A Model of Effective IT Governance Structures for Developing Economies

Completed Research Paper

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Abstract

The level of IT investment amongst organisations in developing economies is increasing. Growing evidence however, indicates, that the majority of these economies still fail to capitalise on their IT investment to source business values. For business values to materialise, effective governance of IT related resources is paramount. This entails that the presence of effective IT governance (ITG) structures as a crucial resource for organisations. The understanding of what ITG structures are suitable in developing economies is limited. Broadening our understanding on the nature of these structures is required. By interacting with various stakeholders in a developing economy context, we were able to gain an in-depth insight on the nature of these structures. We found that the presence of an organisational-wide strategy committee, a cross-functional IT operational committee, hierarchical and lateral communication systems , and cross-functional training as the crucial components of an ITG structure for organisations in a developing economy.

Keywords

Developing economies, IT governance, IT investments, collaborations, business values.

Introduction

Organisational dependence on information technology (IT) in developing economies is increasing (Gartner 2013). Evidence indicates that developing economies are committing a substantial amount of scarce financial resources to IT and experts suggest that the IT spending in developing economies will surpass those of the developed economies (Gartner 2013). Developing economies are characterised as economies that have not achieved a significant degree of industrialisation relative to their populations, and have, in most cases, a medium to low standard of living (World Bank 2013). IT investments are channelled into these developing markets through the various projects of international funding institutions such as the Asian Development Bank (ADB), the World Bank, the International Monetary Fund (IMF), the United Nations (UN) agencies, and local government agencies (Avgerou 2008). For these economies, IT investment is perceived as a critical enabler of economic growth, development, and society transformation (Walsham et al. 2007). These IT-driven benefits provide the impetus for increased IT investment in developing economies (Avgerou 2008).

Despite their substantial IT investments, developing economies still experience high rate of IT investment failures (Avgerou 2008). IT investment failure is a global phenomenon, but the rate of IT investment failures in developing economies tends to be significant (Avgerou 2008). These findings are worrying, as developing economies cannot afford to waste scarce financial resources on such initiatives. Challenged with severe economic constraints, instances of IT investment failure can worsen the current economic status quo for many developing economies (Kenny 2001).

Persistent failure of IT investments in developing economies can discourage continuous investment in IT (Prasad 2011), since stakeholders might perceive IT investments as an investment black-hole : a project that consumes substantial amounts of resources without yielding any profit (Davies 2013). Failure to continuously invest in IT increases the risk of the digital divide widening between developing and

developed economies. This hinders the ability of developing economies to compete and be part of the global economy which is largely driven by IT. The need for practical business solutions that enable organisations in developing economies to minimise IT investment failures and enhance maximum returns from their IT investment is therefore pertinent. In line with the suggestion of extant literatures (e.g. Weill 2004), this study asserts that ITG structures are effective remedies for the IT investment failures in developing economies.

The aim of this paper is to contribute to the ongoing research efforts that strive to bridge the knowledge gap on how IT could be effectively leveraged in developing economies. The study progresses as follows. A review of the ITG literature is provided in the next section. The theoretical foundations of the study will then be discussed. Discussions of the research design will then follow. The results and the discussions of the findings are then presented before the concluding section.

Literature Review

The understanding of ITG is established in literature (example, Weill 2004; ITGI 2003). ITG is commonly defined as the "*leadership and the organisational structures and processes that ensure that the organisation's IT sustains and extends the organisation's objectives and strategies*" (ITGI 2003, p.10). In today's leading and profitable organisations, effective ITG structure is a top business priority (Gartner 2013). Organisations that have effective ITG structures could earn 20% more profit than those who do not (Weill 2004). Effective ITG enables such superior business performance as they promote effective and efficient resource allocations (Weill 2004)**.**

ITG is considered to be crucial component of an organisation's overall corporate governance (Weill 2004). Corporate governance tends to focus on the overall governance of an organisation's resources while ITG is specifically focused on enhancing the performance of IT-related resources. The specific focus on the governance of IT-related resources stems from substantial amount of financial resources commited to IT. In fact, Gartner (2012) suggests that every organisation's budget today is an IT budget as organisations are rapidly digitising their operations. The presence of effective ITG structures in an organisation is therefore important.

ITG is also a multi-faceted concept (Brown and Grant 2005). Literature have associated ITG with business concepts such as strategic alignment, leadership, risk management, organisational structures, value creation, accountability, profitability etc. (Brown and Grant 2005; Wilkin and Chenhall 2010). This has resulted in numerous suggestions of effective ITG structures in extant literature (example, Weill 2004; Weill and Woodham 2002).

