THE WORLD TURNED UPSIDE-DOWN: ARCHITECTS AS SUBCONTRACTORS IN DESIGN-AND-BUILD CONTRACTS

David Greenwood[1], Peter Walker[2] and Alan Walker[3]

[1,3] *School of the Built Environment, Northumbria University, Ellison Place, Newcastle-upon-Tyne, NE1 8ST, United Kingdom.*

[2] *School of Architecture, Planning and Landscape, Newcastle University, The Quadrangle, Newcastle-upon-Tyne, NE1 7 RU, United Kingdom.*

The traditional role of the Architect on UK building projects is well-known and has been the subject of much study and comment. However, recent surveys indicate that design-and-build arrangements now exceed traditional procurement in terms of their share of total UK construction. On such projects, architects and other designers are engaged, not by the employer, but under sub-contract to the main contractor. The question arises as to the effect this has had. This has been approached by considering architects and other design consultants as professional contractors, as opposed to trade contractors - a term adopted to describe the more traditional type of subcontractor. Within these distinctions there are contractual, managerial and cultural implications for the relationships between the parties. To explore this further, representatives of five main contractors were questioned on their relationships with the two types. Clear differences emerged in matters such as contract formation, price-setting, payment and claims; the treatment of selection, work scheduling, and defects / omissions was more complicated. Within trade contractors there is a strong argument for recognising a further category of specialist contractors, who include a design service in their work package. Within the professional contractor category, architects were clearly differentiated from other design team members. The findings are analysed to suggest a theoretical framework with four dimensions that relate to process/product, attitude/motivation, working culture and relative power. The concern is not to be definitive at this stage, but to suggest an agenda for future research into the issues that have emerged.

Keywords: Architect's role, design-and-build contract, professional contractor, relationships.

INTRODUCTION

In 1958 the Royal Institute of British Architects (RIBA) published 'The Architect and his[4] Office' (RIBA, 1958) a short booklet which broadly outlined of the methods of work and the role in society of the professional architect at that time. Almost 50 years

[1] david.greenwood@unn.ac.uk

[2] p.a.walker@ncl.ac.uk

[3] alan.walker@unn.ac.uk

[4] The use of the male personal pronoun in the title is probably careless but nevertheless almost certainly accurate - men dominated the architectural profession in 1958. The situation in 2008 is a more balanced but still shows a significant male bias, particularly at the level of ownership of architectural firms.

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later the RIBA revisited the role of the architect and published 'The Architect and the Changing Construction Industry' (RIBA, 2000) – the titles, consciously or not, are well chosen and speak clearly of the changing position of the architect both in society and in the construction industry. A reading of the two texts reveals a considerable shift from the 1950's industry order where the architect dominated the process as client advisor, 'gate-keeper' to the construction process and controller (as administrator) of the contractual relationship between promoter and builder; to a new order in 2000, where the architect's position and role is as an inclusive member of the construction industry and, significantly, as a participant in, rather than the leader of, the process.

What happened in the 50-year period between the publication of these two booklets has been well documented (e.g. by Nicholson, 1992; Schneider and Davies, 1995; Walker, 2000; Worthington, 2000; Pinnington, 2002). A reading of these texts reveals that two forces seem to be at work: one being a change in the view society takes of the status, role and nature of 'professions' in general (and the architectural profession in particular); the other being a shift in the way promoters buy buildings in the UK, where changes such as the increase in 'non-traditional' forms of procurement have served to alter both the relationships between 'architect-promoter' and 'architect-contractor'.

This paper is principally concerned with the 'architect-contractor' relationship. It sets out to identify the main characteristics that define and influence this relationship and suggests how these can be categorised to allow for closer analysis. The work is further limited by the types of project examined. Winch (2000), following Masterman (1992), helpfully suggests three groupings for procurement systems: separated, integrated and mediated. This paper is concerned with an examination of the architect-contractor relationship in integrated (for example design-and-build) systems, but does not address the separated system – what is commonly referred to in the UK as 'traditional contracting' – or the less common mediated systems (e.g. Management Contracting or Construction Management).

