

Gerontocracy and the Fourth Industrial Revolution in the Public Sector Amid the Covid-19 Pandemic: A Perennial Problem

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Abstract

The COVID-19 outbreak has affected a proliferation of countries in an unimaginable way and South Africa is no exception. This outbreak demands a shift in knowledge, power and governance – particularly in how the public sector delivers public goods and services. The pandemic exposed the reluctance of aging government officials to adopt new ways of governance aimed at expediting service delivery. The COVID-19 pandemic has forced governments across the spectrum to introduce policies, adaptations, and innovations to meet the demands brought about by the pandemic. Government departments are required to be dynamic in response to the changing needs of the citizenry. Its failure reaffirms the decline in the running of the affairs of the state. The public sector is designed to be a fruitful agent of change and development in society. To remain as such, it is pivotal that it adapts to the dynamic environment that presents unprecedented challenges posed by the pandemic and the fourth industrial revolution (4IR). The paper uses a literary analysis approach to explore the readiness of aging public servants in embracing the 4IR. The context of its consideration is the South African public sector amid the COVID-19 pandemic period. A theoretical framework on the phenomenon is explored. Summation and recommendations are provided.

Keywords: gerontocracy, 4IR, public sector, COVID-19 pandemic, aging public servants

Introduction and Background

Gerontocracy is leadership premised on seniority derived from the age factor. It is rule by the old. It is defined by Agba (2020) as a state or group governed by old people. Classical literatures opine that the inception of gerontocracy stems from the family ideal setup where an elder sibling cared for the younger ones and dictatorship was out of the equation because all family heads met and deliberated on matters that affected the compound family, hamlet, kindred or clan (Agba, 2020:39). Due to the value placed on the age factor in gerontocratic societies, older members of families hold apex positions. This was a norm in most African traditions, which believed that elders are advanced in age and possess vast experience and power to take care of the people.

A plethora of African countries have suffered greatly over the years from the culture of gerontocracy. This culture has subsided in the public sector in South Africa. According to Onebunne, Ezeaka and Obasi (2017), in prior colonialism, African societies had

a political structure that was a government by the aged (senior men). These aged were perceived to hold vast knowledge. It was also perceived that experience was associated with wisdom. Literature bears testimony to the fact that African societies had rich traditional political, religious, economic and social institutions charged with the responsibility to allocate and discharge resources, and of law-making and social control. Onebunne, Ezeaka and Obasi (2017) elaborate that in prior colonialism, some African countries had established a central system of governance with chiefs and kings and often times, the power of these rulers was restricted by various arrangements including institutions of council. Gerontocracy was the order of the day in the governance of public affairs prior to colonialism until the foundation of modern democracy was introduced during European enlightenment in the 18th century philosophic movements. Long before the Western democratic systems, gerontocracy was a central form of government with the council of elders dictating the affairs of the community (Onebunne, 2017:40). Much of scholarly history on classical literature in anthropology aver that in modern democracy, as John Lock foretold, the relation between the ruler and the ruled is democratic and independent of any other theories (Onebunne citing John Locke, 2017). Lock believed in the equality of men, the consent of the majority, the division of power and the right to rebellion. In the main, prolific studies in anthropology opine that a glut of African countries prior to colonial masters had a political structure that was a government by the aged. They were perceived to hold more experience and to be qualified to lead the population.

The COVID-19 pandemic has forced the public sector to adopt to the “new normal” and/or the 4IR. Mudau and Mukonza (2021) contend that the imprints of the 4IR can no longer be ignored, for, it brought peculiar unprecedented challenges and prospects in the running of state affairs. Mudau and Mukonza (2021) further remind us that the 4IR continues to shape the future through its impact on government and business, and therefore the next generation ought to be well equipped with knowledge about technological developments. The angst of the aging public servants in South Africa about their fate in the 4IR is discernibly intense. Maserumule (2020) reminds us that in a democratic realm, the state exists for the well-being of its citizenry and therefore, at all times, the state is obliged to operate in the best interests of the inhabitants. Ngcaweni (2020:608) attests that, “the safety and well-being of citizens and thriving private enterprise depend on capable, responsive, effective and efficient public administration”. Public administration remains a cornerstone of the running of state affairs. The pandemic demands that the running of the state adopt a new and peculiar approach, thus, the adopting of technology in the conceptualisation and delivering of services (Mathebula, 2021). The potency of public administration lies in its ability to form partnerships, maintain law and order and deliver service to citizenry. Ngcaweni (2020) opines that these abilities are essentially a way to define the capability of public administration. Therefore, the emergence of the 4IR and outbreak of COVID-19 propels the aging public servants to embrace the changing nature of delivering services and running the affairs of the state. Makumbe (2020:621) asserts that the pandemic changed the traditional way in which people operate. In his journal article titled *E-learning in times of a pandemic: Exposing the economic disparities between the ‘Haves’ and the ‘Haves-Nots’*, he argues that “the COVID-19 has done much

to expose the South Africa's deep digital divide" (Makumbe, 2020:621). In the main, this paper seeks to explore the readiness of aging public servants in embracing the 4IR. The context of its consideration is the South African public sector amid the COVID-19 pandemic period.

