UNIVERSIDAD NACIONAL DE SAN MARTIN

RCSI
https://revistas.unsm.edu.pe/index.php/rcsi
e-ISSN: 2709-992X

Original article
Articulo original
Jul-Dec, 2024

Challenges and opportunities for digital transformation in Mozambique's higher education institutions

Desafíos y oportunidades para la transformación digital en las instituciones de educación superior de Mozambique

Zaqueu, Ligia[1*]

[1]Instituto de Contabilidade Auditoria de Moçambique, Moçambique

Received: 17 Jan. 2024 | **Accepted:** 26 Jun. 2024 | **Published:** 10 Jul. 2024

Corresponding author*: li_zaqueu@yahoo.com.br

How to cite this article: Zaqueu, L. (2024). Challenges and opportunities for digital transformation in Mozambique's higher education institutions. *Revista Científica de Sistemas e Informática, 4*(2), e690. https://doi.org/10.51252/rcsi.v4i2.690

ABSTRACT

This article emerged at a time when the world was devastated by the Covid-19 pandemic, a crisis that consolidated the idea of the need for a digital transformation, i.e., the shift from e-government to digital government for its public administrations. The challenges faced by higher education institutions are seen as valid drivers for professionalization. This article is based on literature research, both international and national, and employs a deductive method as well as direct observation. For data collection in Public Institutions (PIs) and Higher Education Institutions (HEIs), a questionnaire was used for a sample of 50 participants, of which only 30 responded: 23 in PIs and 7 in HEIs. In this sense, the general objective was to analyze digital governance with respect to the improvement of public value, according to international standards. It was found that in PIs they do not have internet access, which weakens their capacity to manage ICT and worsens the idea of digital transformation. This is a challenge for higher education institutions in professionalizing public agents with skills in the digital world, to address the lack of easily usable digitized documents.

Keywords: digitalization; e-government; open government; public value

RESUMEN

Este artículo surgió en un momento en el que el mundo estaba devastado por la pandemia de Covid-19, una crisis que consolidó la idea de la necesidad de una transformación digital, es decir, el cambio de un gobierno electrónico a un gobierno digital para sus administraciones públicas. Se considera que los desafíos que enfrentan las instituciones de educación superior son impulsores válidos para la profesionalización. Este artículo se basa en una investigación bibliográfica, tanto internacional como nacional, y emplea un método deductivo, así como la observación directa. Para la recolección de datos en Instituciones Públicas (IPs) y en Instituciones de Educación Superior (IES), se utilizó un cuestionario para una muestra de 50 participantes, de los cuales solo 30 respondieron: 23 en IPs y 7 en IES. En este sentido, el objetivo general fue analizar el gobierno digital respecto a la mejora del valor público, de acuerdo con los estándares internacionales. Se encontró que en las IPs no tienen acceso a internet, lo que debilita su capacidad para gestionar las TIC y empeora la idea de transformación digital. Este es un desafío para las instituciones de educación superior en la profesionalización de agentes públicos con habilidades en el mundo digital, para abordar la falta de documentos digitalizados fácilmente utilizables.

Palabras clave: digitalización; gobierno electrónico; gobierno abierto; valor público

1. INTRODUCTION

Contemporary society is faced with a scenario in which only a more efficient, effective and transparent Public Administration can provide public services with a higher level of quality and, in an integrated way, create public value that serves as a benchmark for the Public Administration in pursuing the public interest. To this end, it is one of the great objectives and, at the same time, one of the great challenges facing public administration professionals, as well as higher education institutions (HEIs), given the scenario of better service provision. In this way, contemporary society is driven by the advance of Information and Communication Technologies (ICTs), towards a promising development, with the prognosis of bringing the state closer to society, using the logic of digital government.

The potential of ICTs, especially the internet, is characterized as an important tool for the government to contribute to achieving the objectives of public administrations (Mendonça & Zuliani, 2015). African countries are no strangers to the advance of ICTs, which are driving digital transformation in the PALOPs (Portuguese-speaking African countries) and East Timor (PALOPs-TL). They have benefited from the projects because, although not comprehensive, efforts have been made to make the real world effective in accelerating the development of the countries in the region, with an emphasis on reducing poverty and enabling development in the 21st century. According to the Organization for Economic Co-operation and Development (OECD), the promotion of digital transformation in these countries involves shifting to a new paradigm, from "analogue government (with paper-based administrative systems) and electronic government (computerized processes and services) to digital government", in order to speed up the functionality of public institutions (OECD, 2018).

Although it can be concluded that some PALOP-TL countries have made significant progress in recent years with the use of digital transformation , in favour of simplifying government procedures and improving public services (OECD, 2018), the Government of Mozambique (GoM) can believe that, with the pandemic, it has put itself to the test, demonstrating the lack of a digital government, that is, with the urgent need for digital transformation, to supply in a state of emergency and for the future. The majority of Public Institutions (IPs) have become inept in the pandemic, and still suffer from a low level of education when it comes to operating, if not exclusively, being minimized by banking services, since the majority of services are accessed using mobile devices, with advanced digitalized technology, which allows bank services to be provided throughout the country. This shows that the Public Administration in Mozambique is still a long way from a digital government that allows monitoring and a direct relationship with easily accessible digitalized data and information, as a device for providing services.

(Parra Filho & Martins, 2017) show that "in recent years, there has been an explosion of government and civic initiatives that have articulated in relation to this unfulfilled promise". It is from this perspective that this article will develop, taking advantage of this state-society interaction to encourage the inclusion of social groups susceptible to anomalies that can easily be detected, harmonized with the active participation of society. To this end, the aim is to analyse digital government with regard to the enhancement of these public services and professionalization in HEIs, as key drivers in the performance of Public Administrations.

2. DIGITAL TRANSFORMATION

Talking about digital transformation in this chapter will allow us to understand the development and technological evolution in the service of Public Administrations as this process of ICT changes has contributed to the emergence of a new paradigm, the digital transformation highlighted by the OECD (2018), which consists of the change instituted in the transition from analogue and electronic government to digital government, an instrument that places the state in its relationship with society, with the constant need to adapt and propose simplification of access to digitized documents and the promotion of its services. In order to better understand the new paradigm of digital government, we will focus on the approach of

electronic government in its evolution and relevance in Public Administration, as a motivation for insertion, and the need for a digital government for development in the 21st century.

2.1. Evolution of e-government and its conception

The major public sector reforms of the late 1960s and 1970s marked the emergence of information and communication technologies (ICTs), opening up a new space for government transparency and enabling services that were closer to the citizen. With the Internet boom in the mid-1990s, e-government gained prominence from the perspective of satisfying the basic needs of communities and the easy interaction of public servants in the Public Administration, as shown in Figure1, with the preconditions of e-government from the perspective of Soares (2009).

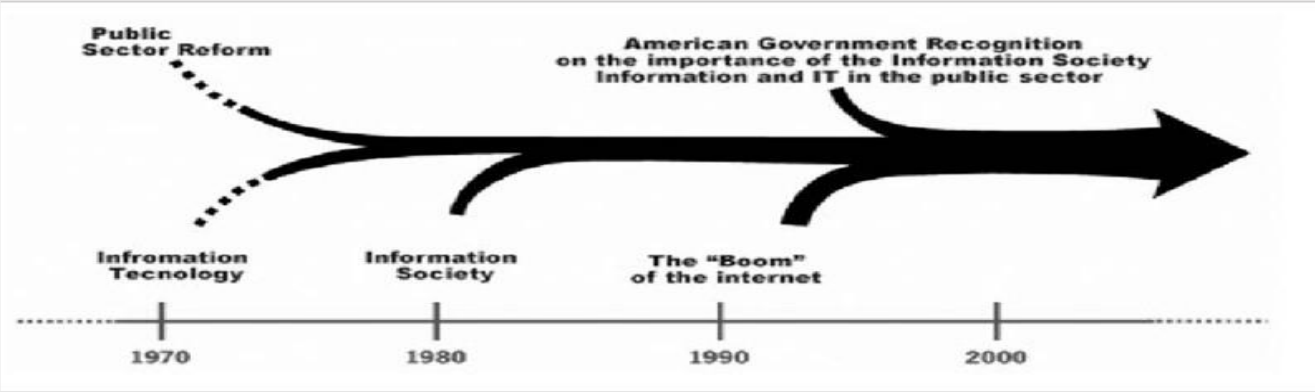


Figure 1. *Relevant Milestones in the Emergence of the term Electronic Government. Source: (Soares, 2009)*

