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Effective Project Governance Institutions for IT Service Project Success

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Abstract

Recently, in pursuit of sustainable competitiveness, IT (information technology) service projects have been increasingly undertaken to introduce new technologies and advancements such as big data analytics, AI (artificial intelligence), Cloud Computing, mobile computing, IoT (Internet of Things), and business process changes.

However, the project success rates of IT service projects have declined because of the various kinds of risks associated with the characteristics of these projects, such as software invisibility, unclear user requirements, the complexity of IT systems and new technologies, and agency conflicts such as different goals, different risk attitude, and information asymmetry among project participants. The profits and success rates of IT service projects have fallen because of risks and agency conflicts.

In this study, we analyzed the gaps in average profits rates by revenue group for IT service companies in South Korea by one-way ANOVA (analysis of variance) analysis of SPSS V20 statistical tool. The result showed that the average profit rate of the revenue group over 1 billion USD was twice than the revenue groups of less 1 billion USD, and the gaps of average profit rates among revenue Group 1 and other revenue groups were statistically significant.

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In addition, we investigated the maturity level of project governance by revenue groups of IT service companies with FGI (focus group interviews). The results showed that higher revenue groups were the higher maturity level of project governance. Furthermore, we investigated the change of failure rate of IT service projects in a company with the application of project governance institutions. The results showed that this failure rate decreased by 14.8% with the application of project governance institutions.

We recommend the application of project governance institutions such as project governance board, project steering committee, project management office (PMO), stage-gate process (SGP) in order to increase the profit rates of projects and to decrease the failure rates of projects.

Keywords

Project Governance, Institutional Analysis and Development Framework, Agency Theory, IT Service Project, Project Risk, Project Management Office, Stage-Gate Process

1. Introduction

IT service projects involve the application of business and technical expertise to enable organizations in the creation, management, and optimization of or access to information and business processes. IT services refers to the application of business and technical expertise to enable organizations in the creation, management and optimization of or access to information and business processes. The IT services market can be segmented by the type of skills employed to deliver the service (design, build, and run). There are also different categories of services: business process services, application services, and infrastructure services. If these services are outsourced, they are referred to as business process outsourcing (BPO), applications outsourcing (AO) and infrastructure outsourcing (IO) (Gartner 2017).

In South Korea, many banking and manufacture companies have outsourced IT service projects, including AO and IO, because of a scarcity of employees and competencies in software development and project management. But the success rate of IT service projects is low due to risks with software invisibility, unclear requirements, complexity of IT systems, and agency conflicts among project stakeholders. To reduce or prevent risks originating in the characteristics of IT service projects, as well as agency conflicts among project stakeholders, project governance institutions are required. Project governance institutions include project steering committee (PSC), PMO, SGP functions.

The following research procedure was adopted:

1. Collect revenue and profit rate data on IT service companies from ITSA (Korea Information Technology Service Industry Association). ITSA is the association of IT service companies of South Korea which was established in 1992 and has announced the revenue and profit rate of IT service companies annually.
2. Analyze the gaps in average profit rates by revenue group using one-way ANOVA (analysis of variance) with SPSS V20 statistic tool.
3. Conduct literature reviews about the IAD (Institutional Analysis and Development) framework, project governance, and agency theory.
4. Set the hypothesis: "Effective project governance institutions can influence project failure negatively and profit rates positively."

5. Test hypothesis through the following steps:
   - Conduct FGIs on the maturity level of project governance institutions and the status of the SGP applications by revenue groups of IT service companies in South Korea.
   - Conduct an empirical case study about changes in project failure rates through the application of project governance institutions to an IT service company.
6. Summarize research by rejecting the null hypothesis and accepting that project governance institutions can affect negatively to the project failure rates and affect positively to the profit rates of IT service projects.

Section 2 introduces background knowledge of the IAD framework, agency theory, and project governance concepts. Section 3 explains the application of the IAD framework to IT service projects. Section 4 explains the results of this application to project governance institutions. Finally, Section 5 discusses the results and limitations of this study as well as possibilities for future research.

