

STRATEGIES FOR ALIGNING ORGANIZATIONAL INCENTIVE SYSTEMS THROUGH CONTRACTS

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A common issue in construction contracting is how to get contractors and suppliers to improve their performance. In improving performance, the most effective processes involve knowledge and information management activities, which cross organizational boundaries and supply chains. However, the complexity and fragmentation of the supply chain's contractual interfaces often lead to the non-alignment of incentive contracts. By organizations mapping out and aligning incentives, performance measures and reward systems along their supply chain, beneficial incentive systems can be identified. In addition, dialogue will be encouraged and information made explicit. Information to be captured will include organizational needs, strategies, shared values and beliefs, resources, process issues, and internal and external influences. An illustrative case study revealed that a project suffered gross misalignment when the incentive flow-down along its supply chains was mapped out. Preliminary findings indicate that the majority of the contracts were fixed-price contracts. The use of standard forms of contract was also widespread in the supply chain for this project. The preliminary findings indicate that developing an 'incentive map' can be used to encourage negotiations between the various external organizations at the start of new projects. In addition, an 'incentive map' provides the basis for an incentivization structure that increases performance through collaborative working. In practice, mapping can be used to generate valuable information; secure innovative responses from the supply chain members; and identifying potential problems between incentives and performance measures at the different interfaces along the supply chain.

Keywords: contractual relationships, incentive, mapping, performance, supply chain.

INTRODUCTION

In many business agreements, the issues of poor performance and customer dissatisfaction have often been associated with the design of contracts and the analysis of behaviour and performance (Tsay *et al.* 1998). Reviewing recent advances in the field of modelling supply chain contracting, Tsay *et al.* (1998) emphasize that the scope of issues that have been addressed to date has been restricted, neglecting factors such as the constant change of requirements and specifications; business deals are often carried out in the context of long-term relationships and the unwanted disconnection between management and production within firms. In the field of construction contracting, the perception is no different.

In fact contractual relationships in the construction sector are generally held as a major cause of non-performance and client frustration with the UK construction

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sector. As espoused in both the academic and the business press, scepticism with the effectiveness and efficiency of traditional contracting in the UK construction sector has led to an increasing experimentation with the use of a variety of new techniques of procuring, designing and delivering construction works and services. Consequently construction organizations are redefining their activities in terms of client/customer service delivery. Over the past decade, construction organizations have been focusing noticeably on long-term business relationships such as Partnering, PFI and Framework agreements (Fisher and Green 2001) as the answer to improving performance. The result, in part, has been an increasing emphasis on the satisfaction of clients' needs through long-term through-life service support provision rather than traditional discrete product delivery. While some research supports the contribution of these practices to improved performance, most of the evidence of the inter-organizational partnerships' contribution to performance is anecdotal (Mason 2007). Based on case studies of construction projects carried out in the offshore, process plant, civil engineering and building sectors, Bresnen and Marshall (1998) show that many of these methods are accompanied by heightened awareness that the contractual relationships underlying them are inadequate for the 'long-term through-life service' operating environment. Any successful incentive contract must simultaneously give the supplier an incentive to perform and the client an incentive to assess performance honestly (Bower *et al.* 2002).

Arditi and Yasamis (1998:361) in their study of incentive and disincentive contracts suggest that "incentives are generally used along with disincentives to promote efficient contract management and to reward only successful contractors with high performance standards..." However, the purpose and efficacy of incentives were not questioned. While contracts can play an important role in ensuring accountability, responsiveness and quality, they do not inform us much in terms of how to enhance efficiency, particularly when results are unsatisfactory. Thus, a recurrent issue in construction contracting is how to incentivize contractors and suppliers to improve their performance over the long-term period. The literature on incentive contracts asserts that incentive issues may be mitigated by using contracts that tie reward to performance (e.g. Bower *et al.* 2002). In essence, this would involve aligning and managing incentives, performance measures and reward systems. Dulaimi *et al.* (2003) point out that matching incentive, performance measure and reward is among the most common difficulties associated with incentive contracting. There are several reasons for this: among them are the challenges of communication, measurement and management of performance. First, incentive are not only difficult to measure, they are sometimes difficult to identify and articulate for a given organization or manager (Feltham and Xie 1994). Second, the complexity and lack of visibility of the supply chain's contractual interfaces and the fragmentation of the supply chain often leads to non-alignment of organizational incentive systems (Hughes *et al.* 2006). In delivering an improved performance, the most capable processes involve knowledge and information management activities in contractual relationships, such as stakeholders evaluating their contributions and understanding their expectations (Atkinson *et al.* 1997).