From this perspective, e-government emerges with the advent of technological innovations to provide organisations with new modern platforms with web interfaces, internet-based systems that encourage the Administration to improve its service provision, minimising the pressure of societal demand on the need for public services, in a transparent and quality manner.Technological innovations are therefore changing the approach to public management, developing a citizen-focused approach to accessing government programmes quickly in institutions . Thus, Guimarães & Medeiros (2005) emphasise that the Internet has made government increasingly electronic, by allowing for a less apparent administrative apparatus that is closer and more efficient, which would only make sense if "the target audience of its actions has the conditions to access the Internet and the training to make use of the information and services offered by the public authorities". Based on this instrument, policies were designed, action plans drawn up and approved, with the launch of various strategic programmes, guaranteed by organic structures responsible for monitoring and evaluating these projected segments.

According to Viana (2021), quoting Bounabat, B. (2017), e-government lies in the use of Information Technologies (ICTs) by governments, in an expanded view that can be defined as the use of information technologies (ICTs) to:

- Ensure access and delivery by the government to individuals of information and use of services.
- Enable and implement efficiency through the application of these services within the government.
- Cover a wide range of services.
- Transform governments.

From this perspective of benefits, according to Viana (2021) and Gouveia (2004), e-government marked its expansion in the world in the beginning of the 21st century, and can be seen in three areas of intervention and stages or phases:4

Areas of intervention

- **E-administration:** which refers to the enhancement of processes related to the functioning of political power and Public Administration.
- **E-citizens and e-services:** Which reside in the interconnection between citizens and businesses, through the provision of service delivery.
- **E-society:** Focused on the development and architecture of interactions external to political power and Public Administration.

Four stages or phases of evolution

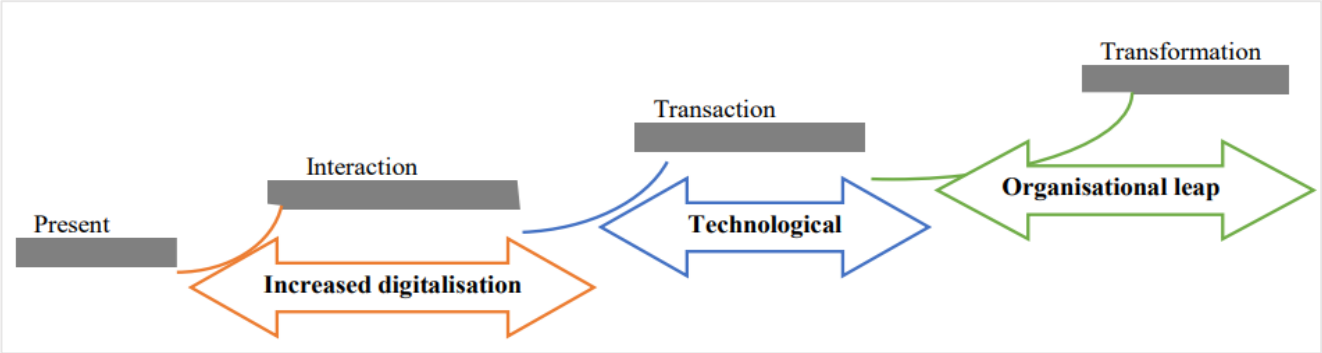


Figure 2. *Stages or phases in the evolution of e-government. Source: Extracted from the book of Viana (2021) and (Gouveia, 2004).*

- The first phase is considered presence, when an institution creates a web page and provides some information in which the services are restricted to the online presence being available on own page. It doesn't allow for any kind of interaction with the citizen, apart from sending an email.
- The second phase is interaction, in which services are provided. There are search tools, file downloads and forms. This stage includes informational capabilities and presents simple ways of navigating, exploring and interacting with data. Information is used via e-mail, form downloads or government databases, allowing citizens to ask questions, make complaints and/or carry out research. This phase is designed to allow citizens to avoid physically travelling to the service desk or making a phone call. It allows information and forms to be obtained conveniently at any time of the day. These resources include instructions for obtaining a particular service, forms to be filled in on paper and returned by post, and e-mail addresses for simple problem-solving contacts.
- The third stage is the transaction stage, corresponding to the interaction between government and citizen. Here, the transactional capabilities conduct complete online transactions through secure, and often real-time, two-way communication with customers, such as applying for permits and licences, filing and paying taxes, responding to public tenders, and voting electronically. One example is the online filing of income tax.
- The fourth stage, called transformation, brings a substantial connection between citizens and government, which occurs when there is a complete integration of systems. In other words, there is an exchange of information between the various government entities. Unlike the transaction phase, in which there is a single system, in the transformation stage the systems are interconnected. There is a rapid connection between bodies, institutions and actors, corresponding to a "holistic" configuration of the administration, which is entirely digitalised and interconnected (Viana, 2021).

This attempt to bring the concept of electronic government according to Viana (2021), citing Bounabat, B. (2017), and (Gouveia, 2004) corroborates the vision developed by the following authors: Fraga (2002), Ho (2002), Tapscott (1996) and the European Commission (EC, 2003b), cited by Soares (2009), by emphasising that, in addition to providing services, e-government encompasses the public participation of

citizens in the political processes of governance, through online consultation systems and elections, through the use of electronic voting systems.

Therefore, summarising this concept in the process of state governance, from the perspective of Soares (2009), it is defined as a model of democratic governance, demonstrating that a relationship is established in the form of a triad, which does not differ from the principles presented above, such as the provision of services. It is based on the assumption that public policies implemented by the Administration are defined as a mechanism for satisfying society's needs, when citizens elect their representatives to respond to their wishes. The "governance triangle" therefore follows:

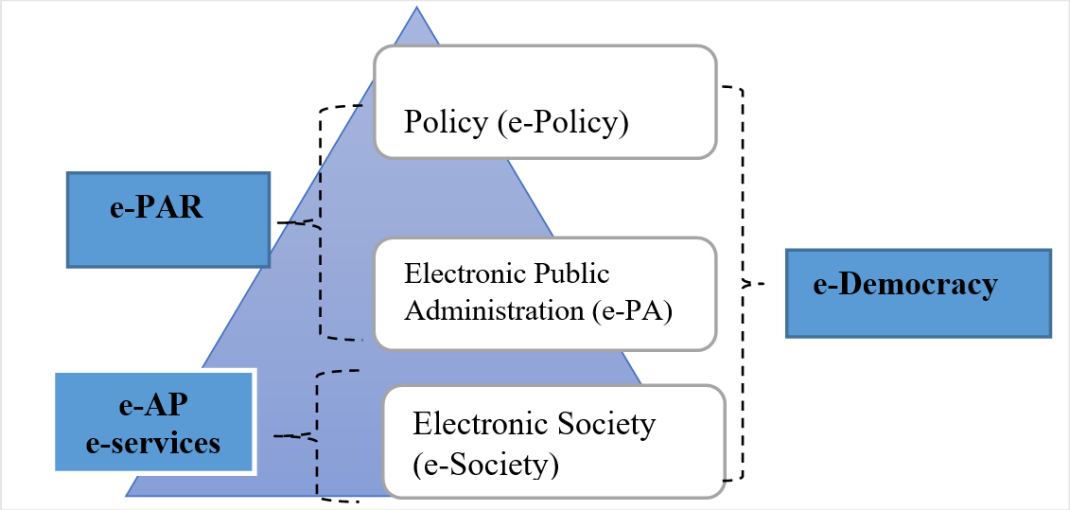


Figure 3. *Main areas of ICT use with a view to modernising and transforming state governance - the governance triangle. Source: Adapted from Soares (2009).*

Electronic services (e-services) constitute the phase of interaction between the Administration and society, the space in which society has the power to participate in the process of change and in which the Administration has its focus centred on the satisfaction of citizens, in order to remedy the dissatisfaction and discomfort that they express in relation to the way in which their interactions with administrative institutions are processed. This is because citizens are most concerned about requesting services from the administration and getting a quick response using the different channels of websites and portals (EPAN, 2004a; OECD, 2003b; Reynolds & Regio, 2001; Santos & Amaral, 2003 - authors cited by Soares (2009).

