

FORMAL GOVERNANCE MECHANISM AND ITS APPLICATION IN CONSTRUCTION PROJECTS

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ABSTRACT: Inter-organizational Relationships (IORs) governance is one of the emerging research areas that have been studied in different contexts (e.g. economics, strategy, organization, and management). This view, particularly, attracted rising attention from academics and practitioners in the context of construction projects, due to the complex forms of IORs in terms of inter-firm exchanges (e.g. engineering, procurement, finance, construction, and operation) in these projects. The focus of IORs governance is to control Inter-organizational relationships among two or more cooperative parties to alleviate conflict and achieve mutual gains. One of the mechanisms that have been identified in the related literature is formal governance mechanism. Although many empirical studies have been conducted using formal governance terms and indicators, there isn't yet a consensual definition of this mechanism and its components that may cause misinterpretation of research results and also impede future research. This paper makes contribution to the concept of IORs governance by clarifying the meaning of formal governance mechanism and identifying different indicators of this mechanism that have been used and identified in previous studies. This provides an innovative and useful framework to understand formal governance mechanism and its application in construction projects.

Keywords: Formal Governance Mechanism, Behavior Control, Output Control, Contractual Formalization, Structural Formalization.

1. INTRODUCTION

The literature on governance is by now quite extensive within which the governance of inter-organizational relationships (IORs) has been and continues to be an emerging and developing field of study. The IORs governance literature spans many disciplines, including, but not limited to, economics, strategy, organization, and management [1]. Recently, due to the complex forms of IORs in construction projects in terms of inter-firm exchanges (e.g. engineering, procurement, finance, construction, and operation), academics and practitioners have shown strong interest in the use of IORs governance mechanisms in these projects. The focus of IORs governance is to control Inter-organizational relationships among two or more cooperative parties while mitigating opportunistic behavior and promoting cooperation with the aim of fairly sharing of gain-pain. Literature on IORs governance generally categorizes governance mechanisms into two types, formal and informal governance mechanisms. Formal governance mechanism, also referred to as contractual governance, formal control, formal contract, explicit contract, hard contract, and written contract, focuses mostly on formal and prescribed part of control and utilizes more tangible instruments to regulate the IORs. Although great strides have been made, a shared language with definite, concrete meanings in the study of formal governance mechanism has not been developed. Moreover, various operationalization of the concept in different studies has made it difficult for

scholars to build on each other's work. Hence, the objective of this article is to focus on synthesizing previous efforts through a comprehensive literature review and try to reach a general definition that can encapsulate most important perspectives of the concept.

This paper makes contribution to the concept of IORs governance by clarifying the meaning of formal governance mechanism as well as identifying and synthesizing different instruments that have been used in previous studies. Such an undertaking would provide scholars with at least a very basic level of precision that would help to clearly elucidate the concept and a stepping stone for developing common understanding and a framework for further developing knowledge of IORs.

In the following sections, firstly, we articulate the definition of formal governance through identifying different underpinning theories, various formalization types, and variety of control modes. At the next step, we introduce a framework as a two by two matrix that incorporates different perspectives of formal governance, and finally, we locate each formal instrument in its proper position in the matrix.

2. THE CONCEPT OF FORMAL GOVERNANCE

For having more comprehensive realization of formal governance concept, we conceptualize it through three different viewpoints. At first, we recognize various theoretical foundations of this governance arrangement.

Then, we identify two typological categorizations for formal governance mechanism and try to describe each of these perspectives.

2.1 Theoretical Background

The theoretical philosophy of applying formal governance mechanism in an exchange is one of the challenging issues in this field. Some scholars only focused on controlling side of this governance mechanism and asserted that these arrangements mitigate the risk of opportunistic behavior by delineating the underlying assumptions associated with the transaction and providing shared understanding of each party's role in the relationship [2]. Such perspective assumes control as "a mode of organizing transactions" [3] or "a mechanism of structuring and regulating the conduct of parties in an exchange" [4] to safeguard their interests [5] against market hazards such as partner opportunism, market uncertainty, goal heterogeneity, and contractual incompleteness [5–8].

An alternative view considers formal arrangements not only as mechanisms for enforcing negotiated agreements and alleviating conflicts, but also as facilitating tools for value creation and cooperation [2], [9–11]. Such perspective views cooperation or mutual collaboration among parties in allocation and exploitation of resources as necessary for maximizing joint benefits in recurrent exchanges under uncertain conditions [5], [12–14].

Two main underpinning theories for explaining controlling side of formal governance mechanism are transaction cost economics (TCE), and principal-agent Theory. TCE relies on two behavioral assumptions: (1) humans are subject to bounded rationality, and (2) humans are opportunistic [15]. Further, TCE's basic unit of analysis is transaction which has three key attributes: asset specificity (the type and degree of specificity of different assets in the transactions), uncertainty (the level of environmental and behavioral uncertainties the transactions are associated with), and frequency (the chance of recurrence of transactions) [3]. Due to bounded rationality and uncertainty, all complex contracts are inevitably incomplete and, as a result, engaging parties are faced with the threat of opportunistic behaviors by exchange partners [2], [16]. Thus, TCE is useful in providing ex post analysis and thus some adaptation to the agreement, which is in contrast to the principal-agent theory's attention to the ex ante incentive alignment of contracts and rules for avoiding the risk of opportunism [17], [18]. In addition, trust has been argued as a key factor that can safeguard against opportunistic behaviors. Explicitly stating how various situations will be handled and how disputes will be resolved enrich the trust amongst the partners and will reduce the relational risk in the project [19], [20].

