INFORMATION TECHNOLOGY GOVERNANCE ROLE IN ENHANCING IT PORTFOLIO MANAGEMENT: A CASE STUDY ON SAUDI ARABIA PRIVATE SECTOR

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ABSTRACT

This research investigates the Saudi Private sector readiness to implement IT Governance concepts, so as to enhance IT Portfolio Management discipline   in Saudi Private sector organizations. We use in this this research Quantitative method for answering the research questions. Different types of statistical tools were implemented, such as SmartPLS 2.0 and SPSS, through a field survey of 10 organizations in Saudi Arabia Private Sector. The first finding of the research shows that there is an existence of the relationship between IT Governance and its Pillars: accountability, transparency, participation, and predictability. The second finding of the research shows that there is an existence of the relationship between IT Portfolio Management and its Pillars: a Technique To Execute Organization Strategy (PMSE), Optimizing Resource Allocation across Projects (PMOS), Projectification of Business Strategy(PMPS),and Risk Balance (PMRB).The Third finding shows that there is a relationship between IT Governance and IT Portfolio Management. This kind of research is very important for Saudi Arabia Private Sector to take benefits from implementation of the above concepts in order to enhance IT Portfolio Management discipline.

Keywords: *IT Governance , Accountability, Transparency,   Participation, Predictability, IT Portfolio Management,* Resource Allocation, Organization Strategy, Projectification of Business Strategy*, Risk Balance*

Introduction

With the significant increase in the development and use of information technology which becomes the main enabler in achieving goals of organizations, and with the rapid use of the e-government concepts nowadays, IT Governance becomes very essential concepts to govern the processes in e-government and to be in harmony with the corporate governance framework. E-government infrastructure alone not enough, it needs also interactions between all parties such as people, regulations, and technology, in order to build an effective and responsible e-government processes. Governance is an economic, political and administrative authority to manage a community's affairs at all levels. It comprises the mechanisms, processes and institutions through which community members and groups articulate their interests, exercise their legal rights, meet their obligations and mediate their differences (Somuah, 2004). Good implementation of IT Governance can enhance the following issues in the government organizations: accountability, transparency, participation, and predictability. According to Luftman et al.(2004) organizations that don't have a good IT governance model dissipate valuable resources, capital, time and human in an era where time is very important, capital in shortage and talent people are rare. According to Finger and Rossel (2007) e- governance is not a new manner to talk about e-government, but it express another perspective. E-governance deal with the concerns, problems
and ways for problem solving among different parties inside the organizations. There is a continuous and necessary readjustment between technological innovation, law and institutional acknowledgement. E-governance phenomenon is the co-evolution between technology (communication technologies in particular) and information from one side and institutions (particularly political institutions) on the other side. IT Governance system which work in harmony with corporate Governance model considered as an important tool which can be used to enhance the IT Portfolio Management discipline   in the organizations. IT Portfolio Management is a new concept which mange number of projects at the same time. Also it is necessary to prioritize different projects in accordance to the organization corporate strategy.

IT Governance

IT Governance is an expression used to explain the use of organizational processes to make decisions about how to get and deploy IT resources and competencies (Henderson and Venkatraman, 1993). According to IT Governance Institute (2003) *"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".

Luftman et al. (2004) indicated that IT Governance answer the following questions:
- Who has the authority to make decisions (power).
- Why they make decisions (for alignment).
- How they make these decisions (decisions procedure).