Models of ITG are not homogeneous (Nfuka and Rusu 2011). As mainstream ITG-related researches tend to focus more on developed economies, the viability of these established ITG structures in developing economies is unclear as they might be generic and might require considerable effort and cost in customising to a specific context (Nfuka and Rusu 2011). Thus the one-model-fits-all suggestion does not apply to ITG structures because of the different contingencies organisations are confronted with depending on the locality of their operation.

The understanding on the nature of ITG structures that is suitable in developing economies is pertinent as the level of IT investments in these countries is increasing rapidly (Gartner 2013). Despite the influx of these resources, performance of IT investments amongst organisations in developing economies is still relatively weak (Cave 2012). This indicates that the importance of effectively governing IT resources still eludes many organisations. Moreover, this also suggests that many of these organisations may lack the appropriate know-how on how to develop effective ITG structures. The theoretical underpinnings on the importance of ITG structures and how structures can be developed are as articulated in the next section.

Theoretical Framework

The need for ITG structures– Agency theory

The rationale of the agency theory is founded on the accounting principle of separation of ownership and control in corporate organisations. This means that the principal– those who own the financial resources, do not have any decision input right in the daily management of their investments (Jensen and Meckling 1976). This responsibility is contracted to a management team (agents) in exchange for remuneration.

In a perfect market for corporate control, agents are expected to fulfil their responsibilities in a manner that sustains and enhances the principals' interest (Jensen and Meckling 1976). For commercial investments, the principals' interest is closely aligned with increasing the value of returns. Perfect market conditions, however, do not exist, resulting in agency problems such as moral hazards, information asymmetries, adverse selections, incomplete contracts, among others (Jensen and Meckling 1976). With this market reality, agency theory argued that (1) people are rational; (2) they make decisions on economic grounds; and (3) they will attempt to maximise their own self-interest (Jensen and Meckling 1976). As a result, agency theory argues that the agents will be more likely to engage in opportunistic behaviours that increase the risk of investment (including IT) failure (Jensen and Meckling 1976).

To minimise unscrupulous management behaviour effective governance mechanisms (including ITG structures) is pertinent (Shleifer and Vishny 1997). These governance mechanisms promote effective corporate controls that ensure managers act in the best interests of the providers of capital (Shleifer and Vishny 1997). Corporate governance structures (including ITG) have in fact become a crucial investment criterion as they significantly improve investor confidence (Deford and Hung 2004). Investors are willing to pay a premium for organisations that have a high standard of governance (Newell and Wilson 2002). This is so because effective governance structures (including ITG) enhance the transparency of management leadership, instils effective risk management (Wilkin and Chenhall 2010) and more importantly, protects the interest of investors (La Porta et al. 2000).

The agency theory, however, only justifies the need for ITG structures and fails to articulate how these structures could actually be developed. The resource base view (RBV) theory is adopted by the study to redress this knowledge gap.

How to govern IT– Resource based view theory

The ITG structure of an organisation typifies a collection of distinct internal resources (including IT and business) working together to ensure that the organisation's IT extends the organisation's objectives and strategies (ITGI 2003). These distinct resources are commonly known as organisational capabilities or core competencies (Bharadwaj 2000).

To be useful, resources must be valuable (i.e. rent producing) (Hart 1995). The characteristic of valuable resources is that they are firm specific, rare and difficult to imitate or substitute (Barney 1991). Possessing these resources and capabilities enables superior performance as they serve to be sources of sustainable competitive advantage (Barney 1991). Sustainable competitive advantage refers to the organisation's value-creating strategies that are unique to the organisation in which the benefits are difficult to imitate (Barney 1991). Sustainable competitive advantages allow an organisation to outperform others in the market, and also improve the organisation's financial performance in the long run (Prasad et al. 2012).

Sustainable IT–business values are generated from complementary considerations of IT with other resources (Bharadwaj 2000). Finding the right arrangement of complementary resources that will contribute to IT–business values can be challenging. Resource capabilities are developed over time as a result of complex interactions of organisations' resources and are embedded in the internal business processes (Prasad et al. 2012). An effective resource combination will be one that enables an organisation to extract their capabilities effectively at the process level (Prasad et al. 2012).

