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Exploring Information Technology Governance (ITG) in Developing Countries: An Empirical Study

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ABSTRACT. The objective of this study is to explore the current performance of information technology governance (ITG) in Saudi organizations using the balanced scorecard model introduced by the ITG Institute (ITGI, 2005). An empirical survey was carried out to achieve this purpose. Five hundred questionnaires were randomly distributed to a representative sample of Saudi organizations and the response rate was 29.5%. The results of the study reveal that the vast majority of respondents reported the importance of ITG performance measures. A majority of them reported it had been measured, but a smaller number believe that such measures have actually been used in evaluating the ITG performance in their organizations. The results of this study suggest that Saudi organizations should achieve better governance of their IT in order to ensure that an organization's IT strategy is aligned with and supports the overall organization's strategy-- that IT supports the organization's ability to exploit opportunities and maximize benefits. The results also suggest that Saudi organizations should use their IT resources more responsibly and manage their IT-related risks appropriately in order to champion the IT development for the success of their businesses.

Key words: *Evaluation, information technology governance, balanced scorecard, Saudi Arabia.*

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1. INTRODUCTION

Many organizations are becoming increasingly dependent on information technology (IT); and integrated information systems and electronic document management are becoming more popular each day. According to the International Federation of Accountants (IFAC), “IT encompasses the strategic use of technology to meet corporate goals; investments in hardware and software products; the acquisition, development, and implementation of new systems; the management and control of data; the management and control of the transactions processed; and the management and control of the information produced” (IFAC, 1995).

IT is a critical success factor for an organization. It provides an organization with many opportunities to obtain competitive advantages such as operational efficiency, cost savings, reduction of human errors and it offers a means for increasing productivity. IT also increases the accuracy and speed of transaction processing (Boynton et al., 1994; Rockart al., 1996; Ross et al., 1996; Broadbent and Weill, 1997; Sambamurthy and Zmud, 1999; and Abu-Musa, 2006a and b). On the other hand, IT is associated with many types of risks and threats such as: loss of computer assets, erroneous record keeping, increased risk of fraud, competitive disadvantage if the wrong IT is selected, loss or theft of data, privacy violations, and business disruption (Warren et al., 1998; Gelinas et al., 1999; Beasley et al., 2000; Hermanson et al., 2000; Hadden et al., 2003; and Abu-Musa, 2006a and b). According to the Information Technology Governance Institute (ITGI) (2003) IT is often seen as a “necessary evil,” but considered deliberately IT can provide an organization with good opportunities to add value to its products and services, assist in competitive positioning, contain costs and improve administrative efficiency; and increase an organization’s managerial effectiveness.

Rau (2004) argued that the term "governance" is highly maligned and misused in business nowadays. While, Peterson (2004) confirmed that ITG is a topic that has recently been rediscovered, where, the rich vocabulary emerging from the literature is like a terminological jungle in which any newcomer plants a seed. ITGI (2005a and b) stated that the overall objective of ITG is to understand the issues and the strategic importance of IT, so that an organization can sustain its operations and implement the strategies required to extend its activities into the future. ITG

aims at ensuring that the expectations for IT are satisfactorily met and that the IT risks are appropriately mitigated. Boards and executive management generally expect their organization's IT to deliver business value, i.e., provide fast, secured, high-quality solutions and services, generate reasonable return on investment, and move from efficiency and productivity gains toward value creation and business effectiveness.

Corporate governance and ITG are integrally interrelated, thus making ITG a subset of corporate governance. Corporate governance is concerned with board roles, board composition, board characteristics, board and organizational structure and processes in order to develop, implement and monitor corporate strategy (Kakabadse and Kakabadse, 2001). However, ITG is related to the distribution of IT decision-making rights and responsibilities among organization stakeholders, and the procedures and mechanisms for making and monitoring strategic decisions regarding IT (Peterson, 2004). ITG concentrates on the structure of relationships and processes related to developing, directing and controlling IT resources in order to achieve the organization's goals through value adding contributions, balancing risk versus return over IT resources and managing IT processes. IT resources refer mainly to the tangible assets, while processes cover the setting of objectives, giving direction on how to achieve objectives and measuring the ITG performance. Effective ITG assists in achieving an organization's success by both efficiently and effectively deploying secure and reliable information through the application of new technology (Kakabadse and Kakabadse, 2001, and ITGI, 2005, Abu-Musa).

Evaluating the performance of ITG has become an important issue for many organizations. Wilkes (2004) argued that good performance measures need to go beyond the traditional financial measures, and to include those aspects of the business that are strategically important. Accordingly, market share growth may be key when building a new business, whereas, customer lifetime value will be important when focusing on profitability and cost to serve. However, if an organization wants to be known for excellent customer service, the measures for dealing with inquiries and complaints, levels of customer satisfaction, as well as the operation of the order, dispatch and invoicing processes should be carefully managed (Wilkes, 2004).

The objective of this paper is to empirically examine the current status of ITG performance using the ITGI balanced scorecard model in Saudi organizations. An

empirical survey was carried out to achieve this purpose. The results of the study are expected to enable Saudi organizations to better understand ITG performance measures in place, and to use their IT resources responsibly, manage their IT-related risks appropriately, and to champion the IT development for the success of their businesses.

The remainder of this paper is organized into nine sections. The next section introduces the concept of ITG, and section three highlights the research objectives. Section four presents the literature review related to the evaluation of ITG, while section five introduces the ITG evaluation model. Section six introduces the research hypotheses, and section seven describes the research methodology. Section eight highlights the results and discussion. The final section of this paper presents the conclusion and recommendations for further research.

2. THE CONCEPT OF IT GOVERNANCE (ITG)

Control Objectives for Information and Related Technology (COBIT) (1998) issued by the IT Governance Institute (ITGI), has defined ITG as "a structure of relationships and processes to direct and control the organization in order to achieve the organization's goals by adding value while balancing risk versus return over IT and its processes." While, The Information Systems Audit & Control Foundation considers ITG as an integral part of the success of an organization's governance by assuring efficient and effective measurable improvements in related organization processes. ITG also provides the structure that links IT processes, IT resources, and information to organization strategies and objectives (ISACF, 1998). Furthermore, ITG integrates and institutionalizes best practices of planning and organizing, acquiring and implementing, delivering and supporting, and monitoring IT performance to ensure that the organization's information and related technology support its business objectives. ITG thus enables the organization to take full advantage of its information, thereby maximizing benefits, capitalizing on opportunities and gaining competitive advantage (Gaynor, 2002).

Lainhart (2001) argued that the function of ITG is quite similar to corporate governance, although it is a more focused arena. Like an organization itself, IT also could be governed by best practices. For IT, these practices are designed to ensure that the organization's IT resources are used responsibly, its risks are managed

appropriately and its information and related technology support its business objectives (Lainhart, 2001). According to Rau (2004) the word governance refers to the way the organization goes about ensuring that strategies are set, monitored, and achieved. When it is applied to IT then, effective ITG is about the way senior management interacts and communicates with IT leaders to ensure that IT investments enable the achievement of business strategy in an effective and efficient way.

ITG also describes the selection and use of organizational processes to make decisions about how to obtain and deploy IT resources and competencies (Luftman et al., 2004). Therefore, ITG is focusing on who makes these decisions (power), why they make them (alignment), and how they make them (decision process). ITG is also concerned with how such decisions are made, who makes the decisions, who is held accountable, and how the results of these decisions are measured and monitored (Brown and Nasuti, 2005; and Symons, 2005). Kakabadse and Kakabadse (2001) suggested that the ITG practice should ensure that IT activities support business goals, maximize investments in IT, and appropriately assess IT related risks and opportunities.

Peterson (2004) confirmed that “ITG is a complex system, involving different business and IT stakeholders with specific perceptions, views, goals, and motivations. Different stakeholders have specific interests and stakes in IT. Although each constituency may be correct in pursuing its own strategic objectives, their "single blinded" focus impedes effective governance of IT (Peterson, 2004).” Kakabadse and Kakabadse (2001) also argued that most organizations recognize the importance of ITG as a critical factor to their business success, and that ITG is a mechanism for addressing issues that fall under the larger umbrella of matching business requirements with technology applications in planning for the future. While, ITGI (2005) considers ITG as the set of responsibilities and practices exercised by senior management of the organization designed to establish and communicate strategic direction, ensure realization of goals and objectives, mitigate risk, and verify that assigned resources are used in an effective and efficient manner (ITGI, 2005a and b).

Based on the above discussion, ITG could be defined as a structure of relationships which links IT processes; IT resources; and information to organization strategies and objectives to direct and control the organization in order

to achieve the organization's strategies and objectives. ITG also integrates best practices of planning and organizing, acquiring and implementing, delivering and supporting, and monitoring IT performance to ensure that the organization's IT resources are used responsibly, its risks are managed appropriately and its information and related technology are supporting its business objectives.

3. OBJECTIVES OF THE RESEARCH

The objective of this research is to explore the importance, measurement, and the usage of the of ITG model in evaluating the ITG performance in Saudi organizations. The current research empirically examines the balanced scorecard model introduced by ITGI (2005) to evaluate the performance of ITG in the Saudi environment. The ITGI proposed model has been revised by the author by introducing a fifth dimension namely, an environmental contribution to evaluate the IT contribution in maintaining and improving the environment (Abu-Musa, 2005). The current research attempts to answer the following research questions:

- Do Saudi organizations comprehend the importance of ITG performance measures?
- Do Saudi organizations actually conduct ITG performance measures?
- Do Saudi organizations actually use those measures in evaluating their ITG performance?
- Are there any significant differences among Saudi organizations regarding their perception of the importance of ITG performance measures?
- Are there any significant differences among Saudi organizations regarding the usage of the ITG performance measures?

4. LITERATURE REVIEW

Reviewing the literature on evaluation of the ITG reveals the paucity of available studies in this particular area of research. One reason is that ITG is considered a relatively new research area. COBIT (1998) introduced a Self-Assessment checklist for ITG that would help auditors to determine each of the COBIT processes. The proposed ITG checklist provides an important tool to help companies get started evaluating their own ITG systems (Lainhart, 2001).

