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SUPPLY CHAIN INTEGRATION THROUGH INNOVATIVE PROCUREMENT

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Abstract

Recent innovative procurement initiatives by the public sector construction clients within the UK are challenging the traditional ways of procuring construction projects. The new concepts and practices are intended to empower clients to exercise more control over the supply chain and generate more co-operation among project participants. The initiatives aim to: bring project members closer together; integrate the supply chain; create greater trust; develop relationships on a long term basis; introduce a pain and gain culture; and reuse the knowledge on succeeding projects. This paper, with examples from the UK construction industry, presents the procurement initiatives of public sector clients to integrate the downstream supply chain members through innovative procurement strategies. This paper particularly highlights the benefits of, and the motivation towards innovative procurement resulting into integration of supply chain members through four case studies, conducted as part of a supply chain integration project at the SCRI research centre. The paper defines the construction procurement and recent initiatives through policy documents within the UK. Then the methodology and case studies are presented followed by the findings. The paper concludes that, through clients' innovative initiatives, there is a great potential to integrate supply chain participants at the outset of a project, in order to achieve effective planning and delivery of the whole project, as well as greater collaboration among supply chain members working on the project. The findings also reveal that there is need for more efforts especially from the contracting organisations to integrate their key suppliers and manufacturers, which are still operating through the traditional procurement process.

Keywords: Procurement Strategies, Supply Chain Integration, Construction Industry, Public Sector Clients.

INTRODUCTION

The traditional concept of working together with new characterization as an integrated supply chain, is among one of the hot research topics in the recent years within construction management. Researchers have looked at the traditional ways of procurement within construction and identified the problems, and solutions in terms of better ways of working. Similarly, practitioners have informed the researchers their initiatives within the industry to bring improvements within the industry through construction procurement process. Supply chain integration project at SCRI research centre was one of the projects, which combined both the research and the practice within the UK construction industry in order to look at the effects of the newer ways of procuring construction projects, especially by the public sector clients. The paper will present a brief literature review on construction procurement and how it is used to integrate the supply chain within construction industry, through four case studies, as part of the above mentioned research project. Each case study will provide details with the background of the procurement route selected along with the findings from the studies. Conclusions will be drawn towards the end, which would highlight the positive outcomes of the adoption of the innovative procurement methods within the UK construction industry.

CONSTRUCTION PROCUREMENT

Construction procurement has been defined as a "framework within which construction is brought about, acquired or obtained" (McDermott, 1999) and is considered as the key to improving construction performance (Ofori, 2006). It determines the overall framework and structure of responsibilities and authorities for guiding the participants within the construction process (Love et. al., 1998). Many researchers have argued that procurement method is largely irrelevant in itself and that the real issue is how the adopted procurement form enhances or inhibits team members in achieving project goals (Walker, 1998; Love et. al., 1998). The interaction and participation in the various phases of a project delivery process by the client, design and construction teams, working together as a cohesive group, have been shown to have direct impact on the quality of their relationships and subsequent project outcomes (Smith and Wilkins, 1996; Soetanto and Proverbs, 2004). Whilst it can be argued that traditional procurement approaches inhibit positive interactions (Latham, 1994; Egan, 1998), there are many other social, political, technological or environmental factors that impact upon the performance of non-traditional procurement choices (Goodier et. al., 2006). Nonetheless, Walker and Hampson (2003) argued that 'partnering can facilitate the required positive interactions and provided sufficient evidence of its applicability' in various procurement paths, except in the traditional route because of its adversarial environment exacerbated by its fragmented nature that restricts the integration of the design and construction teams. Bennett and Jayes (1995) defined 'partnering' as a "management approach used by two or more organisations to achieve specific business objectives by maximising the effectiveness of both parties. The approach is based upon mutual objectives, an agreed method of problem resolution, and active search for continuous measurable improvements". However, a trend towards a more holistic, integrated and relationship-based systems view of procurement has now become apparent (Gyles et. al., 1992; Latham, 1994; Egan, 1998; McDermott, 1999; Grove, 2000; Tang, 2001; Walker and Hampson, 2003; Khalfan et. al., 2006). Importantly, the trend is away from standard forms of contractual arrangements towards bespoke approaches aligned with the objectives of all the project participants.

UK GOVERNMENT POLICIES

According to Department of Environment, Food and Rural Affairs (DEFRA) (2007), the UK Government and wider public sector spends £150 billion annually on procuring a wide range of goods and services, from every day items such as pens and paper, to major construction such as schools and hospitals. The procurement of goods and services by public authorities in the UK is governed by European Union Directives, designed to promote and encourage transparent and fair competition between contractors in EU member states through OJEU notices. Changes to these Directives have been implemented in UK law from 31 January 2006. Prominent among the changes is the new procurement procedure of Competitive Dialogue for complex projects (Ibrahim et. al., 2006a,b).

A variety of methods have been used by UK public clients for procuring and funding construction. Successive independent reviews of UK construction performance have been carried out over the years and have identified the need to tackle the adversarial and inefficient

working practices that have characterised the UK construction industry. The reviews have also emphasised the need for further action to promote integration and environment for sustainable innovation in order to improve construction performance and wider value for money benefits through continuous improvement of processes, products and services. Dickinson and McDermott (2006) examined the key conceptual and methodological designs issues that are central to studying the implementation of policy innovations in public construction procurement. They argued that emphasis should be given to both the process of innovation and the contextual factors that influence implementation. Some of the key reports whose conclusions and recommendations have resonances for construction procurement have been summarised in Table 1.

