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IT Governance in a Public Organization in a Developing Country: A Case Study of a Governmental Organization

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Abstract

The application of Information Technology Governance (ITG) was motivated by the private sector in the 90s, as a way to achieve excellence, provide new services, and increase profitability of IT investments. Therefore the organizations from the public sector has shortly followed those from the private sector realizing the benefits of having an effective ITG implementation that could better serve the implementation of IT plans, projects and programs in their organizations. Reviewing the research literature in this field, we have found a shortage of studies regarding ITG implementation into the public sector organizations in developing countries. Research has been conducted mainly in organizations from the private sector and specifically in the developed countries and very few in the public sector organizations in developing countries. Therefore this research has focused on the application of ITG in a public organization particularly in a governmental organization in a developing country by analysing ITG practices in place. The research method used in this study was interpretive case study and the data collection was done through interviews as primary data together including secondary data collected from progress reports, policies and procedure reports of the governmental organization. The results of this research concluded, that there was an unintentional implementation of ITG in the studied governmental organization and that there is a need to improve the ITG structures, processes and relational mechanisms that will promote accountability of the IT projects and contribute to an effective ITG implementation in this organization.

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1. Introduction

Information Technology Governance (ITG) was used as a concept since the 90's at the time of Enron crises. According to IT Governance Institute [1, p.10] "IT Governance is the responsibility of the board of directors and executive management. It is an integral part of enterprise governance and consists of the leadership and organisational structures and processes that ensure that the organisation's IT sustains and extends the organisation's strategies and objectives". Realizing the importance of ITG implementation in the business organizations, the public sector has shortly followed. Later was enhanced by introducing an effective ITG implementation according to Weill and Ross [2, p. 3] "an actively designed set of IT governance mechanisms (e.g., committees, budgeting processes, approvals, IT organizational structure, chargeback, etc.) that encourage behavior consistent with the organization's mission, strategy, values, norms and culture". Following the IT trends in the private sector, the public organizations have begun to transform its operations into IT environment, develop more constructive work procedures, improve the storage and retrieval of information, and provide better public services. In the public sector which is driven by service and political goals, it was realized that there would be differences from what was realized in the private sector, mainly concerning profit and public opinion. According to Wilkin and Campbell [3] in their study regarding organizations in the public sector there are different challenges such as the complexity of public demand on government services, and different political connections of the organization. The differences between political, administrative, and practices in public organizations in governments are also a challenge for researchers in studying ITG in public sector. The area of ITG in the public sector organizations is still limited in number of research publications. In our investigation we have found that there are a few case studies related to the public sector organizations in developing countries concentrating on implementation of ITG in public organization e.g. [4] and rarely there are extensive studies that have considered ITG in large number of public sector organizations in a developing country except for a study done by Nfuka and Rusu [5] in the public sector organizations in Tanzania. The studies we have found are mostly related to evaluating the service provision such as the study by Karunasena and Deng [6] that is providing a framework for evaluating public value of e-government in Sri Lanka and also the study of Satidularn et al. [7] that have evaluated the services in a governmental owned utility organization. Furthermore there are other studies about ITG in public sector organizations that have looked to understand the policies introduced by government and its effects on IT sector from a governance perspective. Such a study is mentioned by Hope [8] that has presented a study done by USAID in providing technical aid to developing countries, and concluded that ITG is a tool to better provide humanitarian aid to governments especially in areas of high technology [8]. To increase the knowledge about different approaches of ITG implementation in public organizations in developing countries, this research will look to respond to the following research question: *How is IT governance implemented in a public organization in a developing country?* The main objective of this study will look to analyze the ITG practices in a public organization particularly in a governmental organization in a developing country through the ITG structures, process and relational mechanisms in order to have an effective IT governance implementation in this organization.

