THE DEVELOPMENT OF A MORE EFFICIENT INTERNAL TENDER PROCEDURE FRAMEWORK FOR AUSTRALIAN CONSTRUCTION CONTRACTORS

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With increasing corporate governance requirements the nature of Australian construction contractors' (CC) internal tender review procedures is changing. A research program is underway to determine the effectiveness and efficiency of such changes and whether they are producing improved CC business results. To facilitate this objective a better understanding of current CC tendering practices and procedures was sought through detailed semi-structured qualitative interviews with 18 CCs, including five of Australia's largest contractors. Drawing from these interviews and extracts of tender procedures provided by nine of the CCs, a new internal tender procedure qualitative flowchart is developed, running from prospect identification to contract award. Many CCs now spend more than 10% (some over 15%) of their tender period hours addressing their internal tender reviews due to increased involvement of legal, commercial, finance and risk departments. Many CCs advised their key tender focus is risk mitigation to avoid the company winning a potential loss making project rather than determining a tender winning 'mark-up' value. While providing greater insight into the inner workings of CCs' internal tender procedures, the new tender process flowchart also enables CCs to benchmark their tender procedures against empirically researched current practice.

Keywords: bidding, contractor, corporate governance, risk, tendering procedures

INTRODUCTION

Following various high profile corporate failures and the fallout from the global financial crisis, corporate governance requirements placed on Australian companies have increased through legislation, market/industry expectations, and company practice (SAI 2003, ASX 2014). The extent of such governance requirements is dependent on company size and type - public/private ownership and annual turnover being two critical criteria. Corporate governance drivers relevant to construction contractors' (CCs') internal tendering procedures include: strategic planning; setting risk appetites; delegations of authority for target project tender selection, submission and ultimately contract execution; cost of tendering; and, business continuity.

However, other than by works by such as Laryea (2013) there has been limited recent empirical research on how CCs manage and control their internal tender processes while satisfying increasing corporate governance obligations. Available tendering texts are: largely experiential in nature; focus more on estimating processes; provide limited detail

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behind the structure of CCs' internal tendering and review procedures; and, tend to provide a United Kingdom centric perspective (Brook 2011, Greenhalgh 2013). By comparison, the Australian CC industry has produced little to guide CCs on what constitutes contractors' internal tendering procedure norms, or to provide guidance on efficiently managing tender processes to meet governance requirements. It is also questionable as to whether complying with good governance leads to better performance (Kay cited by Faherty, 2015). CCs have limited opportunity to benchmark their internal tendering procedures against their competitors due to the risk of perceived anti-competitive behaviour or possible breach of the Australian Competition and Consumer Act 2010.

CCs' internal tender procedures appear to be driven largely by individual company management experiences or experiential based texts rather than empirical research. To address this identified gap in Australian research, a research program is analysing CC internal tender procedures to determine whether increased corporate governance controls have led to improved CC business performance outcomes. A key step is to obtain current empirical qualitative research on the nature of CC internal tender procedures. This paper describes the research methodology adopted and the findings from semi-structured interviews with 18 CCs, including five of the largest contractors operating in Australia, aimed at obtaining information on such internal tender procedures and developing a representative model of those current processes.

In this paper 'tender' is considered to include all the stages a CC undertakes from prospect identification through to contact execution. A tender therefore has a wider context than a 'bid', which is commonly used in the literature. Depending on the client's selected project delivery model and procurement approach tenders may include an expression of interest (EOI) shortlisting process before involving price and/or non-price assessment methods. This research is not looking at the client/designer - contractor interactions that occur within the client led tender procurement process.

CCs' tender review process stages were found to be significantly more complicated and demanding, requiring more time and effort, than the current literature suggests applies in the industry. Drawing on the interview results a CC's internal tender review process flowchart has been developed from this research and is presented below. The flowchart represents the processes CCs are adopting to address their internal tender governance obligations. This improved understanding of current CC internal tender procedures will facilitate later stages in the wider research program, namely assessment of the efficiency and effectiveness of those procedures and whether they are producing improved CC business results.

