

2006

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Recommended Citation

Ali, Syaiful and Green, Peter, "Effective Information Technology Governance Mechanisms in Public Sectors: An Australian Case" (2006). *PACIS 2006 Proceedings*. 99.

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Effective Information Technology Governance Mechanisms in Public Sectors: An Australian Case

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Abstract

The growing importance of information technology (IT) as a strategic factor for organisations in achieving their objectives, have raised the concern of organisations in establishing and implementing effective IT governance. The phenomenon is not only happened in private sectors but also in public sectors. This study attempts to examine empirically the individual IT governance mechanisms that influence the overall effectiveness of IT governance in public sectors.

Obtaining the sample data by using web based survey from 54 members of ISACA (Information Systems and Audit Control Association) currently working in Australian public sector organizations; this study examined the influences of four proposed IT governance mechanisms on the overall effectiveness of IT governance. Using Factor analysis and multiple regression techniques, this study found significant positive relationships between the overall level of effective IT governance and the following two IT governance mechanisms: the existence of an IT strategy committee and corporate (organization) communication systems.

Key words: IT governance, Mechanisms, Public Sectors, Australia.

1. Introduction

During the last decade, information technology (IT) has been playing more important roles for organizations in achieving their goals. Both private and public sectors organizations have been experiencing higher expenditure on IT and consequently higher benefits are expected by their stakeholders (Ward and Peppard, 2002; Gormolski et al., 2001). Thus, it is crucial for organizations to establish good governance in IT to obtain more effective use of IT.

To implement IT governance effectively, a set of IT governance mechanisms is required (e.g., IT steering committee, IT organisational structure) that encourages behaviors congruent with the organisation's mission, strategy, values, norms and culture (Vaswani,

2003; Weill, 2004). It is important to understand mechanisms for establishing and implementing effective IT governance.

Many literatures have examined the practices of IT governance mechanisms in private sectors (Ali and Green, 2005; Vaswani, 2003; Well and Ross, 2004). Public sectors organizations have long recognized the importance of effective IT governance to the success of organizations (Vinten, G., 2002). However, little study has been conducted in examining what mechanisms contributed to establish effective IT governance within public sector organizations. Thus, objective of this study is to identify factors required to establish and implement effective IT governance within public sector organizations.

2. Background

According to the IT Governance Institute (2003a), IT governance is defined as: “A structure of relationships and processes to control the enterprise in order to achieve the enterprise’s goals by adding value while balancing risk versus return over IT and its processes.” Despite the increasing importance of IT governance, evidence shows that many organisations have failed in their quest to obtain benefits from IT. Unsuccessful project development (e.g., being over budget and under specification), loss of competitiveness, and even organisational demise (Schwartz, 2004; Woodhead, 2004) have been attributed to lack of governance in IT.

In the Australian public sectors, IT plays an important part in determining the quality and accessibility of services it deliver. For example, the trend toward e-government has put IT as a critical role for supporting government agencies in providing more comprehensive and integrated government operations and service delivery (MAC, 2002). According to Management Advisory Committee, the Commonwealth Government of Australia spends around \$3.5 billion annually on IT. Given the fact, effective use of IT is crucial in enabling the organizations to optimize outcomes from the investment and efficient and effective IT operations.

Many researchers and practitioners have conducted intensive studies into the IT governance domain. Due to limited literatures available in public sectors, this study used much literature from private sector. Several literatures in IT governance acknowledge that, in order to implement IT governance effectively, a holistic approach needs to be adopted (e.g., Weill, 2004). IT governance is complex and dynamic in nature; it consists of a set of interdependent subsystems (a mix of structures, processes and relational mechanisms) that work together as a whole (Duffy, 2002; Patel, 2004; Peterson, 2004; Sambamurthy & Zmud, 1999; Weill & Ross, 2004; Haes & Grembergen, 2005). This study, however, is limited to examining only the individual mechanisms.

