Organisational Challenges in the Implementation of 'one-stop' e-Government in Rwanda

Pierre Bakunzibake[1, 2], Åke Grönlund[1] and Gunnar O. Klein[1]
[1]Örebro University School of Business, Sweden
[2]University of Rwanda, College of Science and Technology, School of ICT, Rwanda
Pierre.Bakunzibake@oru.se
Ake.Gronlund@oru.se
Gunnar.Klein@oru.se

Abstract: One-stop e-government holds potential benefits in all contexts and especially in the context of developing countries and in the Least Developed Countries (LDCs). Implementation of one-stop e-government can be challenging as it normally requires addressing a number of organisational issues including those related to the integration of the individual government information systems of different departments which traditionally function as silos; tackling organisational issues can be difficult due to the nature of the public sector. However, the contemporary literature paints a picture of scarce research on the organisational issues that impede the implementation of one-stop e-government initiatives in LDCs. This paper explores the organisational issues underlying the implementation of 'one-stop' e-government initiatives in Rwanda, an LDC. The study explores the status of these elements as of and up to March 2017. The qualitative case study methodology used for this study involved data collection by means of documents and interviews with key managers from central government organisations, from a private company, and from local government service clerks. Template analysis was used as a method for data analysis. Even though the number of online services for citizens, businesses, and other agencies is growing rapidly and easy payment of service fees is available, a number of organisational issues were identified. These include the lack of a clear plan of 'to-be' service processes and a corresponding change management strategy. Service re-design was taking place very much ad hoc. There were also unclear systematic organisational learning mechanisms and unclear operational goals in the local government. Addressing these issues would contribute towards improving the implementation of one-stop e-government and its corresponding services in such a context. The paper contributes to research by providing insights into organisational issues in a country currently in an early stage of e-government development. For Rwandan e-government professionals, the paper suggests a way forward. It also helps decision makers in Rwanda and similar countries undertaking one-stop initiatives to understand the problem context of actions taken towards IT-driven institutional reform.

Keywords: One-stop e-government, e-government organisational challenges, Rwanda

1. Introduction

'One-stop' e-government entails the provision of a bundle of online public services by various government departments via a single portal (Wimmer, 2002). Such type of e-government has attracted developed and developing countries (United Nations, 2016) to provide easy access to information and services, and to facilitate the development and maintenance of such services. As of 2016, the number of countries with one-stop implementation reached 90 out of the 193 members of the United Nations (i.e. about 47%), including over 50 developing countries (United Nations, 2016). One-stop e-government appears to be especially advantageous in the context of developing countries and Least Developed Countries (LDCs) with fewer resources; these countries may have few legacy IT systems to replace. For instance, in LDCs, accessing a bundle of services and information from a single point, through one-stop service centres, directly benefits the public (Hoque and Sorwar, 2015) as such service centres help people overcome the digital divide prevalent in such contexts (Nkohkwo and Islam, 2013).

Implementation of e-government and one-stop initiatives is often challenged by a broad range of barriers. Weerakkody, El-Haddadeh and Al-Shafi (2011) categorise these barriers as political, social, technological and organisational, whereas Nkohkwo and Islam (2013) classify them as infrastructural, financial, socio-economic, political, organisational and human issues-related (Nkohkwo and Islam, 2013). Specifically, the implementation of one-stop e-government requires tackling organisational change issues related to adaptation of processes to incorporate information technologies, structural reforms in terms of the adjustment of bureaucratic structures, and updating underlying legal issues among multiple organisations (Wimmer, 2002; Hughes, Scott and Golden, 2006). Tackling those issues becomes even more of a necessity in cases where one-stop initiatives expand to involve a wide range of agencies. The real value of e-government derives less from simply placing

public services online than from rethinking and reorganising delivery processes in organisations (Kennedy, Coughlan and Kelleher, 2010). The organisational change necessary is achieved through cooperation among agencies and via coordination. The required organisational change for the implementation of one-stop e-government is apparently even more crucial in developing countries, which still lag far behind developed ones in terms of transactional and 'networked' e-government services (United Nations, 2014). In the context of developing countries, technology can be imported, political will and support can be in place and a certain level of required resources can be acquired in some countries for e-government implementation, socio-economic issues can also be addressed to some extent for the same in some part of that context. However, effective ways of tackling organisational issues cannot simply be imported – 'all business is local', and depends on local conditions and traditions. Despite this, lessons on how organisational issues have been addressed in similar contexts can be shared and can be a source of inspiration.

Addressing organisational issues is challenging due to the inherent characteristics of the public sector, e.g. high demand for accountability, legislation, regulations, and budgets (Jurisch et al., 2013), and a political context with a broad range of constituent groups (Robertson and Seneviratne, 1995). Moreover, government agencies may also act independently, with their own initiatives, which are sometimes poorly coordinated (Irani, Love and Montazemi, 2007). Furthermore, addressing organisational issues becomes especially important in the context of developing countries; where these issues, seen as part of 'public sector reality', can be overridden by foreign consultants, IT vendors and even aid donors who have been dominating the design process of e-government, for example in Africa (Heeks, 2003).

Now that the number of countries, including developing ones, embracing one-stop e-government has risen, research on one-stop e-government organisational challenges is expected even on Least Developed Countries (LDCs). These countries are the ones with lowest e-government development indices in general (United Nations, 2018) and fewer resources compared to other developing countries (UNCTAD, 2017). While a few studies on one-stop e-government have been done on LDCs (e.g. Hoque and Sorwar, 2015; Wimmer, 2002; Twizeyimana, Larsson and Grönlund, 2018), the number of studies thoroughly investigating organisational issues involved in the implementation of one-stop initiatives in LDC context is limited.

This study set out to explore the organisational issues underlying the implementation of Rwandan one-stop e-government as far as it had come by Spring 2017. Rwanda is one of the 47 LDCs (UNCTAD, 2017) and that country is currently an e-government leader among LDCs in Africa (United Nations, 2018), thanks to its long-standing ambitions to become a regional 'ICT hub' (Mlay et al., 2013; MINECOFIN, 2015). It is expected that the findings on Rwanda case can guide and inspire other LDCs and inform researchers about LDC e-government challenges. Studying organisational issues requires familiarity with local conditions: the first author is Rwandan, and hence a potential user and beneficiary of Rwandan e-government services and familiar with the Rwandan context and the national language, Kinyarwanda. But before digging into the case of Rwanda, what do organisational issues in the implementation of e-government entail? What is the big picture of research on those issues in the developing context?

