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Revealing Factors Influencing Digital Transformation in South Africa's Social Security Organisations

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ABSTRACT

The study analyses factors influencing digital transformation in South Africa's national social security organisations. Data were collected through semi-structured interviews with 20 purposefully selected respondents and analysed using thematic analysis. The study found seven factors influencing digital transformation in South Africa's national social security organisations: Legal authority, Policy autonomy, Human resources, Finance, digital data collection and use, digital infrastructure and applications and digital skills and collaborative work. The study's findings showed that digitalisation per se does not lead to a better balance between policy alignment and organisational autonomy. On the contrary, the unprecedented access to ubiquitous data and massive processing capacity can heighten the tendencies of rigid systems for greater hierarchical control and lead to a future where decision-making is further centralised, data are inaccessible, the staff is disempowered and innovation is stifled. However, the study also highlights a potential solution—the need for hierarchical leaders to transition into collaborative workspace enablers who enhance the agencies' operational capabilities. This shift in leadership style can inspire innovation and empower staff, thereby mitigating the negative effects of digitalisation.

1 | Introduction

According to Alghamdi and Alghamdi (2022), digital technologies significantly enhance social security organisations' capacity to communicate internally and with their external environment and increase the speed of operational decision-making; these were critical factors in responding to COVID-19. This study responds to the following question: *What factors influence digital transformation in South Africa's national social security organisations?*

Table 1 presents the acronyms of South Africa's national social security organisations and their relationships with other related organisations in the study.

The social security policy and institutional landscape in South Africa configures a complex system involving several institutions (Ulriksen and Plagerson 2017). This study focuses on two South African social security organisations: the *South African Social Security Agency (SASSA) and the Unemployment Insurance Fund (UIF).* The SASSA was established under the SASSA Act 9 of 2004, supported by the Social Assistance Act 13 of 2004, as the legal framework for administering social assistance grants in South Africa. The SASSA functions under the Department of Social Development (DSD) and is responsible for social development, protection and welfare services to the public. The Unemployment Insurance Act 63 of 2001 laid the basis for the UIF. The Department of Employment and Labour (DEL) supervises the fund. It aims to protect contributing workers against the risks of unemployment, illness, maternity and adoption of a child. The UIF is funded entirely through contributions from employers and employees and the returns generated on investments (Unemployment Insurance Fund (UIF) 2020).

TABLE 1 | Acronyms.

Acronym	Explanation
Department of Social Development (DSD)	DSD is the government department responsible for formulating policies and overseeing social development initiatives, including social assistance.
South African Social Security Agency (SASSA)	SASSA is an agency of the DSD that implements policies formulated by the DSD by administering social grants and other support services.
Social Grant Payment System (SOCPEN)	SOCPEN is a system for processing applications, managing records and disbursing payments for various social grants administered by SASSA.
The Unemployment Insurance Fund (UIF)	UIF is a government initiative designed to provide financial assistance to workers who become unemployed or cannot work due to specific circumstances, such as illness or maternity leave. Both the DSD and UIF contribute to the broader social protection framework in South Africa.
Department of Labour (DEL)	DEL is a government department responsible for various aspects of labour relations, employment policies and social security, including the oversight and administration of the UIF.
Auditor General South Africa (AGSA)	AGSA is a government department responsible for auditing, among other entities, the financial statements and performance of SASSA and UIF. This includes assessing whether these entities comply with relevant laws and regulations and manage public resources effectively.
South Africa Revenue Services (SARS)	SARS is a government department responsible for administering various forms of taxes, including income tax, value-added tax (VAT), corporate tax and customs duties. SARS collaborates with SASSA and UIF to verify eligibility for social grants and unemployment benefits. The financial health of the UIF and the resources available for SASSA's social grants depend on SARS's efficiency in tax collection.

Source: Authors.

The South African social security system has also substantially impacted poverty. Social grants represent 71% of household income for the poorest 20% of the population, and all social security expenses total around 24% of government spending (Organisation for Economic Co-operation and Development (OECD) 2020). Between 2020 and 2021, the agency implemented a special COVID-19 relief grant and provided food parcels for vulnerable families. Over 17 million South Africans received social grants in the 2018/19 financial year, including 12.4 million child support grants and 3.5 million older person's grants. Nevertheless, the inadequacy of siloed operational systems and the weak service delivery platforms in South Africa affected the capacity of its social security systems to respond to the social and economic consequences of COVID-19 swiftly (Auditor General South Africa (AGSA) 2021; Seekings 2020; Van den Heever et al. 2020). The social security systems faced several problems reflecting the legacy of political interference in the direct management of institutions, the capture of the administration by public and private interests and the public's lack of trust in them (Kapchanga 2020; AGSA, 2021).

The social security policy and institutional environment are characterised by increasing change amid growing institutional complexity in social security administration; however, many studies on governance and management of social security in Africa tend to assume simple command and control models with political leaders and governing boards controlling the administration (Westerman and Mpinga 2017). Notwithstanding this, over the past 10 years, a new set of empirical studies, notably in Organisation for Economic Co-operation and Development (OECD) countries, have approached the study of social security from the perspective of policy networks and multi-level governance systems (See; Lowndes and Skelcher 1998; Jackson 2013; Froud et al. 2017; Laroque 2019; Talbot and Talbot 2019). The advent of digital technologies and the increased interconnectedness of management and digital data systems within public administration and with private providers have reinforced this stream of empirical research (Erkut, 2020; Henman 2022).