COMMUNICATION, PERFORMANCE MEASUREMENT AND PERFORMANCE MANAGEMENT

Within the UK construction sector, contracts have been used as incentive and disincentive tools to promote and enforce efficiency. However, the outcomes

achieved vary widely. These differences are due to three common problems: poor communication, poor performance measurement and management.

Communication

Poor communication problems have received increasing attention in the wider incentive literature. In spite of the huge advancement of information systems, inadequate communication is commonly cited as a critical impediment to incentivizing performance (Dainty and Moore 2000). Many organizations will not share vital information with other parties to the contract for fear of it being used against them. This practice creates problems for incentive systems as parties become suspicious of incentive plans in which the rewards or payments are computed on 'mystery' data. Often problems arise when incentives, measures and rewards are in a state of flux or when feedback is delayed (Dainty and Moore 2000). On the other hand, by outlining incentives positively or negatively, perceptions of consideration and enmity, which are crucial for improving performance, can be manipulated. The outlining effect is due to a shift in the reference point that provides the basis for judging actions as sympathetic or unsympathetic. Thus affecting the participants' beliefs, this induces different behaviours and attitudes.

Performance measurement

A significant concern in designing incentive systems is performance measurement, not merely for determining rewards, but also as a source of information for other different forms of incentives (Baker 1992). In their study of achieving world-class supply chain alignment, Fawcett and Magnan (2001) reveal that inept and inadequately aligned performance measurement was viewed by many practitioners as a critical impediment to incentivizing performance since many performance measures are susceptible to manipulation. This often leads to the distortion of incentives (Baker 2002). A distortion of incentives caused by a performance measurement often encourages parties to 'game' a performance measure by taking actions that increase rewards from the incentive contract without improving actual performance. In essence only outcomes the parties are capable of influencing should be included in any incentive contract. Furthermore, perceptions of how well an organization performs are distorted by personal bias, as often clients' or managers' perceptions are subjective rather than objective. This type of subjective measure falls short in providing the parties with specific objectives required to improve performance. The issues highlighted above point to the fact that in delivering an improved performance, the most capable processes involve knowledge and information management activities within organizations and across the supply chain interfaces.

Performance Management

In many construction organizations, traditional procurement methods still dominate (Dainty and Moore 2000) and many underestimate the effort required of managers to make the transition from traditional procurement (e.g. Black *et al.* 2000, Dulaimi *et al.* 2003) to a performance-based contracting environment. For instance, in traditional procurement methods, organizations simply reacted to mistakes and problems but with the introduction of performance measurement and reward systems, organizations have to be more proactive and identify improvement opportunities before problems, such as cost overruns and project delays become serious (Abdul-Rahman *et al.* 2008). In addition, construction organizations know they need to change and improve their performance, but are not sure exactly how to make the needed changes happen. The lack of performance management may lead to contract and procurement managers not

supporting the new incentive systems unless their new role is well communicated and reinforced.

Within the construction sector, organizations do not design and manage performance improvement plans; rather much emphasis is laid on output-based incentive schemes. This can cause a lot of problems when the measures fail to show improvement in performance leading to poor performers being punished instead of being helped to improve. Hughes *et al.* (2006: 59) revealed that clients advocating pain-share/gain-share management arrangements both up and down the supply chain appropriate a much larger share of the small total surplus, hence a more profitable outcome for them. However, this pain-share/gain-share management arrangement does not incentivize contractors or suppliers at all, even though they would have had to spend money to make the gains.