2. Overview of organisational issues in the implementation of e-government

According to Kohlborn, Fielt and Boentgen (2013), socio-political, legal, organisational, security, user, service, data and information, and technical issues are important for implementation of e-government, including one-stop e-government in particular. The term 'organisational' in (Kohlborn, Fielt and Boentgen, 2013) implies elements related to 'organising' as part of management. However, handling issues related to legal, security, user, service, data and information, and technical aspects, including for example, infrastructure, also pertains to organisation. In this paper 'e-government organisational issues' refers to a set of aspects pertaining to an organisation or a group of organisations in e-government implementation. Periasamy and Sia (2007) indicate that e-government organisational issues are related to people, processes, and technology aspects. It is worth noting that the interaction between these aspects also results in challenging organisational issues. For example, in Nkohkwo and Islam's (2013) work, organisational issues encountered during e-government implementation are viewed in terms of organisational structure, power distribution, prioritisation of deliverables, and organisational culture and coordination. Other sources indicate that organisational issues include coordination, collaboration and enterprise architecture issues (Axelsson et al., 2008; Liu and Zheng, 2015; Ebrahim and Irani, 2005).

Other e-government organisational barriers include leadership support, commitment among senior public officials, clear vision and management strategy, and re-organisation of business processes (Ebrahim and Irani, 2005). Re-organisation of business processes is echoed in Hughes, Scott and Golden's (2006) and Kennedy, Coughlan and Kelleher's (2010) studies. According to these studies, organisational issues relating to adjustments in government processes and affecting job responsibilities and structural reforms in terms of organisational structure and laws and regulations are particularly important. Wimmer (2002) draws attention to the same issues; for instance, adapting traditional processes to technology, adapting internal organisational elements (workflow, databases etc.) including adapting communication to service seekers while guaranteeing the necessary level of security, authenticity and privacy. All these aspects are a part of updating underlying regulatory issues. Coordination to facilitate cross-border operations is also mentioned among other organisational elements in Wimmer's (2002) work. In a more elaborate but not comprehensive way, Nurdin, Stockdale and Scheepers (2011) view organisational barriers to e-government in four dimensions: Involvement in terms of participation, commitment, partnership, and responsibility; Adaptability issues consisting of aspects related to change management, transparency, trust and organisation learning; Mission related issues pertaining to vision, goal and strategy aspects; and Bureaucracy viewed in terms of hierarchy/structure, regulation and coordination. Regarding bureaucracy, Nurdin, Stockdale and Scheepers (2012) indicate that changes in bureaucracy and management processes should take place to promote e-government implementation whereas Cordella and Trempi (2015) believe that e-government should support the nature and operations of bureaucratic organisations in the public sector.

Organisational issues facing e-government implementation also include factors related to top management, human capital and information management among other others (Nkohkwo and Islam, 2013). Other types of organisational issues are data interoperability (Lee, Hon and Cheung, 2009) and technical systems integration for interoperability between e-government information systems, which is necessary for one-stop services (Paul, 2014). This implies the harmonisation of policies among agencies and, from a management point of view, it requires coordination, calling for political support.

In the context of developing countries, e-government implementation is frequently hampered by a number of the aforementioned organisational issues. For instance, Qatar was found to lack a flexible strategy that could 'consider how to restructure existing organisational models, roles, responsibilities, training and employees' needs' (Weerakkody, El-Haddadeh and Al-Shafi, 2011, p. 186). In the case of India and Indonesia, IT project failures were recorded as resulting from organisational structures not being properly adapted to information technology (Nurdin, Stockdale and Scheepers, 2012). Lack of change management was identified as a problem in Brunei, where poor coordination was found to lead to silo mentality and the duplication of projects (Kifle, Low and Cheng, 2009). The absence of both an appropriate legal framework and collaboration among government agencies are serious challenges currently impeding e-government implementations in Jordan (Al-Shboul et al., 2014) and in Jamaica (Waller and Genius, 2015). In Sub-Saharan Africa, 'top management support, leadership, deficiency and implementation guidelines, recruitment of ICT personnel, change management, human capital development, lifelong learning, organisational motivation, information management, internal efficiency, non-contextualization of e-government practices, partnership between private and public sector, ability and commitment, disintegrated projects, e-government vision, evaluation framework, transparency' have been constraining e-government (Nkohkwo and Islam, 2013, p. 257). Implementation strategy, coordination and commitment among government officials were found to be particular challenges for Zambian e-government (Chen et al., 2006).

Being complementary, different types of organisational issues taken from the aforementioned studies amalgamate to define, in a comprehensive way, which organisational barriers face e-government implementation in general. These organisational barriers can be categorised as a set of dimensions including:

- *Processes-People related issues* (e.g. Mission related issues such as vision, goal and strategy aspects, Human capital development, Coordination, Involvement, Adjustments and streamlining of processes, Organisational structure, Job responsibilities and Power distribution, Rules and regulations, Bureaucracy, Policies, Privacy, Information management)
- *People-Technology issues* (e.g. employee skills and training)
- *Process-Technology issues* (e.g. enterprise architecture issues)
- *Organisational Adaptability issues* (e.g. change management, participation, organisational learning)

- *Technology related issues* (e.g. data interoperability and integration of technical systems, data security).

In short, e-government organisational barriers can be categorised as aspects related to people, processes, and technology, taking place at both organisational and inter-organisational levels. The organisational issues resulting from the interaction between people, processes and technology are the ones that are the most challenging for e-government implementation; they are the ones mostly identified from the literature and recur in this study. As far as the provision of a bundle of services by multiple government departments via a single portal (i.e. one-stop e-government) is concerned, the integration of individual government agency information systems, which traditionally function as silos, is mandatory. Thus, even though all the organisational barriers pertaining to the above-mentioned dimensions are necessary to address for the implementation of one-stop e-government, specific organisational issues among them are particularly crucial. For instance, coordination, involvement , adjustments and streamlining of processes, organisational structure, job responsibilities, rules and regulations, bureaucracy, policies (as part of *Processes-People related issues*), change management, participation, organisational learning (as part of *Organisational Adaptability issues*), and data interoperability and technical systems integration, data security (as part of *Technology related issues*) are the most important when achieving seamless integration in one-stop e-government. To what extent have these crucial organisational issues constraining one-stop e-government been investigated in the context of developing countries and LDCs?

In the context of developing countries, for example in Asia, one-stop initiatives were or are being implemented in a number of countries, including India, Bangladesh, Bhutan, Sri Lanka, and Mongolia (Local Governance Initiative and Network, Asia, n.d.). However, there is limited knowledge on the specific organisational issues facing one-stop e-government initiatives in such contexts. For instance, it is recently it became apparent that the integration of back-office processes is crucial for the success of Kazakhstan's one-stop e-government (Janenova and Yesdauletov, 2017). Another example among the few existing is by Paul and Paul (2014) who underscore the importance of interoperability between e-government systems for one-stop services, and proposed an enterprise architecture framework for the Indian context.

