

Influential Factors for COBIT Adoption Intention : An Empirical Analysis

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ABSTRACT

In recent years, IT organizations are in the process of introducing IT Governance as the concept and measure of transparency, accountability and effectiveness of IT activities and control for managing governance processes. In this paper, the influential factors for IT organizations to adopt COBIT(The Control Objectives for Information and related Technology) which is a typical framework for effective IT Governance execution were classified and analyzed empirically into internal and external factors. Internal factors were designed based on influential factors in the theory of innovation diffusion, and external factors were designed based on influential factors from outside certification which were absent in COBIT and expertise support from the outside. The result of this study showed that understandability, transition and effectiveness which were internal factors had no effect on COBIT introduction, and only expertise support among certification and expertise support which were external factors had significant effects. This result shows that there are lack of COBIT supports and introduction in internal IT organizations. It is expected that the result of this study will allow strategic approach of COBIT adoption in future by verifying influential factors of COBIT introduction within IT organizations.

Keywords: Cobit, IT Governance, Adoption, Framework, Diffusion of innovations

1. INTRODUCTION

1.1 Research background and purpose of the study

In recent years, IT organizations are seeking for measures to control processes effectively from the functionality standpoint. As a result, IT corporations or organizations are currently in the process of introducing IT Governance as the concept of administration and control beyond its control function.

The typical framework for the establishment of IT Governance is COBIT (The Control Objectives for Information and related Technology). COBIT contains more specific details for IT Governance while accepting definitions or concepts adopted by ITIL or other standards including CMMi, COSO, PMBOK and ISO 17799, and it has been extended or evolved continuously in the order from COBIT 1.0 to audit, control,

administration and Governance with the changes of the times.

According to the survey report of 2008 IT Governance status [34] published by PWC, it shows that corporations or organizations which utilize IT Governance use well-known frameworks or solutions. 50% of respondents know COBIT, yet only 30% of respondents actually use COBIT into their works, revealing that introducing COBIT and its applicability of organizations for IT Governance establishment is still at early stage. Based on the survey analysis of differences in the awareness of COBIT importance and performance in IT Governance, the importance of COBIT has received almost doubled from 27% in 2005 to 51% in 2007, but the ratio of actual COBIT adoption and performance or usage has increased only 3% from 29% in 2005 to 32% in 2007 [34].

Based on these survey findings, our research question can be raised as why COBIT importance for IT Governance execution has almost doubled, while actual performance is lower than other IT management framework as ITIL and ISO2000. Under

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this research question, the objective of this research study intends to provide various meaningful implications on the influential factors of COBIT adoption and introduction by determining and empirically verifying the influential factors of IT corporations to adopt COBIT for establishing IT Governance.

1.2 Scope of the study and organization of thesis

Our research work is presenting and answering to the following question to achieve the purpose of this study conforms to the scope of this study.

Question: What are the influential factors for organizations to adopt COBIT framework for establishing IT Governance?

This study further intends to determine influential factors and draw corresponding implications and improvement tasks for revitalization of COBIT introduction.

The background, purpose, scope and composition of the study are provided in the introduction, and IT Governance and framework which are the theoretical background of this study, COBIT, theory of innovation diffusion, certification utility, and precedent studies on expertise support are examined in the following section. Our research design of study variables, methods of data collection and the demographics of sample is explained as the methods of the study followed by the result of examining influential factors for COBIT introduction is analyzed. Finally, the result and its implications, limitations of this study, and future plans of study are described in the last section as the conclusion.

2. LITERATURE REVIEW AND RESEARCH HYPOTHESIS DEVELOPMENT

2.1 IT Governance

IT Governance has been recently emerged as one of important agendas for general corporations as well as public organizations. ITGI[13] established in 1998 defines that IT Governance is "maintaining responsibility of management and the board of directors, strategies and purposes of the organization with use of IT", and it is composed of leadership or organizational structure, and process [13]. This means that the structure including the organization, process and decision making structure to support strategies and purposes of the organization should be prepared. There are various definitions for IT Governance, yet ITGI's definition of IT Governance is mentioned here because it is the organization which is not attached to any vendor and conducts studies relatively on objective point of view.

