

Towards an E-Governance competency framework for public service managers

The South African experiment

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ABSTRACT

The emergence of the so-called networked or knowledge society profoundly transforms governance approaches on a global scale by introducing new forms of collaboration and exchange between society and government. Government institutions and agencies had to respond by optimally utilising ICT technology to facilitate e-governance applications for improved interactions with society. In light of this context a skilled and competent workforce for the application of appropriate e-governance technologies is essential. As the administrative leaders of executive institutions (i.e. government departments), civil service managers have to champion and oversee all e-governance applications and practices. Various general training models for capacity-building of civil service managers exist, but a comprehensive competency framework for their e-readiness as far as e-governance applications are concerned, is largely absent. Such a competency framework should be congruent with the unique governance circumstances, applications, operations, e-governance praxis, regulatory framework, and the ICT infrastructure-growth trajectory of a particular country. The purpose of this article is threefold. Firstly, it will outline contextual perspectives regarding the utilisation of ICT in promoting e-governance in general, including an analysis of the seemingly insufficient alignment between government operational demands and the e-readiness (i.e. competencies) of civil service managers. Secondly, the article will explore the South African Government's initiatives in promoting e-governance competencies of its civil service; and thirdly, it will propose a comprehensive competency framework for civil service managers based on a comparative analysis of various models and best practice around the globe.



INTRODUCTION

The utilisation of Information and Communication Technology (ICT) in government globally experiences exponential growth. Several key ICT areas, including Electronic (e-) government, Bluetooth-connected devices, Broadband Wireless (WiFi), the Internet of Things, Cloud Computing, and Big Data increasingly become entangled with the way society is governed. Also on the local sphere of government the emergence of *Smart Cities* gave rise to the creation of so-called *networked* local governance associated with ICT applications for basic service delivery. These trends are congruent with the reinventing, New Public Management (NPM), and network governance paradigms leading to the blurring of lines between the public and private sectors.

The notion of e-governance gradually revolutionises the way government interacts with its citizenry. Scholars generally concur that there are significant consequences for the application of cutting-edge ICT on conventional governance praxis. Furthermore, there seems to be general consensus that civil service managers, as the custodians and administrative leaders of e-governance endeavours, generally lack the necessary competencies to adequately cope with these new realities and to adequately adjust functional operations for e-governance imperatives. This reality has led to the realisation that the design of an appropriate competency framework for the e-readiness of civil (i.e. public) service managers could significantly improve government's functions and the effectiveness and efficiency of its services.

The aim of this article is threefold. It will first contextualise the utilisation of ICT in government in general and e-governance in particular. The article will secondly outline the South African Government's endeavours in developing its e-governance capacity, and thirdly, it will propose a comprehensive competency framework for civil service managers based on a comparative analysis of competency models and international best practice.

E-GOVERNANCE PRACTICES IN GOVERNMENT

Due to the exponential growth of ICT and the use of social media, e-governance increasingly receives scholarly attention. Also known as *digital government*, *information age government*, *seamless*, *virtual*, or simply as *Dot.gov*, e-governance can be regarded as the provision of certain government services through electronic means (Van der Waldt 2002:45). This generally allows greater accessibility to government information, improved transparency and openness, and the completion of government transactions anywhere, any time and in conformance with equal access requirements (Sprecher 2000:21 and Bertot, Jaeger and Hansen 2012:1). E-governance initiatives strive to utilise the most advanced technologies available to deliver efficient and cost effective services and information (Van der Waldt 2002:46) to keep up with societal demands placed on public administrations (Misuraca, Alfano and Viscusi 2011:98). This utilisation of technologies and the exchange of information between civil society and government, could, according to Marshall and Taylor (2014:2), lead to the creation of *civic intelligence*. Adequate and equal access to government information could foster this *intelligence* and the participation in government decision-making processes. This has led to the rise of the so-called *knowledge society* in which the socio-economic life

of communities is largely based on the creation, dissemination and utilisation of information and knowledge (Castelfranchi 2007:1). Further to this argument, Ho (2002:440) and Goldkuhl (2008:1) add that e-governance applications generally act as drivers to facilitate the transition through various governance paradigms, i.e. from more traditional bureaucratic paradigms to more *reinvention* (cf. Osborne and Gaebler 1993) and networked forms of governance that promote cooperation, interaction, transparency, participation and access to government information (cf. Yildiz 2007:23). E-governance should be seen as a supplementary tool in order to provide more effective governance to the public with permutations such as:

- e-Services for equal access to basic services;
- e-Democracy for political dialogue with citizens;
- e-Decision-making for improved policy-making; and
- e-Management for the more effective performance of government institutions.