2. Research Background

IT governance in the public sector is described by Lane [9] as the government services delivery to the citizens in national, local/municipal or regional institutions. Elpez and Fink [10] have characterized IT Governance in public sector as a service provided to the people through the execution of power, and authorities aimed at delivering public needs and interests. Where Sethibe et al. [11] and Khalfan and Gough [12] have written about the variances between private and public sector in ITG. Public sector organizations have a purpose to achieve its aim by improving the quality of life for its citizens, differing from the private sector where profit is the main measurement of success. In developing countries, where decisions are taken by the government through a hierarchical process, and internal studies there is a need to investigate the efficiency of governance, structure and management of IT investments to confirm consistency [13]. Moreover Wilkin and Cambell [3] went further in debating the differences between developing and developed countries that should be taken in consideration due to the differences in decision making method. Furthermore it is essential to understand the extent of development in deciding to implement measurements of IT projects in a public sector organization. Going through the phase of risk in IT implementation in the business sector organizations, the public auditing in the USA and some private auditing firms, has imposed the COBIT framework as a tool to ensure accountability in the private sector [14]. Nonetheless till present more frameworks were introduced like e.g. Val IT [15] that defines the connections between IT, business and different functions in an organization that holds governance tasks and Information Technology Infrastructure Library (ITIL)[16] that

identify, plan, deliver and support IT services. International institutions such as International Standardization Organization (ISO) have also introduced a standard entitled ISO/IEC 38500, 2008 [17] in Corporate Governance of IT which the upper management can use for governing IT within their organizations [18]. Reviewing the research literature in IT Governance we have also found an ITG framework introduced by Van Grembergen and De Haes [19] that compare to the others frameworks mentioned before is providing a holistic perspective of ITG implementation in an organization. Therefore in this research we have used the ITG framework of Van Grembergen and De Haes [19] that provides the possibility to evaluate the ITG implementation through three elements which are: *structure* referring to the recognized strategies and mechanisms used to connect and enable contacts among business and IT management; *processes* that are needed to formalize strategic IT decision-making and executions of IT projects; and *relational mechanisms* that are concerning the active participation and collaborative relationship among executives, IT management, and business management, which is crucial for sustaining business-IT alignment.

3. Research and Method

The public organization selected as case study is a governmental organization from a developing country but due to confidentiality we will refer to it in this study as the “organization”. The research method used in this study is interpretive case study [20] putting its effort “to adopt empirical approaches which focus particularly on human interpretations and meanings” [20, p. 74]. In order to understand the ITG practices in place, we have performed the investigation of a governmental organization, in relation to theoretical analyses, by observing the case under-study with the complexity and particular nature of the question in light of earlier theoretical studies to a similar situation. This has allowed us to analyze the ITG implementation and identify the ITG practices in place in this governmental organization. The review of research literature has provided us with the theoretical background needed to understand the scope of the study. The collection of the data was done through interviews with IT and business decision makers as well as from internal documents of this organization (e.g. progress reports, policies and procedure reports). For the data analysis we have used thematic analyses as “a method for identifying, analyzing, and reporting patterns (themes) within data to organize and describe available data in rich details” [21, p.6]. During the interviews we have taken notes from the interviewees’ responses, as accurate as we can, and then we have verified these notes with the interviewees in the organization in a later stage. On the other hand, we have collected internal reports that could support our findings by adding more information, especially statistics, tasks and performance of different IT projects. After deciding the main themes, we have supported them with evidences and justification of the choice, by quoting some of the discussions from the interviews and analyze the correlation of the findings with the data collected from the other interviewees or internal reports. Later we investigated further information to clarify our findings in each theme. This has led us to the final stage of reporting the findings by presenting the general themes of the study supported by a valid and reliable evidence in a coherent way [20]. In our procedure of conducting this research we were clear about the purpose of our research and the confidentiality of sensitive information provided [22] therefore we had to go through the review and approval process of information provided by the governmental organization according to their procedures. The samples used in this study for investigation are the IT Department with 33 employees as the projects owner, the Department of Strategic Planning and Institutional Excellence with 20 employees, and an external branch of the governmental organization with 23 employees as end users of IT systems. Moreover to find different perspectives of ITG implementation we have used group interviews that could improve the outcome of this research. The selection of personnel from departments mentioned above are representing those who are IT and business decision makers in these departments, and also implementers or users of the IT systems (see Table 1).