2. Background Knowledge

2.1 IAD FRAMEWORK

The IAD framework was developed by Elinor Ostrom. It relates a set of concepts to help in the analysis of collective action problems that involves social structures, positions, and rules. Under the rational choice model, the IAD framework was devised in an attempt to explain and predict outcomes by formalizing the structures, positions, and rules involved in collective choice problems. Thus, it can be seen as a systematic method of collecting policy analysis functions, similar to analytic techniques commonly used in physical and social sciences, and understand how institutions operate and change over a period of time (https://en.wikipedia.org/wiki/Institutional_analysis_and_development_framework, 2017). The IAD framework helps researchers perceive complex social phenomena by dividing them into smaller units of readily understandable functions. The important aspect of the IAD framework is that its outcome is influenced by the institutional or rule arrangements created by local actors in a given context. The IAD framework consists of action situations such as physical attributes, community attributes, and institutional or rules arrangements, models of actors, patterns of interactions, and outcomes (Ostrom 1994), as seen Figure 1.

Figure 1 provides a schematic representation of the framework. The focus of the analysis is on behaviour in the action arena, which includes the action situation, and individuals and groups who are routinely involved in the situation (actors). One objective of the analysis is to identify factors in each of three areas that influence the behavior of individuals and groups in the policy situation: physical and material conditions, community attributes (culture), and rules-in-use or institutional arrangement. Two other objectives are to identify and evaluate patterns of interactions that are logically associated with behavior in the action arena, and outcomes from these interactions (Polski & Ostrom 1999).

Physical attributes are traits or characteristics of events that become a target of interaction for participants, and refer to the transformation of events due to interactions among participants. The variables of an action situation are also affected by attributes of the relevant physical world. The physical possibility of actions, likelihood of outcomes, linkages of action to outcomes, and knowledge of actors all depend on the physical world and its transformation. The same rule configuration may yield entirely different types of action situations depending

upon the types of events in the physical world being acted upon by participants (Ostrom 1994).

Community attributes include generally accepted norms of behavior, the level of common understanding about action arenas, the extent to which preferences are homogeneous, and the distribution of resources among members. The term "culture" is frequently applied to this bundle of attributes. Community attributes affect the structure of an action arena because the latter relates to the community in which an action situation is located (Ostrom 1994).

Institutions or rules are prescriptions that define what actions (or outcomes) are required, prohibited, or permitted and the sanctions authorized if rules are not followed (Crawford & Ostrom 1995). All rules are the results of implicit or explicit efforts to achieve order and predictability among humans by creating classes of persons or positions who are then required, permitted, or forbidden to take classes of actions in relation to required, permitted, or forbidden states of the world. The actor in a situation can be thought of as either a single individual or a group functioning as a unified corporate actor. The term "action or model of actor" refers to those human behavior for which the acting individual attaches a subjective and instrumental meaning. Individuals who calculate benefits and costs are fallible learners who vary in terms of the number of other persons whose perceived benefits and costs are important. These individuals must often make choices based on bounded rationality and opportunism with incomplete information and imperfect information-processing capabilities. Moreover, the level of opportunistic behavior that may occur in any setting is affected by the norms and institutions used to govern relationships in that setting, as well as by the decision environment's own attributes. Elements of an action situation make interactions with a model actor yield positive or negative results or outcomes (Ostrom 1998).