Current organizations boundaries are more flexible, dynamic and extensive. Governance framework and criteria are critical in today's business environment especially when the enterprise is global and extends to other entities. According to Henderson and Venkatraman (1993) e-governance is defined as" the use of information and communication technologies in public administrations to improve public services and democratic processes and to strengthen support to policies". IT governance is about assigning decision rights and creating an accountability framework that encourage desirable behaviors in the use of information and technology (Cameron, 2006). referring to Jim & Tomasz(2007) the focus for electronic government research and practice has been changing over the years. In addition the increasing awareness that IT investment has to be expressed in terms of creating public value caused the change towards organizational issues, including the alignment of electronic government initiatives with the broad public sector development program. However, the availability of mature, cross-agency public services does not mean that such services will be automatically used and therefore how much public value has been really produced. According to this concept the focus has changed again, currently to social issues, and the area expanded from electronic government – technology – enabled enhancements in government operations, to electronic governance–technology-enabled enhancements in interactions between government and non-government actors. Finger   and   Rossel   (2007)   argued   that   e-   governance   is   not   a   new manner to talk about e-government, but it express another perspective. E-governance deals with the concerns, problems and ways for problem solving among different parties inside the organizations. There is a continuous and necessary readjustment between technological innovation, law and institutional acknowledgement. E-governance phenomenon is the co-evolution between technology (communication technologies in particular) and information from one side and institutions (particularly political institutions) on the other side. Globalization considered as a main reason for economic competitiveness and liberalization. ICTs come out to be a helpful answer facility for many investments and decision-making processes. ICT governance is very important for the future. IT Governance is part of corporate Governance and they should be aligned. According to IT Governance Institute (2003) the IT Governance framework starts from setting objectives which should be achievable then the process of comparing these objectives starts after that IT activities which help in increasing automation, decrease the costs and managing risks, finally measuring performance and make modification for objectives to enhance performance

IT governance, behave similarly as corporate governance actions, both board and executive are work closely, together in establishing directions and in controlling. The lower layers role in the organization are to give important information needed in decision-making and evaluation activities, also they help in evaluating   performance measures.

IT Governance Pillars
According to Al-Adwan-Minwer(2010) and Asian Development Bank (1998) there are four   main pillars of governance as followings: accountability, transparency, predictability, Participation. In the following sections there will be a brief description about each one of the pillars and its importance as follows:

Accountability (ACC)
It can be defined as the capacity to call officials to account for their actions. Accountability has two parts, the first part is the answerability which means that organization should be ready to answer any question related to official actions. The second part is the consequences which should be a predictable and meaningful, without considering accountability only a time consuming formality. Accountability is the ability to receive answers about questions such as about the decisions that have been taken and an interpretation about these decisions.. Accountability is a concept which should be determined in context: *who* is accountable *to whom* and *for what*? (Scott. C, 2000). According to Kim et al. (2005) the Sixth Global Forum describes that: There are an agreement of opinions had formed around reinventing governance rather than reinventing government. Through the existence of networks governments, private sectors, organizations and citizens form a web of relations.

Transparency (TRA)

According to Balkin (1999) Transparency divided into three types: informational transparency, participatory transparency, and accountability transparency. Rawlins (2006) argued that transparency is consists of four factors substantial information, participation, accountability, and secrecy (which had a reverse meaning to openness). Transparent organizations must exchange information that permits stakeholders to build informed decisions concerning their relationship with the organization. In an economic context, a useful definition of transparency is the presence of symmetric information; lack of transparency refers to asymmetric information. The goal of any new corporate governance is to increase the transparency, and this process costs and benefits. The relationship between governance and transparency is obvious in the publics and regulators opinion; transparency was increased for the purpose of improving governance (Benjamin & Michael (2007).

Participation (PAR)

Participation needed to obtain reliable information and to serve as reality check and watchdog for the stakeholders. The main challenge to governments in all countries is to change themselves in order to make citizens participate in democratic activities and to improve citizens' dependence in governments (Swedish Association of Local Authorities, 2003). According to Robin (1998) ICTs considered as a facilitators for participation. ICTs motivate people to enhance their job and achieve it in efficient manner. "*ICTs offer the potential for revolutionary changes in national and regional innovation systems*". ICTs not only facilitate information exchange, but they are expanding the process, inventing new methods of sharing ideas, and reducing the costs of collecting and analyzing information. Richard (2007) has mentioned three benefits for ICTs within the framework of governance:

- ICTs work in harmony with the developmental challenges and help in making good governance framework.
- ICTs are considered as an efficient method to reduce costs.
- ICTs can be used to improve the democratic process, make sure effective participation and   make governments closer to their human.

