

Drivers of Agent Control Mechanisms in Construction Project Procurement in Nigeria

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Abstract

The efficiency of a procurement system is dependent on the actions of the stakeholders in the system and the best project performance will be obtained when there is a high level of cooperation between all levels of organizational structure. Agency is concerned with the actions and relationships of a principal (a client) and his agents, the professionals and individuals a client designates a level of decision making authority to, in order to perform a task on his behalf. However, to limit divergences from his interest, the principal often establishes appropriate incentives for the agents and incur monitoring costs designed to limit the opportunistic activities of the agents. Therefore, it is important the driving forces of the adoption of agent control mechanisms in construction projects procurement are recognized and comprehended. Thus, this study examines these drivers. A Survey design was adopted. A total number of one hundred and sixty-five (165) questionnaires were administered to construction professionals in Imo State, south eastern Nigeria and one hundred and ten (110) were returned and found suitable for analysis. Collected data was analysed using percentage, mean item score, standard deviation, and Kruskal-Wallis. The findings reveal the drivers of the adoption of agent control mechanisms in construction project procurement in Nigeria which are organization culture as the highest ranked driver, project complexity, top management support, project team trust, cultural background, project status. These findings could inform construction clients in the country on these drivers and encourage them to take significant steps towards putting these drivers in place so as to limit divergences from their interest.

Keywords

Agent control, Construction, Drivers, Nigeria, Procurement.

1. Introduction

Procurement has been a critical role of any government all over the world, based on the fact it is an economy driver. It is a process according to Eriksson & Lind (2015) that is performed in an inter-organisational project-based relationship in which sustainable value is created by the clients and their suppliers and the success of such relationship is dependent on the procurement strategy adopted by the client. However, Ogunsemi (2015) opined that construction project procurements are still plagued with problems of poor productivity and inefficiency. The reason for this might not be unconnected with the high risk and multiparty business nature of the construction industry. Benedict (2017) opined that the fragmentation of processes in the construction industry, which is prone to uncertainty, as well as its network of stakeholders involving different organisations and relationships is just a part of what makes the execution of a project complex. According to Ogbeifun et al (2018), the behaviour and quality of the relationship between these networks of stakeholders (client, consultant, and contractor) influences project progress and success. Ogunsemi (2015) opined that viewing the problems of poor productivity and inefficiency in construction procurement through the lens of the agency theory, the only one thing that is the root cause is the attitude, behaviours, and relationship between the principal and agents involved in the process.

The agency problem describes a situation where the agent behaves dishonestly and performs actions that diverge from the original intentions of the contract if it will benefit him more to do so, usually at the detriment of the project and the principal's welfare. This is a situation that is most often seen in transactions between client and contractors/project managers and contractors/project managers and suppliers in procurement management (Ceric, 2012). When an agent seeks to maximize personal interest, there is often a dwindle in performance that correlates with the performance of the project at hand: unprofessional or underhanded construction practices motivates waste, corruption, and inefficiency, leading to cost and time overruns, low productivity, and increased project costs to correct the inefficiencies of the agent. These are often the reasons behind collusions between agent and principal that become legal cases in court which contribute to the image of the construction industry as being highly litigated (Oyedele, 2016). However, to limit divergences from his interest, the principal can "establish appropriate incentives for the agent and incur monitoring costs designed to limit the opportunistic activities of his agents" (Oteng, 2016). The agency theory opines that it is possible to negotiate optimal strategic alignment of interests between principal and agent to reduce the uncertainty of agents' behaviour (Serrano et al, 2018).