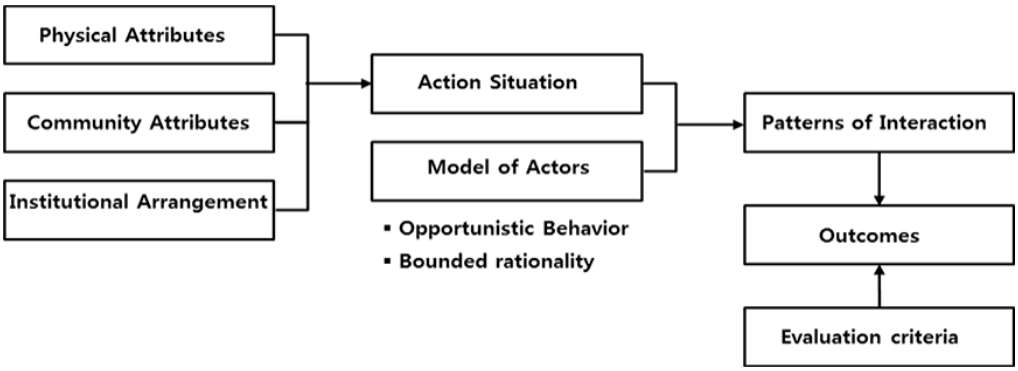

Figure 1 IAD framework (Ostrom 1994; Polski & Ostrom 1999)

2.2 AGENCY THEORY

Agency theory involves a contract under which one or more persons (shareholders) engage other persons (directors) to perform some service on their behalf, which includes delegating some decision-making authority to the agent, as seen Figure 2 (Eisenhardt 1989). If both parties to the relationship are utility maximizers, there is good reason to believe the agent will not always act in the best interests of the principal (Jenson and Meckling 1976). Agency conflicts include goal conflicts, different risk attitudes, and information asymmetries (Eisenhardt 1989; Saam 2007).

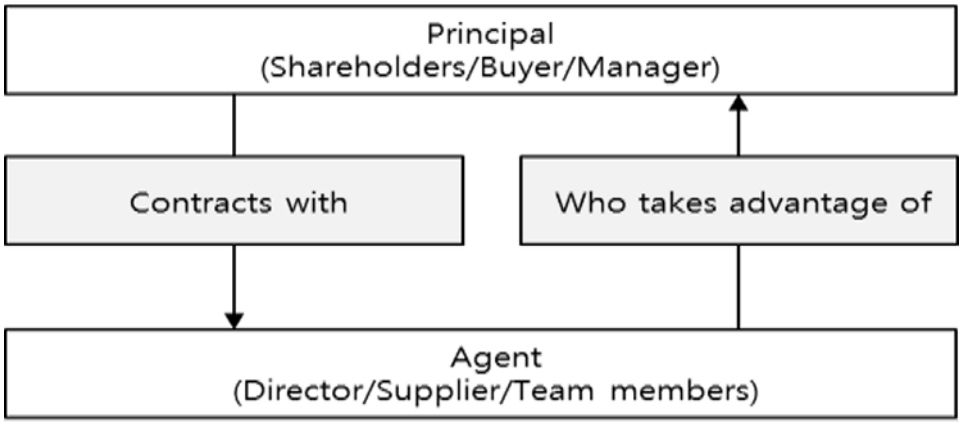

Figure 2 Agency Theory (Eisenhardt 1989)

2.3 PROJECT GOVERNANCE FUNCTIONS

Project governance can be defined in numerous ways. It supports the provision of good project management and is an important element of successful projects (Muller 2009). Project governance includes the framework, functions, and processes that guide project management activities in order to create a unique product, service, or result and meet organizational strategic and operational goals (PMI 2016).

We consider that project governance is aligned with corporate governance, and serves as the framework for planning and controlling functions that align risk, performance, and communication domains. It guides project management activities and creates project outputs in order to meet organizational strategies and business objectives, and serve the best interests of related stakeholders (Dinsmore & Rocha 2012; Jeong et al., 2016b; Muller 2009). Accordingly, project governance can reduce risks in IT service projects such as those arising through agency conflicts, and agency problems among project stakeholders through the alignment of organizational strategies, business objectives, and the project's goal and objectives. Project governance also reduces goal conflicts among stakeholders, manages risks to reduce project risks, and reduces the different risk attitudes among stakeholders. Project governance functions also include control and communication functions to reduce and prevent information asymmetries among stakeholders. Consequentially, project governance functions can reduce project failure rates and increase project success rates (Jeong & Jeong 2016; Mahaney & Lederer 2003).