Nkwe (2012:2) further argues that e-governance can facilitate access to information, contribute to freedom of expression, lead to greater equity, efficiency, productivity, growth, as well as social inclusion. De Jager and Reijswoud (2013:1) in turn divide e-governance into three interrelated domains, namely e-administration (i.e. administrative functions processed by electronic means), e-services (i.e. service delivery through electronic tools), and e-society (i.e. relationship between government and society).

International best practice

India is globally renowned as one of the leading countries in e-governance (Shailendra and Sharma 2007:7). It is therefore important to take cognisance of their praxis to facilitate capacity-building and to create general awareness of ICT-initiatives. Misra (2011:10) identifies the following initiatives in this regard:

- Capacity-building efforts for organisational capacity-building, the upgrading of professional expertise and skills of individuals associated with the implementation of e-governance projects.
- Capacity assessments that form the basis for e-governance training.
- Establishing training institutions for capacity-building in e-governance.
- Operationalising Capacity-Building Roadmaps (CBRMs) under the overall guidance and support of the Department of Indian Training (DIT).
- Incorporating lessons learnt from previous successful e-governance initiatives in training programmes.

European countries and Arab states have also embraced the use of e-governance as a means to improve service efficiency and organisational effectiveness. According to Al-Khoury (2013:3), the typical Arab e-governance model consists of four phases:

- Cultivation phase: The horizontal and vertical integration within government, limited use of front-end systems for customer services, as well as the adoption and use of Intranet within government.
- Extension phase: The extensive usage of Intranet and the adoption of a personalised web-user interface for customer processes.



- Maturity phase: In this phase, Internet and Intranet applications (*apps*) are merged to lower marginal costs for processing customer's services requests.
- Revolutionary phase: This phase is characterised by data mobility across organisations, mobility of applications across vendors, and ownership of data transferred to customers.

Based on a robust literature survey, Table 1 outlines some of the most significant lessons that could be learned from the international experience as far as e-governance applications in the civil service are concerned.

Table 1: International experiences: Key lessons

Country	Lessons to be learned (critical success factors)
Australia	<ul style="list-style-type: none"> • Utilise an integrated service delivery approach through the utilisation of ICT • Facilitate collaboration between spheres of government and private sector
Sri Lanka	<ul style="list-style-type: none"> • Address inequality and improve transparency
Italy	<ul style="list-style-type: none"> • Use e-governance to reform and restructure the public service • Improve government's image by means of e-governance
Jordan	<ul style="list-style-type: none"> • Use ICT to implement the Millennium Development Goals
USA	<ul style="list-style-type: none"> • Promote public participation • Improve government's transparency • Utilise the principles of the World Public Sector Report in promoting e-governance • Use elements for ranking and further improvements
UK	<ul style="list-style-type: none"> • Integrate elements and best practice of various e-governance models
Japan	<ul style="list-style-type: none"> • Focus on local government for e-governance initiatives
New Zealand	<ul style="list-style-type: none"> • Use pilot projects to establish trust in new e-governance applications
India	<ul style="list-style-type: none"> • Use e-portals on a decentralised basis • Establish service-oriented e-governance architecture and infrastructure
China	<ul style="list-style-type: none"> • Collaborate across spheres of government • Appoint experienced and skilled service providers
Singapore	<ul style="list-style-type: none"> • Use ICT as decision-making and policy implementation tool
Spain	<ul style="list-style-type: none"> • Address the digital divide • Address political interference and promote buy-in • Establish adequate ICT infrastructure
Turkey	<ul style="list-style-type: none"> • Increase Internet broadband access to all areas
Namibia	<ul style="list-style-type: none"> • Use public libraries as government-related information access points as well as capacity-building instruments

Source: (Sithole and Van der Waldt 2016:152)

As far as e-readiness is concerned, Table 2 indicates that South Africa is the country with the highest levels of e-readiness on the African continent with a rating of 0.51%, followed by Lesotho with 0.38%. Furthermore, South Africa's rating for ICT implementations is 0.39%, compared to the world average of 0.45%. This is an indication of the relative high levels of

commitment of the South African Government to the applications of ICT for e-governance, although there is still more to be done when compared to the North American region.