Agent control is concerned with the actions and relationships of a principal (a client) and his agents, the professionals and individuals he designates a level of decision making authority to in order to perform a task on his behalf (Kamau & Rotich, 2015). In the construction sector, this will refer to the relationship between the client and other stakeholders. A client can thus enable different levels of collaboration in a principal-agent relationship using different types of control. The agent control mechanism have made it possible to better construct contract agreements in ways that induce the agent to work in the interest of the principal (Oteng, 2016). The purpose of controls in procurement, therefore, is to account for cost, quality, and timeliness. Having control over agent behaviour regulates the behaviour of the suppliers and service providers, and introduces an environment of cooperation on-site, thereby managing resources and time. However, in a weak institutional system like Nigeria's, the control measures laid down to combat problems of agency have unfortunately crumbled (Nnadi, 2015). Dominant organisational literature proffers three agent control mechanisms and they are market, bureaucratic, and clan control systems. Therefore, it is important the drivers of these agent control mechanisms in construction projects procurement are recognised and comprehended. Thus, this study examines these drivers in the Nigerian construction industry.

2. Materials and Methods

The study took a post-positivist approach in terms of philosophy, employing quantitative research that was carried out using a questionnaire survey. The questionnaire was divided into two segments, with the first segment intended to elicit background data from the respondents. The second segment tried to address the drivers of the identified agent control mechanisms. The respondents, who are construction professionals were requested to rate the significance of the drivers of the identified agent control mechanisms in the Nigerian construction industry using a 5-point Likert scale, with 5 being Strongly significant, 4 being significant, 3 being moderately significant, 2 being slightly significant, and 1 being not significant. The study population were made of qualified construction professionals (engineers, architects, quantity surveyors and construction managers) who are working in Imo State, Nigeria and had at least five years of work experience. Due to time and financial restrictions, convenience sampling was used for the study. One hundred and sixty-five (165) questionnaires were sent out to the construction professionals and one hundred and ten (110) were received and considered appropriate for investigation. Standard deviation, percentages, mean item scores, and Kruskal-Wallis tests as adopted by Otasowie & Oke (2022) were used to analyse the collected data. Using the Cronbach's alpha test, which yielded an alpha value of 0.922, the study validated the questionnaire's reliability. Given that the alpha score is over the cutoff point of 0.6, confirms the questionnaire's high degree of reliability (Tavakol & Dennick, 2011).

3. Results

Professionals from Imo State, Nigeria participated in the survey. The profession with the most involvement (35.3%) is quantity surveyors. Following are engineers (21.6 %), project managers for construction (19.6%), architects (15.7%), and construction managers (7.8%). The majority of these respondents (41.2%) hold master's degrees, while the other levels of education are bachelor, doctoral, and higher diploma degrees, respectively, with 31.4%, 2%, and 25.5%. The total number of respondents had an average working history of 7.6 years, which is a remarkably long period of time in the field. These findings suggest that the study's target respondents, who were construction

professionals, were fairly represented and that they had a sufficient degree of education to comprehend the study's questions (Otasowie & Oke, 2022). Also, the answers to these queries were based on a large amount of professional expertise.

Furthermore, the drivers of the agent control mechanisms are shown in Table 1 below, ranging from highest mean to lowest mean. As can be seen, drivers with the same mean were ordered according to how much they deviated from the mean (standard deviation). The mean standard error (SE) is a definition of the standard deviation. The standard deviation reveals what the mean of the observed data was. A modest standard deviation illustrates a situation where most data points are near to the mean, whereas a high standard deviation indicates a data point that deviates much from the mean (Field, 2005). As a result, this was used to rank the drivers with a similar mean. The average of the replies received from each responder makes up the mean for each driver.

The results show organization culture as the highest ranked driver (MIS=4.33, SD = 0.10). This was followed by project complexity (MIS=4.28, SD=0.22); top management support (MIS=4.19, SD =0.28); project team trust (MIS=4.02, SD=0.31); cultural background (MIS=3.98, SD=0.35); project status (MIS= 3.95, SD=0.38); personality (MIS=3.90, SD =0.46); lack of experience (MIS=3.82, SD=0.47); knowledge of past performance (MIS=3.78, SD =0.50); organizational rank (MIS=3.72, SD =0.42); technology (MIS=3.70, SD=0.44); proper governing practices (MIS=3.68, SD=0.45) and ranked last was legal framework (MIS=3.63, SD =0.53).

Table 1. Drivers of Agent Control Mechanisms.

