Critical Success Factors for Effective IT Governance in the Public Sector Organizations in a Developing Country: The Case of Tanzania

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CRITICAL SUCCESS FACTORS FOR EFFECTIVE IT GOVERNANCE IN THE PUBLIC SECTOR ORGANISATIONS IN A DEVELOPING COUNTRY: THE CASE OF TANZANIA

Edephonse N. Nfuka, Stockholm University/Royal Institute of Technology Stockholm, Forum 100, S-164 40, Isafjordsgatan 39, Stockholm, Sweden, nfuka@dsv.su.se
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Abstract

Today in many organisations in the public sector, the use of IT has become pervasive in every facet of the organisations’ endeavours in supporting and evolving public service delivery. This pervasive use of technology has caused a critical dependency on IT, which in this environment involves a complex mix of political, organisational, technical and cultural concerns that call for a specific focus on effective IT governance. Much research has been done on IT governance effectiveness in these organisations. However adequate focus has not been given to such organisations in a developing country environment like Tanzania, which on one hand is characterised by IT resources, knowledge, and culture constraints and on the other hand by the increase of IT investment and applications. In this paper specifically we address such a gap by identifying the critical success factors (CSFs) for effective IT governance in this environment. The study is based mainly on IT governance focus areas in analysing the relevant CSFs from the literature and five organizations in the Tanzanian public sector. Moreover we have taken into account the fact that the IT value to be achieved due to effective IT governance is related to efficient and cost effective IT delivery, innovation and business impact. As a result of this research we have identified eleven CSFs that should be considered for effective IT governance practice in Tanzanian public sector organizations.

Keywords: IT Governance, Critical Success Factors, Public Sector, Developing Country.
1 INTRODUCTION

Many organisations today rely on Information Technology (IT) and continue to make significant IT-enabled business investments (ITGI, 2006). This includes public sector organisations, defined as part of the economic and administrative life that deals with government service delivery (Lane, 1995). This is due to increased IT applications and demand for more efficient and cost-effective public service delivery (Ali & Green, 2007). This dependency on IT in such an environment with wider accountability, more bureaucracy, lower managerial autonomy (Nicoll, 2005) and a complex mix of political, organisational, technical and cultural concerns (Bakari, 2007) requires far-sighted management of IT. This calls for effective IT governance (Weill & Ross, 2004).

IT governance is considered to be an “integral part of enterprise governance and have potential to provide mechanisms for leadership and organisational structures and processes that ensure the organisation’s IT sustains and extends the organisation’s strategies and objectives” (ITGI, 2003). Its potential is also in the fact that the most significant IT issues, currently and in the future, are not technology-related, but governance-related (Guldentops et al., 2002). For example, the MIT/CISR study on IT governance related issues indicated that there is at least 20% better return on IT investments when effective IT governance is in place (Weill & Ross, 2004).

This research work that targets Tanzanian public sector organisations from a developing country perspective is based on the fact that effective governance of IT is also paramount in such environment (Nfuka et al., 2009). This is due to problems like fragmented IT initiatives and loss of synergies (Bakari, 2007; Mutagahywa et al., 2007; Ndovu, 2004) across the IT governance life cycle i.e. direct, create, protect, execute and monitor (ITGI, 2007). They are amplified by IT resources, knowledge and culture constraints in such an environment that unlike the developed world has not achieved a significant degree of industrialisation, and has a low standard of living (Imran & Gregor, 2005; CIA, 2008). Furthermore, effective governance of IT is paramount due to increased demand for a responsive public sector (Miller, 2007) and guidance to strategic integration of IT into a country’s poverty reduction and growth strategy under which all development effort are coordinated (COSTECH, 2007).

Moreover the current focus in this environment is mostly at the computerisation stage and a struggle to sustain and evolve a number of previously computerized systems. Little attention is paid to best practices in managing IT resources cost-effectively and convincing leaders on the value of IT to sustain and evolve organisations’ strategies. This leads to IT governance practices that are ad-hoc, with enormous negative consequences to public service delivery. Also it leads to huge IT investment loses, given the magnitude of systems in such organisations (Nfuka et al., 2009).

Several studies have been done responding to such concerns. Many of them looked at practiced IT governance mechanisms and their influence on effective IT governance in the public sector, mostly in developed countries (Martin et al., 2005; Warland & Ridley, 2005; Lawry et al., 2007; Ali & Green, 2007), with very few focusing on critical success factors (CSFs) essential for effective IT governance in the public sector (Weill, 2004; Tan et al., 2007).

Though CSFs are vital to effective IT governance, no-one has examined them broadly across the IT governance life cycle, for example, using IT governance focus areas i.e. strategic alignment, IT value delivery, risk management, resource management and performance measurement (Buckby et al., 2008). Such a broad approach to examine CSFs that also takes into account that IT value to be achieved is related to efficient and cost-effective IT delivery, innovation and business impact (Peterson, 2004) is completely unexplored when it comes to the environment of this study.