Predictability (PRE)

The investment in the information technology projects need a good governance framework which is dependable and give the investors trust in their decisions that they had taken them. Also they need stable environment, good and clear methods to predict and analyze the market according to stable and clear regulations. According to Asia group (1998) Predictability can be obtained from laws and regulations that are obvious, known previously, and uniformly and effectively enforced. When there is no enough predictability, it will make difficulties for public officials to plan for the provision of services and is an excellent reason for nonperformance. According to OECD (2008) the rule of law refers to the institutional procedure of setting, understanding and executing laws and other regulations. So decisions that government had taken should be in accordance to law, in order to make private firms and individuals protected from random decisions. Reliability and predictability needs governance that is strong and doesn't have nepotism, controlled by narrow private interest groups; keep property and personal rights; and achieves some sort of social stability. A degree of reliability and predictability achieved are essential for organizations and persons to take good decisions. Reliability and predictability are not accomplished by more specific the regulations. Effective implementation of individual regulations needs to be counterbalanced by administrative procedure legislation and external reviews of decisions. Reliability and predictability also require certain degree of political stability and try to encourage private sector and convince them that their investments aren't depend on political uncertainty. Transparency and predictability are a matter of concern of investors and governments in order to keep privacy of sensitive information, so regulatory objectives and practices should be made transparent in order to increase the predictability of outcomes.

IT Portfolio Management

IT portfolio management (ITPM) is a set of managed technology resources, process investments, individual capital resources and project investments related to business strategies according to an optimal mix depending on assumptions about future performance (Benko& McFarlan, 2003). ITPM is essential because many companies have more project initiatives than they have physical or financial resources to accomplish them (Archer & Ghasemzadeh, 1999). One of the most benefit of ITPM, it modifies IT strategy from traditional manner to sense and respond strategy, All projects of the companies put in the same repository after that comparison between them, choice and prioritizing referring to risk and reward is done. ITPM considered being both an analytical way used to assess investments and a managerial instrument used to prioritize and assign IT resources (Cameron, 2006).

IT Portfolio Management Pillars

Referring to Anell & Jensen (1998) portfolio management pillars considered as followings:

Technique To Execute Organization Strategy (PMSE)
According to Luftman et al.(2004) IT Strategy is a set of decisions made by IT and senior management Deployment of technology infrastructures Relationship of technology choices to business choices.Strategy execution is concerning on the managerial exercise of supervising the organization strategy, making it work, improving the capability with which it is executed, and showing considerable progress in reaching the targeted results (Gary & Karla, 2009). The important step that lead to successful strategy execution is making a Precise and comprehensive description of the strategy. Balanced scorecard considered one of the most practical methods that used to execute strategy in a suitable way, part of these enhancements, a tool called a strategy map, which is considered as one of the most effective mechanisms for developing a clear, crisp roadmap of an organization's strategic intent (Kaplan and Norton, 2000). Strategy execution is considered as one of the more difficult problems in business, creating a good strategy is nothing compared to executing it successfully. It is easier to build a strategy document than to get people familiar with it (Davenport, 2007). Referring to Heldey (1997) Strategic planning, ITPM, and project management must be aligned with each other. The alignment of business strategy and IT investments is not successful without the bond between strategic planning, portfolio management and project management. The alignment that is needed is applying IT in a suitable and timely way, in harmony with business strategies, goals and requirements and it will remain a key concern of business executives (Papp, & Rayner, 1998).

Optimizing Resource Allocation across Projects (PMOS)
Organizations and its IT projects have different types of resources one of them are human resource which comprise of people who are professional in IT and had gained experience. According to Jeffery, & Leliveld 2003),. Referring to Goldman (1999) four types of constraints should be managed: scarce human resources, staff capabilities, budgets and infrastructure. Luftman et al (2004) mentioned that the management of information technology (IT) experts is a significant issue. The technique that IT organizations manage their IT professionals is clear in implementation of human resource management (HRM) practices. Another type of resources is the technology resources which consist of software and hardware. Organization should take benefit of this resource and share them across different projects. According to Kabeh et al. (2005) the first in planning for project success is how to allocate and optimize resources even if it is a service delivery or software projects in order to finish the project with the schedule and budget that were dedicated by organization. Optimization of IT projects should be adopted as inter active review process to optimize the project portfolio in the presence of different goals (Luehrman, 1998).

