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CONSTRUCTION PROCUREMENT STRATEGIES OF NATIONAL HEALTH SERVICE IN THE UK: A CRITICAL REVIEW

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ABSTRACT. In the UK healthcare sector, funding and provision of public care facilities has been primarily the responsibility of government through the National Health Service (NHS). After decades of under-investment and consequent effects on the quality of care, new procurement routes are currently being used to improve the standards of facilities to meet the requirements of modern care services. This paper critically reviews these new procurement routes in terms of concepts and suitable areas of application, and examines how the principal procurement methods have evolved into the forms used for UK healthcare facilities. The paper outlines recommendations for further research in assessing the suitability or otherwise of these new procurement methods, both for construction projects generally and specifically for healthcare facilities.

INTRODUCTION

The United Kingdom's National Health Service (NHS) was established in post-war Britain (1948) as a social contract between

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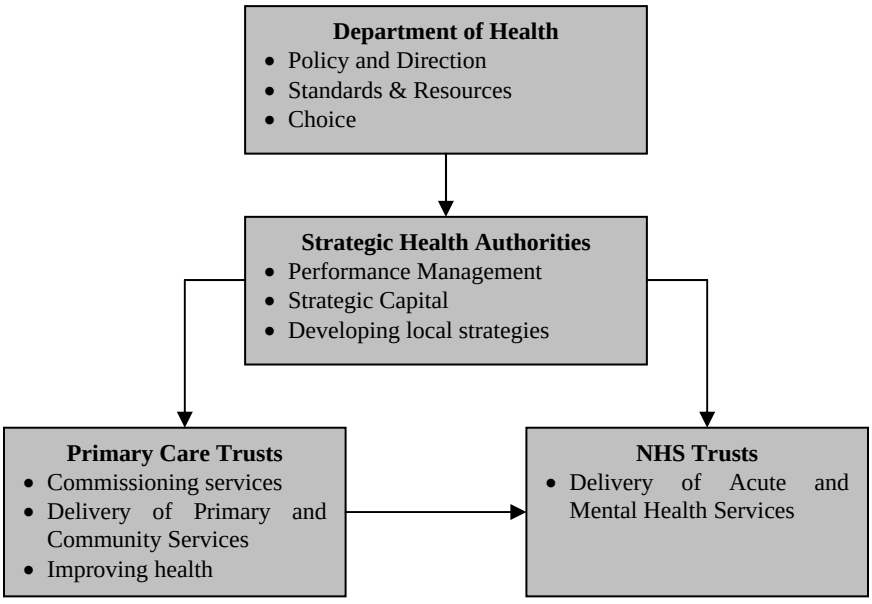
the government and the people, based on explicit values of universality and equity. It is considered to be an icon worldwide, both as a social insurance system and as a nationalised health delivery service (Baggot, 2004). The NHS is responsible for maintaining the health of the over 60 million population, spending an annual budget of around £40 billion and providing a working environment for over 1.2 million people (Department of Health (DoH), 2005). A wide range of services, largely free at the point of delivery, is provided by the NHS. However, around 12 per cent of the population have private health insurance to supplement NHS provision, primarily for elective procedures (Leatherman & Sutherland, 2004).

The structure of the NHS healthcare planning has been subject to considerable change and the current configuration has been illustrated in Figure 1. The NHS policies are determined nationally by the DoH, which is responsible for providing direction, and maintaining standards, resources and choice. The policies are implemented by the NHS Executive, the NHS's over-arching management body which operates through regional offices across England. It also sets targets and checks performance. The *Strategic Health Authorities* (SHAs) are

FIGURE 1
Structure of Healthcare Planning System in the UK



responsible for assessing the health needs of their populations and ensuring these are met through appropriate provision of services by the Primary Care Trusts (PCTs), NHS Trusts and other agencies. The PCTs commission services and deliver primary and community services whereas the *NHS Trusts* (including Foundation Trusts) – deliver acute and mental health services. The reforms to the NHS's organisational structure are continuous with attendant changes to the configuration and functions of SHA and PCTs. However, the reform likely to have the most profound impact on capital investment is the transition of further NHS Trusts to NHS Foundation Trusts (NHS FTs) status, the fundamental difference being that the NHS FTs are free to reinvest all cash generated from their operations, rather than having to rely on operational and strategic capital allocations for the maintenance and replacement of their assets, and they may borrow from a loan facility to fund further capital investments (DoH, 2007a).

