

CATEGORISATION OF CONSTRUCTION PROCUREMENT ROUTES: AN IN-DEPTH CRITIQUE

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Abstract

In recent years construction procurement has been subject to considerable transformation from lowest cost to best value procurement and a revised agenda for delivering broader policy goals related to social and environmental sustainability. As construction procurement evolved many different types and categories of procurement routes have been developed. The overall aim of this paper is to examine different categories of building procurement routes based on organisational, contractual, financial and technical issues.

At the present stage of the study, an extensive review of literature and conditions of contracts has been carried out. The UK construction industry serves as a general frame of reference. The RICS survey of contracts in use from 1985 to 2004 is used to probe the share and value of contracts along different procurement routes and across different conditions of contracts in the UK. The logic is that the value and the share of contracts will indicate the behaviour of different procurement routes in the UK construction market while the in-depth analysis of conditions of contracts will show the gaps and relationships between the general definition/categorisation and contractual context (conditions of contracts) of each of the procurement routes. The preliminary result of the analysis shows that traditional routes remain the main types of procurement routes within which different management and incentivisation systems are applied for greater efficiency. The conditions

of contracts in the UK support this assertion by aligning different procurement routes to different conditions of contracts and additionally specifying different forms of agreements, special provisions and incentivisation in order to increase performance, reduce risks and improve compensation methods. The study can serve as a learning opportunity for the construction stakeholders internationally, especially clients in differentiating between procurement routes, management oriented systems, relational contracting and incentivisation.

Keywords: Procurement; Management System; UK; Conditions of Contracts; RICS.

Introduction

Project delivery systems have gone through different stages in their evolution. In early 1900s, most projects were completed under lump sum contracts (traditional system) and this trend continued for most the first half of 20th Century with only some limited exceptions developed in the private sector to improve costs, schedules and adversarial relationships through contractor centred approaches (design and build) (Dorsey 1997 and Oyegoke 2001). Construction management emerged in the 1960s but fully developed in the 70s in the UK due to the recession in the economy (Dowd, 1996), consultative design and build in the 70s, and program management in the 1980s (Dorsey 1997) as clients sought more efficient ways to complete complex projects. Other management-oriented approaches like partnering and framework agreements based upon the concepts of teamwork, integrated team and collaborative working arrangements became more prominent during the late 1990s and early 2000s (McDermott and Khalfan 2006). The aim of this study is to differentiate between construction procurement methods, the management systems and factors that influence the efficiency of procurement routes.

Research methods

The study begins with an extensive literature review and statistical data analysis of the Royal Institute of Chartered Surveyors (RICS) survey of Contracts in Use. The survey was undertaken from 1985 to 2004 and because 2004 was the last full year that the survey was completed special emphasis is placed on that particular report (RICS, 2004). The review identifies procurement routes in terms of types and evolution, and critiques categorisation methods and the conditions of associated contracts. The conditions of contracts are explored because they set out project organisation and how production is carried out. The data contained in the RICS reports is valuable because the reports are one of the few data sources with a reasonable representative sample of contracts in use in any one country (in this instance the UK). For example, more than 3700 projects were investigated in the 1993 study amounting to 17.7% of the proportion of total value of new orders. In 2004, 2330 projects were captured in the survey, which were worth a total of £3,035m, amounting to 8.6 per cent of the total value of new orders. The study logic is that the value and the share of contracts will indicate the behaviour of different procurement routes in the UK construction market while the in-depth analysis of conditions of contracts will show the gaps and relationships between the general definition/categorisation and contractual context (conditions of contracts) of each route.

Research questions:

- What are the main distinctions between different procurement routes?
- How can procurement route categorisation assist in understanding its working mechanisms?
- What are the normative principles that inform procurement route categorisation?

Research Objectives:

- To understand the working mechanisms of the prevalent routes;
- To categorise prevalent routes and identify good practices;
- To differentiate between procurement routes and mechanisms including management and incentivisation systems that aid their usage;
- To develop a novel procurement route that will utilise the strengths of the existing routes and eliminate their weaknesses.