To achieve effective IT governance, an organization needs to employ well-designed, well-understood, and transparent governance mechanisms (Weill and Ross, 2004). However, good governance arrangements will fail to yield the expected results if mechanisms to support it are implemented inadequately. Weill and Ross (2004), surveyed CIOs of 256 firms from 23 countries, and identified fifteen of the most common IT governance mechanisms. Weill and Ross (2004) categorised these into three broad types in general:

decision-making structures, alignment processes, and communication approaches.

Previous studies examining the effectiveness of IT governance mechanisms have produced interesting results (Vaswani, 2003; Well and Ross, 2004). Vaswani (2003), whose respondents were 80 auditors in Queensland, Australia, found that certain individual mechanisms, such as an IT steering committee, involvement of senior management and corporate performance measurement systems, were correlated positively with the overall level of IT governance effectiveness. Very recently, Weill and Ross (2004) surveyed CIOs from 256 enterprises in the US and identified fifteen of the most common IT governance mechanisms, such as a senior management committee, an IT executive committee, an architecture committee, etc.

Haes and Grembergen (2005) ran a case study in a major Belgian financial firm, examining how the mechanisms, processes and structures of IT governance contributed to the implementation of IT governance. The case study revealed that the firm used governance mechanisms effectively; for example, an executive committee composed of business and IT people, service-level agreements (SLAs), and charge-back systems were used to regulate IT resources.

Sohal and Fitzpatrick (2002) observed the IT governance mechanisms used by Australian organisations, including the existence of an IT steering committee, centralisation of IT decision-making activities and the involvement of senior management in IT. However these studies did not try to test the mechanisms empirically in public sector context. In contrast, the present study seeks to provide empirical evidence of the correlation of some of these individual governance mechanisms with the overall level of IT governance effectiveness within public sector organizations.

3. Research Model and Hypotheses Development

This study proposes to investigate the research model shown in Figure 1.
$$EFFECT = \alpha + \beta_1 STRATCOM + \beta_2 STEERCOM + \beta_3 CORPSYS + \beta_4 COMSYS + \varepsilon$$

Where:

EFFECT: Perceived overall effectiveness of IT governance

STRATCOM: IT strategy committee

STEERCOM: IT steering committee

CORPSYS: Corporate performance measurement systems

COMSYS: Corporate communication systems

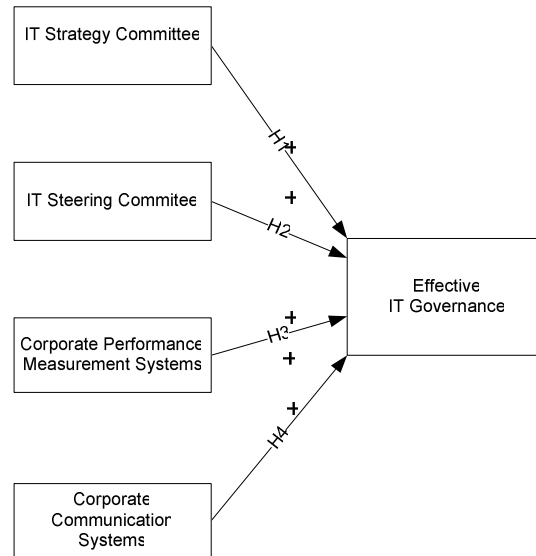


Figure 1. Research Model

3.1 IT Strategy Committee

As IT becomes a critical element of business strategies or core operating processes, there is a need for greater involvement of the board of directors in establishing effective governance of IT. A board can pursue these responsibilities by establishing a committee called the IT strategy committee (IT Governance Institute, 2003a). In this study, an IT strategy committee means a sub committee of board members with responsibility to provide insight and advice to the board on topics such as the alignment of IT with the business direction and the achievement of strategic IT objectives; and also to provide direction to management relating to the IT strategy (IT Governance Institute, 2003). In the context of Australian public sector, Management Advisory Committee has recognized the importance of IT strategy committee by suggested to Australian Government to establish the Information Management Strategy Committee (IMSC). The committee will provide leadership and advice to the Australian Public Service (APS) on IT strategic and governance issues (MAC, 2002).