INCENTIVES IN ORGANIZATIONAL SETTINGS

As the construction sector's supply chain evolves, the business logic, e.g. in terms of how their revenues and costs are generated, of the construction organizations within the supply chain changes and varies over time. As a result, the organizations have individual associations between incentives and project life cycle. The difference in the business logic may decrease incentives for information sharing and performance improvement. A lack of incentive structure to promote performance improvement may promote opportunistic and narrow-minded behaviour. Incentives systems can play an important role in focusing organizations on particular aspects of a business exchange to deliver particular outcomes. However, from a dynamic perspective, focusing only on outcomes is simply not an effective long-term incentive system. It recognizes that long-term incentive contracts are not only simply designed and enforced, but they also evolve over extended periods of time. Many key factors may also influence outcomes, especially in the construction sector, where construction organizations exist in multiple environments simultaneously. In addition, within many construction organizations, the organizational structure reveals a cultural and structural distance that separates the inbound and outbound sides of the organization

Contrary to assumptions that incentive schemes are designed purely to ensure that contractors and suppliers are motivated to take actions desired by the client, there are other important factors, such as the ability to shift risk to suppliers, the power relationship of different stakeholder groups; the impact of organizational structure and culture (Waggoner *et al.* 1999). In addition the strength of incentives used and the outcomes that result from these depend to a large extent on the characteristics of the performance measures available to the organizations (Lazear 1989, Baker 1992). Lazear (1989) emphasizes that a weak incentive may be more efficient than a strong but dysfunctional incentive. Baker (1992) reaches the same conclusion that it is no use creating strong incentives for the wrong action. In other words incentive arrangements must align the needs of the client and contractor, correctly allocate risk, and allow an appropriate level of involvement. An organization's performance measurement system has to relate to the strategic goals of the organization (Kagioglou *et al.* 2001).

While space limitation will not permit an in-depth discussion, it is important to recognize that organizational theory and ecology, strategic choice, incentive theory and institutional theory have been applied to help understand organizational processes and practices (Pettigrew and Whipp 1991, Scott 1995, Child 1997, Laffont and Martimort 2002). Such theories show that not only should complementary

measurements be used in incentive contracting, but the organization's strategy towards incentive contracting should complement its strategies toward planning, productivity and politics (Pettigrew and Whipp 1991). Shoichet (1998), among others, asserts that the integration of these three dimensions runs through organizational systems and that their various aspects can be aligned for greater leverage and performance within the multiple environments simultaneously.

Matching incentives and performance measures within organizational context

Drawing on the three-dimensional model of organizational life (Shoichet 1998: 80), it is advocated that in designing incentive systems, organizations should integrate the three areas of organizational activity, planning, productivity and politics, by "fitting values to strategies to needs, social systems to operating systems to resources, and level of responsiveness to constituent stakeholders to competitive alternatives." Shoichet (1998: 80). Shoichet argues that "what is critical is that the resources align with operating and social systems and that related realignments take place along the planning and political dimensions as well." (1998: 80). Aligning these aspects as well as identifying the gaps between these aspects can assist construction organizations in identifying potential incentive systems, potential gaps and potential tools for closing the gaps. Neely *et al.* (1997) and Kagioglou *et al.* (2001) assert that it is widely accepted that the extent of any incentive system should include performance measures. Neely *et al.* (1997) suggest that the measures of performance should (i) be purposeful, (ii) be clearly defined and simple to understand, (iii) be visible to all, (iv) be derived from strategy, and (v) provide fast feedback and information. The works presented above show that an incentive system is not useful if it is incapable of adjusting to changes in an ever changing environment, such as the UK construction sector.

Knowledge and information management activities

In many business agreements the parties do not have the same information as each other when deciding what to do. As a result, the incentives issue turns into one of attempting to encourage the parties to use their information and knowledge productively, while simultaneously avoiding incentives that will encourage them to engage in dysfunctional actions. Since knowledge management is essentially information-dependent, it is simply impossible to coordinate value-added activities across functional and organizational boundaries without sharing information regarding incentives, performance measurement and reward variables. Indeed, the success of incentive contracts will depend on reliable and consistent knowledge and information management at the various organizational interfaces (cf: Kagioglou *et al.* 2001, Abdul-Rahman *et al.* 2008). It may not be practical to accurately capture what is desired in a written contract. Shortcomings of the court system itself may prevent effective contractual enforcement. Gibbons (1998, 2005) concludes that (i) objective performance measures typically cannot be used to create ideal incentives and (ii) in multi-task settings, it is often helpful to use multiple instruments to provide a balanced package of incentives, and useful instruments range from direct cash payment to intangible incentives. Gibbons (2005) points out that some authors have suggested that within the supply chain, the choice of whether to use incentive contracts or not, is often dependent on how difficult it is to measure performance. However, it is possible to measure performance in some way. It is not whether performance is easy or difficult to measure, but to an extent whether the selected performance measure accurately reflects the organization's objective.