General overview from the RICS survey

The RICS conducted a survey of Contracts in Use from 1985 to 2004. For simplicity and practicality the procurement cases are reclassified based on two main principles: (i) by combining related types e.g. all lump sums under traditional routes, and (ii) by recognising those procurement routes that have sizable number and value under RICS' categorisation. Table 1 presents percentage share of different procurement routes from 1985 to 2004. Traditional approach remains the most popular route with over 76 per cent of the total number of contracts in 2004. However, the traditional route has been decreasing in usage by almost 16 per cent from 1985 to 2004. The design and build approach has shown a significant improvement, from 3.6 percent in 1985 to more than 13 per cent in 2004. Combined, the traditional and design and build routes dominate the market with 90 per cent because most clients are satisfied with one of their alternative ways of distributing of risks and allocation. According to RICS (2004) some clients required a degree of risk transfer away from themselves (design and build) while others were happy with the majority of design and procurement risks. Cost reimbursable contract is another form that is increasing in usage, from 0.2 in 2001 to 6.2 per cent of total number of contracts in 2004. This is because it encourages an additional contract provision of incentivisation. The increase of partnering, since 2001, has been remarkable. It represented about 0.6 percent of the total number of contracts in 2001 and surged to 2.7 per cent in 2004. The RICS' survey indicates that partnering is particularly very strong in the public procurement of social housing.

Table 1. Percentage Breakdown of Procurement Routes

Procurement	1985	1987	1989	1991	1993	1995	1998	2001	2004
Traditional	92.6	92.9	92.3	89.7	82.4	85	76.6	84.2	76.7
Design and Build	3.5	3.6	5.2	9.1	16	11.8	20.7	13.9	13.3
Management routes	1.7	1.2	1.6	1	1.3	2.5	2.3	1	1.1
Partnering	0	0	0	0	0	0	0	0.6	2.7
Cost reimbursable contracts	2.1	2.3	0.9	0.2	0.3	0.7	0.3	0.2	6.2

Source: RICS - Contract in use (2004)

Table 2 presents the value of the contracts across different procurement routes from 1985 to 2004. The value of work done through the design and build route amounted to 43.2 percent in 2004 which is highest in this category. The RICS survey attests to the fact that the use of all types of design and build form progressively increase in number from lower (up to £100k) to higher bounds (over £50m) of contract value. A larger proportion of the contracts valued between £20-£50m were executed under the design and build form. The JCT with contractor's design (WCD) dominates the field of design and build in number of contracts. WCD data shows an even distribution by value within a wider value range of £500 000 to £5m but mostly between a £2-£5m value band. Conversely, the GC/works design and build form was used in some of the larger schemes.

The value of traditional contract has plummeted to 36.8 percent in 2004 against 79.9 per cent in 1985. This was due to the substantial decline in the use of the lump sum – firm bill of quantities about 30 per cent decrement from the 1985 survey. Though the lump sum – firm bill of quantities has surged from over 2001 survey values prompting a come back or reverse in trend. The survey in 2001 recorded over 20 percent use of lump sum – specification and drawings but took a nose dive to 10.7 per cent in 2004.

Cost reimbursable contracts have grown in value from 5.2 per cent in its peak of 1987 to almost 12 per cent in 2004. The issue of higher demand chasing less supply has boosted different forms of incentivisation in projects. The RICS survey found that some form of incentivisation provision was used in both small and large project amounting to 3.3 per cent of contract under survey in 2004. The most remarkable contract under cost reimbursable form is target contracts with about 11.6 per cent of the contract value in this category.

The trend in partnering arrangements is becoming interesting. The surge in partnering arrangements cannot be dissociated from 'integrated team building' canvassed by Latham (1994) and Egan (1998). This working arrangement has been embraced by public clients. It is too early to know if the present trends in partnering will stand the test of time. If there is no meaningful way to balance demand and supply in construction industry, the death of partnering could be imminent. The influence of market cycle (structure, behaviour, risks and responsibilities) will always affect the way demand is placed in the market. This was the case with management routes which gained prominence in 1980s but since reversed more recently.

The decline in the usage of management routes might be due to two factors: (i) because the structure of management routes is similar to collaborative working arrangement which result in the use of trade and specialist contractors, (ii) because a hollowing out of contracting capabilities by main trade contractors also leads them to develop their management capacity.