In common, IT Governance is decision making system and activities of board of directors, management and IT managers for achieving strategies and target of a corporation, transparency in IT investment, IT service, application development and IT risk management, increase and effective management of productivity through strategic connection between business and IT as a part of corporate governance structure [16].

2.2 IT Governance Framework

Typical framework and its characteristics introduced for IT Governance establishment were analyzed through literature and precedent studies as follows in PWC report on IT Governance previously analyzed.

Typical frameworks for IT Governance process control are COBIT as well as ISO9001-2000(Quality and process improvement), ISO2000-ITSM(IT Service Management Standard), COSO(Committee of Sponsoring organizations of the Treadway Commission), ITSM/ITIL(IT Infrastructure Library), PMBOL(Project Management Book of Knowledge)m CMMi(Capability Maturity Model Integrated), SPICE, PRINCE2(Project in Controlled Environments) [8].

The purpose of ISO9000 quality management system is to lead suppliers to design, produce and deliver products and services satisfying regulated requirements [19].

ISO/IEC 20000 certification standard clarifies the requirements of IT service management system, and it is used to assure IT division of a corporation or an outside corporation which provides IT service to provide world-class service to inside and outside customers [45].

CMMi is not just created by physically integrating various CMM models, but reestablished by unifying all terms used differently in various models and verifying the relationship between fields of process included in each model [25].

SPICE presents the level of performance per each process and concrete future direction, while CMM and others only present single maturity level of the whole organization.

ITIL provides common framework for all activities of IT division which provides service based on IT infrastructure. These activities are divided into various processes and formed an effective framework so that using all together will mature IT service management more [11].

2.3 COBIT

Control defined in COSO report [3] means policy, procedure, business practice and organizational structure established to assure that the business target can be achieved and occurrence of any unwanted accident can be prevented, exposed and changed. SAC report [37] defines the purpose of IT control as the technical description for the result or purpose expected to achieve by establishing control procedure for a specific IT activity. COBIT was developed in the standard which can be generally applicable and acceptable for exemplary task execution method in IT security and control section. COBIT is a new and innovative IT management tool, and Information Systems Audit and Control Foundation: ISACF accepted and improved existing and new technological, technical, and judicial standards and standards of specific industries based on previously retaining standard of Control Objective to create this tool. The term of "generally applicable and acceptable" is used in the same context with the term GAAP(Generally Accepted Accounting Principles) which is used in the accounting section. "Exemplary task execution method" presented in COBIT means the exemplary task execution method agreed by all experts, and the optimization of IT investment could be obtained through this exemplary task execution method, and more importantly, this method could be the standard to evaluate the person in charge when anything goes wrong.

Various standards in the information system control which were newly focused during the period of the study were not excluded in this study, but COBIT was developed by reflecting the code of conduct presented by Council of Europe, OECD and ISACA which are technology standard such as ISO and EDIFACT, quality standards on IT system and process such as ITSEC, ISO9000, and TCSEC, standards of practice on internal control and audit such as COSO report, GAO, IFAC, IIA, ISACA, and CPA standard, industrial practices and requirements such as the industry forum and government applied platforms (IBAG, NIST, DTI), and unique industrial requirements which are appeared in finance, e-commerce and IT manufacturing business so that these standards were mainly reflected in this study. COBIT was defined as open standard framework which provides best working-level practice for realizing effective IT Governance and control by ITGI and ISACA. 1st, 2nd and 3rd editions were published in 1994, 1998 and 2000 respectively, and 4th edition was published on December 2005. 4th edition of COBIT is used as IT Governance realization model to maximize benefits of IT Governance, protect the asset, observe regulations such as SOX (Sarbanes-Oxley) bill and increase IT investment effects. COBIT has 4 characteristics such as focusing on connecting Business demands with IT goals, aiming at the realization of effective IT Process, controlling IT risk in the process and application aspects, and providing a tool to monitor and measure IT achievements on each process. These characteristics of COBIT help IT Governance to play a key role of corporation governance by connecting business goals with IT.