Methodology and Theoretical Underpinning

Post-positivism and critical paradigm are the research philosophies that largely guided this paper. The *raison d'eter* behind the usage of these two is that researchers aim to unpack the structural, historical and political aspect of reality in order to arrive at change and transformation. The paper is non-empirical and uses a literary analysis approach to explore the readiness of the public sector – particularly service departments – in embracing 4IR, and in the process, determine how aged public servants are embracing the 4IR. A critical scholarship review thus – the review of books, journal articles and official government documents – was utilised to gather insights. This paper is largely informed by a diffusion of innovation theory to back up its argument centred on gerontocracy.

Diffusion of the innovation theory

This theory avers the process through which new ideas, practices and innovations or technologies shape and spread into a social system (Rogers, 2003). Kaminski (2011) contends that the diffusion of the innovation theory was first in the public discourse in 1903 by scholars such as Gabriel Trade, in which this theory emphasised the resistance of people to adapt to new innovations, products and technologies. The innovation theory is the individual's ability to adapt or intention to adapt to a phenomenon. Mudau and Mukonza (2021) assert that men and women adapt to technology differently. According to Masrom (2007), the impetus of technology has caused participation and communication methods to change. In this context, it is worth noting that the use of technology is rapidly increasing in the public sector. This requires an individual's ability to adapt to these unprecedented changes. Furthermore, Rogers (2003) argues that the diffusion of the innovation theory intends to purport the argument that in most instances, an initial few are open to news innovations and its usage, while over time, the new idea become diffused among the entire population. Particularly in the context of this paper, the usage of diffusion of the innovation theory seeks to advance the argument that the aging public servants are adapting to the new innovations and the 4IR differently than the younger generation, with the latter adapting faster than the former. This paper therefore submits that the inability of aged public servants to adapt to the rapid changes in ideas and innovation compromises the running of state affairs.

Gerontocracy in the Public Sector: an Afrocentric Perspective

Interestingly, the concept of gerontocracy holds an African origin and it is defined by George Sefa Dei as "the traditional African respect for the authority of elderly

persons for their wisdom, knowledge of community affairs and ‘closeness’ to the ancestors” (Adegbindin, 2011; Dei, 1994:13). In fact, evidence suggests that this concept is more African than Western. This does not undermine the reality that certain elements of gerontocracy can be linked to political practice in Western governments from years back, such as its influence in the then Soviet Union (Adegbindin, 2011; Gerner & Hedlund, 1989; Post, 2004). There has been a handful of literature about this phenomenon in Western countries in comparison to African countries, which may bear testimony to the originality of this concept. In African countries such as Nigeria, Kenya and South Africa, for instance, gerontocracy was practiced as a governance system long before the colonial and Westernised systems invaded Africa. The elderly in communities ruled over matters and affairs concerning communities. Such matters were attended to in communal or kraal meetings (Agba, 2020; Ogola, 2006).

In the olden days, African governance, and political, economic and social systems were largely operated by elderly people, from decision making to resource allocation. Basically elders had major responsibilities where socio-economic and socio-political affairs were concerned. In essence, the young people relied on the decisions made by the elders. Some of these systems were and still are destructive to the freedom, development and empowerment of the youth (Adegbindin, 2011; Kaphagawani & Malherbe, 1998).

In the contemporary setup, gerontocracy has manifested itself in African politics and even the public sector (Adegbindin, 2011; Agba, 2020; Morifi, 2019). Over the years the young have started to contest the ideology of gerontocracy in politics and the public sector. They resent the attitude assumed by the old on issues pertaining to transformation, development and innovation as well as the old cohorts’ refusal to make room for change and the generational shift (Morifi, 2019). It has been observed several times that gerontocracy – in Africa particularly – tends to marginalise the youth and their innovative ways and ideas. African leaders have been put in power at senior ages, which in fact warrant retirement (Adebayo, 2018). Just to cite few cases in the continent’s political space, the former President of South Africa Jacob Zuma was re-elected for his second term at the age of 70; the president of Nigeria, President Muhammadu Buhari, was elected as the president at the age of 73 in 2015; and the former President of Zimbabwe, the late Robert Mugabe, was put in power at the age of 76 in 2018 (Adebayo; 2018). These examples are indicative of the notion that the rule of the elders is tenacious in many African countries such as Nigeria, South Africa and Zimbabwe – just to name a few.

The manifestation of the rule of the old in politics and government cannot be overlooked. Consequently, the power of the old cohorts in the public sector risks the disenfranchisement of the youth in the mainstream economy. Morifi (2019) contends that African politics and the public sector in general, and South Africa in particular, are ageist and rarely make space for young people to lead in mainstream politics and the economy. Evidently, the status quo suggests that the South African public sector is still reliant on the older generation in most strategic positions to make decisions about the future of the country, and in the process it disenfranchises the young people from partaking in such strategic positions (Morifi, 2019).