3. Institutional Analysis of IT Service Projects

3.1 PROFIT RATES OF IT SERVICE COMPANIES IN SOUTH KOREA

IT service company profits are low in South Korea because of project risks and high failure rates, as seen in Table 1. IT service companies with over $1 billion revenue earn higher profits compared with those in the lower-revenue groups. The profit rate of a specific IT service company showed little variance during the analysis periods. Profit gaps among IT service companies may arise because of a range of factors, but the profit gap among IT service companies may mainly depend on the application of project governance institutions or project management processes (ITSA 2010–2016).

Table 1 Revenue (Rev.) and profit rates of IT service companies in South Korea (ITSA 2010-2016)

Year		2010		2011		2012		2013		2014		2015	
revenue & profit rate / revenue group & companies		revenue in billion (USD)	profit rates (%)	revenue in billion (USD)	profit rates (%)	revenue in billion (USD)	profit rate (%)	revenue in billion (USD)	profit rate (%)	revenue in billion (USD)	profit rate (%)	revenue in billion (USD)	profit rate (%)
group 1	'a'	3.6	10.8	4.0	8.9	4.4	10.5	4.6	7.1	4.6	8.0	5.2	10.4
	'b'	2.1	6.9	2.3	1.8	2.3	4.8	2.4	5.1	2.3	5.2	2.2	2.3
	'c'	1.5	11.0	1.6	10.8	1.5	11.8	1.8	11.6	1.5	17.6	2.0	10.8
group 2	'd'	0.8	3.0	1.0	3.1	1.0	4.5	1.2	5.5	0.9	5.2	0.8	1.4
	'e'	0.6	6.1	0.7	5.9	0.8	5.4	0.9	5.4	1.0	5.6	1.1	5.3
	'f'	0.5	4.6	0.6	4.0	0.6	4.5	0.5	4.4	0.4	2.6	0.4	5.2
group 3	'g'	0.4	5.8	0.4	1.3	0.3	0.1	0.4	1.2	0.5	4.0	0.5	8.6
	'h'	0.4	9.5	0.5	6.9	0.5	6.6	0.5	5.3	0.4	2.6	0.5	3.0
	'i'	0.09	−2.1	0.09	0.0	0.1	−1.3	0.09	1.0	0.09	2.5	0.1	3.9
group 4	'j'	0.08	3.7	0.1	6.2	0.17	7.6	0.2	6.4	0.2	3.2	0.2	3.7
	'k'	0.08	0.6	0.09	1.5	0.1	2.7	0.06	2.8	0.08	4.2		
	'l'	0.08	1.4	0.09	1.1	0.1	1.1	0.1	−0.8	0.1	0.9	0.1	0.6

The average profit rate of IT service companies shows 2.9%-4%, and number of companies over 10 million USD are 62-112 in South Korea from 2010 to 2015, as seen Table 2.

Table 2 Average revenue and profits rates of IT service companies

	2010	2011	2012	2013	2014	2015
Average of revenue (in million USD)	232.6	218.5	229.1	238.3	229.8	356.8
Average of profits (%)	4	3.7	3.5	2.9	3.1	3.6
Number of companies (586)	89	109	112	108	106	62

We analyzed the average operational profit rates of IT service companies with revenue over $10 million USD, by one-way analysis of variance (ANOVA) for the 2010–2015 periods. We divided the IT service companies into four revenue groups. Revenue Group 1 is over 1 billion USD, Revenue Group 2 is from 0.5 billion USD to 1 billion USD, Revenue Group 3 is from 0.1 billion USD to 0.5 billion USD, and Revenue Group 4 is below 0.1 billion USD. The average profit rates of Group 1 (26 IT service companies) is 8.45%, Group 2 (31 companies) is 4.51%, Group 3 (232 companies) is 3.91%, and Group 4 (297 companies) is 4.49%, as seen Table 3.

According to the results of the one-way ANOVA, the gap of average profit rates of Groups 1 and 2 is statistically significant at a 5% significance level. The gap of average profit rates between Group 1 and Groups 3 or 4 were significant at a 1% significance level. This means that gaps of average profit rates among groups are very rare under a normal distribution assumption, as seen Table 4.

