots replacing manual labor in industries. Such views, as outlined by Collis (2017), conjured a bleak picture where children might be found sitting alone, engaging only with computers rather than human teachers. When exploring the integration of computer systems into educational settings, it's essential to acknowledge the deep connections between schools, learning, and computer technology. Initially, when computers were introduced into schools, there was a widespread assumption, highlighted by Mevarech and Light (2014), that computers would assume the role of the main instructor. This belief suggested that computers might replace the traditional roles of teachers, akin to robots replacing manual labor in industries. Such views, as outlined by Collis (2017), conjured a bleak picture where children might be found sitting alone, engaging only with computers rather than human teachers.

It is important to understand that the role of computer technology in education has moved away from the idea of replacing teachers. As perceptions have evolved, there is now a broader understanding of technology as a powerful tool that can enhance and support teaching and learning experiences. Instead of separating students with computers, the focus has moved to achieving a balanced integration of human instruction and technological resources. This approach aims to foster a dynamic and interactive learning environment where technology complements traditional teaching methods. The progress in computer technology has created new opportunities for interactive and collaborative learning, allowing students to tap into vast information resources and enhancing communication and collaboration between students and educators. Teachers have transitioned into the role of facilitators, helping students navigate and utilize technology to gain knowledge, develop critical thinking skills, and participate in enriching learning experiences.

Digitalization has brought about substantial changes in the educational sector, significantly impacting teaching, learning, and research (Yusuf, 2015).

Extensive studies, such as those by Al-Ansari (2016), have demonstrated the positive effects of digitalization on educational quality. Digitalization offers vast opportunities for fostering innovation, speeding up learning, enriching educational experiences, and advancing skill development. It is pivotal in motivating students, linking educational experiences with real-world applications, and generating economic prospects for future workforce members. Additionally, digitalization improves teaching techniques and drives essential transformations in educational settings, as noted by Davis and Tearle (2019) and Lemke and Coughlin (2018), cited in Yusuf (2015). The notable impact of digital tools, especially computers in education, has been extensively documented and analyzed, according to Jhurree (2015).

Digitalization in the education sector consolidates all data and operations of an educational institution into a cohesive, single system. This integration enhances functionality, making it more streamlined, well-organized, and accurate. These platforms are crafted to be user-friendly, aiming to save time and cut costs while offering the adaptability needed to navigate shifts in the education sector. Educational institutions face a wide array of needs that encompass digitizing and managing processes like registration, admissions, student records, scheduling classes, transportation, attendance tracking, library operations, fiscal oversight, exams, monitoring performance, grading, hostel administration, security, and producing reports. Typically, software vendors present an assortment of modules, allowing schools to select the options that most closely align with their unique needs. Over the last ten years, digitalization has profoundly reshaped Somalia's educational sector, prompting the implementation of policies to manage student data securely and effectively.

This technological shift has introduced numerous student services including distance education, cost-effective printing, cellular plans, internet access, free dial-up, tech equipment, and classroom media rentals. These advancements have significantly improved secondary education quality by providing teachers and students with essential online resources, enhancing learning outcomes. Moursund (2015) emphasized digitalization's critical role in linking theory with practice, especially via developments in computer-assisted learning and distance education. The pandemic has significantly challenged Somalia's education sector, especially as universities depend heavily on private funding. Tuition fees, tied to semester enrollment and exams, often include extra costs.

To maintain educational continuity and prevent disruptions, SomaliREN, a national research and education network established in 2009 by six Somali universities, has actively pursued alternative methods to deliver online lectures through virtual classrooms. In the last ten years, Somali higher education institutions have been diligently working towards digital transformation. While there have been notable advancements, numerous obstacles still remain. These challenges encompass restricted access to vital network devices such as mobile phones and computers, weak household internet connections, and insufficient support from local operators and service providers to eliminate data costs for educational and research purposes. To prepare for a future economy and education system reliant on remote learning, it is essential to secure reliable internet connectivity and robust digital infrastructure. Effective implementation of advanced educational technology requires investments from both government and private sectors to upgrade the nation's digital framework to cloud-based systems and strong digital networks. The importance of efforts like those of SomaliREN is profound. Through its commitment to maintaining student connectivity with its platform, SomaliREN highlights the urgent need for Somalia to push forward with its digital transformation initiatives. By addressing existing obstacles and adopting digital innovations, Somalia can capitalize on the benefits of remote learning. This advancement will lead to a more inclusive and technologically sophisticated education system, preparing students with the skills needed to meet future challenges.

