Evaluating IT Governance Structure Implementation in the Gulf Cooperation Council Region

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Abstract. IT governance (ITG) implementations in organizations started to gain momentum during the turn of the twenty first century mainly due to (but not limited to) the need for IT business alignment, better return of investment, effective utilization of IT and for a strategic direction of IT. This initially mandates to establish and implement a set of ITG structures in the organization to initiate, adopt, and implement relevant ITG frameworks to set in the motion of successful ITG implementation. While researchers have stated twelve relevant ITG structures that needs to be set in place, two questions remain in terms of the two factors namely 'ease of implementation/use' and 'effectiveness' of these ITG structures. With scant research in this domain, we explore the relationship of these two factors on the twelve ITG structures through a survey of senior managers involved in ITG domain in the Gulf Cooperation Council (GCC) region. With diverse board and executive level cultures evident in different regions of the world, the adoption of these ITG frameworks and standards depend on the ITG practices being followed in each cultural context. The results thus assist organisations and ITG consultants in the GCC region to know the level of effectiveness of relevant ITG structures as well as the implementation effort required for these.

1. Introduction

ITG has become a vital component of business organizations' ability to meet the challenges presented by the business environment [1]. However, the successful adoption and implementation of ITG is a challenge [2]. This is apparent from the lack of a defined target, lack of objective measurement, lack of awareness among the staff, lack of ITG budget, lack of formalized standards between IT and other departments, lack of industry expertise in integrated ITG implementation, dilution of authority in organizations, organizational strategy and culture, and difficulty in measuring KPIs related to ITG [3]. Furthermore, experts (based on a Delphi study conducted in Belgium) are of the view that effective IT controls are not easy to implement [4]. This points out the overarching role of managerial factors in preparing a conducive environment for ITG implementation since, organizations that implemented ITG achieved 20% higher profits than those that did not [5].

An ITG framework can be deployed using a mixture of relevant structures, processes and relational mechanisms [6]. In this respect, we look at the ease of implementation and effectiveness of the 'structural mechanisms' that assist in its implementation. This leads us to posit the research question "How easy and effective it is to implement ITG structures in an organization". This further raise sub questions on ease of implementation and effectiveness. Based on this question, we aim to find out those ITG structures that are effective as well as easy to implement.

2. ITG Structure in ITG Practices

ITG practices have been classified into three groups; structures (formal devices and mechanisms for connecting and enabling horizontal or liaison contacts between business and IT management), processes (the formalization and institutionalization of strategic IT decision making and IT monitoring procedures), and relational mechanisms (the active participation of, and collaborative relationship among, corporate executives, IT management, and business management) [7]. Structural arrangements are composed of the organizational units and roles responsible for IT-related decisions, while process dimensions focus on the implementation of IT management techniques and procedures in compliance with established IT strategies and policies, where the outcome metrics are the mechanisms used to assess the effectiveness of ITG and to identify improvement opportunities [8]. Therefore, organizations deploy ITG using a mix of structures, processes, and relational mechanisms to serve their ITG goals [9]. In this respect, the twelve ITG structures stated by De Haes and Van Grembergen [7] have been cross referenced in terms of their attributes to highlight its relevance.

When comparing the use of IT governance practices, it is observed that highly aligned organizations have more mature IT governance structures and processes [10]. The implementation of the IT Governance framework begins with ITG structures namely the establishment of IT Governance committees, and the IT Governance management committee, which is made up of senior managers to represent all business units and corporate services [11]. ITG thus uses structures for distributing IT-related decision-making rights and for distributing responsibilities of IT staff [12].

Table 1. Cross referencing the attributes of ITG structures

Structures	Attribute	Reference
S1:IT strategy committee	Integral part of enterprise governance; for better business/IT alignment maturity; It has the greatest impact on the effectiveness of ITG practices.	[13-15]
S2: Board level IT expertise	Ensure strategic alignment and ensures a balanced portfolio of IT investments.	[13]
S3: Board level audit committee	Board level IT audit committee is an integral part of the ITG.	[16]
S4: CIO on executive committee	An effective system for IT governance; has a significant role in IT-Governance structure; can assist to implement effective ITG.	[17-19]
S5: CIO supporting CEO and COO	Has roles and responsibilities of a diversity of IT/business committees; ensures effective IT governance; risk management implementation is positively correlated to the presence of CEO and CFO; considered a vital factor for the effective deployment of ITG.	[20-23]
S6: IT steering committee	It should be an integral part of enterprise governance. It is advocated as effective governance mechanisms for the alignment of IT-related decisions and actions with an organization's strategic and operational priorities.	[13, 17]
S7: ITG officer	Highly effective and easy to implement.	[14]
S8: Security/ risk/ compliance officer	Risk officer required for risk management with support of CEO and CFO.	[22]
S9: IT project steering committee	Assists in implementing effective IT Governance; ITG structure should include IT project committee; important in ensuring IT investments.	[9, 19, 24]
S10: IT security testing committee	Has critical role in the governance structure of financial firms.	[25]