In contrast, stakeholder theory, organizational learning, and literature on trust are mostly utilized to explain the influence of formalization in promoting cooperation in IORs. Based on stakeholder theory, formalization in a project can enhance cooperation among project stakeholders by aligning stakeholders' objectives and interests [21]. In the same way, organizational learning

justifies deploying formal contracts and formal processes and procedures by asserting that these formal arrangements can contribute to the transfer of explicit knowledge among partners, and consequently may increase organizational competencies and provide more value for stakeholders [22]. Some scholars have argued that formal arrangements increase the transparency in the project and modify the perception of the partner and the situation, and as a result may enhance the collaborative atmosphere and mitigate the performance risk of IORs [19], [20].

2.2 Different Types of Formalization

In terms of formalization, some studies confine it to the formal contracts and argue that only thing that varies in different exchanges is the degree to which these contracts are detailed [2], [22–25]. In this perspective these binding agreements are established at the front-end phase of the exchange relationship, accordingly included in ex ante governance mechanisms in some references [1], and are supposed to mitigate the later problems in the project. However, there are other studies spanned domain of formal governance beyond formal contracts, assuming formal governance is a combination of binding agreements and structural formalization [5], [26–28]. In this view, structural formalization refers to establishing formalized standards, procedures, policies, rules, and practices used in the pursuit of desirable objectives of the exchange. Based on their application during life cycle of the partnership, some studies referred to them as ex post governance mechanisms [5]. The structural formalization can be extended to applying information technology and information systems (IT/IS) that informate and automate the workplace, and strengthen management power through enabling the exchange partners to monitor other parties' activities from distance, consequently make monitoring more efficient by reducing time and cost involved in collecting data, and also by automating data analysis [29], [30].

2.3 Control Modes of Formal Governance

Generally, the IORs governance literature has identified five different types of control modes, namely, output control, behavior control, input control, clan control and self-control [27], [31–33]. Typically, the former two control modes are categorized as formal control modes while the latter three are referred to as informal control modes. Since the focus of this paper is on the formal governance mechanisms, the discussions below concentrate on formal control modes. Output control regulates the output by setting output targets, measuring and evaluating output and reward/penalize people responsible [27], [31], [34], [35]. The contextual condition for output control is output measurability (OM). When OM is low, it is difficult to enforce output control. When OM is high, it is economical and desirable to use output control [36]. Similarly, behavior control's focus is on regulating people's behavior by specifying and enforcing desired behaviors and processes [27], [31], [34], [35].

Table 1. Formal governance perspectives

Perspective	Definition	Representative research
Theoretical orientation	Control: Mitigates environmental uncertainty and risk associated with opportunistic behavior by explicitly stating how various situations will be handled and how disputes will be resolved. (TCE Theory, Principal-Agent Theory, and Theory of Trust)	[2], [19], [23], [28], [30], [37–43]
	Cooperation: Promotes cooperation by ensuring that the parties have shared understanding of the relationship. (Stakeholder Theory, Organizational Learning, and Theory of Trust)	[2], [19], [28], [41]
Type of formalization	Contractual formalization: Details the rights, duties, roles and responsibilities of parties and specifies clear boundaries and also the compensation system and adjustment formulas in a binding legal agreement.	[1], [2], [5], [9], [19], [22], [24], [26], [28], [30], [35], [37], [38], [40], [41], [43–45]
	Structural formalization: Establishes formalized standards, procedures, policies, rules, terms, practices, and regulations in the pursuit of desirable objectives.	[5], [13], [19], [22], [24–26], [28], [33], [35], [38], [41], [42]
Mode of control	Output control: Focuses on outputs and results	[27], [31], [34], [35], [46]
	Behavior control: Focuses on behavior, processes and actions	[27], [31], [34], [35]

In order for the behavior control to be effective, the controller needs to be knowledgeable about the tasks (referred to as task programmability or knowledge of transformation process) and the behaviors observable. When both contextual variables are high, behavior control can be an effective control mode. In contrast, when both are low, behavior control should not be the main control mode [36].

3. OPERATIONALIZATION OF FORMAL GOVERNANCE

The operationalization of formal governance in the empirical literature is rich and diverse which could lead to inconsistent interpretation or even misinterpretation of the research results. In the discussions below, we review the empirical literature and categorize extant instrument used to operationalize formal governance into a 2 by 2 matrix (Figure 1).

Figure 1. Formal governance matrix

	Contractual formalization	Structural formalization
Output control	Indicators for contractual formalization focusing on output control	Indicators for structural formalization focusing on output control
Behavior control	Indicators for contractual formalization focusing on behavior control	Indicators for structural formalization focusing on behavior control

The matrix serves as a framework for identifying various formal arrangements under different contexts.