Statement of the problem

The adoption of digital technology in delivering public services is becoming crucial in today's fast-evolving world. Digital transformation can significantly improve the efficiency, effectiveness, and quality of public services, addressing the increasing expectations of citizens. However, there is a notable scarcity of research on how digital transformation impacts public service delivery in developing nations, especially in Somalia. This lack of data leads to an incomplete understanding of the essential digital technologies used and their impact on the efficiency, effectiveness, and quality of public service delivery. Furthermore, challenges like inadequate infrastructure, limited technology access, and resistance to change hinder digital transformation efforts in Puntland, Somalia. While the volume of research on e-governance is growing, much of the academic discussion remains theoretical, with a real need for more empirical studies to evaluate their practical impact. Many higher education institutions, like those you've studied in your own research, still haven't fully integrated digitalization into their administrative routines, leading to outdated record-keeping and sluggish administrative procedures. This problem is becoming increasingly acute as student enrollment rises. Therefore, the adoption of technology in governance is becoming increasingly essential for these institutions to manage their growing demands efficiently.

Moreover, existing research on e-government mainly focuses on developed countries with robust internet infrastructures, often overlooking the importance of studying e-government in less examined developing nations. The global growth of e-commerce underscores the need to explore e-governance in these regions. Despite this, there is a substantial research gap regarding the resources currently used in e-governance initiatives, their accessibility, the challenges faced in implementing e-governance in public universities, and the strategies needed to overcome these challenges. Additionally, there is a deficient understanding of how e-governance has reshaped service delivery in public universities, particularly in Somalia. This void presents a substantial chance to enrich academic research in this field, considering the scarcity of studies on the subject.

The absence of thorough research might hinder the formulation of effective digital transformation strategies, leading to subpar public service delivery in developing countries. These shortcomings in service provision can significantly affect citizens who rely on these services. Therefore, this study aims to fill the existing research gap by investigating the state of e-governance resources, the accessibility of electronic governance, and the strategies employed to address these challenges specifically at Puntland State University in Puntland, Somalia. The results of this research will greatly enhance the academic understanding of e-governance in developing countries and aid in developing effective digitalization strategies to improve the efficiency of public service delivery at the university.

Purpose of the Study

This study aimed to assess the relationship between digitalization and the efficiency of public service delivery at Puntland State University in Puntland, Somalia.

Objectives of the study

To find out the status of resources used in digitized program on effective service delivery in public universities in Puntland, Somalia.

Research questions

Which resources are utilized to enhance provision of service in Puntland State University in Puntland, Somalia?

LITERATURE REVIEW

Empirical Review
## Digitization in Universities

The University initially implemented online services for admissions, exams, and related activities. As part of e-Governance initiatives, information centers were set up in all government-affiliated colleges. These centers facilitate data transfer via an electronic system across the University's Wide Area Network, primarily serving as e-service delivery centers to provide online services to students locally. They also help colleges by digitizing data at the source, enhancing the efficiency and accessibility of information.

The University has internally developed and implemented comprehensive e-Governance solutions through a dedicated team of skilled engineers. To ensure these solutions meet high-quality, international standards, the University has collaborated with multinational corporations for consultancy and partnership. This strategy has allowed the University to cultivate its own e-Governance expertise. The e-Governance services created and implemented by the University generate substantial revenue, supporting various budgetary needs, including staff salaries and the enhancement and maintenance of IT infrastructure. Revenue sources include fees from IT services, consultancy fees, and training program proceeds. Numerous studies have examined the deployment and use of Information and Communication Technologies (ICT) in various sectors of higher education. These studies indicate that academic leaders extensively utilize technology for planning, oversight, monitoring, and assessing academic matters, student services, financial operations, and administrative tasks. The research underscores that integrating computing and communication technologies significantly boosts the overall academic effectiveness of faculty, students, and staff, enhancing their scientific knowledge and skills.