Table 3 Average profit rate of IT service companies in South Korea by revenue group

Operational Profits Rates								
Revenue groups	N	Average profits rates	Standard deviation	Standard error	Confidence interval (95%)		Minimum	Maximum
					Lower limit	Upper limit		
1	26	.08454	.037910	.007435	.06923	.09985	.018	.176
2	31	.04510	.016206	.002911	.03915	.05104	.014	.090
3	232	.03911	.036335	.002385	.03441	.04381	.000	.190
4	297	.04497	.065604	.003807	.03748	.05246	.000	.624
Sum	586	.04441	.053449	.002208	.04008	.04875	.000	.624

Note: Group 1 (over 1 billion USD revenue), Group 2 (0.5 billion USD–1 billion USD revenue), Group 3 (0.1 billion USD–0.5 billion USD revenue), Group 4 (10 million USD–0.1 billion USD revenue)

Table 4 Results of average profits rates by one-way analysis of variance

Dependent variable: Operational profits							
	(I) Revenue group	(J) Revenue group	Gaps (I-J)	Standard errors	Significant	95% Confidence interval	
						Lower limit	Upper limit
Scheffe	1	2	.039442*	.014042	**.049**	.00007	.07881
		3	.045426*	.010920	**.001**	.01481	.07604
		4	.039565*	.010799	**.004**	.00929	.06984
* Gaps are statistically significant (0.05 level)							

3.2 CHARACTERISTICS OF IT SERVICE PROJECTS

In South Korea, IT service project phases can be divided into bid and contract agreement, contract performance, and contract completion. The bid and agreement stage includes request for proposal (RFP), proposal, negotiation, and contract. The contract performance phases include planning, analysis, design, development, testing, and cut-over stages. After project completion with the acceptance of project outputs, the customer makes the final payment (Jeong & Jeong 2014), as seen Figure 3.

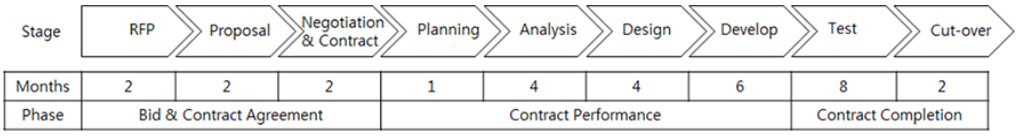

Figure 3 Project life cycle in banking IT systems (Jeong 2014)

IT projects face various risks that may lead to project delays or cost overruns. In addition, failure to comply with government laws and regulatory body recommendations may lead to legal issues and taint the company's image. Accordingly, project risks should be properly identified and managed. A project risk is an uncertain event or condition that, if it occurs, has a positive or negative effect on one or more project objectives. Project risks can be classified by knowledge area such as time, cost, quality, legal, and suppliers or by stages of the IT service project life cycle, as seen Table 5 (Jeong, Bae & Jeong 2015; Wideman 1992).

Table 5 Risks in IT service project life cycle (Jeong, Bae & Jeong 2015)

Stages	Risks
Proposal	Lower cost estimation, violation of law and regulations
Contract	Unfair and irrational contracts
Analysis	Lack of user involvement, unclear requirement
Design	Requirements not clearly defined, requirements changed/expanded, poor design quality
Development	Delay in development and/or hardware installation, poor quality of program code
Test	Requirements changed/expanded, unclear test criteria, lack of user involvement
Cut-over to go-live	Functional errors and performance issues, delay in data migration, poor quality of data migration, lack of operational readiness

3.3 APPLICATION OF THE IAD FRAMEWORK TO IT SERVICE PROJECTS

This study aims to analyze the effectiveness of project governance institutions to mitigate risks, agency conflicts, and problems among stakeholders that would impact the project success and failure in the IT service project environment. We have studied based on the IAD framework, which consists of action situations including physical attributes, community attributes, and institutional or rules arrangement, model of actors, patterns of interactions, and outcomes.

The physical attributes of IT service projects include a lump-sum contract agreement between the buyer and the supplier. The contract relationship between buyer and supplier is established on the basis of resource dependency theory (RDT) and transaction cost economics (TCE) theory (Muller 2009), as seen Figure 4.