CHANGE IN THE CONSTRUCTION INDUSTRY

Pinnington and Morris (2002) refer to 'the distinctive paths of historical development that professions have taken'. Recent (i.e. over the last 20 years) developments in the construction industry have had a number of important implications for the architectural profession. These include: competition for non-design services between building professionals; increased formality and competition in bidding for commissions; and the rise of the professional project manager. Here, one particular path of historical development - a shift in the identity of those who commission architects – is explored.

Procurement trends

According to most recent investigations, 'pure' and 'novated'[5] design-and-build arrangements now exceed traditional procurement in terms of their share of the total value of UK construction. As a trend, this has been recognised for some time by regular commentators on the procurement trends within the industry and its growth has been traced to the late part of the twentieth century (Masterman, 1992: 52). It is

[5] Hughes *et al.* (2006) describe novated design-and-build as occurring when 'the client employs a design team for the early stages of the project (typically up to the planning permission stage)… and … then transferred to the builder…'. The 'pure' type of design-and-build occurs where the MC is at liberty to select its own designer for the project at the outset of its (the MC's) involvement.

difficult (and perhaps unnecessary) to be precise about to the true current figures but a relatively recent and large-scale survey, by Hughes *et al.* (2006) measured their combined value at around 46% of sampled projects. This has involved a radical, sometimes painful, change in relationship between the parties, not least in that between the design team (and in particular the lead designer, normally the architect) and the project's main contractor. No longer are architects exclusively commissioned by those who pay for the building (the traditional 'building promoter client'), but increasingly by those who build the building (the 'contractor client[6]'). This can be explained partly by the increasingly popularity of 'new' forms of procurement and partly as a result of contractors acting as property developers. What are the implications of the shift for the contractor/architect relationship for both players? In what way might this inform an understanding of the traditional architect/building promoter relationship or indeed the wider architect/society relationship? These are questions which drive the research that is presented here.

RELATIONSHIPS AND RESEARCH QUESTIONS

In the course of carrying out a design-and-build project, the main contractor (MC) is required to enter into temporary relationships (i.e. for the duration of the project) with a number of subcontractors. Traditionally, these are production-based organisations responsible for carrying out an aspect of the physical works, supplying work, materials, or both; these will be referred-to as 'trade contractors' (TCs)[7]. Additionally, in the design-and-build situation, there will be other, design-based organisations, responsible for preparing the design and specification of an aspect of the works; such a designer might be called a 'professional contractor' (PC).

Amongst the former grouping there are those who are responsible for both the construction of a part of the works and its design, who, following Bennett and Ferry (1990) can be referred-to as 'specialist contractors' (SCs). Since such organisations are fundamentally production-based rather than design-based organisations, they have not been differentiated (at least at the outset): the research starts with the distinction between two categories of subcontractor (TC and PC) and considers each relationship by reference to the other. More specifically, it investigates: (i) whether differences between the MC/TC and MC/PC relationship be identified? and, (ii) if this is the case, what might be the significance of these differences and their implications? In order to create sensible limits for the work, the research focuses more strongly on one type of PC, namely the architect. The analysis is based on 'turnkey' design-and-build projects where the MC (the design-and-build contractor) and the PC (the design practitioner) are distinct firms with separate legal personalities (as opposed to an integrated 'in-house' unit). Such design-and-build projects come in two distinct forms, mentioned earlier, namely, 'pure' and 'novated' forms and it is reasonable to suppose that this distinction will itself have different implications for the relationships in question.