Therefore the purpose of this research is to contribute to reducing such a gap, as also suggested by research on current landscape and future prospects on information systems in developing countries (Walsham & Sahay, 2005), in this case identifying CSFs for effective IT governance. Specifically it responds to research question on how IT governance practice in this environment could be improved in order to increase governance of IT performance and contribute to efficient and cost-effective public
service delivery. It is achieved based on case study research method and IT governance focus areas that analyse broadly CSFs from research literature and five Tanzanian public sector organizations.

Apart from this introduction, the paper covers IT governance research on critical success factors in chapter 2 and research methodology in chapter 3. These are followed by study results and discussion in chapter 4, and concluding remarks and future research in chapter 5.

2 IT GOVERNANCE RESEARCH ON CRITICAL SUCCESS FACTORS

The Critical Success Factors (CSFs) are the limited number of areas in which satisfactory results will ensure a successful competitive performance for the individual, department or organisation (Rockart & Van Bullen, 1986). CSFs are used by organisations to focus on a number of factors that help to define and ensure the success of the business, and in this way help the organisation and its personnel to understand the key areas in which to invest their resources and time.

Due to their importance, CSFs are widely researched (Tan et al., 2007) and applied in many organisations in different perspectives; from a single project to the whole organisation strategic direction (Estevés, 2004). However in the area of IT governance, few CSFs studies have been undertaken though IT governance has become critical in most organisations today. These CSF studies include the work of Guldentops (2004) that indicated five key success factors mainly related to structures and processes for control and governance of IT. His work focused on committees, alignment of IT/business strategies and operations, cascading of goals and strategies and applying best practices.

The IT Governance Institute (ITGI) also established several CSFs emphasising IT as an integral part of the enterprise and the importance of awareness, communication, stakeholders’ involvement, accountability and monitoring across the organization (ITGI, 2003). In addition, an ITGI sponsored study on IT governance practice through 50 CIOs globally indicated six CSFs (ITGI & PwC, 2006a). These CSFs, like the earlier ones, include communication but different to them emphasise senior management support, change management, enforcements, defining and tracking benefits, and not over engineering the process. Also Bowen et al. (2007) in their study on exploring essential factors influencing IT governance structures, processes, and outcome metrics identified several success factors. These are business/IT shared understanding, involvement of IT committees, a balance of business/IT in IT decisions and well-communicated IT strategies and policies. Similarly, Ribbers et al. (2002) in their research that focused on design and effectiveness of IT governance processes indicated the critical need for strategic integration of IT/business decisions and building collaborative relationships and a shared understanding among key stakeholders.

Furthermore is the survey by Teo & Ang (1999) in 169 firms, which identified 18 CSFs for strategic alignment, considered the main goal of IT governance. Their focus was on IT/Business alignment practices, the top ranked being management commitment to strategic use of IT and IT management business literacy. In these lines of consideration also are six enablers of IT/Business alignment (Luftman, et al., 1999) regarded as critical factors including business/IT partnership. Similarly included are ten minimum baseline IT governance practices, validated as necessary and minimum conditions in the implementation of IT governance in the Belgian financial service sector (De Haes & Van Grembergen, 2008). The most top in the list include the IT steering committee and IT leadership.

Moreover, CSFs have been researched specifically for IT governance in the public sector. This includes the work of Weill (2004) in a study of 256 organisations globally including a focus on public sector that specified eight CSFs mainly on best governance design and implementation. Different to others are actively designed IT governance to avoid uncoordinated mechanisms, exceptional handling process and aligned incentives. Finally is the work undertaken in the Australia government agency (Tan et al., 2007). Based on ITIL, an IT service management framework, they similarly found senior management commitment, benefit/performance management and awareness/training. Different to others is the need for appropriate guidelines and the use of an integrated toolset.
Given the similarities and different levels of granularity of IT governance related CSFs in these ten papers (Teo & Ang, 1999; Ribbers et al., 2002; ITGI, 2003; Weill, 2004; Guldentops, 2004; Luftman & Brier, 1999; ITGI & PwC, 2006a; Bowen et al., 2007; Tan et al., 2007; De Haes et al., 2008) we harmonised them logically. This harmonisation took into account constraints in this environment, key IT governance focus areas (ITGI, 2003) and the fact that IT value to be realised is due to effective and efficient IT delivery, innovation and business impact (Peterson, 2004). It resulted in 17 CSFs (Table 1).