Specifically looking at LDCs, studies such as Hoque and Sorwar (2015) investigated the socio-economic impact of one-stop e-government in the Bangladesh case, where one-stop e-government is being run under public-private partnerships. Twizeyimana, Larsson and Grönlund's (2018) study indicated that information infrastructure and management related issues are among those which have been confronting the digitalisation process of the very first one-stop e-government services in Rwanda in 2015. However, that study investigates challenges in general and it does not investigate issues related to streamlining of service processes which are crucial for systems integration towards better services in one-stop e-government. Furthermore, it was recently reported that Liberia recently started initial implementation of one-stop e-government with a choice of a federal enterprise architecture which has not yet been operationalised (United Nations Public Administration Network, 2017).

However, the studies on LDCs are very limited when it comes to a thorough investigation of crucial organisational issues constraining the implementation of local one-stop e-government initiatives for better services.

3. Rwanda's one-stop e-government

E-government in Rwanda dates back to the early 2000s, when implementation was devised in four five-year phases (GoR, n.d.). Currently, the fourth phase (2016-2020), following a strategy dubbed 'Smart Rwanda Master Plan', is focused on a digital transformation of the government agenda, including 24/7 self-services, moving towards a cashless and paperless economy with 95% of government services carried out online by 2018 (Ministry of Youth and ICT, 2015). One-stop e-government is one of the Rwandan e-government projects of the current phase. Eliminating paperwork ('zero paper') and reducing overhead expenses, e.g., for travel for service users ('zero trip') are part of the goals of the project (GoR, 2016; Participant MYICT1 2016, personal communication, 18 October). As in other Least Developed Countries, some of the Rwandan e-government projects are donor-funded; for instance, the e-Rwanda project (World Bank, 2013), and foreign consultants from e.g. Korea are involved in projects such as one-stop e-government (Participant MYICT1 2016, personal communication, 18 October).

Rwanda's one-stop portal was established in April 2014 under the brand name 'Irembo' (meaning 'main entrance'). This portal is implemented and operated via a 25-year public–private partnership between the Rwanda Development Board (RDB), representing the Government of Rwanda (GoR), and Rwanda Online Platform Ltd. (ROPL), a private company. The 'Irembo' portal is expected to transform government service delivery while increasing information access and fostering transparency (GoR, 2016). The portal (accessible at https://irembo.gov.rw) became operational in July 2015 and, as of March 2017, there were 44 services running. The services provided via the portal include driving permits, land and civil registration services (such as marriage certificates, birth certificates), ID services (ROPL, n.d.), and more. ROPL is expected to collaborate with government agencies at ICT policy level, at public service regulation level, and at service provision level. On the technical side, a Singaporean company is developing software for the online platform (Participant ROPL1 2016, personal communication, 19 October). An overview of the literature on the critical issues of the implementation of e-government is presented in the next section, while the methodology, results discussion and conclusion follow in the subsequent sections.

4. Methods

This qualitative case study was conducted using documents and interviews in order to gain an understanding of a phenomenon in its natural settings (Merriam, 1988; Sargeant, 2012; Walsham, 1995). Our case is Rwanda, with a focus on 'one-stop' e-government. In this section we describe how data was collected and analysed.

4.1 Data Collection

Data collection started in July 2016. The first author conducted interviews up to January 2017, and documents were searched up to April 2017. Open-ended and semi-structured interviews were conducted and 19 were retained after discarding 13 which proved irrelevant. We retained interviews with 13 managers and 6 with service clerks (sector land managers and civil registrar officers). The interviewees were from the RwandaOnline Platform Ltd. (ROPL) and from Rwandan public sector organisations including the Ministry of Youth and ICT (MYICT) at the e-government policy level, the Rwanda Development Board (RDB/IT), following up the implementation of IT projects nationwide including the 'one-stop' portal and other e-government initiatives, the Rwanda Natural Resources Authority (RNRA), administering land services among other responsibilities, the Ministry of Local Government (MINALOC), in charge of the administration of local government at the policy level, and the National Identification Agency (NIDA). Additional interviewees were six service clerks ('sector land managers' and 'civil registrar officers' at sector level) from the local government (LG) in four districts in six sectors who provide land and civil registration services to citizens, businesses, and other agencies.

Informants were chosen based on being experts; having roles pertinent to the 'one-stop' initiative, or knowing a great deal about organisational issues. Ward and Elvin's (1999) study inspired our design of the interview questions, which were mainly centred on the achievements and challenges of implementation, as well as changes made, in progress, or planned.

Regarding the process of conducting the interviews, the first author stayed at two agencies for a long period of time and paid ordinary visits to the remaining agencies. He stayed at the Ministry of Youth and ICT (MYICT) in Rwanda for 17 days, where he had a seat, first doing preliminarily interactions with e-government managers so as to amend the questionnaires while also identifying potential participants in other agencies. At MYICT, this was followed by formal interviews on two different days. The interviews at MYICT took 30 minutes on average. The first author subsequently obtained permission for an extended stay at the company operating one-stop services (ROPL) for 8 days, initially interacting with senior managers and with service managers in informal discussion meetings. This was followed by semi-structured formal interviews, each of about 30 minutes. At other agencies, interviews took 25 minutes on average. Notes were taken during all the interviews. Table 1 shows the details of the respondents. The participants' codes are used to refer to participants in this paper in order to provide anonymity.

Table 1: Interviewees

Agency	Number of Participants	Participant Position	Participant codes
MYICT	2	Managers, Central government	MYICT1, MYICT2
ROPL	6	Managers, Private agency	ROPL1…ROPL6
RDB	1	Manager, Central government	RDB1

Agency	Number of Participants	Participant Position	Participant codes
MINALOC	1	Manager, Central government	MINA1
NIDA	1	Manager, Central government	NIDA1
RNRA	2	Managers, Central government	RNRA1, RNRA2
LG/districts	6	Service Clerks, Local government	Dist1…Dist6

We also searched for documents related to e-government policy, strategies, laws, and service digitalisation and other online information, for example on events related to Rwanda's one-stop e-government.

Most of the public documents were found online using information from participants; a few were given to us by government employees, and others, including news -related online material, were web-searched using information from preliminary findings. A list of key public documents analysed is shown in Table 2. We also obtained internal documents related to service digitalisation from ROPL, the organisation in charge of the implementation of one-stop online platform.