S11: IT architecture steering committee	Effective ITG structure should include IT architecture steering committee.	[24]
S12: Integration of governance tasks in roles & responsibilities	Effective ITG structure should include governance tasks in roles and responsibilities.	[24]

ITG structures heavily relies on the managerial structure and decisions making aspects of the organization namely the upper level board of directors, CIO, CEO, and audit committees as well as the middle layer IT steering project, security and architecture committees. In this respect, the ITG practices differ between organizations within countries, as C-suite-level executives (for example, CEO and CIO) are considered a vital factor for the effective deployment of ITG practices [23]. IT governance should be an integral part of enterprise governance and, is a primary concern of the board of directors that is responsible for governing the enterprises. Hence, IT steering committees are advocated as effective governance mechanisms for the alignment of IT-related decisions and actions with an organization's strategic and operational priorities [17]. However, these committees are created based on organizations' structures and objectives which can differ from region to region. Surveys by Ali and Green [26] on ISACA members found that the existence of a culture of IT compliance, corporate communication systems, and an IT strategy committee had the greatest impact on the effectiveness of ITG practices [15]. Bowen, et al. [8] indicated that IT steering committees should consist of sponsoring executives, business unit executives, IT executives, and other key finance roles because business unit leaders act as advocates for effective ITG. Involving senior managers both formally and informally in IT-related decision processes will produce greater levels of success in IT use than only involving senior managers informally in these decision processes [17]. IT steering committees are frequently advocated as effective governance mechanisms for aligning IT-related decisions and actions with an organization's strategic and operational priorities [17].

Clear and unambiguous definitions of the roles and responsibilities of the involved parties are crucial and prerequisites for an effective IT governance framework [27]. Likewise, decisions on the IT principle, infrastructure, investment and prioritization, architecture, and business applications are typically finalized prior to the implementation of IT projects by the IT project review committee (ITPRC) [28]. The benefits of modular IT architectures are enhanced when they are complemented by consonant IT governance structures [29]

3. Research Methodology
This study follows a quantitative approach through an online survey, since the objective was to test the validity of the twelve ITG structures in the GCC region. The online survey (using survey gizmo) questionnaire was sent to 605 respondents comprising of board members, executives (chief information officers [CIOs] and chief executive officers [CEOs], consultants, and auditors on December 14, 2016 and closed toward the end of March 2017. Out of the 605 invitations, 118 invitees rejected the survey invitation, while 590 participants agreed to respondent o the survey. However, we received 53 responses with a response rate of 9%. The survey questionnaire was administered under the supervision and support of the Hawkamah Institute, which assists governments, companies, regulators, and financial institutions in the Middle East and North Africa region (MENA) region to improve the level of governance understanding and application.

4. Data Analysis
The questionnaire has sub sections on demography, IT governance ownership (due to the managerial decision making inherent in the ITG structures); objectives of implementation (due to the decisions taken by the IT structures prior to ITG implementation); and specific questions on the ease and effectiveness of the twelve ITG structures implementation. Despite the low response rate (9%), the results of the survey were considered valid due to respondent diversity in terms of geography and demography. From a demographic perspective, 6.1% of the participants were board members, 28.6%

were C-level executives, 20.4% were consultants, and 55. 1% were auditors. Of the total respondents, 22.4% worked in the financial sector, 8.2% in retail, 14.3% in manufacturing, 2% in IT/telecoms, and 53.1% belonged to 'other' industries. Regarding company size, 24.5% of participants worked in a small organization (less than 200), 20.4% worked in medium-sized organizations (200 – 499 employees), and 55.1% worked in large organizations (more than 500 employees).