<table>
<thead>
<tr>
<th>Categorised identified CSFs</th>
<th>Weill, 2004</th>
<th>Guldentops &amp; PwC, 2006a</th>
<th>ITGI, 2003</th>
<th>Luftman et al., 1999</th>
<th>Teo &amp; Ang, 1999</th>
<th>Ribbers et al., 2002</th>
<th>De Haes et al., 2008</th>
<th>Bowen et al., 2007</th>
<th>Tan et al., 2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Standardise, integrate and manage IT systems to optimise costs and information flow</td>
<td>v</td>
<td></td>
<td></td>
<td>v</td>
<td></td>
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<td>v</td>
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<tr>
<td>2</td>
<td>Provide IT infrastructure to facilitate creation and sharing of IT services &amp; application</td>
<td>v</td>
<td></td>
<td></td>
<td>v</td>
<td></td>
<td></td>
<td></td>
<td>v</td>
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<tr>
<td>3</td>
<td>Manage mitigation of risks appropriately</td>
<td>v</td>
<td></td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>4</td>
<td>Staff and develop competitive IT professionals</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
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<tr>
<td>5</td>
<td>Institute &amp; enforce policies/guidelines for optimal use of IT infrastructure and services</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
</tr>
<tr>
<td>6</td>
<td>Encourage &amp; support 2-ways communication and partnerships between IT &amp; business</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
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<tr>
<td>7</td>
<td>Provide awareness/education for IT governance from strategic to operational level</td>
<td>v</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>8</td>
<td>Define &amp; align IT and corporate strategies and cascade them down into the enterprise</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
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<tr>
<td>9</td>
<td>Commit scarce resources effectively to improve IT processes &amp; alignment with business</td>
<td>v</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>10</td>
<td>IT demonstrates leadership</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
</tr>
<tr>
<td>11</td>
<td>Involvement and commitment of senior management</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
</tr>
<tr>
<td>12</td>
<td>Define the key decisions to be made and who is best positioned to make them</td>
<td>v</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Institute clear IT decision-making and priority-setting processes</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
</tr>
<tr>
<td>14</td>
<td>Institute structures that ensure accountability &amp; flexibility to the IT organisational needs</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td></td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
</tr>
<tr>
<td>15</td>
<td>Engage key stakeholders</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
</tr>
<tr>
<td>16</td>
<td>Institute performance measures and benchmarks to track and demonstrate success</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Manage organisational changes</td>
<td>v</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>v</td>
<td>v</td>
</tr>
</tbody>
</table>

Table 1. Identified and harmonised CSFs from the research literature
3 RESEARCH METHODOLOGY

The goal of this research is to identify Critical Success Factors (CSFs) for effective IT governance in public sector organisations in a developing country like Tanzania. This goal partly responds to the ongoing research work question i.e. how could IT governance practice in this environment be improved in order to increase IT governance performance in public service delivery?

Given the nature of problem and context, in order to respond to the research question, case study research method (Yin, 2003) was used with the unit of analysis at the organisation level. The data collection process involved structured interviews using strategies that are mainly qualitative (Myers, 1997) and gathered data were analyzed mostly with exploratory data analysis (Lewis-Beck, 1995).

3.1 Empirical Source

Following use of case study research method, five public sector organisations were selected to determine CSFs for effective IT governance in this environment. The selection was based on the span and level of IT deployment in the organisation and the multiplier effects on the service provided to the public. These organisations are as indicated in Table 2 (1st column). Both the agency and department are autonomous government organisations that execute specific functions. Each has its own management for operations and a board to strategically oversee and provide direction. Ministries are less autonomous, each responsible for a sector of government public administration with a management for operations and a government cabinet to strategically oversee and provide direction.

3.2 Research Process

In identify CSFs for effective IT governance in this environment a literature review was undertaken to explore existing IT governance CSFs in general and the public sector in particular. For broader CSFs the IT governance lifecycle was considered based on five key IT governance focus areas (ITGI, 2003). Also we considered the fact that the IT value to be realized by effective IT governance is due to an efficient and cost effective IT delivery, innovation and business impact (Peterson, 2004).

As indicated earlier, there was no all-encompassing CSFs’ list for effective IT governance for this environment and therefore the preparation of the construct considered existing CSF related studies. In this way through literature review a number of them were identified mainly through access to several journals. This included senior scholars’ basket of journals and AIS journal collections considered prominent in the field of information systems. This was complemented by MIS journals from nine different ranking papers published between 1995 and 2005 (AIS, 2008). Furthermore, we accessed conferences with specific mini-track for IT governance such as Hawaii International Conference on System Sciences, and European, Mediterranean and Australian Conferences on information systems. This also applies to publications of IT Governance Institute (ITGI) that spearheads the IT governance research globally. In parallel Google Scholar was used with search words such as IT governance in combination with critical/key success factors. In this way about 100 papers were explored, of which 10 found relevant to our study as per earlier research review details. Given the similarities, research focus and different levels of the granularity of these CSFs, we harmonized them logically.