The NHS was considered remarkably frugal as the UK has been among the lowest health care spenders within Organisation for Economic Cooperation and Development (OECD) countries for over four decades, both in absolute terms and as a proportion of gross domestic product (GDP) (Wanless, 2002). The relatively low expenditure, which was once celebrated as a virtue achieved through efficiency, has increasingly been seen as under-investment that has compromised the system's ability to meet the population's health care needs (Leatherman & Sutherland, 2004). Access is mediated by a tradition of "surreptitious rationing" based on the "5 D's" of delay, defer, deter, dissuade and decline (Leatherman and Sutherland, 2004). Grimsey and Graham (1997) further reported that the fragmentation of responsibilities under the traditional healthcare delivery arrangements was responsible for non-achievement of co-ordinated planning, service delivery and investment. In addition, investment for the provision and improvement of healthcare facilities were *ad hoc* and on a piecemeal basis for some decades. As a result, the condition and functionality of healthcare facilities became unsuitable for the provision of modern integrated healthcare delivery, with facilities not able to meet patients' expectations and access to health care was slow and fell below acceptable standards (DoH, 2000). The introduction and review of the Disability Discrimination Act in 1995 and 2005, respectively, have also made physical access a critical issue in health care estates. These limitations in premises used to deliver healthcare severely hampered service development

(DoH, 2001). In order to reverse the state of healthcare facilities, many procurement methods have emerged for the construction of healthcare facilities and integrated supply chain – for example private finance initiative (PFI), NHS ProCure21, local improvement finance trust (LIFT) and, more recently, capital funding regime (CFR). These methods are primarily aimed at improving the efficiency of healthcare delivery in the UK by transforming public sector organisations from being owners of assets and direct providers of services into purchasers of services from the private sector.

Through a review of literature from academic sources and policy documents, this paper critically examines these new construction procurement routes in the UK in terms of concepts, and suitable areas of application. The paper also examines how the recommended procurement methods have evolved in the healthcare sector, which has in recent years witnessed huge investments and construction programmes aimed at revamping the deteriorated facilities and the building of new ones. Additionally, the paper outlines areas that require further investigation in assessing the suitability or otherwise of these new procurement methods, both for construction projects generally and specifically for healthcare facilities.

Procurement and Funding of Public Construction in the UK

Construction procurement has been defined as a "*framework within which construction is brought about, acquired or obtained*" (McDermott, 1999; p. 1) 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, Skitmore, & Earl, 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, 1996; 1997; 1998; Love, Skitmore, & Earl, 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 & Wilkins, 1996; Soetanto & 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, Soetanto, Fleming, Austin, & McDermott, 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. However, a trend towards a more holistic, integrated and relationship-based systems view of procurement has now become apparent (Gyles, Yeldham & Holland, 1992; Latham, 1994; Egan, 1998; McDermott, 1999; Grove, 2000; Tang, 2001; Walker & Hampson, 2003; Khalfan & McDermott, 2006). Importantly, the trend is away from standard forms of contractual arrangements towards bespoke approaches aligned with the objectives of all the project's participants.

According to Department of Food, Environment and Rural Affairs (DFERA) (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; with over £15 billion of this spent by the NHS. 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. 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.

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 supply chain integration and environment for sustainable innovation in order to improve construction performance and provide 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, 1994-2007

Author, and Year Report Published or Initiative Launched	Key Messages
Sir Michael Latham (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.
Levene (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 (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.

TABLE 1 (Continued)

Author, and Year Report Published or Initiative Launched	Key Messages
H. M. Treasury (1999)	This initiative was launched in response to Egan's 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.
Office of Government Commerce (1999)	This report sets out the key recommendations of the Gershon Review of Civil Government Procurement (Gershon, 1999) and the Second Bates Review (Bates, 1998) 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 (2001)	This report, together with the report of the Committee of Public Accounts HC 337 *"Improving Construction Performance* (PAC Report, 2001), 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.
Egan (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.

