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EVALUATING WHY QUANTITY SURVEYORS CONFLICT WITH COLLABORATIVE PROJECT DELIVERYSYSTEM

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ABSTRACT

The recurring poor performance and lack of collaborative culture in the UK construction industry has been a topic of debate for many years now. This has triggered an industry wide demand for performance improvement and innovation in the construction sector. Several studies over the years have reported and linked these concerns to fragmentation, deep-seated cultural resistance and negative commercial behaviours among project participants. Traditionally, Quantity Surveyors (QSs) within the UK system are popularly known for their commercial management functions i.e., contract advice and cost related roles. But, the lack of evidence on collaborative practice across the commercial roles often performed by the QSs in practice has revealed a separation within the construction model where QSs are formulated outside the core project production team (client, designers, and constructors). This continues with further practical implications like process waste, value loss, conflicts among others. However, recently, there were calls for industry-wide modernisation with an appeal specifically on QSs to create positive link within the value chain as against being a burden to it. Based on a literature review and a case study approach, the study further discovered other commercial factors deterring collaborative practice that is emanating from QSs position outside the production system. These factors among others are: commercial background &training, customer &safeguarding practice, excessive monthly reporting & commercial governance and balancing standards with innovation.

KEYWORDS

Lean construction, collaboration, collaborative production system, quantity surveying.

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INTRODUCTION

The UK construction industry has seen plethora of reports and recommendations from government, practitioners and academia, calling for performance improvement and modernisation. According to Cain (2004) the first commissioned report raised concerns in 1929, with obligation to improve efficiency and remove waste within the construction processes.

Subsequent reports such as the Latham and Egan both challenged the industry to adopt collaborative practices, and streamline construction processes. Accordingly, Farmer (2016) also lamented on this, stating that the industry needs to modernise and replicate manufacturing advances – stressing that delivering construction in a collaborative production fashion is required. In response to the Egan and Latham recommendations, a construction strategy was launched by the government in 2011, in an attempt to modernise procurement approach through the introduction of newer models such as the cost-led procurement model, integrated project insurance and two stage open book (Cabinet office, 2014). This was a move to curtail the lack of transparency in costing activities, collaboration and generally the wastes in construction projects.

However, these advances were only partially applied in the UK system, and do not fully allow the practice of collaboration (Pasquire et al, 2015). This has invariably left the prevailing system 'dualized' where one stream focuses on actual production (building the project to completion) and the other stream revealed a separate role that is mainly concerned with overcoming transactional governance that uses risk as a criterion to influence construction procurement (Pasquire et al, 2015). This position has often been criticized in literature as having a profound influence on production creating barriers and inefficiencies in construction (Ghassemi and Becerik-Gerber, 2011; Eriksson and Laan, 2007; Hawkins, 2012; Cox, and Thompson, 1997). Consequently, this other stream (cultural system) has been observed and is related to the role played by the QS's outside the production stream advising clients and providing means for safeguarding practice through cost and risk management functions that forms a bigger part in the system widely known but unacknowledged (Love, Davis, Ellis, and Cheung, 2010).

The need to modernise the conventional system, incorporating QSs into the collaborative domain has become essential. The generally used lean system is a collaborative paradigm known for achieving reliable value for customers with less wastes in construction (lean construction institute, 2012). More importantly, lean support a holistic collaboration through the integrated project delivery system and transforms design & construction, against the prevailing system where QSs/commercial team have been allowed to practice outside the production team that repeatedly amount to more waste and adversarial relationships. The importance of a holistic collaboration among construction stakeholders is key to this transition, which has been emphasised in literatures (Xue et al, 2010; Yeomans et al, 2006). The need to invigorate other actors (QSs) on how to collaborate and create a positive link within the value chain have been emphasized(Farmer, 2016).However, there are no empirical evaluation as to whether QSs functions is likely to be different and/or similar to their potentials working in a collaborative system. In view of these, this study would evaluate why QSs functions

outside production is conflicting with collaborative practice in both lean and conventional system.

RESEARCH METHODOLOGY

The study adopted an exploratory qualitative approach using multiple case study technique. This provides an opportunity to investigate in-depth and real-life context (Pratt 2009; Yin 2009) to collect the data over sufficiently long periods of time, for clarifying key aspects of pivotal practices (Miles and Huberman 1994). It also addresses the 'how and why' questions and the influence of the social context (e.g., how QSs are established in a collaborative system)on practices within human dimensions (Maxwell 2005). The criteria for selecting the cases where based on (1) the research focusing on collaborative production system and the relationships with the commercial team (2) the commercial challenges affecting collaborative practices. Two cases were examined comprising of water and rail infrastructures. All the projects are from a public client and were procured using alliancing and joint venture arrangement. Multiple source of data such as semi-structured interviews, documentary analysis and observation were utilised to improve the quality of findings and conclusion (Yin, 2009). Overall 18 participants were interviewed across the two cases that lasted for 50-60 minutes involving: client, directors (commercial, alliance & procurement), designers, contractors, consultants, QSs/estimators, lean practitioners, and suppliers. Early costing and design activities were observed and documentary materials were analysed to assess in detail the CP in each case and how commercial teams were maintained.