In this manner 17 CSFs (Table 1) were obtained and operationalised mainly through filling of questionnaires and face-to-face interviews, involving 54 respondents - 29 being IT people and 25 business people across the five organisations (Table 2). The results were then analyzed quantitatively and qualitatively i.e. ranking responses in percentage and incorporating face-to-face interview comments. After the analysis, a report was submitted to them for comments and improvements. Thereafter the list of identified CSFs was sent back to these organizations’ CIOs and their experts for validation. As a final outcome, a list of eleven CSFs for effective IT governance was obtained (Fig. 3).
<table>
<thead>
<tr>
<th>Organizations</th>
<th>Respondents/Interviewees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tanzania Revenue Authority (TRA) – an agency that collects and administers</td>
<td>• IT management (8)</td>
</tr>
<tr>
<td>government revenue (TRA, 2008)</td>
<td>o Director of ICT &amp; IT Managers - IT systems and office productivity</td>
</tr>
<tr>
<td></td>
<td>o Business management (4)</td>
</tr>
<tr>
<td></td>
<td>o Commissioners &amp; key managers of business departments e.g large tax</td>
</tr>
<tr>
<td></td>
<td>o Corporate executive (CEOs/Board) - Board chairman</td>
</tr>
<tr>
<td>Medical Stores Department (MSD) – a department that procures, stores and</td>
<td>• IT management (4)</td>
</tr>
<tr>
<td>distributes medical supplies required by health facilities in country (MSD,</td>
<td>o Director of IS &amp; Managers/administrators – IS, Networks &amp; Databases</td>
</tr>
<tr>
<td>2008)</td>
<td>o Business management (6)</td>
</tr>
<tr>
<td></td>
<td>o Directors/Managers-support &amp; core business e.g Finance &amp; admin., Customer services &amp; sales, and Logistics</td>
</tr>
<tr>
<td></td>
<td>o Corporate executive (CEOs/Board) - Ag. Director general</td>
</tr>
<tr>
<td>Prime Minister’s Office-Regional Administration and Local Government (PMO-</td>
<td>• IT management (4)</td>
</tr>
<tr>
<td>RALG) – a ministry that coordinates regional and local government affairs</td>
<td>o Director of MIS, ICT &amp; M/E experts and coordinators of zones</td>
</tr>
<tr>
<td>(PMO-RALG, 2008)</td>
<td>o Business management (6)</td>
</tr>
<tr>
<td></td>
<td>o Directors/heads of Units e.g. Policy &amp; planning, Regional admin. and local government Inspectorate,</td>
</tr>
<tr>
<td></td>
<td>procurement</td>
</tr>
<tr>
<td></td>
<td>o Corporate executive (CEOs/Board) - Permanent secretary</td>
</tr>
<tr>
<td>President’s Office-Public Service Management (PO-PSM) – a ministry that</td>
<td>• IT management (5)</td>
</tr>
<tr>
<td>ensures public service is effectively/efficiently managed through improved</td>
<td>o Director of MIS</td>
</tr>
<tr>
<td>HRM, systems and structures (PO-PSM, 2008)</td>
<td>o Assistant directors - Operations, Government business services, Senior e-Government expert and Senior</td>
</tr>
<tr>
<td></td>
<td>computer systems analyst</td>
</tr>
<tr>
<td></td>
<td>o Business management (3)</td>
</tr>
<tr>
<td></td>
<td>o Assistant director, Management consultant &amp; Principle administration</td>
</tr>
<tr>
<td></td>
<td>officer/HCMIS account</td>
</tr>
<tr>
<td>Ministry of Finance and Economic Affairs (MoFEA) – a ministry that manages</td>
<td>• IT management (8)</td>
</tr>
<tr>
<td>government revenue, expenditure, financing, &amp; economic affairs (MoFEA, 2008)</td>
<td>o Director of IT/Assistant directors - Operations, Development &amp;</td>
</tr>
<tr>
<td></td>
<td>administration, and technical support/Infrastructure</td>
</tr>
<tr>
<td></td>
<td>o Business management (6)</td>
</tr>
<tr>
<td></td>
<td>o Assistant Commissioner, registrar &amp; Head Units e.g. Aid coordination</td>
</tr>
<tr>
<td></td>
<td>o Corporate executive (CEOs/Board) - Deputy permanent secretary</td>
</tr>
</tbody>
</table>

Table 2. Overview of the Case Study Organisations and Interviewees

4 STUDY RESULTS AND DISCUSSION

In this section, we present the results and discuss the outcome of our research. The point of departure is the identified and logically harmonized CSFs (Table 1), from which the study construct was designed.