Relation to previous work in the area

In their study of professional groups within larger organisations Bloor and Dawson (1994) suggest a number of organisational contexts. These include professional

[6] On the basis that there is nothing new in the world, it could of course be argued that this is simply history turning full circle with a return for the architect to the original pre-19th C master builder role.
[7] This term has a particular contractual meaning in the context of a 'Construction Management' procurement system (see, for example, Newcombe, 1996) but the intention here is to describe the input of such a sub-contractor, rather than its contractual status.

organisations made up predominantly of one profession (a traditional architectural practice would be an example of this); large organisations employing a variety of professional groups; organisations comprising several different professions in multi disciplinary teams; and organisations consisting largely of non professionals with a few professionals employed. Importantly, the Bloor and Dawson study is concerned with established and fixed organisations (a 'firm' – for example a company or public authority) as opposed the temporary project-centred organisation more common in construction projects. Others have investigated and identified the differing organisational culture of architects and contractors (see, for example, Ankrah and Langford, 2005) but largely as distinct players, rather than in the context of a joined-up project coalition. As distinct from this earlier work, the present study sets out to examine the relationship of a particular professional group (architects) within a particular organisation (the design-build team) with the additional peculiarity of being brought together for a specific project: notably described by Cherns and Bryant (1984) as a 'temporary multiorganization'.

Winch and Schneider (1993) categorise architectural firms as typical of knowledge-based firms that 'articulate their distinctive competence around creativity'. This paper is particularly interested in exploring the issues that may arise from introducing a 'creative' organisation into a 'manufacturing' organisation within the context of a set of prescriptive contractual delivery obligations. For example, construction contracts typically contain time obligations; the date by which the building is to be complete. How, in this context, is the architect's creative process allowed to run its course without breaching the contractual obligations of the main contractor? How is something as intangible and open-ended as the arrival of inspiration reconciled with the very real and tangible threat of commercial damages for late delivery of the completed building? Similar tensions are apparent when considering the different motivations of creative and manufacturing organisations working together. Dietrich and Roberts (1997) draw attention to 'the fact that professional activities have significant externalities'. They go on to define 'externalities' as 'effects of production/consumption activities that are not accounted for in an exchange of goods or services'. The effect of such externalities is of some potential significance when examining the architect/contractor relationship. Architects are not solely motivated by a desire to satisfy the needs or wishes of their customers, or by commercial measures of success (as 'accounted for in an exchange of goods or services'). Architects are also motivated by professional belief systems that centre on producing work that has 'artistic merit' - an externality in that it confers benefits over and above those enjoyed by the direct customer or client. An important measure of this is critical acclaim; sometimes in the form of architectural awards[8], or peer approval; and these are traditionally important motivating factors for architects. An interesting distinction, increasingly made by academics working in the humanities area of architectural history and criticism, is between 'critical practice' (characterised as reflective practice focused on creative innovation measured by critical acclaim) and 'commercial practice' (concerned with satisfying customer objectives and measured by commercial success). To summarise, characteristics such as those highlighted by the literature (above) suggest that there will indeed be observable differences between professional and trade contractors, and it is the aim of the present study to explore this.

[8] Architectural awards are traditionally given for the product (the building). A relatively recent trend is for some awards to recognise the process of the realisation of the building although this is usually *in addition to* rather than *in place of* artistic merit.

METHOD

The fieldwork took the form of a five semi-structured interviews with construction companies. The criteria adopted in selecting these companies were that they were:

1. familiar with both traditional and integrated (design-and-build) procurement;
2. of such size as to offer a considerable reservoir of experience of the relationships under scrutiny.

The main criteria for approaching individuals within the selected companies were their likely knowledge and experience of relationships with TC, SC and PCs over a range of situations (pre-tender to final account); that they were reasonably accessible; and of course, that they were amenable to questioning. The construction firms that were selected for interview were all from the Contract Journal Top 100 Construction Companies 2007 (Contract Journal, 2008): the smallest had reported annual sales of £169 millions and the largest £3 billions. The respondents' job titles reflected the level and extent of knowledge and experience required. Subjects were first asked how often they worked in integrated (design-and-build) as opposed to traditional procurement structures, and, in the former case, how often that was 'pure' or 'novated'. A follow-up question sought to explore whether either approach had any significant difference, in terms of its effect on relationships with the designer (as a PC).

