Empowering Societal Digital Transformation at the Local Level

A Case Study of Pemba Town Council

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Abstract

Digital transformation has revolutionised the way businesses operate through the utilisation of technology. Digital tools enable citizens to access government services quickly and at their own convenience, whilst also facilitating more efficient and effective administrative processes. While many national governments have embraced digital tools, the same cannot be said for local governments, particularly in developing nations as they have not yet taken advantage of the benefits of digitalisation. Whereas some experiences of digital transformation have a top-down approach. This paper shares the experience of a collaborative and participatory process of design and development of a Digital Strategy for Pemba Town Council in rural Zambia. The aim was to enhance service delivery to its citizens by harnessing the potential of digital tools for a five-year period (2022-2026). Pemba Council faced challenges due to a lack of basic Information and Communication Technology (ICT) infrastructure and ICT-enabled systems. Guided by Andrew's (1971) model of strategy formulation and implementation, and employing an action research methodology, the study engaged the local community and the council through focused group discussions and key informant interviews to understand their challenges, explore solutions to improve service delivery, and to develop a digital strategy for the council, the first of its kind. The study noted that while digitalisation for the council could be hampered by challenges such as the digital divide, digital literacy, infrastructure challenges, lack of human resources, among others, both the council and community stakeholders displayed enthusiasm for the process. The study underscores the crucial role citizens play in shaping local decisions and therefore, the need for their engagement in such processes that affect how they engage with local authorities. The paper also presents a guide on how to engage citizens and government officials to develop a participatory digital strategy that is adapted to local needs, infrastructure, and context. The study not only contributes to scholarship

on digitalisation and its potential to improve service delivery, but it is also useful for local governments operating in similar contexts as Pemba Town Council and seeking digitalisation.

Keywords: Local community; local government; digital transformation; digital strategy; Zambia

Introduction

As the world undergoes the Fourth Industrial Revolution marked by the integration of technology into society and even the human body (Davis, 2016), the resulting innovations in information technology and digital devices propel the world toward a paradigm shift known as digital transformation. This transformative process involves strategic changes in infrastructure and operational approaches, leveraging current Information and Communication Technologies (ICT) (ElMassah and Mohieldin, 2020). The primary goal of digital transformation in the public sector is to enhance the adoption and use of digital tools, thereby improving how government serves its citizens and other stakeholders within the community.

This paper shares the experience of a collaborative and participatory process of design and development of a digital strategy for Pemba Town Council located in rural Zambia. Pemba Council faced challenges due to the lack of basic ICT infrastructure and ICT-enabled systems. With an impact research grant, researchers, together with representatives from Pemba Town Council engaged in discussions to incorporate digital solutions to address operational challenges and enhance service delivery by harnessing the potential of digital tools for a five-year period (2022-2026).

While the use of ICT-enabled systems to streamline services is not a novel concept in Zambia (Chipeta and Ngoyi, 2018), its widespread adoption has mainly been at the national government level. It is worth noting that while the uptake of digital financial services has increased significantly since 2016, Zambia is still among the top ten least developed countries based on the category of the E-Government Development Index published by the United Nations (Chipeta and Ngoyi, 2018). A digital economy diagnostic report by the World Bank (2020) recommends the development of a digital transformation strategy for Zambia, focusing on meeting the Seventh National Development Plan (7NDP) targeting and improving the country's fiscal space. Many local authorities, particularly newer councils like Pemba Town Council, have yet to fully leverage the benefits of digitalisation. Therefore, this research is useful not only for Pemba Town Council but also for other local governments facing similar challenges, providing insights into approaching digital transformation.

Despite being in existence as a local authority since 2013, Pemba Town Council still lags behind in terms of basic ICT infrastructure and ICT-enabled systems as it is largely manual based. The current system setup lacks in terms of the classification of services, data, and information. This is demonstrated by two broad but related problems: a) The inexistence of an internal-to-external system that facilitates engagement between the council's internal systems and the citizens, therefore, limiting the engagement between the local authority and the citizens; b) The inexistence of an internal data strengthening system, a digital platform that helps with storage, and access to information between the various council departments.

The above issues affect both citizens and the operations of the Council in that citizen engagement is limited to physical meetings, causing information gaps and excluding many citizens from the decision-making process as the flow of information is mostly ineffective and costly to the citizens, most of whom are far flung. Furthermore, financial management and synergy between departments are hampered by data inconsistencies across council departments, resulting in inaccurate reporting and costly data retrieval. The lack of standardised service, data, and information classifications leads to operational inefficiencies causing delays and loss of revenue for the local authority.

Adoption of ICT can thus enable citizens to access the services quickly and at their own convenience, whilst also facilitating more efficient and effective administrative processes for Council staff (Bousdekis and Kardaras, 2020). Furthermore, since local governments are responsible for a range of vital services for people and businesses in defined areas, it is important to provide these services efficiently. Citizen engagement, that can be defined as the process by which governments engage the people in democratic discourse on public problems (Nabatchi and Amsler, 2014) is an important topic and concept in public administration. Globally, e-participation or digital participation is becoming more common as a means of encouraging citizen involvement using digital technologies (Steinbach, Sieweke, and Süß, 2019). Engagement can be focused on more general governance problems such as local government policies, or on more focused ones like small-scale concerns about planning parks, or rubbish collection. Engagement may thus relate to long-term processes or single activities (Kurkela, Jäntti, Paananen, and Kork, 2023).

Guided by Andrew's (1971) model of strategy formulation and implementation and employing an action research methodology, the study engaged the local community and the Council through focused group discussions and key informant interviews to understand their challenges, explore solutions to improve service delivery, and to develop a digital strategy for the Council, the first of its kind. The next section discusses literature around digital transformation, with a focus on the lessons that existing literature shows regarding embarking on and sustaining a digital transformation exercise in the public sector, and emphasising the participatory and collaborative processes that engage the community in such actions. Thereafter, it presents Andrew's framework. In the methodology, the paper presents sociodemographic and contextual information about Pemba Town Council which are relevant for this study. The research design is then described including the different techniques used for data collection and data analysis. The paper then proceeds to present the results, then an analytical discussion of the results follows including a guide for the development of the strategy. Subsequently, the paper concludes with an emphasis on the critical role that citizens played in the development of Pemba's digital strategy and some limitations for future research.

Literature Review

Within the public sector, digital innovation entails bringing new ideas, concepts, and technology into service delivery through dissemination and assimilation (Nambisan, Lyytinen, Majchrzak, and Song, 2017:224). It includes innovative ways of working with stakeholders, setting up new frameworks of service delivery, and developing different types of relationships. According to Grönlund (2010), digital transformation is a comprehensive process that requires a well-thought implementation roadmap called a strategy. Digital government has the potential to empower citizens by enabling convenient access to public

services. It facilitates enhanced interaction with public administrations across government tiers and promotes the "once only" principle, reducing the burden on citizens and businesses to provide the same information repeatedly (OECD, 2019). The transformation extends beyond digital technologies, encompassing changes in business processes and management structures (Warner and Wäger, 2019).

While some nations, particularly in the global north have made significant advancements, others have made less progress or have even exhibited resistance to the trend for digitalisation reform (Ma and Zheng, 2019; Melitski and Calista, 2016; cited in Kulmann and Heuberger, 2023). In the African context, the use of digital tools at government level is not a new phenomenon. Several cities have seen a rise in the use of digital technologies, particularly ICT, as a means of enhancing citizen-local government contact and creating possibilities related to ICT (Shava and Doorgapersad, 2021:141). Notable examples have indicated that digital tools have been proven to be effective in fostering accountability and transparency in service delivery (Mutungi, Baguma, Janowski, University, and Austria, 2019; Barasa, 2022; Pade-Khene, Sieborger, Ngwerume, and Rusike, 2020). Apart from fostering accountability and transparency, digital tools have also been used to enhance public health delivery systems and interaction between government and citizens (Pade-Khene et al. 2020; Orton et al. 2018). The ability of digital tools to eliminate conditions that favour corruption whilst enhancing transparency and accountability has led to countries like Kenya, South Africa, Tanzania, Ethiopia, Malawi, Mali, Nigeria, Rwanda, and Uganda to implement digital transformation programmes aimed at streamlining government services (Mutungi et al. 2019).

