

MEASURING IT GOVERNANCE EFFECTIVENESS ON SMEs IT INFRASTRUCTURE**Mansur Aliyu and Mohammed Basheer Aliyu, Mukhtar Muhammad Sani**

Department of Computer Science

Umaru Ali Shinkafi Polytechnic Sokoto

mansuraliyu@gmail.com

Department of Mathematics

Waziri Umaru Federal Polytechnic, Birnin Kebbi

ABSTRACT

The small and medium scale enterprises (SMEs) otherwise known as small businesses are recognised as important components that drive economic growth and create job opportunities. This understanding is drawn from a report published by the Economist Intelligence Unit Limited (2011). The report also suggests that the continued success of these businesses is crucial for the development of the local economies they serve. Related to this is the global advancement in technology that brought about the introduction of advanced ICT into the running of businesses both large and small. This brings to fore the desirability to ensure that high quality IT Governance is deployed in the management of SMEs IT infrastructure to enhance competitive advantage. This paper sets out to examine the existing IT governance structure at the International College Scotland (ICS) which is an SME located in Edinburgh City in United Kingdom.

Keywords: IT Governance, SMEs, IT Infrastructure**1. INTRODUCTION**

Quality IT Governance is now generally regarded as a significant issue in the present growing global economy. The current growth challenges facing global businesses and corporate governance require strategic IT Governance implementation as the bedrock for increased market share and competitive advantage. To cope with these challenges, IT Governance diagnostic model was designed to help business organizations diagnose and design IT Governance architectures.

IT Governance (ITG) has been the subject of raging debates and speculations over the past decades, yet it remains an ephemeral and 'messy' phenomenon, emerging in ever-new forms with growing complexity (Peterson, 2003). Despite more than 30 years of empirical research, and management theory and practices, there are still many breaches to be bridged (Van Grembergen, 2002). Moreover, thirty-five years have passed since academics began speculating on the impact that information technology (IT) would have on organizational business strategies. The debate is still on-going, and both researchers and managers continue to explore the relationship between IT Governance and organizational business value drivers.

This relationship is becoming increasingly complicated due to the rapidly changing nature of IT and the increasing environmental turbulence and challenges faced by many organizations (ITGI, 2002). To solve these challenges organizations need to align IT with its business objectives. Effective IT Governance is one possible way for organizations to sustain and extend the organization's strategies and objectives. However, several approaches to IT Governance exist today, which has direct relations to how organizations define and structure its IT Governance. Van Grembergen (2002) defined IT Governance as the organizational capacity exercised by the board, executive management and IT management to control the formulation and implementation of IT strategy and in this way ensure the fusion of business and IT.

Today, the importance of diagnosing IT Governance architecture for future performance and improvement in the management of Small and Medium Enterprises (SMEs) cannot be overemphasized. As argued by Peterson (2001) that in the past IT Governance diagnostic models were developed and implemented in many large multi-business organizations across different industries, and the effect of such models on operational performance duly investigated.

This paper will therefore show the design of a model that can be deployed in SMEs. This is despite the fact that SMEs are not known to earmark huge funds on IT infrastructure and its maintenance over the years. However, the proposed model will assist the SMEs in minimizing cost and maximizing benefit in IT investment. The paper will discuss the level of IT

Governance implementation and practices at the International College Scotland (ICS). In the process the paper will describe and examine how IT is aligned to ICS operations and whether or not IT contributes towards enhanced operational efficiency and effectiveness. Finally, a new IT Governance structure will be proposed for implementation and its brief description will be provided.

2. LITERATURE SURVEY

2.1 Classification of Small Businesses

The concept of small and medium enterprises or SMEs has many connotations among researchers who often apply quantitative criteria to identify SMEs. From this perspective, SMEs refer to firms in all sectors as long as they do not exceed a particular size.

Researchers and practitioners/industry operators propose a number of indicators such as profits, total capital, market position, number of employees and turnover in order to classify businesses as either SMEs or not. The number of employees and turnovers are widely used as the most appropriate quantitative criteria in the classification of SMEs.

However, identifying, classifying or determining business size is very difficult and often subjective and may require a qualitative judgment. This makes a generally accepted definition of a small business hard to find. As mentioned earlier, some authorities prefer to classify small-scale business in terms of staff strength and annual turnover. While in some others prefer to use size, ownership style or funding as the criteria for classifying businesses.

It is in this vein that Esselaar, Stork, Ndiwalana & Deen-Swarray (2007) provided a classification of small businesses by using three criterion namely; informal operator/survivalist, informal micro or small businesses and formal micro or small businesses. Each criterion is defined by a set of qualifying identifiers. This is shown in table 1 below.