The COVID-19 pandemic has forced governments across the world to adopt

innovative ways to provide public goods and service to its citizenry. Importantly, the pandemic has exposed the non-readiness of most African states, including South Africa, to the adoption of the new era of the 4IR within the public sector. In fact, it has forced and channelled the public sector to operate differently from how it would traditionally operate in the provision of public goods and services to its citizenry. It has been observed how South Africa has been struggling to provide services such as education during the pandemic (Dube, 2020; Mhlanga & Moloji, 2020; Mokoena & Phago, 2020; Soudien; 2020). Additionally, public sector institutions in most countries found themselves having to rely on the technological advancements to provide services such as education, health and others. Seemingly, the unprecedented era of COVID-19 in South Africa – like elsewhere in the world – actioned the displacement of traditional modes of service delivery to more technologically driven operations. If anything, COVID-19 has taught the world that the 4IR should be embraced to transform and improve the lives of the people and ameliorate the functioning of government departments to deliver on their mandates and provide services to the people. Some industries and sectors are already embracing the new technological transformation and the public sector should not be an exception (Olojede, Agbola & Samuel, 2019). The pandemic had an impact on the delivery of public goods and services in the South African public sector, for instance, the provision of services such as education for public schools particularly came to a complete halt when hard lockdown regulations were implemented. Consequently, the Departments of Education and Higher Education, respectively, were forced to deal with the ramifications of the implications of the hard lockdown on the provision of schools and universities. They had to shift towards online teaching and learning, which was a bit of a nightmare in certain instances, especially where poor and impoverished communities were concerned (Soudien, 2020).

The COVID-19 pandemic continues to expose and exacerbate pre-existing service delivery challenges in South Africa's public sector. These service delivery predicaments include poor education, poor health services, poor distribution of clean and potable water, poor sanitation, lack of and poor housing, among others. Some of these challenges are as a result of the public sector's dependence on the older generation. More importantly, the country has the inability to embrace the culture of innovation and vibrancy that comes with having young people in positions of power and strategic leadership in government as well as in the private sector. The young people who are placed in these strategic positions bring along the energy and technological savviness that is so needed in the provision of public goods and services. This would then introduce new ways of doing things to improve the quality and pace of providing services; a new meaningful and purposeful transformation. This argument does not take away the fact that the younger generation must be groomed and mentored into assuming such critical and strategic positions; however, an intentional move to create such opportunities for young people is imminent if the developmental agenda of the country is to move forward and be sustained (Morifi, 2019).

The current knowledge economy requires a skilled and youthful cohort of public servants who will advocate for innovation on the provision of services by embracing

the new transformative era of the 4IR. The South African government has put forward plans and strategies for an e-government oriented public sector. Some of these new strategies have been highlighted by the Department of Public Services and Administration (DPSA) through developed e-government goals. One of the goals emphasises the provision of better information and service through an e-government (DPSA, 2001; Kanyemba & Hofisi, 2019). Moreover, the President of the Republic of South Africa, Mr Cyril Ramaphosa, established and chaired the 4IR Commission comprising a team of experts who were appointed to advise government on issues pertaining to the 4IR as the ultimate future. In October 2020, the team and the Department of Communications and Digital Technologies released a report titled the *Report of the Presidential Commission on the 4th Industrial Revolution (PC4IR)*. The commission was charged with the responsibility to propose a strategy for adapting and embracing the 4IR. These initiatives are meant to lay a foundation and charter a way forward for government to adopt the 4IR as a new way of doing things in order for government to be effective and efficient in its affairs of bettering the lives of its citizenry (Department of Communications and Digital Technologies, 2020).

In an attempt to professionalise the South African public service and reform the public sector, the presidency embarked on a 20-year review with the aim of unearthing challenges faced by the state in transforming the public sector. The 20-year review report has acknowledged the uneven performance of the public sector to deliver on its mandate over the years. These uneven performance areas are as a result of the following issues, among others:

- Unskilled officials;
- Quick-fix approaches to training unskilled officials;
- High rate of staff turnover, that is, job-hopping and/or resignation of civil servants, which can be linked to the older generation of public servants such as teachers and nurses leaving their professions and later coming back into the system. They re-join the public sector with vast knowledge and experience in comparison to their young counterparts. This hinders government's progress on absorbing younger graduates and it defeats government's attempts to professionalise the public sector and also attract young, skilled and capable graduates.

The South African National Treasury took the decision to persuade aging public servants aged between 55 and 60 to consider taking early retirement. In February 2019, the then Minister of Finance Mr Tito Mboweni released guidelines on Early Retirement Funding Provision. These guidelines stipulate that public servants between the ages of 55 and 60 will not be penalised when taking early retirement. This strategy was introduced as a way of providing an opportunity to the younger, innovative, and skilled graduates to enter the public services. This strategy will not only tackle the unemployment challenges of the country, but will also ensure that the public sector is responding to the need to have a digitally savvy government in this era of the 4IR.

The Quandary of Gerontocracy And 4ir Amid Covid-19 Pandemic

The contemporary developments ushered in by the COVID-19 pandemic, as well as the transformative era of the 4IR, requires a public sector that is capable and ready

to reform and transform with changing times – a public sector that will embrace the dominance of young people in the mainstream economy and politics. In fact, at this particular point, policy makers should begin to channel energies and resources towards strategies that will bring young people to the centre of the 4IR because, in the absence of such strategies, the youth will continue to be disenfranchised and marginalised from active economic participation in the public sector while the old cohorts continue to rule the sector. This paper contends that the developmental agenda of South Africa requires technologically advanced solutions to improve the efficiency and effectiveness of government to provide solutions to the citizens. South Africa is marred with service delivery deficits as stipulated in the 20-Year Review Report by the presidency. Hence there is a need to identify challenges that may relate to gerontocracy, the 4IR and COVID-19. Doing so will assist policy makers to start working on solutions to counter these unfolding challenges. These unfolding challenges include the following:

- The world in general, and the public sector in particular, is fond of gerontocracy. The imprints of the rule of the old are still evident in politics and mainstream economy, which ends up marginalising the young, skilled, innovative and creative cohorts.
- The public sector, to a large extent, is marred with an old, unequipped, uninspired, unskilled and incapable workforce. This tends to affect the provision of services and the implementation of policies and programmes that are meant to better the lives of ordinary citizens.
- Developing countries such as South Africa are still reluctant to embrace the 4IR due to the stigma attached to it and how it is likely going to disrupt employment and the economy.
- Mismatch between current skills in the public sector and skills required by the 4IR: most skills in South Africa are not in sync with the skills required by the transformation that comes with the 4IR in comparison to skills possessed elsewhere in countries such as China and Japan. Hence policy makers must influence the policy landscape in the education system to move towards a curriculum that teaches coding, robotics and digitals.