Table 2: Comparative analysis of e-readiness in Africa

Region	Rating	Best region (%)
Southern Africa	0.39	South Africa: 0.51 Lesotho: 0.38
Northern Africa	0.31	Egypt: 0.48 Libya: 0.36
Eastern Africa	0.28	Mauritius: 0.51 Seychelles: 0.49 Kenya: 0.35
Central Africa	0.24	Angola: 0.33 Gabon: 0.32
West Africa	0.19	Cape Verde: 0.41 Nigeria: 0.31 Ghana: 0.30
World average	0.45	N-American average: 0.84

Source: (Hafkin 2009:6)

From the international e-governance practices and applications outlined above it can be deduced that e-governance could facilitate institutional effectiveness, accountability and responsiveness. These benefits can, however, only be realised if civil service managers have the required knowledge and competencies to manage processes associated with ICT applications.

Various countries advanced in e-governance applications worldwide have instituted models to empower officials in the use of ICT. Typical e-governance (competency) models in the African context are listed in Table 3.

Table 3: E-Governance models

Models
e-Presence Measurement Model for Africa
Colesca's Ideal e-Governance model for African countries
Bwalya's e-Governance conceptual model for the SADC region
Onyacha e-Governance model for Southern Africa for government, citizens and businesses interaction
Ojhai, Palviuz and Gupta's E-Governance Self-Service Model
Layne and Lee's E-Governance Four-Stage Model
Westholm's Triangular ICT Model between the Actors of E-Governance
Gohel and Upandhyay's E-Governance Model
Islam and Ahmed's E-Service Delivery Model
Teerling and Pieterse's Citizen Multi-Channel Behaviour model

Source: (Author's own research)



These models provide for the general dimensions, domains, and functions that direct competencies and skills required of senior civil service managers to effectively manage all processes associated with e-governance.

THE STATUS OF E-GOVERNANCE IN SOUTH AFRICA

The digital revolution that is shaping the way government is serving society did not leave the South African Government unaffected. The South African Public Service comprises the executive arm of government structured on three spheres, namely national, provincial and local. The Public Service furthermore has nine provincial administrations, each with its own provincial departments as decentralised representatives of the national departments. The country also has 278 metropolitan, district and local municipalities. There are currently 39 national departments that have Cabinet Ministers as political heads and Directors-General as administrative heads (South Africa 2015:25). Its senior management cadre is known as the Senior Management Service (SMS) which represents managers from the ranks Director to Director General. The SMS is the focus (i.e. target population) for purposes of this article.

According to Statistics South Africa's (StatsSA) September 2015 Quarterly Employment Statistics (QES) survey there were 455 701 national government employees, a further 1 118 748 people working for provincial authorities, 311 361 people were employed by municipalities and 275 851 employees worked for "other government institutions" like libraries, parks, zoos and education and training authorities. This adds up to a grand total of 2.161-million civil servants. According to Makhubela (2013) there are 9 113 members of the SMS. This number excludes employees at local government level.

South Africa's e-governance vision and strategies were outlined for the first time in its *Information Communication Year 2025*. In terms of this document some basic steps would have been taken to establish public information terminals for Internet and e-mail access. Furthermore, in February 2001, the Department of Public Service and Administration (DPSA) produced a document titled: *Electronic Government: The Digital Future; A Public Service IT Policy Framework*, which should be viewed in light of the functions of the newly established State Information Technology Agency (SITA). SITA is a public entity providing ICT, IS (Information Systems) and related services to the South African Government (Van der Walddt 2002:47). This framework can be regarded as a major step towards guiding government institutions into the digital age and thus making South Africa more competitive. The framework specifies guidelines to make government more productive, cost effective and to improve service delivery. The framework also provides some indication on how to address the challenges of interoperability, IT security, economy of scale, and the elimination of duplication. Since then various policies, strategies and plans have been issued to direct e-governance initiatives.

