

QUALITY AS A CONTRACTOR SELECTION CRITERION – MOVING BEYOND A QUALITATIVE ART

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To improve the likelihood of choosing the ‘right’ contractor, quality-based selection methods need enhancement. Currently, evaluating contractors’ tenders on construction projects considers cost and time as quantitative criteria. Quality remains a subjective qualitative evaluation, and thus an area for investigation. Findings from semi-structured interviews with ten large Australian clients (government and private sector), combined with 19 subsequent survey questionnaires, provide detailed insights into current quality-based selection criteria and methodologies. These clients commonly evaluate eight quality-based themes, the top four being: experience on similar projects; risk management; key personnel availability; and proposed project plans/methodologies. Over 50 sub-themes may be scored in tender assessments. Evaluation methods typically involve averaging tender board members’ individual scoring against pre-determined sliding scales. Alignment with project outcome objectives; lessons derived from similar previous projects; and factors pre-set by procurement rules; are clients’ most common bases for determining score weightings. This research finds that, despite scoring and averaging methods, quality-based selection remains subjective. Governance behind procurement policies should permit effective project specific factor weighting settings and evaluations, based on past lessons from similar projects, rather than remaining constrained by pre-set corporate rules.

Keywords: Governance, Lessons, Multi-criteria analysis, Procurement rules, Tendering.

1 INTRODUCTION

To address risks in selection and evaluation of contractors, construction projects’ clients apply cost, time and quality criteria (Chan and Chan 2004). Cost and time are readily assessed quantitatively while quality is more qualitative and vulnerable to outcome error (Kusumarukmi and Adi 2019). Although calling tenders to select a skilled, competent contractor to provide a value-for-money solution for the client is relatively standard, the process varies between clients and project types (Liu *et al.* 2016). While quality is assessed in single stage tender evaluations it tends to remain a pre-qualification consideration in two stage tendering (Ismail *et al.* 2021).

1.1 Quality Assessment Criteria Studies

As project success means different things to different people, quality’s subjective qualitative assessment poses challenges (Chan and Chan 2004). Challenges lie within uncertainties from different weightings and values applied to selection criteria, and evaluation compromises that

clients are willing to accept (Watt *et al.* 2010). Despite clients valuing quality, cost typically determines tender choice (Watt *et al.* 2010, Ballesteros-Perez *et al.* 2015, Cheaitou *et al.* 2019).

Clients often assign subjective weightings or values, to quality assessment attributes, on vague or pre-determined basis to facilitate decision making (Singh and Tiong 2006, Mohemad *et al.* 2010, Ismail *et al.* 2021). Ratings may be as simple as ‘unsatisfactory’, ‘average’, ‘good’ and ‘very good’ (Hensher *et al.* 2000, Watt *et al.* 2010). While various criteria lists, weightings and decision models have been identified (usually from surveys rather than client interviews) they have not tended to reflect recent Australian market conditions (e.g., Salama *et al.* 2006, Cheaitou *et al.* 2019). Ng and Skitmore’s (2001) study on cost-benefit analysis of contractor selection criteria was based on 1997 survey data. Establishment of, more meaningful, quantitative quality evaluation criteria would assist clients in selecting the most suitable value-for-money contractor.

2 METHODOLOGY

To improve understanding of factors clients considered important for quality selection criteria, a series of semi-structured interviews were undertaken with a purposive sample of large Australian private and government sector clients – clients directly and/or their project management representatives. From these, a series of Qualtrics-based electronic surveys were completed by snowballed sampling of participants recommended during the client interviews.

Ten interviews and a further 19 Qualtrics based survey questionnaires were completed between January and April 2024. The two sampling methods provided an opportunity to triangulate responses. Participant demographics are summarized in Table 1.

Table 1. Participant demographics.

Participants	Sector			Years Experience			
	Private	C’wealth	State	<10	10-20	20-30	>30
Interviews (10)	20%	60%	20%	10%	60%	10%	20%
Surveys (19)	26%	63%	11%	41%	41%	6%	12%

Note: “C’wealth” denotes Commonwealth Government sector.
 “State” denotes State (WA) Government sector.

Participants were asked whether they considered each of eight quality related factors, pre-determined from the literature: company reputation; experience in similar projects; financial status; management knowledge; availability of key personnel; extensiveness of project plans; quality of subcontractors proposed; risk management strategies and identification processes. For both interviews and surveys, participants were free to consider/rate as many factors as they considered in their organization. They were given the opportunity to add ‘other’ primary factor(s), and then asked to nominate sub-criteria under these main factors. As sub-factor lists were not predetermined, collation of sub-themes was undertaken in the subsequent analysis of responses. Participants were invited to outline methods that drove their organization’s decisions to set, weight and assess (e.g., formula based, sliding scales, interpretation) those factors when evaluating contractors’ responses to the tender document’s quality requirements.