Projectification of Business Strategy(PMPS)
The process of choosing projects in order to make a portfolio should concentrate on an issue that all areas of the organization's strategy are addressed and that the portfolio is well balanced (Goldman, 1999). Every project of an organization has requirements. According to IEEE Standard 1233-1998, IEEE Guide for Developing System Requirements Specifications, defines a well formed requirement as a statement that:
- States system functionality (a Capability)
- Can be validated
- Must be met or possessed by a system
- Solves a customer problem
- Achieves a customer objectives
- Is qualified by measurable Conditions and bounded by Constraints

IT projects are planned to meet business unit requirements which should be aligned with the corporate strategy that may be affected by the global markets explode and the increasing speed of information transfer, so corporate strategies have become much more flexible (Bonham, 2004). Merna (2003) argued that it is not practical to begin a project with business strategy or objectives but the management can move into project mode to develop the project objectives. Project mode should start when the business objectives are emerging, the project should start when there is a group of project objectives. It is important to be aware of projects role in enhancing the performance of business and the role of business in enhancing projects which are considered as a part of general business and an essential part of the development, strategic view and maintaining of organization's competitiveness (Wikstro, 2005).

Risk Balance(PMRB)
With the increasing development in technology, Organizations are making huge investments in information technology (IT) projects. Many of these projects are risky, because they do not meet original expectations of cost, time, or benefits. So organizations need to differentiate between risks that can be resolved by action and risks that

need hedging (Kumar, 2002)**.** According to Clemons, & Weber (1990) managing information technology (IT) investment risk can be accomplished by the following options deferral, piloting, outsourcing, abandonment, in order to achieve the balance through different types of risks. Portfolio management decides the specific mix of investments making the maximum return for a given level of risk. Portfolio management is a structured method to classify, evaluate, prioritize, buy and manage an organization's projects and resources such as hardware, software, human capital, processes. It helps in evaluating the risks and rewards of various investment options as they relate to stated strategic objectives, thus facilitating conflict resolution across stakeholder groups (Solomon, 2002). According to Sergio et al. (2005) the greatest positive impact of project portfolio management (PPM) can be noticed   when organizations start to : (a) assess economic and technological risks at the portfolio level, (b) incorporate resource constraints in their decision making, and (c) explicitly look for risk diversification across the portfolio. According to McFarlan. (1981)   management should also implement a risk-based approach to the selection and management of IT project portfolios. He noticed that risk-unbalanced portfolios make an organization to suffer operational disruptions, or make gaps for competitors to step in. McFarlan.(1981) argued that, the most important reasons for project failure were "the failure to assess individual project risk and the failure to consider the aggregate risk of the portfolio of projects". A portfolio should not be selected according to only individual characteristics of the investments, but it should take into consideration the overall risk and reward of the portfolio. When investment interactions are taken into account, portfolios can be built within the anticipated return, but lower risk than when not taking into account the interactions (Markowitz., 1991)