The involvement of boards in IT governance implies that the organisation is committed to establishing effective IT governance. The commitment of the IT strategy committee to IT governance is very important. Commitment is indicated by the provision of sufficient resources for meeting IT strategic objectives (Barlow, 1990; Premkumar and King, 1994), providing direction to management related to IT strategy and its approval (IT Governance Institute, 2003a). Thus:

H1: The existence of an IT strategy committee will positively influence the effectiveness of IT governance.

3.2 IT Steering Committee

The IT steering committee, as a mechanism for supporting information systems planning and management, has been widely supported in the systems literature. In this study an IT

steering committee means a high-level executive management team of representatives from multiple divisions or functions that are assigned the task of linking IT strategy with business strategy by setting strategic directions, matching corporate concerns with technology potential, and building commitment (IT Governance Institute, 2003). The committee serves as a high-level executive team, comprised of representatives from various divisions or functions within the organisation (such as business executives and the CIO), with the main function of linking its IT strategy and business strategy (Nolan, 1982; IT governance Institute, 2003a). In the context of Australian public sector, Management Advisory Committee has recognized the importance of IT steering committee by suggested to Australian Government to establish the CIO Committee. The committee will “identify strategic issues, address issues referred by IMSC and develop option for adoption and implementation of IT at agency or whole-of-government level.” (MAC, 2002, pp.17).

Previous studies have empirically supported the benefits of the existence of an IT steering committee in IS planning and management (Doll, 1985; Steiner, 1979; Raguathan and Raguathan, 1989). Several earlier IS studies provide further empirical evidence of the importance of an IT steering committee. For example, a study by Karimi et al. (2000) found that an IT steering committee had a positive impact on the sophistication of IT management, and it was shown to have made improvements to IS project portfolios (McKeen and Guimaraes, 1985). A more recent study by Vaswani (2003), using 80 auditors in Australia, revealed that an IT steering committee has a positive correlation with the level of effectiveness of overall IT governance. Thus:

H2: The existence of an IT steering committee will positively influence the effectiveness of IT governance

3.3 Corporate Performance Measurement Systems

One of the IT strategy committee’s duties is to supervise the implementation of its strategic agenda. To achieve this outcome, effective performance measurement mechanisms, such as an IT balanced scorecard, project tracking systems, and IT charge back systems, are necessary. Such a system enables the management and the board to detect and correct any deviations and alter the strategy when necessary (IT Governance Institute, 2003a). In line with this argument, Hardy (2002) contends that the use of a performance management system is an integral part in applying effective IT governance. The measurement, which incorporates a set of metrics, provides management with a regular and precise analysis of how IT is performing the current operations and the latest projects. Thus:

H3: The implementation of a corporate performance measurement system will positively influence the effectiveness of IT governance

3.4 Corporate Communication Systems

The role of communication systems in the effective governance and management of IT has been examined extensively. Effective IT governance requires close relationships between the business and IT so that there will be better understanding between both areas, thus creating good participation and collaboration in the organisation (Henderson,

Venkatraman and Oldach, 1993; Broadbent, 1998; Luftman and Brier, 1999; Luftman, 2000; Reich and Benbasat, 2000; Callahan and Keyes, 2004). Good communication systems will enable the two parties (business and IT) to increase each other's awareness of the importance of the other's perspective in obtaining benefits from IT (De Haes and Grembergen, 2005).

Communication mechanisms are also important for effective IT governance, as their purposes are to inform the organisation as a whole about IT governance processes and decisions, and to encourage desirable behaviours in the organisation (Weill and Ross, 2004). Furthermore, Weill and Ross (2004) reveal that some forms of communication mechanisms such as senior management announcements, and web-based portals contribute significantly to effective IT governance.