Table 1: Key reports on the UK construction industry between 1994 and 2007 (taken from Ibrahim et al., 2006a,b).

| Author | Title and year report published/initiative launched | Key messages |
|----------------------|--|--|
| Sir Michael Latham | Constructing the Team: Final Report of the Government/ Industry Review of Procurement and Contractual Arrangements in the UK Construction Industry, 1994 | This comprehensive review of the UK construction industry proposed a clear action plan for improvement, asserting that implementation must begin with the client and made ten recommendations, in particular: partnering as a way forward to improve efficiency and profitability in this sector; and that the Government commit itself to becoming a good practice client. |
| Peter Levene | The Levene Efficiency Scrutiny into Construction Procurement by Government, 1995 | This report concluded that Government bodies were partly to blame for the poor performance of the industry and made recommendations to improve the structure and management of construction projects, including more realistic budgets and timetables, better communication with the construction industry to reduce conflict, adoption of a more commercial approach, negotiation of deals justified on value for money grounds and the skill level of Government clients. |
| Sir John Egan | Rethinking Construction: Report of Construction Task Force, 1998 | This report on the scope for improving the quality and efficiency of delivery of UK construction recommended substantial changes in the construction industry's culture and structure, replacement of competitive tendering with long-term relationships based on clear performance measurements and sustained quality and efficiency improvements, and established quantified targets for improvements in construction costs, delivery times and defects. |
| Her Majesty Treasury | 'Achieving Excellence in Construction' initiative, 1999 | This initiative was launched in response to Egan report, and set out an action plan and targets for implementation and achievement of the Egan recommendations across Government through the basic principle of collaborative relationships with suppliers so that all parties work in an open and mutually productive environment whilst ensuring full involvement of an integrated supply chain in attaining maximum value for money and continuous improvement of construction products and services performed therein. |

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| Office of Government Commerce | Modern Government, Modern Procurement, 1999 | This report sets out the key recommendations of the Gershon Review of Civil Government Procurement and the Second Bates Review of the PFI and PPPs, and the Government's plans for their implementation; rehearsing the need for the achievement of value for money and continuous improvement of products and services procured by the public sector. |
| National Audit Office | Modernising Construction, 2001 | This report, together with the report of the Committee of Public Accounts HC 337 'Improving Construction Performance', identified the need for further action to improve central government departments' construction performance and the scope for significant financial savings and wider value for money benefits, and made a series of recommendations to achieve: better coordination of industry improvement initiatives by sponsoring departments, better dissemination of good practice by OGC, better performance measurement by line departments and greater use of innovation by the whole supply chain in improving the quality and cost-effectiveness of public sector buildings. |
| Strategic Forum for Construction – Egan Report 2002 | Accelerating Change, 2002 | This report reviewed the progress against the Egan recommendations and targets for the industry and assigned clear responsibility for their delivery, predominantly to Constructing Excellence – a DTI and industry sponsored body. The report highlighted the need for radical improvements in construction sustainability and the responsibility of the entire industry for delivering this. |
| Office of Government Commerce | 'Building on Success' conference and the launch of the Achieving Excellence strategic targets, 2003 | This conference reviewed progress made against the original three year Achieving Excellence action plan and announced a future strategy designed to improve the cost and time predictability and quality of construction projects and reduce average timescales for procurement. |
| National Audit Office | Improving public services through better construction, 2005 | This report assessed the progress that departments and their agencies had made in improving their construction delivery performance since the <i>Modernising Construction</i> report, in part by examining data on 142 construction projects delivered between April 2003 and December 2004, as well as the impact of relevant OGC initiatives. The report highlighted good construction practices drawn from across public and private clients and projects which other organisations can learn from. |
| Strategic Forum for Construction | 2012 Construction Commitments, 2006 | This report, developed by industry with the strong support of Government, is aimed at maximising the opportunity to showcase the very best of UK construction practices, using the 2012 Olympics as a live example. The report covers six key areas of the construction process and is designed to promote collaborative working and best practice, ensuring the successful delivery of the Games infrastructure, buildings and subsequent legacy. The report does not involve any new initiatives but strives to make the most of existing initiatives, tools and talents in the industry. |

| | | |
|---|---|---|
| Department of Environment, Food and Rural Affairs | UK Government Sustainable Procurement Action Plan - Incorporating the Government response to the report of the Sustainable Procurement Task Force, 2007 | This report, together with the HM Treasury's report 'Transforming Government Procurement' is the UK Government's response to the report of the Sustainable Procurement Taskforce, <i>Procuring the Future</i> , and highlights the action that need to be taken through policies, performance frameworks and procurement practice, working with the supply-chain to provide the innovative eco-technologies and solutions that will be needed to satisfy the sustainable development targets set out in 'Securing the Future'. The report also highlights the need for Government departments to focus on increasing the level of procurement professionalism, raising the status and standard of procurement practice and ensuring rapid progress towards achieving targets for Sustainable Operations on the Government Estate. |
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BACKGROUND TO THE RESEARCH PROJECT

In order to study the changes occurring within the industry, the introduction of innovative ways of procuring the construction works, the motivation to adopt these new procurement models, the potential benefits and bottlenecks experienced during the whole process, and changes within organisational cultures and personal attitudes, the SCRI Research Centre carried out a research project the Supply Chain Integration Project.

The project was to investigate the changes that are occurring in the supply of consultancy and contracting services in response to innovative client procurement initiatives. The public sector clients are now being driven towards partnering and the wider Egan Agenda (1998, 2002) through the policies set out by the central government. The main aim of this research proposal was to determine if there were ways of integrating the supply chain that would ensure service and product quality whilst still supporting the government and client initiatives, aimed at increasing the competitiveness of the construction sector.