LITERATURE REVIEW

Tender research from Ahmad and Minkarah (1988) through to recent Australian work by Shokri-Ghasabeh and Chileshe (2016) has commonly focused on CCs' 'bid/no-bid' decisions and/or price 'mark-up' decision processes. Such research has led to the identification of over 100 factors (Ravanshadna, *et al*., 2011) that influence such decisions and/or the development of numerical models to assist CCs make them. Various researchers have noted the vagaries of mathematical models that fail to reflect what CCs actually do and that model constraints vary with time, market and contractor (Cheng, *et al*., 2011). However CC decisions regarding tenders can still involve complex reasoning processes (Egemen and Mohamed 2007). Mochtar and Arditi (2001) suggested that as CCs' highly unstructured tendering approaches made them difficult to model, there was

limited benefit in further quantitative studies, and more would be gained through a greater qualitative focus on CCs' tender methods.

Laryea (2013) found that of the over 1300 papers published in six construction management related journals between 1983 and 2012, only 29 papers dealt with the specific process of CCs' tendering procedures. Of those papers three were Australian based research, but all were pre-2000. As part of the literature review for this paper, the authors searched the same six journals for the period 2013-2016 found of the 82 papers mentioning 'tender' or 'bid' none related to Australian CC tender procedures and only Laryea's 2013 paper addressed CC tender review processes. This suggests a gap exists in up-to-date research on CC tendering methodology, particularly in Australia. While various client best practice tendering guides have been written (DTF 2013), research funded by the Australian Contractors Association has more a marketing intent to promote an industry position to clients, rather than focussing on effective tender procedures CCs should adopt (Blake Dawson 2011, Ashurst 2014).

With tenders commonly awarded to the lowest tenderer (Loosemore and Richard 2015) CCs must maximise time spent seeking innovative methodology and pricing objectives during a tender period, rather than being overly constrained with extended internal approvals processes that may not necessarily add to tender quality or success. CCs' tender review processes typically involve a tender launch meeting, mid-term review and a final review meeting with senior management (Brook 2011, Greenhalgh 2013, Laryea 2013). The final review meeting (often called an 'adjudication meeting' in UK based literature) may comprise two meetings. The first focusing on reviewing the estimate figures and the second on commercial matters leading to a 'mark-up' decision (Laryea 2013). Whyte and Cammarano (2012) found time limitation, often due to company policy or design procedures, was one of the biggest factors hindering value management. Time spent in reviews can be a significant component of the tender period and hence a CC's tender cost. Laryea (2103) found 6-9% of a CC's available tender time was consumed in such reviews.

RESEARCH METHODOLOGY

With engineering construction making up 43% of the $47B Australian construction industry (19% being non-residential building and the balance residential construction) (ABS 2016), this research is focused on engineering construction and more specifically CCs participating in civil engineering construction work. Civil infrastructure is a market sector that often experiences significant construction cost overruns (Flyvbjerg 2009, Love, *et al*., 2013).

Primary research data collection involved semi-structured qualitative interviews with 'convenience sampling' from the CCs accredited under the Austroads' National Prequalification System (NPS) (Austroads 2017). The Austroads NPS, which uses road/bridge/finance accreditation levels, forms the closest to a classification system for Australian CCs operating in the civil construction industry. Interviews lasting 1.5 to 2 hours were held with 18 high profile CCs from November 2016 to June 2017. Interview transcripts where provided to the CCs to review and correct if required.

