-RESEARCH ARTICLE-

OPEN GOVERNANCE FOR IMPROVED SERVICE DELIVERY INNOVATION IN SOUTH AFRICA

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─Abstract─

The Fourth Industrial Revolution (4IR) is the current and developing environment in which changing technologies and trends such as the Internet of Things (IoT) and artificial intelligence (AI) are changing the way governments function. Governments are increasingly facing new risks and opportunities due to the advancement of the 4IR. Governments need to find ways to adapt to the 4IR. Innovation is a prerequisite for adapting to the 4IR. The aim of this article is to determine the level of public service delivery innovation (SDI) in South Africa in the context of the 4IR. The analysis in this article is based on secondary data and documentary analysis, including unsolicited government documents, reports and legislation, and authoritative scholarly literature. A number of innovation measures for improved service delivery have been adopted in South Africa. These efforts are not, however, embedded within the wider public service, and efforts to improve SDI should be considered. In a global environment of resource constraints and constant change, open governance through multi-stakeholder collaboration may present strategic opportunities to facilitate innovation. The aim

of these initiatives is to enhance transparency and accountability, and to facilitate public service delivery and citizen participation.

Key Words: Fourth Industrial Revolution, innovation, open governance, partnerships, public service delivery.

JEL Classification: O39

1. INTRODUCTION

The current industrial revolution, referred to as the 4IR, is driven by the rapid and dynamic development of technology. The first three revolutions was also driven by technological advancements, but not at the complex rate that is currently experienced. This article aims to determine the level of public service delivery innovation (SDI) in South Africa in the context of the Fourth Industrial Revolution (4IR). In order to achieve this goal, this article is structured around two objectives. Firstly, this article will identify current SDI approaches in South Africa. Secondly, the various risks and best practices for increased public SDI will be reviewed. In conclusion, recommendations on how to achieve SDI are provided. This research is qualitative, conceptual, and descriptive in nature. A conceptual and descriptive approach to research requires methods allows the generation of contextual and conceptual analysis. Unobtrusive research methods were therefore deemed appropriate for this study. Unobtrusive methods include the analysis of data obtained through non-reactive methods. Unobtrusive methods are presumed to avoid the problems caused by the researcher's presence. The use of unobtrusive methods may overcome methodological weaknesses of interviews and questionnaires, which create attitudes in part because respondents commonly attempt to manage impressions of themselves in order to maintain their standing in the eyes of an interviewer (Bryman, 2000).

1.1. Contextual background on the Fourth Industrial Revolution (4IR)

The term 'Industry 4.0', also known as the 4IR, was first coined in Germany at the Hanover Fair in 2011. The German federal government was at the time developing a 'high-tech strategy' that aimed to promote the "*computerisation of manufacturing processes and systems*" that would accelerate and differentiate the German and European Union production industries from other international markets (Alipour, Ustundag, Cevikcan, Kaya & Cebi, 2018:95-96). PwC (2014:17) describes the 4IR as "*the new level of organisation and control over the entire value chain of the lifecycle of products, it is geared towards increasingly individualised customer requirements*". The scale and scope of the 4IR have made the public sector aware that machine-driven, decentralised, and conventional

methods of public service delivery will not be sufficient, productive, feasible, and sustainable throughout the new revolution (Centre for Public Sector Innovation [CPSI], 2018). The pace and robust technological advancements brought about by the 4IR have necessitated governments around the globe to develop and implement new legislative policies, strategies, frameworks, and approaches that will collectively enable the government, private sector organisations, and civil society to be equally inclusive and participative and portray strong leadership skills and shared responsibilities that will be needed to transition to the 4IR (Department of Telecommunications and Postal Services [DTPS], 2018).

In order for public sector institutions to be knowledgeable, participative, and responsive to the turbulent changes and environments triggered by the 4IR, it needs to strengthen internal infrastructure resources and re-engineer departmental capabilities for ensuring the consistent production of reliable, factual, timely, and accurate data and information outputs. Having data and information assets readily available for quick and sound decision making places public sector institutions in a proactive instead of reactive mode to solve service delivery challenges and assists in finding feasible, sustainable, and innovative public service delivery solutions (DTPS, 2018). In order to achieve this, the government needs to heavily invest in Research, Development and Innovation (RD&I) activities, programmes, and projects that can be utilised as stepping stones to the development and foundation of strategic public SDI policies, frameworks, and models. Establishing funding instruments that could be targeted at exploring, identifying, and analysing unscientific, non-economic, or non-technological innovation factors that contribute to conducive and unconducive public SDI outputs of public SDI inputs and outputs that can be incorporated into public sector institutions could lead to development equally tailored to the various needs of delivering public sector goods and services (Manzini, 2015).