It is also worth mentioning that digital transformation in different countries involves different stakeholders and therefore, the output of the process can vary. Most importantly, this process must reflect the particular needs and circumstances of the society. As digital transformation differs based on country size, its history, and context, it is important to understand the characteristics, the barriers, and the strengths of a country's digital transformation in various domains of the public sector (Bousdekis and Kardaras, 2020). Bousdekis and Kardaras (2020) further argue that the challenges of adopting digital technologies and the success factors of digital transformation for local governments are centred on a number of factors. These include ensuring citizen-centred services, strategic digital culture, interoperability, digital skills of employees, and technology procurement. In addition, implementation of digital tools brings institutional and procedural changes, which have an impact on the staff and administrative procedures (Kuhlmann and Heuberger, 2023). Problems related to acceptance and satisfaction or even technophobia are common. These issues have many different causes ranging from unhappiness with how new technical tools perform to resource shortages and organisational issues associated with the adoption of new technologies (Dukic, Dukic, G. and Bertovic, 2017). However, research also indicates that public personnel value the benefits of digital connection with residents, particularly the quickness and simplicity of using digital technologies (Berger, Hertzum, and Schreiber 2016).

Infrastructure readiness is a barrier identified from the perspective of technological challenges. It includes precise and detailed infrastructure requirements, the availability of qualified human resources to handle the infrastructure, and infrastructure budget support for example, internet facilities, computer servers, data centres, and disaster recovery centres (Wang and Feeney, 2014; Leroux and 2022; Chang, 2011). The impacts of digital transformation on citizens and staff have, however, been largely understudied in e-government research

regarding the local public sector, despite empirical findings suggesting that the success of digital transformation is positively related to citizen satisfaction (Ma and Zheng, 2019). This means that officials must be aware of the needs of the citizens and the likelihood that those needs will conflict, as well as the internal (bureaucratic and political) difficulties that will arise during the process. The digital transformation processes must be citizen focused (Chipeta and Ngoyi, 2018). Effective leadership is thus necessary for digital transformation, and there is a greater possibility for success if officials act in accordance with a strategy and plan. Moreover, since planning is vital for digital transformation, a plan must identify, define, and address the agreed outcomes, outcome metrics, key activities, key inputs, and the delivery and performance agreements (Hartley and Seymour, 2011).

Kane, Palmer, Phillips, Kiron, and Buckley (2015) note that it is the digital strategy that drives the digital transformation as opposed to the popular notion that technology is the driver. Moreover, what has been observed is that a technological change does not follow a predicted path, and particularly important in the public sector, technological changes are conditioned and constrained by organisational and institutional arrangements (Fountain, 2009), interacting and co-evolving with them in complex and recursive ways (Luna-Reyes and Gil-García, 2011). Therefore, it is recommended to draw lessons from success cases from different countries and contexts to create awareness and caution to avoid potential problems during the initial phase of digital transformation. When embarking on digital transformation, there is a need to draw a plan that clearly specifies the elements of the transformation that align with the information, technology, processes, objectives and values, staffing and skills, management systems, and structures (Hartley and Seymour, 2011). This presents a holistic view of the digital solutions that address the problems experienced and a holistic approach to solving the problems since service delivery can be affected by the lack of adequate input in the form of people, technology, and infrastructure (Hartley and Seymour, 2011).

Participation and collaboration for digital transformation in local government

The importance and aims of citizen participation have been widely discussed in public governance literature (Kurkela et al. 2024; Nabatchi and Amsler, 2014; Schmidthuber, Piller, Marcel, and Hilgers, 2019). Digital participation innovations hold the potential to expand citizens' possibilities to actively participate in public decision-making processes and to enable two-way communication between residents and local governments (Jäntti et al. 2023; Kurkela et al. 2024). Due to their closest institutional level to people's everyday lives, local governments are also viewed as organisations where newly developing forms of democracy manifest in concrete form (Kurkela et al. 2024). Studies have shown that open, creative, adaptable, facilitative, and stimulating attitude of council members are beneficial to effectively organise citizen engagement (Siebers and Torfing, 2018). In addition, operational transparency in line with 'open governments' can stimulate both citizens' attitudes toward government and their levels of engagement (Schmidthuber et al. 2019).

As local governments generally serve diverse communities with different socio-cultural, educational, and economic backgrounds, each community has its level of digital technology adoption capacity. Higher-level educated stakeholders tend to be more perceptive of technology advancements in terms of affordability and knowledge to utilise. Nevertheless, lower-level income and education communities may be unable to afford and access digital technologies due to income and digital literacy constraints (Danial and Velasquez, 2022; Renz, 2022; Maulana and Haerah 2021; Lim, 2010).

The strategic impact of digital technologies on local government is undeniable. The evolution from Web 2.0 to Web 3.0 has disrupted local government operations, necessitating adaptation to technological developments and the creation of new business models (Nadkarni and Prügl, 2021). Digital transformation in local authorities is, however, an underexplored area as much research in the literature has focused more on central government (Bousdekis and Kardaras, 2020). This is despite the argument that local governments are in a better position to integrate government, private, and citizen data to deliver beneficial new digitally enabled public services (Montezami and Pittaway, 2020). The adoption of ICT by local authorities in Africa for service delivery, citizen engagement, and transparency is also a relatively recent phenomenon. South Africa, however, provides a good example of e-government in this area, as strides are being made for municipalities to be digital (Nzimakwe, 2021).

Local authorities in general are battling with a variety of barriers (ethical, infrastructural, legal, and informational) that affect policies to enable widespread acceptance and implementation of digital technologies in the delivery of public services (Moody, Plat and Bekkers, 2019:271). It is imperative that municipalities aim to adopt participatory methodologies that aim to seek the views of the local communities that they seek to serve. To successfully implement a digital transformation programme, authorities must thus identify key areas of implementation as raised by stakeholders and prioritise them (Filgueiras, Flávio, and Palotti, 2019). Governments must also consider that the key areas of the digital transformation programme can change thus, they must act accordingly as was significantly expressed in a recent global pandemic (Fletcher and Griffiths, 2020). A crucial step in creating policies for digital transformation is, therefore, to have a clear understanding of citizen's needs and their behaviour, support from local public administrators is important for transformation, as they help to promote social change (Datta, 2020). Feller et al. (2011) also note that the benefits from information technology investments are not automatically as a result of introducing new technologies, rather from coordinated efforts that align with the main strategy of the organisation such as process improvements, staff training, and setting better organisational standards.

However, there is limited data in the literature regarding digital transformation in the local governments, especially in an African context and particularly, as they relate to empirical participatory approaches. Most studies display a top-down approach, given the disadvantages of such approaches in digital innovation and their impact on uptake, a bottom-up approach that can be employed within the public sector to enhance service provision is suggested. According to their desired attributes, groups, companies, and individuals can work together to cocreate the applications and services they want to serve their goals (Tilson, Lyytinen, and Sørensen, 2010:752). The City of Tshwane's Innovation Strategy for instance proposed stakeholder engagement, among other pillars which include strategic intent, organisational capabilities, and innovation sustainability (Ncunyana, 2016). While embracing digital technologies that can speed urban service delivery in South African local government, Shava and Vyas-Doorgapersad (2022) note that institutional readiness, increased revenue streams, and a stable regulatory and legislative environment are critical for success.