Table 1 Classification of Small Businesses

<i>Small Business Characteristics</i>	<i>Qualifying Identifiers</i>
Informal Operator/Survivalist	<ol style="list-style-type: none"> 1. No employees 2. Does not keep record 3. Does not pay taxes 4. Does not separate personal from business finances 5. Is not registered with any authority 6. Engages in business for daily survival
Informal Micro/Small Business	<ol style="list-style-type: none"> 1. Less than 10 employees 2. May not separate personal from business finances 3. May not pay taxes 4. May not keep records 5. May not be registered with any authority 6. Has physical address and contact details
Formal Micro/Small Business	<ol style="list-style-type: none"> 1. Have between 10 and 49 employees 2. Keeps records 3. Has a separate bank account 4. Pays taxes 5. Registered with all the required authorities 6. Has physical address and contact details

Source: Esselaar, Stork, Ndiwalana&Deen-Swarray (2007)

For our case we would like to use the definition given by the European Commission (2005, p. 5) that states “The category of micro, small and medium-sized enterprises (SMEs) is made up of enterprises which employ fewer than 250 persons and which have an annual turnover not exceeding 50 million euro, and/or an annual balance sheet total not exceeding 43 million euro”.

Our selected case study SME being International College Scotland (ICS) located in Edinburgh United Kingdom falls into the formal micro/small business category of Esselaar et.al (2007) and satisfies the European Commission (2005) definition of SMEs, thus considered appropriate for conducting this study.

2.2 Characteristics of SMEs

In order to achieve the purpose of our research, it is important to understand the characteristics of SMEs. According to Ghobadian & Gallear (1996, p.38) “the organization structures of SMEs are usually organic compared to the more bureaucratic structures found in large firms.” The author’s further explained that “the salient feature of organic organizations is the absence of standardization and the prevalence of loose and informal working relationships”.

These characteristics make SMEs more flexible to environmental changes and research has found that small firms are perceived of as being significantly more flexible than large firms (Levy & Powel, 1998). Therefore, SMEs are more likely to survive in turbulent environments than large bureaucratic organizations, where innovation and/or flexibility to adapt to new situations are the key factors. The flat structure of SMEs and lack of hierarchy allow them to have a more flexible work environment and enables the top management to build a strong personal relationship with employees (Ghobadian & Gallear, 1996).

SMEs then are characterized by an absence of standardization, formal working relationships and having a flat organizational structure where staff development is limited. Hollensen (2001) explains some of the characteristics of SMEs as follows:

1. *Organization*: The employees of SMEs are really close to the entrepreneur/owner/manager of the firm. They are easily influenced by this individual(s).
2. *Risk taking*: This can occur in situations where the survival of the enterprise may be threatened, or where major competition is undermining their activities. By not having experience or information about foreign markets, the entrepreneur or management team take risk on decision making.
3. *Flexibility*: The easy communication experienced by/between SMEs and its customers helps them react faster and more flexible to the customer’s needs.

These conditions create a good environment for the deployment of a high quality IT Governance diagnostic model.

3. METHOD OF DATA COLLECTON

Although the use of IT Governance diagnostic model in ITD of ICS is still new, an exploratory research approach was considered most appropriate to investigate and gather all the data necessary for the present study. Therefore, the authors used a single case study approach at the ITD of ICS, which is the division wholly responsible for IT governance created by the College. Having a view that IT Governance diagnostic model is contemporary in nature and assumed to be suitable not only within business organizations but also in the College system.

In order to carry out the study at ITD we wrote a request letter to the ITD Manager, who then directed the Head of IT Governance unit to grant us audience and schedule an interview. An open-ended interview was scheduled with the staff of IT Governance Unit and Information System officer. The selection of these staff for the interview is consistent with Rush (2005) and Norshidah (2009). The interview started at exactly 9:00am at the ITD conference room. It was conducted in English language using paper and pen technique with some presentations.

During the interview the staff answered all the questions asked verbally with some demonstrations, also presented a softcopy documents on the College ICT policy, strategic planning, and ICT governance website. The selected staff members were very helpful and articulate throughout the interview period. Finally, the staff members shared their personal experiences on the demanding nature of work in ICT environment generally. The interview ended at around 12:30pm.

4. RESULTS

ICS is a medium business in Scotland that took ICT seriously as a major component that will facilitate achieving its strategic objectives. Today, the College maintains a reasonable ICT infrastructure and network that cover all its three campuses. Over the years, the College has deployed considerable resource on ICT to improve its operational capabilities and enhance performance within the length and breadth of the College. Modern ICT capabilities facilitate the achievement of the College’s aim of becoming a major research based institution able to provide cutting edge knowledge in the United Kingdom.

However, these highly expensive and delicate assets (ICT Infrastructures) is being governed and managed by three (3) fundamental bodies established for the development and implementation of ICT policies, strategies and services as well as defining the role of the College's Information system. The three (3) bodies responsible for the management of ICS ICT infrastructures are: College ICT council, Chief Information Officer (CIO), and College Technical ICT Committee (CTICTEC) (ICT Policy Document 2010).