Table 1. Interviewee positions and date of the interviews in the governmental organization selected as case study

Name	Position	Department
Group interview 1 (G1), Date 15 July 2014		
Interviewee 1	Director	Information Technology Department
	IT role	Taking technical related decisions (Infrastructure/Software).
	Management role	Reporting progress to CEO.
		Staff Training
		Evaluating projects
		Evaluating staff
Interviewee 2	Project Coordinator	Information Technology Department
	IT role	Coordinate and follow-up with software projects implementations
	Management role	Reporting progress to IT director.
Group interview 2 (G2), Date 15 July 2014		

Interviewee 3	Director IT role	Strategic Planning & Institutional Excellence Department Coordinate strategic planning for IT department Follow-up implementation IT projects
Interviewee 4	Management role Project Coordinator IT role Management role	Report synergy of IT planning with overall organization and Government Strategies. Strategic Planning & Institutional Excellence Department Follow-up with IT projects implementations Report progress to Dept. Director.
Group interview 3 (G3), Date 4 August 2014		
Interviewee 5	Deputy Head Mission IT role Management role	Business Branch None Report IT related needs of the Branch Report implementation of IT projects in Branch Outsource IT implementation companies
Interviewee 6	Project Coordinator IT role Management role	Business Branch None Follow up with IT companies in outsourcing contract Report progress of implementations

4. Results and Analysis

The case study results, of ITG implementation in a governmental organization are presented below using the structure, processes and relationship mechanisms “as the necessary elements of an IT governance framework” according to Van Grembergen and De Haes [19, p.25].

Structure:

Reviewing the organization documents, we have recognized the vision, mission and strategic objectives of the organization. The strategy of the organization is emphasizes on the introduction of the latest technology in connectivity, information distribution and provision of services through Internet and IT related solutions. To fulfill the tasks, given major changes were done in the organization. One of these tasks was the restructure of the organization. Many departments were established to serve the new tasks at hand, as well as strategies and plans were revised to insure compliance with the overall strategy of the organization. The key players in this restructure were IT and Strategic Planning departments. To modernize the operations of the organization the two departments previously mentioned should work closely with all the departments of the governmental organization. The Department of Information Technology aim was described in details in the internal documents and its main purpose was to ensure the application and the use of IT to reach the maximum effectiveness and efficiency of the internal processes and procedures of the organization offices, ensuring organization’s leadership and role in the M-Government initiative declared by the government. Furthermore the IT department has the task to use information technology to support the work of the organization by undertaking the following tasks, as were mentioned by G1: “*be up-to-date with the latest technologies, provide the services needed by our customer and ensure secured access to IT for the organization*” and more specific in the organizational structure decision. The specific decisions to be taken by the IT department were the followings: first, to develop and manage operational rules and procedures for information technology; second, support departments in the organization to acquire information systems; third, develop and enhance the technical infrastructure of the organization; fourth, take decisions about applications development; fifth, take decisions regarding the training and development programs for the skills of technicians and computer users; sixth, take decisions concerning the establishment of controls to secure information systems, computer and transfer it to the users of those systems; and seventh, take decisions concerning the estimations of the budget of the Department of Information Technology. The IT department has among its staff “*1 Director, 2 Deputy Directors, 5 Head of Sections and in all are 33 employed persons in the department*” (G1). The structure of the Department of the Information Technology that is mentioned in the internal documents consists of: Section of Information Security and Conformity, Technical Support Section, Communications Network Operations Section, Section of Systems and Applications, Institutional Structure Planning section, and Project Management section. For taking decisions concerning organizational services support related to IT, Human Resources, Finance, Buildings, and Security in the organization a Committee of Supporting Services (CoSS) was established, headed by the Chief Executive Officer (CEO) of the organization and its members are the heads of supporting services to the main business of the organization, such as Finance, Human Resources, and IT. The CoSS has a wide range of responsibilities, and IT is just one of them. We noticed also that not all the members have the expertise on discussing IT projects in details, hence it could be a disadvantage to the advancement of the IT projects. On the other hand, the members of Finance, Human Resources, Building and Security in this committee could understand

the needs an IT project requires (G1). Apart from this CoSS there is an annual meeting of decision makers in the organization that can deal with the questions about IT, and where managers from different departments and branches of the organization can discuss all the concerned issues (G1), and also the IT users can give their inputs regarding IT projects either implemented or suggestions for possible IT plans in the future as was stated by (G1&2) “*During the ... meetings a special session is provided to discuss the IT related plans and projects*”, where (G2) think that the IT department is not discussing its IT projects enough and “*need to do more in promoting its work*”. The ITG practices identified in the structure of the studied governmental organization are presented in Table 2.