This study adopts a qualitative case study design to analyse factors influencing digital transformation in South Africa's national social security agencies, the Unemployment Insurance Fund (UIF) and the South Africa Social Security Agency (SASSA). In South Africa, social security expenditure is a sizeable part of the government budget (International Labour Organisation (ILO) 2019).

While social security operational governance is fraught with significant challenges, it involves relatively robust and complex management and delivery systems that channel millions of monthly benefits. Therefore, it is crucial to understand the environment in which these institutions operate.

The study, drawing on the COVID-19 experiences, contributes to understanding the new working modalities, routines and individual mindsets needed for social security organisations to become more agile and reap the benefits of digitalisation.

The rest of the article is presented as follows: after the introduction, the article presents the literature review, materials and methods, thematic discussion, synthesis and conclusions.

2 | Literature Review

The digital era governance theory is a rapidly evolving domain of inquiry in the field of Public Administration (Milakovich, 2011; Misuraca, 2019; Erkut, 2020). The theory was formulated by Dunleavy et al. (2006). It is associated with smart or integrative government notions and intelligent public administration (harnessing data and knowledge management systems). The promise of digital technologies through big data, artificial intelligence, blockchain technology and inter-operability of systems is to realise effective coordination and simplification and reduce costs to citizens in accessing services (Brown, Fishenden, and Thompson 2014; Kuznetsov et al. 2024).

Dunleavy et al. (2006) posit that digitisation brings fundamental transformation in structure, the administration process and the quality of its interaction with citizens. The authors believe that it radically moves administration beyond the precepts and practice of New Public Management (NPM). For example, Dunleavy and Margetts (2015) indicate that digital technologies re-enable processes of reintegration and centralisation of some functions previously decentralised (e.g., centralised procurement). In some cases, digitalisation managerial changes depart from NPM by allowing reabsorption into the public sector of activities that had previously been outsourced to the private sector.

Digitisation exploits new technologies to bring disintermediation through fully automated processes, embedding digital technology across the whole service delivery chain. In some cases, tasks are offloaded onto citizens. Digital public administration offers states the promise of service delivery without bureaucratic intervention. Therefore, it is impossible to discuss public administration transformations without referring to the impact of digital technologies, as they fundamentally change the practice of public administration (Dunleavy and Margetts 2015; Gregor and Lee Archer 2016). In the case of South Africa, for example, the requirement to operate a large-scale cash transfer system necessitated the use of a biometric system. (Van de Haar and Van Greunen 2015). Public digital service development entails embedding information technology in existing processes and setting institutional changes that involve social and cultural transformations and building capabilities in the public sector. It also prompts key societal debates. For example, Finnish social security institutions have effectively integrated digital processes into their operations. Nonetheless, they faced significant legal and ethical challenges regarding the use of artificial intelligence and automatic decision-making in social security (Väänänen 2021).

Digital transformation is complex and multifaceted. It requires leveraging technology to streamline processes, improve productivity, reduce costs, enhance service quality and increase citizen engagement (Rahmanov, Salahov, and Hashimova 2023). Digitalisation has multifaceted challenges. In response to the COVID-19 crisis, social security leaders found it difficult to maintain a hierarchical mode of control when many staff were working remotely and more intensively than before the pandemic (Memela 2021). In general, hierarchical leaders have implemented systematic innovation processes that require more autonomous decision-making at lower levels of the organisation. This requires significant changes in how social security leaders see their role (Ross et al., 2019). In other instances, social security institutions have effectively integrated digital processes into their operations. Drawing from a multicase analysis of Australia, Canada, Denmark and France, social security administration and services, common challenges of digital transformation include data security, digital exclusion and stakeholder resistance to change (International Labour Organisation (ILO) 2023). Drawing on a sample of 35 European countries in 2020–2022, digitalisation positively affects social services, with the most vital relationship between digitalisation and the decline in social protection expenditures (Rahmanov, Salahov, and Hashimova 2023). In Denmark, a country that consistently scores at the top of digital government rankings globally (Zeberg, 2021), public sector digitisation has for many years been at the core of the transformation of public administration and the trust of citizens in the state has been the core element of the country's government digital strategy. The Danish Pension Fund (ATP) has a solid and secure electronic platform. This platform provides stable, scalable operations (Nielsen 2019).

Applying digital technologies to current organisations without considering how they affect people and processes does not necessarily lead to building organisational capacity (Collington 2022). The first concern relates to the drivers of digitalisation in public administration. Governments have initially used digitalisation to increase administrative productivity (International Social Security Association (ISSA) 2019). The digitisation of social security operations can potentially reinforce hierarchical decision-making structures (Park and Humphry 2019) by applying data centralisation, real-time monitoring and automated control systems to individual jobs (Park and Humphry 2019). By reducing the ability to make joint sense and learn, workers have less opportunity to contribute to organisational innovation. Moreover, social security systems have increasingly outsourced some business components, especially in digital technologies and services (ISSA, 2022). In many instances, the overreliance on external service providers due to proprietary systems or a lack of internal skills has escalated costs and risks for social security (Froud et al. 2017; Sambo 2021). These developments question the agency of customers, managers and employees vis-à-vis the state and private external actors.