In several countries in the globalised world, e-Public Administration (e-AP) is trying to integrate itself into the changes developed in the pursuit of a new Public Administration, with a view to seeking efficiency in the public sector. This technology has been one of the instruments emphasised as a mechanism for transparency, a strategy that so far, in the 21st century, has been a factor in changes towards better institutional functioning. In other words, Electronic Public Administration (e-AP), according to Soares (2009), aims to bring about changes within the administration, "comprising reforms at an intra- and inter-institutional level". These transformations involve several levels:

- **Intra-institutional integration:** At this level the aim is to provide interoperability between the various systems in the institution in order to eliminate silos, i.e. intra-institutional reservoirs.
- **Horizontal inter-institutional integration:** This level involves more than one institution at the same level of administration. Interoperability is found between the systems of two or more central or local public administration institutions.
- **Vertical inter-institutional integration:** This level involves institutions at different levels of government. Interoperability is found between the systems of a Central Administration institution and the systems of a Local Administration institution.

- **International inter-institutional integration:** This level involves institutions in other countries. The guidelines produced nationally must be compatible and sufficiently flexible for future interaction with the administrations of other member states.

At the level of Electronic Political-Administrative Relations (e-RPA) there are two essential functions in the process of state governance: a) the general interest of the community, where the administration puts into practice the plans defined by the political function in favour of the community.

At the level of Electronic Politics (e-Policy), the use of ICTs makes it possible to support, restructure and innovate the way in which the activities of the political function are conducted. It is extremely important that at this level ICTs enable politicians to have accurate and reliable information on which to base their decisions. In this way, the information must be available and in the right format; present its sources; be up-to-date and properly cross-referenced and structured to improve decision-making.

Through Electronic Democracy (e-Democracy), citizens do not only want to have access to more information and more knowledge about the political process, but they also need to have the power to express their views, propose ideas, explore differences or participate more directly in the decision-making process. Therefore, new technologies will support and renew the way citizens contact their political representatives. This is an instrument for extending the public space and improving the effectiveness and efficiency of the democratic process. It facilitates the involvement of citizens in the process of shaping and debating public policies, developing a constructive attitude towards public affairs, as well as electoral participation.

Finally, Electronic Society (e-Society) conditions and influences how e-government initiatives can take place and, on the other hand, is conditioned and transformed by these initiatives themselves. For example, making available, in electronic format, a public service for which there is a high demand and for which the conditions of provision are not very pleasant. This is the case with the personal income tax return (IRS), where taxpayers are subjected to long queues and sometimes there are times that are not compatible with their professional commitments, and the employee's proof of life, where they often miss the opportunity to take it due to long queues, sometimes travelling distances due to the lack of internet in the institutions - which they could otherwise use their mobile phone for. Other services could be channelled in municipalities to use ICTs, since in these models e-government is relevant to the development of activities in the Public Administration.

Therefore, as Dias & Gomes (2021) emphasise, the e-Gov has been characterised by changes at the internal and external levels of government, in order to provide more efficient services and policies that are more targeted at citizens. This process has been extremely important, as it has made it possible to integrate a new stage of digital government, which will be discussed in the following chapter.

3. DIGITAL TRANSFORMATION: FROM E-GOVERNMENT TO DIGITAL GOVERNMENT

After an in-depth approach about e-government, the idea emerges of moving towards a new paradigm, known as digital government, i.e. the digital transformation is the transition from analogue government (with paper-based administrative systems) and electronic government (with computerised processes and services) to digital government (OECD, 2018). The twenty-first century has been called the age of computers and the internet, with vast amounts of information, defining the need for this production to be safeguarded for public access and reuse, in a fast, efficient and transparent manner. This opens up space for public administrations to be aware of the need to adopt practices associated with document digitisation (Gouveia, 2005).

From the same perspective of safeguarding information, the same author considers that information is a precious raw material in a society, as it guarantees the quality of the professional and the citizen who easily

acquires this information. Reinforcing that, for any action that requires assertive decision-making, information needs to be easily acquired, shared as a determining factor for the best performance of organisations, whether public or private (Gouveia, 2005).

To bring out the essence of digital government as a tool for accessing information, it may be extremely important to clarify the concept of digital, which, for Gouveia (2005), refers to the resource that, through coding and the use of a computer, records data. With this resource it is possible to: store, process and communicate information through digital means. In particular, the computer and its variants make it quicker and easier to use and access this data. In this way, one of the essential aspects of digital is its capacity for multimedia representation, i.e. being able to represent sound, text, images and video digitally. Another equally interesting aspect is the facility to reuse data recorded in digital format for new purposes and applications, or simply to update it or adapt it to new needs (Gouveia, 2005).

Therefore, digital is the mastery that this system has of supporting a diversity of information, such as sound, images, text, videos or a variety of collections through the use of ICTs, associated with digital, to make it possible to store, process and communicate information.

Digital transformation

Although there is no consensus on the concept of digital transformation, Dias & Gomes (2021) corroborate the authors Van Veenstra, Klievink and Janssen (2011) by demonstrating that transformation means moving from one state to another, qualitatively different from the previous one, in this case digital transformation, as defined by the OECD (2018), which is the transition from analogue government (with paper-based administrative systems) and electronic government (with computerised processes and services) to digital government. However, Dias & Gomes (2021)and Van Veenstra, Klievink and Janssen (2011) recognise the difficulty of assessing the level of innovation and the time needed for a change in situation to be considered complete, thus corroborating Janowski (2015), who demonstrates the flow of digital government coevolution, i.e. simultaneous evolution in response to external pressures in the public management process. Therefore, the use of the term coevolution is justified by coadaptation, following Table 1, which describes the variables that identify and formalise the different aspects in the evolution of digital government:

- Digitisation involves the development, operation and maintenance of the technological environment, including technological capabilities, services and infrastructures between government organisations. This environment contains the representation of data, documents and other information in digital format. In such a way that digitised information enables exchange via digital networks and makes services accessible to citizens. An important aspect of this process, as Janowski (2015) points out, is that digitisation does not involve reformulating, improving or changing existing processes, services or practices, but only digitising and automating what already exists, and making it available to users simply on digital networks. If a process or working practice was inefficient before digitalisation, it is clear that it will continue to be inefficient even with digitalisation. Therefore, the efficiency of the services provided in the Public Administration must add public value if digitalisation is to be efficient and secure in providing data.
- Transformation includes the internal transformation of the government, but without transformation of external relations and therefore without dependence on the application context. The Transformation Phase is, in principle, internal to government organisations and the way they interact with each other. Citizens, businesses and other external actors may experience improved government interactions due to internal changes, but the impact is indirect. This limitation does not only miss the opportunity to integrate citizens and other non-governmental actors, but also hinders new digital ways of working and transacting, as well as failing to involve citizens in decision-making processes in the Public Administration. And therefore, in order to build trust, restrictions must be removed and

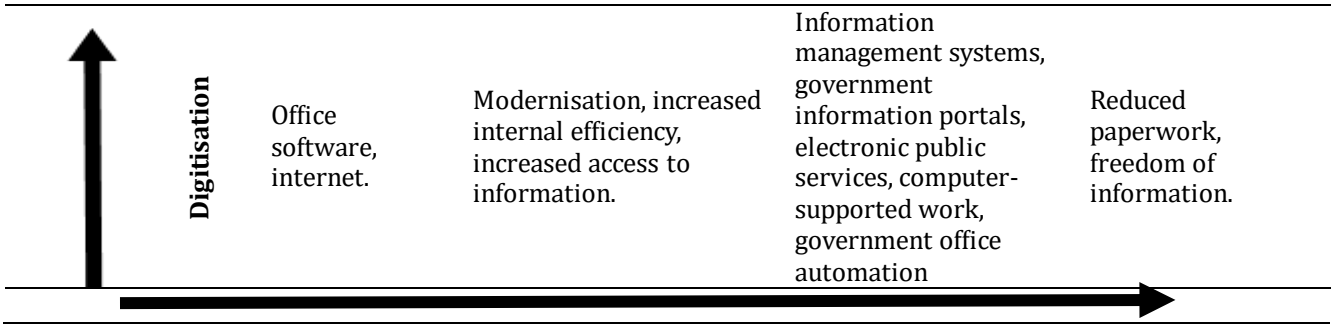
include transformations, applying digital technology, with the aim of increasing internal efficiency, effectiveness, rationalisation, simplification and cooperation with other government organisations. For example, information sharing and inter-municipal collaboration between government organisations is strategic for balancing centralised and decentralised information acquisition.