CASE STUDIES

The case studies attempted to uncover the perceptions of firms within the construction industry with regard to the existing partnering arrangements they currently undertake. The research used multiple methods to collect qualitative and quantitative data. Basic quantitative data and company documentation were used to provide research context while qualitative data, collected in the form of a number of unstructured interviews, sought to understand how innovative procurement was viewed by different supply chain partners. The case study approach followed the protocol developed by Yin (1994) in order to improve the validity of the research. As a result, the research included a number of key elements such as clear and concise research objectives, research propositions, case study selection criteria, unit of analysis, a structured questionnaire, unstructured questionnaire for interview, a predetermined case study procedure, and an interview guide (Yin, 1994). The study involved multiple visits to each organization involved, including an average of three interviews with the Managing Directors of these companies and other staff and a few other interviews their supply chain members in North West of England. All interviews lasted for at least 1 hour. An assumed name for each company has been adopted for the purpose of confidentiality, when reporting the case studies.

All four case studies from the project are reported here. All case studies explore the initiatives taken by public sector clients to integrate their supply chain participants in order to adopt innovative ways of working within a project team. They also examine other supply chain organizations including contractors and sub-contractors, which under a proactive leadership from client organizations, had fully subscribed to the innovative procurement methods resulting into supply chain integration.

The senior management of each of the above-mentioned organisations was interviewed. Soft System Methodology (SSM), along with case study research method, is being used to analyse the interviews, used for organisational analysis. For the social and organisational aspects, the research draws on contextually rich modelling techniques of SSM (Checkland, 1981) with its emphasis on a stream of cultural analysis within construction organisations, and the industry overall. The SSM is selected because the research is dealing with the softer social issues and phenomena such as changes in the behaviour of people and companies in response to the changed in procurement routes. The whole idea to adopt soft system methodology to carry out this qualitative research revolves around the advantages of using SSM. Once the interviews were carried out, the rich pictures were developed and these pictures helped us to identify the issues and areas which have been affected by the change in procurement strategies. The root definitions and CATWOEs were then developed from the rich pictures which helped us to understand the transformation of past situations and circumstances to the present scenarios. Some of the results are reported in this paper as observations of changes due to the innovative procurement, and motivational issues affecting the adoption of innovative ways of working.

Case Study 1: Housing Market Renewal Pathfinder Project

As a means of resolving the imbalance within the housing market, the UK government has made a major policy decision to support the housing sector. This mode of intervention extends beyond the provisions of section of the Town and Country Planning Act 1990 and include a range of activities concerning the development of sustainable communities. These were led by the Office of the Deputy Prime Minister, now superseded by its replacement, the Department for Communities and Local Government. The decent homes concept has been a prime driver for the public sector housing market that followed as fresh initiative. To achieve the investment in housing, the local authorities have been allowed to used a range of actions to generate the financial capital necessary, including the transfer of stock to a nonprofit housing association (RSL), who can borrow money from the banks; by creating an Arm's Length Management Organisation (ALMO); a company owned by a council or by entering into a Private Finance Initiative (PFI); a partnership between the private and public sector, with funding provided by the government. A further means of improving local housing stock has been via the activities of the housing market renewal pathfinders (ODPM, 2005). Low housing demand and abandonment have affected many towns and cities in the North and Midlands. Economically this situation makes house removal extremely difficult to achieve. The dichotomy is such that although these areas are often situated close to or even within cities, where the economy is growing, these neighbourhoods remain disconnected from the new jobs, with residents experiencing low skills levels, worklessness, high levels of crime or fear of crime, and poor facilities. The

programme which includes nine pathfinder projects has been established to renew failing housing markets with funding provided via partnerships of two or more local authorities, who work together with local partners. The case study was carried out with one of the above mentioned pathfinder scheme, based in the North West of England with partnership of five local authorities.

The pathfinders are charged to develop strategic approaches to dealing with the problems that exist within their areas. The pathfinders draw on a wide range of funding streams from local authorities, the Housing Corporation and other public bodies, as well as maximising investment from the private sector.

The main challenge, which was observed during the case study, was to introduce community benefit/regeneration agenda within the contract with main contractors. The suggestion was to measure the above through key performance indicators (KPI), developed within the context of the pathfinder, and developing a framework of incentivisation and penalising based on the results from the KPIs. The other option was to use clauses within the contract to achieve the above. A tailor-made KPI system was introduced and communicated to all the supply chain participants. The supply chain participants were selected to part of a framework agreement based on two stage procurement method with emphasis on both the quality and the cost. But in order to show the progress to ODPM towards the end of last year, the first phase of work consisting of face lifting programme was contracted out in traditional way, which shows that the understanding related to the concepts framework agreement was still new for the participating clients (five local authorities) and the plans for implementing the framework agreement were being developed with consultation of experts.

The procurement process also got a draw back because of the changing brief from the clients (five local authorities). Since each authority wanted to achieve hard targets and quantities to justify the funding from ODPM, therefore soft issues during procurement stage were not given priority. There was also a gap between client's requirements and locally available services of both supplies and labour. Therefore, the need to build the capacity within the region was realised the main hindrance to promote sustainable procurement, which emphasises on hiring local companies and local labour. Despite outsourcing the work to the companies outside the region, savings have been identified through adopted procurement method, including the aggregation of demand approach.

Another Challenge now for the participating authorities were that some of the developers, who used to work for the authorities for many years previously were not selected as party to the new framework agreement for the upcoming work. The reason behind the above was that they did not fulfil the procurement criteria set by the pathfinder which was based on the quality-price mechanism. These contractors were now arguing that despite being local they were not able to become part of the supply chain since the ground rule was changed. On the other hand, there was also a resistance to change within all the parties to work in an improved manner including: the local construction companies, local community and all the local authorities. This has resulted into an obstacle to make people buy in to the procurement process and framework agreement concept, resulting into an emerging need to plan strategically in order to communicate and underpin the concepts so that these become part of the construction culture within the region as well as improve the trust between the project supply chain participants (Khalfan et. al., 2007).