The digital divide among citizens – owing to the high rate of poverty and inequality in South Africa – is a challenge that has been greatly exposed during the COVID-19 pandemic, especially during the hard lockdown (Dube, 2020; Mhlanga & Moloi, 2020). The realities in most rural and township spaces of South Africa are characterised by communities that do not have access to digital gadgets due to reasons such as the following:

- Digital illiteracy to operate technological gadgets like smartphones and computers;
- Unaffordability of such gadgets even in cases of digitally literate people;
- Network connectivity problems for those who can afford to purchase gadgets and data; and
- Unaffordability of data to connect to the network. The reality is that most rural and townships areas in South Africa do not have access to broadband connectivity. This may become challenging in cases wherein services are provided and

accessed through digital platforms such as education; applications of IDs and drivers' licenses; applications to social relief and assistance such as grants; and applications to housing and job opportunities. In these instances, most rural and township dwellers are likely not to get such services and be left on the outskirts.

Prospects of the 4IR

Albeit roundtable discussions took place regarding the 4IR before 2019, it was during the inception of the outbreak of COVID-19 that the South African public sector had to embrace the 4IR in the public sector. Although this embracement was met with a lot of uncertainty and resistance, it was inevitable that the 4IR was indeed the direction that the South African public sector was headed (PSA, 2019, Roodt & Koen, 2020). Industry 4.0 is understood to transform how things were done previously and is said to have social, political, cultural and economic implications resulting in societal transformation on a global scale. Schwab (2016) articulates that the response to this technological revolution must be integrated and responsive.

Preceding the 4IR are the first, second and third revolutions, which serve as the basis for the 4IR. Traditional production industries are the bedrock behind the current digital and artificial systems and advancing technologies. **Figure 1.1** is an illustration of the stages of the industrial revolutions. The first industrial revolution took place in Great Britain around the 1750s, and with it, came the manufacturing system that influenced economic development and the creation of national markets. This period was characterised by the invention of James Watt's steam power, and economic transition from being agriculturally based to the manufacturing of goods (Koc & Teker, 2019; Erasmus, 2021). This was followed by the second revolution towards the end of the 19th century leading into the 20th century. The second revolution included the use of electricity, which increased industrialisation, mass production and manufacturing. Wired communication, and the smelting of steel, which later led to the invention of other locomotive engines among other inventions, also formed part of the innovations that took place under the second revolution (Erasmus, 2021; Marivate, Aghoghovwia, Ismail, Mahomed-Asmail & Steenhuisen, 2021). With industrialisation being accelerated across other parts of the world, many countries started to embrace the industrial revolutions that started in Europe. The third industrial revolution took place from the end of the 20th century. This revolution is driven by information and communication technology and was the start of digitisation (Schwab, 2016; Okoye, Ogbu & Ome, 2020). The third revolution was characterised by the use of computer systems, the advancement of the internet, as well as the use of robots for industrial manufacturing. This era saw the democratisation of computer technology for individual as well as civil industrial usage. It was this industrial revolution that created a digital divide (Marivate et al., 2021). With the advancement of these revolutions, particularly the third revolution, this created a divide between those who embrace technology and those who do not understand the requirements of this technological era (Koc & Teker, 2019). Koekemoer and von Solms (2021) posit that the 4IR builds on technology from the third industrial revolution, particularly in the digital, physical and biological realms. The 4IR is set to

transform institutions, individuals and industries. This revolution is set to take place at a more expeditious pace compared to the other revolutions. Erasmus (2021) notes that the 4IR is characterised by its high levels of integration and sophistication, which significantly contribute to societal transformation and global economies. The industrial revolutions illustrate the evolution from steam power to cyber physical systems, to automation, and now the internet of things. However, this begs the questions: is the public sector ready to make use of the technologies presented by the Industry 4.0 for the advancement of public service delivery? Are government employees (particularly the aged population) skilled to use technologies presented to them to ensure effective and efficient service delivery to the citizens?