On provincial spheres various initiatives are taken to promote e-governance. Especially the Soccer World Cup held in June 2010, acted as a catalyst to propel broadband access and general ICT infrastructure development. The Free State Provincial Government, for example, introduced its Provincial Communication Strategy (2014) which aims, among other things, to create an integrated online presence for the broader provincial and local government sector by introducing a government portal (website). Also the Gauteng Province launched its *GCR e-Governance Strategy 2015–2020 Moving from e-Government to e-Governance* plan in

June 2015. This plan outlines four stages towards e-governance maturity in the province. Furthermore, the Universal Service and Access Agency of South Africa (USAASA) (2011:2) launched its *Broadband Inter-City Network*, which includes the provision of rural/under-serviced areas opportunities to interact with ICTs, reduce the telecoms’ cost to the economy and encourage innovative services to communities, and to improve municipal services.

The establishment of a comprehensive statutory and regulatory framework

In line with international best practice to accommodate the exponential growth of ICT in government operations, the South African Government has established an extensive statutory and regulatory framework to facilitate the e-readiness of public managers, including their competencies (refer to Table 4).

Table 4: Statutory and regulatory framework for e-governance competencies

Statutory framework	Regulatory framework
<ul style="list-style-type: none"> • Public Service Act of 1994 as amended by Act 30 of 2007, read in conjunction with the Public Service Regulations, 2001 • <i>The Constitution of the Republic of South Africa</i>, 1996 • <i>Public Service Laws Amendment Act 47 of 1997</i> • <i>Skills Development Act 97 of 1998</i> • <i>Public Finance Management Act 1 of 1999</i> • <i>Protected Disclosures Act 26 of 2000</i> • <i>Electronic Communication and Transaction Act 25 of 2002</i> • <i>State Information Technology Agency (SITA) Act 38 of 2002</i> • <i>The Promotion of Access to Information Act 2 of 2000</i> • <i>Protection of Personal Information Act 4 of 2013</i> 	<ul style="list-style-type: none"> • The Senior Management Service Handbook outlines the conditions of service • Human Resource Development Strategic Framework • HR Planning Strategic Framework • The Leadership Development Management Strategic Framework, which provides a structure for capacity development of senior managers • The Public Service Regulations of 2001 • Minimum Information Security Standards (MISS) • Handbook on Minimum Interoperability Standards (MIOS) • Open Source Software Strategy and Policy (August 2003)

E-governance competency support institutions and mechanisms

In support of the execution of the statutory and regulatory framework highlighted above, the following institutions and mechanisms are established to support e-governance as well as the ICT competencies of civil service managers:

- The Department of Public Service and Administration (DPSA) acting as policy-making, regulating and strategy formulating body with the specific purpose of coordinating e-government activities across government;
- The National School of Government (NSG), the official training institution for government with their flagship competency programme for senior managers, the Executive Development Programme (EDP);
- The Training Fund to facilitate skills development of public managers;
- The Sector Education and Training Authorities (SETA);
- The Education and Training Quality Assurance (ETQA) and the South African Qualification Authority (SAQA);



- The State Information and Technology Agency (SITA);
- The Government Information Technology Officers Council (GITOC); and
- The Inter-Departmental Forum responsible for transversal e-government projects (e.g. Department of Home Affairs' National Identification System (HANIS), Integrated Financial Management System (IFMS), South African Social Security Agency, and the Integrated Justice System (IJS).

In light of the initiatives mentioned above, it can be argued that South Africa already laid a solid foundation for effective e-governance. However, endeavours are hampered by several issues. These include the general lack of technically skilled people, inadequate competency levels of senior managers, limited financial resources, poor energy resources, inefficient research and development of ICT infrastructure, the presence of 11 official languages, a high level of illiteracy and the high costs of Internet access and ICT equipment. Further, South Africa is a society that experiences significant "digital divide". This digital divide occurs as the affluent, more urban communities have improved access to communication technologies while rural communities lag behind (Qina 2015:5).