The ICT Council determines the overall direction of Information and Communication Technology at the College, and endorses the policy and guidelines under the counsel of the Chief Information Officer (CIO) who heads the College Technical ICT Committee (CTICTEC). The CIO is responsible for the strategic leadership of the College's Information and Communication Technology, its advocacy, external positioning, policy, and implementation.

The CTICTEC will *inter alia* assist in the definition of College-wide ICT policies and all matters constituting its infrastructure in collaboration with the ITD and, in turn, advise the Chief Information Officer (CIO) on such matters (ICT Policy Document 2010).



Figure 1 - ICS ICT Governance Structure

Source: ICS ICT Policy Document 2010

4.1 ICT Council

The Council is not intended to directly represent units of the College rather it is intended to be composed of knowledgeable people willing to contribute significant insights and to actively participate in high-level policy formulation (ICS ICT Policy Document 2010). The specific function of the ICT Council includes:

1. To determine the overall direction of Information and Communication Technology at the College;
2. To endorse the College ICT Policy and Guidelines; and
3. To advise (through the CIO) the Principal and the College Chairman on major policy issues relating to ICT.

4.2 College Technical ICT Committee (CTICTEC)

The Committee deliberates on the technical aspects of ICT policy implementation and recommends solutions for the College. They will also manage and coordinate the planning, procurement and distribution of annual ICT requirements for the various local entities of the College.

The Committee comprises 5 to 8 members with a wide understanding of the business of the College, and of information and communication technology issues. Its membership evolved according to College needs and sources of specific expertise.

The Committee's membership will include persons who have expertise in specific areas of strategic importance from within the College, as follows;

Functions of the CTICTEC

1. To set guidelines and to review component ICT plans from the departments, units, centers, divisions and the administration;
2. To provide advice on ICT management structures in budgetary groups;
3. To advise the corporate planning process on strategic planning issues relating to ICT within the College; and
4. To oversee developments within the College devolved ICT environment.

4.3 The Information Technology Division (ITD)

The division was established to consolidate efforts in providing IT services to the College community. The division is responsible for the planning, developing, maintenance and the management of the College's information systems, integrated databases, ICT security requirements, and ICT equipment and facilities (ICS ITD in Brief, 2010).

In addition, the division provides effective use of the College's information and communication technology services which requires the provision of assistance to the clients who use the services, and to the staff who conduct the technical support for local ICT resources. It is the responsibility of ITD to ensure their staff members are able to use ICT services proficiently and that their technical staff are appropriately trained and authorized by the ITD to conduct technical support. They also provide ICT related training and enhancement programs to promote awareness of ICT utilization in the College (ICS ITD in Brief, 2010).

Similarly, in implementing projects, ITD will study the requirements, design and specify the scope of work, supervise and manage the projects on behalf of the users, test and commission the system, train and support the users, and provide the maintenance. In some cases where, interfacing between systems is required or where a specific application is required, ITD support personnel will develop the application themselves.

ITD Objectives

1. To educate by training and inculcating awareness on the utilization of ICT in ICS community activities leading towards the development of ICT culture.
2. To provide an excellent, accessible, reliable and secure ICT infrastructure, facilities and services.
3. To develop, implement and improve the integration of ICT systems and tools that will further enhance productivity and efficiency in ICS.
4. To provide consultation and advice in the formulation of a robust ICS ICT policy and guidelines for implementation.
5. To synergize the knowledge-worker and technological advancement in the e-College environment.

Functions of the Information Technology Division

The focus of the Information Technology Division will be to:

1. Educate by training and inculcating awareness of the utilization of ICT in the College community activities leading towards the development of ICT culture;
2. Synergize the knowledge worker and technology advancement in the electronic College @ e-College environment;
3. Provide, support and manage the College's ICT infrastructure services according to agreed principles;
4. Develop detailed proposals for ICT policy, procedures and guidelines; and
5. Coordinate the ICT funding/budget planning for the College.

The ITD will be the secretariat to the IT Coordination Meeting whose members are the IT Coordinators appointed by the Principal upon the recommendation of the Managers of the relevant local entities. The roles of the IT Coordinators are:

1. To play a major role in planning the use of ICT in supporting the development of the departments, units, divisions and centers.
2. To bring to the notice of the ITD issues and problems related to ICT at their respective departments, units, divisions and centers.
3. To inform the managers of their respected departments, units, divisions and centers of the policies and decisions made on ICT related matters.