Case Study 2: Fusion 21 Partnership

Fusion 21 was established five years ago with a goal to implement a £225 million housing improvement programme across Merseyside (UK) and generate efficiencies by tackling two common issues; Rising construction contract prices; and Skills shortages within the construction industry. Fusion21 has a growing number of housing association partners. Fusion 21 members are committed to working together to generate sustainability within the housing and construction sectors by:

1. Maximising efficiency by developing strategic procurement partnerships;
2. Supporting industry and local communities by providing training and employment opportunities for local people; and
3. Developing increased environmental awareness and performance systems.

The success of Fusion 21 has been based on working collaboratively to deliver efficiencies within the construction supply chain, by adopting new approaches to procuring both materials and labour as a strategic procurement partnership as aggregated demand, for a wide variety of work in tenanted properties. On the other hand, Fusion 21 partners, contractors and suppliers show willingness to participate in collaborative activities and share common values and vision. They have aspiration to change with Fusion 21 for being more effective and efficient and therefore, work as an integrated supply chain on the framework agreements. The most important characteristic of the partnership is the trusting relationship among the involved parties.

Fusion 21 also recognises the link between labour shortages and procurement costs. Fusion 21 Skills provide sustainable construction training and employment for hundreds of unemployed. In the last five years Fusion 21 has delivered some outstanding results; Skills Training and Job Creation resulted into 404 into permanent jobs and 531 local people into training; and Delivering Cashable Efficiency Gains e.g.; and Increased resident satisfaction: Customer satisfaction @ 95%. Due to all the efforts mentioned above, the Fusion 21 was also the inaugural winner of the Housing Corporations 'Gold Award' in 2006 for 'Innovation in Procurement'.

Over the last five years the members of Fusion21 have been working to develop a supply chain model within which efficiencies and competencies can be shared (see Figure 1). With a combined maintenance programme worth at least £305m over four years, Fusion's partners have combined their procurement activities to directly benefit the communities they serve. The Fusion 21 model operates as follows:

The Fusion 21 model uses e-procurement systems to minimise administrative costs, optimise efficiency by forecasting, managing and evaluating contracts and allows clients to specify, agree and pay for materials directly. This makes the whole procurement process far more transparent and guarantees the best product, supplier and price for every job. Key benefits of this model:

1. Allows standardised high quality material to be procured and directly paid for by the landlords;
2. Minimises administration costs and allows visibility to all involved parties within the supply chain; and
3. Order to invoicing system, creating an efficient and measurable system for raising and paying invoices against agreed payment terms.

Fusion 21 enters into Framework Agreements to provide a single point, one stop procurement solution across the UK, to carry out planned repairs and maintenance on social housing, sheltered accommodation, and other properties as owned or managed by current (and future) Fusion 21 Partner Organisations. Fusion 21 members currently collectively manage over 135,000 properties throughout the UK. The number of organisations working closely with Fusion 21 (and their associated stock) is expected to increase significantly over the next 4 years.

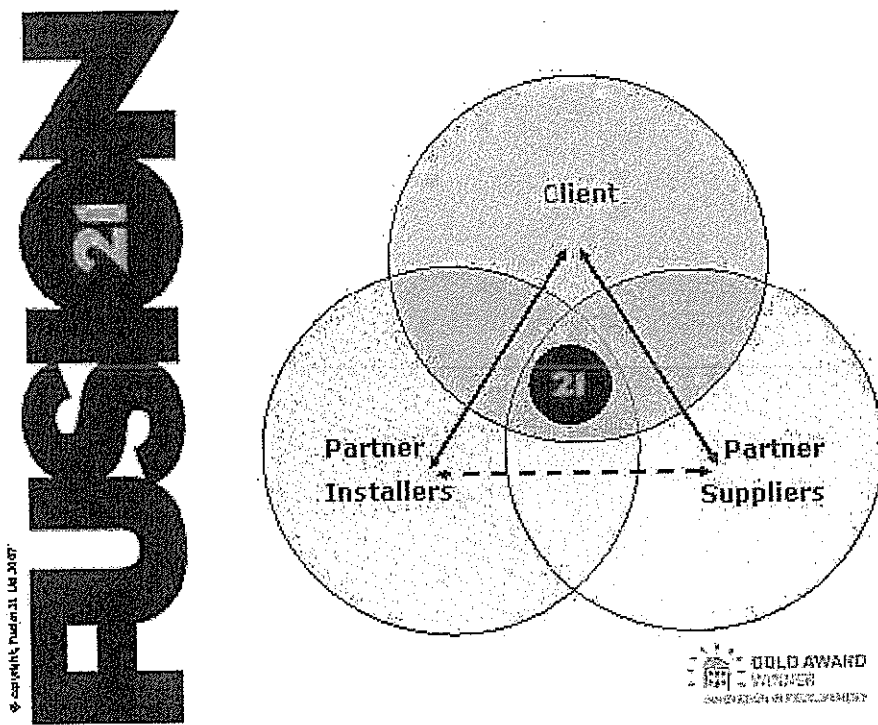


Figure 1. Fusion 21 Procurement Model

The case study looked at gas central heating (GCH) installation work stream. It revealed that the direct and continuous employment opportunities offered to the local labour and subcontractors by the main contractors and installers working for Fusion 21 were highly attractive and beneficial. All the parties involved in the supply chain were in win-win situation because of the guaranteed continuous work load from the Fusion 21 for their future activities. Skills development within the local community through Apprenticeship and Training schemes was innovative achievement through the procurement. Contractors working for Fusion 21 have to take on board trainees as part of clauses in their contract and give them both on the job training and flexibility for attending courses at college.