The next questions sought to establish how the MC selected their trades (TC) and professional (PC) contractors; what form of agreement (industry standard, their own, or the subcontractor's own) they entered into, and on what basis the price was set (e.g. was it a 'lump sum'). Respondents were then asked on what basis each type of subcontractor (TC and PC) was typically paid, and whether retention was held. Such matters have been considered as proxies for different levels of power relationship between contracting parties (see, for example, Bresnen, 1991; Greenwood, 2005).

The sharing of information has long been considered an important metric in principal-agent theory (for a review, see Eisenhardt, 1989) and information is at the very root of (at least) one of the relationships under study, namely that of MC-PC. One of the early project management tasks for the MC is to prepare a works programme. Respondents were asked to what extent the different types of subcontractor (i.e. TC and PC) were involved in this process; how their further contributions were controlled; and how shortcomings, such as defects or uncompleted work, were dealt with. Connected to the last question, the issue of claims was addressed: did the MC exact delay damages from either TCs or PCs, and did they make any other form of contractual claim against them?

Finally, respondents were invited to share any other reflections they had concerning the relationships in question.

RESULTS

Of the five interviewees, all were heavily involved in design-and-build, which was generally thought to be currently the predominant procurement form[9]. Opinion was spilt over the extent of novation. Three of the five stated that projects were 'almost invariably novated', while a fourth claimed the opposite ('almost all of our D&B is pure') and the fifth, interestingly, reported that in his experience, many D&B projects were 'Not officially novated … they are 'passed' to you by the client'. Whether this

[9] 'I can't remember where we last had a traditional contract where the A is lead designer' was the comment of one interviewee.

constitutes an actual phenomenon or a localised 'fudging' of contractual issues remains open to question, and was not pursued at this stage.

However, respondents were unanimous in feeling that their relationships with novated PCs were significantly different. As expected, the majority of comments indicated problems: 'they still tend to "feel a pull" towards the client'; 'high risk (elements) are often deliberately left until novation has occurred'; 'its better if you could pick the team: they always feel … an obligation to their client'. However, one interviewee, whilst recognising these difficulties, felt that: It's extremely difficult to manage … if an Architect is not novated across and the client maintains [sc. retains] him. If he's not being novated and he is there to police the 2nd stage there will be conflict and cost implications and if you're not controlling (him) he will stand fast on his design and you on your costs.

Selection, price, payment and contract form

There were differences between how TCs and PCs were selected. In cases where the PC was novated, there was, of course, no choice in the matter, but even when the MC had a choice, the selection was not based on price competition, an extreme example being where:

we picked the architect on the basis that he's worked with the client before, and knows a lot about the work ….and to be honest with you we haven't had a discussion about price yet. The selection of TCs was normally 'competition based', for example:

They're in the market place - you're driven by price, so if you have 30 subcontractors, you've generally got to pick up the 30 cheapest.

This was, however, in all cases, qualified by three factors: first, that all the firms interviewed had, or were in the process of delimiting their 'lists' of TCs to those with whom they felt they had a 'relationship'; second, that although selection remained competitive, price was not always the criterion (one MC preferred a mix of '60% on price, 20% on the resource, 20% on the quality - we try to get away from price as much as we can'); and thirdly, that with certain trades 'relationship becomes more prevalent'. Generally the less 'critical' the product or service the more likely it is for pure competition to be used. These 'critical' or 'key' subcontractors were invariably those that a design element was required from, in other words, the specialist contractors (SCs) referred-to earlier.

As with their selection, MCs had little choice in the contract forms they used with novated PCs; this would normally have been established at an earlier stage between the PC and client. In the words of one interviewee,

They usually tell you in the (tender) documentation what the architect's fees are, and what the architect's contract is.