Table 2: Key public documents analysed

SN	Document name	Document Category/Source
1	ICT law n°24/2016 of 18/06/2016	ICT law (Ministry of Information Technology & Communications, n.d.)
2	SMART Rwanda Master Plan 2015 ~ 2020	Policy and strategy ('National ICT Strategy,' n.d.)
3	National Information and Communication (NICI) Plan - 2015	Policy and strategy (Ministry of Youth and ICT, 2015)
4	Prime Minister's Order №115/03 Of 08/04/2016 Determining the Structure of the Manual of Administrative Procedures in Public Service	Ministerial Order (Office of the Prime Minister, 2016)
5	Law n°86/2013 of 11/09/2013 establishing the general statutes for public service	Ministerial Order (Office of the Prime Minister, 2013)
6	Implementation Framework for the Development and Deployment of Rwanda's Single Integrated E-government Platform	Public-Private Partnership/e-Gov Implementation (GoR, 2016).
7	Performance Contract 2016-2017	Performance Contract (MINALOC, n.d.)
8	RALGA members consulted on Local Government organisational Structure Review	Organisation Structure (RALGA, 2013; MINALOC, 2013)
9	Rwanda Civil Registration and Vital Statistics Systems	Report (National Institute of Statistics of Rwanda, 2016)
10	Law nº 32/2016 of 28/08/2016 governing persons and family	Law governing persons and family (MINIJUST,2016)

4.2 Data Analysis

Interview transcripts, documents and online information related to Rwanda's one-stop e-government were analysed by first identifying what took place at different stages of the development and then extracting achievements and types of challenges. We adopted template analysis which is a form of thematic analysis also referred to as template coding (Blair, 2015). This method is rooted in the development of template codes or themes, also referred to as a priori codes. Template themes can be initially formed from a subset of data and then applied to further data, revised and refined (Brooks et al., 2015). Themes can also be drawn from literature or theory (Blair, 2015). In this study we formed our template themes from the literature.

The stages in the Business Process Change (BPC) approach (Pateli and Philippidou, 2011) and the taxonomy of organisational factors in Nurdin, Stockdale and Scheepers' (2011) work were used as template themes. Due to the nature of one-stop e-government, organisational issues in the BPC approach (reflecting stages) and in Nurdin, Stockdale and Scheepers' (2011) taxonomy were found to be complementary and important in

relation to tackling the crucial organisational issue of integrating one-stop e-government: integrating individual government agency information systems, traditionally functioning as silos, is a challenging organisational issue important for the implementation of one-stop e-government. The BPC approach emphasises re-organising processes as crucial for one-stop e-government and reflects this through seven stages. The BPC approach was found to be informative as it gives an account of what takes place at particular stages and outlines aspects of change in business processes (Kettinger,Teng and Guha, 1997; Pateli and Philippidou, 2011) which are not explicitly mentioned in Nurdin, Stockdale and Scheepers 's (2011) taxonomy.

In a complementary way, Nurdin, Stockdale and Scheepers' (2011) taxonomy describes the organisational issues which need to be overcome in order to create an appropriate environment for implementing and running an e-government project such as 'one-stop'. It classifies organisational factors and provides a checklist for the execution of an e-government project, requiring well-defined organisational procedures, organisational adaptability to changes, active involvement and commitment of organisational stakeholders.

Amalgamation of the BPC approach and Nurdin, Stockdale and Scheepers' taxonomy (2011) resulted in a comprehensive set of organisational issues fundamental to the implementation of one-stop e-government, which serves as a model for our data analysis. The BPC stages and Nurdin, Stockdale and Scheepers' taxonomy (2011) are shown in Table 3.

Table 3: Data analysis model: BPC approach and Nurdin, Stockdale and Scheepers' (2011) taxonomy

BPC Approach	Nurdin, Stockdale and Scheepers' taxonomy (2011)		
Seven Stages	**Organisational Dimensions**	**Factors**	**Organisational barriers**
1. Envision	1. Involvement	Participation	Lack of Participation
2. Initiate		Commitment	Lack of Commitment
3. Diagnose		Partnership	Lack of Partnership
4. Redesign		Responsibility	Lack of Responsibility
5. Reconstruct	2. Adaptability	Change management	Inadequate Change Management
6. Evaluate and		Transparency	Lack of Transparency
7. Institutionalise Change		Trust	Lack of Trust
		Organisation learning	Lack of Organisation/employee Learning
	3. Mission	Vision	Unclear Vision
		Goal	Unclear Goals
		Strategy	Unclear/No Strategy
	4. Bureaucracy	Hierarchy/Structure	Rigid Hierarchy/Structure
		Regulation	Restrictive Laws and Regulations
		Coordination	Weak Coordination

In the process of analysis, we sorted the data content of the interview transcripts, documents and online material by retaining sections of data related to core organisational issues while discarding issues such as those related to financial and socio-economic aspects. The retained data was coded by annotating data sections. Those data sections were interpreted according to the template themes. The categorisation of data sections began with the BPC stages as template themes. Secondly, we continued the categorisation of data into organisational factors of Nurdin, Stockdale and Scheepers (2011) as themes. In that process, it is worth noting that we combined the 'Transparency' and 'Trust' factors into one theme and also merged the 'Vision' and 'Goals' factors into another single theme due to their similarities, and this resulted into 12 themes from Nurdin, Stockdale and Scheepers' (2011) taxonomy.

5. Findings

This section describes the findings from exploring the achievements and organisational challenges of Rwanda's one-stop e-government implementation as described in section 4.2, 'Data Analysis'.

5.1 Business process change towards a single integrated platform

This sub-section gives a brief account of the development so far of one-stop e-government in Rwanda. The Business Process Change (BPC) approach is used as an approach to specify what each stage entails in terms of the implementation of an e-government project requiring changes in processes (Indihar, Jaklic; 2007; Pateli and Philippidou, 2011. The approach consists of seven stages; six from Indihar and Jaklic (2007) and the seventh added by Pateli and Philippidou (2011): 1) Envision, 2) Initiate, 3) Diagnose, 4) Redesign, 5) Reconstruct, 6) Evaluate and 7) Institutionalise change.

5.1.1 Envision

This stage concerns establishing management commitment and vision, a review of business strategy and IT opportunities, and identification and selection of key business processes. According to the e-government coordinator at the Ministry of Youth and ICT (MYICT), MYICT and the Rwanda Development Board (RDB) took the lead in establishing a feasibility study, identifying a set of services to implement. One hundred services were prioritised for the first period (Participant MYICT1 2016, personal communication, 19 October).

5.1.2 Initiate

This stage involves setting project goals, project planning, organising a project team and stakeholder/employee notification and persuasion. In April 2014, on behalf of the government, the Rwanda Development Board (RDB) established a 25-year partnership with a private company, Rwanda Online Platform Ltd. (ROPL), to build, operate, and transfer a government portal through which government services would be provided. The governance structure of ROPL is composed of managers at the company, at the Ministry of Youth and ICT (MYICT), and at the Rwanda Development Board (RDB), the last being in charge of e-government coordination (GoR, 2016). A manager at ROPL pointed out that ROPL has partnered with other private companies and intermediate agents for the implementation and provision of e-government services. He also added:

> *'to start with, we contacted and notified both government agencies and our private partners. We involved them through campaigns and through regular communications. And they became part of our daily activities. ROPL staff visited government instutitions frequently; all the time they were working with those institutions either to collect requirements or to deliberate on amendments of initial services. Actually the first 15 services we launched on the portal in July last year were a product of working together. Though, initially we faced some difficulties with private agents[i.e.those providing services in service centers], now things have started to move in the right direction. Of course without support from the private agencies and their agents, this would not have been possible' (Participant ROPL1 2016, personal communication, 19 October).*