4.1 Results

The study construct was administered in five organizations and results analyzed quantitatively and qualitatively i.e. ranking responses in percent (Figure 1) and taking into account face-to-face interview comments. The rank was reached by taking the percent of survey responses that indicated ‘Yes’ meaning that the CSF is essential for effective IT governance in their organizations.

The interviewees’ comments analysis was also taken into account. In this process, one factor dropped and two merged. In this way there remained fifteen CSFs which were also adjusted as per contextual elements.

The dropped factor is ‘Define the key decisions to be made and who is best positioned to make them’. It was dropped in the ranking process (Figure 1). This is due to the big difference in respondents ranking percentages between this factor and the rest. While the other factors scored between 80% and 100%, this factor scored only 50%. This indicates that the majority of respondents are not in favour of
the factor, making it not critical in this environment. The reason for getting a lower score could be associated with the existence of formalized mechanisms like management meetings and procurement committees for making general corporate decisions including IT related ones.

The analysis of the interviews also suggested joining two factors namely ‘Standardise, integrate and manage IT systems to optimize costs and information flow’ and ‘Provide IT infrastructure to facilitate creation and sharing of IT services & applications. This resulted in ‘Consolidate, standardize and manage IT infrastructure and applications to optimize costs, responsiveness and information flow’. This is because both factors are at the level that, given their concerns, needs to be consolidated equally in terms of infrastructure and applications provisions, and standardization and management. Also both aim at optimizing costs, increasing responsiveness and information flow in the public service delivery.

The analysis of the interviews also provided substantial improvement on identified factors. The improvements include changing ‘Developing competitive IT professionals’ to ‘Attracting, developing and retaining competitive IT professionals’. This is because public sector remuneration is relatively lower than private sector, thus attracting and retaining them becoming a concern. This is also getting worse as the private sector grows including through investment from multinational companies.

The improvements also include changing ‘Demonstrate IT leadership’ to ‘IT leadership to understand the business goals and IT contribution and bring it to management attention’. This emphasis was shown up throughout the interviews. This is because IT awareness and culture of the management are still relatively low though the same management decides, provides direction and oversees the progress of corporate activities including integration of IT in the business. The capacity to bring understanding and the IT contribution convincingly to management is also immature in these organizations.

![Figure 1: Respondents Ranking Results for CSFs to consider for Effective IT Governance in Five Studied Organisations from the Tanzanian Public Sector](image-url)
The analysis of the interviews also indicated several contextual elements of these CSFs different to their original environment. For example, ‘engage key stakeholders’ indicated the engagement to be beyond IT and user/business departments in the organisation as these public sector organisations work in collaboration in many aspects of its service delivery. The remaining fifteen CSFs were subjected to a validation process and the result shown in Fig. 2. A CSF was dropped if less than 50% of respondents answered ‘agree’, that is a combination of those who indicated the factor to be critical; ‘Completely’ & to some degree’. In this process, four CSFs were dropped as they scored less than 50% on ‘agree’. Dropped CSFs were Institute clear IT decision making and priority-setting process; consolidate IT risks mitigation strategies; commit scarce resources effectively to improve IT processes & alignment with the business; and manage organizational change. This left eleven CSFs potential for effective IT governance in this environment and associated contextual elements are as shown in Fig. 3.

<table>
<thead>
<tr>
<th>1</th>
<th>IT leadership understands business goals and IT contribution and bring it to the management attention</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Involve and get support of senior management</td>
</tr>
<tr>
<td>3</td>
<td>Engage key stakeholders</td>
</tr>
<tr>
<td>4</td>
<td>Consolidate IT structures to ensure responsiveness and accountability</td>
</tr>
<tr>
<td>5</td>
<td>Institute clear IT decision making and priority setting processes</td>
</tr>
<tr>
<td>6</td>
<td>Define and align IT strategies to corporate strategies and cascade them down in an organisation</td>
</tr>
<tr>
<td>7</td>
<td>Attract, develop and retain competitive IT professionals</td>
</tr>
<tr>
<td>8</td>
<td>Consolidate, standardize &amp; manage IT Infrastructure and applications to optimize costs, responsiveness &amp; information flow</td>
</tr>
<tr>
<td>9</td>
<td>Consolidate IT risks mitigation strategies</td>
</tr>
<tr>
<td>10</td>
<td>Consolidate, communicate &amp; enforce policies and guidelines for cost-effective acquisition, implementation and use of IT across the organisation</td>
</tr>
<tr>
<td>11</td>
<td>Encourage and support IT/Business communication and partnership</td>
</tr>
<tr>
<td>12</td>
<td>Provide IT Governance awareness and training for optimal use of IT</td>
</tr>
<tr>
<td>13</td>
<td>Commit scarce resources effectively to improve IT processes and alignment with the business</td>
</tr>
<tr>
<td>14</td>
<td>Consolidate performance measures and benchmarks to track and demonstrate success</td>
</tr>
<tr>
<td>15</td>
<td>Manage organisational change</td>
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</table>

**Figure 2. Validation Results for CSFs to Consider for Effective IT Governance in Studied Organisations**

### 4.2 Discussion

The identified eleven CSFs for effective IT governance in this environment as earlier indicated are discussed along IT governance focus areas i.e. IT strategic alignment, IT value delivery, risk management, IT resource management, and performance management.