2.4 Theory of innovation diffusion

Damanpour and Evan [5] defined innovation as equipment, system, policy, program, process, product, or service which is adopted by a specific organization regardless of whether the source of innovation is created in the organization or introduced from the outside, and Roger [35] defined innovation as idea, practice or object which a person or other unit of adoption considers as new.

Pierce and Delbecq [31] divided and explained the innovation process into 3 stages including initiation, adoption and implementation. Nolan [28] divided and explained the information technology diffusion stage of an organization into 4 stages including initiation, contagion, control and maturity.

Rogers [35] explained that organizational innovation is mainly influenced by three factors. The first factor is an individual factor and he explained that more active attitude of each individual to change leads to higher innovation capability of the organization. He asserted this as positive relationship that more positive attitude of a member to change will lead to better innovation result of the organization. The second factor is internal factor of the organization, and he asserted that the factors including surplus resource, size of organization, correlation and complexity have positive relationship to innovation, and convergence and formality have negative relationship to innovation. The third factor is external factor of the organization, and he explained that an organization with higher openness reacts more sensitively to environmental change and conducts innovation activities continuously to

survive in dynamic circumstances. Therefore, he asserted that an organization with a higher relationship with other outside organizations has a higher innovativeness. He also asserted that the introduction of new one has effect through innovation diffusion model and objective evaluation on innovation by perceived innovative characteristics. Perceived innovative characteristics here are complexity, compatibility, relative benefits, observability and trialability that users feel when comparing with existing one, and the dependent variable of innovation is acceptance or rejection of innovation.

Kwon and Zmud [18] presented individual characteristics, task characteristics, innovation's characteristics, organizational characteristics, and environmental characteristics as the factors influencing innovation. Individual characteristics are Individual factors such as education and experience, and task characteristics are factors related to task environments such as autonomy of diversity of task. Innovation's characteristics mean complexity, interchangeability and relative benefits of innovation. Thus, various variables are examined in the study on the influential factors of innovation. COBIT introduction for IT Governance establishment which this paper intends to study requires change in organization, process and mechanism aspects [41]. Therefore, it is necessary to verify if complexity, interchangeability, and relative benefits which are the characteristics of innovation could act as the influential factors for an organization to adopt COBIT framework since the framework introduction is approached as the concept of innovation whether this innovation is small or big in the organization.

2.4.1 Complexity: Complexity means the level of end users' perception or recognition to accept or not to use a new innovation continuously [35]. Cooper and Zmud [4] discovered that more complicated information system could reduce its adoption and become obstacle to its introduction and diffusion. Premkumar [32] explained that complexity could be obstacle to the introduction of information technology since it could hinder innovation elements to be integrated with other parts of an organization. Complexity of COBIT framework which is an object of this study is defined as understandability of an organization on COBIT framework in this study to measure it from the viewpoint of organization, and it is necessary to verify through this study if understandability of an organization on COBIT framework could act as the influential factor for the organization to adopt COBIT frame.

Hypothesis 1: Understandability of COBIT framework will have positive effect on adoption intention.

2.4.2 Compatibility: Compatibility is the level of previous experience, desire and value to be agreeable to a new product or service without any inconsistency from the user side. This means not only mechanical interchangeability, but also interchangeability between values existed inside and outside of an organization and previous experience and demand of an organization. When an organization introduces information technology, the organization will consider if this new information technology meets organizational demands and procedures. O'Callaghan et al. [30] classified the concept of compatibility into technological compatibility which shows

how much a new technology is compatible with existing software, hardware and technological process and operational compatibility which shows how much a new operation is compatible with existing operational process of an organization. These technological and operational compatibilities can be explained with change inside of an organization as a result. Therefore, it is necessary to verify through this study if change from the introduction could act as the influential factor of COBIT framework introduction.

Hypothesis 2: Organizational changes occurred from COBIT framework introduction will have negative effect on adoption intention.