The challenges and opportunities presented by the characteristics and environments brought by the 4IR therefore require public sector institutions to embark on open and collaborative innovation within the public service for transforming, redefining, realigning, and improving the systems and processes for the delivery of public sector goods and services. The 4IR has produced significant elements such as AI, cognitive systems, data mining, and the Internet of Things (IoT) (CPSI, 2018). These elements will therefore enable the government to develop and implement proactive public SDI models and tools that can accurately determine and measure the allocation and utilisation of scarce infrastructure resources to meet public SDI inputs, as well as leveraging conducive, fruitful, and diverse stakeholder partnerships for integrated public SDI outputs. The advanced

technologies brought about by the 4IR hold great potential for significant, impactful, sustainable, and innovative transformation across public sector institutions. Improved service delivery; cost-cutting strategies and programmes; high quality and standardisation of public sector goods and services; improved information and communications technology (ICT) skills, knowledge, and capabilities; and conducive legislative policies, frameworks, models, and approaches are all elements that can be successfully incorporated and achieved within public sector institutions (CPSI, 2018; Department of Public Service and Administration [DPSA], 2018).

1.2. Innovation as a driver for the 4IR

The term 'innovation' originates from the Latin word 'innovare', which translates directly to "to make something new" (Lin, 2006; Lin, 2007). According to the *Oslo Manual: Guidelines for Collecting and Interpreting Innovation Data*, 'innovation' can be defined as "*the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organizational method in business practices, workplace organization or external relations*" (Organisation for Economic Co-operation and Development [OECD], 2005). Innovation within the era of the 4IR has become a significant and an exceptionally important topic of study due to its versatility that cuts across multidisciplinary and multidimensional fields, practices, and organisations. Innovation is widely recognised in academic and professional fields such as economics, engineering, science, and sociology, as well as private sector businesses and public sector institutions, as a key driver of economic growth and development, entrepreneurship, the creation of new products and services, robust market development and penetration, improved organisational efficiency, as well as the creation and delivery of public value to a country's citizenry (Bock, Eisengerich, Sharapoy & George, 2015). In an increasingly competitive global market, innovation has been studied and practised in different contexts by governments; the general public; public-private partnerships (PPPs); small, medium, and micro enterprises (SMMEs); private sector industries; supply chain partners; societal organisations; and academic institutions around the globe (Vaccaro, Jansen, Van den Bosch & Volberda, 2012; Costello & Prohaska, 2013; Baskara & Mehta, 2016).

The public sector identifies innovation as an opportunity to establish relationships that will enhance collaboration between various stakeholders from numerous organisations to improve the delivery of public sector goods and services in order to create and achieve public value. Public sector innovation therefore particularly

considers the development and implementation of and experimentation with new ideas, services, and products into viable, practical, and sustainable public service delivery outputs. Public sector innovation therefore aims to ensure conducive policy development, implementation, and monitoring of public sector innovation inputs and outputs, identifying cost-effective strategies and approaches to utilising scarce public sector resources, promoting social cohesion through refined societal ecosystems, as well as improving the quality, standardisation, and delivery of public sector goods and services to citizens (Sørensen & Torfing, 2011; Osborne & Brown, 2011; Salge & Vera, 2012).

1.3. Public service delivery and innovation

Service delivery involves all the aspects relating to when, how, and where a service is delivered to a customer, and whether it is fair in nature. Service components are usually not always physical products, but instead are a combination of resources (skills and materials) that must be appropriately planned and designed (Martins & Ledimo, 2015). Centralised and rigid public sector institutional practices have been identified as contributing factors to unresponsive public sector institutions and environments, and unintended consequences of poor and low service delivery outputs (Kaul, 1998; Kaul, 2000). Governments around the globe have identified the inherent challenges associated with traditional and outdated public sector organisational designs, hierarchical structures, processes, and functions within government departments. Government institutions are often criticised for their bureaucratic practices and methods in terms of the delivery of public sector goods and services, which have in essence been found to be irresponsive, ineffective, and inefficient to the needs of a country's citizenry. Furthermore, challenges associated with the social, economic, political, technological, and global changes have prompted governments to revaluate and explore new forms and methods of service delivery (Gildenhuys & Knipe, 2000; Kekana, 2004).

