

Professional judgement: an institutional logic approach to contractor tender pricing

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Professional judgement: an institutional logic approach to contractor tender pricing

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ABSTRACT

Competitive tendering is the default procurement route for most types of construction projects in the UK. As a process, it is costly, time-consuming and complicated, involving input from upwards of 200 separate organisations per project. Existing research has mainly focused on identifying discrete factors that influence contractor pricing. While many scholars and professionals treat the level of mark-up as a technical problem, others acknowledge the role of professional judgement. This paper uses the neo-institutional concept of 'hybrid institutional logics' and an exploratory study into two projects in one firm to explore the way in which different types of professionals work together to produce a single price. The research documents the existence of two distinct logics: a first-principles cost estimation logic and strategic mark-up logic. These are combined in a highly structured process, with moments of separation, bridging and demarcation. These findings explain how firms purposefully balance multiple cognitive schemas to manage resources and position themselves in the market. The research also offers a novel theoretical approach to the study of multidisciplinary collaboration which can be used to address issues of integration more generally.

PRACTICE RELEVANCE

A study of the ways in which main contractors balance multiple considerations when tendering offers several contributions to practice. First, it identifies how pricing is influenced by socially embedded professional judgements. These include judgements about: (1) the current market price (independent of supplier bids); (2) the firm's market position and relationship with clients, suppliers and competitors; and (3) firm-level resource management. Second, it identifies several specialised competencies that inform the use of 'intuition' in pre-tender pricing and which contribute to 'realistic' mark-ups, notably 'first-principles estimation' and 'strategic firm-level mark-up'. Third, it analyses the way in which these are mobilised across the tender preparation process, drawing attention to ways that distinct competencies are combined in bid preparation, in particular, and in everyday work processes, more generally.

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1. INTRODUCTION

The UK construction industry is regularly criticised by policymakers for its low productivity, adversarial relations, and under-investment in training, innovation and productivity (e.g. Egan 1998: 8; Farmer 2016: 23–24; Latham 1994: 58; Wolstenholme 2009: 27–31). Within these reports, competitive tendering is often identified as a major source of these problems. Yet, relatively little is known about how contractors tender. Existing research into tendering has mainly focused on identifying discrete ‘factors’ that influence contractor pricing. Several scholars point to tensions between winning work and ensuring profitability (Chapman *et al.* 2000; Dawood 1995). However, the processes by which judgements shape the mark-up decision are not well-understood.

Many policymakers and software manufacturers treat the level of mark-up as a technical problem. In contrast, this paper starts with the premise that competitive tendering involves considerable contractor discretion. This assumption raises several empirical questions, including:

- How do contractors define their objectives?
- How do they interpret bidding scenarios?
- How do they develop bid strategies that inform their mark-up decisions?

To explore these questions, the paper analyses two cases by a single large contracting firm, Readett Construction. Competitive tendering also offers an opportunity to explore a more theoretical problem, namely: How does a set of individuals, with different knowledge, experience, competencies and concerns, produce a single value? To answer this question, the paper draws on the theory of hybrid institutional logics. The approach draws attention to the way in which firm-level decision-making is governed by multiple logics and how firms and actors move between them.

Competitive tendering is a formalised procurement method that can be analysed as a special type of auction. In this process, contractors price a project and submit sealed bids to the client; the lowest acceptable offer secures the project. Within the UK construction industry, letting contracts via competitive tender can be considered the default procurement route for most types of construction projects (Brook 2017: 69; Holt *et al.* 1995). Tendering is costly and time-consuming for contractors: a survey in 2006 by Will Hughes of 179 construction firms including 60 main contractors found the average bid cost across winning and losing bids was 0.57% of total project value (Fitzpatrick, 2015).

The remainder of the paper is structured as follows. It begins with a review of the factor-driven literature on competitive tendering and its neglect of professional discretion and firm-level strategy. This is followed by a review of empirical studies acknowledging these issues, and by the introduction of an alternate approach, namely the hybrid institutional logics strand of neo-institutionalism (NI). The exploratory study uses documents and semi-structured interviews to study two bids in a single firm. The results section documents distinct stages of the process and the mobilisation of two distinct logics. The discussion and conclusions reflect on the ways in which these are combined and the implications of this analysis for both researchers and practitioners.

2. LITERATURE REVIEW

Within construction management research (CMR), the literature on competitive tendering can be divided into predictive models and empirical studies. While most of these are factor driven, a few qualitative empirical papers point to the role of professional judgement and firm-level considerations.