Drivers	Mean	Standard Deviation	Rank
Organization culture	4.3313	0.1016	1
Project complexity	4.2783	0.2217	2
Top management support	4.1850	0.2761	3
Project team trust	4.0165	0.3091	4
Cultural background	3.9748	0.3463	5
Project status	3.9478	0.3803	6
Personality	3.9028	0.4626	7
Lack of experience	3.8236	0.4689	8
Knowledge of past performance	3.7800	0.5010	9
Organizational rank	3.7182	0.4233	10
Technology	3.7002	0.4360	11
Proper governing practices	3.6802	0.4531	12
Legal framework	3.6301	0.5322	13

To compare the responses of the respondents according on their different construction professions, a Kruskal-Wallis's test was conducted. It was found that while the responses for some drivers of agent control measures in the Nigerian construction industry, such as organisational culture, top management support, organisational rank, and proper governing practices, do not statistically differ from one another significantly. However, they do differ from one another significantly statistically in the case of other drivers. Table 2 below presents the result.

Table 2. Kruskal-Wallis Test Showing P-Values for Drivers

Drivers	P-Values
Organisation culture	0.083
Project complexity	0.000
Top management support	0.068
Project team trust	0.001

Cultural background	0.000
Project status	0.000
Personality	0.002
Lack of experience	0.001
Knowledge of past performance	0.001
Organisational rank	0.071
Technology	0.000
Proper governing practices	0.054
Legal framework	0.000

4. Discussion

Construction projects are an example of a high risk enterprise that naturally implements and uses control mechanisms, even if people being controlled may not be able to see them. Based on the result above, organisational culture is the first ranked driver of the agent control mechanisms, and the impacts of such a culture are crucial. This was even made clear by the Kruskal-Wallis test conducted. The various construction professionals in the Nigerian construction industry agreed that organisational culture is a significant driver of agent control mechanisms. According to Tuuli et al. (2010), a “rule following culture” is driven by a fear of blame or punishment, which creates an inflexible and predictable culture. The development of congruence between an organisation's and its employees' values is known as organisational culture, and it is linked to “organisational performance” as an organisational capital and core competency (Tan, 2019). The purpose of agent control, according to organisation and management literature, is to guarantee that the actions and choices taken by organisational members are in line with those organisations' goals, objectives, and strategies (Merchant & Stede, 2007; Tuuli et al., 2010). Organisations frequently employ control mechanisms to ensure consistency and uphold company values and principles. This is because values and presumptions influence how organisational members see time, the nature of human activity, and both horizontal and vertical linkages at different organisational levels. Clan, adhocracy, market, and hierarchy are four major cultural orientations that are represented by the values and conventions that organisations choose to express in their cultures in order to balance the needs of many stakeholders (Morgan & Vorhies, 2018). Strong cultures are seen as effective communication tools for informing workers about desired behaviours and organisational goals. As a result, organisational culture is seen to be a key factor in the agent control mechanisms that result in desired performance outcomes. This is as performance results show the extent to which major stakeholders, including clients and construction professionals, have been successful in resolving their conflicting interests.

Furthermore, project complexity is a driver of the agent control mechanisms in the Nigerian construction industry. In fact, it is ranked second based on data collected from the various professionals in the industry. A project may be complicated to complete because of special characteristics like its size, position (both vertically and laterally), technical requirements, large precast components, via ducts' curves, considerable work at height, etc. A project's complexity and originality raise questions about how it will turn out (Artto & Wikstrom, 2005). Considering this complexity, client can thus achieve different levels of collaboration in a principal-agent relationship using different types of control mechanism. Hence, having control over agent behaviour which in turn regulates the behaviour of the suppliers and service providers, and introduces an environment of cooperation on-site, thereby managing resources and time. For example, due to greater uncertainties at the design stage at the pre-contract stage of a project, the agents can be controlled by purchasing design services separately from construction services (design-bid-build) which considerably reduces the likelihood of opportunism owing to asset specificity after the fundamental transformation (Winch, 2001). Also, professional firms can provide a standardized intangibility of the service supplied, i.e., clients do not know what they will get, but they know how it will be achieved due to independently established formal work

plans. In the event of unsatisfactory performance, redress is provided through the professional institution which is responsible for regulating the education and practice of its members.