Table 2: ITG practices in the structure of the governmental organization using ITG framework of Van Grembergen and De Haes [19]

ITG category	ITG practices
Roles and responsibilities	IT department is headed by an IT director, which report to the deputy of the Chief Executive Officer (CEO). The IT department director is part of the executive management, although the organizational structure shows that the director of IT department doesn't report to the CEO directly, but the director of the IT department has the same status and authorities as other head of departments and report directly to the CEO. The director of IT department has a clear role and responsibilities that comes from two levels of the government's strategy in general, and the internal organization plans, and has a follow-up reporting mechanism to be sent to the institutional excellence department. The strategic committee - CoSS was established and specialized to discuss IT issues as well as others issues, such as Finance, Human Resources, and Buildings and Security. The steering committee was established but as a personal initiative of the IT Director and it is not formally established so it does not have formal duties and responsibilities.
Director of IT on board	The IT director is on the board for all the committees related to IT issues, such as the committee for Supporting Services CoSS and the internal IT projects committees.
IT Strategy committee	There is an IT Strategy Committee, the IT director is a member, and his/her role is to evaluate the current strategy and suggest improvements “ <i>Special committee related to supportive services discuss the issues related to IT, this committee headed by the CEO</i> ”(G1).
IT Steering committee	There is a steering committee that produces quarterly a report about the progress of the IT projects.
IT Project committee	IT project committees are formed within the IT department to study new projects and establish a follow-up of implementations.
IT Organization structure	IT department is mainly centralized, the director follows-up with all projects and plans for the department; committees and groups are formed to follow-up with projects, but have to report to the director, at the end of their discussions, and in most cases the director participate in the work of the committees and working groups.

Processes:

The formalization of processes is organized through a general communication distributed to establish different authorities, the source of this set of procedures guidelines differs from one situation to another, and for the IT related process there are three main sources:

- International standards and norms: Few years ago the IT department was small and didn't have many internal developed IT projects. Therefore, it didn't need to adapt to international standards, but recently this was recognized as the department began to expand and handle larger projects, such as Information Technology Infrastructure Library (ITIL) and Project Management Institute (PMI) were introduced to facilitate the follow-up with IT related projects (G1).
- Telecommunication Regulations Authority: A governmental independent institution, authorized to develop the general guideline procedure of IT use for all the governmental organizations. Its role is: First, to introduce law and regulations for IT use; Second, to evaluate technology and certify it for the use of government; Third, to introduce new IT projects to connect governmental agencies and provide better services for the public; Finally, to introduce rules and regulations regarding security related issues and help in solving problems.
- Internally developed procedures: Part of the institution re-engineering project, the department of Strategic Planning in cooperation with IT department developed detailed documentation for the processes and guidelines.

The ITG practices identified in the processes of the studied governmental organization are presented in Table 3.

Table 3: ITG practices in the processes of the governmental organization using ITG framework of Van Grembergen and De Haes [19]

ITG category	ITG practices
Strategic information systems planning	IT strategic plan is decided by the IT department and follow-up measurements are taken to realize the department achievements in implementing its goals and projects.
Information economics and portfolio management	Economics are not discussed on the organization, as well as the return of the IT investments.
IT Balanced Scorecard (IT BSC)	It is not applied as part of the practice of the organization, though there are internal generated follow-up measurements developed internally as benchmarks for advancing in fulfilling each department or each project, its goal, and the level of its success.
COBIT and related IT governance	No framework is used except ITIL in limited areas of IT projects, and there is a lower

frameworks such as ITIL	level of knowledge about such practices “we implement ITIL, particularly in infrastructure projects, and Project Management Institute (PMI) to follow-up with IT related projects” (G1), mentioned by an IT personnel in the interviews.
IT alignment/governance maturity models, service level agreements	Not being used in the organization “we don’t use any of the mentioned measurements, but we developed our own measurements according to the strategic goals of the organization and we use it to measure performance and advances of implementation of different projects and polices” (G2), as mentioned by staff in the strategic planning and institutional excellence department.
Activity-based budgeting	Budgeting is decided according to the need of the organization, then coordinated with the Ministry of Finance, “projected by IT department, approved by Finance department and the CEO, then the final approval has to come from the Ministry of Finance” (G1, 2&3), which could create delays and misunderstanding since the requirements and the approvals are in two different entities. While there is a follow-up of purchases, there is not any evaluation of performance or economic efficiency of the IT projects.
SWOT analysis IT plans	The SWOT analysis is not applied in the organization. The plan is extensively decided by the concerned committee, and approved in the organization by the board, and measurements of follow-up and evaluations are taken in a quarterly basis, a report is generated to show progress. But there is limited information in the branches about new projects of IT “Other than the distributed strategy of the organization, we don’t know about what is going on the IT department”(G3).