In sum, the Digital Governance Era theory is relevant in explaining South African social security organisations' challenges. Critical to this is an explicit discussion on data management and utilisation, Interagency coordination, skills development and change management and policy and regulatory framework necessary for adopting new technologies in public sector organisations. The theory emphasises the need for strong data governance frameworks to ensure data quality, security and proper use while balancing innovation with regulatory compliance. Moreover, the theory underscores the challenges of interagency coordination resulting from stakeholder collaborations for effective service delivery. In addition, it highlights the challenge of upskilling staff and managing the change process to overcome

resistance to new technologies and methods, which can impede successful digital initiative implementation. Finally, the theory relates to how South African social security organisations face the challenge of adapting existing policies or creating new ones to address data protection and cybersecurity issues.

3 | Materials and Methods

This study employed a qualitative case study design, specifically focusing on the public social security agencies, the UIF and the SASSA from South Africa. Purposive sampling enhanced the depth of understanding regarding a chosen phenomenon and added credibility to the research findings (Shaheen, Pradhan, and Ranajee 2019). Data for each sampled institution was collected through a uniform key informant interview schedule. Twenty respondents were interviewed. They included CEOs, general managers and senior staff of social security administrations and Director Generals, Deputy Director Generals, Directors and Senior management at parent ministries, as presented in Table 2.

Since the organisation was the unit of analysis, interviews were supplemented by additional primary and secondary data for triangulation and to increase construct validity. Responses were analysed using thematic analysis. The thematic analysis emphasises identifying, analysing and interpreting patterns of meaning within qualitative data (Yin 2018). Data were captured, coded and interpreted with Atlas. ti software. The software enabled the visualisation of semantic linkages between codes and quotations (Yin 2018).

4 | Thematic Discussion

This section presents the results grouped into themes that characterise the factors influencing digital transformation in South African social security organisations.

The themes were elicited from the key informants' responses, further reinforced by the author's drawing on the digital governance era theory, Terlizzi (2021) and the OECD (2014). OECD (2014) provides policy guidance for supporting digital technologies in the public sector. It outlines 12 fundamental principles for successfully developing and implementing digital government strategies.

TABLE 2 | Sample selection.

	SOUTH AFRICA	
	UIF (U)	**SASSA (S)**
High-level bureaucrats	1, 2	1
Director	3, 4, 5	2, 3, 4
CEO or COO	6	5, 6
High-level Managers	7, 8, 9	7, 8
Middle Managers		9, 10, 11
Total	9	11

Source: Authors.

The themes elicited include *Legal authority, Policy autonomy, Human resources, Finance, Digital data collection and use, Digital infrastructure and applications and Digital skills and collaborative work*.

4.1 | Legal Authority

The study found that social security organisations in South Africa often lack formal legal power and legal capacity to improve the regulatory social security environment. Consequently, social security law has not been able to keep pace with rapidly evolving policies and operations, especially those involving digital data, a result confirmed by other scholars (Nhede and Marumahoko 2023). Respondents S3 and S4 contended that legal constraints were a hurdle to SASSA's digital innovation. They argued that the overreliance on external providers to pay for services and biometric identification technologies eroded SASSA's legal and technical capabilities. For example, SASSA's law is very detailed in how it prescribes the digital rendition of services. Still, the agency lacks the authority to modify social security regulations (Mashamba and Saurombe 2023). According to most respondents, the DSD lacks sufficient understanding and expertise in specific programmes, such as *Social Welfare Technology Solutions* and services related to social security, which is crucial for enhancing SASSA's effectiveness. As a result, DSD may struggle to provide the necessary support, guidance or resources that SASSA needs to implement its digital services successfully. This lack of expertise can lead to service delivery challenges and limit the effectiveness of social security programmes.

SASSA has tried to adopt new technologies to digitalise and further automate the social grant application system (SASSA 2020). According to Respondent S8, SASSA was still '*very manual and paper-based*'. SASSA's objective was to increase the use of biometric identification, intensify automated grant application processes (e-applications) and increase document management systems (scanning supporting documents, digital signatures and e-storage). Respondent S8 explained that the delays with digitalisation could be attributed to legal limitations. The changes required adaptations in the legislation: '*The Social Assistance Act has not kept pace with our progress. For example, it still says that an application for a grant must be made in person in the presence of an official. So, we cannot put our forms on the internet and have people access them, complete them, and send them back to us. We are nowhere near automation*'.

The COVID-19 pandemic accelerated the pace of change, requiring more dexterity from national agencies to overcome regulatory and technological hurdles (ISSA 2022). For example, SASSA had to negotiate with the South Africa Revenue Services (SARS) in a short period the legal consent to confirm that applicants do not contribute to payroll taxes and, therefore, can be confirmed as not having an income (Public Service Commission 2020:22). SARS is responsible for administering various forms of taxes, including income tax, value-added tax (VAT), corporate tax and customs duties. This revenue is essential for funding government services and programmes. SARS collaborates with other government departments, including SASSA, to share information that can improve service delivery and compliance. This collaboration is vital for initiatives like income verification for social grants.