2.1 PREDICTIVE MODELS

Within CMR, many papers on competitive tendering offer predictive models for tender decision-making, including both statistically based factor and hierarchical models. In the first type, market-environment factors (e.g. number of bidders) and project-specific factors (e.g. project complexity, contract conditions) are aggregated to predict or optimise real-world behaviour. Statistical models

come in many forms, including earlier computer-generated stochastic models (Friedman 1956; Gates 1967), neural network models (e.g. Dias & Weerasinghe 1996; Hegazy & Moselhi 1994; Moselhi *et al.* 1993) and case-based reasoning programmes (e.g. Chua *et al.* 2001). Unfortunately, most of these fail to live up to their promise (Rothkopf & Harstad 1994; Runeson & Skitmore 1999). Models for pricing risk or optimising mark-up are rarely used by contractors (e.g. Akintoye & Fitzgerald 2000) and none seems to have been applied to competitive tendering.

The second type of predictive model uses hierarchical breakdown structures. These models thematically structure the mark-up decision according to a single decision-making ‘logic’. Depending on the criteria selected, the models highlight very different types of considerations. For example, DeNeufville & King (1991) take utility to be the primary driver of tender development, while Tah & Carr (2000) privilege risk considerations. When formal hierarchical models are based on robust empirical data (e.g. DeNeufville & King 1991), they can be used to investigate the conceptual frameworks that contractors apply to tendering decisions. Yet caution is required as they obscure the variety of different actors and considerations at play.

2.2 EMPIRICAL STUDIES: PRICING FACTORS

An alternative approach focuses on tendering as a task. This literature can be divided between studies of pricing ‘factors’ and research into firm-level tendering practice.

Research into tender pricing is dominated by quantitative studies of determinate factors. Examples include current workload, risk profile of work and client identity (e.g. Shash 1993). Others cite the role of market conditions and procurement methods (Kissi *et al.* 2017). In most of this work, tendering is studied at the sector level or across multiple firms. Primary data consist of practitioner assessments of mostly qualitative factors, which are numerically scored and subject to statistical analysis. Curiously, much of this literature acknowledges that most pricing ‘factors’ involve ‘qualitative information that is often vague, and difficult to structure and quantify’ (Tah *et al.* 1994: 31), while persevering with their chosen approach. As Elhag *et al.* (2005: 538) note:

most of the significant factors affecting project costs are qualitative such as client priority on construction time, contractor’s planning capability, procurement methods and market conditions including level of construction activity. Due to the qualitative nature of these factors, they are difficult to structure and quantify.

As Chan & Au (2009: 136) observe, in most of these studies:

it appears that mark-up decisions simply emerge in a single step from a mixture of experience, intuition, and gut feeling.

Missing is any enquiry into how the content and organisation of these ‘subjective’ considerations (also) inform the mark-up process.

Of the research reviewed for this paper, only two studies applied the ‘factor’ approach to individual contractors at the firm level. Tah *et al.* (1994) looked at contractors’ mark-up pricing and collected primary data using semi-structured interviews and questionnaires from seven UK contractors, three building and four civil engineering firms. More recently, Laryea & Hughes (2008) looked at how contractors priced risk at the tender stage using data from open-ended interviews from five large UK contractors. In both papers, the authors captured aspects of how contractors formed particular judgements, as evidenced in Tah *et al.*’s (1994: 35) discussion of general overhead pricing and Laryea & Hughes’s (2008: 918) discussion of the adjudication process.

2.3 EMPIRICAL STUDIES: TENDERING PRACTICES

In contrast to factor-driven approaches, a handful of papers have examined tendering practice at the firm and individual levels (e.g. Laryea & Lubbock 2014; Skitmore & Wilcock 1994). These papers point to a variety of different ways in which overhead costs, risk and profit allowance may be built into a tender price. Focusing on risk, Laryea & Hughes (2008: 917) identified four ways that prices might be adjusted: (1) risk could be assessed and contingency added item by item during pricing;

(2) risk could be added as a standalone contingency; (3) the risk contingency could be assessed on a stand-alone basis, but then retrospectively applied across works items; and (4) the contractor could hedge for risk within their portfolio of projects. This fourth option highlights the danger of considering individual projects in isolation when analysing how contractors price tenders. This point is supported by Tah *et al.* (1994: 34) who also found that contractors adjust their approach to overhead recovery on a portfolio basis and not on a standalone project basis.

These studies underline the role of firm-level considerations and of professional discretion in tendering. ‘Natural judgement’, ‘skill’ and ‘experience’ were identified as important ingredients in the negotiation of multiple conflicting factors, including the complex commercial exigencies of tender pricing (e.g. Laryea & Hughes 2008: 917, 919). Contractual amendments were identified as one such nexus of conflicting issues ‘at the intersection of economics, law and management’ (Laryea & Hughes 2009: 560). Laryea & Hughes (2009: 570) identified tactics used by contractors to respond to unfavourable contract amendments via ‘contractual mechanisms’ to avoid increasing their tender price. Similarly, Rooke *et al.*’s (2004) ethnographic study of seven construction and civils projects documents a tender strategy where experienced contractors were able to anticipate areas where the client would need to instruct changes to the contracted scope during delivery. The experienced contractors could use this knowledge at the tender stage to outbid less experienced competitors, whilst maintaining profitability (Rooke *et al.* 2004: 658–659). This paper builds on these studies of tendering practice by exploring the ways in which these and other considerations are structured and managed in the preparation of a bid.