Table 2. Value of the contracts

Procurement	1985	1987	1989	1991	1993	1995	1998	2001	2004
Traditional	74.9	73.2	66.1	57.8	54	58.3	40.1	43.3	36.8
Design and Build	8	12.2	10.9	14.8	35.7	30.1	41.4	42.7	43.2
Management routes	14.4	9.4	21.9	27.3	10.1	11.1	18.1	11.9	1.7
Partnering	0	0	0	0	0	0	0	1.7	6.6
Cost reimbursable contracts	2.7	5.2	1.1	0.1	0.2	0.5	0.3	0.3	11.7

Source: RICS - Contract in use in UK

Critique of procurement routes categorisation

According to Love et al. (1998) procurement is an organisational system that assigns specific responsibilities and authorities to people and organisations, and defines the relationships between the different elements of construction in a project. In other words, project procurement set outs ways in which works are placed in the market and establishes the contractual framework that determines the nature of relationship between the project team for the duration of their interactions.

Several different classifications of procurement routes have been proposed by different authors from several different perspectives. Categorisations have been created by considering the process through the work is carried out, the contracting party that carries out the project, the bearer of risks and responsibilities, the form of relationships between the parties, the compensation method employed and the management process adopted. According to the Office of Government Commerce (2008) report of the Public Sector Construction Clients Forum: PFI, design and build, and prime contracting represent the majority of the procurement strategies adopted by Government clients and account for the majority of public sector construction expenditure. The report also states that in some instances, clients have developed hybrid forms of procurement based on one or a combination of these strategies, e.g. Department of Health's Procure 21 arrangement, an enhanced form of design and build that uses integrated supply chain.

Categorisation based on the ways projects are organised

There are four prevalent procurement routes in the UK: general contracting, design-and-build, management contracting and construction management. The categorisation of procurement systems from Franks (1990), Yates (1991), Cornick (1991), Seeley (1997) and Oyegoke (2001) fall under these four headings:

- Designer-led competitive tender/lump sum/conventional either sequential or accelerated;
- Design and build/package deal either direct, competitive or develop and construct;
- Design and manage, either by contractor or consultant;
- Designer-led construction works managed for fee/fee construction/management method either management contracting or construction management.

Mohsini's (1993) classification meanwhile pursues the following logic: in terms of the sequence in which building procurement options are performed (design/bid/build), the dominant contractual framework (design/build, turkey), and central control of the processes (management-oriented, integrated and co-operative). There is a technical misunderstanding, which might lead to confusion in Mohsini's (1993) categorisation. For instance, design and manage is categorised under management oriented type, while design and manage is also a major part of the traditional method as the architect designs and manages construction administration. The categorisation of management-oriented, integrated and co-operative approaches under the same centralised control of processes is also a concern as it is applicable to other routes as well. This shows that project procurement is a complicated issue and that success is based on a combination of project conditions and the organisational form the client intended to employ.

Masterman's (1992) categorisation is broad in nature and it includes separated and cooperative strategy (traditional system plus many of its varieties), integrated strategy (turnkey, owner build), and management-oriented strategy (agency, and at-risk). The technical similarities within separated and cooperative strategy approach are the multiple points of (performance) responsibilities and risks. In a nutshell, the traditional system 'lump sum' allows for a multiple points of (performance) responsibilities and risks. The design responsibility is placed on separate organisations. In principle, the owner normally contracts with consulting firms to produce design documents, which are used to solicit fixed price bids (lump sum) from construction contractors. One contractor is usually selected and enters into an agreement with the owner to construct a facility in accordance with the plans and specifications. Subcontractors usually have direct legal relationship with the construction contractor. Lump sum contract can be based on bills of quantities (BQ), specification and drawings, schedules of rates and approximate quantities.