RESEARCH MODEL AND HYPOTHESES

The Research Model
According to the previous studies, IT Governance (ITG) and IT Portfolio Management (ITPM), the researchers suggested and developed a model to investigate the relationship between these elements. In this study the researchers study how the IT Governance enhances the ITPM. In this study ITPM studied as a dependent variable from one side with the IT Governance as an independent variable. Some researchers study one or some of IT Governance (ITG) pillars. In this study a comprehensive study achieved which take into consideration the entire integrated IT Governance (ITG) pillars. They were searched as the independent variables as shown in figure 2 as follows: Accountability (ACC), Participation (PAR), Transparency (TRA), and Predictability (PRE). Also ITPM Pillars were studied. They were searched as the independent variables as follows: a Technique To Execute Organization Strategy (PMSE), Optimizing Resource Allocation across Projects (PMOS), Projectification of Business Strategy(PMPS),and Risk Balance (PMRB). Figure 2 shows our research model, which is divided into three sections: the first section discuss the relationship between IT governance from one side   and its pillars accountability, transparency, participation, and predictability from another side. The second section discuss the relationship between IT Governance as an independent variable and the ITPM as a dependent variable. The third section investigate the relationship between ITPM from one side and its pillars organization strategy execution, optimizing resource allocation across projects .
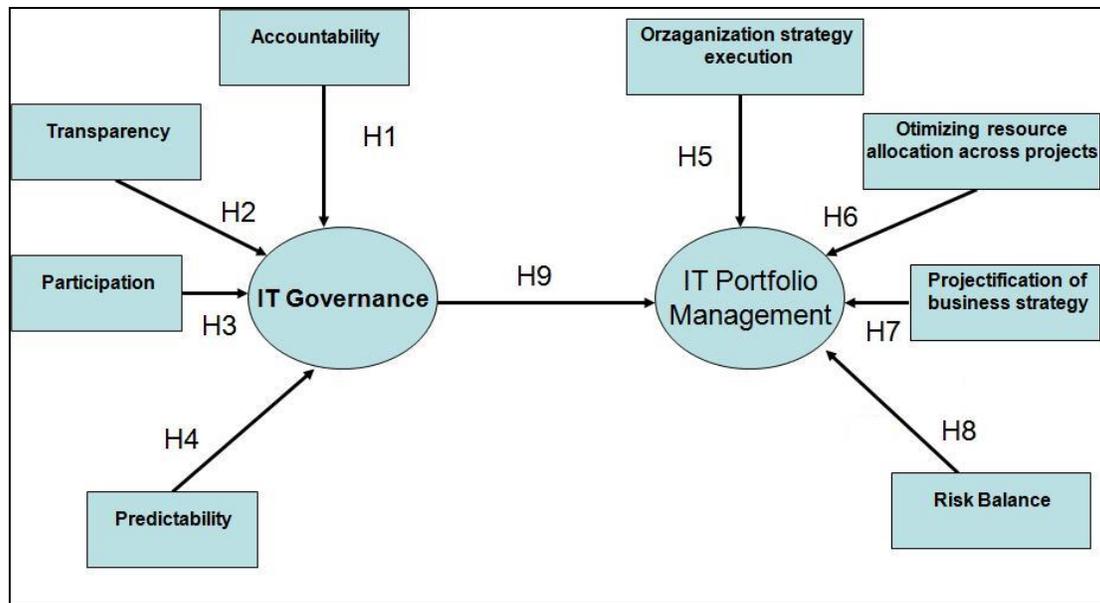
Figure 2 Research Model

The Research Hypotheses

Hypothesis 1: There is a significant relation between IT Governance and Accountability.
Hypothesis 2: There is a significant relation between IT Governance and Transparency.
Hypothesis 3: There is a significant relation between IT Governance and Participation.
Hypothesis 4: There is a significant relation between IT Governance and Predictability.
Hypothesis 5: There is a significant relation between ITPM and organization strategy execution.
Hypothesis 6: There is a significant relation between ITPM and optimizing resource allocation across projects.
Hypothesis 7: There is a significant relation between ITPM and projectification of business strategy.
Hypothesis 8: There is a significant relation between ITPM and risk balance.
Hypothesis 9: There is a significant relation between IT Governance and IT Portfolio Management.

Research Methodology and Analysis
To test the proposed research model, the researchers adopted the survey method for data collection, and examined our hypotheses by applying the partial least squares (PLS) and path analysis method.

The Sample of the study
Enhancing the Saudi Private sector ITPM considered as one of the most important issues. In this sector there are large numbers of IT projects executed yearly in different type of organizations. There were 10 organizations had been chosen as samples for this study questionnaire was prepared in both English and Arabic languages and distributed to the targeted people on these organizations. According to Yin (1994), the role of reliability is to minimize the error and biases in a study. Also Reliability refers to the extent to which your data collection techniques or analysis procedures will yield consistent findings (Saunders M. et al., 2007). Cronbach's alpha is one of the methods that used for measuring the consistency reliability (Saunders M. et al., 2007).

Operationalisation of the Independent Variables of the Research Model
As indicated by Referring to some authors, whom they explained the importance of IT Governance (ITG) pillars and its importance in enhancing IT Portfolio Management in organizations. The researchers use in this phase SPSS tools to check the reliability of the data.