3.1 Contractual Formalization for Behavior Control

As mentioned previously, the main purpose of utilizing governance mechanisms is to control the relational and performance risk of IORs. Fulfilling this aim, part of studies considered some provisions in formal contracts that promote the desired behavior from engaged parties during the lifecycle of the project (Table 2). Incorporating these terms in the contract can clarify the code of conduct for expected behavior and may enhance the trustfulness among project parties, leading to better interrelationships and more cooperative actions.

3.2 Contractual Formalization for Output Control

As shown in table 3, contracts may contain some provisions to ensure the project parties about achieving agreed outcomes and results at the end of the project. Through these binding arrangements that describe the quality and scope of service for each partner, all the parties can evaluate the performance of others to find out if it was successful or not. As more detailed arrangements applied in a contract, the probability of misunderstandings or claims will decrease.

3.3 Structural Formalization for Behavior Control

In addition to formal contracts, there are some other formalization tools that are commonly used in the projects. As illustrated in table 4, some of these arrangements can serve as behavior control mechanisms. Most of the time, these mechanisms are in the form of formal processes or procedures for performing the project

Table 2. Indicators for contractual formalization focusing on behavior control

	Contractual formalization	Representative research
Behavior control	<ul style="list-style-type: none"> • Pre-specified adjustment formulas • The right to examine and audit all relevant records • Designation of certain information as proprietary and subject to confidentiality of the contract • Non-use of proprietary information even after termination of agreement • Arbitration clauses; Lawsuit provisions • Clauses of liability in case of breach of contract • Payment terms • Force majeure • Liability supplier; Warranties supplier; Insurance supplier • Intellectual property provisions; Piracy protection • Restrictions on product use • Detailed obligations, rights, roles and responsibilities of parties • Precisely stated what will happen in the case of unexpected events • Precisely stated how each party is to behave • Financial and non-financial rewards based on behaviors • Precisely stated how disagreements between parties will be resolved • Detailed cooperation regulations 	[1], [5], [9], [19], [22–26], [28], [30], [33], [34], [38], [44], [46]

Table 3. Indicators for contractual formalization focusing on output control

	Contractual formalization	Representative research
Output control	<ul style="list-style-type: none"> • Detailed provisions about the subject and scope of the partnership; Service level • Target cost contract; pre-specified price • Pre-specified delivery time; termination of agreement • Duration of service; duration of maintenance • Penalties in case of default of payment or delivery • Financial and non-financial rewards based on outputs • Benefit sharing • Technical and functional specifications 	[1], [19], [23], [31], [33–35], [38], [46]

Table 4. Indicators for structural formalization focusing on behavior control

	Structural formalization	Representative research
Behavior control	<ul style="list-style-type: none"> • Periodic financial reports, periodic progress reports • Business plans • Joint management and decision making • Decision model for strategic decisions • project board; Board monitoring; Task groups • Institutions and measures to resolve the disputes and conflicts • Systematic and integrated rules and procedures to deal with various joint activities • Open book accounting system • Regularly scheduled meetings • Project milestones and schedules; project documents and memos • Job description • Performance indices; performance monitoring procedures • Prompt written notice of any departures from the agreement • Profit and lost accounts; balance sheets • Economic efficiency calculations • Planning and operating procedures, Ordering and supply procedures • Quality plans, Quality control • Pre-action review of ideas for innovations • Using IS/IT for providing accurate and immediate information about the quality and quantity of the work • Using IS/IT for allowing each party to detect problems or errors that can happen • Using IS/IT for providing detailed information on the source of problems or errors 	[1], [5], [9], [19], [23], [25], [27], [30], [31], [33–35], [38], [40], [46]

Table 5. Indicators for structural formalization focusing on output control

	Structural formalization	Representative research
Output control	<ul style="list-style-type: none"> • Specific goals and objectives for cooperation • Overall (strategic) goal setting • Short-term goal setting • Project performance criteria, project performance evaluation 	[1], [5], [31], [35]

activities. Using these arrangements provides a common language in the project and helps project parties to alleviate potential disputes and deal with unexpected situations in a more cooperative environment.

3.4 Structural Formalization for Output Control

Alongside those structural formalization mechanisms that contribute to the control of behavior of project partners, there are some other arrangements that are useful for achieving the favorable outcomes of the project. These mechanisms, as shown in table 5, can play an important role in the success of the project and cooperation satisfaction by describing the long-term and short-term objectives of the project and the project alliance, and setting performance measurement criteria for evaluating these achievements.

4. CONCLUSIONS

Because of multi-disciplinary nature of construction projects, controlling inter-organizational relationships (IORs) is an important part of success in these arrangements. One of IORs governance mechanisms that have been identified in this field is formal governance mechanism. Many empirical studies have investigated different features and components of this governance mechanism, however, the definitions and indicators are highly dispersed. This ambiguous situation may degrade the value of this field of study by causing confusing outcomes and contradictory interpretations of research results. This study contributed to the IORs governance literature by identifying, synthesizing, and categorizing previous empirical studies in the field and devising a novel and useful framework for understanding formal governance mechanism and its application in construction projects.

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