2.4.3 Relative advantage: Relative advantage among characteristics of innovation means that a certain innovation element which intends to adopt organizational innovation could bring more advantage than previously operated. This advantage expects efficiency, effectiveness, economic profit and improved status [35]. Therefore, it is necessary to verify through this study if this relative advantage, that is, perceived benefits could act as the influential factor of COBIT framework introduction.

Hypothesis 3: Perceived benefits obtained from COBIT framework introduction will have positive effect on adoption intention.

2.5 Certification

Certification effect through ISO has been examined in various studies. Using perceived benefits of ISO/IEC 20000 certification as a tool for improving outside reliability as well as managing ITSM internalization and change of internal organization could be utilized to assure objectivity and reliability through an external examination agency and maintain tension and sense of crisis in the organization through the post examination in every 6 month and the renewal examination after three years [45]. And, three certification effects which could be obtained by introducing ISO20000 were explained. These certification effects are competitiveness reinforcement, effective operation and continuous improvement. The dominant position in the competition can be held in intensively competitive ITO market through objective proofs on efficient IT service management system called ISO/IEC 20000 certification, and ISO/IEC 20000 supports effective and efficient ITSM system operation in corporations and provides the methodology of continuous improvement to support services satisfying business requirements and priority orders in the manageable way.

Another study asserts that a corporation which restrains itself on the standard according to social demands by introducing ISO9000 which is quality management system could get profits including improvement of process and product reliability, increase in market share through improvement of its image, the development of new technology and improvement of product quality and various political/financial benefits [26].

COBIT framework supports measurement and definition of governance process maturity level in the organization, but it does not support external maturity improvement and external publicity of service improvement through process quality

improvement. Therefore, it is necessary to verify through this study if absence of this external certification could act as the influential factor of COBIT framework introduction.

Hypothesis 4: Absence of external certification in COBIT framework will have negative effect on adoption intention COBIT framework.

2.6 Expertise Support

According to the survey study on the IT Governance recognition and execution of Korean corporations conducted in 2007 by Lee *et al* [23]. In this survey, more than 70 large Korean corporations were responded and shown that their perceived importance of IT Governance was averagely 6.1 point on a 7-point scale. Another similar survey, conducted by Yang [46], has shown that the average score of the perceived importance on IT Governance in public organization was 5.39 point on a 7-point scale. Both results can conclude that strategic importance of IT Governance recognized by corporations and public institutions were high.

According to the study on project execution method according to its importance and risk, IT outsourcing decision making matrix shows that consulting and outsourcing rather than sending human resource and handling works as proxy are carried out as strategic importance is higher, and sending human resource rather than handling works as proxy and consulting rather than outsourcing are carried out as strategic risk is higher [36]. Therefore, consulting or outsourcing is carried out in case of IT Governance with higher strategic importance. In addition to that, according to the result of the study conducted by Lederer & Salmela [21], the level of information system professional's participation, retained knowledge and technology has effect on the system quality. In other words, participation of an external expert is essential in COBIT framework introduction for IT Governance establishment, and that expert should provide expertise knowledge and information to the internal organization. Therefore, it is necessary to verify through this study if availability of support from outside experts or consultants, expertise knowledge and information support and acquisition could be the influential factors of organizations to adopt COBIT frame.

Hypothesis 5: External support will have positive effect on adoption intention COBIT framework.

3. RESEARCH METHODOLOGY

3.1 Research Model

The influential factors of COBIT introduction for IT Governance establishment were classified into internal factors and external factors and the following research model is proposed to examine whether each influential factor has effect on COBIT introduction based on hypothesizes we have developed in previous section.



Fig. 1. Research model

By classifying internal factor into understandability, change and perceived benefits, and external factor into certification and expertise support, the model is designed to examine if each factor has effect on the intent to adopt COBIT.

3.2 Measurement Development

In this section, we examined how the factors are classified in precedent studies related to the influential factors of innovation and information technology introduction.