The technical similarities within the design and build classification (integrated routes) are that design and construction is the responsibility of a single firm (single point of responsibility), usually a construction firm. In practice, portions of the responsibilities are subcontracted to other firms/companies especially documentation and specialised works. The management routes allow for the involvement of management consultants or contractor, usually in agency capacity. The agency agreement between the management firm and the owner may cover partial or full responsibility in contracting services, construction co-ordination, project management, and construction administration. Other points of responsibility include design, construction and handover and therefore this approach is termed multiple points of responsibility. JCT (1987) describes management contract as a binding agreement between an employer and a building contractor, in a situation where the building contractor plans, co-ordinates, organises, supervises and generally manages and secures the construction of the building project. Seeley (1997) refers to construction management contract as a situation where the client assumes the contractual position of the main contractor and the works contractors directly engaged by the client carries out the actual work.

Categorisation based on financial issues

Delivery and financing options

Procurement routes have also been categorised based on delivery and financing options by Miller (2002) as shown in the four-quadrant framework in Figure 1. Basically the classification follows the independent and interdependent nature of major construction contract variables: design, construction, operation, maintenance and finance. For instance, the traditional design and build is in quadrant I because the route allows a combination of design and construction (single point of responsibility) while still under a direct form of financing. The weakness with categorising the

procurement routes by quadrants is that many of routes are confused in the execution of real life projects and/or take more than one basic form which means that they could be placed in several quadrants. On the vertical axis is the financing strategy, which might be direct (cash appropriations or debt financing) or indirect (income stream, incentives, debt, equity, and bond financing). On the horizontal axis is the delivery routes categorised as fragmented (multiple point of responsibilities) and integrated (single point of responsibility).

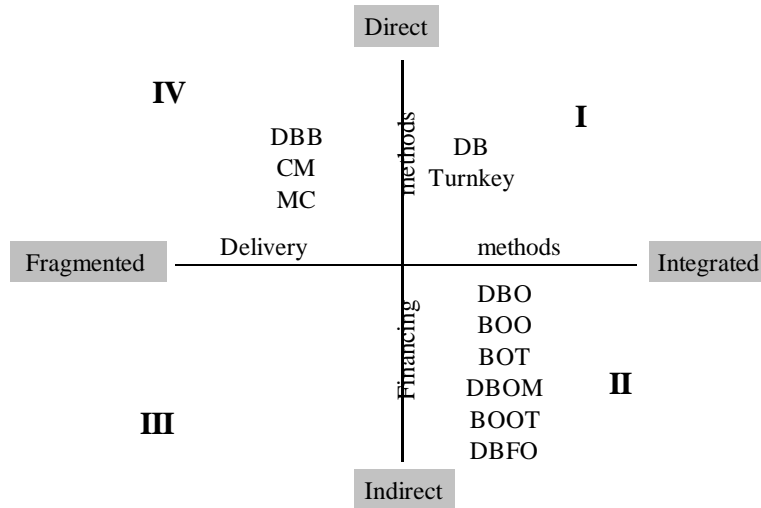


Fig. 1. Construction procurement categorisation based on organisation and financing strategies (applying Miller 2002)

There have been arguments about using financing methods for categorising procurement routes. The argument in support is based on the practical meaning of procurement, i.e. ways of placing jobs in the market. Financial modalities play a major part in shaping the ways jobs are placed and the market behaves. In this regard, PPP (Public Private Partnership) and PFI (Private Finance Initiative) can both be classified as procurement routes. The counter argument is that different financial modalities can be used in different procurement routes. Secondly, PFI and PPP is a description of a financial tool that is used to execute a DBO procurement type or any of its acronyms as for infrastructure projects in quadrant II of Figure 1. Mohsini (1993) also classified procurement routes under financial modalities. This is based on the organisational variables affecting the performance of the process (private finance initiative, build own, operate and transfer). The weakness of this element of Mohsini's (1993) categorisation is the inclusion of cost-driven contracts and tendering method as a procurement method.

Incentivisation or reimbursement contract

The cost reimbursement contract is sometimes referred to as cost-plus or prime cost contract. In cost reimbursement contracts the employer pays the contractor the actual cost of the work plus a management fee which will include the contractor's overheads charges, supervision costs and profit. In a cost-plus contract, negotiations may include procedure for pre-qualifying and selecting subcontractors after key trade contractors have been identified. The owner may set guidelines for hiring subcontractors, including minority participation and use of local entities. Most often the general contractor is given a degree of latitude in selection, with the principal criteria being reasonable costs, timely completion, and good quality. Nevertheless, the owner has the right to approve subcontractors, while the general contractor remains responsible for the performance of all subcontractors (Robert 1997). The most typical form of cost reimbursement contracts are

based on prime cost plus percentage contracts, prime cost plus fixed fee contracts, and prime cost plus fluctuating fee contract.