5.1.3 Diagnose

This concerns documenting and analysing the existing processes and resources before re-design. After putting online a sample of first services by July 2015, it was noticed that the digitalisation of these services was a mere automation of existing service processes. In order to prepare improvements in the service digitalisation*,* in March 2016, RDB, on the government side, made a follow-up of the Rwanda 13th Leadership Retreat resolutions about the 'one-stop' initiative and informed government agencies that (1) appointment of business process owners was to be done by April 2016, (2) analysis of in-depth 'As-is' business processes was to be conducted by 31 May, 2016, (3) equipping back-end offices with necessary IT infrastructure was to be done by December 2016, (4) training 'relevant' staff for service provision was to be done by December 2016, and (5) awareness workshops were to be conducted for ministers, other government servants, and IT staff by April 2016 (RDB, 2016b). The resolutions of the Leadership Retreat were directly enchanced, in April 2016, by enacting a ministerial order from the Prime Minister's Office that *'Every public institution shall put in place and use a manual of administrative procedures customized to the institutional organization'[…]'This Order shall come into force on the date of its publication in the official Gazette of the Republic of Rwanda'* (Office of the Prime Minister, 2016, p. 62). However, in September 2016, five months after the ministerial order was enacted, the first author contacted one ministry and another active central government agency and found no activity to that end. One of the participants in the position of a business processes owner, said: *'I don't know about such a ministerial order; if you have seen the document, please send it to me'.* When the first author requested a manual of administrative procedures from the other central government agency, another

participant shared an outdated manual in line with the previous ministerial order of 2013 and mentioned that they had not yet started working on a new manual following the new order.

5.1.4   Redesign

This is about designing a new process to meet the strategic objectives set up in the envisioning stage and to fit with the existing human resource and IT architectures (Pateli and Philippidou, 2011).

A manager at the company in charge of implementation of the online platform indicated that there was still no roadmap document related to the redesign of processes: '*Currently we have no guiding document on how to improve services; each service manager here is expected to see how a service can be improved[…] some of the services especially land [services] are still slow. The land service manager meets with the change management committee at RNRA [a government agency for land administration] and they brainstorm to figure out how to improve land services, […] services managers for ID services, birth, marriage-related services and many others are planning to see how the services can be improved, […]driving permit registration services are the ones that are faster today*' (Participant ROPL1 2016, personal communication, 19 October).

There exist two change management committees, one at ministry level and another at the agency in charge of land administration (Participant MYICT1 2016, personal communication, 22 September). Regarding land services, it was observed that 'to-be' processes for 'Irembo' are currently about digitising paper-based forms used in government agencies. A service manager at ROPL said '*[…] initially government staff were reluctant even to talk to us[…]but now it is okay, they came to understand how useful it is to offer services online. We contact government staff, and understand how services are being provided from them. We digitalise those services by following the same sequence steps […] emulating how they are normally provided. We are currently faced with digitising all the forms used on the government side for land services so that an application can be filled in online*' (Participant ROPL2 2016, personal communication, 26 October). Reducing the number of actors is on the agenda only in a very few planned service processes such as loss of ID and birth certificates. An interviewee indicated that the slow pace in service redesign was due to regulatory issues: '*We hope some of issues related to improving online services will be sorted out via re-design of processes, but there are still obstacles on regulatory issues; the ministry of ICT and Law Reform Commision are working on it*' (Participant ROPL3 2016, personal communication, 20 October). On the other hand, a manager mentioned that the number of services online increased from 15 in July 2015 to 37 services by 19 October 2016; the same respondent said that the process of paying for services can now be done easily either by phone or using credit cards in addition to visiting a nearby bank (Participant ROPL1 2016, personal communication, 19 October).

5.1.5   Reconstruct

This stage requires that change management techniques are applied to ensure smooth migration to the new process model. This is where Rwanda's e-government development is still 'naturalistic', searching for effective methods. As yet there is no known new process model for the overall re-design of services and no corresponding document on this. Digitalisation of services is based more on the existing government structure; this is an automation of existing service processes. Regarding the management of changes introduced by 'automation' of services, some steps have been taken, such as training offered to service clerks in the local government. For instance, one interviewee mentioned that RDB and ROPL have been conducting training for staff who provide services at sector level (i.e. clerks), not only to increase their skills but also to mitigate their potential resistance to change (Participant RDB1 2016, personal communication, 14 September). Such training was confirmed by service clerks (e.g. Participant Dist1 2016, personal communication, 15 September; Participant Dist2 2016, personal communication, 15 September).

5.1.6   Evaluate

This involves monitoring the new process model to determine if it meets the set goals. To the best of our knowledge, the monitoring and evaluation step in relation to Rwanda's one-stop e-government is about districts benchmarking; current reporting uses 'Irembo' usage statistics to benchmark districts in terms of the amount of services provided in each of the 30 Rwandan districts; an interviewee said:

'*Here at Rwanda Online we monitor, every month, the extent to which each district provides services via 'Irembo' in terms of the amount of services rendered by land sector managers and civil registrars [i.e. service clerks]. Districts are benchmarked accordingly;, reports on this are shared with them on a monthly basis. We*

make visists to bad peformers to help them and learn what can be improved in the continued process of putting services online' (Participant ROPL4 2016, personal communication, 13 December).

The interviewee indicated that performance indicators such as service cycle time are not yet systematically measured. However, information from these benchmarking reports and follow-ups made can be a basis of measuring attainment of goals related to the implementation of one-stop e-government.

5.1.7   Institutionalise change

Institutionalise change emphasises 'the need for changes at a wider scale, such as the change of a public organisations' structure or the review of a regulatory framework or regulatory interventions, to assure full adoption and implementation of an inter-agency e-government project' (Pateli and Philippidou, 2011, p. 137). Institutionalisation involves several steps, including reviewing the regulatory framework and the mechanisms used to implement changes.

A preliminary step has been taken in Rwanda. According to two interviewees there are currently 174 'laws' (the interviewee actually meant articles in legislation) which have a potential to constrain better implementation of services. These are being reviewed in a Law Reform Commission (Participant MYICT1 2016, personal communication, 22 September; Participant MYICT2 2016, personal communication, 22 September). At the organisational level, institutionalisation means establishing and documenting new administrative procedures and new service processes. Institutionalising changes in the context of e-government and services can be viewed as an ongoing activity, not only in Rwanda. As some changes would appear necessary in future, mechanisms to implement them will be needed.

5.2   Organisational issues following Nurdin, Stockdale and Scheepers' Taxonomy

Nurdin, Stockdale and Scheepers' (2011) taxonomy comprises four dimensions – involvement, adaptability, mission and bureaucracy – in this study detailed as 12 organisational factors used as themes.