3. HYBRID INSTITUTIONAL LOGICS

As indicated above, institutional logics is one of several strands of neo-institutional (NI) theory. The past decade has witnessed a number of calls for the incorporation of NI into CMR (e.g. Bresnen 2017). Most NI strands focus on the macro-level and, more specifically, on the relation between societal level ‘fields’ and firms. Examples of construction sector fields include individual professions (with their codes of practice and professional bodies) or insurance firms (with their rules for what will and will not be covered). At the most general level, the contribution of this approach lies in the attention it draws to the role of both ‘context’ (the broader rules) and ‘culture’ (in the form of institutional logics). Within CMR, both concepts are often cited as important, but rarely studied systematically at the everyday construction work level. In contrast to the more well-known macro-level theory, this paper draws on a micro-level strand of NI focused on hybrid institutional logics at the level of everyday work. The interest of this strand lies in the attention it draws, first, to the organisation of local-level cultural ‘rules’ in coherent ‘logics’ and, second, to ‘hybridity’ and, more specifically, to the way in which firms embed and balance multiple types of considerations in everyday work (the use of NI in the study of project-level dynamics is the topic of a forthcoming paper by Schweber).

The concept of ‘institutional logics’ has been defined as sets of ‘material practices, assumptions, values, beliefs and rules’ that influence organisations and individuals in their everyday work (Thornton & Ocasio 1999: 804). While studies of institutional logics may focus on any of these components, most focus on values and their importance for external stakeholder legitimisation. More recently, Thornton *et al.* (2012) introduced the notion of cognitive schemas to draw attention to how institutional logics figure in the practical problem-solving aspect of everyday work.

Studies of hybrid organisations, which combine multiple logics, generally pose the question of how they are enacted within a firm. Research tends to focus on either professional identities (Glynn 2008; Kraatz & Block 2008) or routines (Feldman & Orlikowski 2011). Studies of institutional logics and identity note that professional identity almost always involves a commitment to a particular way of defining a problem and addressing it. But as NI research into hybridity indicates, clashes in professional understandings can be destabilising (Greenwood *et al.* 2011). If identities introduce particular logics into a project, routines are the stage on which they are enacted. NI research into hybrid organisations often focuses on the way in which routinised activities carry and combine specific logics (Lounsbury 2007; Smets 2012). Within CMR, two papers have

applied NI to the analysis of project-level dynamics (in contrast with those that appeal to NI, but do not actually deploy it in their analysis). Both adopt a related concept of institutional work. These include Daudigeos' (2013) study on attempts by health and safety staff to introduce their logic into project-level activity and Gluch & Bosch-Sijtsema's (2016) study of parallel efforts by environmental specialists. This paper complements these studies of externally driven change by considering how distinct logics have been embedded in well-established commercial routines.

From a theoretical perspective, the question of 'how' invites an enquiry into the mechanisms (Schweber & Chao 2023) by which different logics are balanced. Very generally, NI scholars have identified two types of mechanisms: decoupling and compromising (Pache & Santos 2010). In the case of 'decoupling', firms balance multiple logics either by assigning them to different units or types of activity or by symbolically addressing them without acting (as in the case of greenwashing or private finance initiative (PFI); Leiringer & Schweber 2010). In the case of 'compromising', they try (often unsuccessfully) to enact logics in slightly modified forms, so as to accommodate multiple values. This can be seen in attempts to meet minimum standards, while introducing watered-down versions of competing courses of action. Recognition of the role of multiple logics in collaboration has led to the theorisation of a third mechanism: 'selective coupling' (Pache & Santos 2010; Smets *et al.* 2015), by which individuals within firms purposefully and dynamically move between logics, as the situation demands (on collaborative pragmatism, see also Reay & Jones 2016). A distinctive feature of such firms is their reflexivity, as evidenced in an awareness of, and purposeful approach to, the challenge of balancing multiple, potentially conflicting, logics (Seo & Creed 2002).

Two empirical studies provide a framework for this study of pre-tendering. The first is a study of pragmatic collaboration amongst healthcare provision in Alberta, Canada. In this paper, Reay & Jones (2016) studied the way in which physicians, driven by a medical care logic, and regional managers, driven by a business logic, developed a collaborative mode of working. Key mechanisms included separating medical decisions from other business decisions, informal consultations by managers with physicians around business decisions, unification around a common cause (namely push-back against government interference), and the creation of experimental spaces where both groups and logics came together around a specific problem. In each of these mechanisms, carriers of particular logics maintained their logic, demonstrated their respect for alternate logics and collaborated around common practical goal.

Reay & Jones (2006) focused on collaboration between firms at the field level. In contrast, Smets *et al.* (2015), in a study of risk assessment and capital placement in reinsurance trading, explored the way in which individuals moved between logics within an organisational decision-making process. The authors identified three mechanisms: segmentation, bridging and demarcation. In the segmentation mechanism, individuals assign different logics to different locations, with different audiences. In contrast, the bridging mechanism connected logics by mobilising one logic within another. As the authors explained:

Underwriters would, for instance, use gossip gleaned in the community to adjust their deal pricing in the office.