In the context of UIF, Respondent U6 argued that the difficulty in taking initiatives could be illustrated by the lack of preparedness for implementing the paternity benefit (entered into law in 2019). For him, the UIF did not have to wait for the law to be passed to start preparing the administrative processes for its implementation because this led to significant delays. So, despite the relative capacity to innovate at the policy level, new measures were not rapidly translated into practice. Respondent U3 indicated that public administration rules are too binding for an organisation that operated, according to him, in the financial sector: '*We operate more or less like a bank. We need to benchmark the financial services. There are no abnormal queues in Capitec or Absa*'.

4.2 | Policy Autonomy

The COVID-19 crisis increased public demand for a more responsive policy design to meet emergent needs and allow faster implementation of new benefits and services. The SASSA had issues in 2020–21 because it was not involved in the policy formulation of the COVID-19 emergency benefit and, like the UIF, experienced long delays between policy design and implementation (Auditor General, South Africa, 2021). According to Respondent S3, SASSA exercised significant discretion on operational policies (e.g., regarding technology, financial resources and human resources). Still, the respondent argued that the ability of SASSA to contribute to policy depended on its leadership's authority and its support from the Minister. Contrary to the past when SASSA had no say in policy development, the new CEO's view that the agency should develop its platform to deliver emergency benefits instead of relying on other institutions was supported by the new Minister of the DSD. The minister and the CEO maintained that the opportunity to develop the new grant would offer a learning experience for SASSA and help the agency build its capacity (Seekings 2020).

In sum, SASSA understands and respects the separation between policy and implementation. However, it has significant operational policy capacity in the narrower sense of the ability to decide on the terms of implementation. Despite this capacity, it lacks policy authority vested at the DSD. The DSD's lack of practical and timely operational policy support poses problems for the swift adaptation and modernisation of its working environment. One way to overcome this is stakeholders' support to advance policies aligned with its operational needs. However, this may come at a high cost, in a reactive mode, and is often too late when problems are already impacting people's lives significantly (Latib, 2019).

Several respondents highlighted the UIF's lack of readiness to implement new benefits before COVID-19. In 2019, the UIF received a qualified audit due to its failure to effectively monitor the impact of investments in non-listed companies despite having a strengthened policy mandate for labour activation measures. Senior management identified this lack of monitoring capacity as a concern.

According to Respondent U1, the UIF's decision-making culture was averse to risk. He contended that this posed problems for the capacity of the institution to adapt and innovate and attributed this to a mentality prevalent in the public service: '*People might not be able to drive innovation as they are recruited from the ranks of the civil service*'.

Digital transformation in the public sector may change the way operations are carried out, but it does not necessarily eliminate bureaucracy. Instead, it adapts and potentially strengthens its core functions (Newman et al., 2021). Bureaucracy plays multiple roles, one of which is that its apparent slowness contributes to greater stability and predictability in policy fields (Olson, 2005; Giest and Klievink 2022).

Although bureaucratic red tape can hinder digital transformation, particularly at the development and adoption stages, by affecting the quality of information, especially its accuracy, reliability, relevance and timeliness (Altunok 2018), it can also promote digital transformation through established institutional practices and accumulated expertise (Sørensen and Torfing 2024). Control bodies may contribute to bureaucratic structures by implementing extensive compliance monitoring and reporting procedures. While compliance is essential, it can impose a heavy regulatory burden that complicates innovation efforts towards digital advancement. (Sørensen and Torfing 2024).

Respondent U3 indicated that public administration rules are too binding for an organisation that operates, according to him, in the financial sector: '*We operate more or less like a bank. We need to benchmark the financial services. There are no abnormal queues in Capitec or Absa*'. The ideas could emanate from the innovation diffusion theory, which entails that digital transformation in public sector organisations can be slower due to bureaucratic processes, resistance to change and the need for stakeholder consensus. Rakšnys, Valickas, and Vanagas (2020). Nevertheless, the ideas can be critiqued based on the disruptive innovation theory that refutes this idea. The theory entails that private organisations can disrupt established markets with innovative solutions that meet underserved customer needs (Bashmail, AlAseeri, and Alghamdi 2024). Disruptive innovation and digital transformation influence product and process development methods, production concepts and organisational structures (Roblek et al. 2021).

Social partners (government, business and worker representatives) have expressed a lack of trust in the UIF's capacity to provide new services on several occasions. For example, according to the conclusions of the social dialogue at the Jobs Summit 2018, social partners demanded that the implementation of the Training Layoff Scheme (TLS), the predecessor of the COVID-19 TERS Scheme, be withdrawn from the UIF and be administered by the Commission for Conciliation, Mediation and Arbitration (CCMA), an institution concerned primarily with the resolution of industrial disputes (Seekings, 2020:7). It was further decided that the UIF would fully fund the CCMA for the cost of processing TLS applications. According to the recommendations, the scheme's administration at the CCMA would provide a more efficient payment system.

4.3 | Human Resources

Respondents at the UIF said that the organisation lacked the sense of urgency found in private enterprises. The respondents

lamented the poor responsiveness of employees. They also mentioned the weak staff autonomy. A similar predicament was found at the SASSA. The organisation was perceived as being extraordinarily rule-bound and, at the same time, lacking standardised management processes and control mechanisms. Respondents indicated that this work environment created a risk of errors and fraud in the SASSA's operations and, thus, a sense of insecurity among its staff. The fear of making mistakes caused risk avoidance behaviours and delays in decision-making as people were overly cautious, defensive and unwilling to act quickly.