3 RESULTS AND DISCUSSIONS

Consolidated quality factor consideration ratings, obtained from the interviews and survey questionnaires, are shown in Table 2. Factors are listed in diminishing order of use based on ‘all’ participants. Similar responses applied from interview and survey samples. Factor usage rates were also separately evaluated for Commonwealth Government, private sector, and Western

Australian Government (State) entity participants. Sub-factors raised by participants were consolidated into common themes under the eight, plus the option for ‘Other’, factors. While 50 sub-factor themes were identified in sample responses, only sub-factors used by >20% of all participants, with a factor category, are shown in Table 2 – numbers within each factor are shown in [square] brackets.

Table 2. Contractor quality factors considered in client’s tender assessments.

Rank	Factors / Sub-factors identified by >20% of participants	All (29)	C’t’h (18)	Priv (7)	State (4)
1	Experience in similar projects [5]:	100%	100%	100%	100%
	References for similar projects, over various specified years (may include lessons learned).	48%	50%	43%	50%
	Previous (relevant) projects - completion date and value and success.	34%	44%	29%	0%
2	Risk management (e.g., strategies, identification) [7]:	100%	100%	100%	100%
	Key risk identification (with adequate mitigations).	45%	56%	43%	0%
	Draft plan (incl identification) against project requirements.	28%	22%	29%	50%
3	Availability of key personnel [6]:	97%	100%	86%	100%
	Experienced (nominated) personnel have current and future availability to project.	72%	72%	57%	100%
4	Extensiveness of project plans [4]:	93%	94%	86%	100%
	Assessed against specific (relevant) project scope/requirements.	52%	61%	57%	0%
	How plans (avoid cut/paste) are implemented for scope/methodologies.	21%	0%	29%	100%
5	Financial status (e.g., credit rating; financing ability) [6]:	90%	89%	86%	100%
	Independent financial assessment (of preferred tenderers).	34%	56%	0%	0%
	Review of last (3+) financial years’ reports.	28%	11%	29%	100%
6	Management knowledge [9]:	90%	83%	100%	100%
	Nominated key personnel (CV) have similar big project experience.	31%	33%	43%	0%
	Nominated key personnel involved in previous contractor projects.	24%	17%	57%	0%
7	Quality of subcontractors used [6]:	86%	83%	86%	100%
	Details of key trades / high risk areas (e.g., design).	31%	39%	29%	0%
	Provide subcontractor list (experience and personnel).	24%	17%	43%	25%
8	Company reputation [7]:	79%	67%	100%	100%
	References from previous clients’ projects.	52%	56%	43%	50%
9	Other (please specify) [7]:	69%	67%	57%	100%
Note:	“‘All” denotes response levels from all participants. “‘C’t’h” denotes Commonwealth Government entity clients. “‘Priv” denotes Private sector clients. “‘State” denotes State Government entity clients. “‘[x]” denotes the number of sub-factors clients recognize within the main factor.				

3.1 Quality Assessment Factor Ratings

Key findings in regards the eight, plus ‘other’, factors from specific responses, as well as general discussions during interviews, are discussed below.

3.1.1 Experience in similar projects

Clients uniformly said relevant experience (typically considered over the last five years, though some considered ten) was their most important quality factor. Experience in site set up and

required resources, supported by: local experience; right project plans; and ability to manage project type and associated stakeholders, to deliver the client's brief were raised. Various participants believed their contractors learned from previous project mistakes and were therefore less likely to repeat them on their next project. While not investigated further in this research, those clients may become disappointed - Urquhart and Whyte (2018) found three-quarters of 25 large Australian contractors do not formally review lessons learned from previous projects as part of their subsequent project tender pursuits.

3.1.2 Risk management

Despite the clear importance of risk management plans, clients expressed concern that contractors submitted generic cut/paste plans from previous projects that were not tailored to their project at hand. It is argued here that clients should place greater importance on the evaluation of contractors' identification of key project relevant risks and their proposed mitigations, rather than requiring full risk management plans as an ordinary tender submission requirement.