From a knowledge management perspective, improved performance can be sought by increasing knowledge and information generation and integration (Abdul-Rahman *et al.* 2008). This in general involves several key activities such as: (a) collecting and processing data; (b) distributing information about performance to users within and outside the organization; (c) identifying what actions can be taken to further improve performance through an organizational learning mechanism; and (d) a review process which ensures that the performance measurement system itself is regularly updated, especially in the project-based nature of construction projects. In essence, a performance measurement system is of no use if it is not able to adjust itself to changes in today's competitive environment. Consequently, the authors are engaged in ongoing research to determine: (1) motivational triggers for the shift to Performance-Based Contracting (2) ways in which relevant information is generated; (3) measures of performance and how processes of performance measurement are applied; (4) ways in which performance is used as a selection and reward mechanism; and (5) the impact of different financial structures amongst clients, contractors and suppliers.

MAPPING INCENTIVE SYSTEMS

Essential to organizational incentive systems is one's ability to align favourably with the three areas of production, political and planning activities in organizations (Shoichet 1998, Waggoner *et al.* 1999). However, in practice aligning these three dimensions of organizational activity is not easy due to information asymmetry.

Based on Shoichet's (1998) three-dimensional model of organizations and Waggoner *et al.*'s (1999) organizational performance measurement systems framework, it is advocated that mapping out and aligning the incentives, performance measures and rewards, valuable information and knowledge will be made visible and more favourable when designing incentive contracts. First mapping will provide a systematic approach for analyzing the fit between all the important aspects and performance-oriented measures such as productivity, planning and politics (Shoichet 1998). Second, mapping will help identify the gaps along the productive, planning; and political dimensions. Third, it would help identify attributes that influence these dimensions.

A multipurpose but nonetheless meticulous mapping method is essential, especially when the analysis aims at evaluating and comparing the alignment of incentives and performance measures within or across organizations. The mapping strategy will help provide vital information about the link between incentive and performance measures. Through mapping, key performance requirements at the contractual interfaces can be documented. Thus, a wide range of information and knowledge will be made available to practitioners when incentivize performance through contracts, as good measurement increases managerial understanding, moulds behaviour, and facilitates alignment (Waggoner *et al.* 1999).

Mapping a given incentive system or performance measurement poses challenges for the mapping system as a result of the massive comparisons across varied business exchanges. In order to overcome this, it is suggested that the mapping method should establish a definite and uniform basis for data collection and analysis in the context of individual organizations, performance requirements and measurements (both objective and subjective measures). Finally, the perspectives of assessment should be defined for disciplinary reference such as procurement, project management and facility management.

Mapping method

The map itself is a specialized form of flowchart, with symbols, shapes, graphics, lines and text showing all the clients' and suppliers' incentive requirements, performance measures and reward relating to selected dimensions of their relationship. The map permits the clients and suppliers to identify client/supplier and product/service attributes which need to be aligned, monitored, measured and controlled to bring about improved performance. These attributes are then included in the final contract.

The mapping process is relatively straightforward. Each incentive item is mapped through the use of interviews to draw a flowchart documenting key incentive requirements at the various interfaces along the supply chain, as suggested by Cohen and van Ewyk (2003) and illustrated by Hughes *et al.* (2006). First, the focal organization divides its key customers and suppliers into a series of tiers. The customers and suppliers who are directly engaged being labelled as first tiers and the first tiers' customers' customers or suppliers' supplier as second tier participants. This process is then repeated for subsequent tiers. Selected performance measures and rewards are mapped out, documenting the absence or presence of performance measures, as well as aligning performance measures and rewards along the dimensions of planning, political and productivity in the organizational activity areas of markets, structure and culture.