Kwon & Zmud classified the influential factors into product, innovation, organizational, environmental, task and individual which are 5 categories in the management environment at the study of innovation introduction [18]. In addition, Premkumar classified the factors into innovation, organizational, and environmental in the study of new information technology introduction [32]. Thong [39] classified the influential factors into 4 groups including CEO, information system, organizational, and environmental factor in the study of influential factors of information system introduction, CEO characteristics into change and knowledge, IS characteristics into competitive superiority, compatibility, complexity, organizational characteristics into business size, employees’ IS knowledge, information intensity, and environmental characteristics into competition, and he asserted that only organizational characteristics have strong correlation as the result of the study. With regard to the factors of ERP introduction, Branford [2] classified the influential factors into innovation characteristic, organizational characteristic, and environmental characteristic in the study. Del Aguila-Obra [1] classified the influential factor of information technology introduction into organizational factor, external factor and technological factor. Rogers [35] classified and studied the influential factors in innovation into individual factor, organizational factor and external factor. Capability and circumstance in the organization for COBIT introduction such as technological factor, innovation factor, organizational and individual factors and influences occurred and measured in the organization such as perceived benefits are classified as internal factor and environmental factor occurred and measured from the outside with regard to COBIT introduction is classified as environmental factor based on precedent studies so that the influential factors are classified into two groups in this study.

COBIT introduction for IT Governance establishment requires changes in the organization, process and mechanism aspect [41]. Therefore, it is approached in the concept of innovation regardless of its scope inside of an organization. Influential factors of introduction are classified into internal factors and external factors as defined above and internal factors are classified into relative advantage, complexity and

compatibility from the influential factors in the theory of innovation diffusion of Rogers. Trialability is excluded in this study because it is a factor corresponding to system introduction such as Pilot and there is a limitation to try COBIT framework directly and also it has partial probability with complexity on advanced knowledge acquisition basis, and observability is also excluded in this study because a precise result could not be drawn in this study and also it is associated with relative benefits. External factors are classified into certification and expertise support in this study.

3.3 Understanding

Many scholars asserted that organizations with possible adoption intention and level of education, understanding and knowledge of decision makers in the organizations among the influence factors of innovation according to information technology introduction and change in the organization have effect on the introduction.

Rogers [35] explained individual factor among the main three factors in the study of innovation diffusion. He defined the level of education and knowledge as the individual factor, and he asserted that these factors had a high correlation between each other. He also defined complexity of introduced technology as the influential factor. There is a relationship between individual factor and complexity as explained before that a higher complexity means difficulty in understanding and acquisition.

Mehrtens et al. [27] classified the factors into perceived benefits, external pressure and organizational readiness in the model study of applying internet to small and medium corporations, and presented the level of IT knowledge in IT experts and IT non-experts prepared by the organization and the level of IT usage in the organization as the model.

The following operational definition and measurement index are designed in this study under the judgment that measuring the level of direct COBIT understanding rather than overall IT understanding could bring more substantial result for analyzing the influence of introduction focused on COBIT framework.

Table 1. Operational definition and measurement index of understanding

Measurement variable	Operational definition	Measurement item	Ref
Understanding (UD)	The level of understanding COBIT framework and properly recognizing and learning its purpose and function	Overall understanding on COBIT framework	[35][32][7][27][9][39]
		Overall understanding on the functions of COBIT framework	
		Overall understanding on the purpose of COBIT framework	

3.4 Organizational Change

Kwon and Zmud [18] and Rogers [35] presented compatibility as the influential factor of innovation introduction. This means the level of newly introduced system to be compatible with the existing system, and it signifies change in work environment of the organization and personnel.

Change factor is change in the organization and members due to COBIT framework introduction. This also means internal change of the organization due to innovation, and the level of difficulty and fear due to change in the organization and personal work was designed to measurement index.