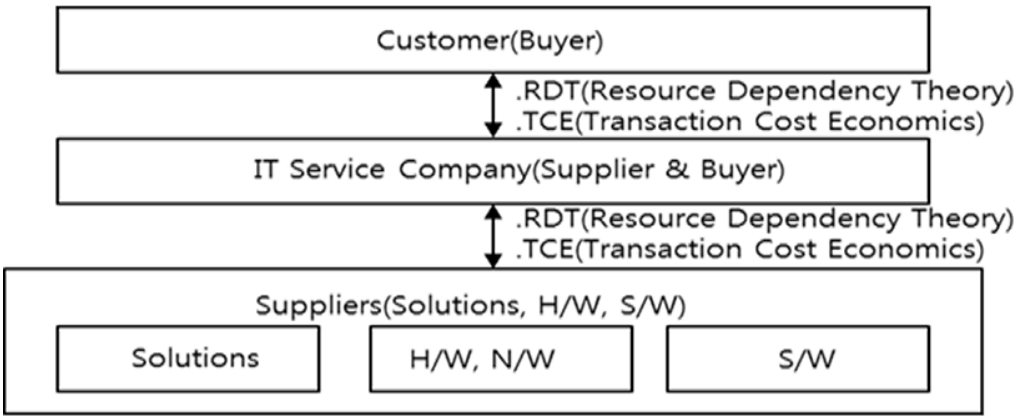

Figure 4 Contract structure of IT service projects (Jeong & Jeong 2014)

An IT service project community includes various stakeholders, all of whom have inter-relationships. These include agency relationships between the buyer and the supplier, the project board and the project manager, and the project manager and project team members. There are also contractual relationships that confer rights and obligations between buyer and suppler, as seen Table 6.

Table 6 Rights and obligations of contractors (Jeong & Jeong 2014)

Party	Rights	Obligations
Customer	Timely completion of the system	Payment to be made after inspection of deliverables
Supplier	Payments at project completion	Deliver an acceptable system on time to the user

Project stakeholders are the individuals, groups, or organizations affected by, or that affect, the project. As such, it is necessary to document relevant information regarding their interest and involvement. Stakeholders may be actively involved in the project, may be internal or external to the project, and may hold varying authority levels. Internal stakeholders include the project manager, project management team, and project team members; external stakeholders include the project sponsor, project governance board, customer, supplier, regulatory bodies, and PMO

The project governance board is a formal team consisting of executive leaders (or their delegates) from across the organization. Their mission is to direct the organization strategically, using projects to meet organization goals. Some key services provided by the PMO are monitoring and controlling project activities, aggregating and analyzing information, and reporting and making recommendations to the project board (Hobbs & Aubry 2010).

Project governance institutions of IT service projects include the PSC, PMO, and SGP for enterprise risk and contract management.

In the model of actors' behavior, actors can exhibit opportunism and have bounded rationality. Their pattern of interactions in IT service projects can be analyzed using RDT, TCE theory, and agency conflicts (Muller 2009; Williamson 2013), as seen Figure 5 and Table 7.