TOWARDS AN E-GOVERNANCE COMPETENCY FRAMEWORK

According to Königová, Urbancová and Fejfar (2012:131) the concept "competency" generally has two main meanings. The first meaning regards a competency as a power and a scope of authority associated with a certain person or body. The second meaning refers to the capacity (i.e. abilities, skills, traits, expertise, experience, qualities, attitudes, values and characteristics) of an individual to adequately perform a certain function. In the context of managers, Boyatzis (2008) refers to so-called "threshold" competencies as competencies that are crucial for managerial work. These threshold competencies include knowledge, skills, attitudes and personal characteristics necessary to improve management performance. In turn, Schroder (1989), Spencer and Spencer (1993), and Delamare and Wintertone (2005) distinguish between "basic" and "high" performance competencies. Basic competencies are regarded as knowledge and skills essential for personal efficiency in the performance of a manager's job (i.e. specific job-related tasks and responsibilities). High performance competencies, in turn, refer to the ability of a manager to lead an entire organisation to perform above standard results. These competencies, according to Schroder (1989) can be divided into cognitive, motivational, directional and performance competencies. A "managerial competency" thus refers to a specific skill-set of an individual to perform certain managerial responsibilities. This definition serves as a working or operational definition for the purposes of this article.

In the context of ICT applications in general and e-governance in particular, a literature study revealed that a multitude of studies were undertaken to pinpoint core managerial competencies (cf. Coyne, Hall and Clifford 1997; Rothwell and Lindholm 1999) resulting in various general managerial competency models (cf. Lucia and Lepsinger 1999; Rothwell and Lindholm 1999). However, how these general models relate to e-governance core competencies in particular is unclear. According to Zouridis and Thaens (2003:161) the application of technology in governance requires unique and specific competencies. It thus

becomes imperative for civil service managers to become competent in domains that would enable them to utilise ICT in e-governance successfully. According to UNPAN (2011:12), UNESCO (2014:14), and NeGP (2014:5), the following types of training are typically provided to cultivate various e-governance competencies:

- Type 1: Basic Information and Communication Technologies (ICT) skills for office work, applications for office productivity as well as Internet and e-mail.
- Type 2: Governance-related knowledge and skills to address the competencies required to execute ICT projects. This includes e-governance life cycle, Governance Public Relations (GPR), Business models and Public Private Partnership (PPP), regulatory frameworks, and Contract Management.
- Type 3: Specific e-governance competencies and applications.
- Type 4: The soft skills to develop the right attitudes for e-governance transformation and reforms such as change management, team building, leadership and effective presentation.
- Type 5: The specialised professional skills in the areas of technology and management such as project management, IT Security, and IT Audits.

Table 5: Generic e-governance management competencies

Country	Intellectual competencies	Management competencies	Human relations competencies
Australia	<ul style="list-style-type: none"> • Policy adviser • Strategic thinker 	<ul style="list-style-type: none"> • Master public and private management • Adaptive leadership 	<ul style="list-style-type: none"> • Personnel management • Focus on results • Know how to manage contracts and networks • Adapted leadership /global vision • Interpersonal relationships • External relations
Canada	<ul style="list-style-type: none"> • Cognitive ability • Creativity • Ability to shape the future (vision) 	<ul style="list-style-type: none"> • Taking action • Organisational understanding • Teamwork • Management of partnerships 	<ul style="list-style-type: none"> • Interpersonal relationships and communication skills • Personal qualities • Flexibility and self-confidence • Personnel management
France	<ul style="list-style-type: none"> • Adaptability • Strategic thinking • Management of knowledge • Management of networks • Communication • Innovation and continuous learning 	<ul style="list-style-type: none"> • Evaluation of performance • Leadership skills • Adapted leadership • Ability to manage projects 	<ul style="list-style-type: none"> • Personnel and Human Resource Management
UK	<ul style="list-style-type: none"> • Learn and improve • Have personal impact • Think strategically 	<ul style="list-style-type: none"> • Emphasise the delivery of services 	<ul style="list-style-type: none"> • Personnel management • Get the best out of people
USA	<ul style="list-style-type: none"> • Strategic thinking • Adaptability • Management of knowledge 	<ul style="list-style-type: none"> • Evaluation and performance of managers • Leadership 	<ul style="list-style-type: none"> • Personnel and Human Resource Management • Management of networks and partnerships

Source: (UNDESA 2009:48)



Table 5 outlines various generic and broader e-governance-related competencies as identified by some countries.