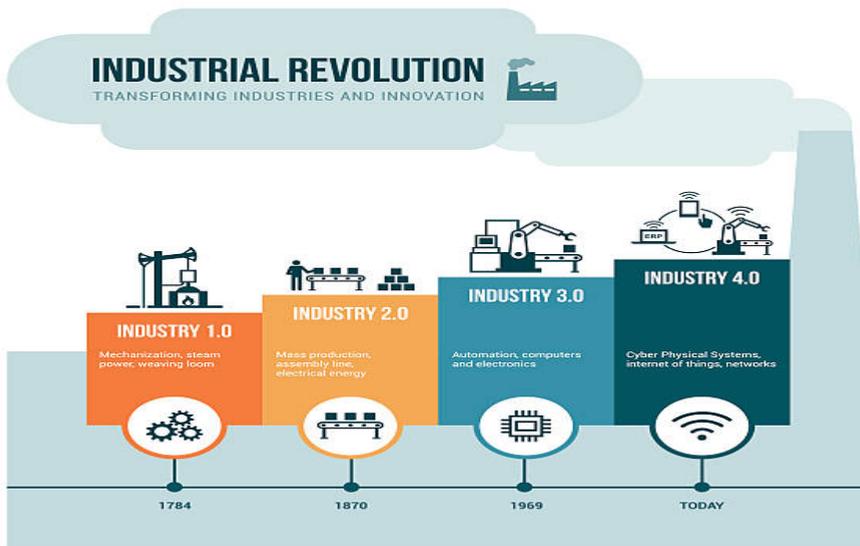


Figure 1.1 Industrial Revolution stages. Source: iStockphoto (2016)

The 4IR is simplified by Cowie, Townsend and Salemlink (2020) as being an umbrella term for a series of technological developments that are characterised in that they “leverage the pervasive power of digitization and information technology” (Schwab, 2016:19), and by the integration of physical, technological and biological systems (*Ibid.*)

The 4IR technologies include (but are not limited to) the internet of things (IoT), sensors that connect everyday products to the internet, cobots/collaborative robots, augmented reality versus virtual reality, big data or cloud computing used to store large amounts of data that can be processed and distributed instantly, and 3D and 4D printing (Satyam & Keleher, 2018; Markowitz, 2019; Mathebula, 2021). This will require innovative and skilled personnel to infuse these technologies in the provision of public services.

COVID-19 had divested a number of industries equally, so it forced industries and government to relook at how things can be done by adapting to the digital world. When used correctly, the public sector can employ the technologies presented by the 4IR to improve the public sector and advance government services. This paper

accentuates the benefits presented by the 4IR in the public sector:

The acceleration of an e-government: Balkaran (2017) describes this as a generic term for web-based services from agencies of local, state and federal governments, where government uses IT to support government operations, engage citizens, and provide government services. An e-government can be advanced by using the technologies presented by the 4IR, such as the IoT, to ensure equal access of government services to people. Mosehlana (2019) identifies multiple benefits of the e-government if harnessed in the public sector. These include, e-decision making, e-consultation, and electronic payment transactions. The public sector should use the 4IR to create a synchronised, coordinated e-government, which will in turn ensure effective and efficient service delivery.

PSA (2019) denotes that beyond improving government processes, it is also about using technologies to improve ease of connection between government and the citizens as well as to improve overall public service.

The streamlining of government services for citizens, through the use of artificial intelligence (AI), the public sector could provide a “one-stop-shop”. This would mean an elevated interconnectedness of processes where they are not only electronic, but also automated. The streamlining of services will ensure that citizens do not access services in isolation, but rather simultaneously. An example would be the streamlining of services from government departments such as the Department of Home Affairs, Employment and Labour, the South African Revenue Service (SARS) and the Department of Health. By completing an online form through the use of one’s identification number, the person’s history would appear, such as employment history, medical status, marital status and next of kin.

Research, development and innovation in the public sector is required and the technologies provided by the 4IR can ensure that. Marivate *et al.* (2021) believe that to remain globally competitive, South Africa needs to adopt technologies that improve the efficiency of operation. This will require governments and industries to invest in research and development. Research and development are one of the core functions of institutions of higher learning. Marivate *et al.* (2021) propose a collaboration between universities, industry stakeholders and Technical and Vocational Education and Training (TVET) to produce skilled individuals to enter the workforce. This is an opportunity to produce skilled graduates, and to assist government in addressing the challenge of unemployment. Furthermore, government can invest in expanding innovation hubs in the country.

A move towards agile governance: Satyam and Keleher (2018) posit that agility enables governments to create legislation and policies that address the innovation of the 4IR. Agility requires governments to be “future-savvy, relevant and proactive”. The South African public sector proved to be reactive as opposed to proactive during COVID-19. Even as COVID-19 was spreading rapidly in other countries, this did not propel government to be proactive in their plan of dealing with the virus. Technology advances in governance provide the following opportunities: increased efficiency of public services, data-driven decision making, productivity improvements from automation, and increased collaboration between governments and citizens (Satyam & Keleher, 2018). The World Economic Forum (2018) highlights that agile

governmental structures exhibit distributed bottom-up leadership, transparent service delivery, permanent stakeholder engagement, open data sharing mechanisms, lean budgeting, and speedy procurement processes. They build their foundations organically on an evolution plan (instead of a strategic plan) in which public policies are constantly designed, prototyped and tested to address citizens' needs. However, this will be a long-term opportunity for the public sector as it will require government to transform how things are done beyond digitisation. Furthermore, to have an agile type governance will need political will.

Figure 1.2 is a toolbox for agile governance that depicts an eight-piece toolbox to guide agile governance. This includes the promotion of innovation, regulator-innovator collaboration, crowd sourced policies, public-private data sharing, policy labs, direct representation in governance, as well as regulatory sandboxes.