The UIF Skills Audit Report (2020) revealed that 58.7% of the staff at the UIF-HQ have been with the fund for more than 10 years. Based on these considerations, the institution has formed a hard-wired structure and routine into its bureaucratic culture.

Notwithstanding the undeniable benefits of the stability of the UIF's senior executive management to the UIF's staff commitment, Respondents U1 and U7 maintained that the current model of human resource management no longer matched the future ambitions of the fund. The personnel management policies at the UIF are based on generic functional roles. Staff motivation in those roles relied on traditional civil service factors (such as the missions of public interest and value for the community) and extrinsic systems of rewards based on career advancement and seniority. Whereas strong commitment and hard work based on adherence to a sense of public service mission were important to establish a functioning bureaucracy, the new objectives of customer-centricity, stakeholder management, integrity and responsiveness have become more important to the UIF (cf. UIF Corporate Plan 2020). This shift requires more specialised skills and the consideration of strategic talent management. In other words, the UIF needs to implement performance goals and systems of motivation that go beyond personnel promotion and seniority. These systems should involve intrinsic, intangible and informal-relational motivation elements including wider job contents and empowerment, extended further learning opportunities and peer recognition rewards (Coccia and Igor 2018). Compared to the private sector where he worked before, Respondent U1 indicated that there is insufficient responsiveness and autonomy of staff at the UIF: '*I think that the heartbeat in government is different. Even that sense of urgency is missing. You have to follow up on someone several times. And not all of us have the time to follow up. I think the problem with some people is that all they've known is the government. And they've gotten used to the system of government and how government works. They are automatised to that*'.

4.4 | Finance

The ability to invest in Information Technology (IT) systems remains a concern for many social security organisations (ISSA, 2019a), including those in South Africa. Respondents for South African institutions indicated that it is often impossible to realise consistent IT investments over time because the costs involved are too high and budgets are not readily available from the outset. In the case of the UIF, respondents noted that the modernisation of the information systems depended on the ministerial department's investment decisions.

The Unemployment Insurance Contributions Act of 2002 is administered by and gives extensive powers to the SARS Commissioner to operationalise the collection of contributions for the UIF. According to the UIF Annual Report 2020, this limits the fund's ability to access information on contributors (UIF, 2020).

Respondent U7 expressed concerns about the sustainability of this arrangement: '*There was a time when the contributory side was very strong. So, the fund was growing exponentially. But how will it grow into the future? I'm not sure. Because now, you have a situation where the levels of unemployment have gone up to about 50%-53%. As a result, many people fall below contribution thresholds (which have been raised over the past few years). Low-paid workers fall below tax thresholds, notably in vulnerable employment sectors such as domestic workers. As a result, SARS does not collect their contributions. The UIF directly collects their contributions*'.

Respondent U7 maintains that the increased demand for UIF job retention and re-skilling schemes also strains the fund's finances, calling into question the sustainability of its financial autonomy in the context of low pay, high unemployment and a high informal work economy.

Respondents from the SASSA highlighted the insecurities in the SASSA's social grant distribution system, which may require additional IT investment to address real transformation.

Respondent S4 stated that the South African Postal Services (SAPO) entered into a government partnership with SASSA in 2018 to pay grants. She asserted that the agreement was aligned with the Protection of Personal Information Act (2013 commenced 2020), whereby the personal information of grant beneficiaries should only be used for processing grant payments by SAPO. The beneficiary's account details were captured in the SASSA system. However, for Respondent S4, it was unclear whether SASSA had taken the full extent of the lessons from its partnership with Cash Paymaster Services (CPSs) whether those lessons were adequately considered in the new phase of the payments and whether there were measures to address the same type or new risks. She contended that the fact that the new payment partner SAPO is a public entity was not a sufficient condition to eliminate the risks: Public contracting tends to be characterised by formalised, standardised and rigid procedures. Because public procurement was not easily adaptable and the power was not balanced between the two parties, it became prone to litigation as the environment and knowledge about the technology and its implications evolved. Spiller (2008) called for public procurement in dynamic environments to incorporate notions of relational contracting. This involves parties adjusting their required performance without needing costly renegotiation or formal re-contracting when facing unforeseen circumstances.

4.5 | Digital Data Collection and Use

The examples of the UIF and SASSA showed that low data trustworthiness reduced its usability and significantly hampered the opportunities for digitalisation (SASSA 2020:34). The cases also showed that the scope of the data collection ecosystem for any single organisation is no longer circumscribed to the organisation itself. Social security organisations are using the information provided by

other departments and other social security organisations to check the integrity of their data, reduce costs for users (e.g., by pre-filling information and thus reducing users' needs for data and make better decisions (e.g., through real-time predictive analytics) (SASSA 2020:34). However, sharing information is still problematic in South Africa. For instance, legal impediments in South Africa still barred the use of data from other departments to assist in decision-making on eligibility and qualification for benefits during the crisis.