Kakabadse & Kakabadse (2001) discussed the need for an integrated model for ITG. The paper introduced the control and stakeholder models as the two key models of IT governance. The results of the study revealed that successful organizations need to integrate the IT contribution with their strategies, culture and desired ethics of the organization in order to attain business objectives, optimize information value and capitalize on the utilization of technology. However, knowledge-based organizations, which integrate and accommodate the needs of customers, business partners, vendors and other constituents, rely on the efficient and effective sharing of information, in order to differentiate themselves from the competitors in terms of knowledge management. The study also suggested that the stakeholder philosophy to governance will become preeminent in the future for ITG.

In 2003, ITGI commissioned Price Waterhouse Coopers (PWC) in Brussels to survey a number of sectors including IT and telecommunication, financial services, manufacturing and the public sector to investigate the main IT-related problems facing ITG. The survey included a sample of 7,000 respondents from a number of commercial databases of worldwide companies. Of that sample, merely 300 interviews were conducted with chief executive officers and chief information officers of companies located in 21 countries by the PWC International Survey unit. The results of the survey revealed that the most important top ten IT-related problems reported by the respondents were: inadequate view of how well IT is performing, operational failures, staffing problems, the number of problems and incidents within IT, a high cost of IT with low return on investment, lack of knowledge of critical systems, manageability of data, disconnect between IT and business strategies, unmanaged dependencies on entities beyond direct control, and the number of errors introduced by critical systems. The study also reported that the vast majority of business leaders recognize the importance of IT as a critical factor for an organization’s ability to achieve business results. However, only 40 percent of the respondents indicated they intended to conduct ITG measures, yet when probed further, it was apparent that many do have measures in swing, but they are not labeled as ITG measures (Scott, 2004, and Sraeel, 2004). The “IT Governance Global Status Report” issued by the Information Systems Audit and Control Association's IT Governance Institute also highlighted executives' future priorities for addressing those problems (Scott, 2004).

Peterson (2004) introduced the concept of ITG, and discussed the requisite integration capabilities for effective ITG architectures. The case of Johnson & Johnson is used to illustrate the challenges, problems, and processes associated with ITG design in complex contemporary organizations. The emerging paradigm for ITG adapted in that study is based on collaboration, not control, where the need for distinct competencies is recognized, developed, and shared adaptively across functional, organizational, cultural, and geographic boundaries. The results of the Peterson' study revealed that for IT to be effective, ITG needs to focus on the horizontal integration capabilities, and to be able to coordinate and integrate formal and informal IT decision-making authority across business and IT stakeholders.

Huff et al., (2004) studied the relationship between boards and ITG and interviewed 17 medium-to-large US companies. The results of the study revealed that full boards of resource companies seldom, if ever, discuss ITG issues. By contrast, financial service companies were more actively involved and interested in ITG. According to the study the boards could significantly improve their effectiveness and performance by adopting a few simple measures with regard to ITG issues. Boards should consider having the chief information officers (CIO) or equivalent attend board meetings regularly. The CIO should be called upon to provide occasional brief information sessions to increase the level of IT understanding on the board. The results also suggested recruiting at least one director with an IT background, and the board chair must perceive IT issues as being "worthy" of board consideration. The results of Huff et al., (2004) also revealed that boards in the resource sector reasoned that their comparatively low level of concern for ITG resulted from their modest IT budgets in comparison to their corporate budgets and revenues. They also perceived their companies as having only a modest degree of operational dependence on IT. By contrast, financial services companies were much more actively involved in IT governance. In the last firms, IT capital investments often exceed 50 percent of their capital stock, and IT spending relative to revenues is higher than in the primary industry companies. The results also revealed that financial services sector, especially banks, showed more concern about IT risk exposure.

Brown and Nasuti (2005) examined the effectiveness of the IT and security governance in terms of Sarbanes-Oxley Act compliance in the IT organization. The results of the study revealed that in organizations with the least effective IT

governance, decisions were led by management and business unit leaders in IT principles, IT architecture, IT infrastructure, business application need, and IT investment. On the other hand, in organizations, with the most effective IT governance, IT decisions were shared by management, business unit leaders, and IT specialists, with IT specialists leading the decision making in IT architecture and IT infrastructure.

The current study is a trial to explore the current status of ITG performance in Saudi organizations using the ITGI balanced scorecard model. The ITG governance seems to be a new and pioneer issue for many Saudi organizations. It is expected that many of Saudi organizations might not comprehend the importance of ITG performance measures proposed in the ITGI balanced scorecard model. It is also expected that some of the large organizations, especially the banks and financial institutions, would pay more attention to the ITG measures in evaluating their ITG performance.

5. ITG PERFORMANCE EVALUATION MODEL

ITG is not an isolated discipline. It is an integral part of overall organization governance. According to the ITGI (2005) the need to integrate ITG with overall governance is similar to the need for IT to be an integral part of the organization rather than something practiced in remote corners or ivory towers. The ITG governance process starts with setting the IT objectives which provides the primary direction for the IT activities required for achieving these objectives. The IT objectives should be driven from IT strategy and aligned with the overall organization strategy (ITGI, 2003, 2005a and b; and Abu-Musa, 2005) (figure 1).

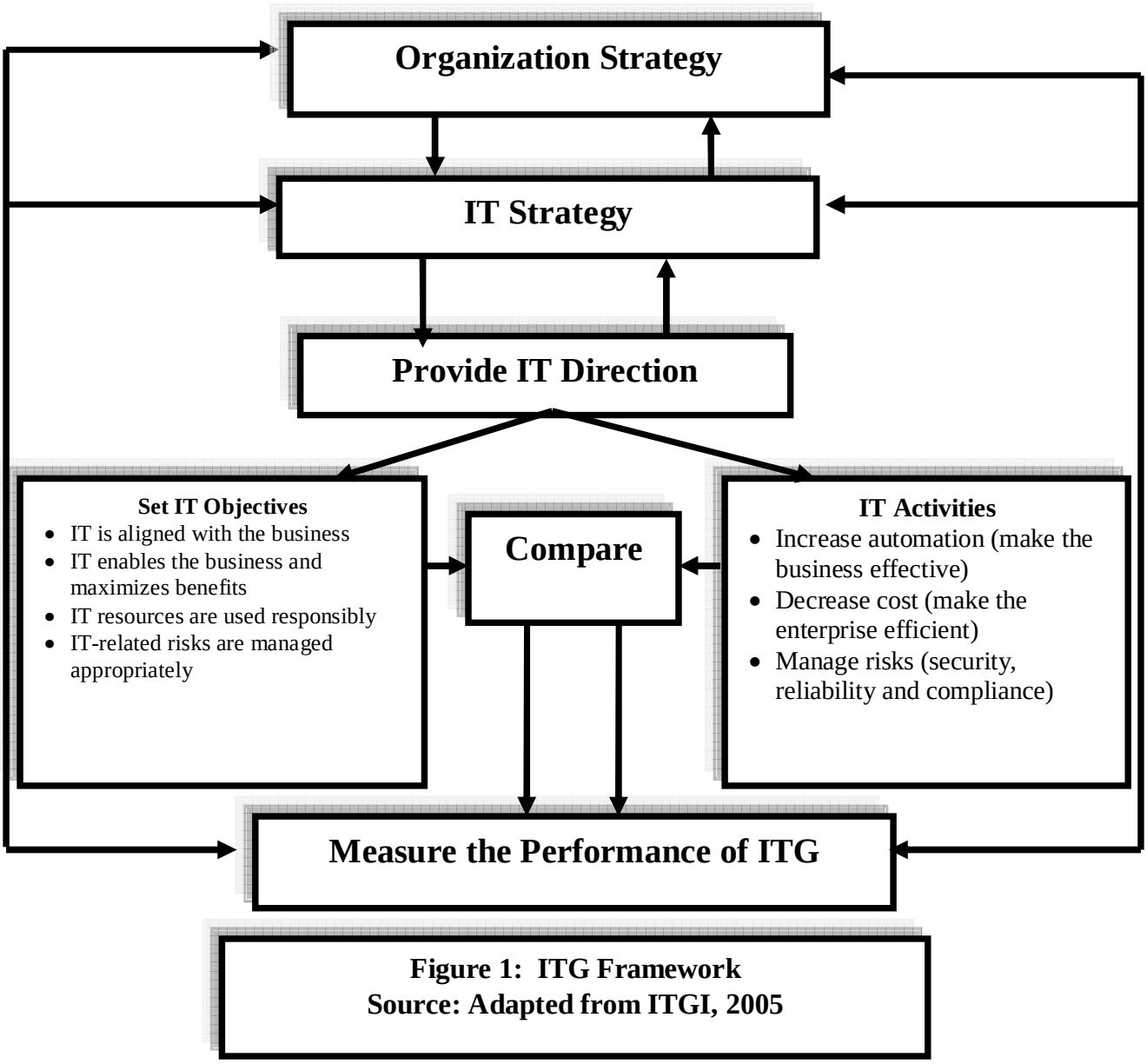

Figure 1: ITG Framework
Source: Adapted from ITGI, 2005

The ITG intends to direct IT activities to achieve the following objectives: alignment of IT with the organization and realization of the promised benefits, use of IT to enable the organization by exploiting opportunities and maximizing benefits, responsible use of IT resources, and appropriate management of IT-related risks. Accordingly, a continuous loop should be established for measuring the IT performance, comparing the achieved performance to the stated objectives, and resulting in the redirection of activities whenever it is necessary and a change of objectives whenever it is appropriate. Setting IT objectives is primarily the responsibility of the board, while the measuring the performance is considered the

responsibility of management. It is suggested that setting the IT objectives and performance measures should be developed in concert so that the objectives are achievable and the measures represent the objectives correctly (figure 1). Based on the IT direction provided, some necessary activities should be carried out to achieve the stated objectives such as increasing automation and making the organization more effective, decreasing cost and making the entire organization more efficient; and managing risks (security, reliability and compliance) more appropriately (ITGI, 2005, and Abu-Musa, 2005).

Kakabadse & Kakabadse, (2001) argued that despite of the growing of the literature which linking ITG to organization performance, there is equally of an emerging diversity of stakeholders in the market place, each pursuing legitimate agendas. Contrary to the popular view that ITG positively impacts on the achievement of IT goals, the research results show that ITG contribution varies both in terms of how it is utilized and its applications effectiveness across different organizations. Moreover, the quality of ITG contribution to enhancing corporate performance is substantially affected by the form of ITG model utilized and contextual variables, such as regulations, standards, company culture, etc. In addition, a CIO's relationship with other members of the "governing body" can enhance or damage the ITG impact on corporate performance.