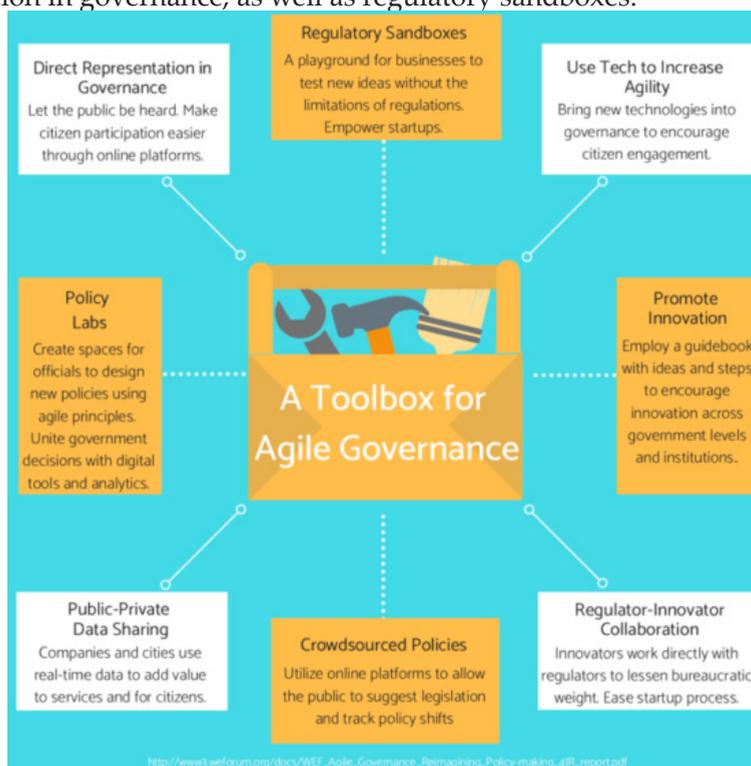


Figure 1.2 A Toolbox for Agile Governance. Source: Satyam and Keleher (2018)

It is undeniable that the 4IR has illuminated the chasm that exists between developed and developing countries (Markowitz, 2019; Roodt & Koen, 2020). In addition, inequality contributes extensively to the digital divide in South Africa. As an emerging economic development country, South African needs to progress at its own pace and not compete with developed countries that are fully immersed in the 4IR (Marivate *et al.*, 2021). Arguably, one can say that government needs to address the gaps created by the third revolution so they do not impact the implementation of the 4IR. Mosehlana (2019) posits that the digital divide is problematic, as those with no access will not have the privilege to access information that provides economic opportunities such

as government vacancies, educational bursaries, and business opportunities. In embracing the benefits and opportunities presented by the 4IR in the public sector, it is imperative to acknowledge that Africa, and specifically South Africa as a developing country, is marred by socio-economic challenges that may threaten the public sector from harnessing and reaping the benefits that come with the 4IR (Markowitz, 2019). As a result, it is essential to question the public sectors' readiness to take on the technologies brought about by the 4IR and to question the effectiveness of the current infrastructure to employ the 4IR. In contrast, to reap and harness the benefits of the 4IR, there needs to be enabling policies, and evidence-based policy responses which address challenges that may possibly hamper the full implementation of the 4IR (Markowitz, 2019).

The rapid advancement of information and communications technology (ICT) and modern technology requires government to continuously update policy frameworks to remain relevant (Mosehlana, 2018). The regulation of the 4IR for the public sector has policy implications and ramifications for government. It is argued that the 4IR policies address the subject matter on a peripheral level and not on an implementation level. Political and legal elements play a significant role in the development of appropriate ICT policies. The constant change in political leadership and lack of support for e-government contributes to the many policy challenges facing South Africa (Mosehlana, 2019).

Legislative & Policy Framework

Legislation and policy play a significant role in directing the strategic course of the 4IR in the South African public sector. South Africa has legislation and policies in place to support the 4IR initiative.

National Development Plan 2030 (NDP)

The aim of the NDP is to eliminate poverty and reduce inequality by 2030. Chapter four of the NPD 2030 addresses economic infrastructure. One of the key points suggests the telecommunications infrastructure should support economic growth and social development (NDP 2030, 2012). The NDP acknowledges ICT as an enabler of economic activity; equally so, an ineffective ICT can have detrimental effects on economic and social activities. According to the NDP 2030 (2012), by 2030, ICT will underpin the development of a dynamic and connected information society and a vibrant knowledge economy that is more inclusive and prosperous. NDP 2030's (2012) policies and priorities include: implement an enabling, coordinated and integrated e-strategy, and an ICT sector that enables economic activity, affordable, and widely available broadband for economic and social development among others.

It is from the NDP 2030 that some of the government policy frameworks relating to ICT (National Integrated ICT Policy White Paper 2016), and e-government (National e-Government Strategy: Digitising Government Services 2017) emanate. Strategic plans of government departments need to align with the NDP 2030 for coherence.

Electronic Communications and Transactions Act, 25 of 2002

Legislation addressing electronic communication dates as far back as 1996 with the establishment of the Telecommunications Act of 1996. The Electronic Communications and Transactions Act, 25 of 2002, aims to provide for the facilitation and regulation of electronic communications and transactions; to provide for the development of a national e-strategy for the Republic; to promote universal access to electronic communications and transactions and the use of electronic transactions by SMMEs; to provide for human resource development in electronic transactions; to prevent abuse of information systems; to encourage the use of e-government services; and to provide for matters connected therewith.