5.2.1   Involvement

According to Nurdin, Stockdale and Scheepers (2011), government employees and government agencies are the focal actors during the adoption and implementation of an e-government initiative. The involvement of these actors is reflected in their willingness to participate in activities pertinent to implementation: to build partnerships, to improve commitment and support provided by leaders, and to take maximum responsibility for the adoption and implementation of such initiatives. In addition to willingness, we understand that the involvement of stakeholders can also require coordination. We present in this sub-section the development of participation, commitment, partnership, and responsibility.

a.   Participation

In the adoption and implementation of the Rwandan e-service portal, no issue regarding lack of participation is observed. A ROPL manager testified that all sector land managers and civil registrar officers participate in the initiative activities such as training. The respondent said in an interview: '[…] *we bring on board people providing services at sector level to share achievements and problems as the rolling out of Irembo takes place; we do it during training events we organise for them together with RDB and MINALOC'* (Participant ROPL5 2016, personal communication, 24 October). District agencies (i.e. local -government agencies) also participate in providing one-stop services via the online portal. An interviewee at ROPL indicated that participation by districts in portal usage differs, but the entire local government participates in one-stop activities (Participant ROPL4 2016, personal communication, 13 December). Service clerks in 18 out of the 30 districts in Rwanda made more than 50% of all transactions via the e-service portal during October 2016 (ROPL, 2016d). Participating agencies in the Irembo initiative include RwandaOnline, the Ministry of Youth and ICT (MYICT), RDB, MINALOC (for child registration, matrimonial, and death certificates), NIDA (for National ID services), Rwanda Natural Resources Authority (RNRA) (for land services), police department (for driving permits), National Public Prosecution Authority (for criminal record services), and local government organisations at district and sector level (ROPL, n.d; MINALOC, n.d.)

b.   Commitment

The commitment of top leaders to advancing the Rwandan e-service portal is evidenced by the establishment of a 25-year Public Private Partnership and a contract between the government and a private company to digitise government-to-citizen and government-to-businesses services, with 100 services online before the end of August 2017. In connection to this, focal persons were designated to act on the government side, one at the

Ministry of Youth and ICT and another at the RDB ICT department (GoR, 2016). The political will to support the initiative can be traced through the statements of top leaders. For instance, in February 2016, in the first e-Government week campaign, the Minister of Youth and ICT encouraged all citizens to take advantage of the e-government services provided to them, stating that one benefit to Rwandan citizens, residents, and even tourists looking to visit the country was that they would now '*get access to government services without necessarily having to move from place to place*' and that '*Irembo is heading in an exciting direction, paving the way for citizens to suggest the services they want online*' (Umuseke Ltd., 2016). In relation to this, the Rwanda Governance Board CEO said, '*Smart countries have good governance, but smarter countries have good governance and advanced technology*' and that '*Irembo is a key part of good governance'* and encouraged all citizens to use it because '*as a self-service it will save the individual both time and money*' (Umuseke Ltd., 2016).

c. Partnership

Nurdin, Stockdale and Scheepers (2011) do not define the concept of partnership. Here we use it to mean arrangements where parties, known as partners, agree to cooperate to advance their mutual interests.

Some partnership events involving Rwanda Online and government agencies have taken place. For instance, on 19 August, 2014, the day on which the initiative was launched, ROPL, RDB, and MYICT co-chaired a partnership meeting attended by leaders from the six institutions which together are implementing the 100 services. The meeting served the purpose of strengthening the partnership and commitment among key stakeholders 'ahead of implementation'. As another example, MYICT and RDB partnered with ROPL to arrange an e-government week-long workshop in Rwanda in February 2016. The mission was to gather government officials, members of the private sector, community innovators, and key international organisations for a series of high-level strategic discussions surrounding the Smart Rwanda 2020 Plan and the Irembo portal (Umuseke Ltd., 2016).

Evidence of collaboration is also reflected in the minutes of a meeting involving government public servants and staff of the private company (ROPL, 2016a). Furthermore, a project coordinator at RDB confirmed that he works closely with ROPL and MYICT for the digitalisation of public services on 'Irembo' (Participant RDB1, personal communication, 24 October). Other partnerships exist between RwandaOnline, MasterCard, and Bank of Kigali (Telecompaper, 2016), and between RwandaOnline and the mobile network company, MTN (AllAfrica, 2016b) concerning e-service payments.

d. Responsibility

Nurdin, Stockdale and Scheepers (2011) do not define responsibility in their research work. Here we define it to mean the formal assignment to staff and government agencies of duties for which they are accountable. There was no lack of responsibility noticed among government agencies. However, we observed relatively different degrees of responsibility among service clerks in terms of using the government portal. As reflected in a ranking report document, 18 out of the 30 districts in Rwanda conducted more than 50% of all transactions via the e-service portal during October 2016; all the remaining districts conducted fewer than 50% of all transactions via the e-service portal in this month (ROPL, 2016d). From this data, some degree of a lack of responsibility among some service clerks was observed.

5.2.2 Adaptability

According to Nurdin, Stockdale and Scheepers (2011), the adaptability of an organisation means its ability to handle an element of change. When implementing an e-government initiative, a continuous change management process should be undertaken by government organisations to make staff familiar and comfortable with the new service processes, new work situations, and new tasks. To accomplish this, there is a need to establish a new management strategy that is compatible with the new work system, find a way to improve internal transparency, and build trust within the organisation through the openness of all stakeholders in communicating details of what is taking place and to enhance organisational and employee learning. These elements in relation to Irembo are presented in this sub-section.

a. Change management strategy

According to an interviewee (MYICT1 2016, personal communication, 22 September) there are two high-level change management committees. One committee includes representatives of the Ministries of Public Service and Labour (MIFOTRA), Local Government (MINALOC), and Youth and ICT (MYICT). The role of this committee is to revise plans on ICT infrastructure in the local government and staffing in relation to Irembo (Participant

MYICT1 2016, personal communication, 22 September). The other one is a land change management committee consisting of four public servants of the Rwanda Natural Resources Authority. Another interviewee indicated that changes to be made to land services on Irembo had to be negotiated between the land service manager, the service improvement manager at ROPL, and the land change management committee (Participant RNRA2 2016, personal communication, 12 October).