- Engagement or e-governance is the phase that aims to transform relations between government and citizens, businesses and other non-governmental actors using digital technologies. It aims to increase the access, convenience and effectiveness of public systems, involve citizens in political and civil affairs, develop a knowledge-based economy and pursue high-value public policies. This phase extends the capacity to implement the principles of digital government, aiming to increase the transparency and accountability of public service providers and, in turn, to build citizen-institution and government-government relations.
- The last phase, Contextualisation, aims to raise the specific efforts of countries, regions, cities, communities and other territorial and social units to develop on the basis of digital government. It is a stage that seeks to overcome limitations in that, in addition to the citizen, it seeks to overcome the needs of the government in its interaction with society.

The implementation of these models is visible in countries that have adopted the so-called New Public Administration, with a view to streamlining public services for social welfare.

Chart 1.
Digital Government coevolution flow

	Phases	Digital technology	Pressure on the government	Innovations	Institutional
	**Contextualisation**	Mobile platforms, ad hoc networks, local big data, data mining, portable devices, apps.	Responding to changing needs, supporting self-governance, guaranteeing an equitable environment, activating personalised services, stimulating sectoral development.	. Mobile collaborative transport, digital preventive healthcare, compliance automation, digital social innovation, policing with handheld devices	Agile government, do-it-yourself government, regulatory government, governance as a platform, sectoral digital government.
	Engagement	Social networks, semantic internet, linked open data, mashups, and sensor networks.	Reach out to citizens, Reach out to citizens, give citizens a voice, facilitate citizen oversight	Citizen consultation and ideation, crowdsourcing and co-delivery, volunteering for public service, participatory budgeting, public-private partnerships, citizen scorecards, digital collaborative accountability.	. Mobile government, citizen sourcing, participatory governance, open government.
	**Transformation**	Cloud computing, big data and analyses.	Government reform, connected/integrated agencies, delivery of better services, intelligent decision-making.	Business process re-engineering, government information sharing, shared government services, organisational interoperability, government information director, government knowledge management.	Transformational government, intelligent government with data from the entire public administration.



Source: Adapted by Dias & Gomes (2021), from Janowski (2015).

This concept, originally developed by Janowski (2015), and followed up by Dias & Gomes (2021), shows that coevolution represents, in the different stages, the requirement for government action in the use of ICTs, as a mechanism for satisfying society's needs, to the extent that there are: i) pressures on government; ii) available digital technologies; iii) how governments deal with the pressures when innovating with these technologies; and iv) the innovation made possible, becoming institutionalised government practice. These phases show a process of coevolution in which, in addition to digitalisation, internal changes in the way government works are indispensable, and in which digital governance relationships enable innovations/solutions (services, policies and regulations) that are more specific and adapted to contexts (a country, city or sector) and the needs of citizens.

In the same vein, Viana (2021) demonstrates how relevant the above process is by stating that digital government aligns with and accompanies the trends in the evolution of technologies in global governance. He therefore agrees with the distinction that exists, not only in the devices, but notably in the intelligence of each model. And it is in this observation of the new intelligence that the OECD understands digital government to be the next stage of e-government, which has been remarkable since 2015 for bringing about the computerisation of internal work processes (internal vision), evolving into the concept of digital government.

It is from this perspective that institutions seek to mould themselves to a new technological model; the state, also interconnected, seeks to streamline its activities, with the inclusion of new actors and agility in responding to citizens. As such, this transformation has brought about digital dignity, which is notorious for allowing greater popular participation, greater legitimacy for public administration and promoting citizen involvement in decision-making processes (Camargo Kreuz & Aguilar Viana, 2018).

For example, Camargo Kreuz & Aguilar Viana (2018) demonstrate that digital government allows participatory democracy to enhance political interactivity in the democratic system of government through electronic use, with the domain of "digital democracy" and "cyberdemocracy". Therefore, the use of applications and software allows for the expansion of citizen participation in decision-making, especially in legislative matters.

Janowski (2015) demonstrates just how important digital government has been in determining the decision-making of politicians, government executives, researchers, etc. or all those who prepare, implement and/or evaluate decisions. They find innovative solutions in this digital government tool for the various areas of activity: social, economic, political and other pressures.

It can be said that digital government focuses on the citizen, creating public value that brings about changes in the ecosystem involving organisations, the state and society, a tool that drives cultural changes in individuals and develops a new vision of the role of government. As (Coelho Mitkiewicz, 2024)argues, that digital transformation has changed expectations of governments, while pressure from this instrument has allowed for greater openness and the creation of spaces and mechanisms for citizens and companies to express their needs to society. That is why it is strategically important to adopt digital technologies to solve public problems and promote citizenship.

Creating public value through digital government

In order to make the connection between creating public value through digital government, we will start with the concept of public value itself, for a better perception and relevance of digital government in the creation of public value. According to Moore (1995), quoted by Williams & Shearer (2011), the term public value has become common in the literature on public policy and public administration and is frequently used in programmes that seek to improve the public sector. Although they consider there to be a lack of clarity in this concept, public value seeks to help instil public managers with responsibilities in the public management process. These responsibilities are seen by Moore in an analogue way, in which the strategic thinking of private value could be reverted to a social perspective, i.e. public managers must have a commitment to creating public (social) value (Luna-Reyes et al., 2016). From the same perspective of ensuring accountability, (Mayrink Resende et al., 2024) sees the creation of public value as an extremely important metric for assessing the performance of public managers, to measure their actions in the administration in favour of more efficient and results-oriented management.

In his book "Creating public value through public-private partnerships", Moore realises that the public value initiative emerges precisely from the private sector. Although the purpose is to believe in the value of the citizen and to be able to overcome the limitations of local government, an interventionist state would have to make sense of it, imposing criteria for action where actions should not be carried out, being solely the responsibility of the private sector. There is a need to valorise the role of the state in safeguarding social benefits and, due to the inertia of the role of local government, public-private partnerships are born, with the responsibility of providing services for the benefit of the citizen (Moore, 2007).

We can see that the emergence of public-private partnerships has reawakened or reinforced the concept of public value. In this idealisation, the late 1990s saw the promotion of the concept of public value in the United States, Europe, Australia and New Zealand, for a number of obvious reasons (social and political). It became prominent among researchers because it was the only way to understand government activity, policy formulation and service provision (De Oliveira Santos et al., 2022).

As such, the task of creating public value through public-private partnerships is not only institutional, as it aims to guide interactions between the public and the private, but above all the individuals who occupy specific positions, i.e. the implementers of government arrangements. They need to find ways to promote public purposes in the best possible way. Still to be considered, public value is everything in which a duly constituted government acts as an agent for its citizens, declaring it as the sole purpose to be pursued, using the government's powers and resources to promote economic and social development. However, it must follow parameters that allow the citizen to be confident that the public good is general and comes from the state (Moore, 2007).Corroborating Moore, (De Oliveira Santos et al., 2022) emphasise that creating public value is the responsibility of public managers, as they need to draw up strategies to generate value and apply them to improve efficiency, rendering accounts in the delivery of goods and services, guaranteeing greater transparency to society, all so that the services provided actually respond to society's needs, and that the citizen is participative in the decision-making process.