The use of data enhances SASSA's mission (SASSA 2020). The SASSA Act (2006 amended) allows the agency to administer, evaluate and verify any application for social security and effect payments in respect of benefits other than those envisaged in the act (Article (4) on SASSA's functions). Respondent S1 said that the objective was for SASSA to become the main payment agency for South Africa's social security system. Respondent S3 indicated that SASSA was entering into agreements with the Department of Veterans to pay their pension. Another application of data consisted of linking social grants beneficiaries and their dependents to economic development opportunities.

According to the Minister of the DEL, only a robust collaboration between the UIF and different departments prevented the UIF's COVID-19 response from collapsing (Nxesi, 2020). During the payment of emergency relief funds, the UIF system could not process the excess demands, which resulted in long delays. After COSATU and opposition leaders demanded that SARS be called for help, Minister Nxesi indicated that SARS would assist in case the system failed. At the same time, the UIF became a target of fraud and corruption by employees and employers who made false claims. The Auditor General South Africa (2021), encouraged the UIF to share and use data across the government to check whether people applying for benefits and grants qualified for these and to speed up bank verification processes to minimise fraud-related risks. The UIF partnered with SASSA, the National Students Financial Aid Scheme, the Department of Home Affairs and SARS to access their updated databases.

The UIF and SASSA still fail to sufficiently use all of the information in the broader policy ecosystem for decision-making. In addition to government sources, users and their representatives are valuable sources of information. For example, in South Africa, the NGO Black Sash uses an app to crowdsource information from citizens to monitor service delivery at the SASSA's agencies (Blacksash 2019). This provides valuable, up-to-date and credible information from the bottom up on the quality-of-service delivery and existing service delivery bottlenecks.

4.6 | Digital Infrastructure and Applications

The UIF and SASSA have combined modern, open application systems with outdated application programmes (legacy systems) that are not user-friendly and do not allow open data communication. SASSA has one of the largest databases with individual citizen records (more than 20 million records) in South Africa, which is used to process social grant applications and facilitate payment (Petersen et al., 2015). It is based on a legacy IT system called SOCPEN (Social Grant Payment System), which started in the 1980s. It generates a pay file monthly and automatically produces a list of beneficiaries (Petersen et al. 2015). According to Respondent S10, SOCPEN had high maintenance costs. Respondent S7 added that the database was based on outdated IT standards which caused poor security: '*SOCPEN fraud happened through adjustments on that system*'. Respondent S8 compared SOCPEN unfavourably with SASSA's more modern enterprise management system (EMS): '*The IT system we use to manage our administration and payroll is a modern Oracle system, and it is fine, and we can grow it as we need it. So, we can introduce things like e-services for staff that can be modernised. SOCPEN in contrast lacks a client-friendly user interface and has limited inter-operability with other systems. It has become slow and inefficient*'. According to Respondent S8, it did not meet SASSA's current mission needs. Changes and updates to SOCPEN have become cumbersome to apply and implement. The migration to the Oracle system has been deterred by resource availability. The key to this is limited funding, shortage of skilled personnel familiar with the Oracle system and resistance to change amongst personnel (SASSA 2020:34).

In the case of UIF, the customer relationship management system used two different applications: one for attaching digitalised documents and another to manage the client's information, so that it was not possible to automatically determine whether there were missing or incomplete records each time the information management system was accessed at the front office (Parliamentary Monitoring Group 2023). This caused client delays by increasing the number of interactions with the UIF in order to register. Respondents argued that owing to its dependency on the DEL, the UIF lacked the institutional authority to upgrade the organisation's hardware according to advanced requirements.

4.7 | Digital Skills and Collaborative Work

A related concern is that technology made SASSA operate in domains where expertise was lacking. For example, biometric systems were introduced to combat fraud. However, they used proprietary technologies, and the database was used by the private provider to sell financial products and make unlawful deductions from the grant beneficiaries (Black Sash, 2019).

The implementation of digital technologies should not be a gateway to redesign the role of the state for private entities to fulfil the state's function (Black Sash, 2019: 19). For that reason, in response to the Constitutional Court order on the protection of beneficiaries' personal information, in 2019, SASSA prioritised the development of a data governance framework to provide structure for proper data management practices (SASSA, 2020). Civil society was consulted. Respondent S8 said: '*There is the will with the government to start pulling it together. And they have been discussing it for a long time, bringing things like the POPI Act. (SASSA needs to say) if you get this information, you can only use it for this purpose*'. Respondent S5 emphasised the importance of dialogue between government and civil society for SASSA's better grasp of the intricacies of data management: '*Look at the fingerprint technology. SASSA has a clear mandate to pay grants. The Black Sash puts the pressure on, and then private technology is used. It is an ideal example of how the government should work with private actors*'.

The lack of digital skills at the SASSA led the agency to ask for the South African Revenue Service's (SARS) assistance in

designing and deploying a new database for the COVID-19 relief grant (SASSA, 2020). At the SASSA, business managers were not sufficiently involved in technology decisions. According to respondents, the IT department sometimes operated in silos and did not involve product owners in discussions with providers. Institutional learning and alignment of IT solutions with business requirements were prolonged under these conditions. At the time of the data collection, the study found that the UIF and SASA still showed signs of remaining highly vertical organisations. A report on SASSA's management of the emergency grant recommended preparing and advising the SASSA for the imminent future based on online digital technology systems and platforms that will 'radically change the current SASSA operations model and the application, assessment, and verification processes' (SASSA, 2020:34).