As a result, governments have had to identify approaches that could be implemented in order to deal with increasingly demanding, turbulent, and complex public sector institutions and environments (Nolan, 2001; Robbins, 2001). Changing traditional and conventional practices of service delivery requires restructuring and reviewing current service delivery mechanisms and developing new methods that will allow public sector institutions to achieve improved service delivery performance and cost-effective use of scarce resources in order to achieve greater efficiency, flexibility, and more responsive and adaptable public sector goods and services (Gildenhuys & Knipe, 2000; Kekana,

2004). To encourage SDI, there is a need to move beyond traditional approaches to service delivery to more alternative approaches. According to Ford and Zussman (1997:6), 'alternative service delivery' (ASD) can be defined as *"a creative and dynamic process of public sector restructuring that improves the delivery of services to clients by sharing governance functions with individuals, community groups and other government entities"*. Within the South African context, the DPSA (2000:13) describes ASD as "*an optimum mix of flexible service delivery programmes, activities and mechanisms that can be strategically utilised to achieve government's service delivery objectives or either directly by government or in cooperation with other sectors such as the private sector or the voluntary sector*". Typical ASD mechanisms include, among others, e-governance, e-government, m-governance, SDI, outsourcing, privatisation, and PPPs. SDI has become a significantly important factor in the survival and profitability of private sector businesses and government institutions for ensuring the delivery of public sector goods and services to the general public. In order to understand the theory and practice of SDI, it is imperative to understand the difference and link between service delivery and SDI. According to Lovelock and Wright (1999:20), service delivery can be defined as *"the actual delivery of physical or intangible products and or services to satisfy the needs and wants of customers or clients"*. SDI can therefore be described as the "*overall processes that are applied to developing new service offerings in the organisation*" (Johnston & Clark, 2001:11). Present literature findings have not yet indicated a precise definition of public SDI. This is because SDI has been researched, studied, and practised more extensively by private sector institutions than by public sector institutions.

1.4. Best practices and risks associated with public sector innovation

SDI should be characterised by network organisations, flexible workflows, global sourcing, client and supplier collaboration, continuous innovation, and enabling technology. Some of the risks include a lack of an innovation culture, lack of adequate resources, resistance to change, absence of organisational learning, red tape, and large, slow, and complex organisations (Dawnson & Horenkamp, 2007; Martins & Ledimo, 2015). Public SDI has in most instances become a prolonged process due to the complexity of delivering mass innovative public sector goods and services (Alam, 2002; Baker & Shinkula, 2007; Ordanni & Parasuraman, 2011). Within the public sector, government departments need to position themselves as service delivery organisations with the aim of developing new and creative methods, strategies, models, competencies, and capabilities in the form of specialised knowledge and skills to a country's citizenry. Public SDI consists of a

combination of service delivery components that require an integrated and holistic approach to utilising internal processes, people skills, infrastructure, and scarce resources in order to arrive at well-designed and planned service delivery outputs (Alam, 2002; Baker & Shinkula, 2007; Ordanni & Parasuraman, 2011).

2. CURRENT SERVICE DELIVERY INNOVATION (SDI) APPROACHES

The aim of this article is to determine the level of SDI in South Africa by identifying current innovations in service delivery. The following analysis is based on the most prominent initiatives in facilitating SDI.

2.1. Establishing a National System of Innovation (NSI)

The Department of Science and Technology (DST) and the Department of Trade and Industry (DTI) have set up institutions and adopted policies that endeavour to achieve social and economic goals through innovation as a catalyst for change. This is known as the NSI. The NSI identifies two significant high-level goals: firstly, quality of life and growth; and secondly, wealth creation. Innovation in the public sector should be embedded in the NSI driven by the DST and its strategic partners. In terms of the White Paper on Science and Technology of 1996, the NSI supports three key interests of the government: firstly, the establishment of institutions, organisations, and policies that give effect to the various functions of the NSI; secondly, to facilitate and maintain a constructive set of interactions between those institutions, organisations, and policies; and lastly, to ensure that there is an agreed-upon set of goals and objectives and common vision in place. The White Paper on Science and Technology recognises the role of the government in the NSI, namely policy setting, resource allocation at the national level, and in legislating regulatory frameworks (CPSI, n.d.).