ILLUSTRATIVE CASE STUDY

To illustrate the mapping process and its outcome, a £4.5M office complex building project, procured through a framework agreement, and with several works packages contracted out, was selected as a case study. The main criteria and attribute for selecting this construction project were that this was a 'new build' building construction project under a partnering framework agreement and it had several contractible works packages. The aim was to map out the types of contract forms or incentive systems used along the project's supply chain. Respondents were contacted by 'snowballing', where for example, the main contractor recommended knowledgeable contacts from the subcontractors used. Subsequently, the subcontractors who responded also recommended sub-subcontractors or suppliers from whom they had procured goods and/or services. Data was collected based on the supply chain member's "selling" and "buying" contractual relations with its immediate customers and suppliers.

A preliminary inspection of the mapped chain revealed that despite the emphasis on long-term collaboration by the client and main contractor, there were no long-term contracts beyond the client/main contractor interface. The majority of the contracts used were negotiated fixed price contracts without any incentive schemes for improving performance. The data indicated that standard forms of contract were used in recording the deal between the client and the main contractor, and between the main contractor and its subcontractors. Beyond the subcontractors, a variety of bespoke contract forms were used. The incentive and performance measurement structures appear not to be aligned, except for the fixed price payments or fees. Stakeholders negotiated in the same old style on price, quality and time at the expense of improving performance. There appeared to be no shared vision or shared responsibility among the stakeholders. According to the respondents, the promise of future work by their clients served as an incentive. Overall, there was a lack of integration of the performance measures in use.

DISCUSSION

Despite the framework agreement signed between the client and the contractor, the number of aligned incentive schemes and performance measurements was very low at each interface. This seems to imply that straight fixed reward systems were still dominating, either because the main contractor and the subcontractors are well informed about the job being performed or the product.

The lack of any information on the ongoing liabilities or performance measures indicated that data was not being collected as part of the procurement process whenever possible in contrast to recommendations in the literature. The lack of data indicates that parties to the contract are often not involved in the process of designing or reviewing performance measures; or incorporating incentive schemes in their contracts. This has led a lack of integration between different performance measures. In designing the incentive contracts, not all the organizational components, such as skill and strategy, were taken into consideration. Poor liaisons are preventing information collection and discourage information sharing. These poor liaisons do not offer management any direction for prioritizing among the components. For example, the fixed price or fixed fees systems do not allow parties to the contract to innovate, as success is based on the financial outcome. Fixed price contracts fail to account for the realities that organizations face in allocating limited resources to gain optimal outcomes. The findings also indicate a worrying misalignment of incentive and performance measurement structures in this project's supply chain as the firms are continuing to focus on objectives like cost, time and quality. For example, performance measures are often derived from financial statements.

CONCLUSIONS

In the complex and dynamic environment of the UK construction sector, one of the challenges confronting clients is incentivizing contractors, subcontractors and suppliers to improve performance. In delivering an improved performance, the most capable processes involve incentive and performance measurement systems such as incentive contracts; and knowledge and information management and alignment activities. Client, main contractor, subcontractor and supplier organizations cannot afford to expend financial resources on non value-added activities. However this is precisely the state of affairs for those organizations that pay no attention to effectively and efficiently managing their incentive and performance measurement systems.

Importantly, the mapping of incentives and performance measurement systems proposed here is a step towards finding simple ways of motivating main contractors, subcontractors and suppliers to improve performance through developing congruence within the three areas of organizational activity - structure, culture and market - along the dimensions of planning, productivity and politics. This will give decision makers a better understanding of incentive choices. Developing an 'incentive map' can be used to encourage negotiations between the various external organizations at the start of new projects. It has the potential to be influenced and controlled by the user in co-operation with others. The information generated can then be used for the purposes of incentivizing and rewarding suppliers as well as securing innovative responses from the supply chain.

From an academic perspective, the mapping tool can be used to explore the extent to which incentives and rewards are passed on along the supply chain and how this is done in practice. From a practitioner perspective, it is anticipated that the mapping

tool will incite further thought regarding the issues and forces that impact upon an organization's effort at managing their incentives and performance measurement systems. The mapping tool can help develop a simple way of transferring incentives along the supply chain.

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