A 2015 study by Ashish Kumar and Arun Kumar emphasized the crucial role of Information and Communication Technology (ICT) as a contemporary management tool, highlighting its potential benefits for higher education institutions in India. Likewise, Gumala Suri's 2015 research examined the rapid changes occurring in universities in Spain and India, driven by advancements in ICT. The author recognizes user satisfaction as a key measure of success in digital transformation initiatives. Furthermore, the writer introduces a theoretical framework for establishing an effective technical infrastructure. By focusing on the incorporation of digital technology within university administration, the author underscores its importance in improving the strategic frameworks and processes of higher education institutions. This digital integration has resulted in substantial and progressive changes in higher education, facilitating the development of bigger, more sophisticated institutions that are more efficient and user-centric.

Moreover, the application of digital technologies in the management of higher education includes utilizing these tools to improve planning, establish standards, support organizational transformation, and track the results of essential university operations. There is widespread agreement on the importance of incorporating Information and Communication Technologies (ICTs) in higher education, as noted by UNESCO in 2019. Olive Mugenda (2016) stressed that digitalization is essential because it removes physical constraints on content, facilitating the dissemination of information and knowledge. This process enables the continuous exchange of information beyond geographical boundaries, linking remote communities through global networks. Ultimately, this accessibility ensures that information, knowledge, and culture are available to everyone.

The OECD (2017) states that digitalization in education primarily handles the management of student and employee records, communication, and document handling. Ashish Kumar and Arun Kumar (2015) highlight the favorable views towards using Information and Communication Technologies (ICT) in education, with students from different universities reporting the use of digital tools for communication and participation in online forums. Digitalization has improved communication and information exchange while expanding access to higher education. It includes systems for student admissions, record-keeping, examination results, academic records, financial databases, human resources databases, and management information systems. Research shows that in educational settings, information management involves handling daily operational activities. The information administration cycle is centered around four main elements, focusing on student administration, staff administration, and general administration. A conceptual model has been created to visually depict the structure of information management, as shown below:
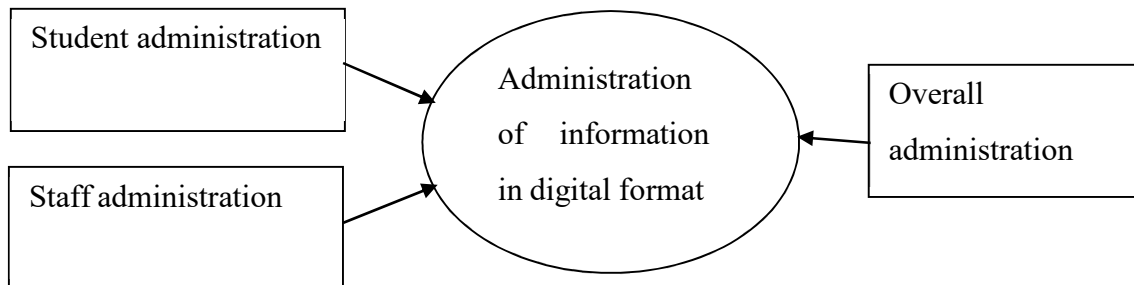
Figure 1: Theoretical Model for Information Administration Source: Researcher (2023)

Within this framework, information administration encompasses the managerial duties associated with higher education institutions, often termed as managerial activities in pertinent research. Maki (2018) explains that these administrative functions span several domains such as managing personnel, students, resources, finances, and general administration. Reviews of the literature suggest that in the routine operations of higher education institutions, three key functional areas of information administration are pivotal: management of students, personnel, and overarching administration. Student administration plays a vital role in information management, covering various aspects ranging from the admission process and educational activities to result processing and performance analysis. Thomas Kwaku Obeng (2014) notes that integrating Information and Communication Technology (ICT) into admission procedures in higher education institutions enhances accessibility, allowing for broader participation.

The literature review focuses on the crucial elements of digitizing the admission process through electronic media. This encompasses various activities such as students making inquiries about admissions, submitting applications via digital platforms, and using computers for registration and enrollment purposes. Additionally, it involves accessing academic resources like timetables and class schedules online. The use of electronic media simplifies the tasks of monitoring and managing student attendance. Moreover, the adoption of technology in the admission process enhances communication regarding transportation, hostel accommodations, and interactions with parents or guardians. This technological integration also expands the geographical reach for student admissions, thus promoting cross-border opportunities in higher education.