Interview questions, informed by a detailed literature review, included: describe the CC's tendering process stages from prospect identification to contract award; outline strengths and weaknesses of those procedures; identify factors that influence 'bid/no-bid' and/or 'mark-up' decisions and timing as to when such decisions are made; describe the nature and staging of tender review meetings including management levels involved; an assessment of time spent on such reviews; and opinions on the efficiency of their

processes. Other interview questions probed any legal, accounting, financial, and risk committee involvement in tenders and their ability to influence tender strategy decisions; and how CCs integrated lessons from past tenders and projects into tenders. Questions about specific delegation of authority limits, commercial limits and actual 'mark-ups' were avoided, as they were unlikely to be answered given their sensitive commercial nature. Similarly questions regarding ethics were not included following lessons from Oladinrin and Ho (2016). CCs were also invited to provide extracts of their tender procedures and/or forms as exemplars, a request granted by 50% of the CCs.

Interviewed CC demographics are summarised in Table 1. The terms 'Tier 1, 2 and 3' are a necessarily unofficial classification used for this paper, although they roughly reflect the approach Australian CCs use when describing their competitors. Interviewees ranged from Pre-Contracts Manager to Chief Executive Officer (General Manager being the most common), while their construction industry experience ranged from 10 to 44 years with an average of 24 years. Ten of the 18 CCs interviewed have the highest Austroads rating combination of R5/B4/F150+ (Austroads 2017). Thirteen CCs secured 80-100% of their annual turnover by competitive tender while the remaining five CCs secured 60-80%.

Table 1 - Interviewed construction contractor company demographics

	Public company (including subsidiaries)	Private company
Company size based on annual turnover (AUD):		
Tier 1 - ($1B - $10+B)	4	1
Tier 2 - ($100M - $1B)	2	4
Tier 3 - (<$100M)	2	5

RESEARCH RESULTS

Current literature suggests CCs' internal tender processes commonly involve: a decision to tender ('bid/no-bid' decision); development of a tender strategy; estimation of prices (in consultation with subcontractors); risk and opportunity assessment; a mid-term tender review; and a final tender review with senior management leading to a 'mark-up' decision. However the 18 CC interview responses and nine exemplar tender procedures provided reflect a CC's internally determined staged multiple review tender process more complicated than that identified by Laryea (2013).

Summary of Interview Findings

Use of 'bid/no-bid' 'approval gates' occurs throughout the tender period

The 'bid/no-bid' assessment was found to be an iterative decision process CCs undertake throughout tender periods as more information about the target project becomes available, and as commercial risks are balanced against their strategic advantage to win. Type of project (scope of work); financial capacity and payment record of client; and, risks and complexity of the project were found to be the top three reasons impacting CCs' 'bid/no-bid' decision. Approval to bid requests were largely qualitative assessments detailing issues such as: tender strategies; client relationships; and advantages over competitors, rather than involving a deterministic decision model. Thirteen of the 18 CCs did not use a mathematical model to assist initial 'bid/no-bid' decision making. The other five CCs adopted simple parametric models as decision guides with senior management still able to override the results.

Eight CCs used the term 'approval gate' to describe the stages requiring levels of formal management sign off. It is understood the concept of a 'gate' is not as rigid as a 'hold point'. Terms such as 'Approval to Pursue', 'Approval to Prepare' and 'Approval to Submit' were common applying at prospect identification, expression of interest (EOI), tender submission and even re-submission of post-tender negotiation correspondence stages. Various CCs advised that personnel involved in such decisions may change depending on the stage in the tender process approval. Escalation through management levels is dependent upon delegations of authority that incorporate project value, contract terms and corporate risk parameters. Approval to submit a tender could still be withdrawn during a final tender review should a risk profile be considered unsatisfactory. Larger CCs placed higher levels of importance on 'bid/no-bid' decision processes, which is consistent with Shokri-Ghasabeh and Chileshe's (2016) survey of contractors.