Another form of contract in this family is target cost contracts. In this form of contract, a basic fee is quoted as a percentage of an agreed target estimate usually obtained from priced bill of quantities. The target estimate may be adjusted for variations in quantity and design and fluctuations in the cost of labour and materials. The actual fee paid to the contractor is determined by increasing or decreasing the basic fee by an agreed percentage of saving or excess between the actual cost and the adjusted target estimate. In practice various methods have been used for computing this sum. An alternative method that has been used is to pay the contractor the prime cost plus the agreed fee and for the difference between target price and prime cost, whether a saving or extra, to be shared between the employer and the contractor in agreed proportions.

Distinctions need to be made between procurement routes and additional contract provisions. For instance, the negotiated contract is an additional provision indicating negotiation rather than normal tendering processes. Additional incentivisation provision is more of a price provision rather than form of contract, e.g. Guaranteed Maximum Price (GMP), fluctuations contract, cost plus, target cost. Other provisions may look into ways of advancing the procurement strategy, e.g. electronic tendering, two stage procurement strategy.

Categorisation based on the conditions of contracts

The conditions of contract seek to establish the legal framework under which the work is to be carried out. There are a variety of conditions of contracts: standard forms which comprise one of any of the pre-printed forms and take precedence over the other contract documents. The conditions of contract in any of its forms have a high degree of comparability, but are different in their details. All of these conditions (e.g. JCT, NEC, etc.) cover different forms of contracts families of forms – e.g. design and build, and minor works.

It can be summarised from the RICS survey (2004), that there are some conditions of contracts that suit certain types and values of contract, e.g. the ICE forms were not used for a project over £5m value and accounted for less than 0.5 per cent of the total project value recorded, compared to 0.7 per cent in 2001. Conversely, there are others like JCT conditions of contract that were used across different contract bands but more pronounced in contracts of £2-5m, amounting to over 75 per cent of this band in the survey carried out by RICS in 2004. Further breakdown shows that JCT standard form with Contractor's Design amounted to 35.6 per cent, followed by traditional method that amounted to 32.8 per cent. In a distant third is the management contract which amounted to 1.2 per cent, the major project form was 0.4 per cent while reimbursable contracts amounted to 0.1 per cent. General conditions establish a common basis for the relationship of all of the parties by using language of proven legal merit. The NEC Engineering and Construction (ECC) forms i.e. NEC family of contracts were used in different contract value bands. According to RICS report, NEC variants accounted for 6.7% and 12.8 per cent of all the number and value of contracts recorded in their survey in 2004 respectively.

Overall all the types of JCT standard forms continue to serve a highly significant proportion of the market amounting to 78 and 71 per cent in 2004 both in total number and value of contracts. Although there is a slight drop of 13 and 7 per cent in the total number and total value of contracts, respectively, when compared with 2001. This is due to the preference of clients in adopting NEC and PPC2000 in contracts with higher contract values and the introduction of 135 non-standard forms by local authority for small contracts below £100,000. Another standard form that is gaining prominence in use is the Association of Consultant Architects (ACA Standard Form Project Partnering PPC 2000) form. This form covered contracts between £100,000 and £20m in value, and has accounted for 1.9 and 6 per cent of number and value used in the survey.

As well as the standard forms, the usage and importance of the non standard forms has increased. Non-standard bespoke forms accounted for 8.1 and 3.2 per cent of the number and value of contract in RICS survey of 2004. The prominence of these types of forms is due to its usage and acceptance by the local authorities for small contracts below £100, 000 values.