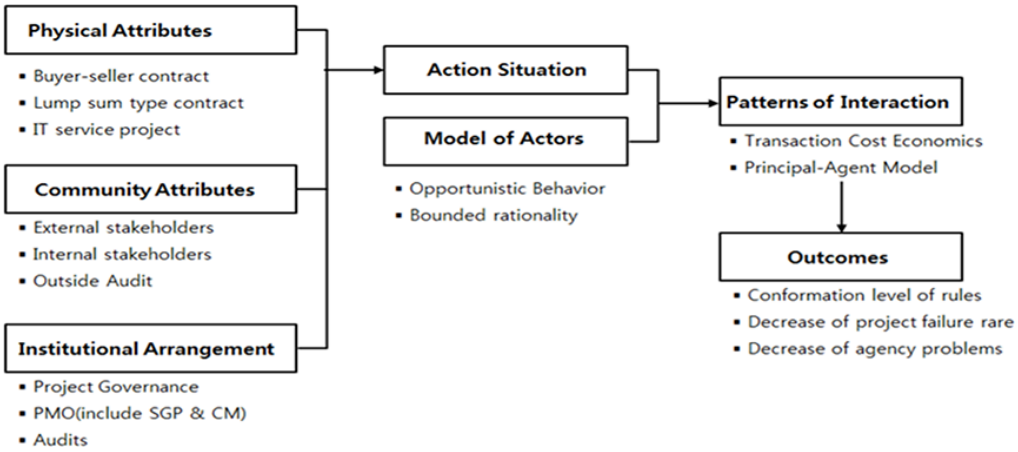

Figure 5 IAD framework for IT service projects (Modified IAD framework of Ostrom 1994)

Table 7 Application of IAD framework to IT service projects

Elements of IAD Framework		Application of IAD Framework to IT Service Project
Action situation	Physical attributes	Lump-Sum contract, characteristics of IT service projects,
	Community attributes	Contract relationship between stakeholders, Rights and Obligations
	Institutional/ rules arrangement	Project governance institutions (PSC, PMO, SGP, contract management)
Model of actors		Opportunism, bounded rationality
Patterns of interaction		TCE, RDT, agency conflicts
Outcomes		Reduction of risks, Decline in project failure rates

Note: IAD (Institutional Analysis and Development Framework); PSC (Project Steering Committee); PMO (Project Management Office); SGP (Stage-Gate Process); TCE (Transaction Cost Economics); RDT (Resource Dependency Theory)

4. Results of Project Governance Institutions

4.1 OPERATION OF PROJECT GOVERNANCE INSTITUTIONS

We conducted FGI with a total of ten professional project experts, consisting of two or three people per revenue group. Interviews sought information regarding project governance institutions such as PMO, PSC, and SGP. Group 1 showed that a PSC is mandatory, the PMO operates permanently with 20–30 people, and the SGP is crucial to rule setting. The OGC (Office of Government Commerce) has introduced a P3M3 (Portfolio, Program and Project Management Maturity Model). P3M3 can be used to understand and identify the key practices that need to be fully embedded within the organization to achieve the next maturity level. In addition, P3M3 described the Level 1 is an initial process, Level 2 is a repeatable process, Level 3 is a defined process, Level 4 is a managed process, and Level 5 is an optimized process. Also, CMMI (Capability Maturity Model Integration) defined Level 1 is an initial unpredictable process, poorly controlled, and reactive. Level 2 is managed, which is often reactive. Level 3 is defined for the organization, and is proactive. Level 4 is a quantitatively managed process which is measured and controlled. Level 5 is optimizing, which focuses on process improvement (Gonzales Marle & Bocquet 2007). According to P3M3 and CMMI, the maturity level of Group 1 is estimated to be 3-4 due to mandatory PSC and SGP operation, and permanent PMO organization. The maturity level of Group 2 is estimated to be 2-3 because PSC is optional without a permanent PMO; instead, project risks are inspected at project execution stages by 4–7 quality assurance members and the SGP operation is optional. The maturity level of Group 3 is estimated to be 1-2 because PSC is optional when a permanent PMO is absent, but risk inspections occurred at project execution stages by 1–3 persons and there was no SGP operation. The maturity level of Group 4 is estimated to be one because PSC was not available, and it operated without a permanent PMO and also lacked a SGP (Jeong & Jeong 2016a), as seen Table 8.