(Smets *et al.* 2015: 940)

In the final demarcation mechanism, professionals affirmed the distinctiveness (and appropriateness) of their logic against attempts to incorporate other considerations. For example, Smets *et al.* noted that:

even when pressured by community peers on the trading floor, underwriters would resist community expectations to subscribe to a lead reinsurer's terms if those terms deviated too far from their own calculations of price and profitability for that deal.

(Smets *et al.* 2015: 940)

This analytical framework offers a novel approach to the study of pre-tender mark-up. It calls on researchers to identify distinct institutional logics mobilised over the course of the project. It draws attention to the way in which these logics are embedded in professional identities and routines. Finally, it calls for a study of the mechanisms by which they are combined in the course of the mark-up process.

4. RESEARCH DESIGN

The research reported below was part of an exploratory study designed to explore the potential contribution of NI and, more specifically, theories of hybrid institutional logics, to the study of pricing mark-ups. In keeping with the theory, the research adopted an interpretivist approach based on data from semi-structured interviews and documents. Data were elicited from four interviewees, all of whom were employed in the same regional business unit of a large contracting firm. Questions focused on two projects, which allowed researchers to move beyond general statements to interrogate specific identities and practices mobilised during the preparation of a pre-tender bid, while controlling for the type of firm and firm-level approach (Bryman 2004: 228).

4.1 SAMPLING

A description of the firm, the two projects and the four interviewees sets the scene for the research findings that follow. Readett Construction is a large, general contractor operating in the UK market, undertaking public and private sector construction contracts up to approximately £50 million in value. The two projects (A and B) selected were tendered by the same team, who worked for one of Readett's regional business units, which was established as a limited company and wholly owned subsidiary of Readett. Interviewees were selected based on their involvement in the projects. This included two estimators (E1 and E2), who were responsible for preparing tenders, and two company directors, who sat on the board. The preconstruction director (PD) managed the estimating department and oversaw the tendering process. The director and general manager (GM) had management responsibility for the entire business unit and was authorised to sign-off tenders on behalf of the company.

The two projects were selected as recent examples of typical tenders that had been submitted by Readett a few weeks apart. Both were 'single-stage' tenders where Readett had to submit a lump-sum price for delivering the entire project scope. Three of the interviewees (E2, PD, GM) were involved in both projects, while E1 was only involved in project B. Interviewees' familiarity with both projects allowed the first author to use comparisons to tease out greater detail about similarities and differences in the mark-up process. While this would have posed a problem for comparative case study research, the use of projects to identify shared firm-level routines rendered it an asset. The interviewees were already known to the first author and were approached individually a couple of weeks prior to the interviews taking place. Copies of the contractor's adjudication pack, as used during the adjudication of each tender, were made available for interviewees to refer to during the 60–90-minute interviews. Data were also collected from tender-related documentation, including the client-issued tender documents, tender documentation produced by Readett during tendering and email correspondence.

4.2 DATA COLLECTION AND ANALYSIS

The research design was modelled on other empirical studies of institutional logics, most notably Smets *et al.* (2015) and Reay & Jones (2016). Studies of institutional logics are generally based on ethnographic research. In this paper, the exploratory nature of the research (Swedborg 2020) recommended the use of semi-structured interviews. Data collection focused on documenting individual experiences and interpretations of the two preselected projects. The focus on projects was designed to bring out everyday routines and to avoid generic, pre-formulated accounts. The data were first analysed for the existence of distinct logics and for key moments or stages in the pre-tendering process. Once these were identified, they were re-analysed for the association of these logics with distinct identities and practices; for their distribution across different moments and organisational locations in the process; and for the way in which potential conflicts were managed.

Commercially sensitive pricing information was represented by a hash '#' for each digit to provide some sense of the scale of the figures being discussed, without revealing the amounts.

All research designs, and especially exploratory studies, have limitations. In this project these included issues of generalisation and overfamiliarity. Empirical claims in this paper are limited to

a single firm and two projects. This empirical base does not, however, discount the contribution. Instead, it is in keeping with the principles of interpretivist research. Generalisation in this type of research is at the level of theory, rather than description. As such, the contribution of this paper lies in the type of questions it introduces and the types of mechanisms and effects it identifies, rather than in the representativeness of particular empirical findings (for a discussion of the contribution of interpretivist research using CMR examples, see Schweber 2016; and Schweber & Chao 2023).

Potentially more disturbing for the findings is the particularity of individual understandings and experiences. To the extent that subjects described the same type of activities in both projects, those activities were deemed to reflect firm-level routines, although they could have been specific to those individuals. Similarly, to the extent that interpretations seemed to be shared across the two estimators or the two project managers interviewed, they were deemed to reflect shared professional understandings, although again they could have been specific to those individuals.