However, it is argued that ITG could add real value to the business through balancing risk versus return, and to ensure the delivery of information that addresses the required criteria of effectiveness, efficiency, confidentiality, integrity, availability, compliance, and reliability. ITG is enabled by an appropriate control process that directs and monitors the delivery of business value by IT by considering critical success factors that leverage IT resources (Bodnar, 2003).

ITG focuses on IT’s delivery of value and mitigation of the IT risks in the business. IT delivery of value could be achieved by strategic alignment of IT with the organization. While, mitigation of the IT risks could be accomplished through embedding accountability into the organization. Such activities need to be well supported by adequate resources. Furthermore, IT performance should be measured to ensure that the desired results are obtained (figure 2). It is also observed that the five main focus areas for ITG are driven by stakeholder value. Two of them are outcomes: value delivery and risk management. While, three of them are drivers: strategic alignment, resource management (ITGI, 2005a).

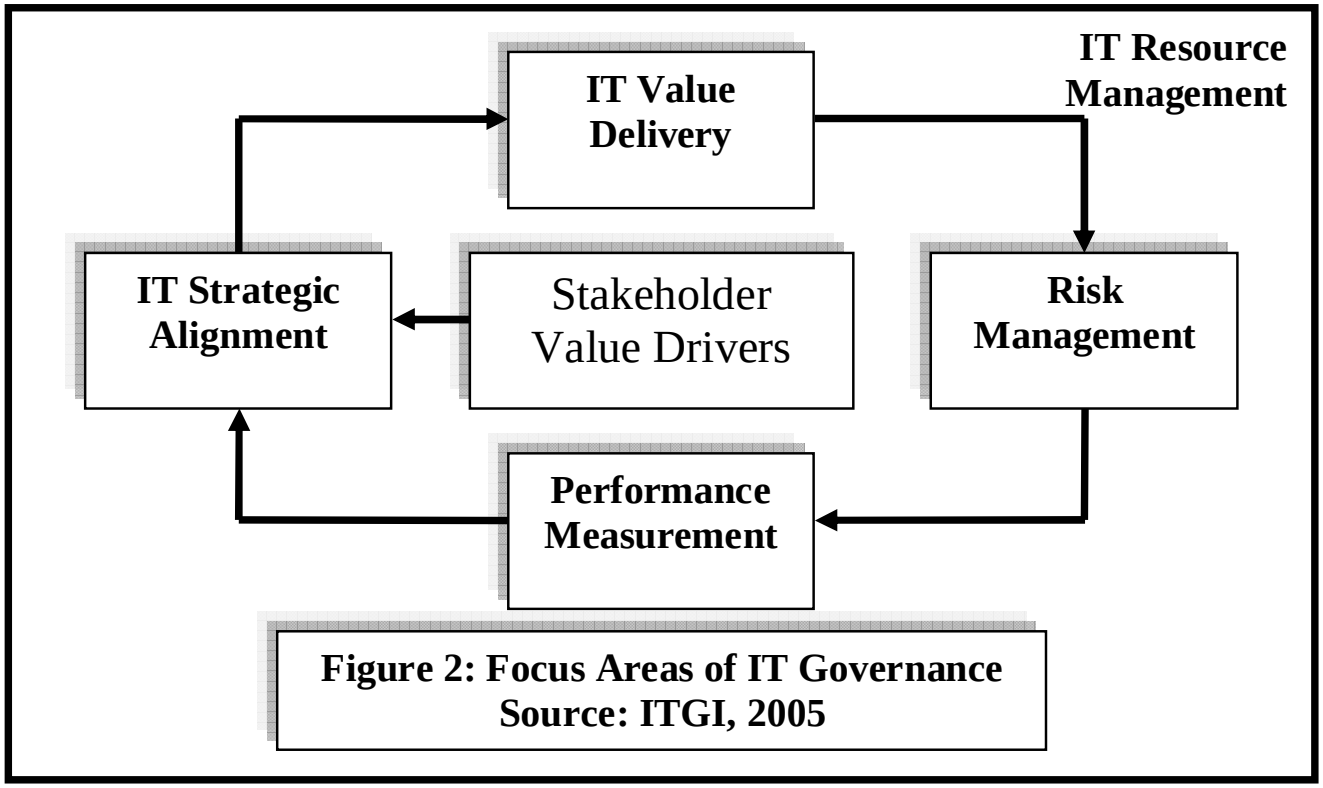

Figure 2: Focus Areas of IT Governance
Source: ITGI, 2005

Strategic alignment focuses on aligning IT with business and collaborative solutions. It ensures that an organization's investment in IT is in harmony with its strategic objectives, and builds the capabilities necessary to deliver business value. However, IT value delivery concentrates on optimizing expenses and proving the value of IT. ITGI (2005a) stated that the basic principles of IT value are the on-time and within-budget delivery of appropriate quality, which achieves the benefits that were promised. In business terms, this is often translated into: competitive advantage, elapsed time for order/service fulfillment, customer satisfaction, customer wait time, employee productivity and profitability". Therefore, the organization should set expectations relative to the contents of the IT deliverable:

- Fit for purpose, meeting business requirements,
- Flexibility to adopt to future requirements,
- Throughput and response times,
- Ease of use, resiliency and security, and
- Integrity, accuracy and currency of information (ITGI, 2005a).

IT risk management addresses safeguarding of IT assets, disaster recovery and continuity of operations. While, resource management concentrates on optimizing knowledge and IT infrastructure. A key to successful IT performance is the optimal investment, use and allocation of IT resources (people, applications, technology, facilities, data) in servicing the needs of the organization. ITGI suggests that IT governance is a continuous life cycle, which can be entered at any point. Usually one starts with the strategy and its alignment throughout the enterprise. Then implementation occurs, delivering the value the strategy promised and addressing the risks that need mitigation. At regular intervals (some recommend continuously) the strategy needs to be monitored and the results measured, reported and acted upon. Generally on an annual basis, the strategy is reevaluated and realigned, if needed (ITGI, 2005a and b). The cycle of the ITG process is illustrated in figure 3.

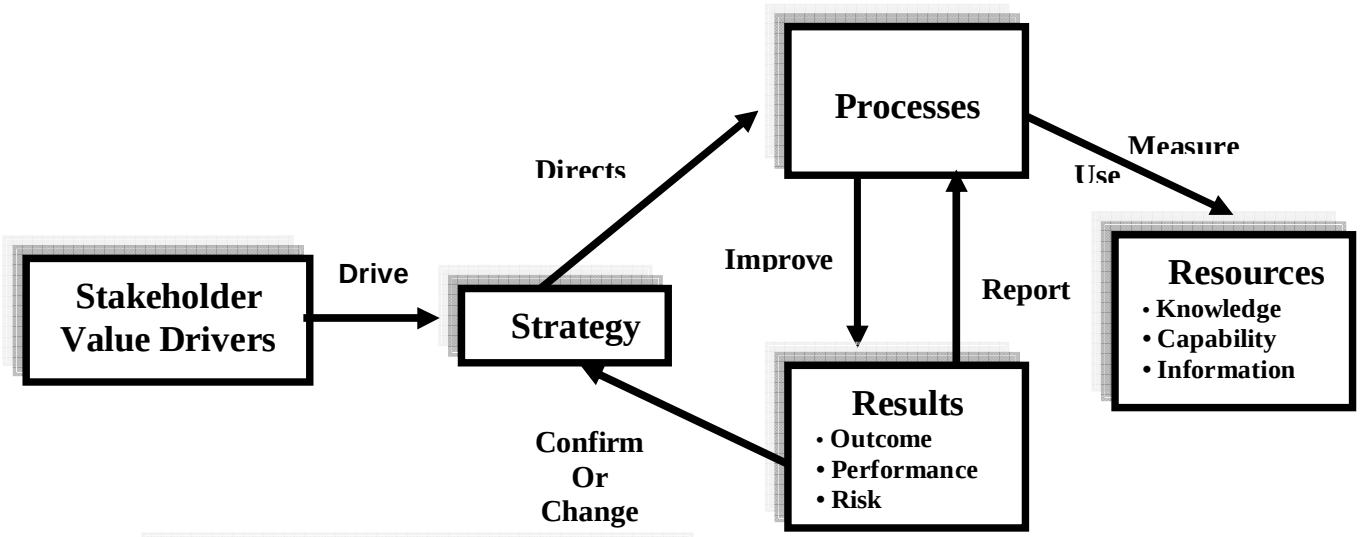

Figure 3—IT Governance Process
Source: ITGI, 2005

It is also observed that many organizations fail to maximize the efficiency of their IT assets and optimize the costs relating to these assets. Organizations need to measure the effectiveness of their ITG, both external aspects as well as the internal performance of ITG. Wilkes (2004) concluded with the following prescriptions for evaluating the ITG performance:

- Boards need to measure the external perception of their governance practices.

- Performance measures need to be supplemented by contextual information on the business and its situation.
- Measures should be unique to the organization and its competitive strategy.
- Performance measures chosen should be used to promote discussion and decide actions.
- Information can often be hidden or misinterpreted; IT can help manage this and be used to gain insights to direct performance improvements (Wilkes, 2004).

Performance Measurement is very important to evaluate IT delivery and the monitoring of IT services. According to ITGI (2005) performance evaluation strategy has been taken on a new urgency as organizations mobilize intangible and hidden assets to compete in an information-based global economy. The means of value creation has been shifted from tangible to intangible assets. However, intangible assets generally are not measurable through traditional financial measures. Such traditional financial performance measures have been severely criticized for their historical focus and short-term emphasis. The balanced scorecard model is recommended to assist in this regard. The balanced scorecard model translates the business strategy into actions to achieve the stated goals with a performance measurement system that goes beyond conventional accounting. Measuring these relationships and knowledge-based assets is necessary to compete in the information age (ITGI, 2005a and b).