4.1. IT Governance Ownership

ITG structures play a critical role in ITG ownership as decision were taken at the higher level. In this survey, the participants were asked who owned and discussed ITG issues at their organization. The survey revealed that in most organizations, ITG ownership lay with the board committee followed by the senior executives. Cross-analysis showed that in large-sized organizations, the board committee was more dominant in ITG governance (than, for example, the board, senior executives, and IT departments), according to 30% of respondents. However, 25% of respondents indicated that senior executives were more dominant. Issues related to ITG implementation were discussed with the board committee (according to 47.4% of respondents) and senior executives (according to 32% of respondents). However, 74% of all respondents agreed that ITG issues were discussed with the board committee, and none of the respondents stated that ITG issues were discussed with IT department.

For medium-sized and small-sized organizations, senior executives own ITG (indicated by 80% and 40%, respectively). However, ITG implementation practices-related issues for medium-sized organization are the responsibility of the board committee (according to 75% of respondents). For small-sized organizations, 40% of respondents stated that ITG issues were discussed with senior executives. However, most respondents who worked in medium- and small-sized organizations expressed similar views about who should oversee ITG discussions. Forty percent of respondents from small-sized organizations and 60% of respondents from medium-sized organizations prefer board committees to oversee ITG discussions.
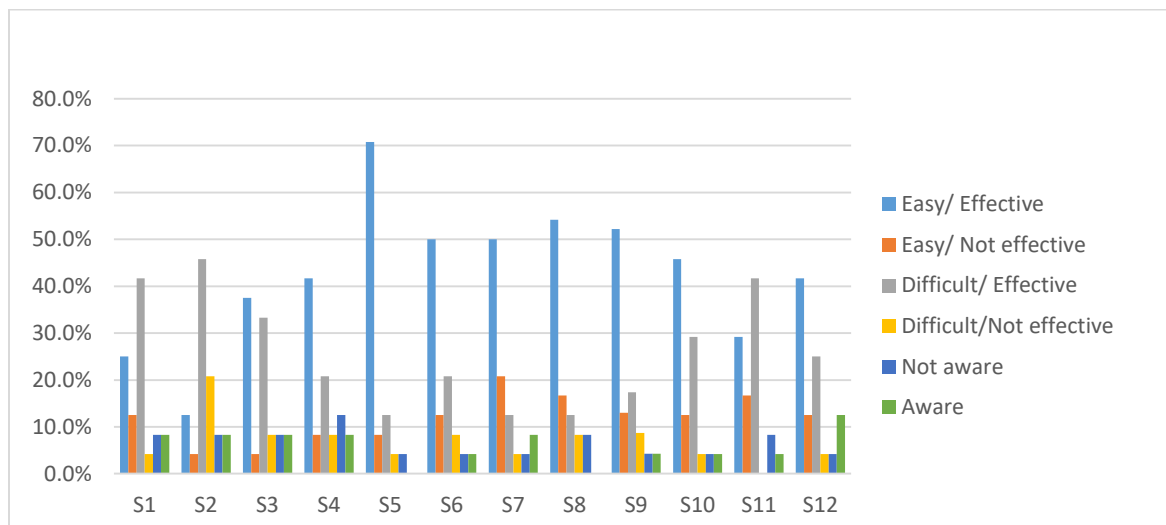
4.2. Objectives of ITG Implementation

The survey probed the main objective(s) and willingness of organizations to implement ITG practices. Three main drivers that were found for implementing ITG were business needs, compliance and voluntary decisions. First, a total of 44.4% of respondents indicated that ITG deployment meets business/commercial needs. Second, 47.2% of respondents indicated that ITG deployment is mandatory for compliance purpose. Third, 8.3% of respondents indicated that ITG is voluntarily deployed to improve business and IT-related processes.

4.3. ITG Structures

In the final three parts of the survey, the participants were asked to indicate how they perceived the twelve ITG structures in relation to ease of implementation and effectiveness. To aid the respondents, and to collect data on the implementation of each ITG practice, the following scale was used: easy/effective, easy/not effective, difficult/effective, difficult/not effective, not aware (no knowledge of ITG practices), and aware (did not implement such practice(s) in the organization).