Weill and Ross (2004) also reveal that the more that management communicate formally about the existence of IT governance mechanisms, how they work, and what outcomes are expected, the more effective are their governance processes. In the public sector organization, a qualitative study conducted by Gil-Garcia et al., 2005 shown that information integration was deemed one of the most important ways to change the structure and function of public organizations. However, the study was based primarily on case studies that have a limitation in terms of external validity. By contrast, this study differs from the previous studies in that it provides empirical evidence of communication mechanisms based on an extensive questionnaire survey. Accordingly,

H4: The implementation of a corporate communication system will positively influence the effectiveness of IT governance

4. Research Methodology

All the variables (dependent and independent variables) were measured using seven-point Likert scales. The complete results of factor analysis are exhibited in Appendix B.

4.1 Dependent variables

Perceived overall level of effective IT governance (EFFECT) was measured using two items that were validated by Vaswani (2003). The two items were originally developed and validated in Goodhue and Thompson (1995) (see Appendix A).

4.2 Independent Variables

To measure *IT Strategy Committee* (STRACOM), three questions adapted from the IT Governance Institute (2003a) were used (see Appendix A).

IT Steering Committee (STEERCOM) was measured using three items that were validated by Vaswani (2003). All three items were originally developed and validated based on a study conducted by Karimi et al. (2000) (see Appendix A).

Corporate performance measurement system (CORPSYS) was measured using three items that were validated by Vaswani (2003). All three items were originally developed and validated based on a study conducted by Chan and Ho (2000) (see Appendix A).

Corporate communication systems (CORPSYS) was measured using three items adapted from Weill and Ross (2004) (see Appendix A).

4.3 Reliability of the measures

Based on the data from pilot testing of the survey instrument, Table 2 below shows that the reliability estimates (Cronbach's alpha) of the measures of the planned variables are well above acceptable thresholds.

Table 2: Variable Characteristics

Variables	Reliability*
Overall effectiveness of IT governance	0.9400
IT strategy committee	0.9611
IT steering committee	0.8913
Corporate performance measurement system	0.9380
Corporate communication systems	0.9739

* Reliability measure is Cronbach's Alpha

5. Result and Discussion

5.1 Response Rate

Email invitations to participate in the survey were sent out to 1116 members of ISACA throughout Australia (to the Brisbane, New South Wales, Canberra, Melbourne, Adelaide and Perth Chapters). The total of completed and usable responses was 176. Out of 176 there are 54 responses from participants currently working in public sector organizations (Table 3).

Table 3: Sample Characteristics

	Frequency	Percentage
A. Audit background (n=54)		
Internal auditor	41	75.9%
External auditor	13	24.1%
B. IS Auditor	35	64.8%

C.	Qualified CISA (certified information systems auditor)	21	47.7%
Experience and Familiarity*		Mean	Std. Dev.
D.	Audit experience (years)	10.5	7.95
E.	IS Audit experience (years)	8.6	6.08
F.	Familiarity with IT Governance	5.85	1.12

* On a 7-point Likert scale: (1= Not at All; 7= a Great Extent)

5.2 Results

Table 4 presents the mean and standard deviation for variables included in the multiple regression analysis.

Table 4: Descriptive Statistics: Multiple Regressions

Variable	Mean	Std. Deviation
STRACOM	3.4136	2.46394
STERCOM	3.7407	2.06464
CORPSYS	3.2778	1.71410
COMSYS	4.1790	1.62361
EFFECT	4.1204	1.53246

Table 5: Model Summary of Multiple Regressions

Model	R Square	Adjusted Square	R F-statistics	Sig. F	Durbin-Watson
1	0.727	0.705	32.629	0.000	2.214

Predictors: (Constant), COMSYS, STRACOM, STERCOM, CORPSYS

Dependent Variable: EFFECT

Table 5 presents the results of multiple regressions analysis. The table indicates that all independent variables explain 70.5% of the variance in the overall effectiveness of IT governance. This value is highly significant as indicated by the F-value and the significance (F-statistics = 32.629, p=000).