But even when a choice existed, the contract was invariably a standard 'form of professional appointment' (such as the RIBA form[10]). The same situation prevailed with price-setting, where the PS provided (and the MC accepted) a 'percentage fee for their work based on overall project value', though this would be 'negotiated to a lump sum value before a contract is formed'. Terms of payment appeared to be more flexible ('it all depends on them') but generally based upon 'a 'draw down' agreed up

[10] The Standard form of Appointment for an Architect SFA/99 (Revised April 2004). RIBA Publications.

front at various stages of the RIBA plan of work' or 'on production of drawings'. In no cases was retention withheld from a PC.

The position was entirely different with TCs. Contract forms ranged from 'our own form of contract' into which 'you've got to step down the main contract conditions' to situations where 'we have a subcontractor who's adamant he isn't going to sign our subcontract, then we have the flexibility to go back to use a standard form'. These standard forms, when used are usually 'just tweaked in one or two clauses by ourselves'. The TC on the other hand, would 'get a specification package with builders quantities' against which they would bid a lump sum, with its attendant risks ('if they've missed something – tough, they can stand that: if we've missed something, then "yes" they get paid…'). Payment of TCs is usually 'the old fashioned way, measure and value basis', sometimes (rarely, it appears) by stage payments, and always accompanied by the deduction of retention ('back-to-back with the main contract').

The sharing of information and involvement in the project planning process

There was a consensus that it was difficult to 'know' and therefore control the design process. One MC commented that 'we look for the "scope of services"… this is where we start to get into the grey area…' There were, throughout the interviews comments such that attest to the intangibility of design. For example,

With the (PC) it's very, very difficult; it's more intangibles that we're dealing with. There's always a knock-on effect. It's never clear cut. Very difficult to say to a member of the design team 'you're responsible for that' for the simple reason that every one else in the design team will have their fingers in the pie.

All respondents referred to the use of an 'IRS' (Information Release Schedule) which appears to be now commonplace, even in traditional contractual arrangements. On larger projects the MC will have 'a design manager who will draw up… and…send in draft form to the (PC) … (something that covers)… all the elements in the schedule'.

A similar procedure is carried out with certain of the non-PC subcontractors, namely those that have been identified earlier as specialist contractors (SCs):

For example in a 2-stage D&B; we tender steelwork… we get a preferred subcontractor … might not be the cheapest… in whatever's left of the tender period we sit down with him, and with others that relate to his work, e.g. the curtain wall contractor, to make sure the interfaces, the tolerances…. are all tied together and all the risks are covered; and that he validates our initial programme ideas. And we do that with every key subcontractor: look at resources, lead-in times; a lot of validation of the programme.

In the case of TCs, they are 'much easier to control: on site 'you do as you're told'. In short, the MC 'knows' what the TC is doing and understands it. There are exceptions. One respondent considered that

... actually the interface between (PC and TC) is becoming grey; designers are doing less detailing and more concept, and (TCs) are having to do that.

Here, the respondent is alluding to production-based contractors that are involved with design: the type that was previously identified as specialist contractors (SCs).

Claims, defects or uncompleted work

The subjects were asked whether they would pursue claims (such as delay damages) against TCs or PCs and what was their approach to defects or uncompleted work. Shortcomings with the PC's services are not only more 'intangible' but more difficult to pursue. Taking the example of obtaining 'as-built' drawings, Its always a fight to get them; the job's over, they've spent their fees. Our leverage would be their stage payments; that protects us. In the case of TCs, such matters (e.g. rectifying defective work) are both more quantifiable and easily dealt with - 'we keep the retention and we use that to offset any defects'- 'we're more aggressive with them –they're used to it'; with PCs It's no good hitting them between the eyes. We can't fall out with them as they hold the solution … even if it's their problem. We'll try to pursue it but … it depends on the size of the problem. Run-of the mill problems…you're not going to fall out with them over 5 grand. In terms of contractual claims, all respondents professed a general unwillingness to 'get contractual' but would do so with a TC ('we're more aggressive; but they are used to it') but with a PC (the responses here particularly focussed on architects), What you do … is thump the table, stamp your feet, ring his boss, get your boss to ring his boss, posture… you don't sue (or claim). Why? I could be at an interview for a job [i.e. project] next week and he's sitting across the table. Instead, the approach is one of compromise: 'at final account we'll get our black book out they'll get theirs' and 'At the end of the day there's the final agreement meeting'.