The unit of analysis on this research is on CP and how commercial teams are embedded. The data were first analysed from within-case to determine the distinctive pattern in each case (Eisenhardt 1989b) and secondly, cross-case analysis was used to determine the differences and similarities among them. The characteristics of the case studies is illustrated in table 1 below.

Table. 1 Characteristics of the case study projects

Project Attributes	CSPA	CSPB
Nature of project	Water Infrastructure	Highways infrastructure
Location of project	East England,	East midlands England
Nature of works	Design & construction of water recycling treatment plants	Upgrade of motorway to smart motorway
Type of client	Public client	Public client
Mode of partners/SC selection	Alliance, framework	JV/framework
Proposed project duration	60 months	24 months
Procurement arrangement	Alliance, centralized procurement system	Join Venture
Contract sum	£1.2 billion	£120 million

LITERATURE REVIEW

LEAN - A COLLABORATIVE PROJECT DELIVERY SYSTEM

Lean is generally known as a philosophy that focuses on identifying waste and optimising value stream, from organisational level, down to the supply chain management (Scherrer-Rathje, *et al*., 2009). But it has also transcended beyond the ordinary waste removal in processes to a production philosophy that brings more innovative advances into the construction industry (Koskela, 2000). Hence, Koskela in 2000 established the theory of production to construction which further contextualised the definition of lean construction to a production-based management approach that support an integrated project delivery system. This then brings in the perspectives of transformation, flow and value propositions (TFV). These views, reveal how resources are transformed from inception to completion. They also identify how flow are viewed and maintained within the interrelated activities and across the entire project spectrum. Value is revealed and focus from the customer's dimension which satisfies the needs. Despite this, the classical assessment of production from the traditional system remain unchanged (a transformation of resources towards a finished product). A view that has failed to consider production as an integrated process for delivering value from inception to completion.

Traditional construction has also failed to grasp the full philosophy behind lean system, because the norm has been to target principles without fully optimising other aspects like planning, control, and commercial relations (Picchi and Granja, 2004; Alves and Tsao, 2007; Pavez and Alarcon, 2008). Lean system has been adopted in the UK to improve supply chain management (Ballard and Howell, 2003; Green and May, 2005 and Emmitt, 2009). But, Hook and Stehn (2008) cautioned that this move is problematic because the traditional approach to construction is still contract-based and does not focus on continuous improvement, nor the integration of project performers or building team relationships. Vrijhoef and Koskela (2000) also concurred that this view within the UK construction is flawed which typified the level of fragmentation especially the separation between the design and production processes. It is worth mentioning that, understanding this view by QSs/commercial team in the conventional system must be improved. This is a move that can replicate the concept of partnering through an increased integration and collaboration to eliminate wastes that are derived from sub-optimisations and adversarial relationships.

HOW LEAN APPROACH COMPLEMENT COLLABORATIVE PROJECT DELIVERY SYSTEM USING FIVE BIG IDEAS

Five big ideas are principles that lay emphasis on a holistic collaboration in construction which was developed by lean project consulting in 2006. It reveals five overriding values that galvanized a new way for project delivery and maintain collaboration which has proven successful in the Sutter health's projects (Lichtig, 2010).According to the lean project consulting group, the principles includes: *(a) collaborate; really collaborate, throughout design, planning and execution (b) increase relatedness among all project participants (c) projects are network of commitments (d)optimize the project, not the*

pieces and (e) tightly couple actions with learning. Fischer et al, (2017) further analyzed these ideas to mean:

1. Involving downstream players in upstream decisions from outset to provide more avenues for resolving series of problems, using the art of conversations to explore possible solutions.
2. Establish relationships based on trust.
3. Projects are always viewed as processes but not as entire network of commitments – hence the need to work together and maintain these commitments.
4. Acting on what's best for the project rather than what is the least cost.
5. Participants contributing throughout the project process should align with the clients demand with an opportunity to learn while in action.