Table 6 presents the results of the multiple regression analysis that reveals the significance of the hypotheses. IT strategy committee had a significant and positive effect on the effectiveness of IT governance ($\rho=0.35$), that suggests support for Hypothesis 1—the existence of IT strategy committees positively influences the effectiveness of IT governance. This empirical finding partially supports the normative literature proposed by the IT Governance Institute (2003a). As those at board level get involved in the governance of IT through an IT strategy committee, they can provide influential advice to the board and management on recent and future IT-related issues and their alignment with organization goals.

Table 6: Results of Regression

Variable	Unstandardised		Standardised		
	Coefficients	Std. Error	Beta	t-statistic	Sig. (2-tailed)
(Constant)	0.591	0.346		1.708	0.094
STRACOM	0.125	0.057	0.200	2.171	0.035*

STERCOM	-0.018	0.071	-0.024	-0.259	0.804
CORPSYS	0.015	0.082	0.017	0.188	0.852
COMSYS	0.747	0.082	0.791	9.055	0.000**

* Significant at the 0.05 level

** Significant at the 0.01 level

In contrast with Hypothesis 1 (IT strategy committee), Hypothesis 2 (IT steering committee) was not supported by the data ($\rho=0.804$). Surprisingly, the result reveals that this significance was negative, which is inconsistent with previous studies (Vaswani, 2003; Karimi, 2000), which found the IT steering committee positively influenced the level of effective IT governance. A possible explanation of this finding could be the way in which the related survey items were worded, so that the respondents had mixed perceptions or saw an ambiguity with hypotheses 1 (IT Strategy Committee). Another possible explanation is that, for these organizations, other mechanisms such as IT strategy committee as more effective in influencing the overall level of effective IT governance.

Interestingly, the results provide no support for Hypothesis 3 that proposes corporate performance systems positively influence the effectiveness of IT governance. The results reveals that the variable has a positive and non-significant result ($\rho=0.852$). The result is inconsistent with previous study by

Vaswani (2003), which found a positive correlation between this variable and the overall effectiveness of IT governance. The possible explanation of this finding is that the respondents to this study had mixed perceptions of the type of corporate performance measurement systems in use. The previous study by Vaswani (2003) used only the balanced IT scorecard as a proxy for corporate performance measurement systems whereas the present study used other measurement systems (including the balanced IT scorecard) such as project tracking systems and IT charge-back systems (e.g., Weill and Ross, 2004). Another possible explanation may be that the concept of the balanced IT scorecard is relatively new and merely supported by the theoretical approaches of Van Grembergen and Van Bruggen (1997) and Van Der Zee and De Jong (1999). There were not many organisations that really practise the IT balanced scorecard performance measurement system.

The corporate communication systems were found to have a positive and significant effect ($p < 0.001$), supporting hypothesis 4 that the existence of corporate communication mechanisms relate positively to the overall effective level of IT governance. Corporate communication systems contribute the most influence ($\beta = 0.791$) toward the overall effectiveness of IT governance. Possible explanation of the result is because organizations used in the sample are relatively large bureaucratic organisations. There is usually not a problem in setting up committees or having policies, but getting the information in the face of employees so that they are aware and therefore can comply, must be a huge problem. Despite many studies revealing similar findings (Henderson, Venkatraman and Oldach, 1993; Broadbent and Weill, 1998; Luftman and Brier, 1999; Luftman, 2000; Reich and Benbasat, 2000; Callahan and Keyes, 2004) this finding provides the first empirical evidence based on an extensive survey in the context of the importance of corporate communication systems to IT governance.