According to section 2 of the Electronic Communications and Transactions Act, 25 of 2002 proposes to do the following:

- to promote universal access primarily in underserved areas;
- to promote technology neutrality in the application of legislation to electronic communications and transactions;
- to promote e-government services and electronic communications and transactions with public and private bodies, institutions and citizens;
- to ensure that electronic transactions in the Republic conform to the highest international standards;
- to promote the development of human resources in the electronic transactions; and
- to ensure that the national interest of the Republic is not compromised through the provision and development of electronic communications and transactions; the environment; and the use of electronic communications.

National Integrated ICT Policy White Paper (2016)

The National Integrated ICT Policy White Paper 2016 outlines the overarching policy framework for the transformation of South Africa into an inclusive and innovative digital and knowledgeable society. Attention is given to the convergence of traditional forms of communication, the usage of data in the formulation of policy, and monitoring progress. This White Paper was drafted following the recommendations of the ICT Policy Review Panel – appointed in 2013 and made up of different stakeholders.

Furthermore, the White Paper also includes various policy interventions to address issues that affect the converged ICT sectors in general, including broadcasting, audio, and audio-visual content providers. In addition, the National Science and Technology Forum (NSTF) (2017) denotes the White Paper details as:

- Government's approach to providing cross-government leadership and facilitating multi-stakeholder participation in the drive for inclusive digital transformation in South Africa.
- Interventions to reinforce fair competition and facilitate innovation in the converged environment, including approaches to addressing horizontal and vertical integration across the value chain.
- Issues of ICTs and convergence.
- Policies to protect the open internet.
- Interventions to facilitate the digital transformation of society.

- Mechanisms to promote growth in the ICT and postal industries.
- The institutional frameworks necessary to facilitate the implementation of policy approaches.

The White Paper did not come without its criticisms, one of which is the Free Market Foundation (2017), which criticises the White Paper by denoting that a key contentious policy is the introduction of a single wholesale wireless operator, a monopoly consortium, and the setting aside all high demand frequency spectrum bands into a wholesale wireless open access network (WOAN) for South Africa.

National e-Government Strategy: Digitising Government Services (2017)

The National e-Government Strategy was propagated in section (5) of the Electronic Communications and Transactions Act, 25 of 2002, for the minister to develop a national e-strategy for the Republic wherein cabinet will declare its implementation as a national priority (Electronic Communications and Transactions Act, 25 of 2002). The National e-Government Strategy and Roadmap was formulated for the purpose of guiding the digital transformation of public service in South Africa into an inclusive digital society where all citizens can benefit from the opportunities offered by digital technologies to improve their quality of life. E-government is the use of ICT to provide public services to its citizens and businesses. This should be done in an effective, and cost-effective manner. For e-government to be a success, there needs to be robust ICT infrastructure and a coordinated framework guiding the delivery of e-government services. The National e-Government Strategy and Roadmap includes a proposed e-services catalogue by government departments. This catalogue highlights the e-services that need to be provided and by which department, as well as the description.

Presidential Commission on the Fourth Industrial Revolution (PC4IR)

The Presidential Commission on the Fourth Industrial Revolution was established in 2019 by the President of the Republic of South Africa, his Excellency Cyril Ramaphosa to facilitate and embrace the use of 4IR in South Africa. The commission consists of leaders from academia, business and civil society who will engage on possible technologies to be used to elevate South Africa's developmental agenda in line with NDP 2030. The purpose of this commission is to formulate policies and strategies to ensure that South Africa can effectively take advantage of the opportunities presented by the 4IR. In terms of the 4IR, the PC4IR recommended the following:

- investment in human capital;
- the establishment of an AI institute;
- the establishment of a platform for advanced manufacturing;
- to secure and avail data to enable innovation;
- incentivise future industries, platforms and applications of the 4IR technologies;
- build the 4IR infrastructure;
- the review and amendment (or creation) of policy and legislation; and
- establish a 4IR Strategic Implementation Coordination Council.

Taken from the recommendations made by the PC4IR, the Department of Communications and Digital Technologies (DCDT) was consequentially tasked with the development of a PC4IR Strategic Implementations Plan (PC4IR SIP) to realise the recommendations of the PC4IR Report. To implement the recommendations of the PC4IR through the development of a strategic implementation plan, the below are objectives driving the PC4IR SIP:

- an integrated 4IR technological country strategy;
- a time-framed implementation roadmap;
- a cross-sectorial 4IR programmes and institutional establishments;
- detail the strategic interventions to be carried out towards achieving global competitiveness in the 4IR technologies within the high growth-potential economic sectors (agriculture, finance, mining, manufacturing, ICT, and STI);
- identify current internal DCDT programmes positioning South Africa for 4IR readiness;
- identify key preliminary external stakeholders and the collaborative framework to successfully deliver the 4IR programmes by the different government structures, for example: national, provincial and local;
- outline the way-of-work (methodology) to ensure the PC4IR SIP initiatives as strategically and effectively communicated, coordinated, measured and monitored;
- outline the impact areas and the strategy for regulatory, policy and legislative review to create a 4IR enabling environment in South Africa; and
- align the PC4IR SIP with South Africa's existing key strategic developmental plans, primarily the NDP and MTSF 2019-2024.