Personnel management involves tasks such as recruiting faculty and staff, assigning duties, tracking their attendance and leave, and performing evaluations of their work. It also includes promoting communication within the institution and among peers. The use of Information and Communication Technology (ICT) in managing staff affairs allows for efficient management of extensive records with speed, precision, and smooth integration. This technology improves the ease of accessing data, a point highlighted by Thomas Kwaku Obeng in 2014.

Effective administration heavily relies on a robust communication system, which is significantly enhanced by digitalization within higher education, as noted by Magni in 2019. Digitalization enables rapid information sharing among all relevant stakeholders. Communication serves both internal and external functions, encompassing the collection and dissemination of information. It facilitates interactions among essential stakeholders by distributing electronic notices to students, faculty, and staff. Additionally, the dissemination of institutional information through electronic kiosks plays a significant role. In this study, communication elements are fundamentally incorporated into both student and staff administration.

Effective information management in higher education institutions is deeply intertwined with general administration, which includes a range of daily activities within the institution. Extensive literature reviews, such as those by Hasan et al. in 2017, show that integrating digitalization into these administrative processes has led to improved efficiency and better use of resources. This comprehensive category includes various functions, such as using electronic media to organize venues and resources, simplify the payment of fees, and coordinate examination activities both internally and externally with faculty. It also involves managing day-to-day operations and improving communications among different groups. Given your background in evaluating digitalization in public service delivery, these aspects might resonate with the efficiency improvements you've studied in university administrative systems.

Status of Resources Used in Digital Program of Service Delivery in Public Universities

Fair-weather (2016) notes a prevalent belief that faculty members may occasionally impede the integration of digital technologies in higher education, which could diminish their efficacy in delivering services. However, research suggests that incorporating digitalization within university education can significantly contribute to national development. The goal of this strategy is to improve the quality of higher education and expand its reach, thereby enhancing and enlarging educational programs on a wider scale. In their research, Bhattacharya, Gulli, and Gupta (2015) presented seven distinct criteria for evaluating the quality of electronic services on government websites. These criteria provide crucial information for developers, helping them understand user requirements and improve the design and functionality of online services. However, like many other studies, this research does not offer a detailed explanation or justification for choosing these particular dimensions of service quality.

Tat-Kei Ho (2016) argues that the e-government model shifts the focus of public managers from primarily considering producer-oriented concerns like cost-efficiency to prioritizing user satisfaction, control, flexible service delivery, and effective management of networks that include both internal and external stakeholders. This shift underscores the importance of innovation, organizational learning, and entrepreneurship in consistently improving and advancing institutional operations. Additionally, Naz (2019) studied the connection between e-governance and service performance outcomes, such as effectiveness, efficiency, and equity. The findings reveal that e-governance in public service delivery can exceed citizen expectations, successfully

attaining the primary public management objectives of effectiveness, efficiency, and equity.Ajayi (2018) notes that the efficient utilization of digital technologies in information services has made it easier to manage high enrollment numbers in many public universities. This advancement offers new opportunities for rapid communication and worldwide information access. As digital technology becomes more prevalent across different sectors, it increasingly allows people globally to access information resources from anywhere in the world.

Gronroos (2017) categorizes customer services into two types: high-touch and high-tech services. High-touch services emphasize personal interactions, while high-tech services rely on automated technologies. It's essential to recognize that high-touch services combine physical resources with technological systems, necessitating effective management and seamless integration to meet customer needs. Consequently, electronic services blend advanced technology with personalized interaction. For example, high-tech services include online payments, mobile billing, and ATMs, while high-touch elements involve providing guidance and personal assistance to customers using these technologies. This study aimed to investigate the use of resources in the digital service delivery program at Puntland State University

Theoretical Framework:

Diffusion of Innovation Theory

Chen, Gillenson, and Sherrell (2020) contend that this theory effectively predicts both the likelihood and extent of new innovation adoption. It highlights five crucial attributes of innovation: compatibility, relative advantage, complexity, trialability, and observability. The attribute of relative advantage refers to the perceived superiority of an innovation over the existing idea or practice it replaces, significantly influencing its adoption. Catalini and Tucker (2016) highlight the vital role of early technology adopters in the dissemination of new innovations. Their choices to adopt or reject a technology greatly influence its broader acceptance. For instance, blockchain technology has grown from a niche innovation to a widely acknowledged and secure platform, with various industries now exploring its use to enhance system security. This theory aims to explain the decision-making process in adopting new technologies, the factors affecting the adoption rate, and the different categories of adopters.