6. Summary, Contribution, Limitation and Future Study

6.1 Summary

This study advances our understanding of the roles of IT governance mechanisms and their impact on the overall effectiveness of IT governance. In particular, this study found empirical evidence that the existence of IT strategy committee and the corporate (organization) communication systems support greatly enhances the overall effectiveness of IT governance.

6.2 Contributions

The study's findings contribute to both theoretical and practical aspects of IT governance. In terms of theoretical contributions, this study examined other additional individual IT governance mechanisms (IT strategy committee, and corporate communication systems) and their influences on the overall effectiveness of IT governance in the public sector organizations. The findings of this study provide empirical results on the IT governance mechanisms that have been previously studied mainly by normative and case study approaches (IT Government Institute, 2003; Weill and Ross, 2004).

While in practical contributions, there are some practical conclusions from the study findings that can be applied in establishing and implementing IT governance effectively. The findings suggest that the most influential mechanisms for increasing the overall effectiveness of IT governance is the support of corporate (organization) communication systems, such as a web portal, in disseminating information related to IT governance activities. Other mechanism also proved to make a marginal impact on the overall effectiveness of IT governance, i.e., IT strategy committee.

6.3 Limitations and Recommendations for Future Study

This study has some limitations that should be considered when interpreting its findings. The limitations also serve as references for performing future research.

First, due to the relatively small sample used in this study and limited to Australian public sector organizations, the study's results may have limited generalizability thus caution should be applied in interpreting the results.

Second, more reliable measures of the overall effectiveness of IT governance in an organisation also need to be developed, since subjective and indirect measures (based on auditor's perceptions) do not provide the same strength as direct objective measures would. However, this limitation was deemed unavoidable, as the type of research methodology used was a questionnaire approach, in the absence of objective measures.

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APPENDIX A

Variable, Questions and Source of Constructs in the Study

Variable	Questions	Source
Perceived overall effective IT governance	<ul style="list-style-type: none"> ■ To what extent do you agree with the following: The current individual IT governance mechanisms within my organization's IT environment has a large, positive impact on the overall level of effective IT governance within the organization. ■ To what extent do you agree with the following: The current individual IT governance mechanisms within my organization are an important and valuable aid to implementing overall effective IT governance within the organization 	Goodhue and Thompson (1995); Vaswani (2003).
IT strategy committee	<p>To what extent does IT strategy committee provide strategic direction and the alignment of IT and the business issue?</p> <ul style="list-style-type: none"> ■ To what extent does IT strategy committee provide direction for sourcing and use of IT resources, skills and infrastructure to meet the strategic objectives? ■ To what extent does IT strategy committee provides direction to management relative to IT strategy? 	Hardy, (2003); IT Governance Institute, (2003a)
IT steering committee	<ul style="list-style-type: none"> ■ To what extent does IT steering committee provide strategic direction to IT project that are in line with the strategic directions of the organisation? ■ To what extent does the IT steering committee provide a mechanism for coordinating IT practices? ■ To what extent does the IT steering committee provide leadership in deriving benefits from IT? ■ To what extent does the IT steering committee provide leadership in managing IT? 	Karimi, Bhattacharjee, Gupta, and Somers (2000); Vaswani, (2003).
Corporate performance measurement system	<ul style="list-style-type: none"> ■ To what extent does your organization's corporate performance measurement system measure the degree to which the organization's IT strategy supports the business strategy? ■ To what extent does your organization's corporate performance measurement system produce a concise model to assist managers in tracking the organization's progress? ■ To what extent does your organization's corporate performance measurement system provide management with control measures on IT expenses? 	Chan and Ho, (2000); and Vaswani, (2003).
Corporate Communication Systems	<ul style="list-style-type: none"> ■ My organisation (client organisation) communication's systems enables the organisation to inform its employees effectively about the existence of IT governance mechanisms. ■ The communication systems enables the organisation to inform its employees about IT governance decisions and processes throughout the organisation. ■ The communication systems provides support in educating organisation's members in IT 	Weill and Ross (2004)

governance processes in the organisation.

