UNIVERSITY OF CAMBRIDGE

Transforming construction: impact case study

Benefits to industry: supports improved team working; boosts innovation and planning to deliver value for money

Procurement models: is early contractor involvement beneficial to the UK construction industry?

Decision making in procurement

The choice of procurement route can be a catalyst to the success of a construction project. While single stage tendering is deemed appropriate in certain instances, endemic issues surrounding unrealistic project cost estimates, with a focus on short term profit, wide scale fragmentation, adversarial attitudes, a decline in productivity levels, and growing litigation costs have resulted in calls for a systematic shift within the industry. Early engagement of contractors within the construction process, or early contractor involvement (ECI), has been at the forefront of these calls, with a widely supported belief that ECI can overcome many industry ills when applied to appropriate projects.

The Government Construction Strategy (GCS) 2016-2020, which sets out government's plan to develop its capability as a construction client, cites ECI as one of a number of initiatives and new models that enabled £3 billion efficiency savings as documented in the GCS 2011-2015. These efficiencies are developed and progressed by the GCS 2016-2020 and Construction 2025.

Early contractor involvement

ECI contracting supports improved team working, innovation and planning to deliver value for money. ECI is suitable for large and complex contracts allowing an integrated team to gain an understanding of the requirements, develop innovative solutions, plan and mobilise resources, and manage risks to accelerate delivery and reduce costs (HS2 Engine for Growth).

Calls for increased engagement in a collaborative procurement model are not new, but the past 15 years has seen an increased interest. Despite numerous industry reports, uptake of the recommendations has been very limited to date. ECI as a procurement route is a key facet of the UK Government Construction Strategy through to 2020 (Cabinet Office 2016), presenting an immediate opportunity for industry to review and benefit from research undertaken.

Effect of ECI experiences

Little research addresses the effect of the cycles of experience of participants, who have undertaken several ECI projects, on the expectations behind the process. This case study investigates the experiences of ECI participants in the UK construction industry, including clients, consultants, main contractors and specialist supply chains, in order to identify their motivations and the associated enabling factors affecting willingness to engage with the process on future projects

The approach

The first phase of data collection involved a qualitative approach, with a semi structured interview to allow freedom to explore various areas during the interview. Participants had been involved in the utilisation of ECI in several construction projects, with two projects set as a minimum level of experience. Interviewees generally held a senior position so had a comprehensive overview of the project phases and were drawn from client, main contractor and consultant representatives, along with sub contractor organisations, to include views from the lower tier supply chain. Projects chosen were from a diverse cross section of the construction industry, encompassing infrastructure, building and mechanical/electrical fields and ranged in value from £10 million through to £2 billion. Forty two semi structured interviews took place between November 2016 and May 2017. The large number of interviews combined with the wide sample pool made data more reliable and generalisable.

In order to build on the validity of the data captured during the initial qualitative phase of research, an online questionnaire tool was derived for use in the quantitative phase. The statistical approach followed for this study was a four level data analysis framework: Cronbach's alpha reliability test; the mean score ranking technique; Kendall's Concordance test; and Spearman's Rank Correlation tests.

Analysis

Based on the output from the interviews, this study identified a refined classification of enabling factors and expectations, with note of the contemporary devices supporting the process. The classification presents what the interviews have found to be the common enabling factors in the form of altered attitudes and expectations towards the process.

Respondents held senior positions within their organisations, with the majority having industry experience exceeding 10 years. Levels of experience with ECI were high, with more than 73 per cent of respondents having been involved with five or more projects involving this process.

A series of statements, relating to the themes identified from the semi-structured interviews, formed the foundation of the questionnaire, with respondents asked to rate their level of agreement against these. In addition, a series of opening general questions were included relating to background and experience of the respondents, as well as specific targeted questions designed to complement the theme discussion.

Key findings: factors enabling ECI

The impact of client behaviours on trust between parties is ranked with the highest level of agreement. The importance of this enabling factor is shown in the response to a supporting question asking whether main contractors had ever experienced abuse of position from a client perspective; more than 42 per cent indicated that there had been situations where clients engaged in practices which would adversely affect future relationships and attitudes by contractors to ECI. This observation may support the proposal for a confidential dialogue between clients and bidding teams in an ECI phase, which would further allow for a degree of competition.

Clients interviewed felt that the only way to overcome the deep-rooted scepticism of contractors was to ensure they were consistently reinforcing their commitment to the process through clear communication.

- More than a third of client respondents agreed with the statement that 'contractor's scepticism is difficult to overcome in an ECI phase'. Much of this scepticism is borne from the experiences of contractors in the face of client behaviours, highlighting the challenge and responsibility of clients to develop an environment where their supply chain feel as though they can be wholly transparent with their proposals.

- Clients interviewed felt that the only way to overcome the deep-rooted scepticism of contractors was to ensure they were consistently reinforcing their commitment to the process through clear communication. Co-locating teams is important to ensuring collaborative behaviours, both during the ECI stage, and maintaining these behaviours and benefits through to the construction stage.