Robert Kaplan and David Norton argued that in the information age, organizations require new capabilities for competitive success, such as customer relationships, product innovation, customized products, employee skills, motivation, and information technology. By including all critical success factors in the performance measurement system, the organization will have a better idea of how to achieve its goals (Kaplan and Norton, 1996, 2001, and 2004).

Lawton, (2002) suggested that a balanced scorecard provides an important management decision tool and intended to be a framework for linking strategy with operational performance measures. It provides an integrated report, usually showing diverse areas of performance an organization values most (Lawton, 2002). The balanced scorecard also links the traditional financial perspective process, and learning and growth. It also mixes outcome measures (the lagging indicator) with performance drivers (the leading indicator).

In recent years, the balanced scorecard has been applied to information technology (IT). The IT BSC is becoming a popular tool with its concepts widely supported and employed by international consultant groups such as Gartner Group, Renaissance Systems, Nolan Norton Institute, and others. As a result of this interest, the first real-life applications are starting to emerge (Grembergen et al., 2003).

ITGI (2005) introduced a proposed model for evaluating ITG performance using a balanced scorecard approach. The proposed balanced scorecard model intends to measure ITG performance along different dimensions: financial aspects, customer satisfaction, process effectiveness and future capability, and reward IT management based on measures that usually include scheduled uptime, service levels, transaction throughput and response times and application availability (ITGI, 2003, 2005a and b). The proposed model was revised by Abu-Musa (2005) by incorporating a fifth perspective, namely the environmental contribution (Figure 4).

By using the balanced scorecard model, managers are relying on more than short-term financial measures as indicators of the organization's performance. It also takes into account the intangible items such as: level of customer satisfaction, streamlining of internal functions, creation of operational efficiencies, and development of staff skills. The balanced scorecard model has unique and more holistic view of business operations which contributes to linking long-term strategic objectives with short term actions. However, at the heart of these scorecards is management information supplied by relevant stakeholders and supported by a sustainable reporting system (figure 4). In the balanced scorecard model, IT does more than provide information to obtain a global picture as to where the enterprise is and where it is going. IT enables and sustains solutions for the actual goals set by the financial (enterprise resource management), customer (customer relationship management), process (intranet and workflow tools), learning (knowledge management), and environmental (developing and protecting the environment) dimensions of the scorecard (ITGI, 2003, 2005a and b; and Abu-Musa, 2005).

The ITG balanced scorecard model provides the board and management with an effective tool to achieve IT and business alignment. However, in order to apply

the balanced scorecard concepts to the IT function, ITGI (2005) have redefined the traditional perspectives of the model as follows:

- Organization contribution: How do business executives view the IT department?
- User orientation: How do users view the IT department?
- Operational excellence: How effective and efficient are the IT processes?
- Future orientation: How well is IT positioned to meet future needs?
- Environmental perspective: how should we maintain and develop the environment? (Figure 4).

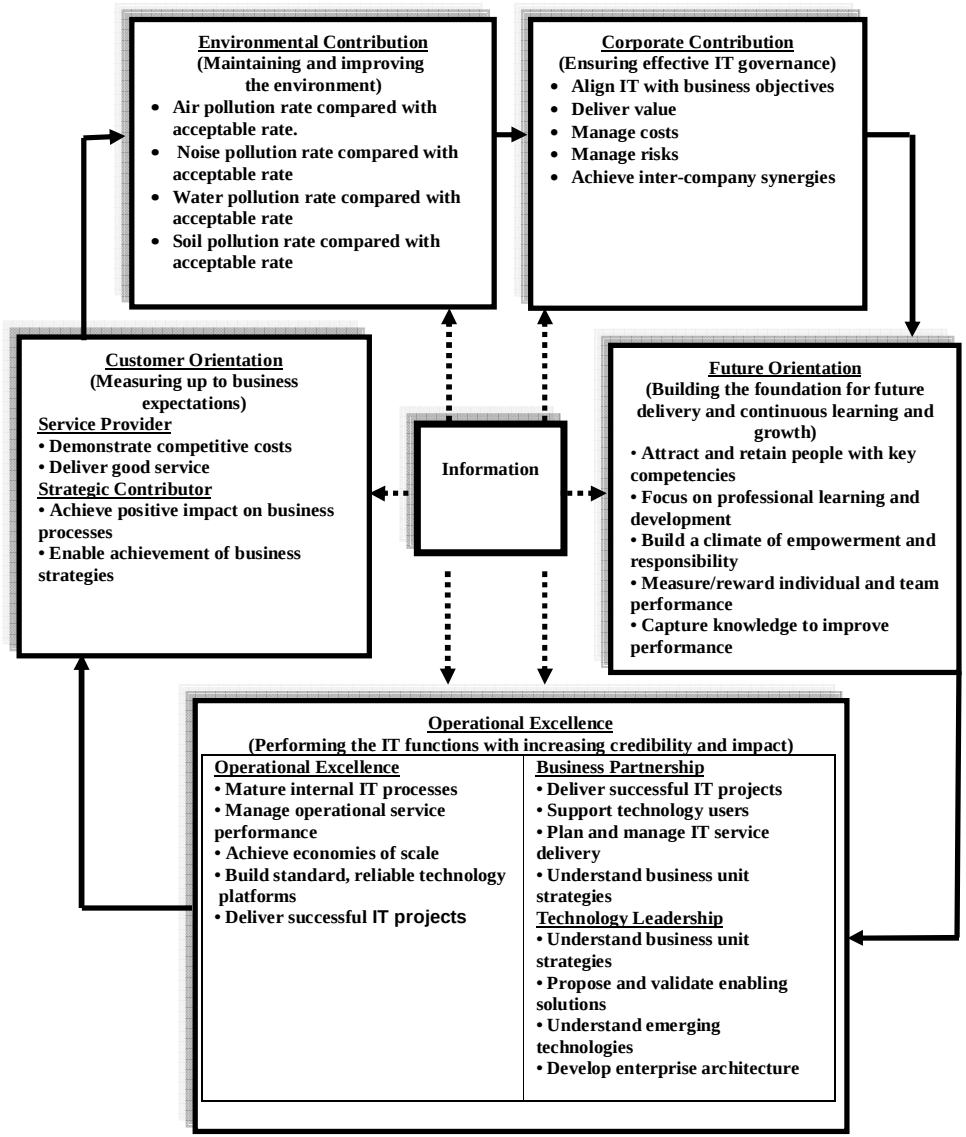

Figure 4: Balanced Scorecard for Evaluating ITG Performance
Source: Adapted from ITGI, 2005

Stakeholders play an important role in the ITG process. Stakeholders are anyone who has either a responsibility for or an expectation from the organization's IT, e.g., shareholders, directors, executives, business and technology management, users, employees, governments, suppliers, customers and the public. At the heart of the governance responsibilities of setting strategy, managing risks, allocating resources, delivering value and measuring performance, are the stakeholder values, which drive the organization and IT strategy. Sustaining the current business and growing into new business models are considered stakeholder expectations and can be achieved only with adequate governance of the organization's IT infrastructure (ITGI, 2003, 2005a; and Abu-Musa, 2005).

It is also argued that ITG could be carried out in different layers. For example, team leaders report to and receive direction from their managers, while managers report up to the executive; and the executive reports to the board of directors. Reporting includes descriptions of any activities that show signs of deviating from targeted objectives. It is suggested that each level, when reporting these deviations, should include recommendations for action that must be authorized by the governing level above. The effectiveness of such layered approach depends on successful cascading of strategy and goals down into the organization (ITGI, 2003, 2005a and b). Figure 4 summarizes the objectives of each specific ITG performance evaluation area from which measures can be derived, and provides some proposed ITG performance measures. The current study incorporates these ITG performance measures in a self administered questionnaire to be empirically tested in Saudi environment. The current study empirically investigates the importance, measurement, and the usage of ITG performance measures in Saudi organizations.

6. RESEARCH HYPOTHESES

The current research investigates the following hypotheses:

- Saudi organizations do not consider performance measures proposed by the ITGI balanced scorecard model as important factors in evaluating their ITG performance.
- Saudi organizations do not actually measure the performance measures proposed by the ITGI balanced scorecard model in evaluating their ITG performance.
- Saudi organizations do not actually use the performance measures proposed by the ITGI balanced scorecard model in evaluating their ITG performance.
- There are significant differences among Saudi organizations regarding their usage of the ITGI balanced scorecard model in evaluating the performance of ITG.

7. RESEARCH METHODOLOGY

In this study, an empirical survey, using a self-administered questionnaire, was conducted to explore the importance, measure, and use of the ITG balanced scorecard model in Saudi organizations. The questionnaire was pre-tested on selected members of academic staff and accounting practitioners and was piloted on a selected sample of Saudi organizations. Comments and suggestions were considered in the development and revision of the final questionnaire. The questionnaire incorporated the proposed ITG balanced scorecard model introduced by ITGI (2005) and revised by Abu-Musa (2005) to be empirically examined in Saudi organizations.

To make it easy for respondents to answer these questions and to go through the questionnaire, the ITG performance measures are classified under five categories in accordance with the revised balance scorecard model. In order to increase the respondent's motivation for completing the survey, all questions that were similar in content and dealt with the same ITG performance area or group were collected together under that specific group. Also, to make it easy for respondents to answer its questions and go smoothly through the list the author meticulously considered the sequence and arrangement of the ITG performance measures in the questionnaire.

Five hundred questionnaires are randomly distributed to different types of Saudi organizations (Manufacturing companies, merchandising companies, banks, insurance companies, oil and gas companies, service companies, health care organizations, government units, and others) in five Saudi cities: Riyadh, Jeddah, Dhahran, Dammam, and Al-Khobar. After the follow up, One hundred and forty seven questionnaires, representing a 29.5% initial response rate were collected. However, 26 uncompleted questionnaires were excluded from the analysis, where the respondents refused to complete the questionnaires, claiming that it had sensitive and confidential information. After excluding the incomplete and invalid responses, the research ended with one hundred twenty one valid and usable questionnaires, representing a 24.2 percent response rate.