Theory of Reasoned Action

The Theory of Reasoned Action (TRA), based in social psychology, posits that behavior adoption is driven by the intention to perform that behavior, which is influenced by one's attitudes toward the behavior and subjective norms (Fishbein & Ajzen, 2015). Ajzen and Fishbein (2019) emphasize that analyzing beliefs and attitudes both before and after technology adoption provides valuable insights for addressing issues and shaping public policy. This theory can be applied to encourage the adoption of fourth industrial revolution technologies, significantly enhancing service delivery in public universities in Puntland, Somalia.
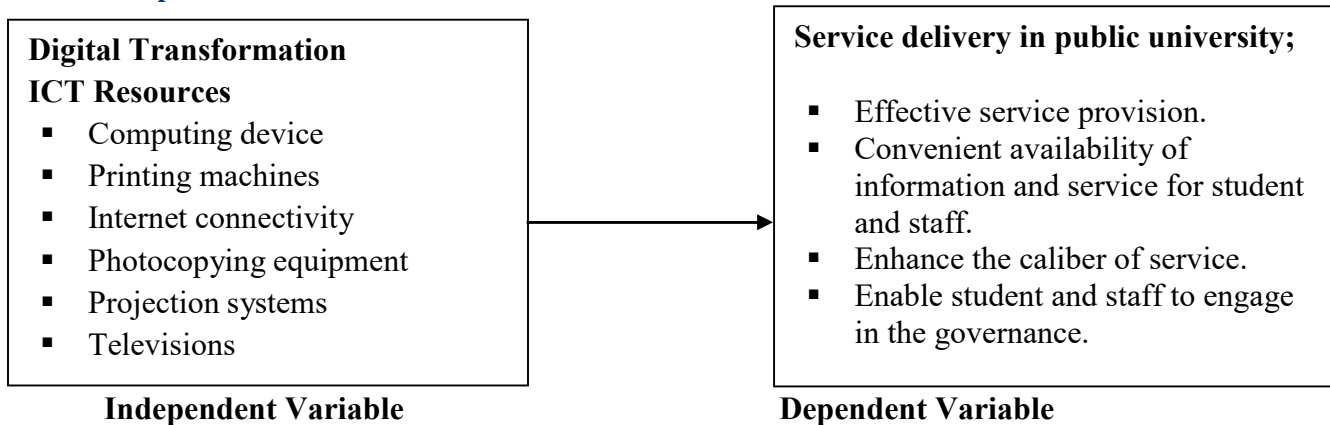
Conceptual Framework

Digital Transformation **ICT Resources** • Computing device • Printing machines • Internet connectivity • Photocopying equipment • Projection systems • Televisions	→	**Service delivery in public university;** • Effective service provision. • Convenient availability of information and service for student and staff. • Enhance the caliber of service. • Enable student and staff to engage in the governance.
Independent Variable		**Dependent Variable**

Figure 1: Conceptual Framework (Source researcher, 2023)

RESEARCH METHODOLOGY.

Research design

This study utilized a descriptive survey research design, a method frequently employed in social science to thoroughly investigate social behaviors or contemporary phenomena within their real-life settings. The survey offered a detailed overview of the state of digitalization and examined the challenges involved in managing such an institution. Yin (2015) recommended the use of a case study methodology as it enables researchers to explore in-depth and meaningful facets of real-life events. This approach focuses on detailed analysis over generalizability, concentrating on a few events and their interconnectedness. As this study focused on a single organization, the case study design was deemed the most suitable method to employ.

Target Population

Mugenda and Mugenda (2016) describe the intended population for a study as those who are expected to be at the heart of the research focus. In this study, the target population comprised 61,496 third-year students from Puntland State University in Puntland, Somalia, along with 10 department heads from a total of 14 departments, and 5 members of the digital staff.