In addition, the same authors (De Oliveira Santos et al., 2022), quoting Moore (1995), point out that in order to reproduce values, public managers must adopt three perspectives, known as the strategic triangle, which consist of:

1. Establishing the purpose in relation to the public value or general mission of an organisation, considered in terms of important public values.
2. Operating authorisations, requiring a survey of the sources of support and legitimacy for their implementation, as a mechanism for sustaining society's commitment to the institution.

3. Operational capacity, to explain how the institution will have to organise itself and operate in order to fulfil its stated objectives.

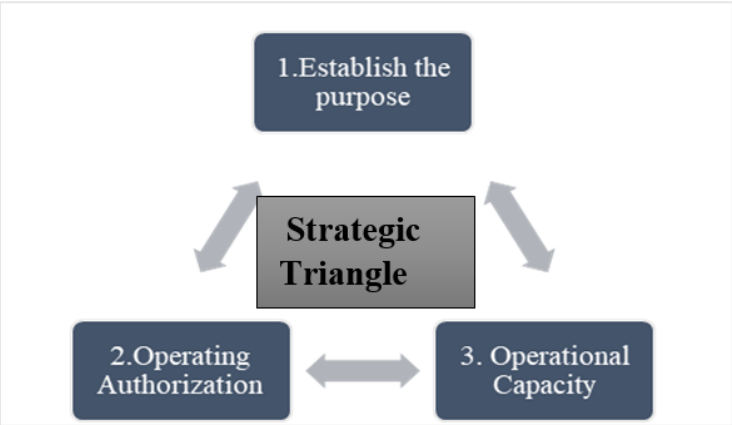


Figure 4. *Strategic Triangle. Source: Adapted from De Oliveira Santos et al. (2022) and Williams & Shearer (2011).*

Public value has been described as a comprehensive approach to thinking about public management and continuous improvement of public services. In this perspective, the three dimensions are all equally important: the first seeks to ensure the basic objectives or ends to be achieved in the public sphere and to respond to priorities expressed in the community; and its implementation requires government authorization and approval of budgets for its continuation, as implementers must use available strategies within the context in which they are inserted; the third dimension consists of practical achievements, where the manager provides public value when endowed with governance principles in the exercise of their functions, with integrity and above all responsibility in the use of resources, efficiently and innovatively, ensuring citizen participation (Williams & Shearer, 2011).

For the creation of public value, it becomes obvious for public administrations to embrace new technologies to better reach the target group in an agile manner, for the sake of development, combining growing expectations, correcting inequalities in public service, rebuilding trust in government, and meeting the standards of a demanding global economy (Dunleavy et al., 2005). Therefore, having an agile, citizen-centered government starts with understanding their aspirations, so that digitization is no longer an option but rather the means to envision citizen social welfare; in other words, digital government adds public value by offering services to citizens in a network (Lopes et al., 2018).

(Luna-Reyes et al., 2016) reinforce the idea with the digital government approach, demonstrating the need for an integrated framework, where organizational factors (objectives, processes, and resources) and institutional factors (laws and regulations) explain technology-mediated change as a set of social and technological characteristics that offer an opportunity to fill this gap.

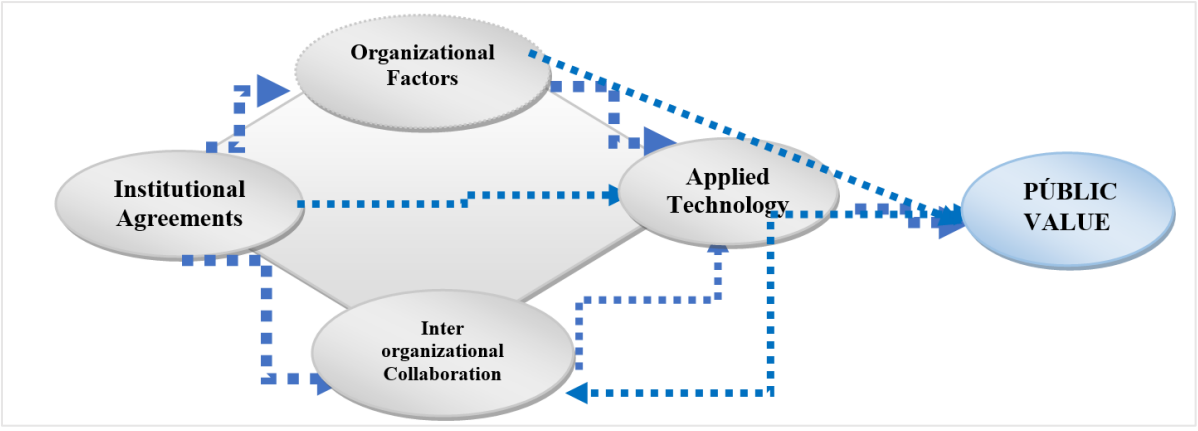


Figure 5. *Integrated Framework. Source: Adapted from Luna-Reyes et al. (2016).*

The integrated framework emphasizes collaboration, as identified by Luna-Reyes et al. (2016), as an important factor in digital government initiatives and collaboration with different organizations, as an effective way to create public value. Thus, as highlighted by Carneiro (2019), the creativity and collaborative engagement of organizations (governmental, non-governmental, private) and society in the digital government ecosystem converge as guiding principles for the creation of public value, in contrast to standardization and efficiency of other public management approaches. Therefore, it is extremely relevant for professionals to continue experimenting with different forms of collaboration to increase the potential to generate public value. This poses a challenge for Higher Education Institutions - HEIs, in the process of professionalization for development; from this perspective, the chapter continues in detail.

2.3. Digital transformation and the challenges of heis in professionalization in Mozambique for 21st century development

According to Brown et al. (2003), at the beginning of the 20th century, the competitive market was already challenging Higher Education Institutions due to the need for professionalization of public servants, in order to make employment a globally competitive environment. As economies develop, they become dependent on knowledge-oriented activities, and governments must provide opportunities to HEIs to create opportunities to train their students, imbued with innovative techniques of applicability, to result in public values for the beneficiary society, leading to the rapid growth of HEIs. As emphasized by authors Francisco et al. (2017), the IT manager must possess skills in various dimensions (technical, business, behavioral, and political) that can enable them as professionals in the pursuit of new knowledge. This is society's response to the growing demand from institutions for workers with enhanced knowledge. Mozambique has not been indifferent to these transformations, having up to now 53 HEIs, of which 19 are universities (09 public and 10 private); 34 Higher Institutes (22 public, of which 03 are academies, 02 are schools, and 17 are Higher Institutes), in addition to 12 private Higher Institutes of Education. Private HEIs offer courses aimed at development and also the public sector in the professionalization process. HEIs promote formal education courses aimed at national development. According to article 3, the regulation of HEIs in Mozambique aims for the use of ICTs, envisioning this knowledge for:

- Encouraging scientific, technological, and cultural research as a means of training, problem-solving, with relevance to society and supporting the country's development, contributing to the scientific heritage of humanity.
- Ensuring connection to work in all sectors and branches of economic and social activity, as a means of technical and professional training of students.
- Carrying out extension activities, mainly through the dissemination and exchange of technical-scientific knowledge.
- Carrying out activities to update professionals graduated by higher education.
- Developing postgraduate actions aimed at the scientific and technical improvement of teachers and senior professionals in service in various branches and sectors of activity.

Higher education, in the view of Canto et al. (2019), is a space for sharing knowledge, configuring itself as a locus for studying new technologies and increasing people's competence. For Mozambique, it is no different, as defined by the Ministry of Science and Technology (MCT-MZ), a project each student-one computer - in this perspective, seeks to encourage mastery in the use of ICTs .