Risk, strategy, commercial and other intermediate reviews
CCs often adopted a series of tender review meetings, especially where multiple layers of management approvals are required. Mid-term 'bronze', 'silver' and 'gold' reviews often include how the tender submission (including numerous management plans and schedules) aligns with the agreed tender strategy. Within many of the larger CCs separate legal, commercial and finance, and risk committee reviews and approvals, often looking at overall business risk rather than just tendered project risk, are now commonly required under governance obligations. Several CCs stated they could not submit tenders without these independent departments' or committees' separate approvals. This poses a tender management challenge when such departments do not have an interest in securing a construction tender win, but rather see their role as protecting the company from potential loss or excessive liabilities.

CCs' business models, including risk appetite and delegated authority levels, were found to influence their tender prospect decisions which is consistent with findings by Pekuri, *et al*., (2015). Six CCs stated their procedures were designed to mitigate the risk of winning a loss making project, ahead of improving the opportunity to win a project. Several CCs advised that if risks could not be adequately mitigated they would include non-conforming qualifications or withdraw from the tender altogether. However, many of those CCs acknowledged that despite strengthening their internal tender procedures to meet increasing corporate governance constraints they still occasionally won what is colloquially called "a dog of a project", that is, one that loses rather than makes money.

Time spent preparing for and in tender reviews
Each CC was asked to assess the percentage of tender time spent on preparing for and attending reviews and 'approval gate' requests to meet their procedural requirements. Most CCs noted the high use of bespoke contracts, favoured by clients in some industry sectors (Whyte 2015), added to the complexity of their tender processes. It was also acknowledged that a client's decision to include an EOI or similar shortlisting process before releasing tender documents added an extra 'bid/no-bid' decision loop approval. Four CCs advised over 15% of their total tender workhours (a further five CCs said at least 10%) can be spent in tender review related activities, which is significantly more than the 6-9% identified by Laryea (2013). One CC advised its total time could exceed 25% on design and construct (D&C) tenders and even higher on early contractor involvement (ECI) delivery models requiring reviews with clients.

Determination of risk allowance, corporate overhead and profit margin
The interviewed CCs typically made a distinction between risk mitigation measures (either pricing risk or qualifying out) and the addition of a corporate overhead and profit

margin to a tender price. The concept of a single 'mark-up' figure applied to estimated costs to cover all three items (risk, corporate overhead, and margin) does not appear to commonly apply, especially in 'Tier 1' and 'Tier 2' CCs. Risk allowance and margin were considered separate and reviewed accordingly. Several CCs selectively used Monte Carlo risk modelling software, though its use was dependent on project types, specific values or client requirements. Results of such analysis were often treated with a degree of scepticism by some levels of management and adjusted to get "the right answer". While many CCs agreed commercial viability of the combined risk and margin amount influences a final tender price decision, the importance of not winning a potential loss making project was a strong corporate driver for six CCs. As those six CCs are spread across the public/private and 'Tier 1/2/3' demographics it was concluded this was not just a 'Tier 1' company approach.

A contractor's financial return requirements; strategic importance of the project to the contractor; and the contractor’s need for work were commonly among the highest rated factors as reasons affecting the CCs' margin decision. The importance of 'need for work' reflects findings by Ahmad and Minkarah (1988). Eight of the CCs advised their margin decisions were made within 2 to 30 minutes while a further six were less definitive declaring instead "not long"' or "minimal". Only one CC used a mathematical model to determine margin decisions. When asked to describe the basis of their model the interviewees were only able to advise that the company accountant provided the margin figure. None of the interviewed CCs were aware of the international research into the development of margin decision models. This is consistent with Egemen and Mohamed’s (2007) finding that 93% of contractors failed to use prescriptive models in the industry.

Ongoing pursuit to improve tender procedures

When asked whether their tender procedures were keeping pace with their business and corporate governance requirements, nine CCs advised they had updated their procedures in the last three years. A further four CCs were in the process of updating their tender procedures. While two CCs were increasing governance control, three other CCs were seeking to reduce or streamline their procedures to make them more workable. Interestingly most interviewed CCs did not have as strict a controls process over their post-tender negotiations leading to contract execution and recognised this failure as an area for procedural improvement.