Maximum IT payoff is certain when there is synergy in resource combinations (Bharadwaj 2000). Synergy exists when IT and these complementary resources move in a coordinated fashion, in the same direction and in the right magnitude (Prasad and Heales 2010). The resource arrangement will be unique to the organisation as the resources capabilities they possess usually complement their organisational IT (Prasad and Heales 2010). Put in other words, the combination of an organisation's unique capabilities and resources creates a high-level resource that is unique and difficult to imitate (Prasad et al. 2012). This high-level resource serves as the organisation's ITG structures and can be the source of sustainable business values.

Research Design

The theoretical discussion of this study offers a conceptual framework where the ITG structures of an organisation are founded on the specific arrangement of resources. Understanding the nature of these

resources will require the extraction of reality directly from the organisations as the required knowledge exists within an organisation. Extracting such knowledge will require a research design that allows us to closely interact with stakeholders within an organisation. Thus, this study has adopted an interpretive research approach.

The case study method was used and data was collected using interviews. Through conversations, we were able to identify the nature of effective ITG structures in organisations by interpreting the meanings and the words the interviewees used to describe their current ITG practices. The language and the meanings the interviewees used to describe their ITG structure reflect their actual ITG structures (Orlikowski and Baroudi 1991).

Fiji, a small developing island economy in the South Pacific region provided the setting for the study. Fiji was selected as it is considered to be most industrialised economy in the South Pacific and have recently been labelled as one of the most dynamic IDI countries in the world (International Telecommunication Union (ITU) 2012). IDI refers to the IT development index that measures the level of IT usage and adoption in a country. Out of the 159 countries that were surveyed, Fiji was ranked 88th. Despite such ranking, most organisations in Fiji which have invested in IT still fail to effectively leverage their IT (Cave 2012). This is indicative of weak ITG structures and/or the absence of such structures in organisations.

To understand the nature of ITG structures suitable to Fiji, we arbitrary selected only those organisations that we thought have effective ITG structures. These organisations are considered market leaders in their respective industries and IT plays an important role in their success. The performance of these organisations coupled with their progressive adoption of IT suggests the presence of effective ITG structures. The study focused only on certain large organisations in Fiji's private sector as they are considered to be the biggest users and adopters of IT in the country (ITU 2004). The public sector was excluded as its governance structures are considered to be significantly different (Ali and Green 2007). Small and medium enterprises (SMEs) were also excluded as they are considered to be passive users of IT because of the difficulties they are confronted with when adopting IT (Fiji Trade and Investment Board 2008).

Data collection & Analysis

Forty organisations were selected to participate in this study. Selection was based on the level of their IT use/investment and financial performance. Information to make such selection was gathered from annual reports, newspaper articles, press release and company websites. As ITG is considered to be a high-level resource with increasing management involvement (Prasad et al. 2012), personnel at mid-range and top-level management were selected for potential interview sessions. Emails were used as the main mode of communication in soliciting participation from candidates. A total of 23 interview confirmations from 17 organisations were received. The demographics of these participants are as shown in Table 1.

All the interviews carried out were semi-structured in nature. The interview schedule was emailed to the participant prior to the interview. Interview sessions lasted approximately 30 to 45 minutes. All interviews were recorded and transcribed. A copy of the transcribed interview script was also sent to the participants for verification purposes and comments. Having verified the interview transcripts, we then proceeded in analysing the data.

Interviewee Reference	Industry	Position	Estimated Experience (Years)
I1.	IT	Managing Director	10
I2.	Service	Board Member	10
I3.	IT	Director	12
I4	IT	Technical Advisor	15
I5	Service	Director Finance	5
I6	Service	Manager Information Systems	10
I7	Service	Manager of Information Technology	15
I8	Service	Deputy Director-IT	15
I9	Service	IT Technical Advisor	18
I10	Banking	General Manager Risk and Compliance	20
I11	Banking	IT Manager	7
I12	Banking	Finance Manager	8
I13	Banking	Principal Corporate Governance Officer	8
I14	Banking	Corporate Governance Manager	15
I15	Service	Manager Finance	9
I16	IT	Director	20
I17	Service	Risk Manager	10
I18	IT	General Manager	10
I19	Banking	Senior Reporting Officer	10
I20	Audit/Assurance	Partner	20
I21	IT	Director	8
I22	Service	Head of ICT Business Service	10
I23	Banking	Chief Information Technology Officer	12

Table 1. Demographics of the Interviewees

We adopted a thematic approach as outlined by Strauss (1987) and Dey (1993) to analyse the interview data. The thematic process required the identification, coding and grouping of common themes from the interview data. After the coding process, four major broad themes emerged as indicated in Table 2.