Table 2.Operational definition and measurement index of change

Measurement variable	Operational definition	Measurement item	Ref
Change (CG)	The level of fear for change in the organization and work from COBIT framework introduction	The level of fear for work change in the organization occurred due to COBIT introduction	[18][35] [32][39]
		The level of members' pressure due to COBIT introduction	
		The level of difficulty in learning new knowledge and environment for adapting change due to COBIT introduction	

3.5 Perceived benefits

Rogers [35] explained that relative advantage among innovation elements is the level of thinking ahead. In addition, many studies have drawn relative benefits as an important variable which has positive relationship with the introduction of innovation. This means effectiveness in the wide sense. The rational decision to adopt in the organization includes the prediction of effect from new technology [32]. The measurement index on the level of the organization and members' expectation on work effectiveness due to COBIT framework introduction was designed as follows based on the current literatures

Table 3.Operational definition and measurement index of perceived benefits

Measurement variable	Operational definition	Measurement item	Ref
Perceived benefits (PB)	The level of the organization	The level of the organization to expect clarity of	[35][10] [17][40] [7]

	and members' expectation on work effectiveness due to COBIT framework introduction	roles and responsibility due to COBIT introduction	[32][6] [39]
		The level of members to expect increase in responsibility due to COBIT introduction	
		The level of expectation on decrease in complexity of work process due to COBIT introduction	

3.6 External Certification

Typical frameworks for IT Governance establishment which run the certification system are ISO series including ISO 9001:2000 and ISO17799, and CMMi. Research studies on ISO certification introduction assert that motives to acquire ISO certification appears as internal effects including cost reduction and quality improvement and external effects including improvement of corporation's image [15], [22], [44]. The main motives of small and medium corporations to acquire ISO9000 certification can be summed up as secure of customer's reliability, improvement of the quality management system, means to prove reliability of corporation's product objectively, and secure of efficiency in organization management through standardization [20]. Therefore, operational definition and measurement index on if absence of certification factor which could obtain efficiency such as quality management internally and customer's reliability externally through publicity has effect on COBIT framework introduction were designed as follows.

Table 4.Operational definition and measurement index of external certification

Measurement variable	Operational definition	Measurement item	Ref
External certification (EC)	The level of internal and external effect from certification	The level of certification acquired from process improvement to contribute to corporate management	[15][22] [44][20] [26]
		The level of certification acquired from process improvement to improve external reliability	

		The level of external certification's importance as advanced standard for publicity of the organization	
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3.7 Expertise Support

Fink [7] classified the influential factors of introduction into internal, external and technological factors, and defined external support, external resources, and external environment as external factors. Igbaria et al. [12] defined extra-organizational factors including external pressure and external IS support and education as external factors of IT introduction, and Premkumar & Roberts [32] also defined external support as external factor in their study. In this study, operative definition and measurement index on if availability to receive expertise support and information from the outside has effect on COBIT introduction were designed as follows.

Table 5.Operational definition and measurement index of expertise support

Measurement variable	Operational definition	Measurement item	Ref
Expertise support (ES)	The level of availability to receive expertise support from the outside	The level of availability to learn reference on COBIT	[7][12] [32]
		The level of availability to receive support from COBIT experts or consultant	
		The level of availability to participate in COBIT related seminars and conferences	

3.8 Sample and Data Collection

This research is to examine the result of each decision maker's intent who is in charge of IT division strategy and planning or deciding the introduction so that the unit of analysis in the study was set to 'corporation', and 100 questionnaires from 120 questionnaires collected from head of IT strategy and planning division in 200 corporations in KOSPI and 100 corporations in KOSDAQ based on their market capitalizations from November 25th 2009 to December 19th 2009 excluding 20 questionnaires with inconsistent responses were analyzed.

Table 6.Distribution of business type in the sample

Business Type	Frequency	Proportion
Bank	11	11%
Stock	7	7%
Insurance	7	7%
Electricity, Electron	10	10%
IT	6	6%
Communication service	4	4%
Steel	3	3%
Construction	6	6%
Heavy industry	7	7%
Petrochemicals	8	8%
Circulation, logistics	9	9%
Drugs	6	6%
Food & beverage	6	6%
Etc	10	10%
Total	100	100%

4. RESULTS AND ANALYSIS

4.1 Analysis of descriptive statistics

The result of descriptive statistics analysis in this study is as follows. The understandability of COBIT framework was the mean value of 4.5 on a 7-point scale, change according to COBIT framework introduction was the mean value of 4.73, perceived benefits of COBIT framework was the mean value of 4.75, external certification was the mean value of 4.39, and expertise support on COBIT was the mean value of 3.82. Lastly, adoption intention COBIT framework which was an independent variable was the mean value of 4.26.