Fusion 21 saw an increase in tenant satisfaction through their survey, based on the feedback on the services provided. At the same time, the supply chain partners' satisfaction was significantly improved. This was due to the fact that the procurement for labour and products was done independently, and therefore it was a less headache for contractors, also less paperwork, no responsibilities for faulty product. On the other hand, wages for employees and subcontractors were above average. The contractors, installers and suppliers usually get three weeks lead time in all cases and are very loyal to the involved partners. For the suppliers, fewer margins on their products but the commitment of buying the product continuously over next few years was an innovative way of paying off. The relationship of suppliers and contractors was also observed changing on Fusion 21 projects because there was no money involved between them.

The concepts such as Work force smoothing (including hiring direct work force) within involved organisations as part of their supply chain, and aggregation of demands of involved local authorities and registered social landlords (RSLs), where they all are working together in one area, and have no conflicts or problems getting labour and products, went highly successful with Fusion 21 framework agreement. One thing which has always been a bone of contention between clients and contractors is the payment, and Fusion 21 recognising the fact and committing to pay within three weeks was remarkable effort to raise motivation of the supply chain participants.

Case Study 3: Local Authority Framework Agreement

The EU Utilities Directive defined a framework agreement as "an agreement with suppliers, the purpose of which is to establish the terms governing contracts to be awarded during a given period, in particular with regard to price and quantity. In other words, a framework agreement is a general term for agreements with suppliers which set out terms and conditions, under which specific purchases (call-offs) can be made throughout the term of the agreement. The framework agreement may, itself, be a contract to which the EC procurement rules apply. This would be the case where the agreement places an obligation, in writing, to purchase goods, works or services for pecuniary interest (more commonly referred to as 'consideration' in the UK). For this type of agreement, there is no particular problem under the EC rules, as it can be treated in the same way as any other contract" (OGC, 2006a).

The Framework was developed by the local authority, i.e. the client to construct educational buildings in the value range £500,000 to £5M. The three Constructor Partners were appointed in December 2003, which would result into knowledge retention and passed on from one project to another over three year period. The developers are referred as Contractor A, B and C in this paper. Since their appointment a number of Educational Projects have either been started or are in the early stages of design. The authority's vision is that the Framework partnership will deliver good quality school buildings that will lead to: Better educational results; Greater inclusion within the community; Better safety and environmental performance; and Reduced demand on future school budgets by addressing whole life cycle costing at the inception of the projects.

The Framework Management Group (FMG) is the overarching management group to steer the project towards its' high level and corporate objectives. It is a representative group that addresses high level issues for the Framework. The core FMG values are: Trust; Honesty; Openness; Commitment; Co-operation; and Respect. There are also different Special Interest Groups (SIG's) within the framework. They are designed to address issues that are impacting framework and project delivery across a global basis, i.e. impacting all or many projects within the framework. The special interest groups cover the following areas: IT; Contracts and admin; Design; Procurement and materials; and Operations.

The following sections present the a brief background about three main contractors, which were working with the local authority as part of the framework agreement resulting in the move from traditional contracting, one-off project team to an innovative procurement (Khalfan and McDermott, 2006a,b), and knowledge-based long-term integrated supply chain partners.

Contractor A

Contractor A believes in the best value procurement with their suppliers and subcontractors and has around 12 – 13 key strategic goals for supply chain management. For the following activity streams, Contractor A has developed a long term partnering relationship with one company in the North West (NW) of England in order to provide services to the local authority as part of the framework agreement: brick layers; carpentry; plastering; painting and decoration; and scaffolding. For all the above trades, contractor A makes sure that they are involved at the initial stage of project development so that the best price could be achieved, and also the issues related to the build-ability are resolved by contributing towards value engineering exercise. For other trades and products, contractor A goes for a list of 3 selected suppliers/subcontractor for each trade/product. But in NW region, this list of three is now reduced to one for suspended ceiling and ceramic tiles as well.

Contractor B

Contractor B usually goes for few sub-contractors for each trade, based on their resources and based on the contract size. For the framework agreement with the local authority, the architectural team, the M & E team, and pre-cast concrete team, all are part of integrated supply chain of contractor B in providing services. There are three preferred subcontractors for the ground works and are used for the framework agreement. The list of preferred suppliers and subcontractors for each trade is an evolving list and new subcontractors get on the list as well. For the school projects as part of framework, drawings and BOQ were sent to the subcontractors for pricing. Selection was done based on resource capacity; value of work; locality (location of subcontractor); flexible start and finish time; price; quality; etc. Selected sub-contractors then had a pre-order interview, which was basically the invitation to discuss the project. Feedback is also given, most of the time verbal, to the unsuccessful subcontractors if they approach the contractor.

Contractor C

The total turnover of contractor C is around £ 350 m and has an aspiration of around £ 100 m from their activities in the NW. Around 3 – 4 years ago, the contractor decided to go for 100 % Partnering throughout their business activities. Before that, most jobs were based on traditional contracting rather than partnering. Now around 90% of the work is done either by partnering arrangements or by negotiations from the companies, which have worked with the contractor C for a long time. The current experience of the contractor on this framework agreement is regarded as a very good learning opportunity by the senior management. The contractor has also worked with the local authority before this framework agreement using JCT 98, where the scenario was that everybody on the project was struggling for the information from each other; problems related to extension of time; and increased cost for client; etc. Now the contractor C has moved on from all the above mentioned problems to long term partnering relationship with the authority.