Other reflections

A number of further interesting observations were made, some of which are appropriate in this brief analysis. It is clear that MCs regard PCs as a team-within-a team, and led (by default) by the architect ('we always give the Architect the job of the Lead Consultant; he has to coordinate; the others aren't used to it.). Whilst this works better than in the past ('the situation is now more team orientated due to D&B') it is not perfect ('they're not as integrated as teams should be': there was 'still an arrogance…(in)…all the professionals' and architects were singled-out as 'individualists', 'keen on aesthetics' whose view of success is 'design awards'.

CONCLUSIONS

In analysing the evidence (a sample of which has been given) it is possible to propose a framework that differentiates the contributors to D&B construction projects, assessed through their relationships with the main contractor, using four dimensions. Within these dimensions, there are clear differences between what have been called TC and PC organisations[11]. The 'dimensions' are briefly discussed as follows, where they are endowed with some tentative theoretical underpinning:

Aspects of the process and product
Distinctions were evident between the 'creativity' of the PC and the 'manufacture' of the TC and their relative ease of understanding by the MC. These are clear examples of the concepts of 'hidden information' and 'hidden action' that are significant features of Principal/Agent theory.

[11] Additionally, within the TC (trade contractor) category, it is likely that a sub-category of specialist contractors (SCs) would emerge as significantly distinct; and within PCs (professional contractors) a clear difference exists between architects and others.

Attitude, focus and motivation
The TC has the same commercial measures of success (profit, delivery) and failure (loss, compensation) as the MC, and performance is measured in terms of satisfying specifications. The PC, as a business entity, shares these, but with the addition of 'externalities' (peer approval, design awards) measured against 'ideals', which include aesthetics (for architects), environmental (M&E designers), innovation (Structural).

Working culture and team commitment
It appears that trade contractors are more likely to 'fit' with a team-centred approach with high levels of hands-on management and shared recognition. The professional contractor, on the other hand, particularly the architect, has an individual-centred approach, accustomed to high levels of professional autonomy and strong identification of personal authorship.

Relative Power
The reliance of TCs on tendering and price to obtain work, compared with the PCs' regular mode of appointment, indicates a considerable difference in their relative bargaining positions with the MC. Contracts terms were imposed upon TCs, whereas with PCs the situation was reversed. Most of all, the 'contractual' attitude to the TC was nowhere found to exist towards PCs. In the case of architects, whilst some of this power could be considered 'hereditary', it nevertheless remained very real to MCs.

Summary

The work presented here is limited: it relies on only five interviews, and the analysis is brief; respondents' views on PCs were almost entirely about architects, and this is where the focus of this paper remains; clear differences emerged between architects and other members of the D&B design team, but these were not explored in any depth. Further research would serve to draw out these issues. Similarly, the study was limited to building work. The civil engineering subsector, with its parallel traditional hierarchies and similar move to design-and-construct projects, would provide an interesting comparison, not exploited by the authors. The findings are, nevertheless, offered as a fascinating insight into a changing role. At the start of the 21st Century, architects find themselves in a world in which the promoters of building increasingly choose contractor-led coalitions for the delivery of their buildings. This will have, and has already had, significant implications for the architectural profession and for the construction industry. For society at large, the end product of the construction process is the building. Although this research is concerned with examining the commercial, institutional and organisational issues surrounding the delivery of projects, there is no reason to suppose that what might be perceived as improvements in the process will automatically lead to improvements in the product. The implications of this shift for the quality of our buildings - for architecture as opposed to architects - is outside the scope of this paper, but not forgotten.

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