Results & Discussions

This section discusses the four broad themes from the interviews. These broad themes form the framework where organisations can develop their ITG structure.

Broad Conceptions	Key Themes
Organisational-wide IT Strategy Committees	Special subcommittees; Reform committees; Finance and audit committees; Long-term plan; Direction of the company; Company vision and mission statements
Cross-Functional IT Operational Committees	Team work across the organisation; Close departmental collaborations; Shared decision making; IT management working committee
Hierarchical and Lateral Communication Systems	Staff forums; Group decision making structure; Frequent management and staff meetings; CEO open forums, organisational emails; SCRUM method; Examining system footprints; Open door policies
Cross-Functional Training	Train the trainer program; Pre and post implementation user training; Seminars; Continuous process improvement mentality; Effective Change management strategies

Table 2. Broad Conceptions of ITG Structure

An organisational-wide IT strategy committee

We define an organisational-wide committee as "*A formal decision making body which is tasked with aligning IT with the business direction where membership is drawn from the strategic, tactical and operational level of the organisation.*"

Responses of the participants indicated a general consensus on the need for a high-level committee responsible for the setting and the continuous oversight of the IT strategies. However, most participants suggested that this committee should be more inclusive of operational and tactical-level management instead of being dominated by strategic-level management. The need to include inputs from lower-level management in the IT strategy setting process suggests that there exists a disparity of IT-business understanding at the strategic-level. Evident from some participants' view is the frustration that in most cases, there seems to be a mismatch between IT strategies set and the organisational realities that exist at the operational-level. Strategic planning appears to be more of a dictated process imposed by top management with very little organisation-wide consultation. Participants mentioned that more often than not, their IT systems are underutilised and tend to complicate operations at the process-level instead of enhancing it. Participants also indicated that determining IT strategies requires a collective effort where top-level management actively involves and engages lower-level management. One respondent pointed out that the failure to implement such a collective approach in IT leadership can seriously undermine an organisation's going concern capability:

"*... [Organisation T] is a very good example of Board failures. The Board fail to do this [i.e. effective IT governance] and somebody came and took up the mobile market ... they need to have some ITG structure at that time to predict the mobile growth and help them prepare. This is the role of management, they should have been reporting to the Board ... if they sleep then all will sleep ... [nevertheless] even the Board needs to be aware of the changing IT markets ... IT is all about awareness... they were so engrossed in their current ability that they forgot that there are opportunities ... in business you can't give anybody a head start...*" (I12)

Moreover, the need for strategic management to collaborate with and consult lower-level management also stems from the lack of visionary and strategic leadership in most organisations. Weak IT leadership seems to be a result of fear to adopt new technologies. This was quite evident in a response:

"*There usually is a fear for organisations to adopt new technology. This is because they're of the layer of management that has been in leadership for ages and lacks the type of forward thinking [that is crucial for the organisation]. They just don't have the vision in terms of IT. They have very limited views on what the potentials of IT are.*" (I23)

A cross-functional IT operational committee

We define a cross-functional IT operational committee as "*A formal decision making body responsible for translating IT strategies into actionable IT policies where members are drawn from all functional managers at the operational level.*"

The views of participants indicate that the tactical and operational management are best suited in decisions that relate to the operationalisation of IT. This is because IT is usually consumed at the tactical

and operational level. This ITG structure represents a shift in the IT operations decision-making from the strategic level to the lower-level management. Assigning these responsibilities to lower-level management not only enhances the degree of Business/IT alignment in an organisation, it also allows operational-level management to take ownership of the decisions they made (Prasad 2011). The extent to which the selected IT policies extend or sustain the business objectives largely rest on the degree of involvement of lower-level management (ITGI 2003). Implementing IT policies must be a collective and an organisation-wide effort involving all the heads of departments. The interviewees shared the following;

"The board should not get involved in the operation of the organisation. The Board should only be concerned about strategic planning … if the Board of a company is involved in the operation then I think that Board is failing the company …" (I12)

"The banner committee is a much better way because decision making is done in a committee that has a wide operational representation basically to look at the IT needs. It is a more visible form of decision making. There is also transparency in the process." (I6)

Participants also highlighted the importance of business units and the IT units adopting a partnership approach to IT decision making. Adopting a partnership approach to IT ensures that IT issues are addressed in a holistic manner.