However, there is no known official government document on a change management strategy for a specific period in relation to one-stop e-government, and change is handled in a rather ad-hoc manner. A member of the committee at RNRA said in an interview: '*We deliberate cases as they come and we have no specific dates to meet with Rwanda Online people; hopefully in the future we will elaborate plans on changes, when to implement them, by whom and how*' (Participant RNRA2 2016, personal communication, 12 October). At ROPL, there is a service improvement unit in charge of following-up on service improvements (Participant MYICT1 2016, personal communication, 22 September). Some change management activities are conducted, such as training offered regularly to service clerks by the private company. However, there was no strategy document from the government side indicating a set of all identified changes to make within a given time frame, and reasons for changes (Queensland Government Information Officer, n.d.); neither could we see a strategic implementation plan of changes being followed up by ROPL. From our observations, individual service managers at ROPL have planned small changes— changes related to digitalisation and not related to major changes such as re-adjustment of service actors—on a short time basis via change request documents (ROPL, 2016b; 2016c). These concern technical improvements at operational level; however, these change request documents are supposed to be related to a change management roadmap document. It is thus concluded that there is no clear change management plan (strategic or tactical) at the company or on the government side as far as the improvement of e-government services is concerned.

b. Transparency and Trust

For the purpose of this study, the factors transparency and trust were merged into one theme due to their close relationship. Communication about activities in the e-government initiative is undertaken in several ways and through several channels in order to build transparency and trust among employees and to inform the public about what is going on. This is done via workshops on awareness and activities (Umuseke Ltd., 2016), radio and TV broadcasts, and training for service clerks and on-site agents.

c. Organisational learning

Monthly reports benchmarking districts based on the number of transactions per month using the Irembo portal are shared among local government organisations but these reports do not contain any information on the reasons for the achieved results. There is a lack of systematic organisational and employee learning. However, a manager at ROPL highlighted that the ranking reports stimulate employees who are supposed to use the portal for service provision, to some extent, to improve their performance. She also pointed out that '*the content of the monthly benchmarking reports is about the amount of services provided by each district and the corresponding ranking*' (Participant ROPL4 2016, personal communication, 13 December). This content (i.e. the amount of services provided by each district and the corresponding ranking) was verified by a report (ROPL, 2016d).

5.2.3 Mission

Nurdin, Stockdale and Scheepers (2011) highlight that the existence of a clear mission, vision, and goals during the adoption and implementation process is of paramount importance in maintaining the future direction of the organisation. The mission and vision are established by top leaders to inspire a change of mind-set throughout government agencies in order to improve employees' understanding about how important it is to transform a government into an e-government (Ke and Wei, 2004; Nurdin, Stockdale and Scheepers, 2011). We present these issues in relation to the Rwanda case in this sub-section.

a. Vision and Goals

Providing 24/7 e-services with 'zero trips and zero paper' is the goal of the Smart Rwanda agenda, where one-stop e-government is the central project (Participant MYICT1 2016, personal communication, 22 September). In (RDB, 2016b), the goal of the Irembo portal is 'to provide Rwandan citizens and businesses with an improved interaction with the government by enabling efficient government service delivery'. This is the goal at the national level. This goal was set as part of realising the vision of Rwanda becoming a knowledge-based economy and becoming a middle-income country by 2020 (Ministry of Youth and ICT, 2015). However, there is

a lack of corresponding and supporting goals in the local government. A service clerk said in an interview, '*We hold regular meetings with the executive secretary and sometimes with the Mayor […] We are always reminded to use the system to get a good ranking of the district*' (Participant Dist4 2016, personal communication, 6 December). We could not find documents reflecting operational goals in the local governments in the four districts visited; however, most service clerks were aware of the need to use the Irembo platform in order to increase the ranking of their district.

b. Strategies

In relation to service improvement, one interviewee at the ministry level said, 'We need to cooperate with universities […] so as to look for a way to tackle issues of business process re-engineering [...]. It is a pillar for the success of our e-government...currently some services take a long time in the back-end [...] do you have such a program in Sweden?' (Participant MYICT1 2016, personal communication, 19 October). An informant at ROPL said in interview: 'Our daily job is to have online services on board, and we look for solutions when a problem [...] appears [...] We don't do it alone [...] We contact respective government agencies and we inform RDB' (Participant ROPL2 2016, personal communication, 20 October). It appears that strategies for the digitalisation of paper based services are in place as this is done by the private company. However, drawing from the above conversations with informants, there is still no clear strategy on how to improve online services and re-design existing paper-based services before they are put online. For instance, the implementation document for the 'one-stop shop' e-government (GoR, 2016) mentions that business process re-engineering is a success factor for 'Irembo', but no related clear strategies were found.

5.2.4 Bureaucracy

Nurdin, Stockdale and Scheepers (2011) hold that the bureaucratic nature of the public sector can benefit the process of implementing innovation by establishing order. 'Clear and explicit regulations, standardisation, and hierarchies support supervision to reduce the chance of errors, disobedience, and negligent behaviour among people' (Nurdin, Stockdale and Scheepers, 2011, p. 19). It creates a sense of responsibility towards successfully implementing the e-government initiatives and may facilitate coordination. However, rigid hierarchical structure and restrictive laws and regulations can inhibit the success of e-government (Nurdin, Stockdale and Scheepers, 2011). We present these considerations in relation to the Rwandan case in this sub-section.

a. Structure/hierarchy

Like other governments, the Rwandan public sector is bureaucratic, and each government agency has a hierarchical organisational structure. In 2013, the organisational structure of the local government that had been in place since 2000 was revised and changed (RALGA, 2013). Reasons mentioned included that (1) the structure did not match the mandate at that time concerning the roles and responsibilities of the districts as well as realities in the field, (2) there were unclear functions and reporting mechanisms, and (3) there was no harmonised reporting framework (MINALOC, 2013). This illustrates that the Rwandan organisational structure is not rigid; it can be changed if necessary, and the regulations governing government operations can be reviewed.

b. Laws and regulations

A combined ICT-law covering electronic messages, signatures and transactions; telecommunications; and data protection and privacy, was enacted in June 2016 (Ministry of Information Technology & Communications, n.d.). These laws existed before but they have been revised, except for the provisions on data protection and privacy, which were completely new for this country (Newtimes, 2017). Another law governing persons and family was enacted in August 2016 to replace the preceding act of 1988. The laws seem to respond to the need to review the legal framework, as called for in the first phase of implementing Rwanda's one-stop e-government (GoR, 2016); for instance data protection and privacy are crucial in online services and the age of consent changing from 21 to 18 in the law governing persons and family will have implications for the provision of online services and the rights of applicants.

However, later in the same year, the National Institute of Statistics of Rwanda (2016) indicated the need to establish an appropriate legal and policy environment, with a strengthened legal framework and policies, solid linkages between civil registration and other national systems, including enabling the interoperability of databases on Civil Registration and Vital Statistics (CRVS) and other management information systems e.g. the National Population registry. Furthermore, two respondents at ministry level pointed out that as many as 174

articles in legislation are being reviewed (Participant MYICT1 2016, personal communication, 19 October; Participant MYICT2 2016, personal communication, October 19).

c. Coordination

Nurdin, Stockdale and Scheepers (2011) do not define the term coordination; however, they argue that the 'absence of a bureaucratic nature in government organisations might lead to weak coordination and unsuccessful government initiative implementation' (p. 19). In this study, the term coordination is used to mean the act of enabling all people and agencies involved in the initiative to work together in an organised way. Stakeholders and their roles are defined in a government report (GoR 2016) and efforts were made in organised campaigns with stakeholders to coordinate activities related to the government portal as mentioned in an interview (Participant ROPL1 2016, personal communication, 19 October). Ongoing activities are also communicated to some degree (e.g. in Umuseke Ltd., 2016). However, when it comes to service improvement, there is a risk of re-design activities being done randomly due to the lack of a proper strategic or tactical change plan, and this can result in weak coordination in the future.