A reliability test was carried out on the questionnaire using the Alpha Cronbach model, to explore its internal consistency, based on the average inter-item correlation. The result of the reliability test shows that the questionnaire design is highly reliable, and the collected data related to ITG performance measures in Saudi organizations are highly reliable and consistent (Alpha = 0.8134). The student test was also carried out investigate if there were any significant differences between early responses (180 questionnaires) and late responses (41 questionnaires). The results of the student test show no significant differences between early and late responses (at significance level p 0.05), which provides evidence of a representative and unbiased selected research sample.

The collected data show that eleven of the responding organizations are

manufacturing companies and fourteen are retail merchandising organizations, representing 9.1 percent and 11.6 percent of the total responses respectively (Table 1). However, 22 respondents are banks – representing 18.2 percent of the total response. While, 26 of the respondents (21.5 percent) belong to service companies, and 15 respondents (12.4 percent) are from the oil and gas industry. Moreover, 10 respondents (8.3 percent) belong to health care organizations and 17 respondents (6.2 percent) are governmental units. Finally, 15 of the respondents (12.4 percent of the total) belong to other organizations, e.g. hotels, car rental organizations, décor and carpentry firms, publishing and printing organizations, accounting and auditing firms, construction companies, and design organizations.

The Research Sample According to Business Type			**The Research Sample According to Respondent Type**		
Type of Business	**Frequency**	**Percent**	**Job Title**	**Frequency**	**Percent**
Manufacturing	11	9.1	Executive Manager	41	33.9
Merchandising	14	11.6	Internal Auditor	9	7.4
Banking	22	18.2	Staff Accountant	6	5
Health Care	10	8.3	Cost Accountant	4	3.3
Services	26	21.5	IT Specialists	29	24
Oil and Gas	15	12.4	Controller	7	5.8
Government	8	6.6	EDP Auditor	2	1.7
Others	15	12.4	Others	23	19
Total	**121**	**100.0**	**Total**	**121**	**100.0**

(Table 1: The Research Sample)

As (Table I) shows 41 of the respondents (33.9 percent) are executive managers; 29 respondents (24 percent) are IT specialists; 9 respondents (7.4 percent) are internal auditors; and 7 respondents (5.8 percent) are controllers. Moreover, 10 of the respondents (8.3 percent) work as accountants and two respondents are EDP auditors.

The collected data has been analyzed using the Statistical Package for Social Sciences (SPSS) version 14. Descriptive statistics (such as frequencies and percentages) of the collected data was performed to identify the main characteristics of the research variables. In addition, non-parametric tests (Kruskal-Wallis tests) were carried out to test the importance, usage, and implementation of ITG balanced scorecard model in Saudi organizations. Non-parametric tests – rather than parametric tests – are the most appropriate statistical tests for analyzing the data collected in this research since these tests are "distribution free," do not require normal distribution of data, and can efficiently deal with small size samples. Non-parametric tests are also very suitable to analyze nominal, ordinal, categorical, and scale ranked data which makes it more appropriate for this research (See: Dickinson, 1990; Miller, 1991; Hessler, 1992; Melville and Goddard, 1996; and Abu-Musa, 2006a and b).

8. RESEARCH RESULTS AND DISCUSSION

ITG is very much concerned about the delivery of IT value and mitigation of the IT risks in the business. According to ITGI the first issue is driven by strategic alignment of IT with the business, while, the second issue could be achieved by embedding accountability into organizations. In addition, adequate resources should be provided and adequate performance measures should be implemented to ensure that the desired results are obtained. This section presents the main results related to the respondents' perception of the importance, the measurement and the usage of ITG performance measures in Saudi organizations. The results of ITG performance measures are categorized under the five main perspectives that have been addressed in the balanced scorecard model proposed by ITGI (2005) and revised by Abu-Musa, 2005.

8.1. CORPORATE CONTRIBUTION

ITGI (2005a) argued that the main concern of IT value is the delivery of appropriate quality, which achieves the promised benefits are on-time and within the stated budget. In business terms, IT value is often translated into achieving competitive advantage, elapsed time for order or service fulfillment, customer satisfaction, customer wait time, employee productivity and profitability. However, several of these indicators are either subjective or difficult to measure, something all stakeholders need to understand. Often, top management and boards fear to start major IT investments because of the size of investment and the uncertainty of the outcome. For effective IT value delivery to be achieved, both the actual costs and the return on investment need to be managed.

The value that IT adds to the business is a function of the degree to which the IT organization is aligned with the business and meets the expectations of the business. The business should set expectations relative to the contents of the IT deliverable:

- Fit for purpose, meeting business requirements
- Flexibility to adopt to future requirements
- Throughput and response times
- Ease of use, resiliency and security
- Integrity, accuracy and currency of information (ITGI, 2005a; and Abu-Musa, 2005).

Sraeel (2004) suggested that ITG should be considered by the senior management or board responsibility in relation to IT in order to ensure that IT is aligned with business strategy, delivering functionality and services in keeping with an organization's needs (Sraeel, 2004). The results of the study reveal that the vast majority of the respondents (97 percent) believe the importance of aligning IT with

business objectives as an ITG performance measure. However, merely half of the respondents (54.5 percent) stated that aligning IT with business objectives is always measured, while another 40.5 reported that it is sometimes measured in their organizations, and a few of them (6 percent) confirmed that it had never been measured in their organizations. On the other hand less that half of the respondents reported that aligning IT with business objectives is usually used in evaluating the ITG performance, and another 43 percent of the respondents revealed that it is sometimes used.

The results also reveal that the great majority of the respondents (approximately 90 percent) considered delivering value an important ITG performance measure (Table 2) and it had actually been used in evaluating the performance of ITG in their organizations. While, only 17.5 percent of the respondents reported it had never been used in evaluating ITG performance in their organizations.

According to the results it seems that managing costs and managing risk of ITG are considered as an important ITG corporate contribution performance measure for most Saudi organizations. Most of the respondents also reported that managing IT cost and risk are actually measured in their organizations. However, 18.2 percent of the respondents reported that managing cost was never used in evaluating ITG performance, while 15.7 of them believe that managing IT risk was never used as an ITG performance measure by their organizations.

Again, the results of the study reveal that the majority of respondents (91.8 percent) consider achieving inter-organization synergies important ITG performance measure. Moreover, almost one third of the respondents believed that achieving inter-organization synergies was usually measured in their organizations, while 54.5 percent of the respondents reported that it was sometimes measured in their organizations. Although the vast majority of the respondents (87.6 percent) reported that achieving inter-organization synergies had been measured in their organizations, it is observed that more than one-quarter of the respondents reported that it had never been used in evaluating the ITG performance in their organizations (Table 2). It is also observed that financial institutions and services organizations are more concerned with making sure that their organizations IT visions and plans are aligned with corporate strategic directions.

The results of Kruskal–Wallis test reveal no significant differences among different Saudi organizations regarding the importance of corporate contribution performance measures of ITG except for delivering value of IT (at p 0.05). On the other hand, the results of the Kruskal-Wallis test (Table 3) displays significant differences among different jobs regarding the performance measures of corporate contribution related to ITG except for achieving inter-organization synergies at significance level p 0.05. In all cases executive managers, IT specialists and EDP auditors show higher values of the importance of ITG performance measures compared to the others (Table 3).

The Kruskal-Wallis test statistics show significant differences among different organizations in measuring corporate contribution of IT related to managing IT costs (p 0.011) and achieving inter-organization synergies (p=0.003). While, the results of Kruskal-Wallis test statistics show no significant differences among different respondent groups except for delivering IT values (p 0.010) at their organizations (Table 3). The statistical results also reveal significant differences among the different Saudi organizations regarding the usage of the following IT corporate contribution measures in their organizations: aligning IT objectives with business objectives; delivering value; and achieving inter-organization synergies at significance level p=0.05. However, the results show no significant differences among different respondent groups regarding the usage of IT corporate contribution measures in their organizations (p= 0.05).

8.2. FUTURE ORIENTATION

The performance measures under this category are related to building the foundation for future delivery of IT value, and continuous leaning and growth in organizations. The results reveal that attracting and retaining people with key competences is one of the important performance measures in Saudi organizations (Table 2). The statistics also show that 48 respondents (39.7) reported attracting and retaining people with key competences are always measured, and a similar number confirmed that it is sometimes measured in their organizations. However, approximately, 20 percent of the respondents claimed that attracting and retaining people with key competences had never been used in evaluating the future orientation of ITG in their organizations.

The results also reveal that the vast majority of respondents (90 percent) recognized the importance of the focusing on professional learning and development in their organizations. Furthermore, they reported that professional learning and development of IT individuals is measured in their organizations. Only, 19 percent of the respondents reported that such professional learning and development of IT was not actually used in evaluating the performance of ITG in their organizations (Table 2).

It is also observed that vast majority of the respondents are in agreement that building a climate of empowerment and responsibility, measure and reward individual and team performance, and capturing knowledge to improve IT performance are important indicators for future orientation and important ITG performance measures for their organizations. Most of them also confirmed that it had actually been measured in their organization (Table 2) but around 20 percent of the respondents reported that such performance measures are not actually used in evaluating the ITG performance in Saudi organizations.

According to the statistics of the Kruskal-Wallis tests (Table 3), it seems that there are no significant differences among Saudi organizations regarding the

importance of future orientation of performance measures except for measuring and rewarding individual and team performance at significance level *p* 0.05. However, the results of Kruskal-Wallis tests show significant differences among respondents' jobs regarding the importance of focusing on professional learning and development (*p* 0.05), and building a climate of empowerment and responsibility (Table 3).

The results of Kruskal-Wallis test (Table 3) also show no significant differences among different respondents groups (at *p* 0.05) regarding the measurement of ITG future orientation in their organizations. However, the results of the Kruskal-Wallis reveal significant difference among different Saudi organizations regarding attracting and retaining people with key competences (*p* 0.030), building a climate of empowerment and responsibility (*p* 0.000), and measuring / rewarding individual and team performance ((*p* 0.02). It is observed that banks and financial institutions, service companies, IT and telecommunication companies, and oil gas companies show concern for measuring ITG future orientation performance measures.

The statistical results provide evidence that there are significant differences among Saudi organizations related to the use of ITG future orientation performance measures in the evaluation process except for focusing on professional learning and development at (at p 0.05). On the other hand, no significant differences have been found among respondent types regarding the same issue except for using the capture knowledge to improve performance at a significant level p 0.05. Again, the results reported that banks, IT and telecommunication companies, and service companies show more concern regarding measuring such issues compared with the others in Saudi environment.