#### 4.2.1 Strategic Alignment Related Critical Success Factors

**IT Leadership to understand business goals and IT contribution and bring it to management attention**

In the survey, 93% of the respondents indicated this CSF is vital in the studied environment (Figure 1).
This also applies to the validation process with 100% (Figure 2). In addition, the interviewees indicated its criticality, for example, when the assistant director of IT services at MoFEA interviewed said, our government institutions are still characterised by relatively lower awareness on available ICT opportunities. He continues IT management competencies to bring such understanding and required actions convincingly to management is vital but apparently still inadequate.

In addition, preceding study in this environment (Nfuka et al., 2009) and collected documentation support it. For example in most studied organisations, there are no IT strategies plans or IT steering committees to bring IT contribution comprehensively to the management. As a result, this CSF is vital due to the need of IT integration in its performance improvement reforms and development agenda. However, for such IT integration to happen, a good understanding of business goals, IT contribution and buy-in by management team is required (Van Grembergen et al., 2007). Further improvement in this CSF will most likely improve such requirements and eventually effective IT integration.

Figure 3. The eleven CSFs for Effective IT Governance in Public Sector Organisations from Tanzania as a Developing Country
**Involv e and get support of senior management**

In the survey, 81% of the respondents indicated this CSF is vital (Figure 1). This also applies to the validation process with 100% (Figure 2). Also in interviews we found that while support of senior management is important, equally was their involvement. For example, when *senior systems analyst* at PO-PSM interviewed said, *senior management willingness and support to IT is vital for widespread use of IT in the organization. This is because users tend to conform to their bosses’ expectations.* She continues, also we should see senior management for example using email in calling meetings, *Intranet in efficient access to internal documents/Information and applications in taking decisions.*

Moreover, a preceding study (*Nfuka et al., 2009*) supports it. For example, the problem highly rated in the referred study is business people’s lower acceptance of new IT applications. An increase of senior management involvement and support could minimise such weakness that also has consequences like IT investment losses in this environment that in addition has lower IT resources. Further improvement in this CSF will increase management commitment to strategic use of IT (*Teo & Ang, 1999; Nfuka & Rusu, 2007*) and business value from IT investment (*Weill, 2004; ITGI, 2006*).

**Encourage and support IT/Business communication and partnership**

In the survey, 93% of the respondents indicated the importance of this CSF (Figure 1). This also applies to the validation process with 80% (Figure 2). In interviews, several respondents indicated that not only encouragement is required for smooth IT/Business cooperation but also facilitation and support among IT and user departments. For example *Director of MIS* at PMO-ralg said *communication and partnership is crucial here, should be encouraged and supported given the wide coordination function of the ministry. Also the fact that practices like communication among IT/ Business people by informal meetings, mailing lists etc increase projects ownership right from start.*

A preceding study (*Nfuka et al., 2009*) also supports it. For example, a problem in avoiding greater emphasis on the business or IT rather than IT/Business alignment could be minimised. Similarly awareness and understanding by business people of IT opportunities and IT people of business imperatives could be reduced. In addition this environment is characterized by bureaucratic complex relationships that not only require IT structures and processes but also some relational mechanisms in these lines. Finally, this CSF is also vital due to its effectiveness as perceived in some studies on IT governance implementation (*Van Grembergen & De Haes, 2008; Luftman & Brier, 1999*).

**Engage key stakeholders**

In the survey, 93% of the respondents supported this CSF (Figure 1). This also applies to the validation process with 100% (Figure 2). The interviews also indicated its criticality. For example the chairperson of the TRA Board said, *such engagement if done early assists as we have seen in some of our projects. She continues, this helps to determine broader needs and approach to solution. Given widespread public sector organizations like TRA any perfection here will leapfrog widely use of IT.*

Generally, the studied organisations are characterized by mutual dependence for success of each one and therefore a need to focus on this CSF. A focus on it is also important due to on-going effort to establish e-government (*Mutagahywa *et al., 2007*). Its success requires participation of relevant stakeholders in such a highly collaborative process as also emphasized by Ribbers *et al.* (2002). Moreover, the CSF is vital as emphasized in other related studies (*ITGI, 2003; Nfuka & Rusu, 2007*).