Development of a Representative Contractor's Internal Tender Process Flowchart

Drawing on information gained from the 18 CC interviews and the tender procedure extracts provided by nine CCs, a representative internally determined tender process flowchart developed by this current research is presented in Figure 1. The flowchart includes internal and legislative factors driving corporate governance directives that influence: 'bid/no-bid' decisions; how tender kick-off meetings are structured; approaches on risk and margin expectations; and involvement of specialist departments at key tender review stages. Such 'bid/no-bid' decisions may occur many times during the tender process (from initial prospect identification through to contract execution). The flowchart reflects that a client's decision to undertake an EOI process to shortlist tenderers may add to the number of decision stages. Each of these 'bid/no-bid' decision points may involve multiple layers of line management review and approval depending on a CC's delegated authority levels. Additional legal, commercial, finance and risk committees may impact approaches taken to mitigate risk and even the eventual tender submission.

The qualitative flowchart (Figure 1) recognises that, while corporate governance may drive tender strategies, tendering decisions may still be influenced by market conditions,

i.e. 'need for work'. Whenever a tender is abandoned through a 'no-bid' decision there should be lessons learned feedback, though various CCs advised this process was not as well structured as desired in their businesses. This mirrors Shokri-Ghasabeh and Chileshe's (2014) findings.

Additional tender review requirements for D&C or ECI project delivery models can be considered to be addressed within the "Kick-off meeting" and 'Tender Pricing Developed" boxes in Figure 1. Most of the interviewed CCs advised they do not significantly change their tender procedures to account for different project delivery models, though the amount of information prepared for a review can be increased. There also remains the additional design management processes and appropriately focused risk and opportunity reviews. Several CCs who pursue public-private partnership, or PPP, project opportunities indicated further requirements occur as a result of equity participation decisions and treated outside the D&C tender issues.