The Ministry of Science, Technology, and Higher Education (MCTES) in partnership with public and private higher education institutions (HEIs) that offer courses in the areas of Science, Technology, Engineering, and Mathematics (STEM) will finance access to a laptop computer for students enrolled in the mentioned courses, who lack financial resources, in order to facilitate and promote their participation in teaching, learning, and research processes (MCT-MZ, 2000)

Therefore, this process recognizes the impactful movement of the 4th Industrial Revolution, which fundamentally challenges HEIs. It is noted in the MCT that this digital transformation process has enormous potential to enable, in a timely manner, with efficiency and effectiveness, access to information for society and to allow the "promotion of unity, work, and vigilance for the development of Mozambique", as it improves interaction between citizens, between citizens and the government, as well as between citizens and the private sector, in the context of service delivery (MCT-MZ, 2000). According to Resolution no. 28/2000, Mozambique cannot remain on the sidelines of this global revolution, so the information policy aims to:

- Contribute to the fight against poverty and the improvement of the living conditions of Mozambicans.
- Improve the effectiveness and efficiency of State institutions and public utility in the provision of services.
- Improve governance and public administration.

From the Brazilian perspective, HEIs in the 21st century must comply with new rules for document management in the education sector. This idea is conceived by the Ministry of Education and Culture in Brazil (MEC-Brazil), understanding that digitalization allows safeguarding the academic archive. Students must be prepared for employment in the 21st century so that they can keep pace with the acceleration of changes in the world of ICTs. The implementation of this tool in HEIs ensures the training of professionals ready to meet the demands of the so-called 4th Industrial Revolution, for the transformation of all sectors of the economy.

(Silva & Fröhlich, 2019) report the difficulties of managers in this digital transformation process, considering this phenomenon as a major challenge in the 21st century, due to the lack of know-how. That is, many people involved in the process are unfamiliar with the subject, which can bring great potential for problems and difficulties. Challenges arise from HEIs themselves in the training process and also in the application within the HEIs, so that students become familiar with the agility of different platforms that offer access to academic services, so that they can better define projects on how to serve society in different institutions, in facilitated services. According to Drucker (1993), cited by Brown et al. (2003), employability represents a shift in power in the nature of global capitalism, associated with the evolution of technological requirements. Technological expansion leads to an increasing number of consolidated management and research careers. dos Santos Pacheco et al. (2020) also emphasizes that a prepared professional should behave as a knowledge worker, with creative, critical, systemic, computational thinking, who is entrepreneurial and innovative. A professional ready for creating public values in this third decade of the 21st century.

For this, authors Chang and Lai (2018), Al-Qirim (2011), and Isaías (2018), cited by Silva & Fröhlich (2019), demonstrate that HEIs must integrate platforms into teaching and learning environments, as well as in creative environments. Active participation by all is relevant in HEIs, requiring greater investments in platforms, for example, IoT, where the engagement of teachers must be present from conception, development, and testing of these applications and services. "Digital transformation brings pressure on the main mission of educational organizations. In this context, digital education is understood as education in the digital age, referring to all the nuances of meaning of the concept of education" (Gond & Gupta, 2017 cited by dos Santos Pacheco et al. (2020). In this respect, (Artur et al., 2024) consider that for HEIs, digital transformation requires investment not only in technological infrastructure, but also in teacher training and information security, as critical factors that can guarantee the success of digital education.

It is seen in all aspects how relevant this instrument is for a better perspective for society - and the following chapter is the methodology.

4. METHODOLOGY

This theme was fundamentally based on theoretical study. Analysis of international and national scientific production, resorting to the deductive method and direct observation, for a better understanding of how the digital transformation process is made relevant in different HEIs and IPs for the creation of public values, culminating, with this, in data collection, using a questionnaire in HEIs and IPs: Ministry of Public Function, Municipal Council of Matola, Historical Archive of Mozambique, Informatics Center, Faculty of Mathematics and Informatics at Eduardo Mondlane University, which is public, and Catholic University of Maputo, private. The questionnaire was directed at unit managers in IPs, as influencers in the decision-making process for the use of ICTs to better streamline public services, and lectures in HEIs as trainers and drivers in the field of ICTs. The sample consisted of 50, of which only 23 managers in IPs collaborated in the research and 07 in HEIs, which are technology training centers and were available to contribute to this research. The difficulties were enormous due to the lack of research culture and information availability - even accredited, many institutions do not collaborate. The analysis of this data was possible using SPSS. The choice of this SPSS tool allowed for precision in data analysis and a solid, scientifically based conclusion on professionalisation in the context of higher education institutions and facilitated the interpretation and presentation of the results in a clear and accessible way.

5. DISCUSSION DATA AND RESULTS

Data analysis in this digital transformation process will first focus on data from e-government and then follow the e-government in IPs; subsequently, those from HEIs, with a view to analyse how great the valuation is in creating public value, according to international standards, aiming to analyse professionalization in HEIs, as driving forces for national development.

A. E-GOVERNMENT - IPs

Does the public institution have ICTs that allow it to streamline management processes in the public sector? In other words, is there a concern to insert virtual platforms on computers to facilitate the citizen's life and allow access to public services virtually, access to ICTs in the management of the public sector, and bring public services closer to citizens?

Table 1.
Agility of ICTs in Public Sector Management

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	22	95.7	95.7	95.7
	No	1	4.3	4.3	100.0
	Total	**23**	**100.0**	**100.0**	

Despite managers responding positively, in 95.7%, that the IPs have virtual platforms to streamline the management process and 4.3% considering the non-existence of these mechanisms to expedite or facilitate citizens' lives, in comment Q5 it says "never having seen or heard of the existence of ICTs that expedite public services." The respondents' answers contradict what was observed directly. In the search for services, citizens spend hours and hours in lines to acquire services, mainly in the Municipality of Matola; even with banking services internally for property title regularization, services are slow. The tools may exist, but there is a lack of professionals to use the platforms. With this, we would be in a situation of refuting, because if they emphasize that access to technology is reasonable, with 69.6%, 21.7% highlight it as little, according to Table 2.

Table 2.
Access to ICTs in Public Sector Management.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Reasonable	16	69.6	69.6	69.6
	A little	5	21.7	21.7	91.3
	5	2	8.7	8.7	100.0
	Total	**23**	**100.0**	**100.0**	

According to Brown et al. (2003), at the beginning of the 20th century, the competitive market was already challenging Higher Education Institutions due to the need for professionalization of public servants, in order to make employment a globally competitive environment. These data make that IPs have remained stagnant and have not kept pace with evolution, as the data so far shows that access to ICTs is weakened.

Table 3.
Does E-Gov bring public services closer to the citizen?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	22	95.7	95.7	95.7
	I dont know what it is	1	4.3	4.3	100.0
	Total	**23**	**100.0**	**100.0**	

According to Table 3, respondents agree that e-government can help bring public services closer to the citizen, with 95.7% saying yes, despite few knowing what e-government is. According to the perspective of the authors (EPAN, 2004a; OECD, 2003b; Reynolds & Regio, 2001; Santos and Amaral, 2003) cited by Soares (2009), the citizen's main concern is to request service from the Administration and have a quick response, using different website channels and portals. Agreeing with the data from Table 3, for Viana (2021), citing Bounabat, B. (2017), e-government aims, through the use of ICTs, to ensure access and delivery of information and services by the government to individuals.

Table 4.
Do employees have computers with internet for their routine activities?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	11	47.8	55.0	55.0
	No	9	39.1	45.0	100.0
	Total	**20**	**87.0**	**100.0**	
Missing	System	3	13.0		
	Total	**23**	**100.0**		

Contradicting what is stated in Table 4, Guimarães & Medeiros (2005) emphasize that the internet has made the government increasingly electronic by allowing a less apparent and more efficient administrative apparatus, which would only make sense if the target audience in their actions had access to the internet and the skills to make use of the information and services offered by the government. If 39.1% claim not to have internet, at some point they contradict the theoretical principles of Guimarães & Medeiros (2005), as only 47.8% say they have internet on their computers.