The second author's employment as an assessor at Readett at the time of data collection necessarily impacted on the finding, in both positive and negative ways. Amongst interpretivist researchers, 'positionality' is seen to be a feature of all research, which requires transparency and reflexivity (Schwartz-Shea & Yanow 2012: ch. 4). In this case, the first author was not in a power relation with either assessor and was in a subordinate relation to the managers. By studying processes with which he was familiar, the researcher (and research) benefited from five years of personal experience as well as from the trust between himself and his colleagues. At the same time, interesting or valuable insights were potentially lost due to the first author's own taken-for-granted understandings. This limitation was partly balanced by the involvement of the second author and the use of a distinctive theoretical framework that displaced common sense and enhanced reflexivity (Bourdieu *et al.* 1991; Schweber & Chao 2023).

5. PURPOSEFULLY STRUCTURED DECISION-MAKING: READETT CONSTRUCTION'S TENDERING PROCESS

The account that follows describes Readett's pre-tendering process and presents evidence for the role of distinct identities, practices and institutional logics therein. This is followed by an analysis of the distribution of logics and balancing mechanisms (in the discussion). The pre-tender process at Readett can be organised into three (overlapping) phases: decision to bid; cost estimation; and adjudication and tender settlement.

5.1 PHASE 1: DECISION TO BID

The initial decision to bid was taken by the company directors, who weighed up the project's characteristics alongside a variety of firm-level considerations. This decision took place before the formal tender period and did not involve decisions about mark-up. The decision was based on a variety of firm-level considerations.

Managing the company's resources effectively in the face of uncertainty was a central concern for the company directors. This included the availability of estimators to price tenders and of a suitable construction team to deliver the work. The GM described the difficulty of getting the right balance between tendering as much as possible to 'keep all the doors open as long as we can' in an uncertain industry and the risk of spreading resources too thinly and 'coming second and third place on ten jobs' without winning any work. Both estimators described how 'juggling' too many tenders resulted in less competitive prices because:

you will tend to price things a little bit higher than what you normally would [...] you're rushing and not probably reviewing everything a hundred percent as you'd like to.

(E2)

Using 'our resources the right way' applied just as much, if not more, to the need to keep construction delivery teams busy for commercial (*i.e.* increased overhead costs) and managerial reasons (*i.e.* impact on morale) (GM, PD).

5.2 PHASE 2: COST ESTIMATION

In the second phase, the estimators developed their estimate of the costs Readett would incur to deliver the full tender scope. Both estimators interviewed described themselves as ‘first-principles estimators’. This phrase signalled their ability to price works independently from quotations received from subcontractors.

Upon receiving the tender documents from the client, the PD and estimator reviewed the documents to assess the quality of the information and to establish that the project particulars were in line with what was expected. If this initial review identified issues, such as missing design information or unexpectedly onerous contract terms, Readett might raise this with the client team or even revisit the decision to bid. If the tender information was satisfactory, the estimator would begin the process of evaluating the tender scope and producing an estimate of the net cost of delivery.

Net cost estimation was based on two primary sources of information: the tender documents and quotes/feedback received from Readett’s supply-chain. Time pressure meant that a lot of things had to be ‘taken at face value’ (GM) or on ‘trust’ (E1), with no time to ‘probe and test all these different areas’ (GM). Maintaining good relationships with subcontractors was important because they could provide useful ‘information and help’ (E1). Decision-making focused on whether and by how much to mark-up quotes from each supplier. As this suggests, the focus was on specific items rather than the overall bid and on the project rather than the firm.

Estimation of the two projects combined a main pricing scheme with three complementary schemes: gap analysis, quotation comparison and benchmarking. The main scheme involved comparing quotes to establish that they were within the same range and that none was ‘hanging out the bottom’, in which case the cheapest might be rejected for one that was ‘in the pack’ (GM). For an overview of these cost estimation schemas, see Table 1.

OUTCOME	RATIONALE
Basic schema	
Use the lowest reliable quote	Quote is competitive, compliant and can be relied on
Gap analysis: assessing quote compliance with technical/contractual requirements	
Increase mark-up	Quote does not cover the full scope
No change to mark-up	Quote is compliant
Decrease mark-up	Quote exceeds the scope (e.g. double-counting across packages)
Quotation comparison: choosing between quotes received from the supply-chain	
Increase mark-up	Lowest quote is an outlier increasing the likelihood the quote cannot be relied on
No change to mark-up	Lowest quote is acceptable because there is limited variance between quotes
Decrease mark-up	Not applicable to this scheme
Benchmarking rates from first principles	
Increase mark-up	Rates seem too low and the quote cannot be trusted
No change to mark-up	Rates are in the expected range
Decrease mark-up	Rates seem high and it is likely that better options are available

Table 1: Cognitive schemas associated with first-principles cost estimation logic.