Figure 1 presents the comprehensive result of ITG structures. Only 5 out of 12 practices were considered effective and easy to implement because over 50% of respondents chose this option. These structures were the following: S5 (CIO reporting to CEO and/or chief operational officer [COO], S6 (IT steering committee [IT investment evaluation/prioritization at executive/senior management level]), S7 (IT governance function/officer), S8 (security/compliance risk officer), and S9 (IT project steering committee). However, fewer than 21% of respondents indicated that ITG practices are difficult and not effective. The results indicate that S2 (IT expertise at the level of the board of directors) is considered to be least effective, and quite difficult to implement.

Figure 1.   ITG structures classifications

5. Discussion
In this section we attempt to answer the research question regarding the ease and effectiveness of ITG structure implementation. Most respondents 88.1 % indicated that these twelve ITG structures were implemented in their organizations in varying degrees (with different level of effectiveness and ease of implementation), thus implying that not all of these are applied universally in the region. This corresponds to the statement made by researchers that the implementation of ITG practices may differ from one country to another as every society has different priorities and needs. Furthermore, the impact of different regulatory requirements also affects the ITG behavior of organizations. Notably, 11.9% were either not aware of these practices or had not implemented them. While the research did not specify the extent or emphasis of ITG practices, the subsequent sub sections does assists to answer the effectiveness and ease of implementation.
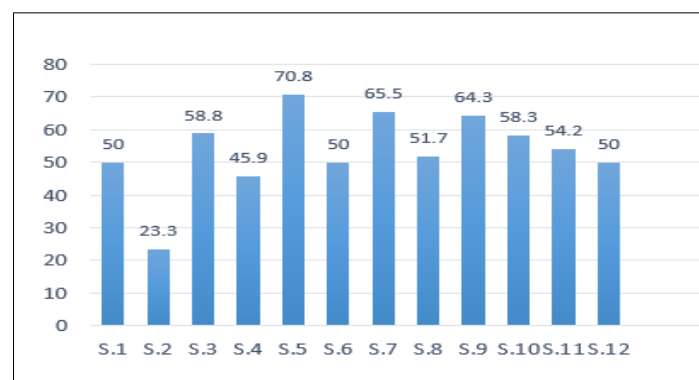
5.1. Effectiveness and Ease of ITG Implementation
Figure 2 illustrates the two dimensions of effectiveness (y axis) and ease of use (x axis) in four quadrants, denoted as Q1 (easy to implement but not effective), Q2 (easy to implement as well as effective), Q3 (difficult to implement and ineffective), and Q4 (difficult to implement, but effective). Notably, 6 ITG structures (63.6%) are in the positive quadrant Q2 (S5, S7, S8, S9, S10, and S11, while two ITG structures (S6 and S12) overlap in Q1 and one (S3) in Q4. Out of these, S5 (CIO reporting to the CEO) is regarded as the most effective and easiest to implement. On the other extreme is one ITG structure (S2), regarded as the least effective as well as most difficult to implement. The results correspond to table 1 where references to S5 and S6 was emphasized to a great extent. In this respect, organizations need to focus primarily on those ITG structures in Quadrant 2 which is not only easy to implement but also effective.
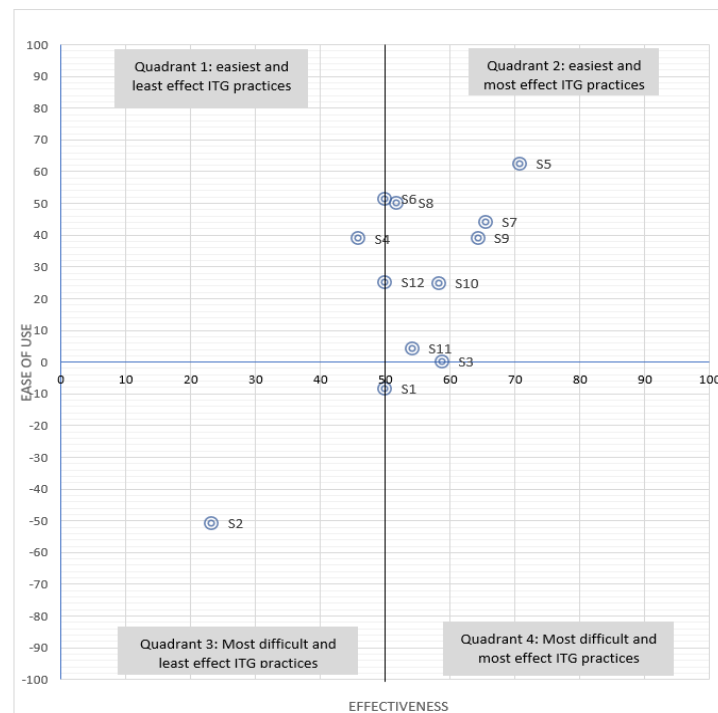
Figure 2. ITG structures based on two dimensions