6. Discussion

Achievements in Rwanda's 'one-stop' e-government implementation are being made via a public-private partnership between the government and a private company. A management team consisting of managers from the company and public agencies has been formed. As of March 2017, the company had made 44 online services available on the portal. Citizens, businesses, and agencies are being served online (if necessary, aided by intermediary agents), although the processing of some services can be slow at the back-end. Service payments have been made easy by making electronic payments possible.

Despite those achievements, four main organisational challenges were identified and they need attention. There is a lack of an adequate plan of 'to-be' service processes, there is a lack of a clear change management strategy (medium- as well as long-term), and there is a lack of systematic organisational learning. There is also a lack of clear operational goals in local government specifying and supporting the national ones. In addition, at the national level, a challenge that is currently being addressed is the matter of reviewing the regulatory framework.

The 44 services, implemented over a period of about two years, have been achieved at the expense of reviewing the re-design of service processes and processes within service-providing agencies for better services. The task of the private company (ROPL) is to digitilise 100 services in three years (GoR, 2016). Arguably, this fast pace may lead to 'digitalising cow paths,' that is, preserving existing service processes and organisational structure rather than redesigning them in a more effective manner to reap the benefits from IT. This may become expensive later. For instance, digitalising paper forms in land services was regarded by a service manager as part of re-designing the services. Such digitalisation implies automation and almost no changes in work processes and organisational structure. The issue of the mere automation of paper processes was discerned in the first phase of implementation when 18 services were already online by February 2016 (GoR, 2016), but the problems encountered pre-digitalisation were persisting. This is one of the issues faced by Ireland's one-stop e-government a decade earlier (Hughes, Scott and Golden, 2006). Business and service processes re-design in the context of Rwanda would not only benefit service seekers but also government employees. For example, this could contribute to solving problems related to workload imbalance among government employees, such as those noted by the National Institute of Statistics of Rwanda (2016, p. vii).

Realising a service process redesign plan will require a clear change management strategy, which is presently lacking. This would be a timely next step. The literature tells us that change management is a crucial issue for e-government implementation. Inadequate change management is part of what has hampered Brunei's e-government (Kifle, Low, and Cheng, 2009). It was also found to be one of the main concerns in sub-Saharan Africa (Nkohkwo and Islam, 2013) and in developing countries in general (Mkude and Wimmer, 2013).

Regarding the issue of organisational learning, we found that the knowledge gained through the regular ranking reports on 'Irembo' (the service portal) usage and other existing mechanisms would add more value if enabling and inhibiting factors from various categories of users were also presented in these reports, performance indicators were measured, and lessons were shared systematically for enhanced organisational learning.

Furthermore, the existing goals of Rwanda's 'one-stop' e-government at a high level do not go far enough; there is a need for clear operational goals at the local government level which would be designed to meet the overall national goals and to make service processes efficient and effective. Once these operational goals are in place, there will also be a need to establish strategies to attain them.

Moreover, even though the legal framework and policies are being revised, it is evident that further revisions are expected to take place; for instance concerning the integration of a number of government information systems.

In relation to e-government implementation in African countries and its public sector challenges, Heeks (2003) earlier made observations on what he calls the e-government design reality gap. His study indicates that stakeholders from developed countries such as consultants or IT vendors or aid donors dominate the design process of e-government in Africa and this can contribute to gaps between e-government systems design and the African public sector reality. Rwandan e-government is to a large extent developed by international consultants from countries such as South Korea and Singapore, where e-government is more advanced. The influence of those consultants can also contribute to the organisational issues found in this study as those consultants are less familiar with the Rwandan organisational context, however, we do not have evidence to state the importance of the effect of such an influence.

Other Least Developed Countries might also want to speed up e-government implementation to catch up with economic development via technology leapfrogging (Fong, 2009) and in the process, the organisational issues discussed in this paper might be overlooked. We have demonstrated here that the fast pace at which online services are being developed in Rwanda, with an aim of providing 24/7 self-services towards a cashless and paperless economy with 95% of government services online by 2020—the year by which Rwanda aspires to be a knowledge-based economy and middle-income country—has contributed to reduced attention being paid to organisational issues. Further studies should investigate the extent to which the influence of foreign stakeholders, and the fast pace in e-government implementation with a techno-economic view, are associated with the underlying organisational challenges in Rwanda, as well as identifying any additional root causes.

7. Conclusion

This study set out to explore organisational challenges in the implementation of the Rwandan one-stop e-government initiative as of March 2017. It was observed that the number of online services was growing steadily and that electronic payment has been made possible. However, services were mostly developed with a low degree of re-design and this made some of the services, such as land services, slow. Even though considerable achievements have been made, more attention needs to be given to four important challenges relating to how organisations implement digital service processes. These are:

- inadequate planning of 'to-be' service processes,
- unclear change management strategy,
- lack of systematic organisational learning, and
- unclear operational goals of the local governments in relation to the one-stop initiative.

The implementation of one-stop e-government at the national level can be challenging, and requires gradual reforms; clear plans—operational, medium-, and long-term—on 'to-be' processes and a corresponding change management strategy are important tools towards a streamlined government. The issue of inadequate planning of 'to-be' service processes can be tackled by working towards establishing effective business processes in government agencies, especially those with a stake in the provision of public services. A change management plan should also elaborate on changes to make in processes. Furthermore, establishing an appropriate framework for organisational learning among government agencies in relation to improvements in Rwanda's one-stop e-government, and the setting of clear goals at the local government level are both needed.

It is important to bear in mind that all contexts are different, as are each context's needs and goals. However, lessons on organisational issues in one context can inspire e-government practice in another context. For instance, from an economic point of view, these lessons could help resource-constrained countries avoid passing through intermediate practices that some developed countries have had to go through in their early

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stages of technology development, such as establishing a number of redundant systems which are sometimes costly to replace (Alexandrova, Rapanotti and Horrocks, 2015). However, organisational issues cannot be skipped and addressing them early on can lead to better use of resources.

Addressing organisational issues in Rwanda and other similar developing countries requires attention to be paid to each specific context to increase pace in implementation and obtain e-government benefits faster. However, further empirical investigation is needed on these issues.

In order to leverage information technologies in Rwanda and other similar developing countries which are engaged in the implementation of one-stop e-government, it is important to identify the root causes behind existing organisational challenges and address these in order to close the gap that may exist between a country's e-government design and the reality of its respective public sectors. This study also acknowledges a need for further investigations to discern the extent to which the current legal framework can restrain e-government implementation in Rwanda.

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