To appreciate this process, it is helpful to consider the skills and background of Readett estimators in general, and of the two estimators interviewed in particular. All Readett’s estimators were ‘first-principles’ estimators, which meant they were able to price directly from drawings and specifications without input from the supply-chain. Their work combined this pricing ability with

extensive knowledge of key stakeholders (including main subcontractors, competitors, clients and consultants). First-principles estimators looked down on estimators who mechanically compiled subcontractor quotes, referring to their work as no more than ‘a postbox’ (PD).

Some of the basic techniques of cost estimation had been learned through formal vocational qualifications (principally in quantity surveying). E1 had a Higher National Certificate (HNC) and both E2 and PD had university degrees in quantity surveying. However, competency was mostly learnt on the job. As E1 explained, ‘the bulk of it was literally learning from people here’. Readett’s estimators had acquired their skills gradually, starting on the ‘small stuff’ and ‘building up on the size of jobs that you do’ (PD). It had taken E2 ‘about two and a half years’ of training before he had been able to price a small house extension from ‘first-principles’ unassisted (E2).

For the firm, having first-principles estimators helped to protect it from less-than-trustworthy suppliers. The PD and both estimators said that having a ‘feel’ for the ‘right answer’ helped them judge whether there was ‘any risks in their rates’ (E2) and isolate areas where quotes were uncompetitively high. This intuitive dimension of pricing was reflected in shared categories for assessing rates as ‘pretty heavy’ (E1), ‘a bit light’ (E2) or ‘there or thereabouts’ (E1, E2, PD, GM).

5.3 PHASE 3: ADJUDICATION AND TENDER SETTLEMENT

The final phase of Readett’s tendering process involved a meeting, or series of meetings, to ‘adjudicate’ the cost estimate and ‘settle the tender’. Both directors and estimators were involved in this process. Adjudication progressed in two stages. In the first stage, the directors reviewed the ‘net cost’ estimate one element at a time, including Readett’s direct costs and cost allowances for subcontract packages. In the second stage, the directors agreed the level of mark-up to be included within the tender offer to the client.

5.3.1 First stage: Net cost estimate

Adjudication of the net cost estimate was the longest part of the meeting. Its purpose was to finetune the estimator’s cost estimate to produce a director-approved estimate of the ‘actual’ cost of delivery (PD). At the meeting, the lead estimator would present their cost estimate line by line to the directors and explain the pricing decisions taken, making revisions as necessary.

This net cost estimate included allowances for the direct costs that Readett would incur for its own staff, site accommodation and direct plant (preliminaries). The directors reviewed these allowances against Readett’s proposed programme and construction methodology to ensure that sufficient cost allowances were included for the nature of the job. For simple jobs, a discussion of these elements might be concluded quite rapidly, but for more complex jobs, extended discussions might be required for the team to reach agreement on Readett’s tender strategy for staffing, site logistics, cranes, scaffolding, *etc.*

The remainder of the net cost estimate comprised Readett’s allowances for costs associated with work packages sublet via its supply-chain. Subcontract packages typically represented over 80% of the tender offer by value. The team spent considerable time reviewing the subcontractor quotes that the estimator had selected to build up the initial net cost estimate.

The collective assessment of these subcontracted elements of the tender was based on the directors’ and estimators’ feel for the rates, the number of returns received, the variance between quotes and which subcontractors had quoted. During these discussions, the team explicitly took into account existing relationships and subcontractors’ current commercial standing. If the lowest subcontractor was seen as too risky, they would go to ‘the next one’ (GM).

These discussions about each trade package were used by the estimators and directors to gauge a reasonably competitive bid level for each package that was considered on a par with current market conditions. This ‘par score’ aimed to be neutral because it provided the starting point for taking strategic mark-up decisions to position the firm relative to its competitors.

5.3.2 Second stage: Strategic mark-up

The second part of the adjudication meeting was led by the directors. It focused on agreeing the level of strategic mark-up to cover ‘risk’, ‘company overhead recovery’ and ‘profit’ (PD). For the two tenders in this study, Readett was faced with a difficult choice between outbidding competitors or including sufficient mark-up to cover overhead recovery and profit. On both projects, the managers chose the former.

Decisions regarding strategic mark-up were multifaceted and inherently ambiguous. Both company directors described these judgements as being based on ‘feel’ and emphasised that decisions were reached collectively, often in consultation with the wider business. On project B, the GM described mulling over the mark-up level for a couple of days, sleeping on his decision and making further adjustments. Both company directors also emphasised the importance of the ‘informal process’ of consulting colleagues and the value of disagreement (GM, PD). The GM explained that when deciding ‘which way the business goes’ he liked:

a real buy-in with a show of hands [...] rather than just one voice being heard.

For an overview of these adjudication schemas, see Table 2.