2.2. The Centre for Public Sector Innovation (CPSI)

The CPSI was established in 2001 by the Minister for the Public Service and Administration. It now functions as a government component as introduced by the Public Service Amendment Act (No. 30 of 2007). The CPSI is overseen by the DPSA, and some of its collaborating partners include various government departments, the Innovation Hub, the Canadian International Development Agency, the United Nations Public Administration Network (UNPAN), and the United Nations Development Programme (UNDP) Regional Service Centre. The CPSI's mandate is to partner with public sector organisations to identify innovative solutions and to develop an environment that supports the implementation and sustainability of innovations (CPSI, n.d.). The CPSI aims to identify, support, and nurture innovation in the public service, to improve service

delivery, and to provide the public sector with research and advice on innovative service delivery with a specific focus on government priorities. The CPSI also aims to recognise the successes of stakeholders in the quest for a more effective, efficient, and accountable government. The CPSI has also established a partnership with the United Nations Department of Economic and Social Affairs (UNDESA), serves as the Online Regional Centre for Southern Africa for UNPAN, and participates in the UN Experts Group on the replication of innovations (UNDP, n.d.). The CPSI Annual Innovation Awards focus on recognising achievements in the following areas: partnerships in service delivery, innovative use of ICT, innovating service delivery institutions, and improvement of internal systems of government.

2.3. The Open Governance Partnership (OGP)

The OGP is a multilateral initiative consisting of 79 country members and 20 local members that work alongside thousands of civil society organisations. The OGP Declaration states that members of the OGP are committed "to the principles enshrined in the Universal Declaration of Human Rights, the UN Convention against Corruption, and other applicable international instruments related to human rights and good governance" (OGP, 2011). South Africa was one of the founding members of the OGP in September 2011, and has made a number of commitments that seek to build on existing government- and citizen-led initiatives related to open government in the country. From the South African perspective, OGP commitments are aligned to the five-year national priorities, the National Development Plan (NDP) targets, and the Sustainable Development Goals (SDGs), which are derived from the assessment of South Africa's achievement of the national vision as stipulated in the Constitution. The issue of service delivery is of particular interest to the OGP (OGP South Africa, 2016). OGP South Africa has received high-level and government-wide political commitment and support (OGP South Africa, 2016). Some of the progress highlights of the OGP include the development of the first National Action Plan, and a self-assessment was completed based on the Action Plan, which was reviewed by the Independent Review Mechanism (IRM). The third Action Plan was recently implemented. Furthermore, the OGP portal was developed in collaboration with various government departments, which provides a mechanism for participation, enhanced access to information, and engagement between civil society and citizens (OGP South Africa, 2016). OGP South Africa, in collaboration with the Open Data Institute (ODI), launched the Responsive Cities Challenge, which seeks innovative uses of open data to solve urban, social, and economic issues. Other collaborating partners include The Innovation Hub, Code for South Africa, Open

Data Durban, Geekulcha, and open data champions in Ekurhuleni, Ethekwini, Tshwane, Cape Town, Kimberley, and Upington municipalities. The challenge awards include cash awards and incubation and seed funding to develop further future social, urban, and economic development solutions (Responsive Cities Challenge, 2016).

2.4. E-governance and the use of information and communications technology (ICT)

Other initiatives include the izimbizo, Govt At Work videos, Namola, and GovChat. The Namola application is a safety emergency line to alert public emergency services, such as the South African Police Service (SAPS), local metro police, or fire or ambulances services (Caboz, 2018). GovChat allows citizens to directly contact political office bearers through the WhatsApp Instant Message Service. Furthermore, the Youth Employment Service (YES), launched in 2018, is an innovative effort through PPP engagement to boost the upskilling of the youth. Another innovative initiative is the launch of the Pharmacy Dispensing Unit (PDU), the first of its kind, which leverages digitalisation and ICT to benefit the community (SA News, 2018). Other initiatives cited by the DPSA (2018) include the installation of 1 500 km of fibre in Johannesburg; the implementation of free Wi-Fi hotspots; the CodeTribe Academy, a software development training programme that has trained over 120 township youths; and the establishment of eKasiLabs innovation centres across Gauteng and Cape Access e-Centres that provide multi-purpose centres with Internet and computer access. The OECD's Observatory of Public Sector Innovation (OPSI) identified the following six innovations in service delivery in South Africa, which are based on open governance: the Gauteng Department of Education introduced an online application system in 2015; the length of hospital stay for amputee patients is reduced and their outcomes improved by using Pulsed Shortwave Therapy (PSWT); the Twinning Programme of the Gauteng Department of Education's wider strategic framework and its 'Re-organisation of Schools' strategy; the Memeza Home Community Alarm, which is a public alarm system designed for low-income communities; and the Sunward Park High public school migrated from printed textbooks to a fully digital platform (OPSI, n.d.). Although South Africa has made much progress, more still needs to be done to leverage e-participation and e-governance, as progress has been slow and uneven (Simons, 2018). There is still the lack of an adequate skills pool, a lack of access to infrastructure, and the high cost of access to services (Mzekandaba, 2018). South Africa should invest in all key enablers for the 4IR, including investment in critical, enabling ICT infrastructure to develop a digital economy; RD&I; skills