Accountability
The Factor analysis showed a one-factor solution of Accountability(ACC) construct , the loading factor range from 0.822 to 0.727 with average loading for the factor 0.775, this factor explains 60.180% of total variance, and the factor has eigenvalue greater than 1 .The factor analysis demonstrate an obvious discriminate validity because all items are loaded on one factor, and Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy was 0.836 which

show that the sample is enough to achieve this test, reliability was calculated based on Cronbach's alpha, the measure was 0.83 which demonstrate a reasonable reliability for accountability.

Transparency
The Factor analysis for the refined items which have loading greater than 0.5 showed a one-factor solution of Transparency(TRA) construct , the loading factor range from 0.764 to 0.692 with average loading for the factor 0.629, this factor explains 53.31% of total variance, and the factor has eigenvalue greater than 1 .The factor analysis demonstrate a obvious discriminate validity because all accepted items are loaded on one factor, and Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy was 0.695 which show that the sample is enough to achieve this test, reliability was calculated based on Cronbach's alpha, the measure was 0.707 which demonstrate a reasonable reliability for transparency.

Participation (PAR)
The Factor analysis showed a one-factor solution of Participation(PAR) construct , the loading factor range from 0.793 to 0.656 with average loading for the factor 0.712, this factor explains 50.964% of total variance, and the factor has eigenvalue greater than 1 .The factor analysis demonstrate an obvious discriminate validity because all items are loaded on one factor, and Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy was 0.849 which show that the sample is enough to achieve this test, reliability was calculated based on Cronbach's alpha, the measure was 0.805 which demonstrate a reasonable reliability for participation. Table 3 shows the results of participation.

Predictability (PRE)
The Factor analysis for the other 4 items which have loading greater than 0.5 showed a one-factor solution of Predictability(PRE) construct , the loading factor range from 0.822 to 0.758 with average loading for the factor 0.796, this factor explains 63.454% of total variance, and the factor has eigenvalue greater than 1. The factor analysis demonstrate a obvious discriminate validity because all accepted items are loaded on one factor, and Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy was 0.748 which show that the sample is enough to achieve this test, reliability was calculated based on Cronbach's alpha, the measure was 0.806 which demonstrate a reasonable reliability for PRE.

Organization IT Strategy Execution (PMSE)
The Factor analysis showed a one-factor solution of IT strategy execution(PMSE) construct, the loading factor range from 0.78 to 0.69 with average loading for the factor 0.75, this factor explains 56.91% of total variance, and the factor has eigenvalue greater than 1.   The factor analysis demonstrate an obvious discriminate validity because all items are loaded on one factor, and Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy was 0.821 which shows that the sample is enough to achieve this test, reliability was calculated based on Cronbach's alpha, the measure was 0.808 which demonstrate a reasonable reliability for IT strategy execution.

Optimizing Resource Allocation across Projects (PMOS)

The factor analysis demonstrate a obvious discriminate validity because all accepted items are loaded on one factor, and Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy was 0.870 which show that the sample is enough to achieve this test, reliability was calculated based on Cronbach's alpha, the measure was 0.820 which demonstrate a reasonable reliability for PMOS.

Projectification of IT strategy (PMPS)

The factor analysis demonstrate a obvious discriminate validity because all items are loaded on one factor, and Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy was 0.779 which show that the sample is enough to achieve this test, reliability was calculated based on Cronbach's alpha, the measure was 0.802 which demonstrate a reasonable reliability for projectification of business strategy.

Risk Balance (PMRB)
The factor analysis demonstrate an obvious discriminate validity because all items are loaded on one factor, and Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy was 0.874 which show that the sample is enough to achieve this test, reliability was calculated based on Cronbach's alpha, the measure was 0.838 which demonstrate a reasonable reliability for risk balance.