Sampling Procedure and Sample Size

As stated by Mugenda and Mugenda (2016), sampling involves selecting a subset of individuals from a larger population to serve as representatives for the entire group in a study. To determine the appropriate sample size for this research, the formula recommended by Mugenda and Mugenda (2016) was be applied. Using this formula, the sample size is calculated to be 196 participants.

$$n = \frac{Z^2 pq}{12}$$

Table 1: Sample Size

Population	n	N
IT officers	5	10
Students	$196\{n = \frac{Z^2pq}{12}\}$	61496
Head of departments	10	14
Total Population	**211**	**61510**

(Source: Researcher 2023)

Research Instruments

For this research, the investigator utilized questionnaires to gather data from department heads and digital officers at Puntland State University in Puntland, Somalia.

Data Collection Procedure

Before starting the field study, the researcher obtained an approval letter from the graduate school of Mount Kenya University to authorize the data collection process. The researcher then visited the selected university and arranged meetings with the chosen respondents. During these meetings, the researcher employed the designed data collection methods to gather the necessary information. After collecting the data, the researcher proceeded to the analysis phase.

Validity and Reliability Analysis

Validity is when an instrument measures what it's supposed to measure; data need not only tobe reliable but also true and accurate.

Pilot

Pilot testing involved an initial trial of the research procedures and instruments to identify and correct issues like unclear instructions or ambiguous questions, preventing costly mistakes. This crucial step ensured potential problems were addressed before the main study. In this study, a preliminary test assessed the validity and reliability of the research instruments. Questionnaires were administered to a randomly selected group of 21 students and one department head not involved in the main study. The procedure was repeated after two weeks to further evaluate the instruments' validity and reliability.

Validity Analysis

Wiersman (2015) described validity as the degree to which an instrument accurately measures the intended construct or phenomenon. To ensure the study's validity, the researcher took several steps. First, the instrument was crafted to be clear, understandable, and logically organized, thereby enhancing its face validity. Additionally, the researcher consistently observed the same variables among all participants in the selected group. Finally, the instrument's content was reviewed and

validated by the researcher's supervisor to ensure it aligned with the study's objectives, thereby confirming its content validity.

Reliability Analysis

Mugenda and Mugenda (2016) defined reliability as the degree to which a research instrument consistently yields the same results or data across repeated trials, noting that random error can impact reliability, with higher levels of random error leading to lower reliability. In this study, the test-retest method was used to evaluate the reliability of the instruments. The research instruments were initially administered to a group of participants during the pilot study at the selected institution, and their responses were recorded. After a two-week interval, the same instruments were given to the same group again, and the results from both administrations were compared for consistency. The correlation between the scores from the two testing periods was determined, and a reliability index was calculated using a coefficient level of 0.80. A significance level of 0.85 indicated that the research tools were reliable, meeting the standards set by Creswell (2015).

Data Analysis and Presentation

The data gathered for this research was analyzed through content analysis, managed and processed using Excel software. The completed questionnaires were checked for completeness and consistency. The analysis involved qualitative methods, and the findings were compiled into a report. Additionally, quantitative analysis was conducted, specifically using descriptive statistics. Questionnaire responses were analyzed using SPSS version 20. Data organization and examination employed basic frequencies and percentages. Cross-tabulations explored digital resource adequacy, effectiveness, inefficiency, and absence. Descriptive statistics, including frequencies and percentages, summarized study results. Means and standard deviations assessed digitalization's impact on service delivery via the Likert scale. Analyzed data was presented through tables, graphs, plots, and prose, categorizing findings across various digitalization and public service delivery aspects.

Ethical Considerations

The survey responses underwent analysis utilizing SPSS version 20. Basic frequencies and percentages were used to organize and examine the data. Cross-tabulations investigated the sufficiency, efficacy, inefficiency, and absence of digital resources. Descriptive statistics, such as frequencies and percentages, provided an overview of the study's outcomes. Means and standard deviations were computed to evaluate the influence of digitalization on service provision, employing the Likert scale. The findings were showcased via tables, graphs, plots, and textual summaries, categorizing insights related to digitalization and public service delivery.

The research study emphasized obtaining informed consent from participants and safeguarding the confidentiality of gathered data. Adhering to Kothari's (2015) recommendations, clear and comprehensive communication about the study's particulars with participants was crucial. The

researcher acquired documented informed consent and enforced protocols to uphold anonymity and confidentiality. With the required authorizations and an introductory letter secured, the researchers then proceeded to select participants and arrange suitable times for distributing and collecting the self-administered questionnaires. These procedures ensured efficient and ethical data collection, adhering to the planned schedule and maintaining rigorous standards throughout the study.