APPENDIX B.
FACTOR ANALYSIS

Factor analysis was performed to identify the structure of a set of variables in the survey data. In a similar manner to that of previous studies (Karimi, 2000; Vaswani, 2003; Coakes and Steed, 2003; Clarkson et al., 2003), two separate factor analyses were conducted with an independent factor, and a dependent factor--effectiveness of IT governance.

1. Data examination

Prior to factor analysis, the data should satisfy some statistical assumptions such as absence of outliers, normality, homoscedasticity, and linearity. Results from the related test shown that the data satisfied those statistical assumptions.

2. Results of Factor Analysis

2.1 Independent Variables

Hair et al (1998) suggests that factor analysis is not appropriate if the observations are fewer than 50, with 100 or more observation deemed preferable. Given the sample size of this study is 54 cases, it was deemed appropriate to apply factor analysis.

In addition, for a matrix to be factorable, it should have several sizeable correlations greater than 0.30 (Tabachnick and Fidell, 1996; Coakes and Steed, 2003). An inspection of the Pearson correlation matrix indicates that more than 90% of the correlations exceed 0.30, thus the matrix is suitable for factoring. The appropriateness of using factor analysis is further substantiated by Bartlett's test of Sphericity and the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy. The Bartlett's test of Sphericity is significant at $p < 0.001$ and the KMO measure of sampling (0.794) is greater than 0.6 (Coakes and Steed, 2003).

Table 1. KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.794
	Approx. Chi-Square	585.730
Bartlett's Test of Sphericity	df	91
	Sig.	0.000

An examination of the Scree test was undertaken as way to determine the number of factors to extract (Catell, 1966). Inspection of the Scree plot indicated that it would be more appropriate to extract four factors. This decision is supported by Gorsuch (1983) who contends "results from scree test are more obvious (and reliable) when sample size is large, communality values are high, and each factor has several variables with high loadings." Accordingly, the factor analysis was re-run, specifying that four factors were to be extracted. The result of the four-factor extraction explained 87.89% of the total variance.

Table 2. Total Variance Explained

Total Variance Explained							
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings(a)
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	7.558	53.982	53.982	7.558	53.982	53.982	5.751
2	2.524	18.029	72.012	2.524	18.029	72.012	4.265
3	1.282	9.154	81.165	1.282	9.154	81.165	5.529
4	.942	6.727	87.893	.942	6.727	87.893	4.881
5	.410	2.930	90.823				
6	.309	2.206	93.029				
7	.239	1.708	94.737				
8	.195	1.394	96.131				
9	.171	1.224	97.354				
10	.136	.971	98.325				
11	9.384E-02	.670	98.995				
12	5.989E-02	.428	99.423				

After the number of reliable factors became evident, the four factors were re-run once more using the Principal Component technique and rotated with an oblique rotation (i.e., Oblimin method). An oblique rotation was used because the underlying factors were believed to be correlated to a certain degree. The results indicates that requirements for construct validity (i.e., convergent and discriminant validity) have been satisfied, given that all items have a factor loading in excess of 0.6, and less than 0.3 loading on all other constructs.

The factor structure was labeled subjectively, by inference from the nature of the grouped items. The first factor contains all three items relating to IT Strategy Committee is labeled STRACOM. The second factor contains all three items relating to IT steering committees and is labeled STREERCOM. The third factor contains all three items relating to corporate performance measurement systems and is labeled CORPSYS. The remaining three items relating to corporate communication systems and is labeled COMSYS

2.2 Dependent Variable (EFFECT)

The separate factor analysis performed on the items relating to the dependent variable

(perceived overall effectiveness of IT governance) indicates only one factor, which is then labeled as EFFECT.

Table 4. Factor Matrix-Dependent variable

Variables	Component
	1
EFFECT1	0.971
EFFECT2	0.971