Jayaram (2013:7) explores the e-governance training initiatives taken by sub-Saharan African countries such as Kenya, Uganda, Benin, Burkina Faso and Senegal. He (Jayaram) identifies the competencies required in e-governance training (Table 6) as cognitive, non-cognitive, specific and technical competencies.

Table 6: E-governance competencies required

Cognitive skills	Non-cognitive skills	Specific and technical skills
<ul style="list-style-type: none"> • Basic cognitive skills • Analytical and critical thinking 	<ul style="list-style-type: none"> • Openness to learning • Communication: oral and written • Work habits, i.e. punctuality and professionalism • Teamwork • Personal integrity • Leadership • Entrepreneurship 	<ul style="list-style-type: none"> • Language proficiency • Basic business skills • ICT skills

Source: (Jayaram 2013:7)

Ojo *et al.* (2007:4) further elaborate on the e-governance training needs formulated by the Organisation for Economic Co-operation and Development (OECD), specifically for African countries. According to Ojo *et al.* (2007:4) the OECD identified four sets of competencies essential for e-governance:

- Information technology competencies (e.g. skills necessary to implement e-governance such as IT literacy, hardware, software, communication)
- Information management competencies (e.g. deployment of knowledge resources within the public administration and the sharing of knowledge)
- Information society competencies (e.g. the ability to use ICT resources to implement an organisation’s e-government strategy in accordance with its overall strategy)
- Updated management competencies (e.g. traditional managerial skills are insufficient for new organisational ICT needs; hence, managers need skills to manage organisational changes resulting from e-government).

Lessons learned from these international training initiatives and skills could serve as best practice guidelines and assist other countries, like South Africa, to use similar e-governance competency-based training programmes. In this regard, SAQA (2012) developed unit standards for ICT training as listed in Table 7.

The DPSA furthermore introduced the SMS Competency Framework as key instrument to ensure that the Public Service is professionalised, to establish a shared understanding of the critical success factors for performance, and to facilitate the successful operationalisation of the strategic objectives of the respective departments. The SMS Competency Framework applies to all senior managers and forms the basis for performance improvement, and competency assessment results inform the development of Personal Development Plans and Workplace Skills Plans. Workplace Skills Plans represent targeted training and development interventions to improve the competency levels of

Table 7: The South African Qualification ICT Unit Standards

Type	US ID	Unit standard title	NQF level	Credits
Core	115431	Analyse feedback contexts and apply constructive feedback techniques	5	3
Core	114051	Conduct a technical practitioners meeting	5	4
Core	386055	Conduct software inspections and reviews	5	5
Core	114049	Demonstrate an understanding of computer management systems	5	7
Core	386053	Evaluate requirements and requirement-based test design	5	7
Core	386054	Manage the software testing process	5	7
Core	386056	Plan and design software testing activities	5	8
Core	115384	Test a computer program against a given specification	5	6
Core	13099	Contribute to the implementation, post-implementation review and maintenance of information systems	6	16
Core	114044	Demonstrate an understanding of change management for computer systems	6	3
Core	259277	Perform analysis of requirements	6	25
Fundamental	258836	Analyse and apply different ICT systems development and lifecycle (SDLC) models for a given scenario	5	8
Elective	115358	Apply information- gathering techniques for the development of computer systems	5	7
Elective	115402	Assist in researching the problem and the solution within a consulting context	5	6
Elective	115385	Demonstrate an understanding of the principles of implementing and managing an e-commerce website	5	12
Elective	115380	Demonstrate an understanding of the various types of e-commerce applications	5	8
Elective	243824	Develop an integrated project management plan for a simple to moderately complex project	5	8
Elective	119086	Develop an understanding of systems-security methods	5	8
Elective	117926	Identify and explain ICT risks and recommend security solutions	5	5
Elective	258838	Investigate implementation options for Information Technology (IT) solutions	5	6

Source: (South African Qualification Authority 2012:16)



the SMS. The Competency Framework (DPSA 2013) has five core competencies and five process competencies (Table 8).