Partial Least Squares (PLS) Product Indicator Approach For Measuring Interaction
The capability to find and precisely estimate the strength of interaction effects are significant concerns that are essential to social science research generally and for IS research in particular (Chin, W. et al., 1996). In IS discipline, a large number of research has been dedicated to investigate the conditions and contexts under which relationships may vary, often under the general umbrella of contingency theory (McKeen, Guimaraes, & and Wetherbe, 1994). To solve difficulties that face traditional methods such effects of measurement error, researcher in this study use product indicator approach in conjunction with Partial Least Squares (PLS). The predictor, moderator, and dependent variables used with traditional methods, viewed with the PLS method as latent variables (i.e., constructs) which cannot be measured directly. In PLS product each set of indicators reflecting their underlying construct (i.e., latent variable) then submitted to PLS for estimation resulting in a more accurate assessment of the underlying latent variables and their relationships. According to (Chin W. and Gopal A., 1995) The PLS procedure become a well-known and use among IS researchers in recent years because of its ability to model latent constructs under conditions of non-normality and small to medium sample sizes.. The researcher use in the analysis a tool called SmartPLS 2.0 project which is located at the school of business at the University of Hamburg in Germany. SmartPLS 2.0 can be used in business research for the creation of path model and the measurement using partial least square approach. SmartPLS 2.0 redesigned to use java Eclipse platform technology. SmartPLS allows creating and measuring a path model and evaluating the results. As indicated by Ringle, & Wende, (2005) there is also additional functionalities can easily add them to the SmartPLS 2.0 java Eclipse Plug-ins (. All results of SmartPLS 2.0 that made to this research are shown in figure3.
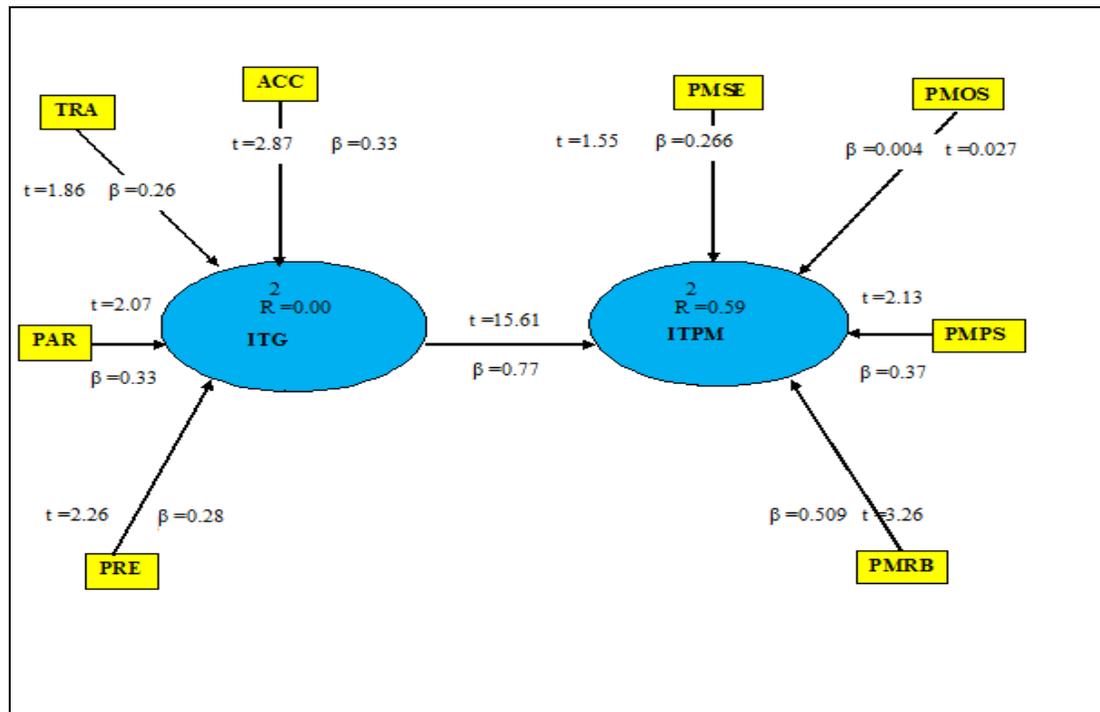

Figure 3   Results of PLS Analysis

Hypothesis testing
A number of techniques used to assess the hypotheses of the model. The first method is the overall coefficient of determination (R square value) which is An indicator to measure the degree that the model fits the data, if the value of *R-square* close to 1.0, this indicates that the model accounted for almost all of the variability with the variables determined in the model. And if the R-Squared is 0.0, this means that one term doesn't assist you to know the other term. The second technique is using standardized estimation coefficients (beta). Standardized regression coefficients (beta coefficients, beta weights) are usually used in quantitative social sciences. They are used for many purposes: selecting variables, determining the relative importance of explanatory variables, comparing the effect of changing different variables, and so forth (Johan, .B , 1994). When the value of beta closes to zero, it means that the relationship is weak, but when the value of beta increased, this means the relationship is strong.