**Define and align IT strategies to corporate strategies and cascading them down in an organization**

In the survey, 81% of the respondents supported this CSF (Figure 1). This also applies to the validation process with over 80% (Figure 2). Its criticality is also supported by the preceding study in this environment (*Nfuka et al., 2009*) that showed lack of IT strategic plans in studied organizations. This pattern was also seen in a subsequent study on IT governance maturity that indicated the process to be in between ad-hoc and repeatability (*Nfuka *et al., 2008*). This means there are some concerns that require improvement to reduce such ad-hoc practices. The CSF also indicates that having an IT strategic plan is not enough. For example when the *Director of ICT* at TRA was interviewed he said, *we learnt that having IT strategy is not effective if not cascaded down to individuals. He continues, the recently deployed balance scorecard has assisted us in this Endeavour given number of departments,*
branches and staff involved country-wide. We expect its effective use will further help the alignment.

Generally, the studied organizations are characterised by the use of corporate strategic plans to plan, budget, implement and monitor its activities. Further improvement to have and align IT strategies to such corporate strategic plans and cascade them down in an organization is vital and can provide more widespread use of IT as also showed by Henderson & Venkatraman (1993).

**Consolidate IT structures that ensure responsiveness and accountability**

In the survey, 81% of respondents indicated the importance of this CSF (Figure 1). This also applies to the validation process with about 80% (Figure 2). Its criticality is also supported by the preceding study in environment (Nfuka et al., 2009). For example it indicated several IT governance implementation elements like some committees to be in place. Yet many of the organizations do not have some of them like IT steering committees to effectively and comprehensively integrate IT in the business. Also where they are present, they have not exploited them optimally. The interviews also showed a similar trend. For example, when the Director of ICT at TRA was interviewed said, though we have structures like IT steering we are still working on improving further their responsiveness and accountability including effectiveness in timely reporting back and forth. Also an assistant director of IT services at MoFEA said, there are insufficient professional categorisation of IT staffs, in many cases with no clearly stated roles and responsibilities. Other interviewees indicated that IT people are found doing unrelated work, giving less attention to IT matters which again hinders IT contribution.

Deliberate effort to address such incidents will certainly address concerns of this CSF in such an environment characterised by complex and multiple levels of IT responsibility and decision-making. Its criticality is also indicated by other studies to be at the heart of the improved governance structures and IT contribution (Peterson, 2003; De Haes & Van Grembergen, 2008).

4.2.2 **Value Delivery and Risk Management Related Critical Success Factors**

**Consolidate, communicate and enforce policies and guidelines for cost-effective acquisition and use of IT across the organization**

In the survey, 93% of the respondents supported this CSF (Figure 1). This also applies to validation process with 80% (Figure 2). Similarly it is supported by the study findings on IT governance performance that indicated a relatively lower rate in effective use of IT for asset utilisation. This also applies to IT governance practices, which indicated limited management instruments for such purpose. Even where are in place, they have not been used consistently (Nfuka et al., 2009). For example when IS manager at MSD interviewed said, this CSF is central to success and wide use of IT as communication and enforcement of policies with mechanism for reward and punishment is vital. This is also expressed by assistant commissioner at MoFEA, who said, some controls and enforcements are needed and can increase widespread IT use even with existing IT infrastructure and applications. For example direct access to applications for informed and quicker decision making.

Given the widespread nature of the environment, having strategies in place is not enough for a sustainable contribution of IT. It needs to be complemented by enforced policies and guidelines for optimal IT value creation and preservation in the organization (ITGI, 2003). Further improvement of this CSF will result into increased widespread use of IT (Guldentops, 2004; ITGI & PwC, 2006).

4.2.3 **Resource Management Related Critical Success Factors**

**Consolidate, standardize and manage IT Infrastructure and applications to optimize costs, responsiveness and information flow across the organization**

In the survey, 93% of respondents supported this CSF (Figure 1). This also applies to the validation process with 80% (Figure 2). Also it is supported by findings on IT governance performance that indicated a lower rate in cost-effective use of IT. Further support is also indicated by interviews. For example, when Director of MIS at PO-PSM interviewed said, we have several fragmented IT initiatives in our institutions; some efforts are required for economies of scale and better information flow. In addition, Director of ICT at PMO-RALG said, the infrastructure needs to be extended and facilities like PCs added to increase inclusiveness, thus facilitating enforcement across the board.
Further improvement on this CSF is vital, as IT value to be realized due to effective IT governance is also in relation to IT delivery that ensures efficient IT utilities mainly on provision and management of reliable and cost-effective infrastructure. Also on IT innovation that ensures timely and cost effective delivery of IT applications thus contributing to responsiveness and information flow (Peterson, 2004). Other CSFs (Figure 3) to consider as part of resource management is providing IT governance awareness and training for optimal use of IT supported by 78% of the respondents and over 80% in validation. Another is attract, develop and retain competitive IT professionals supported by 85% of the respondents and over 80% in validation. These two CSFs are highly supported by face-face interviews with respect to change of mindset, informed choices and sustainability of IT value delivery. Also are engine of innovation, optimization of the IT capabilities and effectiveness in the environment and are equally considered critical by Warland & Ridley (2005) and Luftman & Brier (1999) respectively.