8.3. CUSTOMER ORIENTATION

The results reveal that most of the respondents consider demonstrating competitive costs (96.7 percent) and delivering good services (98.3 percent) are important performance measures of the IT service providers (Table 2). The results also reported that such performance measures are actually measured and used in evaluating the performance of ITG concerned with satisfying the customers' needs and requirements. However, when it comes to strategic contributor performance measures, it seems that there is less agreement among the respondents on its importance, measurement and usage in Saudi organizations. It is also observed that while approximately 6 percent of the respondents consider achieving positive impact on business process is not important performance measure, 7.4 percent of them reported it had not been actually measured, and 18.8 percent of the total respondents reported that it had not been used in evaluating the customer satisfaction of ITG performance in their organizations (Table 2). The results also reveal that although the minority of the respondents (8.3 percent) considers enabling achievement of business strategies is not important ITG performance measure, 12.4

percent of them reported it had not been measured and 21.5 percent of the respondents believe that it has not been used in evaluating the ITG performance in their organizations.

The Kreskas-Wallis test provides evidence that there is a significant difference among different organization types (Table 3) regarding the importance of demonstrating competitive costs (at *p* 0.015). Significant differences have been found among respondents groups regarding the importance of delivering good services of IT (at *p* 0.025) and achieving positive impact on business process (at *p* 0.025). The results also provide strong evidence that there are significant differences among Saudi organizations regarding the service provider and strategic contributor (at *p* 0.05), while no significant differences appear among different respondent groups (Table 3) regarding the measurement of customer orientation performance measures of the ITG at *p* 0.05.

The result of the Kruskal-Wallis test (Table 3) reveals significant differences among the different Saudi organizations regarding the usage of customer orientation performance measures of ITG except for the delivery of good services (at *p* 0.05). Moreover, the statistical results of Kruskal-Wallis (Table 3) show also significant differences in the opinions of different respondent groups regarding the same issue except for the demonstration of competitive IT costs in their organizations (at significance level *p* 0.05).

8.4. OPERATIONAL EXCELLENCE

The main objective of the ITG measures under this category is to measure how effective and efficient are the IT processes in an organization. The results of the study reveal that the vast majority of the respondents believe the important of the following performance measures for the efficiency and effectiveness of internal IT processes: Maturity of internal IT processes (95.8 percent), managing operational service performance (92.6 percent), achieving economic scale (97.5 percent), building standard and reliable technology platforms (97.5 percent), and delivering successful IT projects (96.7 percent). It is also observed that although the majority of respondents reported measuring such performance measures, it seems that there is a less agreement among them on using it in evaluating ITG activities in their organizations (Table 2). For example, almost one-quarter of the respondent reported that achieving economic scale in never used in evaluating the ITG performance activities related to the internal IT processes, while 22.3 percent of the respondents reported the same for managing operational service performance (Table 2).

The Kruskal-Wallis test provides strong evidence that there are significant differences among different respondents' jobs regarding the importance of operational excellence at a significance level *p* 0.05. However, significant differences among different organizations regarding the importance of the maturity of internal IT audit process, and building standard and reliable technology platforms

(at *p* 0.05). Again, the result of Kruskal-Wallis test reveals significant differences among different business types regarding the measurement and usage of achieving economic scale at *p* 0.05. In addition, a significant difference among different respondents' jobs has been found regarding the measurement of managing operational service performance (*p* 0.054), achieving economic scale (*p* 0.020), and delivering successful IT projects (*p* 0.028). Significant differences have also been recognized among respondent types regarding the usage of building standard and reliable IT platforms (at *p* 0.052).

Regarding the business partnership, the results of the study reveal that the great majority of the respondents (97.5 percent) believed that delivering successful IT projects is an important ITG performance measure (Table 2). However, only 3 respondents (2.5 percent) reported that it had never been measured, and another 19 respondents reported that it had never been used in evaluating the business partnership activities of ITG in their organizations.

The results also reveal that there is a full agreement among the respondents that supporting technology users is an important performance measure of the business partnership. While, only four respondents (3.3 percent) claimed that supporting IT users had never been measured, another 21 respondents (17.4 percent) reported that it had never even been used in evaluating ITG activities in their organizations. Moreover, 22 respondents (18.2 percent) claimed that planning and managing IT services delivery had never been used in evaluating the performance of ITG, and another 9 of them (7.4 percent) confirmed that it had never been measured in their organizations (Table 2). The statistical results also reveal that although the vast majority of the respondents (91 percent) considered understanding business unit strategies as an important ITG performance measure, only 14 respondents (11.6 percent) reported that it had never been measured, while 33 respondents, representing 27.3 of the total confirmed that it had never been considered in evaluating ITG activities in their organizations (Table 2).

The results Kruskal-Wallis test provides strong evidence that there is a significant difference among Saudi organizations regarding the importance and the measurement of IT business partnership performance measures at significance level *p* 0.05. The results also show significant differences among different Saudi organizations regarding the use of IT business partnership performance measures except for delivering successful IT projects at *p* 0.05. On the other hand, the results Kruskal-Wallis test displays no significant difference among respondent groups regarding the importance, measurement and usage of IT business partnership performance measures except for the measurement and the use of understanding business unit strategies as an ITG performance measures at significance level *p* 0.05.

When it comes to technology leadership, it is observed the great majority of respondents (95.9 percent) considered understanding business unit strategies an important ITG performance measure. However, only 7 respondents (5.8 percent)

reported that it had never been measured while 27 respondents (22.3 percent) reported that it had never been considered in evaluating ITG activities in their organizations (Table 2).

The results also reveal that the vast majority of the respondents consider understanding the emerging technology an important ITG performance measure (97.5 percent). While, a minority of the respondents reported that it had never been measured and used in evaluating ITG performance in their organizations (Table 2). It is also observed that the vast majority of the respondents (95.9 present) reported that proposing and validating the enabled IT solutions is an important ITG performance measure, and it is usually measured and used in evaluating ITG performance in their organizations (Table 2).

The statistical results show that 15 respondents, representing 12.4 percent of the total, believe that developing organization architecture is not an important IIG performance measure, 19 respondents reported it had not ever been measured, while Wilkes, 2004 respondents (29.8 percent) reported that it had never been used or considered in evaluating ITG activities in their organizations (Table 2).

The result of the Kruskal-Wallis test reveals a significant difference among Saudi organizations related to the importance of understanding emerging IT (*p* 0.008) and developing organization architecture (*p* 0.041), while a significant difference appears among respondent types regarding the importance of other two measures of technology leadership: understanding business unit strategies (*p* 0.030) and proposing and validating enabled IT solutions (*p* 0.037). The results also show significant differences among business types regarding the measurement of developing organization architecture at *p* 0.014. On the other hand, significant differences among respondent types have been reported for the measurement of understanding business unit strategies as a performance measure of ITG leadership (*p* 0.009).

The results of the Kruskal-Wallis test provides strong evidence that there were no significant differences among different respondent types regarding the use of IT leadership performance measures at a significance level *p* 0.05 (Table 3). On the other side, the results show significant differences among different Saudi organizations regarding the use of IT leadership performance measures except for understanding business strategies at *p* 0.05. In many cases IT and telecommunication companies, banks and financial institutions, and service companies show more interest in measuring and using IT leadership in evaluating ITG performance. It is also observed that IT specialists, EDP auditors; and executive managers pay considerable attention to measuring and using IT leadership as an important measure for evaluating ITG performance in their organizations.

8.5. ENVIRONMENTAL CONTRIBUTION

The results of the study reveal that obtaining "environmental friendly IT" which reduces air and water pollution to acceptable rates, are important measures of the ITG performance evaluation (92.6 and 90.1 percent respectively). However, 23.1 percent of the respondents reported the air pollution rate had not been measured, and 27.3 percent of them reported that water pollution rate was never measured for the purpose of ITG evaluation in their organizations. The results also reveal that around 37 percent of the respondents claimed that such measures had never been used in evaluating the ITG performance in their organizations (Table 2). Again, most of the respondents (more than 90 percent) believe that reducing the noise pollution rate and keeping it to its minimum level is an important measure for ITG performance evaluation concerned with the environmental contribution. However, more than one-third of the respondents reported that it had never been measured, and 41.3 percent of respondents confirmed that such measures had never been used in evaluating the performance of ITG in Saudi organizations (Table 2).

The findings also show that almost 85 percent of the total respondents consider protecting environment against soil pollution and reducing it to its minimum rate an important measure for the environment contribution of ITG. Furthermore, two-third of the respondents confirmed the measurement of the soil pollution rate and compared it with the acceptable rates. However, about half of the total respondents (56 percent) reported the use of such measure in evaluating the performance of ITG activities in their organizations. According to the above results, it seems that the environmental contribution measures have been considered as important factors in evaluating the ITG performance in Saudi organizations.

The Kruskal-Wallis test provides strong evidence that there is no significant difference among different Saudi organizations (Table 3) regarding the importance, the measurement and the use of environmental contribution of ITG in Saudi organizations except for the use of air pollution rate compared with the acceptable rate for evaluating ITG performance (at p 0.05). The results of the Kruskal-Wallis test also show no significant difference in the opinions of different respondent groups regarding the importance, the measurement and the use of the environmental contribution of ITG in Saudi organizations except for measuring water pollution compared with the acceptable rate at significant level p 0.05.

9. CONCLUSION

Information technology governance (ITG) has become a critical success factor for many organizations. ITG provides the structure that links IT processes, IT resources and information to an organization's strategies and objectives. Furthermore, ITG integrates and institutionalizes best practices of planning and organizing, acquiring and implementing, delivering and supporting, and monitoring IT performance to ensure that the organization's information and related technology support its business objectives. The current study explored the ITG performance in

Saudi organizations using the balanced scorecard model that has been proposed by the ITG Institute (2005) and revised by Abu-Musa (2005).

The results of the study reveal that the vast majority of respondents reported the importance of the proposed ITG performance measures. While the majority of the respondents reported that such ITG performance measures had been measured, a few of them believe that it has been actually used in evaluating ITG performance in their organizations. The results also reveal that banks, financial institutions, and service companies have more concern in measuring and using the proposed model in evaluating the performance of ITG in their organizations. The results of the study also reveal that executive managers and IT specialists give higher ranks to ITG performance measures comparing with other respondent groups.