Andrews' Model of Strategy Formulation and Implementation

The Model of Strategy Formulation and Implementation was proposed by Andrews in 1971 as a framework for guiding organisations to build patterns that determine organisations'

strategic direction. The model defines strategy as a key aspect that determines the organisation's "objectives, purposes, and goals" aiming to shape the organisation's policies and plans that take it forward (Foss, 1997:52). Apart from revealing organisational goals, Andrews (1971) argues that strategy also determines how resources are to be organised to fulfil the goals. Consequently, strategy ought to support both short and long-term goals and decisions hence his argument that strategy has to be heavily tied to the organisation's structure, behaviour, and culture (Andrews, 1971).

The model identifies strategy formulation and strategy implementation as two closely related aspects that are central to organisational growth (Andrews, 1971; Anima, 2014; Foss, 1997). According to Andrews (1971), there is a thin line between these two aspects as they are closely tied to each other and are only separable for the purpose of analysis. Wernerfelt (1989:4) in trying to differentiate between the two aspects, argued that strategic formulation, unlike implementation, focuses on processes of identification, deployment, and development of resources. Building from Andrews (1971), Anima (2014) identifies strategy formulation as a process of deciding what to do whereas implementation deals with the practical ways of achieving the results. The framework of strategy formulation and implementation stipulates that both formulation and implementation are iterative processes that continuously inform each other in repeated cycles over time (Andrews, 1971; Anima, 2014).

Key pillars of the framework

Andrews' model of strategy formulation and implementation hinges on four core pillars namely environmental conditions and trends, distinctive competencies, opportunities and risks, and corporate resources. These pillars are key to strategy formulation and help the organisation to scrutinise, not only its immediate and far environment and goals, but also question its short- and long-term ambitions and possible drawbacks to its endeavours. The pillars are critical when considering the strategic direction an organisation takes and an evaluation of the pillars in their varying permutations will likely determine the most feasible and appropriate match of opportunities and resources (Andrews, 1971; Foss, 1997). The framework can be applied by organisations to explore their strengths and limitations, as well as reinventing themselves in the changing environment; and it is essential for an organisation to establish a criterion for the appraisal of each key strategic attribute or pillar (Andrews, 1971).

Identification and scrutinisation of opportunities and threats constitutes the second core pillar in the process of strategy formulation, which should be treated as a rational decision. Not only is the identification and scrutinising of opportunities and threats a core of the framework, but also "attaching some estimate or risk to the discernible alternatives" is a core aspect of the framework (Andrews, 1971:53). The purpose of the framework as a guiding tool is to help strike an equilibrium between opportunity and capability of the organisation in building a strategy, and defining goals and a roadmap to achieving the goals (Andrews, 1971).

The third pillar of the framework is the consideration and analysis of the organisation's distinctive competencies. This core pillar focuses on the organisation's resources that give the organisation its purported strength, particularly its human resources and the potential they hold (specifically with regard to their strengths and weaknesses) (Andrews, 1971). A focus on the organisation's human resources extends to their level of rapport in fulfilling

the organisation's goals (Anima, 2014; Foss, 1997). According to Andrews (1971), the capabilities are also drawn from experience that is gained through the execution of the previous strategies. Furthermore, the competence to exploit opportunities is yet another important key aspect of the second pillar (Andrews, 1971:55).

The fourth pillar hinges around corporate resources where the organisation has to scrutinise its resource base in the process of strategy formulation and implementation. Strengths and weaknesses are to be identified. According to Andrews (1971), strengths are distinctive competencies above what the organisation does and they can be transferred to opportunities and should be tallied to the skills that underlie the organisational and strategic success. The final pillar scrutinises the environmental conditions and trends, including economic, technical, physical, political, technological, and social (Andrews, 1971; Foss, 1997). Bakos and Treacy (1986) argue that the inclusion of technology as an environmental issue is shifting the focus to the opportunities that information technology provides. A holistic analysis of the four pillars will assist organisations find matching opportunities and competencies enabling them to formulate strategies that will drive the organisation in the positive direction.

Figure 1 shows a schematic representation of Andrews' framework in the design of Pemba Town Council's digital strategy. Each box represents special factors that are key to strategy formulation, which also partly forms the basis for implementation. Of particular interest is the fact that environmental factors range from internal to global, triggering and necessitating a holistic approach to digital transformation. The arrows are bidirectional implying the bidirectional nature of the relationships between these factors. However, it is also worth to note that some key elements of strategy formulation are generic whilst others are context dependent (Korachi & Bounabat, 2020). Even though some of the key elements are generic, there are no universally agreed approaches to strategy formulation hence the importance of context. Furthermore, it should also be noted that the model in its core form addresses the pertinent traditional elements of strategy formulation and implementation and is not specifically focused on digital strategy formulation/implementation. Since it is a generic model, its application was for the purpose of understanding the generics of strategy formulation and implementation.

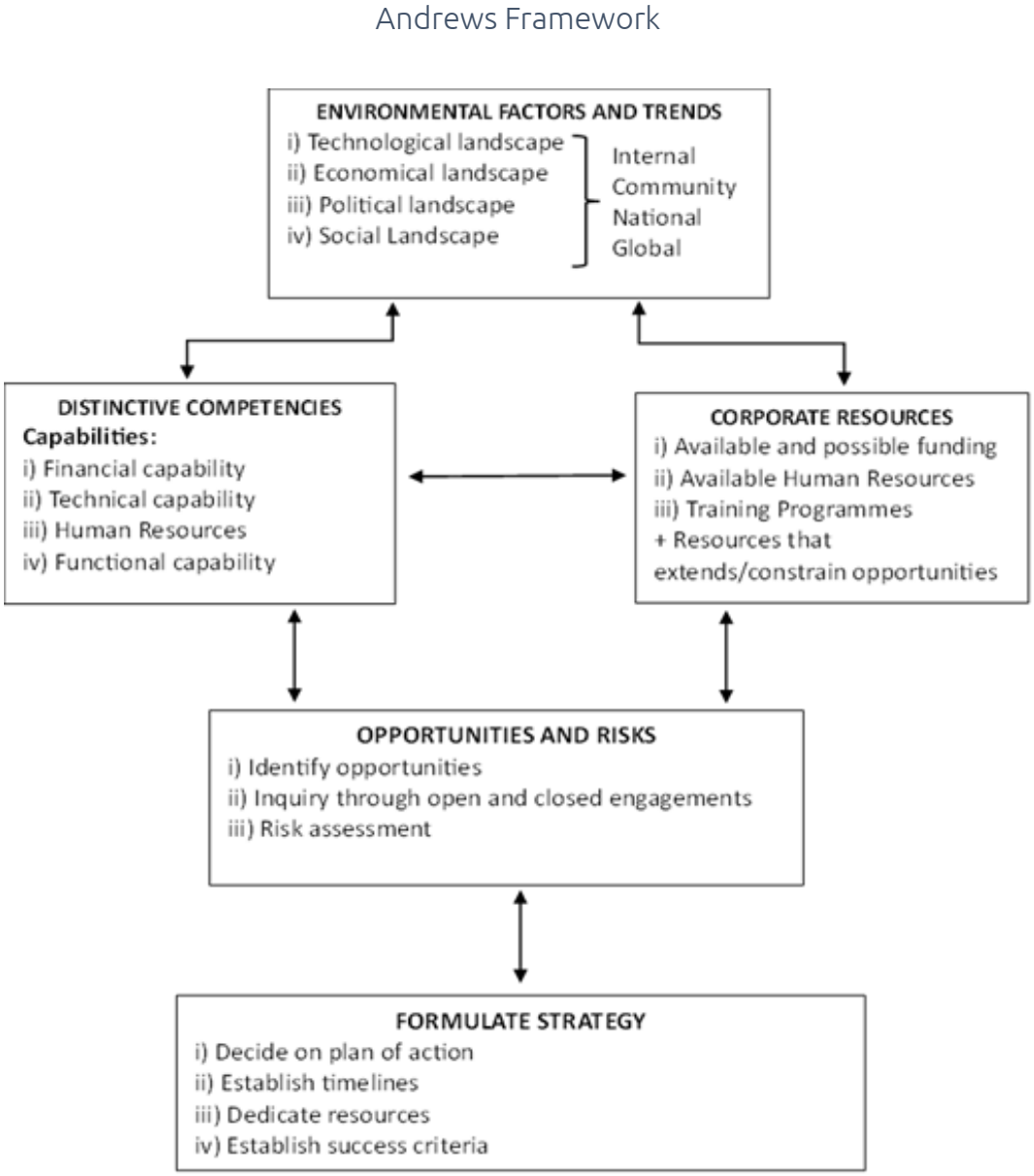

Fig 1: (Schematic representation of the framework: Adapted from Andrews (1971)