4.2 The result of factor analysis

The factor analysis on COBIT framework was conducted based on 17 questions in COBIT framework including 3 questions on understandability of COBIT framework, 3 questions on influence of COBIT framework introduction, 3 questions on effect of COBIT framework introduction, 3 questions on external certification, 3 questions on availability to learn information on COBIT, and 4 questions on plan of COBIT introduction, and the following result of the study was obtained.

Table 7. Analysis of factors

Type	Understanding	Change	Perceived benefits	External Certification	Expertise Support	Adoption Intention	Cronbach's
UD1	0.679						0.5309
UD2	0.578						
UD3	0.572						
CG1		0.626					0.5618
CG2		0.594					
CG3		0.542					
PB1			0.716				0.6124
PB2			0.625				
PB3			0.562				
EC1				0.796			0.5148
EC2				0.618			
EC3				0.484			
ES1					0.686		0.6149
ES2					0.642		
ES3					0.527		
Adoption1						0.742	0.6465
Adoption2						0.541	
eigenvalue	1.123	1.038	1.219	1.251	1.160	1.865	

According to Eigen values of subdivided variables of COBIT framework from the result of factor analysis on COBIT framework, understanding of COBIT framework, influence of COBIT framework introduction, effect of COBIT framework introduction, external certification, availability to learn COBIT information, and plan of COBIT introduction were verified to be 1.123, 1.038, 1.219, 1.251, 1.160, and 1.865 respectively, and since all Eigen values are higher than 1, all items forming the factors are valid.

4.3 Reliability analysis

It is generally known that there is no problem on reliability if Cronbach's α coefficient is over 0.6 in case the unit of analysis is the organization, and it is acceptable in the beginning stage of the study if Cronbach's α coefficient is between 0.5 and 0.6 [42].

The reliability assessment on survey items was conducted by calculating Cronbach's α coefficient. Reliability coefficients based on the final items after removing any factor lowering reliability in the reliability analysis are .53 for understandability, .56 for change, .61 for perceived benefits, .51 for external certification, .61 for expertise support and .65 for adoption intention so that understandability, change and external certification are in fifth, and perceived benefits, expertise support and intent to introduce are in sixth.

4.4 Regression analysis

Multiple regression analysis and empirical analysis were conducted in this study to verify the correlation between 5 factors including understandability, change and perceived benefits as internal factors, effectiveness of external certification and expertise support as external factors, and adoption intention COBIT framework. The result of the analysis shows that expertise support among external factors has positive meaningful effect on the possibility of COBIT framework introduction, and other variables do not have a meaningful effect on the possibility of COBIT framework introduction. The reason why other variables were rejected can be explained this way. Even if decision maker has enough knowledge about COBIT framework, it may be complicated decision for company whether they adopt COBIT framework because they also need to consider financial status and other things. Companies tend to adopt COBIT framework or IT governance by top-down approach. Even if COBIT adoption has side-effect, they want to adopt it with corporate level's strong intention.

This result of the analysis means that higher recognition of expertise support on COBIT has higher effect on the possibility of COBIT framework introduction. The explanatory power of the model in this study was 18.9%, and it was statistically meaningful at the 95% significance level.

As a result of data analysis so far conducted, Hypothesis 1, 2, 3 and 4 are dismissed, and only Hypothesis 5 'expertise

support' has a meaningful influence on the COBIT framework introduction. And also, β value shows that expertise support has positive effect on dependent variables.