CONCLUSIONS AND FUTURE WORK

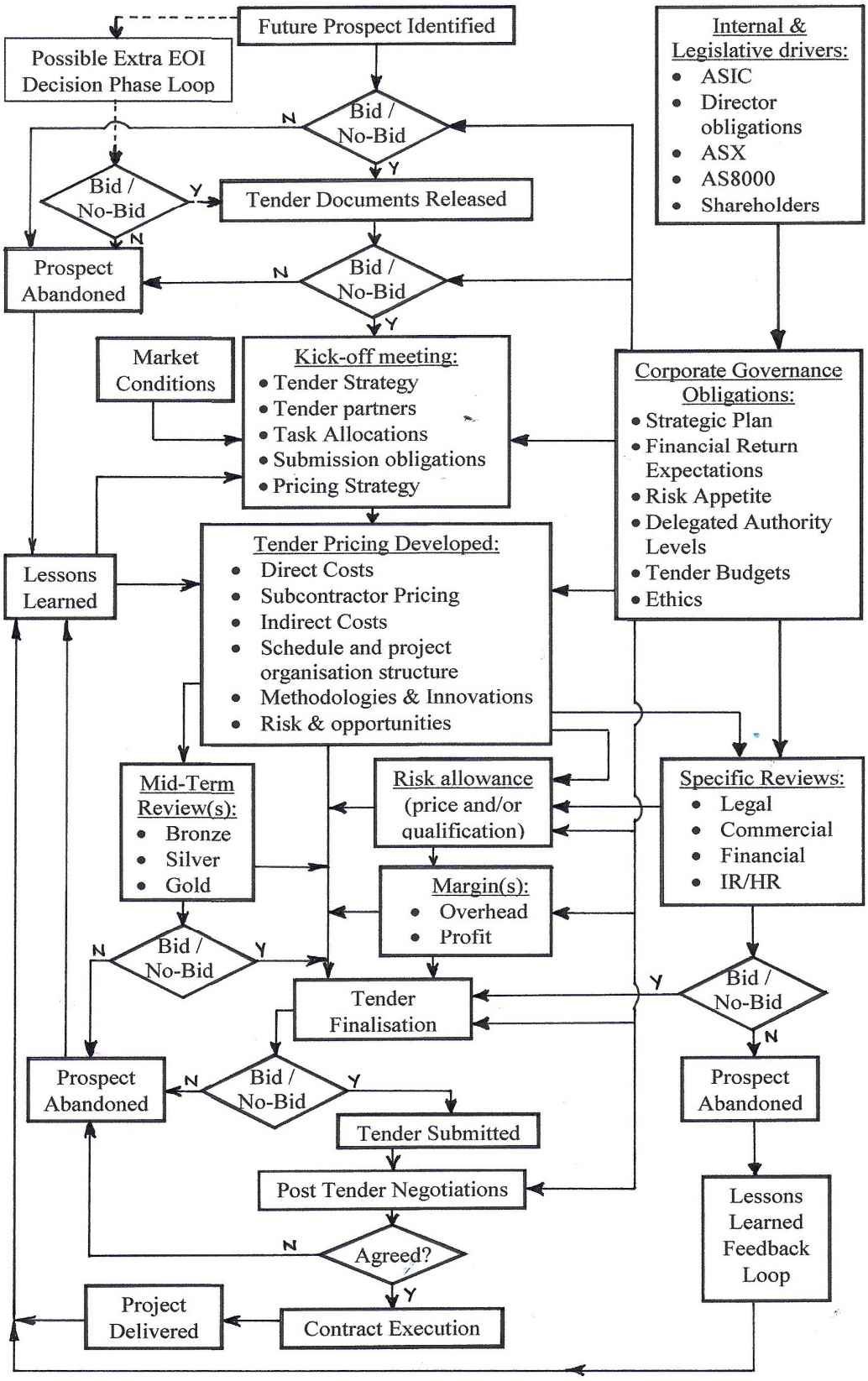
With increasing corporate governance requirements the nature of Australian CC internal tender procedures is changing. A research program is underway to assess the effectiveness and efficiency of such changes and to determine whether such increased governance is producing improved CCs' business results. To facilitate this objective a better understanding of current CC tendering practices and procedures was sought through detailed semi-structured qualitative interviews with 18 CCs, including five of Australia's largest contractors.

This interview based research finds that Australian CC internal tender review processes are increasingly being driven by risk identification, mitigation and internal reporting requirements rather than determining a winning 'mark-up' value. CCs' commercial, legal, financial and risk departments are increasingly influencing the approaches taken with tender strategies, reviews and any subsequent qualifications. In some CCs such internal independent review committees see their role as protecting the company from potential loss or excessive liabilities rather than facilitating the securing of a winning tender. Given these additional constraints 22% of the CCs said they were now spending as much as 15% (half the CCs said over 10%) of their total tender period hours on work associated with internal review processes.

Information obtained from these semi-structured interviews together with extracts from tender procedures provided by nine of the CCs have been used to develop a detailed qualitative contractor internal tender procedure flowchart (Figure 1). This new qualitative flowchart provides researchers with a greater insight into the inner workings of CCs' internal tender procedures and CCs with an opportunity to benchmark their tender procedures.

These semi-structured interviews also serve as a pilot study for a quantitative survey, on CCs' decisions to tender and how their tender procedures interrelate with corporate governance approval requirements, to be issued to the 408 individual CCs on the Austroads' NPS (Austroads 2017) in the next stage of the wider research program.

Figure 1 - Developed contractor's internal tender process flowchart



In a later stage a Delphi technique involving a panel of CC experts will evaluate various tender procedure framework examples to identify and prepare what could be considered as an 'efficient' CC tender procedure. An assessment of the effectiveness of the tender procedures and whether they are producing improved CC business results will be undertaken by reviewing CCs' financial performance over the last five years. Overall business performance is considered to be a better guide than the vagaries of individual projects.

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