Hierarchical and lateral communication systems

We define hierarchical and lateral communication systems as *"The presence of communication mediums that facilitate candid, transparent and two-way communication across all levels of an organisation"*.

Responses from participants highlighted that communication is a critical structure for ITG in developing economies. IT acts as a bridge that links all levels of the organisations. IT therefore affects all aspects of an organisation's operation. Flexible, open, transparent and inclusive communication systems are essential in ensuring that all stakeholders at all levels of the organisation are informed and can contribute to the IT decision process as any major IT investments will affect the way that they operate and function.

Respondents emphasised the importance of organisational ability to promote internal collaboration across functional areas and also with other relevant external parties when undertaking a major IT investment. Internal collaboration is essential as it promotes shared learning, and also increases the relevance of IT to the entire organisation (Prasad et al. 2012). External collaboration is also vital as there is a general lack of IT appreciation and special technical knowledge needed to identify IT/business opportunities in organisations. Hierarchical and lateral collaborative communication systems are therefore necessary as they ensure that the IT decision making is a consultative process rather than an isolated incident. A participant shared the following:

"We have instances where systems were introduced for a specific department and the other departments will not know anything about that system until after the system has been implemented. We then tend to have situations where other department are saying, "That is a great system why didn't we get that?" … In my opinion, particularly with the introduction of a new system, everybody should be involved, so that the organisation gets the most out of the system. Implementers can miss a lot of relevant requirements if they don't talk to everybody …" (I20)

Cross-functional training

We define cross-functional training as the *"Empowerment of an organisation's human resources capability through IT-business related training initiatives that promote the optimal use of IT"*.

Respondents highlighted the lack of business knowledge from the organisation's IT department as well as the lack of IT appreciation from the side of the business units. This problem often results in organisations failing to derive the maximum benefit from their systems as the users themselves are performing below their potential due to the lack of knowledge about the system itself. Respondents mentioned that their organisations are pursuing strategies that encourage more knowledge sharing between the IT department and business units such as staff rotations and inter-departmental attachments. The interviewees shared the following;

"One of the key things is user-knowledge of the systems, the functions and even the processes … for

example in the payroll department, the knowledge of the forms that are part of the automated processes, the knowledge of the data, the rules that basically govern that data, these are key knowledge that users need to have in order to operate their IT systems effectively. It's crucial that they have knowledge of their data elements. This of course also applies to us the IT department. We also need to have a fair understanding of the business processes if we were to diagnose the system or carryout any system upgrades." (I7)

"We often have issues of continuity because the departments themselves do not emphasise good IT practices to their staff. People often leave without proper backup and no appropriate succession planning in place. We usually have to start from scratch again and this leads to delay in operations. At the end of the day, we are the ones who receive the flak trying to restore the operation." (I11)

Summary

The interview analysis showed that the need for an organisational-wide IT strategy committee whose membership also includes relevant representatives from tactical and operational-level managers. The function of this committee is to implement, drive and monitor the alignment of IT strategies with the business strategies. This ITG mechanism is different from that expounded in extant literature, which tends only to emphasise the involvement of strategic-level management in the strategy setting process. The interpretive research evidence indicates that most organisations in Fiji still fail to recognise the strategic potential of IT. There is a lack of urgency from the strategic-level management to continuously assess the performance of IT infrastructure, resulting in costly IT overhauls or upgrades in response to the unexpected situations that tend to arise. Moreover, IT strategies are often developed in a disparate manner that is not aligned with the IT-business realities of the organisation. Input of lower-level management links the IT realities to the IT strategies resulting in realistic IT strategies being set. Thus the presence of an ITG mechanism that facilitates close collaboration between the strategic management and lower-level management in developing and monitoring IT strategies is crucial.

The presence of a cross-functional IT operational committee that is in-charge of the actual implementation of the IT policies was also identified as an important ITG mechanism. This ITG mechanism offers a platform where functional areas are empowered to take charge and ownership of the IT system. Moreover, it also enhances the ability of organisations to develop clear system specifications and requirements, increasing the degree of fit between IT and the business processes. A committee of such nature also enables an organisation to address its IT-business issue in a structured and a holistic manner.