Table 8. Analysis of regression

Type		Standardized Coefficient of regression	t	Significance	VIF
Dependent Variable	Independent Variable				
Adoption Intention Of COBIT	Constant		-0.06	0.952	
	Understanding	0.01	0.17	0.865	1.202
	Change	0.09	0.87	0.386	1.130
	Perceived Benefits	0.04	0.35	0.725	1.249
	External Certification	-0.00	-0.08	0.935	1.080
	Expertise Support	0.27	2.67	0.009**	1.066

Samples=100, R-square=0.189, Adj. R-square=0.141, F=1.847, P=0.011
 **: P<0.01, *: P<0.05

5. CONCLUSION

5.1 Conclusion and its implications

Intents of Korean corporations to adopt COBIT as the framework for establishing IT Governance were examined in this study. The result of this study shows that understandability of COBIT framework, changes in the organization and duty according to COBIT introduction, and internal factors of perceived benefits have no effect on adoption intention. In addition, external certification which COBIT framework doesn't have was studied and verified in the viewpoint that many Korean corporations can get profit by acquiring ISO certification for efficient process management and outside publicity activities. But, the result of this study shows that effectiveness of external certification has no effect on COBIT framework introduction. On the other hand, the result of this study shows that only expertise support among external factors has effect on COBIT framework introduction.

Reasons and solutions for inactive COBIT introduction and utilization can be derived from the result that external expertise support has effect on COBIT framework introduction.

5.1.1 Availability to learn COBIT technology and information: COBIT utilization is not active because corporations and organizations lack precise understanding on COBIT. This lack of understanding can be a reason for corporations and organizations not being exposed to COBIT knowledge and information due to low market maturity on IT Governance and COBIT. Acquisition of basic information on organizational benefits from understanding and utilizing

fundamental purpose of COBIT and indirect experience of COBIT introduction cases from other similar corporations could have positive effect on the introduction. If various domestic corporations and organizations have a higher understanding on COBIT through accurate and various channels including technical educations and books on COBIT and make a creative attempt to use COBIT to actual practices, they could get various benefits through COBIT. It is well worth enough to examine how COBIT can help improving the level of IT Governance in an organization based on interests in IT Governance. In the future, more corporations and organizations will promote COBIT introduction in order to obtain actual effects and not to remain with superficial understanding of COBIT by having better understanding of COBIT as a tool for IT Governance and utilizing it creatively

5.1.2 Cultivation of COBIT experts: As shown in the result of this study and many advices from experts, it is urgent to cultivate IT Governance human resource. This means that there is a shortage of internal experts who can successfully establish IT Governance through COBIT framework. They should deliver accurate and expertise information to IT staffs in corporations and organizations for better understanding to adopt COBIT as a tool of IT Governance, and also they should provide knowledge and information to IT staffs and officials on what benefits the organization could obtain by adopting IT Governance through COBIT and how they should run COBIT as a tool of IT Governance to obtain those benefits.

And, another issue is that IT staffs should have faith in successful IT Governance establishment after deciding IT Governance introduction. According to the result of the survey 'Current status of COBIT framework introduction and application' participated 70 domestic large corporations in 2007, 64% of the corporations responded that they would not adopt COBIT system. For reasons not to adopt COBIT, almost 70% of the corporations answered that "COBIT seems to have too many parts which is not agreeable to us and other corporations in Korea." COBIT successfully executed and operated in foreign countries but it is not being appropriate for organizations in Korea. It means that there is no expert who can customize it according to domestic circumstances and characteristics of domestic corporations. Hopefully, the base for COBIT framework will be expanded in future through improvement of IT staffs' understandability including the cultivation of COBIT experts for IT Governance establishment and the attraction of educations and programs for IT corporations and IT major.

5.2 Limitation of the study

As explained at the implications before, COBIT framework understandability of IT staffs in Korean corporations was relatively low. Therefore, technological factor of COBIT framework was excluded and effectiveness in the wide sense among internal factors was used instead in this study. If functional characteristics of COBIT could be evaluated according to work characteristics of an organization due to high technological understandability of IT staffs on framework, influential factors of COBIT framework adoption could be subdivided and analyzed in fields and functions from the

technological aspect so that this study could be more meaningful.

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