One of the perceived benefits of implementing the proposed ITG balance scorecard model is that it directs the managers' attention to multi-perspective performance measures. It discourages managers from improving one area of ITG operations at the expense of another. The results of the study suggest that when managers are faced with multiple tasks, their behavior will differ depending on whether the performance measurement system depends only on the financial outcome measure or includes mixed measures. The results provide evidence that many Saudi organizations are implementing the ITG balanced scorecard performance model that tracks the ITG measures across the five performance perspectives.

The current exploratory study has some limitations which opens some avenues for further investigation. The current study explored the opinions of Saudi organizations regarding the importance, implementation and use of the proposed ITG balanced scorecard model, however, further research is needed to investigate how such performance indicators have been technically measured and what is the weight assigned to each of them. The current study also did not investigate whether Saudi organizations link the ITG balanced scorecard measures to their compensation systems and its affect on their managers' behavior. The results of the study will be useful to academics and practitioners who are interested in the balanced scorecard model as a practical managerial tool for ITG performance measurement. The results of the study should enable organizations to better understand and evaluate the performance of their ITG, and help managers to champion IT development for the success of their businesses.

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بسم الله الرحمن الرحيم

Ministry of Higher Education
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COLLEGE OF INDUSTRIAL MANAGEMENT
DEPARTMENT OF
ACCOUNTING & MANAGEMENT INFORMATION SYSTEMS

وزارة التعليم العالي
جامعة الملك فهد للبترول و المعادن
كلية الإدارة الصناعية
قسم المحاسبة ونظم المعلومات الإدارية

Dear Sir

I am doing a study to investigate the usage of balanced scorecard model to evaluate the performance of Information Technology Governance (ITG) in Saudi Organizations. IT governance is the term used to describe how those persons entrusted with governance of an entity will consider IT in their supervision, monitoring, control and direction of the entity. How IT is applied within the entity will have an immense impact on whether the entity will attain its vision, mission or strategic goals.

The balanced scorecard model considers the non-financial performance measures (operating measures) in addition to the financial measures in evaluating performance of ITG. The balanced scorecard model emphasizes on five main perspectives: Customer perspective; internal process; improving environment; learning and innovation; and financial perspective.

The empirical part of the current study investigates the usage of the balanced scorecard model in evaluating the strategic performance of ITG in Saudi organization, through answering the following questions:

- Do Saudi organizations consider non-financial measures as important factors in evaluating the performance of ITG?
- Do Saudi organizations actually measure the non-financial performance indicators in order to evaluate their achieving of ITG strategic objectives?
- Do Saudi organizations actually use those measured non-financial performance indicators in evaluating ITG strategic planning?

Please take a few (approximately 10) minutes to complete the enclosed questionnaire. You have our personal and professional assurance that all responses will remain anonymous. No results will be attributed to any particular organization.

Your response is very important to the study, and we thank you in advance for your participation.

Sincerely,

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1. General Information

1. Do you currently work in? (Please, tick)

- ❒ Manufacturing
- ❒ Merchandising
- ❒ Banking
- ❒ Wholesale Merchandising
- ❒ Insurance
- ❒ Government
- ❒ Health Care
- ❒ Other - please list _____

2. How many accounting professionals are employed in your firm? (Please, tick)

- ❒ 1- 5
- ❒ 6-10
- ❒ 11-15
- ❒ 16-20
- ❒ Over 20

3. How many information system specialists are employed in your firm? (Please, tick)

- ❒ 1- 5
- ❒ 6-10
- ❒ 11-15
- ❒ 16-20
- ❒ Over 20

4. What is your current job title? (Please, tick)

❒ Executive manager	❒ IT specialist
❒ Internal auditor	❒ Controller
❒ Staff accountant	❒ EDP auditor
❒ Cost accountant	❒ Other - please list _____

5. How many years of experience do you have at your current position? _____

2. IT Governance Performance Measures

Please, tick the most appropriate place:

IT Governance Performance Measures	Importance of Performance Measures			Measuring Performance Measures			Using Performance Measures		
	Very Important	Important	Not Important	Always Measured	Sometimes Measured	Never Measured	Always Used	Sometimes Used	Never Used
Corporate Contribution: Ensuring Effective IT Governance									
• Align IT with business objectives									
• Deliver value									
• Manage costs									
• Manage risks									
• Achieve inter-organization synergies									
Future Orientation: Building The Foundation For Future Delivery And Continuous Learning And Growth									
• Attract and retain people with key competencies									

IT Governance Performance Measures	Importance of Performance Measures			Measuring Performance Measures			Using Performance Measures		
	Very Important	Important	Not Important	Always Measured	Sometimes Measured	Never Measured	Always Used	Sometimes Used	Never Used
• Focus on professional learning and development									
• Build a climate of empowerment and responsibility									
• Measure/reward individual and team performance									
• Capture knowledge to improve performance									
Customer Orientation : Measuring up to Business Expectations									
Service Provider									
• Demonstrate competitive costs									
• Deliver good service									
Strategic Contributor									
• Achieve positive impact on business processes									
• Enable achievement of business strategies									
Operational Excellence (Performing the IT Functions With Increasing Credibility And Impact)									
Operational Excellence									

IT Governance Performance Measures	Importance of Performance Measures			Measuring Performance Measures			Using Performance Measures		
	Very Important	Important	Not Important	Always Measured	Sometimes Measured	Never Measured	Always Used	Sometimes Used	Never Used
• Mature internal IT processes									
• Manage operational service performance									
• Achieve economies of scale									
• Build standard, reliable technology platforms									
• Deliver successful IT projects									
Business Partnership									
• Deliver successful IT projects									
• Support technology users									
• Plan and manage IT service delivery									
• Understand business unit strategies									
Technology Leadership									
• Understand business unit strategies									
• Propose and validate enabling solutions									
• Understand emerging technologies									

IT Governance Performance Measures	Importance of Performance Measures			Measuring Performance Measures			Using Performance Measures		
	Very Important	Important	Not Important	Always Measured	Sometimes Measured	Never Measured	Always Used	Sometimes Used	Never Used
• Develop organization architecture									
Environment Contribution: Maintain And Improve Environment									
• Air pollution rate compared with acceptable rate.									
• Noise pollution rate compared with acceptable rate									
• Water pollution rate compared with acceptable rate									
• Soil pollution rate compared with acceptable rate									

This completes the survey. Thank you for your participation. Remember to include your name and address (or business card) if you wish to receive a summary of the findings.

(Table 2)
(The frequencies of ITG Performance Measures)

IT Governance Performance Measures	Importance of Performance Measures						Measuring Performance Measures						Using Performance Measures					
	Very Important		Important		Not Important		Always Measured		Sometimes Measured		Never Measured		Always Used		Sometimes Used		Never Used	
	N.	%	N.	%	N.	%	N.	%	N.	%	N.	%	N.	%	N.	%	N.	%
Corporate Contribution: Ensuring Effective IT Governance																		
• Align IT with business objectives	85	70.2	33	27.3	3	2.5	66	54.5	49	40.5	6	5.0	58	47.9	52	43.0	11	9.1
• Deliver value	58	47.9	51	42.1	12	9.9	49	40.5	62	51.2	10	8.3	51	42.1	49	40.5	21	17.4
• Manage costs	69	57.0	46	38.0	6	5.0	57	47.1	50	41.3	14	11.6	53	43.8	46	38.0	22	18.2
• Manage risks	69	57.0	50	41.3	2	1.7	58	47.9	50	41.3	13	10.7	55	45.5	47	38.8	19	15.7
• Achieve inter-organization synergies	56	46.3	55	45.5	10	8.3	40	33.1	66	54.5	15	12.4	35	28.9	55	45.5	31	25.6
Future Orientation: Building The Foundation For Future Delivery And																		

IT Governance Performance Measures	Importance of Performance Measures						Measuring Performance Measures						Using Performance Measures					
	Very Important		Important		Not Important		Always Measured		Sometimes Measured		Never Measured		Always Used		Sometimes Used		Never Used	
	N.	%	N.	%	N.	%	N.	%	N.	%	N.	%	N.	%	N.	%	N.	%
Continuous Learning And Growth																		
• Attract and retain people with key competencies	73	60.3	46	38.0	2	1.7	48	39.7	48	39.7	8	6.6	53	43.8	44	36.4	24	19.8
• Focus on professional learning and development	66	54.5	55	45.5	0	0	54	44.6	61	50.4	6	5.0	47	38.8	51	42.1	23	19.0
• Build a climate of empowerment and responsibility	85	70.2	30	24.8	6	5.0	59	48.8	50	41.3	12	9.9	52	43.0	45	37.2	24	19.8
• Measure/reward individual and team performance	73	60.3	41	33.9	7	5.8	54	44.6	57	47.1	10	8.3	50	41.3	48	39.7	23	19.0
• Capture knowledge to improve performance	75	62.0	41	33.9	5	4.1	57	47.1	56	46.3	8	6.6	52	43.0	46	38.0	23	19.0
Customer Orientation: **Measuring up to Business Expectations.**																		
Service Provider																		
• Demonstrate competitive costs	68	56.2	49	40.5	4	3.3	54	44.6	62	51.2	5	4.1	47	38.8	54	44.6	20	16.5

IT Governance Performance Measures	Importance of Performance Measures						Measuring Performance Measures						Using Performance Measures					
	Very Important		Important		Not Important		Always Measured		Sometimes Measured		Never Measured		Always Used		Sometimes Used		Never Used	
	N.	%	N.	%	N.	%	N.	%	N.	%	N.	%	N.	%	N.	%	N.	%
• Deliver good service	86	71.1	33	27.3	2	1.7	62	51.2	56	46.3	3	2.5	62	51.2	45	37.2	14	11.6
Strategic Contributor																		
• Achieve positive impact on business processes	61	50.4	53	43.8	7	5.8	52	43.0	60	49.6	9	7.4	43	35.5	56	46.3	22	18.2
• Enable achievement of business strategies	47	38.8	64	52.9	10	8.3	45	37.2	61	50.4	15	12.4	35	28.9	60	49.6	26	21.5
Operational Excellence (Performing the IT Functions With Increasing Credibility And Impact)																		
Operational Excellence																		
• Mature internal IT processes	51	42.1	65	53.7	5	4.1	42	34.7	71	58.7	8	6.6	38	31.4	61	50.4	22	18.2
• Manage operational service performance	52	43.0	60	49.6	9	7.4	49	40.5	63	52.1	9	7.4	33	27.3	61	50.4	27	22.3
• Achieve economies of scale	57	47.1	61	50.4	3	2.5	48	39.7	65	53.7	8	6.6	43	35.5	49	40.5	29	24.0
• Build standard, reliable technology	63	52.1	55	45.5	3	2.5	49	40.5	66	54.5	6	5.0	46	38.0	54	44.6	21	17.4