According to Respondent U8, the impact of the UIF on service delivery depends largely on the quality of the interaction between the UIF and the provincial head of the DEL. The inadequate monitoring of UIF processes by the provincial head of the DEL creates obstacles to seamless operations (UIF 2019:18). Respondent U8 further claimed that the lack of close control of UIF operations leads to delays in processing benefit claims evidenced by the fact that benefit applications reach processing offices after the turnaround times have expired. The UIF responded to these concerns by deconcentrating claims processes to 84 sites so that they could be managed directly in more localities and to avoid going back and forth with the UIF head office.

The AGSA (2021) expressed the lack of digital skills at UIF, finding several cases of mismanagement and inaccuracies in payment processes during the UIF COVID-19 response (Auditor General South Africa, 2021). AGSA is a control body for all government departments. It conducts financial, performance and compliance audits for all government departments, including UIF and SASSA. The AGSA reports to Parliament and other stakeholders, offering insights into the entities' financial health and operational effectiveness. This transparency helps in making informed policy decisions.

Some people (including UIF employees) were receiving benefits they were not entitled to, they were paid for longer periods than necessary and some applicants were unfairly rejected due to invalid information. As a result, the UIF strengthened the authentication of employers' and employees' information and validated their bank accounts through collaboration with databases of other government institutions such as SARS and the Department of Home Affairs.

According to Respondents U1, U6 and U8, the UIF does not have a dedicated service delivery system. It operates through the DEL's service delivery network. This comprises 126 labour centres headed by provincial DEL managers and 836 service points. The UIF's staff in provinces include staff dedicated to the UIF only and staff performing several DEL services. The UIF has a service level agreement with the DEL provincial managers but cannot directly manage the staff locally. The provincial head of the DEL supervises all of the staff members who perform duties on behalf of the UIF. Respondent U2 confirmed that the UIF has no direct control over staff supervision at the local level. '*The UIF does not make decisions on the allocation of time for their staff in local offices at the provincial level. There is indirect performance management through the DEL heads of the province*.' The capacity of the UIF to meet its service delivery goals depends on the provincial head's control over UIF business processes.

5 | Synthesis

The production and storage of reliable administrative data have always been essential functions of social security organisations. Citizen identification or employees' and employers' records are crucial for determining the nature of income of in-kind support and the entitlement to benefits. However, many social security organisations continue to rely on data records or ancillary documentation on paper, their manual handling and their physical storage to provide material evidence to inform and support decision-making. In some cases, limited digitalisation occurred (e.g., scanning and printing documents). In terms of the application of digital technologies in social security agencies, this study has shown that the use of data in digital format has practically replaced paper forms to collect, store, utilise and exchange data in social security over the entirety of the policy cycle.

The case studies have shown that social security responses to the COVID-19 crisis have led to unprecedented leaps forward in digitalisation (Public Service Commission of South Africa 2020). Digital technologies include internet data communication, cloud storage, inter-operability of technologies and applications, robot automated applications, machine learning and artificial intelligence (e.g., automated learning by identification of visual or audio patterns), blockchain technologies (secured transaction records) and big data (capture, storage and use of very large amounts of data). This development dramatically increases efficiency, scale, rapidity, security and adaptability. This also increases the productivity of social security organisations and their ability to provide more personalised services (Public Service Commission of South Africa (PSCSA) 2020).

The cases show that both SASSA and UIF combine modern open application systems with outdated application programmes (legacy systems) that are not user-friendly or easily re-configurable and do not allow open data communication with other applications. For example, at the UIF, the customer relationship management system still uses two different applications—one for attaching digitalised documents and another one to manage the clients' information, such that it was not possible to automatically know if there was missing or incomplete information each time the information management system was accessed at the front office. This caused client delays by increasing the number of interactions with the UIF to register. To move away from administration-centric service delivery to customer centricity, the UIF report has called for implementing agile, multidisciplinary teams (UIF, 2020).

The lack of available digital skills was a critical problem at the UIF and SASSA. The lack of digital skills at the SASSA led the agency to ask for the assistance of SARS to design and deploy a new database for the COVID-19 relief grant. The case of the SASSA shows that social security business managers were not sufficiently acquainted with technology. Thus, a report on the SASSA's management of the emergency grant recommended to

'prepare and advise SASSA for the imminent future based online digital technology systems and platforms that would radically change the current SASSA operations model and the application, assessment and verification processes' (SASSA, 2020:34).

The study results align with those of Manda and Backhouse (2018), who investigated the significance of digital skills, collaborative work and digital infrastructure and apps. The study revealed that challenges in implementing policy reforms for digital transition stemmed from poor coordination and fragmentation among government departments. Achieving inclusion and digital access requires a more integrated approach beyond technology. Furthermore, according to Ajigini and Chinamasa (2023), organisational culture, structure and dynamic skills are essential factors propelling the financial sector's digital revolution. Belle and Dyk (2019) document how legislative authority, policy autonomy, corporate governance, organisational design, human resources, finance and outsourcing affect the retail industry. With both centralisation and decentralisation trends being fostered, the effects of digitalisation on worker autonomy and monitoring are complicated (Gerten, Beckmann, and Bellmann 2019). Nonetheless, a decrease in inventiveness may result from growing autonomy without integration (Gebert, Boerner, and Lanwehr 2003). Using technology in government might result in 'digital sclerosis', typified by a reduction in the labour force and rigid procedures (Andersen, Lee, and Henriksen 2020, p.4). Navigating these problems requires leadership to prioritise addressing ethical concerns and facilitating collaborative procedures (Cortellazzo, Bruni, and Zampieri 2019).