development; SMMEs, entrepreneurship, and localisation; and labour market restructuring (*Government Gazette*, 2018).

3. OPEN GOVERNANCE FOR IMPROVED PUBLIC SECTOR INNOVATION

Open governance is defined as a core characteristic of democratic systems in which governance relationships and processes … allow the perspectives, needs, and rights of all citizens to be addressed, including those most marginalized (Harlan & Robinson, 2012; Edwards & McGee, 2008). Furthermore, open governance is about instilling *"a culture of governance based on innovative and sustainable public policies and practices inspired by the principles of transparency, accountability, and participation that fosters democracy and inclusive growth"* (OECD, 2016:3). The principles and practices of open governance often vary for countries around the globe due to the influences and characteristics of various political, social, cultural, technological, and economic factors. Governments around the globe have had to reimagine and redefine their current roles, responsibilities, and functions within the context of providing effective and efficient public sector goods and services to their citizenry. The need for robust, flexible, and responsive service delivery outputs have positioned governments towards decentralised and unbureaucratic systems and practices for improved service delivery (Bingham, Nabtachi & O'Leary, 2005). Over the years governments have had to improve their internal governance systems, processes, and practices in order to ensure that the principles of good governance are adhered to throughout the public sector. This has therefore allowed public sector institutions to re-evaluate, restructure, and redesign current organisational systems, procedures, legislative policies and frameworks, embedded cultures and traditions, as well as functional structures of public sector institutions to be driven towards the improvement of fair, equal, accessible, and improved service delivery outputs (Bourgon, 2011). To ensure greater SDI, a better life for all, sustainable development, and greater participation and benefits from the 4IR, the results of this article suggest the adoption of a new governance paradigm of open innovative governance. Leitão, Alves and Pereira (2016) explain that the new paradigm for public administration is founded on different meanings of distinct dimensions of open innovative governance; where open governance means open data and open information, and open innovation means new types of open relationships between citizens, firms, and municipalities. Leitão et al. (2016:1) assert that *"in the context of citizens' rights, open innovative governance is approached as the right to participate in the innovation process of agenda-setting and decision making"*. This paradigm necessitates collaboration and cooperation between various

stakeholders in society in championing innovation. Hence, multi-stakeholder partnerships such as the OGP are important governance mechanisms to facilitate and strengthen open innovative governance.

4. CONCLUSION

This article reviewed the nature of the 4IR and the implications of the 4IR for the government. The advent of the 4IR has brought about a number of changes, which have affected all levels of society. Innovation is one of the fundamental building blocks of the 4IR. These changes present a number of implications for governments to consider. Governments are compelled to engage in SDI to be able to participate in the 4IR and to fully benefit from it. SDI implies a shift in the conceptualisation of service delivery to find new and better ways to improve service delivery. The risks and best practices for SDI were identified. Prominent SDI initiatives in South Africa, include establishing a national system of innovation, establishing a CPSI, and the OGP. South Africa has made some progress in establishing institutions that support innovation; however, more still needs to be done to leverage multi-stakeholder partnerships, e-participation and e-governance, skills development, access to infrastructure, research and development, entrepreneurship and localisation, labour market restructuring, and reducing the high cost of access to services. The continued development of open governance initiatives can facilitate SDI, build multi-stakeholder partnerships, and enhance transparency, accountability, and citizen participation. The findings presented in this article is conceptual and descriptive, based on secondary data. Future research should analyse open governance and SDI in specific sectors, using primary data, to derive empirical findings.

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