Table 8 Status of project governance institutions of IT service companies by revenue groups (FGI)

Revenue Group	Maturity level of Project Governance	PSC	PMO organization	SGP operation
1	3–4	Mandatory	Permanent (2–3 teams) -Risk management -Cost validation at plan stage -Cost control at execution stages	Rule setting and application (mandatory) -VRB operation -Stages (Proposal ~ Cut-over/close)
2	2–3	Optional	N/A, risk inspection at execution stages by QA team (4–7 members)	Rule setting and application (optional/ mandatory) -VRB operation - Stages (Proposal ~ Plan)
3	1-2	Optional	N/A, risk inspection at execution stages by QA team (1–3 members)	N/A, by head of department (optional)
4	1	N/A	N/A, issue management by management plan team	N/A, by head of company (optional)

Note: Group 1 (over $1 billion revenue), Group 2 ($0.5 billion–$1 billion), Group 3 ($0.1 billion–$0.5 billion), Group 4 ($10 million–$0.1 billion)

4.2 EFFECTIVENESS OF SGP APPLICATION

To verify the effectiveness of SGP in IT service projects, we conducted FGIs with seven experts in different IT service companies. The interview results are summarized in Table 9. Their answers revealed that SGPs were implemented at corporate or division levels. Final decisions were made mainly by project executives according to quality, risk, and performance criteria. The project related information for decisions was reported by the project manager or PMO. We find that the SGP can increase the levels of requirements, quality, time, and risk management. Interviewees also suggested standardizing processes, establishing objective assessment criteria and guidelines, and ensuring flexibility of operation depending on project type and size (Cooper 1990; Jeong & Jeong 2016a).

Table 9 FGI for status of application of SGP to IT service projects

Items	Survey results
Operational Organizational level	Corporate-wide (3), Division-wide (4)
Decision maker(s)	Chief executives (2), project executives (5)
Project governance board members	Chief executives, project executives, project manager, project management officer, etc.
Decision criteria	Quality (6), Risk (7), Performance (4)
Reported by	Project manager (3), PMO (4)
Increased area	Requirement management (2), quality management (3), time management (4), risk management (5)
Suggestions	Standardization of process Make objective assessment criteria and guideline Flexible operation depend on project type and size
Role of interviewees	Project manager (2), Quality manager (5)
Experience of PM (in years)	over 20 (2), 10–19 (1), 5–9 (4)

4.3 EFFECTIVENESS OF PROJECT GOVERNANCE INSTITUTIONS

A total of 109 projects for external customers were completed before the application of the project governance institutions such as SGP and enterprise risk management between 2009 and 2012 in an IT service company. A total of 27 of these completed projects during the same period failed. Therefore, the average failure rate for projects was 24.5% before the application of project governance institutions. However, 72 projects were completed after the application of project governance institutions in 2013–2016 in the same company, and seven projects failed. Accordingly, the average failure rate of projects was 9.7% after the application of project governance institutions. The average failure rate of projects was therefore reduced by 14.8% through the application of developed project governance institutions, as seen Table 10.

Table 10 Project failure rates reduce by project governance institutions (SK Holdings 2009–2016)

Year	2009	2010	2011	2012	2013	2014	2015	2016
Number of closed projects	26	22	33	28	26	20	12	14
Number of failed projects	6	5	9	7	3	2	1	1
Percentage of failed projects	23.1%	22.7%	27.3%	25%	11.5%	10%	8.3%	7.1%
Application of project governance institutions	Before application of project governance institutions				After application of project governance institutions			

Table 10 continued

Average percentages of failed projects	24.5% (27/109)	9.7% (7/72)
Percentage of improvement	14.8%	

These findings lead to the following recommendations:

- Project governance institutions are required to reduce risks and agency conflicts through enterprise risk management, cost verification, professional contract management, and project selection by portfolio management.
- A chief executive officer and executive support is mandatory for formal, sustainable, and effective PMO organizations, because PMO organizations face challenges from project execution organizations.
- The PMO's competency and experiences are important.

5. Conclusions

In this research, we analyzed the effectiveness of project governance institutions for IT service projects based on the statistical analysis of profit rate by revenue groups of IT service companies in South Korea and FGI about the relationship between the maturity level of project governance and the revenue groups of IT service companies. In addition, empirical study about failure rate change of IT service projects by application of project governance institutions for an IT service company. FGIs and empirical case study show that project governance institution can reduce or eliminate project risks, agency conflicts among stakeholders. We found that such institutions can increase project success rates through a reduction in risks and agency conflicts in agency relationships. Further, we provided recommendations about the application of project governance institutions to improve the project success rate of IT service projects.

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