Methodology

Case site- Pemba Town Council

Pemba is a small town located in the Southern Province of Zambia. With a population of over 80,000 citizens (Zamstats, 2022), Pemba is predominantly a rural area, with agriculture being the main economic activity. Pemba Town Council was recently elevated from being a district council to a town council. As the population of Pemba expanded, the number of services that the local authority provides to its citizens has also increased. With the growing portfolio of services emerged the need for synchronised operations. The local authority is organised into various departments dealing with citizens at different levels. Citizens also interact with the local authority at different levels depending on the services required.

Research Design

The research was qualitative in nature and was both exploratory (aimed at exploring ways to improve service delivery through digital tools) and descriptive (aimed at describing the digital challenges facing Pemba Town Council in delivering services to the community). Led by Andrew's (1971) Model of Strategy Formulation and Implementation and employing an action research methodology, the study engaged the local community and the council to develop a digital strategy for the council, the first of its kind.

An action research design approach was used as it was deemed the most appropriate to answer the research question "how can digital tools be used to improve service delivery for Pemba Town Council?". An action research project emerges from, and has to contribute to the solution of existing practical problems (Hult and Lennung, 1980:242). Action research is also ideal and suggested for local governments wishing to make a meaningful impact within their communities (Aimers, 1999). Furthermore, the research was guided by insights from Gooch, Wolff, Kortuem, and Brown (2015) regarding a practical model for getting citizens involved in projects, particularly in digital transformation projects.

Action research refers to research that involves formulating a plan, carrying out the intended intervention, evaluating the outcomes and developing further strategies in an iterative trend (Stringer and Aragon, 2020). There are various types of action research, but the literature generally makes a distinction between two types: participatory action research, and practical action research (Stringer and Aragon, 2020). Compared to participatory action research which focuses on bringing about social change on some level and empowerment of individuals and groups (Holter and Schwartz-Barcott, 1993), this research followed a practical action research, which is aimed more at addressing a specific problem rather than improving the quality of lives of individuals or communities (Fraenkel, Wallen, and Hyun, 2012).

According to Holter and Schwartz-Barcott (1993), in a practical action research project, the researcher and practitioners work as a team together to identify the problem, the underlying reasons for the problem, and possible interventions to resolve the problem. The problem is defined after negotiations between the researcher and practitioner and a mutual understanding of the problem and solution is reached. The research followed this approach. Researchers, tasked with assisting Pemba Town Council to clearly define and understand the problem and develop a plan of action worked with representatives from the Council to do so.

Field Trip Planning

As presented in the previous section, the research project started with a comprehensive literature review on digital services and e-government. To try and answer the main research question on how digital tools can be used to improve service delivery for Pemba Town Council, the question was broken down into three specific questions:

1. What are the main issues or digital challenges/inefficiencies facing Pemba Town Council regarding service provision?
2. What challenges do community members face in accessing the various services offered by the council?
3. What improvements can be made, and what does it take to make these improvements?

In order to have a deeper understanding of Pemba's digital background and the possibilities of solutions that would best fit the municipality and the citizen's needs, researchers conducted different procedures of research. During the first two months of the project, virtual meetings with the Pemba Town Council team were held to further understand the problem, the needs, the current ICT infrastructure, and the political issues that could affect the implementation of the project.

Following these engagements, researchers prepared for a field trip. Two of the researchers went on a three-days working trip to Pemba from 9-11 November, 2022 with the goal of connecting with different stakeholders, understanding their local context, and to collaboratively design solutions. For this purpose, it was relevant to meet with stakeholders who represented different actors in the scenario - so both citizens and local authority representatives - and also with people from different backgrounds can have access to public services, such as community members and stakeholder representatives, civic leaders, and youth (students). The researchers engaged almost 200 people, with the largest group consisting of students. For the meetings with the community and civil society representatives, researchers used focus groups, whereas for meetings with public servants, individual key informant interviews were conducted. These are further described below.

Data Collection Methods

Data collection involved focus group discussions and key informant interviews. Four focus group discussions were conducted. These drew an audience from community members and representatives, college students and their educators, civic leaders such as ward development leaders and zone leaders, and Community Development Fund Committee (CDFC) members. In the focus groups, individuals were asked to discuss the municipal services that they usually used and discuss how these services could be improved. The first activity required them to list the public services that members of the group used whether frequently or not. The second activity required them to choose one or more services that they thought could be more efficient if it were digital. And the third activity asked them to discuss the main problems encountered while using the service, digital solutions that could help to address the problems, and the risks of the digital solutions.

Three key informant semi-structured in-depth interviews were conducted. These were conducted with the District Commissioner, the Council Chairperson, and the Council Secretary. It was important to receive views from both the council management, and the district head regarding the digital transformation plans, challenges anticipated, and political will.

Mertler and Charles (2011) state that depending on the nature of the action research project, there may never be a clear end to the study. There may be a need to continue going through subsequent cycles of planning, acting, observing, and developing a new course of action which can go into the following year. The researchers think of this project in a similar manner in that while it has been completed for now, the planning, acting, reflecting, etc., will continue throughout the digital transformation process and Pemba Council will continue to pick lessons in each action or implementation phase, to be applied in the next.

Data Analysis

Thematic analysis guided the analysis of the data, whereby insights from the analysis were clustered in relevant categories (Braun and Clarke, 2006). In addition, following Yin

(2015)'s planning, the analysis was carried out in five stages: 1) compilation of the data set; 2) data decomposition; 3) re-composition, so that the data is more interesting for the research objectives; 4) data interpretation; 5) conclusion. The steps are not necessarily sequential, they can alternate throughout the process and all are guided by the previously established research questions. The analysis was carried out through an inductive method, with a purpose to allow research findings to emerge from significant, dominant or frequent themes, based on the raw data (Thomas, 2003).

Results

Services Prioritised for Digitalisation

After conducting the focus group meetings and interviews, as described in the methodology, this section compiles the main results obtained from the informants perspectives. Even though one of the purposes of these interactions was to engage participants to prioritise services to be digitalised, the general feedback was that they wanted all council services to be digital. One of the reasons was that as some of the participants live far away from where the Pemba Town Council is located, they indicated that it was expensive to travel to the council offices to inquire about services or get something done. The other main reason was that even for people for whom distance is not an issue, going to the city council and spending a part of the day waiting to be attended is more time consuming. One participant said "we spend a lot of time at the council, several hours waiting for one thing. I should be able to do these things at my convenience", and evidenced the hope that digital services could be more convenient and accessible.

Certain participants, specifically members of the CDFC, identified several services that they deemed highly sought after by citizens. They specifically emphasised the prioritisation of projects funded by the Community Development Fund (CDF) to facilitate online applications and follow-ups. Some of the services that could be digitalised for convenience and transparency included school buildings, job adverts, land applications and payments, and roads, borehole, and other public infrastructure maintenance.