Figure 3 presents the level of effectiveness of ITG structures, where four ITG structures are considered the most effective and easiest to implement: S5 (CIO reporting to the CEO and/or COO), S6 (IT steering committee [IT investment evaluation/prioritization at executive/senior management level]), S7 (IT governance function/officer), S8 (security/compliance/risk officer), and S9 (IT project steering committee). From a single dimension of effectiveness (Figures 2), 10 out of 12 ITG structures (83%) were considered effective.

Figure 3. The level of effectiveness of ITG structures

Regarding the ease of use/implementation (figure 4), S2 was considered very difficult to implement along with S1 to a lesser degree. However, S5, S6, and S8 were considered to be easy to implement.
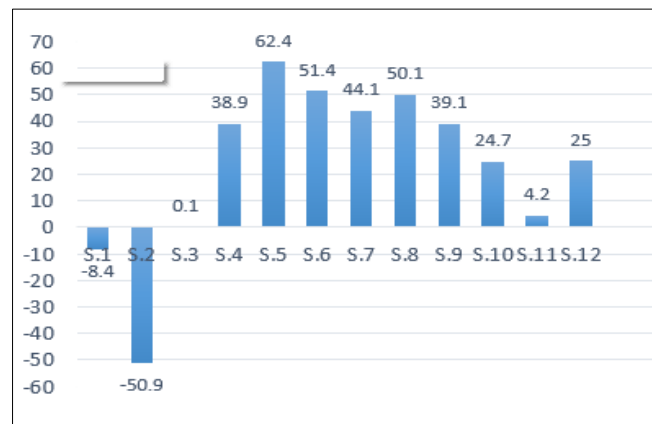
Figure 4. The ease of use of ITG structures

There is a lack of literature in both academic and practitioners' fora focusing on the relationship between ease of use/implementation and effectiveness of ITG practices. However, a lone study in the Belgian financial sector found a negative correlation between ease of use and effectiveness. To test this we use Pearson correlation coefficient to measure the association between these two variables. To do this we test the null hypothesis, H0 to denote zero correlation and H1 to denote correlation.   Using Pearson's correlation coefficient 'r' as a measure to find the strength of linear relationship between ease of use (x) and effectiveness (y) , the value of 'r' range was calculated as 0.709. Taking Evans' [30] correlation values as a guideline which suggest that values between 0.60 to 0.79 as having a strong correlation, we support H 1 where there is strong positive correlation between these two variables with respect to the ITG structures in the GCC region. Hence, the results of our study do not correspond to the results from the similar study done in Belgium which suggest contextual and cultural differences of ease of implementation and effectiveness between countries and regions.

6. Conclusion

This paper focused on evaluating ITG practices specifically ITG structures at the board and executive level in the GCC region. The results indicate that organizations in GCC countries implement a combination of all twelve ITG practices, of which five structures (S5, S7, S6, S8, S9) are considered the most effective and easy to implement, as a mandatory or voluntary measure, or to support commercial needs. However, it was found that one ITG structure namely S2 was considered difficult to implement and not easy to use/implement. Organizations that aim to implement, as well as those that have been implementing ITG structures as a prelude to implement ITG can use the results of this study as a guideline for effective and easy implementation of selected and relevant ITG structures. The study further reveals that in most organizations, IT governance ownership lies with the board committee followed by senior executives. Regarding objectives of ITG implementation, three main reasons for implementing ITG practices are to ensure that IT risks are managed, to improve business performance through effective IT systems, and to ensure that IT resources are optimized based on business needs.

The results of this research suggest three new directions that need to be explored. First, it would be interesting to know if these results are generic across all sectors of the industry (since the financial sector takes the lead in ITG implementations). Second, a research on a set of mandatory, and optional ITG structures in this region for specific sectors can assist in sector-wide implementation. Third, a study that can differentiate between GCC-specific ITG structures and those that are applied globally across all regions is a promising area of research.

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