Key findings: agreement between groups (client, consultant, main contractor, sub contractor)

- Many contractors feel more secure in situations where they are engaged with a client on a repeat basis, with the development of trust leading to a more effective ECI period. The supply chain is more inclined to behave in a opportunistic and cynical manner if they believe there is not the potential for future work.

- It appears that the commercial behaviours of main contractors are one of the causative factors behind supply chains not contributing efficiently towards ECI. There is an isolation of the collaborative ideals and commercial benefits of ECI to the upper echelons of the main-contractor/client arena, while engagement with the supply chain is characterised by traditional adversarial behaviours.

- The perceptions of the supply chain are quite disparate from those of other project actors when queried as to the potential for supply chain involvement in ECI.

- Reviewing the data collected, it is questionable whether experience with ECI, as a perceived collaborative form of procurement, improves the ability of lower tier supply chains to contribute meaningfully to the construction process, with contract terms hampering any potential for long term benefits and collaboration.

- In terms of commercial staff contributions being disruptive during an ECI phase there is a divide in perceptions between main contractors and other groups. ECI relies heavily on open collaboration between all parties, which could perhaps be very difficult to achieve if underlying tensions with commercial transparency exist. A perception evident amongst ECI participants was a lack of transparency from main contractors in terms of their dealings with preferred supply chains.

Conclusion

Despite numerous industry reports advocating their use over the last twenty years, collaborative procurement practices, underpinned by early contractor engagement, remain an elusive target for industry practitioners, confined in implementation to the outliers of industry.

Client positivity regarding motivations such as the avoidance of commercial disputes, scope development and whole life cycle costing, indicates these can be regarded as recognised benefits of an ECI approach.

The view of innovation as effectively a secondary motivation with clients was surprising and conflicts to a certain degree with literature.

Given the prevalence of ECI in the public sector, this points to a risk averse approach in this sector and other project members entering into an ECI scenario should be aware that innovation may not be desirable, with a focus on development of compliant designs more effective.

The expectation of a lack of transparency results in participants approaching the ECI process with an attitude of mistrust. In particular, main contractors entered the process with a degree of trepidation, exhibiting a lack of transparency to fellow project actors. This was founded on the scepticism which main contractors possessed in relation to the process, particularly in relation to security of IP.

While economic transparency in the form of open book accounting is similarly advocated within ECI contracts, there was a lack of confidence amongst the wider project community with regards to contractor's transparency. Manifesting itself in the form of client unwillingness to accept target costings, efforts by main contractors to maximise incentive agreements and a lack of openness with regards to preferential supply chain rates, it was clear that this lack of transparency remains an issue inhibiting ECI expectations in the UK.

Despite being rightly recognised as key contributors to an ECI process, the lower tier supply chains were found to be held back due to an isolation of both commercial benefits and collaborative ideals from the wider project community, often driven by a reversion from main contractors to competitively tendered arrangements.

These behaviours considerably affect attitudes (in the form of a lack of trust and openness) of the supply chain when entering into a collaboratively procured scenario such as ECI, as their prior negative experiences have taught them to approach the process with a large degree of caution. Consequently, their expectations from the process are largely driven by these attitudes, allied with a lack of willingness to engage, with the ECI process drawn towards inefficiency as a result.

The use of protected dialogue, or multi-contractor ECI, is a progressive step for this procurement route, allowing for retention of competition from the clients perspective, yet enabling a mechanism which negates some of the barriers to achieving the enabling factors noted through this research.

The use of protected dialogue, or multi-contractor ECI, is a progressive step for this procurement route, allowing for retention of competition from the clients perspective, yet enabling a mechanism which negates some of the barriers to achieving the enabling factors noted through this research. Retention of competition is important in reassuring clients and overcoming their belief that ECI places them in a vulnerable position. Security of their IP, allied with a committed supply chain, will allow contractors to be transparent in their offerings and remove a large degree of cynicism, albeit the process relies on a heavily involved and committed client.

Recommended next step

Examine why the uptake of ECI procurement routes remains confined predominantly to the public sector as opposed to the private sector, where intuitively the benefits of ECI may be further enhanced.

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The Laing O'Rourke Centre for Construction Engineering and Technology, in the University of Cambridge Department of Engineering, was launched in 2011 with industry partner Laing O'Rourke to fulfil a shared vision of transforming the construction industry through innovation, education and technology. The Construction Engineering Masters (CEM) degree programme is designed to shape the next generation of industry leaders and undertake innovative research projects that deliver value to industry.

Case study

This case study is based upon a Laing O'Rourke Centre for Construction Engineering and Technology Construction Engineering Masters dissertation titled: *Early contractor involvement in the UK construction industry: A study of participant experiences and the implications for the future* (2017). The research is by Conor Considine, Project Manager, Expanded (Laing O'Rourke).

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