Although there were strong arguments for the digitalisation of services like CDF applications, there were also other sections of the participants who felt that digitalising this service would marginalise the other section of the population who are not digitally literate, and those who had no devices to use. The aspect of trust in technology was also raised as an important factor that would determine whether some people will accept and embrace digitalisation or not. A resolution was made that if this service is successfully digitalised, both the traditional and the new (digital) systems would run parallel to each other in order to cater for all sections of the population. The general consensus among the participants was that communication from the council was not effective. Currently, the council uses a Short Messaging Service (SMS) and other third-party public digital platforms like WhatsApp to communicate with stakeholders, but this is not enough. The consensus is that there is a need to digitalise council services for convenience and cost saving on the part of the citizens and to reach a wide audience on the part of the council.

For some of these services, the council could take advantage of the readiness of the citizens for example, in the area of making payments using mobile money services. For revenue collection, the council could adopt mobile payments where citizens can make use of the USSD codes. The use of USSD was also identified as advantageous for people who have low

technical skills, and those who stay in areas where network connections are poor. This would cater for citizens who do not own smartphones. Business registrations can also be moved online where both the council and the citizens can make follow-ups. In terms of providing information for example, on CDF applications, participants suggested that the council could use social media, especially Facebook since a lot of people use Facebook.

Challenges

The data collected evidence that participants were also well aware of the challenges that can potentially affect the process and rate of the digital transformation exercise. While their optimism regarding digital transformation was evident, they voiced reservations tied to several critical challenges that necessitated attention. Foremost among these challenges was the digital divide, manifesting in two distinct groups: those with access to technology and those without. Participants recognized the risk of leaving certain citizens behind due to a lack of access, prompting suggestions for the coexistence of manual and digital systems. Emphasising the importance of device and internet access, participants aimed to mitigate the digital divide's adverse effects.

Another identified challenge was digital literacy, particularly among senior citizens who would encounter difficulties due to limited digital literacy and literacy skills. To address this, participants recommended the parallel operation of both systems, acknowledging that the success of digital transformation hinges on the digital literacy of civil servants and citizens alike.

The study also revealed infrastructure challenges as impediments to the digital transformation exercise. Council authorities cited the absence of a local area network for resource sharing and departmental integration. The District Commissioner highlighted the impact of inadequate council office buildings on infrastructure rollout. Despite these challenges, the council recognised the potential to work with the existing poor network infrastructure initially, but underscored the need for proper ICT infrastructure, including servers for citizen data storage. Concerns were also raised about the absence of cell phone networks and electricity in remote areas, posing obstacles to the accessibility of digital services.

Lastly, human resources and technical challenges were noted with the council lacking technical personnel to drive the transformation. Despite the absence of infrastructure and technical expertise, there was a notable determination from the people, council staff, and politicians to support the initiative.

Potential solutions

Participants were also keen on pointing out solutions that could be adopted to tackle the challenges of digitalization. The issue of digital education for digital readiness emerged several times. Sensitisation of the community regarding both the digital transformation exercise and the services that the council offers emerged as key areas that should be focused on according to the participants. Other suggestions that were made included the need for the council to get down to the zones and continue to engage the community on how best to collaborate. Also, awareness and sensitisation campaigns must be done continuously as the processes evolve and the digitalisation matures. To increase digital portal usage, suggestions were made to use local languages on the portal. In terms of ICT infrastructure, suggestions were made to engage with telecommunication operators and

other stakeholders to support the digitalisation project through the setting up of digital infrastructure like e-centres, and the provision of telecommunications networks to enable citizens to connect to the Internet without difficulties.

In a nutshell, the vulnerable members of the community were said to be at the higher risk of missing out if all services were to be solely migrated to online. It is against this background that some participants suggested that the two systems run parallel to each other. To avert some of the challenges, participants suggested building centres that are solar powered and equipped with computers in remote areas to cater for the local communities. Although the issue of sustainability was raised as one of the challenges associated with the setting up of such centres, other participants suggested that volunteers and public servants could be capacitated to support citizens in these centres. One participant suggested that digital champions within the communities would be useful to drive the transformation exercise: "we could have digital champions in the community, those who are a bit computer savvy to help the rest of the community"

Discussion

The stakeholder engagements via focus group discussions and key informant meetings were very informative for the purposes of this research. The study's findings demonstrate the critical role that citizens play in political processes in general and municipal administration in particular with a focus on digital transformation. Moreover, the significance of local community leaders in uniting people and collaborating towards a shared objective like this one was evident. Since they serve as a liaison between local residents and council representatives, including them in the process of digital transformation was essential to its success. Furthermore, it is still advised to gradually implement digital systems alongside traditional methods as part of the digital transformation process because problems like low digital literacy and low digital readiness hinder digital transformation, especially in poorly resourced and rural environments such as this case.

The results presented in the section above indicate how participants' expectations and concerns regarding digital transformation are connected to the existing literature on the topic. The main contribution to the development of the digital strategy is that the stakeholders' contributions helped the researchers to identify and deepen the already known aspects in the local context, understanding the dimensions that shape the current scenario and the potential challenges for the implementation of a digital strategy. The findings support the notion that processes of digital transformation typically include some uncertainty about how people's responsibilities will change over time.

Studies on the adoption of new technologies have revealed that uncertainty is often present when these technologies are introduced. For example, people may wonder if their occupations will remain stable or if the technology will replace them (Dengler and Gundert, 2021). Real or perceived, there is fear and anxiety that one would not be deemed valuable during such changes, and it is critical that these concerns are addressed, as well as the new or evolving responsibilities of individuals conveyed to all. The fear that digital transformation would lessen the responsibilities that community leaders played in helping their members on various issues relating to municipal services was dispelled in this situation. Engaging stakeholders is therefore critical for assuaging any concerns.

Moreover, the study indicated that local authorities are dedicated to serving their constituents and should actively strive to engage citizens in crucial decision-making processes. By convening both the council and community members in conversations about the prospective utilisation of digital tools, it presented a chance for the council to enhance communication and address additional concerns beyond digitalization. This encompassed collaborative brainstorming on optimal methods for sharing information to ensure its efficacy.

Digital Strategy

Based on these findings, researchers and stakeholders developed a digital strategy for Pemba City Council, which will be implemented between 2022–2026.[1] The digital strategy is based on four overriding principles namely People, Technology, Processes, and Sustainability (Hartley and Seymour, 2011), and aligned with the four pillars of Andrews (1971)'s model by addressing environmental conditions and trends, distinctive competencies, opportunities and risks, and corporate resources in a methodical manner. The strategy demonstrates a deliberate approach to digital transformation, emphasising the need of coordination, alignment with organisational goals, and constant monitoring and evaluation.

Environmental Conditions and Trends

To analyse the external environment in order to understand opportunities and threats, the digital strategy considers Pemba's unique situation as well as local and national development goals. It emphasises the need for sustainability and collaboration in mobilising resources, building capacity and developing environmentally sound technologies. The strategy takes into consideration local, national, and global trends in the technological, economic, political, and social landscapes and fuses them together, creating solutions that respond to citizens' needs, fostering participation, and responsible use of technology. The environmental conditions and trends pillar also addresses the adjustments necessitated by the changes in the trends for example, the alignment of the strategy and approaches to the legal frameworks (Demushina, Li, and Youssif, 2021).

Distinctive Competencies

In evaluating the organisation's strengths and weaknesses, particularly in human resources, the strategy recognises the significance of people as one of the key principles. It emphasises ongoing engagement with staff, citizens, local leaders, and stakeholders to support the transformation process. By focusing on people, this pillar emphasises on the internal capabilities necessary to drive the digital transformation exercise. It reiterates the importance of continuous evaluation of the capabilities vis a vis the necessary adjustments as dictated by the environmental factors. Furthermore, it is necessary to evaluate the town council's distinctive capabilities in order to effectively manage change (Holten, Hancock, and Bøllingtoft, 2019). A co-focus on distinctive competencies and corporate resources helps to drive change management.