3.1.3 Availability of key personnel

While six sub-factors were raised, beyond the visibility of a contractor's proposed project organizational chart, clients want confirmation that nominated key suitably experienced personnel are available for their project's duration. Private contractors placed twice the importance on nominated personnel having been involved in the submitted project experience examples (see sections 3.1.1 and 3.1.6) and are locally based, compared to the government clients.

3.1.4 Extensiveness of project plans

Relevant comprehensive project plans are keenly sought, with clients believing well drafted detailed project plans addressing critical factors show a contractor has a deep project understanding. However, clients also acknowledged comprehensive tailored plans do not necessarily equate to improved understanding and ability, given contractors' propensity to now hire (external) technical writers to prepare project plans for inclusion in their tender submissions. Given a quarter of the Commonwealth Government entities are prepared to wait until a preferred tenderer was identified before asking for draft plans, it is argued that a focus on specific key relevant statements should suffice for most tender submission requirements.

3.1.5 Financial status

While not an obvious 'quality' issue, depending on a client's procurement rules, a project's size, value and risk profile determine if/when financial checks of contractors are performed as part of the quality evaluation, e.g., at shortlisting, tenderer submission, or at preferred tenderer stage. This reflects clients' recognition that contractor failure during construction poses an overall project quality risk – a new contractor would need to be engaged mid-project. Use of internal or external financial/accounting consultants, and number of years of financial statements evaluated, varied between client types. Financial checks in the context of specific project (quality) risk issues were found to be a more frequent private sector client issue (43%).

3.1.6 Management knowledge

Knowledge and experience in a contractor's direct lines of authority was considered important to have comfort that decisions can be made in a timely and adequate manner. However, clients expressed the view this factor was problematic to meaningfully evaluate. They saw this

experience factor aligning more with individuals than the companies, especially as individual tenure is decreasing. Given ever-increasing stakeholder engagement requirements, as part of project delivery scope, this factor is becoming an increasingly important issue for clients.

3.1.7 *Quality of subcontractors*

Subcontractor lists is a common submission requirement, even though those listed may not ultimately be engaged by the contractor. While most of the six sub-themes had low ratings, clients want visibility when projects require specialist skilled or prequalified subcontractors in key high-risk trades. A quarter of private sector clients tended to rely on their own independent research on the listed subcontractors' capabilities, rather than rely on the tenderer's response.

3.1.8 *Company reputation*

Participants from all sectors said obtaining referees from previous clients was the primary way they assessed reputation. Referees provide insight into how the contractor operates and what they are like to work with on projects. Half the State entities said they reviewed their own project closure reports on that contractor to help make a decision. Commonwealth entities said their procurement rules meant they could only rely on the submitted tender information.

3.1.9 *Other factors*

Other quality factors considered include: whether contractors met specific technical compliance criteria, e.g., ISO accreditations; erection skills, local community engagement (workers and materials) capabilities; and indigenous engagement and employment policies.

3.2 Setting and Weighting of Quality Assessment Factors

Sixty percent of participants said the method by which factors were weighted for application in tender evaluations was pre-determined to align with their specific project objectives. All private sector entity participants advised factors and weightings were influenced by lessons learned from past projects, while half the State and 36% of Commonwealth entities stated they applied similar considerations. About a quarter of all participants (none being private sector based) said factor weighting decisions were influenced by their procurement rules.

Participants were reluctant disclose or describe how they evaluated contractors' tender responses. Most stated they averaged their tender review team's individual sliding scale scorings (e.g., 1 to 5) against factor weightings in an attempt to limit individual subjective evaluations and thus derive an overall quality evaluation score. These scores were considered with their quantitative cost and time evaluations to determine the 'preferred tender' recommendation. Participants noted many clients maintain a traditional approach whereby focus is primarily on cost, despite acknowledging quality's importance to a successfully completed project. Consistent with the literature, participants agreed when cost was the limiting parameter the notion that it may jeopardize project quality was immaterial.

4 CONCLUSIONS

Quantitatively evaluating quality factors, in parallel with cost and time, to select the right contractor to produce a value-for-money solution for remains a challenge for clients. While this research ranked eight common quality factors in order of importance to Australian clients, these findings provide clients in wider jurisdictions with the opportunity to benchmark their own selection criteria weightings. It is recommended clients re-assess weighting decision

methodologies to place greater importance on lessons learned from similar past projects, rather than automatically following standard procurement requirements/guidelines. Improved rigor in confidently evaluating contractor quality offerings will enable clients to move away from traditional practices of awarding tenders to lowest bidders, then experiencing the well documented consequences that often flow from those decisions.

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