It was observed that all three contractors came with their integrated supply chain for the 1st tier including the Design team and M & E Contractors. They all involved with the client to develop the plans for the school development. For rest of the supply chain partners in other tiers, all contractors were using a preferred subcontractors and suppliers list. Selection is then done based on quality-price mechanism. Despite all efforts, *lowest cost* plays primary role in the selection. The reason being, regardless of partnering, main contractors have to show the most economical solution to their clients. But once subcontractors and suppliers were selected and work was started on a site, all participating organisations work as one team to deliver value to the client.

The client has confirmed in cost savings (tendering cost) for both main contractor and subcontractor, who are part of a framework. At the same time, performance was improved, which was measured through KPIs both during and end of the project. These improvements were due to all parties devoting time upfront to resolve design and buildability issues, resulting in saving time on subsequent projects.

Client driven above initiative, which has brought all the parties involved including three main contractors, has resulted into sharing of knowledge and experiences on different platforms including FMG and SIGs meetings. Real Knowledge Sharing through FMG meetings where all three contractors sit down together for selecting the standardised material e.g. windows, doors, etc. At the same time, client was also involved with their requirements and contractors trying to select the suppliers both from their existing supply chain and from outside as well to fulfil the requirements.

Working in framework has resulted into good relationship building between the client, main contractor, and other supply chain participants. Learning from one project within the framework is also taken back to the new projects through capturing the experiences and feedback of the people involved.

Case study 4: NHS ProCure21

The NHS ProCure21 scheme was launched nationally in October 2003 following the appointment of 12 Principal Supply Chain Partners (PSCPs), each in a five year framework agreement with the Secretary of State for Health for projects of estimated capital costs of up to around £1.4 billion per annum. According to Contract Journal (2007), the programme is being used by 133 Trusts, and 38% of these have more than one scheme in the programme. Of those Trusts progressing to more than one scheme, 83% continued to use the same PSCP – showing an impressive rate of return. As at March 2007, 278 active schemes (at all stages) had been registered with a total value of just under £2 billion, 121 projects each with capital cost of over £1 million and 33 projects each with capital cost of under £1 million had been completed, with 54 projects currently on-site (NHS Estates, 2007). While the original five year frameworks are due to end by September 2008, the DoH recently announced their extension by two years till September 2010.

NHS ProCure21 was developed as a direct response to a number of challenges that were facing the UK construction industry but principally the government report, *Achieving Excellence* (OGC, 2006b). The scheme was developed by NHS Estates following comprehensive consultation from within the NHS and with experts from the private sector, industry and academia to improve the performance of public sector clients in capital procurement. This procurement method is recommended by HM Treasury and is compliant with OGC Common Minimum Standards. The scheme is targeted at cutting out waste and duplication of effort in the tendering process, but also to bring the best of the construction industry together to deliver better value for money and better clinical facilities for patients (NHS Estates, 2007).

It was intended that ProCure21 would negate the need for traditional adversarial procurement and tendering by using pre-agreed supply chains and long-term framework agreements managed by the PSCPs. Under NHS ProCure21, it was recommended that the PSCPs are involved in the project from the outset to contribute to the planning and design phases, encouraging long term, collaborative working to achieve quality. The PSCPs are very different to traditional contracting organisations as their supply chains are more structured, pooling together the wealth of expertise from construction professionals through to other specialist members of the supply chain. This provides NHS Clients with the unique opportunity of engaging the PSCP to undertake a wide variety of duties from service strategies, estates strategies, business planning, developing the brief and design development through to major and minor construction works. ProCure21 is based upon a long-term framework agreement (five years with provisions for extension) between the Department of Health and a number of framework partners and is operational only in England. NHS clients may select any one of the PSCPs based on their proven performance and track record.

Case study was conducted with one of the Trust, building an extension for one of their hospitals. It was observed that ProCure21 partnering ethos and principles were very evident prior to commencement of construction work on site. As soon as construction is started on site, same old issues were reported. Researchers were challenged if a subcontractor who worked on our ProCure21 scheme would work differently than he does within traditional procurement methods.

It was also reported that despite the careful procurement, ProCure 21 is just giving us satisfactory outcome, and it would have been very nice to have a fabulous outcome of such scheme. One of the reasons highlighted during the case study for the above problem was because the knowledge / experience / expertise related to 'how to procure work using ProCure21' is not managed efficiently by NHS Trust, therefore, there was a limited access of information for individual Trusts to leverage upon during the whole procurement process.

Some of the PSCPs were very successful; one contracting organisation recruited new staff to match skill sets required for ProCure21, and did hard work in order to engage themselves with the market and NHS. But other organisations only went for the work for which they thought they had some expertise within the group. Those organisations thought that they can deliver the requirements using existing skills within the group without assessing the readiness of their organisation to bid for the work under ProCure21 scheme.

One of the biggest challenges is the need to improve the design of the facility (e.g. hospital) on regular basis as part of continuous modernisation in design because the technology is changing rapidly. And above all, the greatest challenge for NHS is to bring changes and improvements within the ProCure21 framework in order to come up with the solutions for the highlighted issues and problems.

CONCLUSIONS

'People in the industry, used to be opportunistic! Used to take advantage of each other's situations in the past. Councils used to put pressures on subcontractors to reduce prices if they saw that we need work desperately, and during booming period, subcontractors used to ask for high sums. But now, things are changed. They focus now more on performance and quality of workmanship and products and not on price/cost...'

A quote by a Construction Subcontractor, part of a supply chain within one of the case studies.

The findings from the research project show that there are savings in time and cost in the whole process to the integrated supply chain partners working under innovative procurement, as well as changes in the behaviours as highlighted in the above quote. To maintain the momentum of these gains there must be a continuation of the positive attitude amongst the supply chain partners in sharing their knowledge and experiences on future projects, resulting in development of a knowledge-based supply chains. By this approach further benefits will be passed onto the client and end users.