Conclusion and Recommendations

This paper revealed that the South African public sector is still grappling with the embracement of the 4IR and that gerontocracy is still the order of the day. Literature reviewed by this paper argues that rule by the old hampers service delivery. The 4IR is an inevitable reality. For the public sector to embrace the shift into the digital space, it will need to deal with the gerontocracy that has permeated through its structures of governance. The provision of e-governance needs to be harnessed and accessible to all citizens. This paper submits that the public sector needs to be innovative and agile in their nature, however, this cannot be a reality while gerontocracy is embedded in its structures of governance. Therefore, the paper submits the following to be recommendations:

- Reinforcing the implementation of the minister of finance's (Tito Mboweni) guidelines where old public servants between 55 and 60 years of age can take early retirement without penalties
- Up-skill the current workforce and introduce them to the 4IR and how it can benefit the public sector
- Government needs to develop and implement a strategy for youth empowerment as a measure to attract and retain young people in the public sector
- Regulate the price of data cost and build ICT infrastructure in remote areas to

ensure that those people can access the benefits of e-government

References

- Adebayo, J.O. (2018). Gerontocracy in African politics: Youth and the quest for political participation. *JAE*, 17:140-161.
- Adegbindin, O. (2011). The problem of gerontocracy in Africa: The Yorùbá perspective as illustrated in the IFÁ corpus. *Human Affairs*, 21:454-469.
- Agba, P.L. (2020). Gerontocracy and its influence on political and pastoral leadership in Africa. *JOS Studies*, 28:39-50.
- Cowie, P., Townsend, L., & Saleminck, K. (2020). Smart rural futures: Will rural areas be left behind in the 4th industrial revolution? *Journal of Rural Studies*, 79:169-176.
- Dei, G.J.S. (1994). Afrocentricity: Cornerstone to Pedagogy. *Anthropology and Education Quarterly*, 25:3-28.
- Department of Communications and Digital Technologies. (2020). *Summary Report and Recommendations: Presidential Commission on the Fourth Industrial Revolution*. Pretoria: DCDT.
- Department of Public Service and Administration. (2001). *Electronic government the digital future: A Public Service IT Policy Framework*. Pretoria: DPSA.
- Gerner, K., & Hedlund, S. (1989). *Ideology and Rationality in the Soviet Model*. London: Routledge.
- Kaminski, J. (2011). Diffusion of innovation theory. *Canadian Journal of Nursing Informatics*, 6(2): 1-6.
- Kanyemba, D., & Hofisi, C. (2019). E-Government innovation for improved service delivery. *Journal of Public Administration*, 54(2): 207-222.
- Kaphagawani, D.N., & Malherbe, J.G. (1998). African Epistemology. In P.H. Coetzee and A.P.J. Roux (Eds.). *The African Philosophy Reader*, pp. 205-216. London: Routledge.
- Makumbe, D. (2020). E-learning in times of a pandemic: Exposing the economic disparities between the 'Haves' and 'Have-nots'. *Journal of Public Administration*, 55(4): 621-641.
- Maserumule, M.H. (2020). Editorial commentary: COVID-19 – A pathogen on the rampage: Implications for the leadership, science and public policy. *Journal of Public Administration*, 55(1): 1-4.
- Masrom, M. (2007). Technology acceptance model and E-learning. 12th International Conference on Education, Sulltan Hassan al Bolkiah Institute of Education, 21-24 May 2007.
- Mathebula, N.E. 2021. Public Administration in the Fourth Industrial Revolution: implications for the practice. *Gender & Behaviour*, 9 (2): 18199-18205.
- Mhlanga, D., & Moloi, T. (2020). COVID-19 and the digital transformation of education: What are we learning in South Africa? *Education Sciences*, 10: 1-11.
- Mokoena, S.K., & Phago, K. (2020). Tipping the scale of government functions during and post COVID-19. *Journal of Public Administration*, 54(2): 431-434.
- Morifi, K. (2019). Youth in parliament – What is the plan? *Journal of Public Administration*, 54(2):160-161.
- Mudau, J., & Mukonza, R.M. (2021). Scant penetration of women in the fourth industrial revolution: An old problem in a new context. *African Journal of Gender, Society and Development*, 10(1): 85-102.
- Ngcaweni, B. (2020). Leaping forward: Preliminary thoughts on COVID-19 and shifts in public administration. *Journal of Public Administration*, 55(4):608-620.
- Ogola, G. (2009). The Idiom of Age in a Popular Kenya Newspaper Serial. *Africa*, 76:569-589.
- Olojede, O.A., Agbola, S.B., & Samuel, K.J. (2019). Technological innovations and acceptance in public housing and service delivery in South Africa: Implications for the Fourth Industrial Revolution. *Journal of Public Administration*, 54(2): 162-183.

- Rogers, E. (2003). *Diffusion of innovations*. (5th ed). Free Press: New York.
- Satyam, A., & Keleher, H. (2018). How will the Fourth Industrial Revolution Transform how we govern? <https://blogs.cisco.com/government/how-will-the-fourth-industrial-revolution-transform-how-we-govern> (accessed on 10 October 2021).
- Sebake, B.K., & Mudau, J. (2020). Revisiting whistleblowing amid the COVID-19 pandemic in South Africa: An ad nauseam problem. *Journal of Public Administration*, 55(3.1):490-501.
- Shopola, M.A., Mudau, J., & Mukonza, R.M. (2021). Public Administration and Management Training in South African Technical and Vocational Education and Training Colleges: Unpacking its relevance in the contemporary time. *African Journal of Development Studies, Special Issue*: 199-218.
- World Economic Forum. (2018). Agile Cities Preparing for the Fourth Industrial Revolution. https://www3.weforum.org/docs/WP_Global_Future_Council_Cities_Urbanization_report_2018.pdf (accessed on 10 October 2021).