B. DIGITAL GOVERNMENT - IPs

1. Have you ever heard of digital government?

According to Table 5, 57.9% of respondents have never heard of digital government, 10.5% think they have heard of it, and 31.6% have heard little about it. This information contradicts the perspectives defined by Janowski (2015), where the author demonstrates the significant emphasis digital government has had on decision-making for politicians, government executives, researchers, etc., or for all those involved in preparing, implementing, and evaluating decisions. When respondents say, to this extent, that they have never heard or have heard little about it in public institutions, they make clear the fragility of interaction between citizens and different organizations.

Table 5.
Have you heard of digital government?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	11	57.9	57.9	57.9
	Yes	2	10.5	10.5	68.4
	A little	6	31.6	31.6	100.0
	Total	**19**	**100.0**	**100.0**	

A larger percentage of respondents, at 57.9%, have never heard or do not hear in their daily lives about a tool referenced by Gouveia (2005), which allows for coding through the use of a computer to record data. With the power to store, process, and communicate information, using digital means, a tool that facilitates easy access to data.

2. Does the public institution have a platform that allows for front-office and back-office: front-office, the contact area, that is, describing the components of an organization's information system dedicated to direct interaction with customers and users; while the back-office streamlines the management process in the public sector? In other words, is it a virtual platform that facilitates the citizen's life and allows them to access public services virtually?

Table 6.
Does the platform streamline the management process in the public sector?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	10	52.6	52.6	52.6
	I dont know what is is	2	10.5	10.5	63.2
	Never	4	21.1	21.1	84.2
	Yes	3	15.8	15.8	100.0
	Total	**19**	**100.0**	**100.0**	

In the research field, it is noted that 52.6% of employees emphasize that public institutions lack platforms that allow for direct interaction with customers and users and even for streamlining; while 15.8% say yes, 21.1% say they have never seen platforms with this function. And therein lies a question: how to create public value without embracing new technologies to better reach the target group quickly, for development in this century? As highlighted by (Dunleavy et al. (2005), an agile government is one that focuses on the citizen, which starts from understanding their desires, understanding that digitalization is no longer an option, but rather the means to envision social well-being for the citizen, meaning digital government adds public value and offers services to citizens in a network.

Finally, the universities will be analyzed in both aspects of e-government and digital government, as drivers of professionalization.

A1. ELECTRONIC GOVERNMENT - HEIs

1. Does the Higher Education Institution have programs that allow for streamlining the management process in the public sector? In other words, is there a concern to implement virtual platforms to facilitate the lives of citizens and enable them to access public services virtually? Furthermore, to what extent do they contribute to the professionalization of the public sector?

Table 7.
Contribution of HEIs in platforms in IPs

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	5	71.4	71.4	71.4
	No	1	14.3	14.3	85.7
	I dont know what it is	1	14.3	14.3	100.0
	Total	**7**	**100.0**	**100.0**	

According to the responses, 71.4% believe that HEIs contribute to the installation of platforms and professionalization for the public sector in various IPs in the country, although 14.3% highlight that they are not aware of the nature of the tools, indicating that the perspective of HEIs in supporting the public sector is evident. This is in line with the theory, as integration of platforms into teaching and the creative environment, as emphasized by authors Chang and Lai (2018), Al-Qirim (2011), and Isaías (2018), cited by Silva & Fröhlich (2019), aims to respond to Drucker (1993), cited by Brown et al. (2003), that education should be associated with the market and the evolution of technological requirements, as mechanisms to consolidate the increasing number of professionals and careers in management and research for institutional development. Ensuring, in dos Santos Pacheco et al. (2020), that a prepared professional should behave as a knowledge worker, thinking creatively, critically, systematically, computationally, entrepreneurial, and innovative, which can contribute to the creation of public value in this 21st century.

In this perspective, Q1-HEIs highlights resistance from some IPs: "There are those who feel disadvantaged by authorizing processes and services to citizens, leading to inertia." Despite the contributions from HEIs, few are applicable in different IPs. It is in this context that HEIs believe that if IPs took ICT seriously, they would improve service delivery to citizens. Respondents ensure, with 71.4%, believing in the improvement of service delivery and 28.6% doubting the 4th ICT Revolution, according to Table 8.

Table 8.
Can Electronic government improve service delivery to citizens

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	5	71.4	71.4	71.4
	Maybe	2	28.6	28.6	100.0
	Total	**7**	**100.0**	**100.0**	

This could have its reasons: the resistance mentioned by Q1-HEIs, but Q2-HEIs ensures that if "electronic platforms were properly used, they enable services." Just as Table 9 ensures that, for 71.4%, with its implementation, e-government can bring public services closer to citizens, while 14.3% fear technological advancement.

Table 9.
Can electronic government help in bringing public services closer?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	5	71.4	83.3	83.3
	Maybe	1	14.3	16.7	100.0
	Total	**6**	**85.7**	**100.0**	
Missing	System	1	14.3		
	Total	**7**	**100.0**		

B1. DIGITAL GOVERNMENT IN HEIs

1. Have public institutions been requesting final year students or students from short-term courses in the field of digital government? Especially municipalities, i.e., in IPs, for better service delivery or assistance of ICTs for better functioning in the public sector. For example, search tools; file downloads and forms, permissions and licenses, declarations and tax payments; responses to public tenders; and electronic voting?

Table 10.
Request for final year students in the field of digital government

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	4	57.1	57.1	57.1
	No	1	14.3	14.3	71.4
	Maybe	2	28.6	28.6	100.0
	Total	**7**	**100.0**	**100.0**	

Q3-HEIs emphasizes: "I have been following the existence of some technological initiatives being implemented in public institutions"; as 57.1% say yes, 14.3% no, and 28.6% are unsure. This indicates the need for greater collaboration between IPs or partnerships with HEIs to provide specialized human resources.

2. Are there partnerships between HEIs and IPs in the field of digital government?

Table 11 shows the fragility of partnerships between IPs and HEIs, as only 14.3% of respondents say yes, while the rest characterize the lack of integration between HEIs and IPs.

Table 11.
Are there partnerships between HEIs and IPs in the field of digital government?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	1	14.3	20.0	20.0
	No	2	28.6	40.0	60.0
	Maybe	2	28.6	40.0	100.0
	Total	**5**	**71.4**	**100.0**	
Missing	System	2	28.6		
	Total	**7**	**100.0**		

3. What is the impact of digital government on the public sector?

This comment is associated with Table 11, where Q5 sees "one of the biggest impacts being the need for streamlining. Digitizing processes in the public service is the ideal means to promote constant improvements in administrative processes. This allows the government to overcome obstacles and efficiently operationalize digital government without compromising its budget with excessive spending. This tool will improve the relationship with society and ensure a more satisfactory workflow."

Are there, on the part of public institutions, under the guidance of the training unit, platforms that allow front-office and back-office: front-office, contact zone, in other words, components of the information system of an organization dedicated to direct interaction with customers and users; while the back-office streamlines the management process in the public sector? In other words, a virtual platform that facilitates citizens' lives and allows them to access public services online?

Table 12.
Are there, in public institutions, under the guidance of the training unit, platforms that allow front-office and back-office

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	2	28.6	28.6	28.6
	No	3	42.9	42.9	71.4
	Maybe	2	28.6	28.6	100.0
	Total	**7**	**100.0**	**100.0**	

According to Gond and Gupta (2017), as cited by dos Santos Pacheco et al. (2020), digital transformation puts pressure on the core mission of educational organizations. In this context, digital education is understood as education in the digital era, encompassing all nuances of the education concept. Hence, the investment and participation of teachers aim to respond to the market. However, this research, as indicated in Table 11 and commented by Q5-IES, reveals weak partnerships and bureaucratic dominance in public institutions for integrated education. Q5-IES adds that public bodies are responsible for a huge volume of services. Q6-IES mentions that while the benefits of digitization are known and ideas exist, execution often fails. Similarly, Q7-IES highlights that other organizations develop systems for creating public value in digital use, such as INAGE in collaboration with CEDIMO, AHM, and CPISE. Overall, there is evident effort around this digital governance tool.