ITD Departments

1. Administration and finance department
2. ICT governance department
3. College core applications department
4. Collaborative and strategic application department
5. Network telecommunication department
6. Computing and server management department

ICT Governance Department is responsible for the following:

1. Coordinate the development of College IT policies, procedures, standards and guidelines.
2. Coordinate the development and implementation of College IT best practices.
3. Coordinate the development and implementation of IT Service Management frameworks.
4. Coordinate the development and implementation of IT Governance frameworks.
5. Coordinate the Quality Management System (ISO 9001:2008) implementation of the division.
6. Promote IT products and services offered by the College to the ICS community through awareness, training and workshop sessions.
7. Maintain the IT Governance website as medium of information on the IT Governance activities and events (*ITD Departments*, 2010).

4.4 Funding of ICT Infrastructure

The funding of the ICT infrastructure will be centralized, and monitored by the ITD. This funding will cover equipment purchases, equipment maintenance, general software licenses, and communications service charges for all ICT infrastructures. Recurrent funding will be adjusted as the inventory of equipment changes. ICT-related expenditure by the College's local entities will be built into the formula for the delegation of funds to them, in a manner agreed through the budget process.

ICT council being the highest ICT policy-making body of the college is constituted by the relevant management staff and the ITD management. The ICT council is responsible for the formulation of policies and guidelines that are aligned to the College ICT value drivers, while the implementation is done by the ITD management and staff. Again, the development and implementation of IT Governance frameworks is coordinated by the ICT Governance department. However, the overall involvement of these three categories of people were not explicitly stated, it is the hope of this study to investigate the level of participation/involvement and the current role of the board of governance, College management, ITD management, and ICT Governance department in ITG implementation and effectiveness towards meeting College's ICT strategic objectives.

5. DISCUSSION

IT Governance diagnostic diamond developed by Peterson in 2001 was adopted for the purpose of this study. Direct interview approach was used to get responses that answered the questions related to IT Governance diagnostic diamond (Farole et al. 2010). Vertically the model shows a differentiation of IT decision-making (i.e., who has what authority and responsibility to make decisions regarding the IT portfolio?) and again indicates the integration of IT decision-making (i.e., what integration strategies, tactics and mechanisms are used to coordinate IT Governance?).

While horizontally it evaluates the strategic direction and strategic control (i.e., what are the value drivers and strategic intents, and to what extent have these value drivers been realized, or is IT really contributing towards improved operational performance?).

The finding of this study was drawn from answers to these fundamental questions of design and effectiveness of IT Governance received from the interview and presented in a tabular form.

6. CONCLUSION

Having examined the ITD's current IT Governance integration, strategy, and decision-making differentiations from figure 1 above we could notice their strength and weaknesses in both practices and utilization. However, applying the IT Governance diagnostic diamond and following this step-wise approach for both the current and the desirable situation provides the division with opportunity to diagnose the suitability of their existing IT Governance architecture, and help them identify strategic

discrepancies with the future, desirable position, and measures to redesign and improve the IT Governance architecture. Thus, the need to redesign the existing structure to create a new IT Governance structure that will reduce long hierarchy for decision-making and increase stakeholder's involvement

The Figure 2 below represents the proposed IT Governance structure with all the stakeholders involved. This structure is not only useful to ICS ITD but could be deployed in the management of other IT Governance activities of other SMEs. Also global horizontal and vertical applicability is possible.

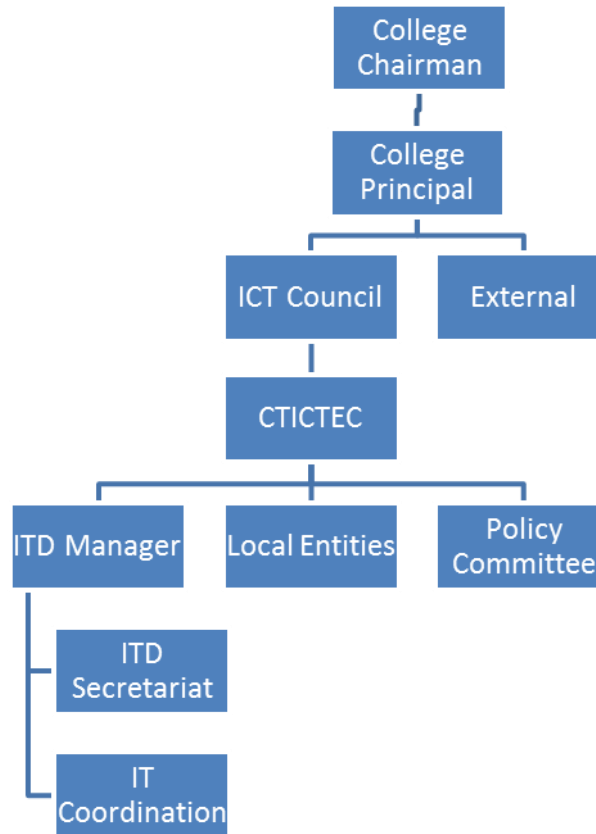


Figure 2 – IT Governance Model

Source: Self designed

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