Another important ITG mechanism identified was the need for hierarchical and lateral communication systems. Participants continuously highlighted the need for a collaborative approach to IT. Transparent and inclusive communication structures are crucial in facilitating collaborations. These mechanisms must allow lateral communication (across departments) and hierarchical communication (across organisational levels). More importantly, such communication structures must also extend to relevant parties external to the organisation. This ITG mechanism increases information sharing and shared learning in the organisation. This ITG mechanism also increases the visibility of top-level management support and commitment, and also builds strong relationships with IT experts. It also fosters a culture of learning and innovation, as parties are not afraid to share their ideas, knowing that they will be appreciated.

The fourth ITG mechanism identified was the need for cross-functional training between business and IT. The lack of appreciation of IT departments of the business functions as well as the lack of awareness of IT from the side of the business-units requires such ITG mechanism to be in place. Cross-functional training equips users with the required know-how that is essential in the optimal use of IT. It also encourages the proper behaviour regarding the use and the management of IT. Cross-functional training enhances the strategic human resource capabilities of an organisation, which can result in continuous business improvements and innovations.

Conceptual model of ITG structure

We had adopted a resource-centric approach in suggesting a comprehensive model of ITG in developing economies. We suggest that by combining the four ITG mechanisms identified, an ITG structure is formed. Like other IT resources, the business values created from ITG structures are first reflected in

process-level performance. These process-level improvements will then subsequently create business value at the firm-level which is reflected in the improvement of the financial performance of the organisation

The model of ITG structure for developing economies conceptualised by the study is as indicated in Figure 1.
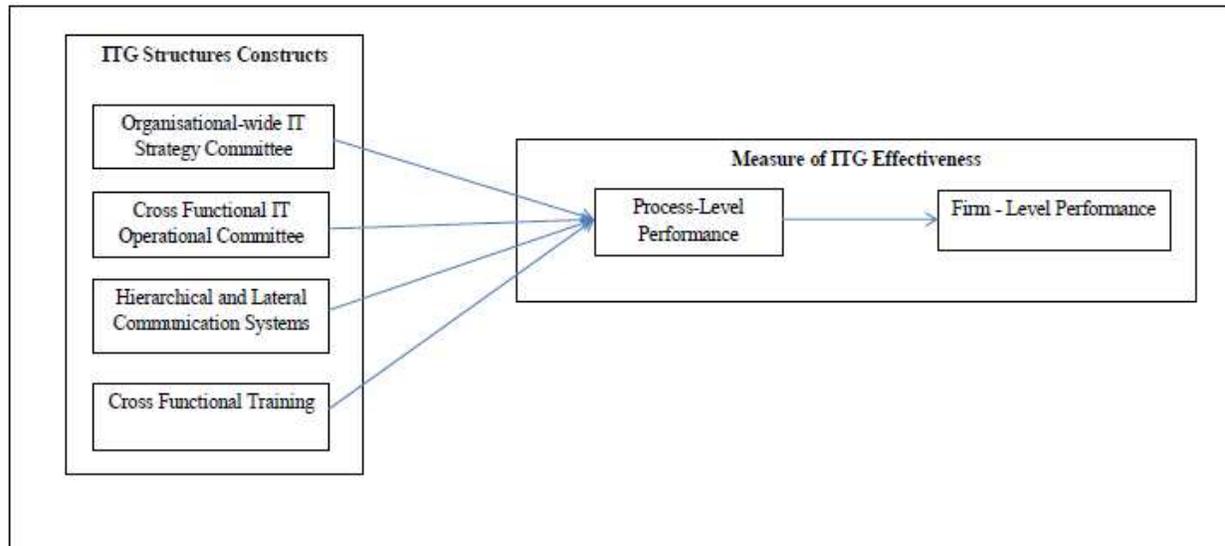
Figure 1. Conceptual Model

Conclusion

Without effective ITG structures in organisations, IT investment failures in developing economies will persist. Not only will this results in the wastage of scarce and vital financial resources, it may also dissuade organisations and stakeholders to continuously invest in IT. The repercussion of failing to be on par with the latest technology can have serious economic and social implication to a particular economy. ITG structures are therefore pertinent in ensuring developing economies derived the maximum returns of their IT investments. This paper presents an approach to understanding how IT resources can be effectively governed to create value for organisations. It elucidates a richer understanding to stakeholders in developing economies on the true potentials of their IT resources. This paper suggests an ITG model using the RBV theory which advocates for IT capability building. Identifying and blending these IT capabilities provides a framework where IT resources can be effectively governed. The next part of this paper will empirically test the relevance of this ITG structure and present a robust model of ITG suitable for developing economies.

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