OUTCOME	RATIONALE
Basic schema	
Target balanced commercial position for the tender	Align the level of strategic mark-up with the firm’s objectives at that moment in time
Weighing up risks and opportunities	
Increase mark-up	Risks outweigh the opportunities
No change to mark-up	Risks and opportunities are even or cannot be costed
Decrease mark-up	Opportunities outweigh the risks
Firm’s need for work: financial	
Increase mark-up	Prioritise the margin by selecting better opportunities
No change to mark-up	Cover the overheads and achieve the target profit
Decrease mark-up	Sacrifice the margin to secure work
Firm’s need for work: resource balancing	
Increase mark-up	Poor team availability and/or the project is not a good use of the team
No change to mark-up	Suitable team available
Decrease mark-up	Teams underutilised and/or the project is a good fit for the available team

Table 2: Cognitive schemas associated with strategic mark-up logic.

The twin issues of market competitiveness and managing resources was a persistent theme in the directors’ accounts of strategic mark-up decisions. When weighing up such difficult decisions, both company directors stressed the importance of having different viewpoints ‘rather than just one voice being heard’ (GM). The PD said he had ‘enjoyed working with’ the GM, ‘he thinks about things very differently’.

It is important isn’t it? And that’s what adjudications are about isn’t it? It’s to make sure [...] there’s lots of different people, and everyone looks at things differently [...].

we don’t always agree [...] you know [...] it’s what it is isn’t it [...] but generally we are there or thereabouts [...].

(PD).

The PD explained their different perspectives in terms of their respective backgrounds: he described his own perspective as coming from the ‘rose-tinted’, ‘bidding’ or ‘surveying side’, where ‘everything is possible’, and the GM’s perspective coming from a background on the ‘construction side, delivery

side'. This appreciation of different viewpoints illustrates the extent to which decisions were not taken by individuals, but reached via organisational processes that allowed the multifaceted nature of these decisions to be considered in the round.

6. DISCUSSION

The above results section attests to the organisation of the pre-tender process into several distinct phases. It also highlights the presence of two distinct logics associated with particular professional identities and practices. A summary of this analysis is followed by a reflection on the ways in which these logics were balanced.

As indicated above, estimators at Readett brought to cost estimation a 'first-principles' logic and identity. For them, their skill lay in the ability to propose a reasonable price for each particular item, based on their hard-earned knowledge of each particular supplier, each supplier's market and Readett's own supply chain strategies. For these estimators, reputation, an important aspect of social identity, depended on the accuracy of their costings. This approach to estimation contrasts with the 'postbox' approach.

In contrast, the 'strategic mark-up' logic was exercised by directors whose social identities depended on protecting and promoting the medium and long-term interests of the firm. Their focus was on the overall cost of the tender and the resource implications of particular items. Attention focused on a combination of firm resource commitments, firm performance against forecasts, and on clients and competitors. Many of these goals were contradictory, which involved striking acceptable compromises between conflicting but 'equally critical' objectives (Smets *et al.* 2015: 936).

Enacting the strategic mark-up logic depended on the ability to appraise the project as a:

mixture of risks and opportunities, which would suit our business at that moment in time.

(GM)

In contrast to estimators' pricing decisions, which were clearly associated with a particular type of professional judgement, strategic mark-up decisions depended on extensive informal consultation before making a decision. For a summary of this comparison, see Table 3.

	COST ESTIMATION LOGIC	STRATEGIC MARK-UP LOGIC
Social identity	Professional: estimators	Managerial: company executives
	Personal reputation	Personal and firm reputation
Goal	Establish a sensible price that will cover the cost of delivering the contract	Achieving the best use of company resources and remaining competitive in the current economic environment
Cognitive schemas mobilised	Comparing quotes	Gauging market competitiveness
	Gap analysis: quote compliance	Weighing-up risks/opportunities
	Benchmarking rates	Evaluating the need for work: financial forecasts Resource balancing
Practice (as evidenced in the objects consulted)	Tender documents	Reports on firm resource commitments
	Marketplace (supply chain) analysis	Reports on firm performance (against the forecast)
		Marketplace analysis (clients and competitors)

Table 3: Comparison of institutional logics mobilised in the mark-up process

Within the pre-tender assessment process these two distinct institutional logics were balanced through a combination of segmentation, bridging and demarcating mechanisms. The formal procedure was divided into three distinct phases. In the first phase, Readett directors used a simplified version of strategic mark-up to decide whether to tender. The next stage, net cost estimation, was assigned to the estimators and driven by the 'first-principles cost estimation

logic'. In this stage, the estimators' aim was to produce a situationally accurate calculation of what it would cost Readett to deliver the project requirements. Finally, the adjudication and tender settlement meeting purposefully brought cost estimation and strategic mark-up logics together in a bridging and demarcation exercise.

As indicated above, this third stage was divided into two parts, each of which balanced the two logics differently. In the first, 'net cost estimation', part, the directors applied their additional knowledge of suppliers, their relationships with Readett, suppliers' markets and Readett's current situation to an item-by-item evaluation of the initial net cost estimate. The second part of the adjudication stage flipped the primacy of the two logics by privileging the strategic mark-up logic. In these discussions firm-level considerations of market positioning, risk management, client and supplier relations, and resource management were brought to bear on the overall price. The meeting concluded with a distinct demarcation mechanism in which the directors asserted their authority and responsibility by making the final judgement on the level of margin to add to the project.