RESEARCH FINDINGS AND DISCUSSIONS

Introduction

The chapter centers on analyzing data, presenting results, and delving into the findings. The study aimed to evaluate the influence of digitalization on the effectiveness of public services at Puntland State University in Puntland, Somalia.

Response Rate

In this study, 221 questionnaires were distributed for data collection, and 198 of these were filled out correctly and returned. This led to an overall successful response rate of 89.5%. Respondents were assured that their information would remain confidential. As per Trex (2012), a response rate of 50% is considered acceptable. Hence, response rate of 89.5% was regarded appropriate for data analysis.

Demographic Information

The findings indicated that out of the total respondents, 94 (47%) were female, whereas 104 (53%) were male. This implies that most respondents, and presumably most students at Puntland State University in Puntland, Somalia, were male.

Descriptive statistics

Status of Resources Used in Digital Program of Service Delivery in Public Universities

The research sought to assess the respondents' stance regarding the utilization of portals and websites for different purposes at Puntland State University. The specific findings are outlined in

Table 2: Agreement on the usage of portals and websites in Puntland State University

Statement	Yes	No	Me	St d
The portals enable students to apply online for admission and accommodation	190 (96%)	8 (4%)	4.23	.706
The portals facilitate online application for student admission and accommodation.	108 (55%)	80(45%)	4.52	.719
Online financial services, such as university fee payments and inquiries, are provided through the portals.	168(85%)	30 15%)	4.68	.764
The portals enable students to register for units and participate in e- learning through online platforms.	188(95%)	10(5%)	4.51	.745
The portals are designed to be user-friendly and easily accessible to both students and academic staff members.	170(86%)	28(14%)	4.76	.812
The portals experience high user engagement and provide prompt and efficient services to users.	195(98%)	3(25%)	4.67	.839
The portals enable students to register for units and participate in e- learning through online platforms.	188(95%)	10(5%)	4.38	.798
The portals are designed to be user-friendly and easily accessible to both students and academic staff members.	170(86%)	28(14%)	4.21	.841
The portals experience high user engagement and provide prompt and efficient services to users.	195(98%)	3(25%)	4.76	.765

(Source field data,2024)

The study investigated the use of portals at Puntland State University for online applications for admission and accommodation. The findings revealed that a majority of respondents, 190 (96%), agreed with the portal's effectiveness, while 8 (4%) disagreed, resulting in a mean score of 4.23 and a standard deviation of 0.706. Further analysis on the portal's facilitation of online applications for admission and accommodation showed that 108 (55%) agreed and 80 (45%) disagreed, with a mean of 4.52 and a standard deviation of 0.719. Concerning online financial services like paying university fees and making inquiries via the portal, a substantial majority of 168 (85%) respondents favored their utilization, while 30 (15%) expressed disagreement, with an average score of 4.68 and a standard deviation of 0.764.

The study also indicated substantial agreement on the portals' capability to enable students to register for units and engage in e-learning, with 188 (95%) in favor and 10 (5%) against, achieving a mean of 4.51 and a standard deviation of 0.745. Regarding the user-friendliness and accessibility of the portals for both students and academic staff, there was strong agreement, with n=170 (86%) in favor and n=28 (14%) against, featuring a mean of 4.76 and a standard deviation of 0.812. Additionally, the findings showed high user engagement and efficient service delivery through the portals, with n=195 (98%) agreeing and n=3 (2%) disagreeing, marked by a mean of 4.67 and a standard deviation of 0.839.

Another set of results on the portals facilitating student registration for units and participation in online e-learning confirmed similarly high levels of agreement with n=188 (95%) and disagreement at n=10 (5%), with a mean of 4.38 and a standard deviation of 0.798.The findings suggest that the portals at Puntland State University are viewed as user-friendly and easily accessible by both students and academic staff, with 170 (86%) in agreement and 28 (14%) in disagreement, resulting in a mean score of 4.21 and a standard deviation of 0.841. Furthermore, the results indicated high levels of user engagement and prompt, efficient service provision through the portals, with 195 (98%) agreeing and 3 (2%) disagreeing, recorded with a mean of 4.76 and a standard deviation of 0.765. These results imply that portals and websites are utilized for various purposes at Puntland State University. It was found that the use of these portals and websites significantly influences public service delivery at Puntland State University in Puntland, Somalia.