CONCLUSIONS

This research aimed to support the implementation of digital governance concerning the appreciation of public value creation, following international standards. It is believed that HEIs are drivers of professionalization for national development in the 21st century. HEIs have a role in equipping professionals with tools, with a commitment to creating public (social) value through the valorization of digital governance, aiming at the development of Mozambique in this 21st century. The research shows the contrary, as it is noted that public servants resent working in the ICT domain because public institutions lack "internet"; and when they have it, there is a lack of platforms that allow interaction between institutions and public servants to expedite public services. For example, it was noticed that in Matola Municipality, there is a website but wit no services for downloading documents for plot regularization, payment of any services, such as manifest, among others, highlighting the idea of digital transformation in Public Administrations and resulting in huge queues at institutions, at a time when society is plagued by contagious diseases. This constitutes an increasingly challenging task for Higher Education Institutions in the professionalization of implementing agents with skills in the digital world to address the lack of easily usable digitized documents in public services. As Moore (2007) emphasizes, creating public value is a responsibility that falls on public managers, as they need to devise strategies to generate value and apply them to improve efficiency, be accountable for delivering goods and services, and ensure greater transparency to society. Above all, there is a need for integrated development with HEIs, so that professionalization aligns with public value creation in society.

FINANCING

The author did not receive sponsorship to carry out this study-article.

CONFLICT OF INTEREST

There is no conflict of interest related to the subject matter of the work.

AUTHORSHIP CONTRIBUTION

Conceptualization, data curation, formal analysis, fund acquisition, research, project management, software, monitoring, validation, visualization, writing - original draft, writing - proofreading and editing: Zaqueu, L.

REFERENCES

Artur, B., Dinga, R. S., & Gonçalves, B. M. F. (2024). Uso de recursos digitais no ambiente escolar Moçambicano: desafios no Ensino Superior. *Video Journal of Social and Human Research*, *3*(1), 22–34. https://doi.org/https://doi.org/10.18817/vjshr.v3i1.53

Brown, P., Hesketh, A., & Wiliams, S. (2003). Employability in a Knowledge-driven Economy. *Journal of Education and Work*, *16*(2), 107–126. https://doi.org/10.1080/1363908032000070648

Camargo Kreuz, L. R., & Aguilar Viana, A. C. (2018). 4ª Revolução Industrial e governo digital: exame de experiências implementadas no Brasil. *Revista Eurolatinoamericana de Derecho Administrativo*, *5*(2), 267–286. https://doi.org/10.14409/redoeda.v5i2.9092

Canto, C. A. R. D. L., Miguel, A. C. C., Freire, P. de S., Dandolini, G. A., & Souza, J. A. de. (2019). Desafios do ensino superior no contexto da Quarta Revolução Industrial. *Revista E-Tech: Tecnologias Para Competitividade Industrial - ISSN - 1983-1838*, *12*(1), 60–76. https://doi.org/10.18624/etech.v12i1.1028

Carneiro, E. S. (2019). *Criação de valor público na era do governo digital: um ecossistema digital colaborativo*. Universidade Católica de Brasília.

Coelho Mitkiewicz, F. A. (2024). Transformação digital: análise da implantação da plataforma gov.br e da evolução da maturidade da política de governo digital no brasil. In *Digitalização e tecnologias da informação e comunicação : oportunidades e desafios para o Brasil* (pp. 255–294). Ipea. https://doi.org/10.38116/9786556350660cap8

De Oliveira Santos, A., Amaral, H. F., & Castro Silva, W. A. (2022). Indicador de Valor público para melhor compreensação da Accountability. *Administração Pública e Gestão Social*. https://doi.org/10.21118/apgs.v14i1.12345

Dias, R., & Gomes, M. (2021). Do Governo Eletrónico à Governança Digital: Modelos e Estratégias de Governo Transformacional. *Ciências e Políticas Públicas / Public Sciences & Policies*, *7*(1), 93–117. https://doi.org/10.33167/2184-0644.CPP2021.VVIIN1/pp.93-117

dos Santos Pacheco, R., dos Santos, N., & Wahrhaftig, R. (2020). Transformação digital na Educação Superior: modos e impactos na universidade. *Revista NUPEM*, *12*(27), 94–128. https://doi.org/10.33871/NUPEM.2020.12.27.94-128

Dunleavy, P., Margetts, H., Bastow, S., & Tinkler, J. (2005). New Public Management Is Dead--Long Live Digital-Era Governance. *Journal of Public Administration Research and Theory*, *16*(3), 467–494. https://doi.org/10.1093/jopart/mui057

Francisco, E. de R., Kugler, J. L., & Larieira, C. L. C. (2017). Líderes da transformação digital. *GV-EXECUTIVO*, *16*(2), 22–27. https://doi.org/10.12660/gvexec.v16n2.2017.68671

Gouveia, L. (2004). *O local e-government: a governação digital na autarquia*.

Gouveia, L. (2005). *Inovação e Governação nas Autarquias - Local E-Government - A Governação Digital na Autarquia*. Inovação e Governação nas Autarquias.

Guimarães, T. de A., & Medeiros, P. H. R. (2005). A relação entre governo eletrônico e governança eletrônica no governo federal brasileiro. *Cadernos EBAPE.BR*, *3*(4), 01–18. https://doi.org/10.1590/S1679-39512005000400004

Janowski, T. (2015). Digital government evolution: From transformation to contextualization. *Government Information Quarterly*, *32*(3), 221–236. https://doi.org/10.1016/j.giq.2015.07.001

Lopes, K. M. G., Luciano, E. M., & Macadar, M. A. (2018). Criando valor público em serviços digitais: Uma proposta de conceito. *Gestão.Org*, *16*(ES), 207–221. https://doi.org/10.21714/1679-18272018v16Ed.p207-221

Luna-Reyes, L. F., Picazo-Vela, S., Luna, D. E., & Gil-Garcia, J. R. (2016). Creating Public Value through Digital Government: Lessons on Inter-Organizational Collaboration and Information Technologies. *2016 49th Hawaii International Conference on System Sciences (HICSS)*, 2840–2849. https://doi.org/10.1109/HICSS.2016.356

Mayrink Resende, N., da Silva-Dias, E., Gonçalves da Silva, M., Hedler, H., & Bernardi da Silva, A. (2024). O Valor Público no contexto da nova governança pública: uma análise bibliométrica. *Boletim de Conjuntura*, *17*(49).

MCT-MZ. (2000). *Coletâneas de Legislação de Acesso a Tecnologia de Informação*.

Mendonça, F., & Zuliani, C. (2015). A construção de um governo eletrônico eficiente pelo poder executivo no Brasil: um olhar sobre o portal "RS Móvel" do Rio Grande do Sul. *Revista Direito Mackenzie*, *9*(2).

Moore, M. H. (2007). Criando valor público por meio de parcerias público- privadas [Escola Nacional de Administração Pública (ENAP)]. In *http://seer.enap.gov.br/index.php/RSP/article/view/169/174*. http://repositorio.enap.gov.br/jspui/handle/1/1389

OECD. (2018). *Promoting the Digital Transformation of African Portuguese-Speaking Countries and Timor-Leste*. OECD Digital Government Studies.

Parra Filho, H. C. P., & Martins, R. A. P. (2017). Liinc em Revista. *Instituto Brasileiro de Informação Em Ciência e Tecnologia*, *13*(1), 223–236. https://doi.org/10.18617/LIINC.V13I1.3895

Silva, L. P. D., & Fröhlich, C. (2019). *Análise dos Desafios da Transformação Digital nas Instituições de Ensino Superior*.

Soares, D. de S. (2009). *Interoperabilidade entre sistemas de informação na Administração Pública*. https://repositorium.sdum.uminho.pt/handle/1822/10539

Viana, A. C. A. (2021). Transformação digital na Administração Pública: do Governo Eletrônico ao Governo Digital. *International Journal of Digital Law*, *2*(1), 29–46. https://doi.org/10.47975/IJDL/1viana

Williams, I., & Shearer, H. (2011). Appraising public value: Past, present and futures. *Public Administration*, *89*(4), 1367–1384. https://doi.org/10.1111/j.1467-9299.2011.01942.x