A good example of contradiction in procurement route categorisation through the conditions of contract is divergence in the meaning of design and build. In recent times there has been confusion on the true meaning of design and build. Design and build can be generally categorised based on two principles: (i) the bearer of responsibility, and risks on performance and non-performance of the project, (ii) economic notion of separable activities under common ownership. The earlier allows for a fragmented supply chain through outsourcing of key project skills under a single responsibility of a contractor or designer for risks related to non-performance. The latter allows the contracting firm to possess both design and construction capability in-house for the execution of the project. This is the true form of integration in traditional design and build contract.

The JCT Design and Build Contract (DB) – Main Contract – comprises of different attributes that potentially support the economic and non-performance notions of integration in design and build. The contract document stipulates that the design and build conditions of contract form is appropriate where detailed contract provisions are necessary and employer's requirements have been prepared and provided to the contractor. In addition, it is also appropriate where the contractor is not only to carry out and complete the works but also to complete the design. Another major attribute of the document can be closely associated with the traditional form of contract that allows a separate trade contractor or main contractor to design and build a small (specialist) part of the project. The conditions of contract stipulates that the document can also be used where the contractor is restricted to design small discrete parts of the works and not made responsible for completing the design for the whole works.

The fact that Design and Build sub-contract (DBSub/A and DBSub/C) contains sub-contract agreement and conditions of contract provisions negate against economic and non-performance notions of integration. In an economic sense, the subcontracting firm is supposed to be part of the firm under single ownership while, in the non-performance sense, it should be back-to-back agreement between the design and build firm and subcontracting firm. The DBSub/A and DBSub/C documents emphasise its appropriateness for use with the design and build contract; and for sub-contract works whether or not they include design by the sub-contractor.

In response to market changes the Major Project Construction Contract (MP) was developed. According to the RICS (2004) report, this condition of contract is appropriate for major works where the employer regularly procures large-scale construction work and where the contractor to be appointed is experienced and able to take greater risk than would arise under other JCT contracts. It is also applicable where the contractor is not only to carry out and complete the works but also to complete the design; and where the works are to be carried out in sections.

These documents support the assertion that there are varieties of design and build forms (Akintoye 1994). The terms used in the conditions of contracts show the differences in meaning. The JCT puts emphasis on contractor's design (JCT with contractor's design), the GC document on works design and build, the ICE on design and construct, and the Defence Estate' Defcon 2000 focusing on contractor's design. There are others, non-standard employer or quantity surveyor forms. The divergence in categorising design and build can be divided into two: based on point of responsibility for performance (non performance) or based on economic notion of common ownership.

Categorisation based on management process, relational contracting and integrated working arrangement

The management process adopted in bringing the project team together has recently been used as a form of procurement route. This is sometimes referred to as relational contracting or relationship-based procurement (Walker, et al. 2000). Some of the notable examples are partnering and framework agreements. McDermott and Khalfan (2006) refer to partnering and strategic alliance as a form of procurement. Partnering represents commercial agreements in a two stage multi party-contract and can be immensely useful in managing potential relational risks. The Association of Consultant Architects document PPC 2000 allows the clients, consultants, contractors and specialists to sign an agreement at early stages and work towards an agreed maximum price and a commencement agreement. Kululanga *et al* (2001) sound a note of caution because of the fact that the numbers of contractual difficulties continue to rise even though the construction business environment has moved toward partnering arrangements. Steer (2007) suggests that the partnering arrangement is dying because the rise in demand has not been matched by the supply chain. This is indicative evidence that partnering and other forms of social integrative devices are temporary arrangements which are often shaped by a market cycle. Dorsey (1997) asserts that success or failure of any contractual arrangement is heavily dependent upon performance, trust, and co-operation among the parties.

Distinctively, this form of relational contracting is applicable for use in conjunction with prevalent routes or any form of JCT form of contract. The partnering with JCT has room for incorporation under a non-binding partnering charter for single project. This also negates the general belief that partnering is always used for series of projects. Partnering with ICE is, in a form of addendum, allowing for partnering to be incorporated in other forms of contracts. The partnering with NEC allows its use in conjunction with ProCure21 or use as a secondary option as part of the NEC family of contracts. Therefore partnering is a way of fostering collaborative working arrangements between supply chain members through different contract forms. These collaborative mechanisms can be through binding partnering agreement, or non binding 'partnership' or 'alliance' provisions.