1 The Pemba Town Council Digital Strategy is not available online but you may read more about it here https://icld.se/en/researchproject/using-digital-tools-to-improve-service-delivery-in-pemba-district-zambia

Opportunities and Risks

The principles on which the strategy is built display a systematic approach to identifying and scrutinising opportunities and threats in a rational decision-making process. It emphasises the importance of ongoing monitoring and evaluation, which aligns with assessing risks in Andrews' model.

Corporate Resources

Scrutinising the organisation's resource base including strengths and weaknesses is important, and Andrews' model places focus on corporate resources and their role in strategy formulation. In line with this, the strategy acknowledges the importance of technology and processes as key principles. This includes considerations for technology infrastructure such as software, hardware, and e-centres, as well as processes for data and information sharing, and to receive feedback from stakeholders. Training programmes are key in expediting key competences required to drive digital transformation.

Figure 2 shows the elements of a digital strategy, a fifth principle is added in order to reinforce the importance of having constant monitoring and evaluation of the digital strategy and the innovations implemented.

In this paper, researchers share a general guide to digital transformation that may serve as inspiration for public entities such as local authorities seeking to digitalise. The guide outlines six major steps that are vital to follow, but should be adapted to suit the context under consideration.

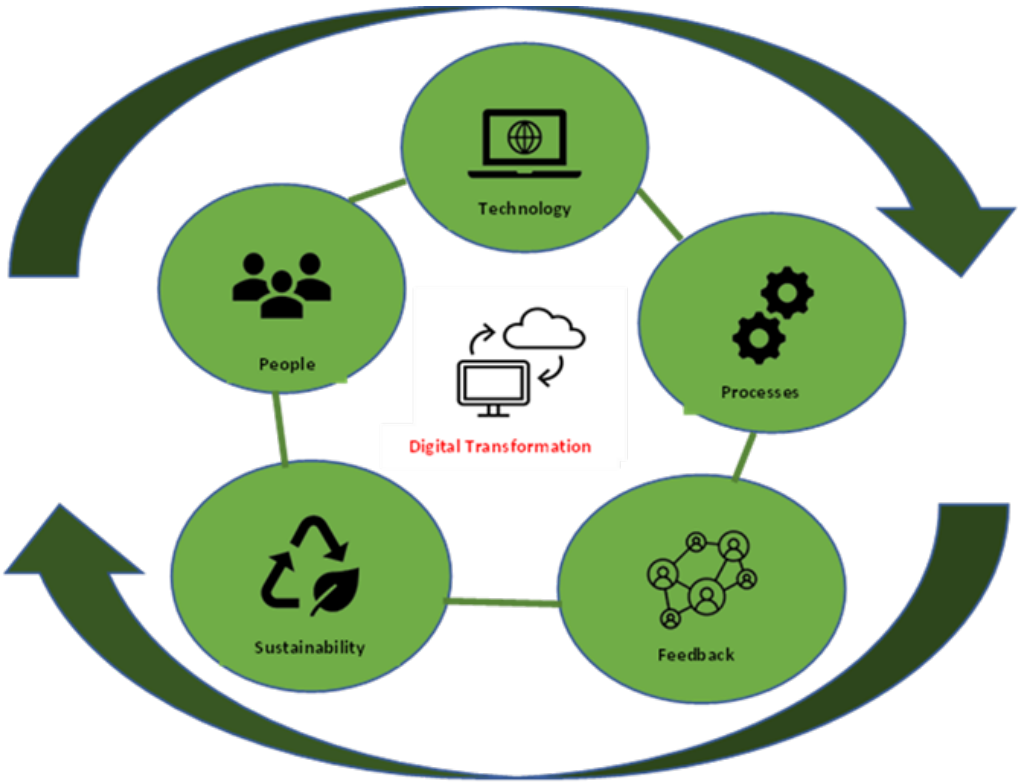

Figure 2: Elements of the digital strategy framework (Source: Authors' own adaptation)

Guide to develop a digital transformation strategy

Determine the reason for digitalisation

Initially, it is crucial to pinpoint the rationale behind digitisation, and accomplishing this necessitates a clear understanding of the issue (Andrews, 1971). Because digital transformation can serve different purposes, it is important to understand the local context and identify if digitalization is a solution for the existing problems – and if it is not, digital transformation should be deprioritized as it can also have side effects that can prejudice the affected ones. In the Pemba case, before developing the proposal, the researchers worked with the local authority to appreciate the challenges posed by the lack of digital systems and explored potential solutions together.

Stakeholders mapping

As action research was proven to be an efficient method for the formulation of digital transformation strategies, the second step is to map all stakeholders that should be involved in the process. For the case of Pemba Town Council, guided by Council staff, it was identified that the important stakeholders to be involved were citizens, council employees, and politicians recognising that these three groups had different roles and goals in a multifaceted and multi-sided process of digital transformation. In addition, these were the key stakeholders in the community that the Council engaged in decision making processes.

Initial stakeholder consultation

The next step is not only to introduce the concept to the wider stakeholders in the community but also to solicit their input on the proposals. Stakeholder consultation should aim to be as inclusive as possible so that the common person is represented. Focus groups, interviews, public consultations, digital forms are some of the methods that can be used for this. When developing the digital strategy cited in this paper, researchers held focus groups meetings and interviews in the municipality – all in person due to the necessities of the community.

Data analysis

Evaluating existing data on the processes held by the government, as well as feedback, is crucial to understand the local context. Doing so allows one to establish common themes, the priorities of the stakeholders, and how these align with the recommendations from the local authority. At this stage the local authority should also determine how the process would proceed, and suggest the services to prioritise for digitalisation.

Stakeholder feedback

The local authority must go back to the community to keep them informed about forthcoming changes derived from their input. The importance of stakeholder involvement is this process cannot be overemphasised (Anima, 2014), and must be a continuous exercise throughout the process. This helps to ensure continuous buy-in and contributes to the success of the digital transformation process.

Implementation

Depending on what has been decided upon by stakeholders involved, the timelines for implementation may vary to take into account the type of service, digital literacy, resources required, the urgency, among other things. It is important to note the fact that traditional modes of service delivery may have to run parallel to the new digital systems during the roll out phases and as more people become acquainted with the technology. For Pemba, the strategy divided the timeline for implementation into short, medium, and long-term actions so that the people in charge of the government could work on this and the strategy could have sustainability over electoral changes.

Monitoring and Evaluation

Once systems are running, continuous monitoring and evaluation is recommended so as to establish the challenges and determine strategies for improvement. Engaging the community in these actions is also beneficial for the success of the implementation.

Conclusion and Recommendations

The study noted that the success of the digital transformation process hinges around a clearly defined, well-thought, and holistic digital strategy. Empirical evidence, analysed through the lens of Andrew's framework, indicates that a careful consideration of the council's internal and external environments, its capabilities, opportunities and threats, and its resources through a consultative process potentially enhances the depth and breadth of its digital strategy. This is advantageous to the council as such consultations enhance citizen by-in, and the holistic approach reduces chances of important aspect of the digital strategy from being overlooked. Furthermore, the study emphasised the role of people and the continuous nature of their influence in the process of digital transformation. With the changing environmental factors, both internally and externally, there is a need to adjust the strategic parameters that drive the transformation process. Given the shift of stakeholder roles, responsibilities, and influence, tensions are likely to emerge due to shift in power dynamics. Citizens yield new level of influence calling for a review of internal processes and adjustments as a continuous improvement exercise where necessary.