Additionally, there needs to be better continuity of workload in each of the procurement strategy. The Constructor Partners within each case study have unanimously stated that their initial submissions to be part of the supply chain were based on a certain level of turnover. At this point, however, it is fair to say that there is a positive approach by all partners to take their respective Framework agreements forward to achieve the set targets.

The CATWOE in Figure 2 shows the transition from traditional contractual arrangements to partnering arrangements among the supply chain participants. The major actors for this activity are clients, main contractors, and consultants. Main contractors then have similar arrangements with their sub-contractors, material suppliers and manufacturers.

The researchers observed that working in partnering arrangements for a longer period will not only improve the relationship among the partners but also improve the overall construction process. The partnering arrangement requires trust, and transparency of the processes among the participating organisations and their staff. The assumption was put on test during the above mentioned case studies and the responses matched the assumption in terms of the benefits stemmed out of the partnering arrangements within the newer forms of procurement and being part of integrated supply chains.

A partnering arrangement to enable supply chain participants to work closely with each other over a longer period in order to improve the overall construction process and delivery mechanism.

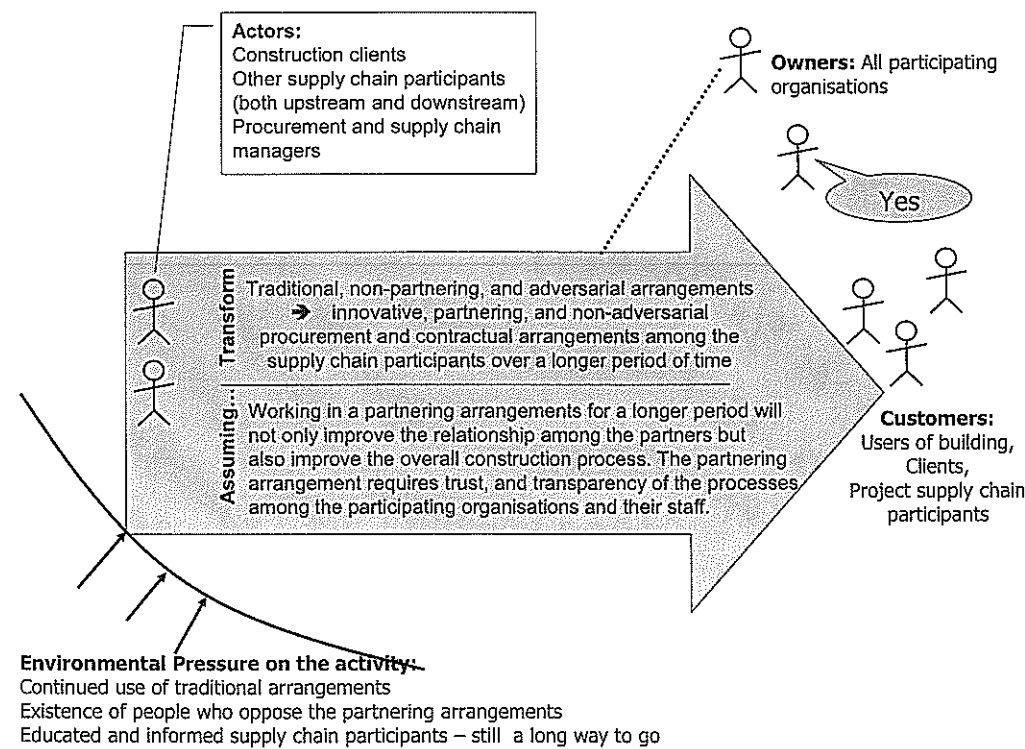


Figure 2. Transition from non-partnering to partnering arrangements

In Figure 3, the move by clients, especially public sector clients as observed during the case studies, from accepting the lowest bids to awarding contracts which shows best value. This is termed as price-quality mechanism, where tenders are judged based more on the quality than price. This has enabled the clients to look at previous or ongoing works

of the contractors to verify the quality, on top of the references. This is one of the major findings from the project, which shows that more and more clients, and contractors for their supply chain, use pre-qualification questionnaire (PQQ), which includes questions related to quality, health and safety, turnover, references, etc.

A selection process for supply chain participants to enable the best value for client rather than lowest price in order to bring more value for money and better quality facilities for the client and end users.