IT Governance Performance Measures	Importance of Performance Measures						Measuring Performance Measures						Using Performance Measures					
	Very Important		Important		Not Important		Always Measured		Sometimes Measured		Never Measured		Always Used		Sometimes Used		Never Used	
	N.	%	N.	%	N.	%	N.	%	N.	%	N.	%	N.	%	N.	%	N.	%
platforms																		
• Deliver successful IT projects	76	62.8	41	33.9	4	3.3	65	53.7	50	41.3	6	5.0	52	43.0	50	41.3	19	15.7
Business Partnership																		
• Deliver successful IT projects	74	61.2	44	36.4	3	2.5	61	50.4	57	47.1	3	2.5	58	47.9	44	36.4	19	15.7
• Support technology users	62	51.2	59	48.8	0	0	47	38.8	70	57.9	4	3.3	46	38.0	54	44.6	21	17.4
• Plan and manage IT service delivery	62	51.2	56	46.3	3	2.5	53	43.8	61	50.4	7	5.8	46	38.0	53	43.8	22	18.2
• Understand business unit strategies	69	57.0	41	33.9	11	9.1	56	46.3	51	42.1	14	11.6	45	37.2	43	35.5	33	27.3
Technology Leadership																		
• Understand business unit strategies	67	55.4	49	40.5	5	4.1	49	40.5	65	53.7	7	5.8	45	37.2	49	40.5	27	22.3
• Propose and validate enabling solutions	46	38.0	70	57.9	5	4.1	34	28.1	78	64.5	9	7.4	33	27.3	66	54.5	22	18.2
• Understand emerging technologies	58	47.9	60	49.6	3	2.5	48	39.7	67	55.4	6	5.0	35	28.9	59	48.8	27	22.3
• Develop organization architecture	59	48.8	47	38.8	15	12.4	42	34.7	60	49.6	19	15.7	27	22.3	50	41.3	36	29.8
Environment Contribution:																		

IT Governance Performance Measures	Importance of Performance Measures						Measuring Performance Measures						Using Performance Measures					
	Very Important		Important		Not Important		Always Measured		Sometimes Measured		Never Measured		Always Used		Sometimes Used		Never Used	
	N.	%	N.	%	N.	%	N.	%	N.	%	N.	%	N.	%	N.	%	N.	%
Maintain And Improve Environment																		
• Air pollution rate compared with acceptable rate.	36	29.8	76	62.8	9	7.4	24	19.8	69	57.0	28	23.1	23	19.0	53	43.8	45	37.2
• Noise pollution rate compared with acceptable rate	30	24.8	76	62.8	15	12.4	23	19.0	64	52.9	34	28.1	23	19.0	48	39.7	50	41.3
• Water pollution rate compared with acceptable rate	38	31.4	71	58.7	12	9.9	31	25.6	57	47.1	33	27.3	28	23.1	47	38.8	46	38.0
• Soil pollution rate compared with acceptable rate	27	22.3	76	62.8	18	14.9	22	18.2	59	48.8	40	33.1	20	16.5	48	39.7	53	43.8

(Table 3)
(The Results of Kruskal-Wallis Test of ITG Performance Measures)

IT Governance Performance Measures	Importance of Performance Measures				Measuring Performance Measures				Using Performance Measures			
	Kruskal Wallis According to Business Type		Kruskal Wallis According to Job Type		Kruskal Wallis According to Business Type		Kruskal Wallis According to Job Type		Kruskal Wallis According to Business Type		Kruskal Wallis According to Job Type	
	Z	Sign	Z	Sign	Z	Sign	Z	Sign	Z	Sign	Z	Sign
Corporate Contribution: Ensuring Effective IT Governance												
• Align IT with business objectives	6.982	.431	15.714	**.028**	12.462	.086	10.245	.175	25.709	**.001**	9.110	.245
• Deliver value	19.643	**.006**	15.917	**.026**	13.614	.058	18.374	**.010**	15.260	**.033**	6.725	.458
• Manage costs	12.790	.077	18.168	**.011**	18.316	**.011**	9.424	.224	7.452	.383	9.487	.220
• Manage risks	11.378	.123	34.442	**.000**	5.696	.576	13.177	.068	10.792	.148	5.527	.596
• Achieve inter-organization synergies	9.062	.248	10.447	.165	21.465	**.003**	9.700	.206	21.387	**.003**	8.252	.311
Future Orientation: Building The Foundation For Future Delivery And Continuous Learning And Growth												
• Attract and retain people with key competencies	12.490	.086	12.249	.093	15.474	**.030**	9.788	.201	17.506	**.014**	7.313	.397
• Focus on professional learning and development	7.683	.361	14.080	**.050**	12.602	.082	12.888	.075	12.203	.094	11.190	.131
• Build a climate of empowerment and responsibility	9.673	.208	19.716	**.006**	26.169	**.000**	15.849	.027	31.503	**.000**	12.547	.084
• Measure/reward individual and team performance	18.109	**.011**	13.702	.057	22.111	**.002**	8.636	.280	20.381	**.005**	6.979	.431

IT Governance Performance Measures	Importance of Performance Measures				Measuring Performance Measures				Using Performance Measures			
	Kruskal Wallis According to Business Type		Kruskal Wallis According to Job Type		Kruskal Wallis According to Business Type		Kruskal Wallis According to Job Type		Kruskal Wallis According to Business Type		Kruskal Wallis According to Job Type	
	Z	Sign	Z	Sign	Z	Sign	Z	Sign	Z	Sign	Z	Sign
• Capture knowledge to improve performance	6.650	.466	9.736	.204	12.926	.074	11.106	.134	29.616	**.000**	23.023	**.002**
Customer Orientation : Measuring up to Business Expectations.												
Service Provider												
• Demonstrate competitive costs	16.811	**.019**	11.511	.118	14.416	**.044**	7.298	.399	26.834	**.000**	9.858	.197
• Deliver good service	7.646	.365	15.971	**.025**	14.020	**.051**	5.313	.622	11.035	.137	16.934	**.018**
Strategic Contributor												
• Achieve positive impact on business processes	5.718	.573	35.515	**.000**	19.961	**.006**	16.864	.018	22.805	**.002**	18.892	**.009**
• Enable achievement of business strategies	4.808	.683	10.709	.152	17.346	**.015**	12.433	.087	18.981	**.008**	23.121	**.002**
Operational Excellence (Performing the IT Functions With Increasing Credibility And Impact)												
Operational Excellence												
• Mature internal IT processes	12.648	**.081**	16.924	**.018**	11.106	.134	7.776	.353	8.914	.259	4.274	.748
• Manage operational service performance	4.125	.765	13.846	**.054**	9.947	.192	13.867	**.054**	13.099	.070	9.527	.217
• Achieve economies of scale	7.251	.403	17.330	**.015**	14.627	**.041**	16.661	**.020**	14.922	**.037**	13.957	**.052**
• Build standard, reliable technology platforms	22.286	**.002**	22.487	**.002**	9.155	.242	6.608	.471	12.932	.074	10.195	.178
• Deliver successful IT projects	8.950	.256	34.225	**.000**	6.711	.460	15.698	**.028**	10.085	.184	11.426	.121
Business Partnership												
• Deliver successful IT projects	17.831	**.013**	7.526	.376	15.817	**.027**	5.341	.618	10.405	.167	11.404	.122
• Support technology users	17.085	**.017**	9.821	.199	13.585	**.059**	7.103	.418	18.438	**.010**	10.675	.153

IT Governance Performance Measures	Importance of Performance Measures				Measuring Performance Measures				Using Performance Measures			
	Kruskal Wallis According to Business Type		Kruskal Wallis According to Job Type		Kruskal Wallis According to Business Type		Kruskal Wallis According to Job Type		Kruskal Wallis According to Business Type		Kruskal Wallis According to Job Type	
	Z	Sign	Z	Sign	Z	Sign	Z	Sign	Z	Sign	Z	Sign
• Plan and manage IT service delivery	26.921	**.000**	5.148	.642	14.234	**.047**	4.112	.767	15.930	**.026**	8.469	.293
• Understand business unit strategies	16.680	**.020**	25.230	.001	25.448	**.001**	16.749	**.019**	16.548	**.021**	14.793	**.039**
Technology Leadership												
• Understand business unit strategies	9.381	.226	15.529	**.030**	12.199	.094	18.655	**.009**	9.101	.246	12.688	.080
• Propose and validate enabling solutions	11.582	.115	14.941	**.037**	9.228	.237	11.915	.103	13.869	**.054**	12.578	.083
• Understand emerging technologies	18.993	**.008**	9.514	.218	12.101	.097	4.052	.774	17.526	**.014**	8.061	.327
• Develop organization architecture	14.660	**.041**	3.728	.811	17.558	**.014**	7.692	.361	16.115	**.024**	5.862	.556
Environment Contribution: Maintain And Improve Environment												
• Air pollution rate compared with acceptable rate.	9.267	.234	5.713	.574	8.252	.311	7.497	.379	14.207	**.048**	8.794	.268
• Noise pollution rate compared with acceptable rate	8.488	.292	13.156	.068	7.259	.402	7.718	.358	9.460	.221	10.405	.167
• Water pollution rate compared with acceptable rate	13.737	.056	14.467	**.043**	1.487	.983	5.283	.625	4.314	.743	2.957	.889
• Soil pollution rate compared with acceptable rate	7.514	.377	8.705	.275	2.679	.913	6.614	.470	7.533	.376	3.983	.782