Analysis of Measurement Model1 (Result of ITG construct)
There were Four hypotheses introduced regarding to this construct. Each hypotheses has a number of independent parameters as follows:accountability,transparency, participation and prediction. These parameters were hypothesized to have relationships with dependent variables IT Governance. The associations were tested and the results were shown in table 1.

Table 1 Test Statistics and the Result of Hypothesis H1,H2,H3,H4

Regression Path	Test statistics		Results
	Standardized Beta	t-test	
ACC ⟶ ITG	0.33	2.87	Accepted
TRA ⟶ ITG	0.26	1.86	Accepted
PAR ⟶ITG	**0.33**	**2.07**	Accepted
PRE ⟶ITG	0.28	2.26	Accepted

Analysis of Measurement Model2 (Result of ITPM construct)
There were Four hypotheses introduced regarding to this construct. Each hypotheses has a number of independent parameters as follows: Technique To Execute Organization Strategy (PMSE), Optimizing Resource Allocation across Projects (PMOS), Projectification of Business Strategy(PMPS),and Risk Balance (PMRB). .These parameters were hypothesized to have relationships with dependent variable IT Portfolio Management. The associations were tested and the results were shown in table2.

Table 2 Test Statistics and the Result of Hypothesis H5,H6,H7,H8

Hypothes	Regression Path	Test statistics		Results
		Standardized Beta	t-test	
Hypothesis 5	ITPM ⟶PMSE	**0.27**	**1.55**	Not Accepted
Hypothesis 6	ITPM ⟶PMOS	**0.004**	**0.027**	Not Accepted
Hypothesis 7	ITPM ⟶PMPS	0.37	2.13	Accepted
Hypothesis 8	ITPM ⟶PMRB	0.51	3.26	Accepted

Structural Model
The proposed hypotheses were tested with PLS. The results of the analysis are shown in Figure 3 and summarized in Table 4.

IT Portfolio Management and its relation with IT Governance

There is a significant relation between ITG and ITPM
H9: ITG and ITPM: ITPM = £ (ITG)   ITPM=β ITG + ε

Table 3 Test Statistics and the Result of Hypothesis H9

Regression Path	Test statistics		
	Standardized Beta	t-test	Results
ITG ⟶ ITPM	0.77	15.61	Accepted

Analysis was made by using SmartPLS, according to this ITPM was positively associated with ITG.The results were obtained, beta was found to equal 0.77 which indicates the existence of positive significant relationship between

ITG as an independent variables and ITPM as a dependent variables, and the t-value of the hypothesized model was significant with a value of 15.61. This indicated that IT Governance enhance IT Portfolio Management which matches with the opinions of many of authors such as Bonham (2004), Datz, (2003) and Cameron (2006), Who considered IT Governance as a good variable for enhancing IT Portfolio Management.   The coefficient of determination (R Square) of the ITPM was equal to 0.59, which means that 59% of the total variance in the ITPM was accounted for the IT Governance.

Table 4　Results of Hypothesis Testing	
Hypotheses	**Results**
H1 : There is a significant relation between ITG and Accountability	Supported
H2: There is a significant relation between ITG and Transparency.	Supported
H3: There is a significant relation between ITG and Participation.	Supported
H4: There is a significant relation between ITG and Predictability.	Supported
H5: There is a significant relation between ITPM and PMSE.	Not Supported
H6: There is a significant relation between ITPM and PMOS.	Not Supported
H7: There is a significant relation between ITPM and PMPS.	Supported
H8: There is a significant relation between ITPM and PMRB.	Supported
H9 There is a positive Relation between ITG and ITPM	Supported

Business organizations in Saudi private sector should realize the importance of IT governance and its pillars accountability, transparency, participation and predictability in enhancing IT Portfolio Management. Also organizations should realize the pillars of ITPM . We hope that our findings will be useful to others and urge them to support next researches in the IT Governance field, and its role in enhancing the Information Technology Portfolio Management.

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