Table 8: The South African SMS Competency Framework

Core competencies	Process competencies
<ul style="list-style-type: none"> • Strategic capability and leadership • People management and empowerment • Programme and project management • Financial management • Change management 	<ul style="list-style-type: none"> • Knowledge management • Service delivery innovation • Problem-solving and analysis • Client orientation and customer focus • Communication

Source: (dpsa SMS Handbook Chapter 5 Competency Framework 2013)

Based on an extensive literature survey and a synopsis of common elements identified in various e-governance models (*cf.* Table 3), the author drafted a competency framework for e-governance. This framework is a synthesis of the following:

- principles and elements of core managerial competencies;
- principles and elements of ICT in governance;
- principles and elements of e-governance;
- principles and elements abstracted from an analysis of international models for e-governance; and
- case-study analysis (i.e. best practice analyses of selected countries)

The framework, as main contribution of this article, is presented in Table 9.

Table 9: Towards a comprehensive e-governance competency framework for senior civil service managers

E-Governance maturity level	Competency Level	Competency Type	
		Cognitive	E-Governance (technical and managerial)
Level 1 (Cultivation phase)	Basic / Emerging	<ul style="list-style-type: none"> • Creativity and entrepreneurship • Adaptability • Communication • Innovation and continuous learning • Teamwork • Personal integrity • Leadership 	<ul style="list-style-type: none"> • Basic Information and Communication Technologies (ICT) skills for office work • Basic understanding of e-governance transformation and reforms such as change management, organisational development, general IT literacy, and the utilisation of appropriate hardware and software
Level 2 (Extension phase)	Intermediate	<ul style="list-style-type: none"> • Knowledge Management • Ability to shape the future (vision) Knowledge Management • Service delivery innovation • Problem-solving and analysis • Client orientation and customer focus 	<ul style="list-style-type: none"> • Identify, design and execute e-governance projects • Manage related knowledge and competencies required to execute ICT projects

E-Governance maturity level	Competency Level	Competency Type	
		Cognitive	E-Governance (technical and managerial)
Level 3 (Maturity phase)	Advanced	<ul style="list-style-type: none"> • Policy advice • Strategic orientation • Adapted leadership 	<ul style="list-style-type: none"> • Direct e-governance programmes and applications • Direct e-governance strategic orientation in government • Contract management • Management stakeholders and external relations • Manage the ICT resources to implement a department's e-government strategy in accordance with its overall strategy and government policy
Level 4 (Revolutionary phase)	Expert / Specialist	<ul style="list-style-type: none"> • Systems thinking • System dynamics • Complexity theory • Global vision and perspectives 	<ul style="list-style-type: none"> • Management of networks (eg PPPs) • Specialist skills in the areas of technology and management such as programme management, IT security, and IT audits. • Manage organisational changes resulting from e-government programmes

It should be noted that this framework should be supported by adequate ICT infrastructure and operational concerns. The following issues deserve special attention:

- Competency development policy, strategy, and operational plans
- Allocation of adequate resources (i.e. finances, equipment, facilitators, mentors, etc.) for competency development and to adopt cutting-edge technologies
- Political commitment and support to guide e-governance endeavours
- Design, development and delivery of appropriate competency-based training and assessment on a regular basis for the different managerial levels within public institutions (i.e. junior management more technical-based, while senior managers more conceptual-strategic oriented)
- Monitoring, evaluation and oversight strategy and plan
- Knowledge sharing between public institutions
- Create a uniform ICT-platform (i.e. hard- and software compatibility between the different spheres and tiers of government)
- Adherence to international trends and best practice
- Inculcate a culture of early ICT adoption (i.e. overcome the inherent general reluctance to use technology in managerial applications).

CONCLUSION

The purpose of this article was to explore the utilisation of ICT in promoting e-governance in general, and to investigate the South African Government's experiment in this regard in particular. It is evident that the competencies of civil service managers are crucial for the



successful implementation of e-governance imperatives. To accommodate this reality, a comprehensive competency framework for senior managers was proposed. This framework should further be refined through empirical investigation and be adjusted to fit the particular circumstances of a country.

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