These concepts form a foundation for innovation in project delivery system and approaches in construction through proper collaborative practice. However, traditional approach for procuring and delivering project is still unchanged (Bertelsen, 2002). Evidence suggests that clients often take the lowest price in operation from advice by their QSs believing that, it's the safe option and will lead to an optimal value. The rationality of flow management (optimizing the whole process) is a logic that eliminate activities that are not adding value, thereby enhancing the value adding ones. However, non-adding value activities are now more embedded in construction. This has shifted focus from value optimisation to value reduction. The current system indeed harbours quite a lot of non-adding value activities. The study of Sarhan et al, (2014) gave an account on how the institutional system and the structural arrangements supports these wasteful activities in construction. This also revealed how commercial teams(QSs) in procurement and cost management contributes to these wastes in construction.

Similarly, through the current system, construction is often perceived as a service providing industry. The final project is usually assembled through the combination of trades. However, projects are not well defined, and there isn't a tradition that considers what true value is on the final product (Bertelsen, 2002). The value constraints of clients are not clearly visible from the start nor their realisation being examined systematically within the project spectrum. It can be argued that the lack of wider understanding of waste within the current system by the QSs is detriment to achieving optimum value and is conflicting with collaborative project delivery system (Pasquire et al, 2015).

THE UK PREVAILING CONSTRUCTION SYSTEM

The UK construction industry and its project delivery approach has been criticised in several literatures. Often, it has been considered to be confrontational, risk-averse, with lack of trust and limited capacity for modernisation (Zaghloul and Hartman, 2003; Rooke et al, 2004; Eriksson et al, 2008). These also contribute to the following factors: adversarial and hierarchical structure (Ghassemi and Becerik-Gerber, 2011; Sarhan and Fox, 2013); fragmentation (Egan, 1998) and cost driven environment (Bresnen and Marshall, 2000). Osipova and Eriksson (2011), posited that these challenges emanate

from the prevailing system in construction, while Eriksson and Laan, (2007) added that these has adversely affected the extent of collaboration and trust among project participants. Similarly, Egan and Latham (1998 & 1994) have called for the substantial attention and improvement in the areas of collaboration and trust in the construction environment. However, Matthews et al, (2003) argued that value maximising and waste minimising in construction is a challenge, because the contractual structure inhibits collaboration, stifles cooperation and innovation, and rewards individuals for reserving good ideas or optimise performance at the expense of others.

Despite these criticisms, there seems to be a project delivery mind-set embedded in the institutional fabric within the industry that prevails regardless of the attempts to address these shortcomings (Sarhan et al, 2017). Commentators have argued that better collaboration among participants in projects could remedy most of these challenges in construction (Eriksson et al.; 2008; Xue et al.; 2010; Sebastian, 2011; Walker et al.; 2017). But, because clients are still allocating risks and safeguarding their project assets from opportunism, by deploying various control mechanisms contained within the contractual arrangements (Pasquire et al, 2015), and they invariably, do so by seeking advice from their lawyers (QSs) whom are familiar with the construction contracts and laws (Sarhan et al, 2017). This is an implication that now revealed a deviation within the delivery system along with several issues which has been highlighted above. Increasingly, QSs are not part of the production team, but are being used traditionally without proper integration. Arguably, this arrangement is also in conflict with their commercial functions, which leaves them with options of optimising their parent companies at the expense of the project that leads to more cost overruns. Seemingly, from this point of view the system is not encouraging them to collaborate, and clients also don't seem to understand the implications of excluding QSs from the core team is prompting into more value-loss in projects (Doloi, 2011).

HOW QSS POSITION IS CONFLICTING COLLABORATIVE ARRANGEMENT IN CONSTRUCTION

Quantity Surveyors have always been an integral part of the UK construction industry. Their evolution began from the 17th century and were established as a practice by the royal institute of chartered surveyors (RICS) in 1864 (Seeley and Winfield, 1999; Ashworth et al, 2014). Traditionally, they offer cost advice and assist with alternative design solutions as well as on cost implications in design and procurement using the techniques of elemental cost planning and cost checking (Kirkham, 2007). QSs other duties include post contract cost management activities such as valuation, change management and valuing variation to final account (Ashworth, 2014).

However, their ability to provide optimum value in projects, and collaborate with other construction participants has been challenged (Ashworth; Marsh, 2003). The current delivery approach, and their isolated roles in costing and design has posed tremendous challenge in providing more upfront input in construction (Olanrewaju and Anahwhe, 2015). For instance, under the prevailing system, QSs are only involved when strategic decision is taken i.e., when designers & engineers are appointed, briefing conducted and technical drawings reaching completion if not completed (Olanrewaju and

Anahwhe, 2015). Figure 1 revealed how they are separated from the production stream. This is also similar in their traditional cost planning function, where they are involved late for input on after-the-fact-costing (design-estimate-redesign) process.