Limitations and Future Research

This study has some limitations that warrant further investigation. Firstly, it was conducted in a context where there was already a well-established relationship and good level of trust between the Council and citizens, which may not be typical in other settings. Therefore, it cannot be assumed that mobilizing citizens in different contexts will be as straightforward. However, the importance and values of citizen engagement remain crucial. Secondly, the empirical data primarily focused on the introduction of digital tools by the Council to enhance service delivery and engage community members. Future studies could delve deeper into how employees and citizens perceive and participate in public sector innovation processes and the outcomes thereof, which were beyond the scope of this research.

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References

Aimers, J. (1999). Using Participatory Action Research in a Local Government Setting. In Hughes I (Ed), Action Research Electronic Reader. The University of Sydney. Retrieved from http://www.behs.cchs.usyd.edu.au/arow/reader/aimers.htm (Accessed 30 September, 2023).

Andrews, K.R. (1971). *The concept of corporate strategy*. Available at https://www.taylorfrancis.com/chapters/mono/10.4324/9781315253336-11/kenneth-andrews-1971-concept-corporate-strategy-concept-corporate-strategy-homewood-il-dow-jones-irwin-pp-18-46-peter-mckiernan.

Anima, A.N.Y. (2014). Testing the Andrews Framework of Strategy Formulation and Implementation: Case Study of the University of Cape Coast Digital Library in Ghana. *International Journal of Knowledge Content Development & Technology*, 4(2), 49–65. https://doi.org/10.5865/IJKCT.2014.4.2.049.

Bakos, J. Y., & Treacy, M. E. (1986). Information technology and corporate strategy: A research perspective. *MIS Quarterly*, 107–119.Barasa, H. (2022). Digital Government in Sub-Saharan Africa: Evolving Fast, Lacking Frameworks. Tony Blair Institute for Global Change. https://doi.org/10.2307/249029

Berger, J. B., Hertzum, M., & Schreiber, T. (2016). Does local government staff perceive digital communication with citizens as improved service? *Government Information Quarterly*, 33 (2), 258–269. https:// doi.org/10.1016/j.giq.2016.03.003

Bousdekis, A., & Kardaras, D.K. (2020). Digital Transformation of Local Government: A Case Study from Greece. *2020 IEEE 22nd Conference on Business Informatics* (CBI), 2, 131–140. https://doi:10.1109/CBI49978.2020.10070

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research* Psychology, 3(2), 77–101. https://doi.org/10.1191/1478088706qp0630a

Chang, J. (2011). A Framework for Analysing the Impact of Cloud Computing on Local Government in the UK. *International Journal of Cloud Applications and Computing*, 1, 25–33. https://doi.org/10.4018/ijcac.2011100102

Chipeta, J., & Ngoyi, L. (2018). A Review of E-government Development in Africa: A Case of Zambia, 1, 13. https://doi.org/10.5171/2018.973845.

Danial, M., & Velasquez, D. (2022). Digital Transformation in Australian Local Government: A Systematic Literature Review. Retrieved from https://acis.aaisnet.org/wp-content/uploads/2022/11/ACIS_2022_paper_75.pdf.

Datta, P. (2020). Digital Transformation of the Italian Public Administration: A Case Study. *Communications of the Association for Information Systems*, 252–272. https://doi.org/10.17705/1CAIS.04611.

David, A., Yigitcanlar, T., Li, R.Y.M., Corchado, J.M., Cheong, P.H., Mossberger, K., & Mehmood, R. (2023). Understanding Local Government Digital Technology Adoption Strategies: A PRISMA Review. *Sustainability*, 15 (12), 9645. https://doi.org/10.3390/su15129645

Demushina, O., Buletova, N. E., Li, J., & Youssif, M. M. A. (2021). Towards a Sharing Economy: Factors, Trends, Risks, and Prospects. In Impact of Disruptive Technologies on the Sharing Economy (pp. 218–237). IGI Global. https://doi.org/10.4018/978-1-7998-0361-4.ch013

Dukic, D., Dukic, G., & Bertovic, N. (2017). Public administration employees' readiness and acceptance of e-government: Findings from a Croatian survey. *Information Development,* 33 (5), 525–539. https://doi.org/10.1177%2F0266666916671773

ElMassah, S., & Mohieldin, M. (2020). Digital transformation and localizing the Sustainable Development Goals (SDGs). *Ecological Economics*, 169, 106490. https://doi.org/10.1016/j.ecolecon.2019.106490

Filgueiras, F., Flávio, C., & Palotti, P. (2019). Digital transformation and public service delivery in Brazil. *Latin American Policy*, 10 (2):195–219. https://doi.org/10.1111/lamp.12169

Fletcher, G., & Griffiths, M. (2020). Digital transformation during a lockdown. International *Journal of Information Management,* 55, 102185. https://doi.org/10.1016/j.ijinfomgt.2020.102185.

Foss, N. J. (1997). Resources, Firms, and Strategies: A Reader in the Resource-based Perspective. Oxford University Press. https://doi.org/10.1093/oso/9780198781806.001.0001

Fraenkel, J. R., Wallen, N. E., & Hyun, H. H. (2012). How to design and evaluate research in education (8th ed.). New York: McGraw Hill.

Gooch, D., Wolff, A., Kortuem, G., & Brown, R. (2015). Reimagining the role of citizens in smart city projects. In *Adjunct Proceedings of the 2015 ACM International Joint Conference on Pervasive and Ubiquitous Computing and Proceedings of the 2015 ACM International Symposium on Wearable Computers*. https://doi.org/10.1145/2800835.2801622.

Grönlund, Å. (2010). Ten Years of E-Government: The 'End of History' and New Beginning. In M. A. Wimmer, et al. (Eds.), Electronic Government (Vol. 6228, pp. 13–24). Springer Berlin Heidelberg. https://doi.org/10.1007/978-3-642-14799-9_2.

Hartley, K., & Seymour, L. F. (2011). Towards a framework for the adoption of business intelligence in public sector organisations: the case of South Africa. *Research Conference of the South African Institute of Computer Scientists and Information Technologists*. https://doi.org/10.1145/2072221.2072235.

Holter, I. M., & Schwartz-Barcott, D. (1993). Action research: What is it? How has it been used and how can it be used in nursing? *Journal of Advanced Nursing*, 18, 298–304. https://doi.org/10.1046/j.1365-2648.1993.18020298.x

Holten, A.L., Hancock, G. R., & Bøllingtoft, A. (2019). Studying the importance of change leadership and change management in layoffs, mergers, and closures. Management Decision, 58(3), 393–409. https://doi.org/10.1108/MD-03-2017-0278.

Hult, M., & Lennung, S.-A. (1980). TOWARDS A DEFINITION OF ACTION RESEARCH: A NOTE AND BIBLIOGRAPHY. https://doi.org/10.1111/j.1467-6486.1980.tb00087.x

Joshua Osah & Caroline Pade-Khene (2020). E-government strategy formulation in resource-constrained local government in South Africa. *Journal of Information Technology & Politics,* 17 (4), 426–451. https://doi.org/10.1080/19331681.2020.1715907

Kane, G.C., Palmer, D., Phillips, A.N., Kiron, D., & Buckley, N. (2015). Strategy, not Technology, Drives Digital Transformation-Becoming a digitally mature enterprise. *MIT Sloan Management Review*. Deloitte University Press.

Korachi, Z., & Bounabat, B. (2020). General Approach for Formulating a Digital Transformation Strategy. Journal of Computer Science, 16, 493–507. https://doi.org/10.3844/jcssp.2020.493.507.

Kuhlmann, S. & Heuberger, M. (2023) Digital transformation going local: implementation, impacts and constraints from a German perspective. *Public Money & Management*, 43:2, 147–155. https://doi.org/10.1080/09540962.2021.1939584.