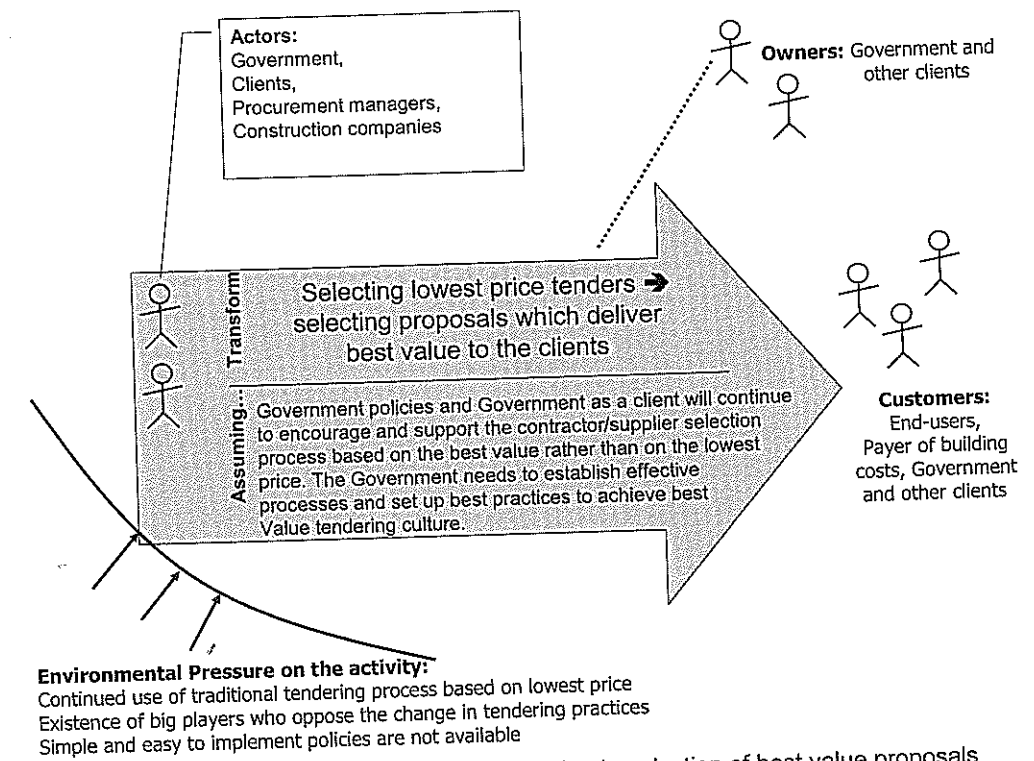


Figure 3. Transition from lowest price selection to selection of best value proposals

The major benefits that are being achieved in the following broad area by adopting the strategic and innovative partnering frameworks and development of integrated supply chains in the above mentioned case studies: Improved design; Less waste and duplication; Improved delivery; Greater certainty of cost; and Better whole life cycle costing. The following gives a representation of the gains in developing integrated supply chain for long-term period, which are not present in traditional "one off" projects: Savings on Tendering / Procurement Costs; Time Savings on Programme; Lesson learned and rolled forward within the delivery team; Benefits of Performance Management Systems; Fewer Delays; Added Value to the client; Knowledge retention, capture, use, and creation; Building of Trusting relationship; etc. Communication and Trust are two most important elements highlighted by people interviewed for partnering.

The process of putting into place a Framework Partnership has also provided the clients an opportunity to take note of where there are lessons to be learnt for future agreements. This includes the process required to achieve the appointments of supply chain partners, and methodologies which had to be developed to assist in the selection of these partners. It has also been a feature that new procedures and mechanisms have had to be put into place to deal with the ongoing developments of schemes and Frameworks. This need has been necessary on both the early stages and the on-site stages. Working in partnership is proving to be much more productive than the more traditional approach of working in separate camps. It is building trusting relationships, bringing all "project knowledge" together at the inception of a project, and achieving a "better value" output in terms of cost, time, and quality. At the end of the day, what we want is clearly defined by one of the Senior Managers of one of the subcontracting organisations, whom we interviewed as part of the case studies:

'Construction world is now changed; I do enjoy getting up in the morning and going to work'.

The paper presented a brief literature review on construction procurement and how it is used to integrate the supply chain within construction industry, through four case studies, as part of supply chain integration project. Each case study was detailed with the background of the procurement route selected along with the findings from the studies. Conclusions were presented towards the end supporting the adoption of the innovative procurement methods.

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DEVELOPMENT OF PROCUREMENT STRATEGY FOR INFRASTRUCTURE IN NIGERIA: CASE OF PRIMARY HEALTHCARE FACILITIES

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Abstract

Procurement has been established as an important process for realising projects and programmes. In infrastructure sector, it determines the overall framework and structure of responsibilities and authorities for guiding the participants within the development process, and is considered as the key to performance improvement. This paper develops a procurement strategy for primary health care (PHC) facilities in Nigeria based on public-private partnership (PPP) principle, in line with the macro-economic policy adopted for growth and the health reform agenda of the present government. These policies have variously emphasised the expansion of the approach to improving healthcare delivery through increased private sector participation, whenever feasible. The developed procurement strategy is responsive to the peculiar needs of the host community and has adequate accountability structure for sustaining PHC facilities in Nigeria. One of the key objectives of the strategy is the idea of bringing together the various local stakeholders, interests and users that comprise the local health economy. This way, it is expected that the active community participation will offer considerable social and economic benefits such as social inclusion, employment and training opportunities for the members of the host communities in addition to the attainment of other fundamental aspects of PHC provisioning. The procurement strategy advocates national outlook for consistency but with local control to be responsive to actual needs.

Keywords: Primary Health Care; Ward Health System; Procurement; Nigeria

BACKGROUND

'Procurement' has become an important process for realising projects and programmes, including those related to construction, and the nature of its scope is increasingly changing and expanding. It determines the overall framework and structure of responsibilities and authorities for guiding the participants within the construction process (Love et al., 1998), and is considered as the key to performance improvement in the construction industry (Ofori, 2006). According to The United Nation Commission on International Trade Law UNCITRAL (1994), procurement is "the process used for the acquisition of goods, works and related services (i.e. transport, insurance, installation, training, maintenance and other similar services) required in the execution of a project, excluding consultancy services". By extension to construction, the UNCITRAL definition suggests procurement is a process of acquiring the inputs (resources) required to deliver a finished facility. Many researchers have argued that the procurement method is largely irrelevant in itself and that the real issue is how the adopted procurement form enhances or inhibits team members in achieving project goals (Walker, 1996; 1997a; 1998; Love et. al., 1998; Rowlinson, 1999a; Chan, 2007). Ibrahim (2007) further argued that there is neither an "off-the-shelf" nor a "one-size-fit-all" procurement strategy for all infrastructure type. Consequently, McDermott (2006) maintained that the scope of procurement should include not only the method used to design and construct a facility but also the cultural, managerial, economic, environmental and political issues raised by the implementation of the procurement process. Therefore,