This separation indicates a gap and disconnect that contributes to project delays, conflicts, waste and barriers to collaboration (Doloi, 2011; Kashiwagi & Savicky, 2000). QSs position outside production has not only hampered their value addition to the project team, but has allowed inefficiencies (termed wastes in lean) in their roles and across the project spectrum. For instance, QSs are not the main users of a contract, however the complexity in which they interpret the onerous document encouraged opportunistic behaviours among parties that leads to severe disputes (Sarhan et al, 2014; Rameezdeen and Rodrigo, 2013).Similarly, how they apportion risk using disclaimer clauses attracts about 8-20% project cost as contingencies(Zaghloul and Hartman 2003). Thus, this creates more rigors that stifle collaboration with a persistent focus on individual party functions, that build more distance among the participants encouraging lots of adversaries (Eriksson, Nilsson and Atkin, 2008). These behaviours stem from the prevailing system that lead teams away from trust to self-seeking interest i.e., opportunism (Pasquire et al, 2015).

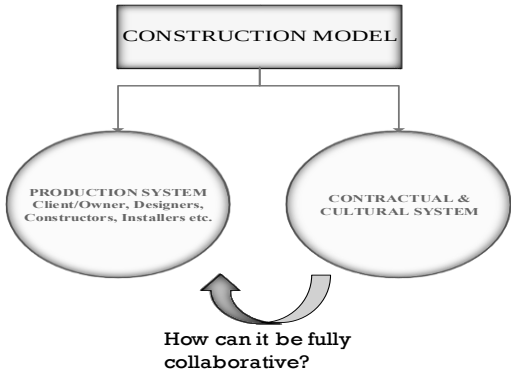

Figure 1: UK Construction Model

EMPIRICAL FINDINGS FROM THE CASE STUDIES

In this section, empirical findings captured from a multidisciplinary practice (lean-like approach) within the UK construction industry are presented. These findings explore on the commercial challenges affecting collaborative practices in projects and programmes.

COMMERCIAL CHALLENGES AFFECTING CP IN PROJECT AND PROGRAMMES

There are various commercial challenges that were discovered across the two cases that continue to undermine collaborative practices. These challenges are mostly associated with QSs and their commercial functions, the common ones among all the cases were: customer/safeguarding practice, QSs background/training, excessive reporting/commercial governance, and balancing standards with innovation.

a. Customer and safeguarding practice

Customer practice is a fundamental barrier associated with the QSs in practice. Some of the interviewee respondents were quick to comment on this saying: *'QSs are transforming well here under the commercial model, but how they persist with their due diligence is driving certain behaviours and inconsistencies in their approach especially with the SC'* [commercial manager, CSPA]. Another respondent also observed saying: '*Reflective of their siloed viewed, CP is still an influence in terms of how QSs operate which is served by a win-lose mentality (game theory type) of behaviour, and we still witness that here. For them is a kind of doing what their role is asking them to, proving their worth to the client'.* [Procurement Director, CSPB].

b. QSs background and training

Some of the respondents were of the view that QSs backgrounds & training is affecting the collaborative arrangements. The procurement director stated that: *'QSs often behave around the contract with the need to protect an organisation/client at all costs, and traditionally most often the only way they can maintain profitability for an organisation is through constant aggressive stance. And this is dictated by the market they came from affecting how we operate'*[CSPB].This demonstrates commercial challenge that stems from safeguarding practices, developing inconsistencies even in a collaborative environment. This is also a reminisce on how their background is (interpreting contracts) with a bounded culture on protecting client/organisation at all costs. Arguably, this can be attributed to lack of knowledge and collaboration that is contributing on how they behave in practice. Consequently, this view has brought about a short-term spotlight with a rigid mind-set (win-lose mentality) that continued to stifle their collaborative views.

c. Excessive reporting & commercial governance

Another barrier is how clients persists with commercial governance, excessive monthly reporting in project teams even in a collaborative setting. This of course, typifies how QSs are used to mount pressure on the project teams through bureaucratic processes that often doesn't add value to the project nor on the QSs roles. A procurement director and design manager both observed saying: *'clients even here have strong governance with the believe that the team needs to be more efficient. But certainly, this puts more pressure on the team, and I think this process should be optimised – allowing the QSs to contribute more value in other sense'* [PD, CSPB]*'One of our challenge here is focussing on what we need to do to deliver the project, but there is a lot of commercial assurance, and our QSs are so entrenched in these processes that sometimes can't give any degree of detail back to the delivery team for them to understand financial implications'*. [Design Manager, CSPA]. Again, this further illustrate how QSs position will continue to stifle CP, reiterating the need for them to be in a position beyond interpreting contracts but to contribute more value for the overall project. The much reliance on data to measure performance leaves a huge hole through redundant monthly reporting process that arguably could be better balance towards the project teams themselves. It can be argued that these persistent rolesare preventing QSs from understanding project values and

wastes, as their competencies being used ineffectively – hence, the continued escalation of cost and time overruns in projects.