Kurkela, K., Jäntti, A., Paananen, H., & Kork, A. (2023). Towards Interactive Governance: Embedding Citizen Participation in Local Government. *Administration & Society*, 55 (8), 1529–1554. https://doi.org/10.1177/00953997231177220

Kurkela, K., Kork, A., Jäntti, A., & Paananen, H. (2024). Citizen participation as an organisational challenge in local government. *International Journal of Public Sector Management*, 37 (1), 124–140 https://doi.org/10.1108/IJPSM-08-2022-0179

Leroux, E., & Pupion, P. (2022). Smart Territories and IoT Adoption by Local Authorities: A Question of Trust, Efficiency, and Relationship with the Citizen–User–Taxpayer. *Technological Forecasting and Social Change*, 174, 121195. https://doi.org/10.1016/j.techfore.2021.121195

Lim, J. (2010). Digital Divides in Urban E-Government in South Korea: Exploring Differences in Municipalities' Use of the Internet for Environmental Governance. *Policy & Internet*, 2, 29–66. https://doi.org/10.2202/1944-2866.1051

Ma, L., & Zheng, Y. (2019). National e-government performance and citizen satisfaction: A multilevel analysis across European countries. *International Review of Administrative Sciences*, 85 (3), 506–526. https://doi.org/10.1177/0020852317703691

Maulana, A., & Haerah, K. (2021). Smart City Development Innovation Strategy and Challenges for the Government of Jember Regency. *IOP Conference Series*: Earth and Environmental Science, 717, 012008. https://doi.org/10.1088/1755-1315/717/1/012008

Melitski, J., & Calista, D. (2016). E-Government and E-Governance Best Practices in Cities and Countries Compared Between 2003 and 2012: Fad or Diffused Innovation? *Public Administration Quarterly*, 40(4), 913–948. https://doi.org/10.1177/073491491604000408

Mertler, C. A., & Charles, C. M. (2011). Introduction to Educational Research (7th ed.). Pearson/Allyn & Bacon.

Moody, R., Plat, V., & Bekkers, V. (2019). Look before you leap: Barriers to big data use in municipalities. *Information Polity*, 24 (3), 271–288. https://doi.org/10.3233/IP-180090

Mutungi, F., Baguma, R., Janowski, T., & University Krems, Austria, D. (2019). Towards Digital Anti-Corruption Typology for Public Service Delivery. *In Proceedings of the 20th Annual International Conference on Digital Government Research*, 484–494. https://doi.org/10.1145/3325112.3325266.

Nabatchi, T., & Amsler, L.M. (2014), Direct public engagement in local government. *The American Review of Public Administration*, 44 (4), 63-88. https://doi.org/10.1177/0275074013519702

Nadkarni, S., & Prügl, R. (2021). Digital transformation: A review, synthesis and opportunities for future research. *Management Review Quarterly*, 71 (2), 233–341. https://doi.org/10.1007/s11301-020-00185-7.

Nambisan, S., Lyytinen, K., Majchrzak, A., & Song, M. (2017). Digital Innovation Management: Reinventing Innovation Management Research in a Digital World. *MIS Quarterly*, 41 (1), 223–238. https://doi.org/10.25300/MISQ/2017/41:1.03

Ncunyana, Z. (2016). Constructing a City with opportunities through innovation. Presentation for SALGA National Municipal Managers Forum, 10 June, Research and Innovation Department: City of Tshwane, Pretoria. https://www.salga.org.za/Documents/NMMF%202016/City%20of%20Tshwane%20Presentation%20on%20Innovation.ppt

Nzimakwe, T. I. (2021). Leading Digital Transformation and Innovation in Local Government Institutions in South Africa. *Administratio Publica*, 29 (2).

OECD. (2020). OECD Digital Economy Outlook 2020. OECD Publishing: Paris. Available at https://doi.org/10.1787/bb167041-en (Accessed 17 November, 2022). https://doi.org/10.1787/bb167041-en

Orton, M., Agarwal, S., Muhoza, P., Vasudevan, L., & Vu, A. (2018). Strengthening Delivery of Health Services Using Digital Devices. *Global Health: Science and Practice*, 6(Supplement 1), S61–S71. https://doi.org/10.9745/GHSP-D-18-00229.

Osah, J., & Pade-Khene, C. (2020). E-government strategy formulation in resource-constrained local government in South Africa. *Journal of Information Technology & Politics*, 17(4), 426–451. https://doi.org/10.1080/19331681.2020.1715907

Pade-Khene, C., Sieborger, I., Ngwerume, P., & Rusike, C. (2020). Enabling Digital Social Accountability Monitoring of Adolescent Sexual Reproductive Health Services: MobiSAfAIDS" (2020). *In Proceedings of the 28th European Conference on Information Systems (ECIS)*, An Online AIS Conference, June 15-17. https://aisel.aisnet.org/ecis2020_rp/36

Pittaway, J. J., & Montazemi, A. R. (2020). Know-how to lead digital transformation: The case of local governments. *Government Information Quarterly*, 37(4), 101474. https://doi.org/10.1016/j.giq.2020.101474.

Renz, E. (2022). Trust, Tech, and Tension: Digital Citizen Engagement & Urban. *Phylon (1960-)*, 59 (1), 91–106. https://www.jstor.org/stable/27150916.

Schmidthuber, L., Piller, F., Marcel, B., & Hilgers, D. (2019). Citizen participation in public administration: investigating open government for social innovation. R&D Management 49 (3), 343-355 https://doi.org/10.1111/radm.12365

Shava, E., & Doorgapersad, S.V. (2021). Talent management: A 'recipe' for public service delivery in the fourth industrial revolution. *International Journal of Research in Business and Social Science*, 10(8), 138–148. https://doi.org/10.20525/ijrbs.v10i8.1504

Shava, E., & Vyas-Doorgapersad, S. (2022). Fostering digital innovations to accelerate service delivery in South African Local Government. *International Journal of Research in Business and Social Science* (2147- 4478). https://doi.org/10.20525/ijrbs.v11i2.1610.

Siebers, V., & Torfing, J. (2018). Co-creation as a new form of citizen engagement: Comparing Danish and Dutch experiences at the local government level. *International Public Management Review*, 18 (2):187–208. https://ipmr.net/index.php/ipmr/article/view/335.

Steinbach, M., Sieweke, J., & Süß, S. (2019). The diffusion of e-participation in public administrations: A systematic literature review. *Journal of Organizational Computing and Electronic Commerce*, 29(2), 61–95. https://doi.org/10.1080/10919392.2019.1552749.

Stringer, T. E., & Aragon, O. A. (2020). Action Research (5th ed.). Sage Publications Inc: Newbury Park.

Thomas, D. R. (2003). A general inductive approach for qualitative data analysis. *American Journal of Evaluation,* 27(2), 237-246. https://doi.org/10.1177/1098214005283748

Tilson, D., Lyytinen, K., & Sørensen, C. (2010). Research Commentary —Digital Infrastructures: The Missing IS Research Agenda. *Information Systems Research*, 21(4), 748–759. https://doi.org/10.1287/isre.1100.0318

Warner, K. S. R., & Wäger, M. (2019). Building dynamic capabilities for digital transformation: An ongoing process of strategic renewal. *Long Range Planning*, 52 (3), 326–349. https://doi.org/10.1016/j.lrp.2018.12.001

Wang, S., & Feeney, M. (2014). Determinants of Information and Communication Technology Adoption in Municipalities. *American Review of Public Administration*, 46, 292–313. https://doi.org/10.1177/0275074014553462

Wernerfelt, B. (1989). From Critical Resources to Corporate Strategy. *Journal of General Management*, 14 (3), 4–12. https://doi.org/10.1177/030630708901400301

Yin, R. (2015). Qualitative Research from Start to Finish (2nd ed.). The Guilford Press: New York.