4.2.4 Performance Management Related Critical Success Factors

Consolidate performance measures and benchmarks to track and demonstrate success

In the survey, 93% of the respondents indicated the importance of this CSF (Figure 1). This was also indicated in the validation process with 60% (Figure 2). In addition it is supported in the preceding study in this environment (Nfuka et al., 2009). For example, one of the highly rated problems was weak measurement of IT performance and value to business with consequences like non-measurable return from IT investment. Also together with the subsequent study (Nfuka et al., 2008) indicated processes to be the weakest IT governance practices in this environment. This includes, in most of them, non-existence of broad performance management systems like balance scorecard that provides performance measures beyond the conventional accounting (Kaplan & Norton, 1992). Further improvement along this CSF is important for performance that is measurable beyond conventional accounting given the characteristics and widespread nature of the public sector (Sethibe et al., 2007). The importance is also indicated by related studies (Van Grembergen & De Haes, 2005; ITGI, 2003).

In concluding the discussion, it is our view that even with constraints on IT resources, knowledge and culture in this environment, these eleven CSFs that cut across the IT governance life cycle will greatly influence effective IT governance, thus leading to more IT contribution in the studied environment.

5 CONCLUDING REMARKS AND FUTURE RESEARCH

This research work is based on the literature and case study of five public sector organisations from Tanzania as a developing country. The result of this analysis has revealed eleven Critical Success Factors (CSFs) that should be considered for effective IT governance in this environment. More importantly, this was done using IT governance focus areas i.e. strategic alignment, value delivery, risk management, resource management and performance management. Also it took into account that the IT value to be realized by effective IT governance is due to an efficient and cost effective IT delivery, innovation and business impact. This way it was possible to broadly and multi-dimensionally identify CSFs across the entire IT governance objective/life cycle i.e. direct, create, protect, execute and monitor.

The identified CSFs are: IT leadership to understand business goals and IT contribution and bring it to the management attention; involve and get support of senior management; encourage and support IT/Business communication and partnership and engage key stakeholders. Others are define and align IT strategies to corporate strategies and cascading them down in an organization; consolidate IT structures to ensure responsiveness and accountability; and consolidate, communicate and enforce policies and guidelines for cost-effective acquisition and use of IT across the organization. In addition we have consolidate, standardize and manage IT infrastructure and applications to optimize costs, responsiveness and information flow; provide IT governance awareness and training for optimal use of IT; attract, develop and retain competitive IT professionals; and consolidate performance measures and benchmarks to track and demonstrate success.
While the revealed CSFs may seem to vary slightly from existing IT governance related CSFs, the actual contextual issues of identified CSFs are substantially different from the implementation effort required by existing ones, mostly in the developed world. Unlike them, CSFs revealed are contextualized for this environment and broader as the approach used cuts across the entire IT governance objective. In this way they contribute to meet required IT/business alignment and optimal use of IT in such environment that is not only characterized by public sector governance complexity but also a combination of IT resources, knowledge and culture constraints and increasing IT investment and applications.

Generally it was observed that the majority of revealed CSFs are in the area of strategic alignment. This is due to the fact that IT/business alignment is still a major concern in such an environment. Also the success in this area means a huge milestone as it is the main driver of IT governance, therefore influences the rest of the CSFs. Equally important are CSFs in other focus areas. In value delivery and risk management concern is on having enforced guidelines for IT value creation and preservation. In resource management concern is on optimized IT infrastructure, applications and sustainable competencies to use and manage them. Finally is the area of performance management where concern is on active performance measures, demonstration of success/contribution of IT in their core functions and aligned incentives.

The use of findings from this study has important implications for research and practice. Specifically it will allow practitioners to optimize their scarce resources and concentrate on CSFs that are most likely to have an impact on effective IT governance and efficient service delivery. Also it suggests that in investigating CSFs for effective IT governance, researchers could focus on a broader approach that covers the IT governance life cycle e.g. five IT governance focus areas, and in this way the research will bring from both theoretical and practical viewpoints a contribution to effective IT governance.

Moreover the findings in this research work may present an interesting avenue for further investigation. As it stands, this research work was exploratory in nature and due to used case study research method we have considered only a few organisations. Further research will be based on a larger sample of public sector organizations from this environment that will more widely test the influence of these CSF findings on effective IT governance in Tanzanian public sector organisations.

REFERENCES