It is worth contrasting these cases to the experience of Denmark, a country that consistently scores at the top of digital government rankings globally (Nielsen 2019). Public sector digitisation has, for many years, been at the core of the transformation of public administration. The trust of citizens in the state has been the core element of the country's government digital strategy (Denmark Ministry of Finance, 2018). The organisation has a solid and secure electronic platform. This platform provides scale-able operations, but it is stable. According to Rasmusen (2021), social security organisations should no longer concentrate on IT infrastructure (mainframe, open platforms, computer maintenance). Infrastructure can be outsourced to established private operators or open-source systems using proven, secure and mature technologies. The cost and risks of adopting new solutions at the Danish state pension (*Arbejdsmarkedets Tillægspension*) ATP were controlled because there was a constant interaction between the business and technology domains. IT maintenance and development is non-hierarchical. Problems related to the evolution of IT systems were rapidly tackled without escalating to top management (Zeberg, 2021).

The study findings reinforce the key elements of the challenges of the digitalisation of the public sector, as discussed in ***the digital governance era theory*** in particular, *data management and utilisation, Interagency coordination, skills development and change management and policy and regulatory framework*.

In brief, to be successful, SASSA's technology deployment has some infrastructure prerequisites but also supposes changes in legal, skills and cultural domains. Better and more secure operations rely on relating SASSA's database to other government databases (relational technology). Better decision-making support and to expand its mission supposes that internal and external data silos are broken (relational applications). Business processes must reflect interrelations instead of vertical accountability lines (relational businesses, not institutional relations). Relational staff are at the core of change processes. They need to embrace digitalisation and engage more with different stakeholders to learn.

In sum, the operational autonomy of South African social security organisations requires the consolidation of internal risk control systems. Digital technologies are a key factor in helping them achieve agility and control. Their implementation requires not the adoption of the best available IT and data technologies but rather the balance between sound data technology and business needs and the embeddedness of digital culture and tools throughout the organisation.

6 | Conclusions

The study investigated the factors impacting digital transformation and the balance between South Africa's social security organisations. It found seven factors influencing digital transformation in South Africa's national social security organisations: legal authority, policy autonomy, human resources, finance, digital data collection and use, digital infrastructure and applications and digital skills and collaborative work.

Respondents were unanimous in declaring that the digitalisation of social security was the most critical factor in increasing the capacity of social security organisations. Significantly, it has increased their ability to collaborate, engage different stakeholders and draw on multiple resources, whereas alone, they can no longer respond to numerous and fast-changing social needs. But digitalisation also presents new fundamental risks for their sustainable performance and the fulfilment of social goals.

The study's findings show that digitalisation does not, per se, lead to a better balance between policy alignment and organisational autonomy. Conversely, unprecedented access to ubiquitous data and massive processing capacity can heighten rigid systems' tendencies for greater hierarchical control and lead to a future of increasingly centralised decision-making, inaccessible data, disempowered staff and stifled innovation.

By implementing the digital era governance theory principles, such as Digital Transformation Strategy, Data Governance and Analytics, Citizen-Centric Services, Transparency and Accountability, Stakeholder Engagement, Cybersecurity and Privacy, Capacity Building and Training, Policy and Regulatory Frameworks, Collaboration and Partnerships and Continuous Improvement, South African Social Security organisations can improve operational efficiency, enhance service delivery and better cater to citizens' needs, all while ensuring transparency, accountability and data security.

Data and digitalisation must permeate the country's management processes throughout their organisations to remain current and relevant. Moreover, hierarchical leaders must be enablers of spaces for consultative agreement and collaborative work that enhance the agencies' operational capabilities. South African social security boards or specialised committees must reflect the organisation's expertise and customers' interests.

Social security managers must contribute to policy formation and, in some instances, take the lead in policy design owing to their intimate knowledge of the functioning of social security. All employees must be empowered to think and work in a digital format. Indeed, the current sophistication of social security operations requires more capabilities at the agency level, which are gained by having staff engage at all levels with various new stakeholders (users, technology providers, legal data experts and data scientists). Social security achieves greater agility when authority is devolved where operational decisions are needed. However, achieving the right balance of trust and control remains challenging for many organisations.

7 | Limitations of the Study

The study did not conduct interviews with political executives, which is not uncommon for studies of this nature. Access to and ethnographic explorations of ministers are rare. To circumvent this limitation and obtain the perspective of political officials, the study follows Christensen and Lægreid's (2020), approach to triangulating indirect accounts, public documents and minutes from public hearings and media coverage.

Ethics Statement

This study received ethical clearance from the University of Pretoria (Authorisation number: EMSO59/19).

Conflicts of Interest

The authors declare non-competing/non-conflict of interest.

Data Availability Statement

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

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