In response to the integrated supply chain management, the JCT - Constructing Excellence Contract (CE) was developed to cover procurement of construction works and construction related (professional) services throughout the supply chain. The RICS postulate that it is appropriate for use where participants wish to engender collaborative and integrative working as well as partnering. It can also be used whether or not the supplier is to design or if works are carried out in sections and either for a target cost or lump sum. Another special provision for project team agreement JCT - Constructing Excellence Contract Project Team Agreement (CE/P) allows for the members of the project team to enter into a multi-party pain/gain agreement.

Another response to market behaviour for an integrated supply chain is a Framework Agreement (FA) which has been applied by many local authorities in the UK. The Local Government Task Force report describes construction frameworks as an extension and application of partnering principles advocated by Latham (1994) and Egan (1998) to individual projects to programmes. Though this is not entirely new, especially from inter-organisational management point of views, i.e. network of organisation. In contractual terms, some of the special features of the framework agreement are the possibility that it can be used by contractors, sub-contractors and/or suppliers sub-letting to others in the supply chain, on single or multiple projects, and used in conjunction with most standard forms of construction and engineering contracts and sub-contracts. In addition the Framework Agreement (Non-binding) (FA/N) is used where the parties do not wish to enter into a legally binding agreement but wish to create a collaborative working environment. The binding agreement is often referred to as a framework agreement while the non-binding alternative is referred to as framework arrangement. The OGC (2008) report attested to the fact

that integrated working depends greatly on building interpersonal relationships which in that case should not be viewed as being limited to PFI, design and build, and prime contracting.

Another charter that allows for collaborative working environments is Partnering Charter (Non-binding) (PC/N). According to RICS, this is for use with most standard forms of construction, engineering contracts, and sub-contracts and appropriate where the parties do not wish to enter into a legally binding agreement but wish to create a collaborative working environment. The spontaneous development of different contract formats in the different families of construction contracts also supports the response of the construction sector towards integrated team building and collaborative arrangements. For instance, in the ICE and NEC family, addendum to partnering and partnering option (2001) which is used in conjunction with ProCure 21 was introduced. The Association of Consultant Architect (ACA) introduced ACA PPC 2000 project partnering, an other agreement contract specifically drafted for use in partnering.

All these forms of agreements cannot be regarded as a form of procurement as it can only be used in conjunction with standard form of contracts with extra or special agreement binding or non binding between the parties. This agreement is not new as in the area of dispute resolution where Adjudication Agreement (Adj) is always used.

Research results

- It provides insight into different types of procurement routes
- It differentiates between procurement routes and other catalyst that aid their performance
- It provides general understanding of procurement routes
- It will aid project stakeholders in strategic project decision-making and selection
- It is a preliminary contextual study that will provide the foundation for background understanding and defining the frame of reference for a larger study.

Discussion and conclusions

- Categorising procurement route is increasingly becoming more complex because of their operandi which in principle are fragmented
- The behaviours of the market, most especially the shift in demand and supply capacity, dictate the trends in procurement
- The industry structure supply chain encourages collaborative working arrangements
- The prevalent routes remain the basic forms where management principles, compensation methods, additional special clauses and incentivisation are used to meet the challenges posed by the marketplace.

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Peter McDermott is a Specialist in Construction Procurement and Professor of Management at the University of Salford. Peter holds position as an Associate Director at the Centre for Construction Innovation (CCI, Constructing Excellence in the North-West, UK), he has advised and consulted with a wide range of local authorities and government departments on their response to the 'Egan' agenda.



Steve Rowlinson is a civil engineer by training, graduating from Nottingham University, and has worked for the past 23 years at the University of Hong Kong. During that time he has been engaged as a consultant and expert witness for a number of companies. Steve has written and co-authored 11 books on various aspects of the construction industry. He has been the co-coordinator of the international working commission W092 of the CIB (www.cibworld.nl) for 14 years and has extensive experience in how construction projects are procured world wide.



Mr Xianguang Li is a PhD candidate at Southeast University (SEU), China, majoring in construction management. Currently he is an academic visitor at the Salford Centre for Research and Innovation (SCRI), UK. His research interests mainly focus on construction supply chain management and competitiveness.