Inferential Statistics

Correlation Analysis

Status of resources and service delivery in public universities in Puntland, Somalia.
The study aimed to determine the connection between resource status and service delivery. The findings of the inquiry are presented in Table 3

Table 3: Status of Resources and Service Delivery

		Service delivery
Status of resources	Pearson Correlation	.476[**]
	Sig. (2-tailed)	.000
	N	198

**. Correlation is significant at the 0.05 level (2-tailed).

As shown in Table 20, the research reveals a moderately positive and statistically significant relationship between resource status and service delivery in public universities in Puntland,

Somalia (r = 0.476; p < 0.05). This suggests that the condition of resources impacts service delivery in public universities in Puntland, Somalia.

Regression Coefficients

The research conducted a regression analysis to assess the impact of resource status, access to digitized services, extent of digitalization, and challenges associated with digitization on service delivery in public universities in Puntland, Somalia. The model summary was presented in Table 4.

Table 4 : Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Sig. F Change
					.000
1	.881[a]	.776	.786	.3071	

In this study, the R-squared value was 0.786, indicating that the four independent variables—resource status, access to digitized services, extent of digitalization, and challenges associated with digitization—jointly explain 78.6% of the variability in service delivery within public universities in Puntland, Somalia. The remaining 21.4% of the variability is attributed to other factors.

Table 5: Regression Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	.087	.173		.206	.747
Status of resources	.386	.181	.543	5.368	.037

Table 5 presents the comprehensive results of the significance test the hypothesized research model. The interpretations of the findings align with the following regression model:

$Y = \beta_0 + \beta_1 X_1 + \varepsilon$

$Y = 0.087 + 0.386 X_1 + \varepsilon$

As per the intercept (β_0), when all other independent variables remain constant, service delivery in public universities in Puntland, Somalia, was at 0.087. Additionally, with all other independent variables held constant, an increase of one unit in resource status would correspond to a 0.386

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Introduction

This chapter provides a thorough overview of the main discoveries derived from the investigation, followed by conclusions and a discussion regarding the implications of these findings. Furthermore, it offers recommendations and proposes avenues for future research. The research aimed to assess the connection between status of resources digitalization and the efficiency of public service delivery at Puntland State University in Puntland, Somalia.

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Status of resources in digitized program and service delivery in public universities in Puntland, Somalia

The research findings revealed that the majority of respondents, 119 out of 198 (60%), reported that the university's computers were inadequate to serve the student population. This indicates that Puntland State University employs portals and websites for multiple functions. The research highlighted that portals facilitate online student applications, streamlining admissions and accommodation processes. Furthermore, financial transactions like university fee payments and inquiries are conducted conveniently through these portals. Additionally, students can register for courses and engage in e-learning activities via the portals. The study found that the portals are user-friendly and readily accessible for both students and academic staff. Moreover, the findings revealed high user engagement with the portals, which offered prompt and effective services to users. The results indicated that Puntland State University employs portals and websites for diverse functions, affecting public service delivery within the institution. In summary, the research unveiled that the resource status within digital initiatives influences service delivery in public universities in Puntland, Somalia.

Conclusions of the Study

Based on the findings, the study determined that there is a moderate positive and statistically significant association between resource status and service delivery in public universities in Puntland, Somalia (r = 0.476; p < 0.05). This indicates that resource status influences service delivery in these universities. Likewise, the research revealed a moderate positive and statistically significant correlation between digitized services and service delivery in public universities in Puntland, Somalia (r = 0.458; p < 0.05), suggesting that digitized services affect service delivery in these institutions.

Recommendations of the Study

According to the findings of the study, the researcher suggested augmenting the accessibility of digital resources to improve the effectiveness of digitized service delivery initiatives in public universities in Puntland, Somalia. Additionally, the research also suggested improving students' access to digitized services to boost service delivery in these institutions. Subsequent studies should prioritize examining the obstacles impeding digitalization and investigate tactics to resolve these challenges, aiming to improve service delivery in public universities, with a specific emphasis on Puntland State University.

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