Relationship mechanisms:

Taking in to consideration the nature of the governmental organization and different rules and common law that the staff of the organization should comply with, we will study in this section the relationships mechanisms among the staff. The main objectives are to secure the country’s interests, which create vast scale of internal and external partners in terms of persons, institutions, as well as the geographical location. From the interviews, we realized that in spite of the modernization process that took place in the organization, the employees still prefer to use personal or written communication, which limits the possibility to include larger number of people in distributing the information or introducing the feedback. The relationships related to IT projects fill in two categories: First, IT department realize the need to introduce new technology or upgrade the existing ones, and usually related to IT infrastructure or main IT systems. Second, the IT systems suggested by the users such as Human Resources and Finance systems, could have users in different departments of the organization, but also could include users in the headquarter or located in external branches of the organization, so IT projects could also include other governmental agencies such as Ministry of Finance when are working on issues related to budget. The feedback process that is initiated by the Strategic Planning department has some resistance from the staff to comply with therefore there is a need for more training and simplification of the processes needed to be addressed to encourage compliance. An award system was also introduced on the last two years at the level of the government and another one in the organization itself. This award system that will start in this year has the role to encourage more interaction and team work in IT projects. The ITG practices identified in the relationship mechanisms of the studied governmental organization are presented in Table 4.

Table 4: ITG practices in the relationship mechanisms of the governmental organization using ITG framework of Van Grembergen and De Haes [19]

ITG category	ITG practices
Active participation and association among main stakeholders	There are very dynamic and cooperative practices at the management level, regular meetings are held, and IT project-based committees formed in the department. As one of the interviewee from IT department mentioned “IT projects that serve special requirements of the organization are suggested by the different departments and studied by the IT department that gives recommendations of the best way of implementation” (G1).
Cross-functional business and/or IT training and job rotation	Extensive training provided in implementing new IT applications or IT projects, with easy hot-line access for the following period to ensure stabilization of the system. Continues instructions on best practices and instructions in using different IT systems used by the organization, through a weekly newsletter. But some departments think it is not sufficient information about all IT projects “The IT department need to do more in promoting its work” (G2). The further you go from the IT department such as in branches, the more there is a need for information about IT projects “we don’t know about what is going on the IT department unless there is a need for implementation” (G3). On the other hand the help disk is 24h open for solving problems of different IT systems.
Partnership rewards and incentives	Not a common practice in issues related to IT specifically, but general rewards are given to organization staff for leadership, excellence and innovations, and it is decided by the management and board of the governmental organization.
Business/IT location	The nature of the organization obliges the staff to move from one job to other every four years, some times less. Though it could be a good practice to give better understanding to the business requirements, but makes it also difficult to train staff in IT related issues and they are moved to different jobs when they have reached a good working

IT system for virtual meetings	knowledge. The IT system used for virtual meetings is established in the organization, but there is a need for raising awareness to the advantages of using it as it is rarely used.
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5. Conclusions

The results of this research concluded that there was an unintentional implementation of ITG in the studied governmental organization. The analysis of the ITG practices done through the lens of ITG framework of Van Grembergen and De Haes [19] has identified some problems and restrictions faced by the IT department in budgeting and decision-making. Furthermore, the analysis of the ITG practices in the governmental organization has confirmed that ITG is implemented to a certain extent. Moreover, the research findings, has revealed that there is lower level of knowledge regarding ITG in the governmental organization and therefore there is a need to improve the ITG structures, processes and relational mechanisms that will promote accountability of IT projects and contribute to an effective ITG implementation in this organization. There is a large area that will need to be discovered in a future research like is the issue of ITG implementation in governmental organisations by studying the IT governance of inter-governmental organizations and identify the critical success factors for implementing an effective IT governance in place.

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