The account of mark-up decisions presented above can be positioned within research into bidding practices. As indicated above, most of the literature on contractor mark-up decisions during competitive tendering focuses either on formal predictive models to 'improve' the competitive process or on lists of discrete quantifiable factors that account for the '(in)accuracy', or at least (in)adequacy, of competitive tender bids. While several studies of contractor bidding processes recognise the potential conflict between different commercial goals, such as winning work and ensuring profitability (Chapman *et al.* 2000; Dawood 1995), they do not ask how are these combined and to what effect. Similarly, while a number of authors analyse bid preparation as a process and highlight the role of overhead recovery (Tah *et al.* 1994) and different types of risk (Laryea & Hughes 2008), none examines the structured and strategic manner in which different types of professional judgement are combined.

This paper builds on these studies by exploring the ways in which these different types of considerations are structured and managed during the bid preparation process. More specifically, it explores how a single firm organised these considerations over time and integrated the differing judgements of professionals within the firm, as well as information from outside the firm, to reach consensus on a single value (*i.e.* the tender offer).

7. CONCLUSIONS

This paper explores the multiple logics informing the mark-up of both individual items and the price as a whole. Both estimators and contractors at Readett reported relying on 'feel' to explain their decisions. The contribution of the paper lies in an analysis of the substance and mobilisation of those seemingly 'subjective' judgements. The findings suggest that professional judgement at Readett was organised in a 'purposeful' manner. Two distinct logics—first-principles cost estimation and strategic mark-up—were deliberately structured in ways that allowed the firm to develop 'realistic' costings (as opposed to the prices submitted by subcontractors) and to balance them with firm-level strategic considerations.

The organisation of different types of professional judgement (logics) can be seen in the clear distinction between the first-principles cost estimation phase and two-part adjudication phase, in which the firm's directors brought strategic and their own experiential knowledge to bear first on specific costs—to produce a 'realistic' price—and then on a firm-level overall mark-up. But it can also be seen in the variety of balancing mechanisms that prevented any individual's 'feel' or either of the two logics from priming. All three of the balancing mechanisms identified by Smets *et al.* (2015)—segmenting, bridging and demarcating—were found to be at play in this case. This can be seen in the multiple stages, privileging different professionals, with different logics, in the first-principles estimators' care to distinguish between their item-specific estimations and recommended strategic versions, which took into account the firms resource needs, and in the extensive informal consultation that directors undertook during the adjudication phase, to name but a few.

Having moved the question of how firms balance multiple institutional logics from a residual problem of ‘feeling’ or ‘intuition’ to an empirical research problem, this exploratory study opens up several avenues for future research. First, it raises the question of whether the relatively well-developed approach at Readett is shared across contractors and, if not, what other logics and distributions shape tendering practice. This, in turn, opens the way for research into the effectiveness of different strategies, for different firms with different types of projects.

Moving beyond the preparation of tendering bids, the paper offers a way to explore the impact of multidisciplinary teams and multicriteria decisions on the design and delivery of construction projects. Policymakers, professionals and academics are quick to decry the fragmented nature of the industry, but few study the way in which distinct logics are combined, both for the good and to the detriment of particular outcomes. A key contribution of this paper lies in the illustration of how the NI theory of institutional logics might fruitfully be applied to everyday project-level decision-making and the type of insights which such an analysis offers.

Finally, in terms of practical implications the paper documents the existence of a distinct professional approach to bid estimation, which relies explicitly on professional competence of a very particular kind. While ‘first-principles’ estimators know who they are and how their approach differs from ‘postbox’ assessments, their skills are not always taken into account in either professional training or the incorporation of ever more elaborate software designed to organise supplier prices. Stated differently, the paper points to several oft-neglected determinants of price, including: in-firm knowledge of ‘realistic’ market prices (independent of supplier quotes); firm-level competence in item mark-up, based on the market position of suppliers; firm-level resource management, including the employment of assessors, project teams and assets; and firm-level market positioning and risk-taking. Instead of a discrete list of factors, the paper points to the existence and benefit (in some firms) of a structured process by which different types of ‘subjective’ considerations are brought to bear on the mark-up process. More specifically, it suggests that firms may want to consider how and when to combine distinct logics, not only in pricing but also in other key activities.

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AUTHOR CONTRIBUTIONS

Both authors contributed to the specification of the research question and objectives, to the data analysis and to the crafting of the paper. David Jefferies was responsible for data collection.

COMPETING INTERESTS

The authors have no competing interests to declare.

DATA AVAILABILITY

Data for this paper have not been made publicly available to protect the confidentiality of the firm.

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Ethics approval was sought and obtained from the University of Reading School of the Built Environment’s Ethics Committee. All identifying information has been redacted.

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