Another driver of the agent control mechanisms in the Nigerian construction industry is top management support. This driver ranked third based on the responses of the various construction professionals. This was also made clear by the Kruskal-Wallis test conducted. The various construction professionals in the Nigerian construction industry agreed that top management support is a significant driver of agent control mechanisms. This involves the expression of a desire to collaborate with other parties to address project issues. It has been shown that projects succeed more frequently when top management are in support of an adopted concept or mechanism (Willumsen et al., 2019). Hence, agent control mechanisms will be a success if the system is supported by senior management of a construction organisation. The management team, and more especially senior management, must work efficiently and be committed to the adoption of agent control systems. The rationale is because in an organisation's ability to achieve its goals and objectives, its top management must be able to enforce the practices and rules that must be applied across the organisation. As a result of this enforcement, staff members will become more conscious of and likely to incorporate these practices into their regular work in an effort to further the objectives of the business. Also, the formalisation of agent control systems will offer more precise recommendations for their deployment across all organisational levels. This proves that an organisation's senior management must be committed for whatever objective it sets to be realised successfully (Williams et al., 2014).

Proper governing practices is one of the ranked drivers of the agent control mechanisms in the Nigerian construction industry. According to Muller & Lecoeuvre (2014), project's goals, how the required resources are acquired, and how progress is tracked are all defined by the governance. While McGarath & Whitty (2015) referred to project governance as a method through which a company oversees, manages, and accepts responsibility for a project. Proper project governance drives the adoption of agent control mechanisms in construction. This is because of its ability to create an avenue for accountability and as such benefits management. Furthermore, for the purpose of recognising and addressing risks in construction projects as they emerge throughout project implementation, project governance provides a systematic structure. An example of proper governance practices that drives agent control mechanisms is the installation of a third party system in projects to facilitate control of transactions. These third parties, the 'principal-agents' in the agency cycle, are commonly the architect, the engineer and the quantity surveyor in the construction process. According to Winch (2001), their functions are to verify the satisfactory performance or otherwise of the contract, facilitate negotiations when the contract needs to be renegotiated due to variation of works, and serve as a first line of defense for resolving disputes before they reach the legal system and into adjudication, arbitration, and litigation. Then, the architect or engineer must be satisfied as to the quality of the work performed in accordance with specifications, sign the certificate of completion, as well as approve variations to the specification if necessary. Another aspect of governance is the ability to develop credible commitments between the parties, which usually take the form of various forms of 'hostage' circumstances (Winch, 2001) which are essentially techniques to keep an agent committed to his work.

Other critical drivers of agent control mechanisms in the Nigerian construction industry identified from the study include project team trust; cultural background; project status; personality; lack of experience; knowledge of past performance; organizational rank; technology; and legal framework.

5. Conclusions

This study evaluates the drivers of agent control mechanisms in the Nigerian construction industry in a bid to adopt the agent control mechanisms in the country's construction sector. This is for the purpose of having control over agents' behaviours, regulate the behaviour of the suppliers and service providers, and introduces an environment of cooperation on-site, thereby managing resources and time. The drivers were discovered after a survey of the available literature, which was then presented to the construction professionals in the country. The results of the study show that the most important driver of agent control mechanisms is organisational culture. Project complexity, top management support, project team trust, and proper governing practices, among others are additional significant drivers. It is necessary to note that the concept behind control strategies therefore is the evaluation of monitoring, task measurement and reward structures in order to address issues of quality and risks in agent service as a result of uncertainty, opportunism, bounded rationality, asset specificity, and transaction frequency. The purpose of control is to motivate, or deter certain agent behaviours for the goal of aligning the interest of the agents with the principal. Therefore, it is imperative that the identified drivers are in place for effective implementation of the control

mechanisms. These findings could inform construction clients in the country on these drivers and encourage them to take significant steps towards putting these drivers in place so as to limit divergences from their interest.

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