d. Balancing standards with innovation

This challenge still lingers, where commercial team are struggling to embed new ideas. But, because they are not entrenched upfront with the project team their innovative thoughts goes unacknowledged. A cost intelligent team leader lamented on this connoting that: *'this might be information asymmetry and because we don't sit together with designers, a lot of the time people don't critique the delivery of most solution and often this are left unchallenged'* [CI, CSPB].This indicate that because of the interface and fragmentation, the commercial team leader can only talk to the PM to pass on new ideas onto the designer, but the designer might argue and stick to what he/she knows and the PM wouldn't know otherwise or be able to test the true legitimacy of that claim because the designer is looking at maximising an eloquent solution, whereas the commercial team comes from an efficiency perspectives. The implication here is that, because they're disconnected and often sit outside the production team - the ability for a scheme to take such efficiency idea on-board remain a challenge. This shows how far-wide the commercial team are compare to the designers in the production team, despite the efficiency knowledge commercial team can offer, it goes unacknowledged and standards often prevail which defeat the idea of knowledge sharing and collaboration.

DISCUSSION

The observations made on this empirical case studies brought some new insights that describe how CP is being affected by some commercial functions in the UK construction industry. These implications show why QSs starting from the prevailing system are hesitant to collaborate or support its ethos in practice. Systematically, they're brought up differently and at different times in projects – hence, they continue to stick to customer practice. More so, the nature on how they are assessed (PQS)i.e., utilised based on the project profit rather than their input on the projects. Arguably, this stance is one of the biggest barrier to CP. The study has discovered other instances in collaborative setting like, excessive reporting and commercial governance. Majority of these activities are filled with efforts and time that adds no value, i.e., managing transactional interfaces from upstream down to the supply chain level. Currently, this is where QSs are placed now either to agree or protect a commercial position for their employers and clients (Farmer, 2016). Inevitably, this implies that QSs roles are overshadowed and led by an adversarial transaction with a combative effort to interpret project costs and risks which isn't allowing CP to flourish.

Another, implication revealed that intensified customer practice and other factors is how their background& training is conflicting with CP. This is evident specially when clients decide to buy designs, multiple number of QSs are engaged to fight battles with the contracting side, QSs are often deployed and they come in with different objectives and agenda. This a strategy that also shows how they're utilised for commercial assurances. So, distinctly here, you have QSs with different motivation, and a client

paying exorbitant amount which they cannot guaranteed the project outcome, and part of their role is to get more (QSs) for safeguarding purposes. This explains how client's perceptions are on the QSs in construction, which typifies their behaviours when it comes to CP. Arguably, this approach has discouraged QS's attitude for not being part of the integral team to deliver a project, but being regarded as service-based providers to subdue the adversaries between parties. Invariably, this tactic appears not to be working, as it further revealed how they're reluctant to take the risk of being paid to save money in projects, but can only subscribed to being paid on a cost-plus-fee basis.

Hence, this shows that without properly incorporating QSs into the production domains or into a relational arrangement, these barriers to collaboration will continue to resurface despite adopting alliancing or JV frameworks. More so, all the stakeholders need to feel a sense of ownership in order to influence behaviors and achieve the desired outcome.

CONCLUSION

The aim of this study is to evaluate why QSs commercial functions is conflicting CP in both lean and conventional system within the UK construction industry. In doing so, the study has established that QSs, are structurally separated from the production system. It has also established some relational challenges engendering their status-quo, and how these commercial challenges affect collaboration in projects and programs. There were certain factors discovered also from the cases that are hindering the practicality of achieving CP. These factors among others are: QSs background/training, excessive reporting & commercial governance and balancing standard with innovation. These challenges are associated with the QSs in both conventional and multidisciplinary setting. Similarly, the standard form of contract deployed in practice is contributing immensely to most of the problems identified above, and partly the reason why professional QSs are mostly concerned with protecting a commercial position for employers and clients. It is clear now why traditional QSs might struggle under the lean setting, because of these persistent practices, inefficient procurement approach, and the narrowed views on collaboration. The next steps for this research will be to further understands the factors required that can support QSs and their commercial functions in a lean setting to enhance collaborative practice in the UK construction industry.

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