TABLE 1 (Continued)

Author, and Year Report Published or Initiative Launched	Key Messages
Office of Government Commerce (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 (2005a)	This report assessed the progress that departments and their agencies had made in improving their construction delivery performance since the *Modernising Construction* 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 Construc-tion (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 Food, Environ-ment and Rural Affairs (2007)	This report, together with the HM Treasury's report *"Transforming Government Procurement"* (H M Treasury, 2007) is the UK government's response to the report of the Sustainable Procurement Taskforce, *Procuring the Future* (SPTF, 2006), 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 procure-ment practice and ensuring rapid progress towards achieving targets for sustainable operations on the government estate.

Since 2001, the Office of Government Commerce (OGC) has implemented a range of construction improvement initiatives and support services. Some of these have been aimed specifically at improving the construction delivery capability of departments, sometimes in conjunction with other government bodies, or as part of wider initiatives to improve departments' programme and project delivery capability. For example, the Gateway Process was introduced in February 2001 to subject all major central government procurement programmes (including construction projects) to external scrutiny, involving independent examination of each programme or project at six critical stages of its lifecycle to provide assurance that it can progress to the next stage. The process is based on well-proven techniques that lead to more effective delivery of benefits together with more predictable costs and outcomes. The six stages include strategic assessment, business justification, procurement strategy, investment decision, readiness for service and benefits realisation. For construction projects, however, there are two additional major decision points between Gates 3 and 4; outline design and detailed design stages, and there may also be a requirement to repeat Gate 3 (OGC, 2007).

The OGC has also recommended that government departments and agencies focus on one of the following three main construction procurement routes believed to be more likely to encourage integrated working than traditional forms of procurement whereby each element of the project is separately and competitively tendered (NAO, 2005a):

1. *Public Private Partnerships* (PPPs), particularly PFI – where the public sector client contracts, via competition, to purchase services, with defined quality outputs, from a private sector company or consortium on a long-term basis, including maintaining or constructing any necessary infrastructure or buildings and managing the delivery of related services. Funding for the construction is provided from private finance with ongoing payment from the public sector for, and income generated from, the provision of services going to the contractor. The PFI, while seen as additional to, and not a replacement for "conventional" crown- funded capital projects, is increasingly the preferred funding and procurement route in key sectors of government construction activity such as schools, hospitals and prisons. NAO

(2005a, p. 3) quoted the Prime Minister who said in September 2002 that *"PFI has a central role to play in modernising the infrastructure of the NHS – but as an addition, not an alternative, to the public sector capital programme".* PFI has been favoured by the UK government for the delivery of various public services ranging from low value projects of about £5 million to high value projects with capital value in excess of £250 million. In total, over 750 PFI deals have now been signed with a combined capital value of £55 billion (NAO, 2007). The most prolific sectors in the use of PFI procurement in terms of the number and capital value of projects are health, education, transport and defence (Akintoye, Bowen, & Evans, 2005). Related developments in PFI include the following:

- New forms of PPPs in the NHS primary care and schools sectors (local improvement finance trust (LIFT) and building schools for the future (BSF) schemes respectively); and
- The transfer of ownership and management of departmental estates to the private sector under PFI type arrangements such as the Department for Work and Pensions PRIME and the Inland Revenue and HM Customs and Excise STEPS outsourcing deals in 1997 and 2001, respectively.

2. *Design and Build* – in which the contractor is appointed through competition to design as well as construct the building and is normally paid a combined fixed price for both. The risk of the design not working is mainly borne by the contractor and is reflected in the price paid by the client.

3. *Prime Contracting* - whilst Design and Build makes a single supplier responsible for the design and build of a facility, prime contracting extends this basic concept substantially. The Prime Contractor is expected to have a well-established supply chain of reliable suppliers of quality products so encouraging the increased quality and value for money that results from an element of consistency and standardisation. As well as integrating that supply chain into the design process with contributions from key suppliers, the Prime Contractor co-ordinates and project manages all activities throughout the design and construction period to provide a facility which is fit for the specified purpose and which meets predicted through-life

costs. Prime Contracting has continued to develop as the main procurement route for many departments and agencies directly responsible for major repeat construction activity, such as the Ministry of Defence, Highways Agency and Environment Agency. Although the approaches differ in detail and maturity, each has involved progress towards streamlined procurement processes and longer-term partnering through national framework agreements[2] with fewer supply chain partners.

The concepts and examples of suitable applications of the main procurement and funding methods for public construction in the UK have been outlined in Table 2. The essential differences between PFI, design and build and prime contracting are the use of private finance in PFI and the ongoing involvement of the contractor in at least running and maintaining the constructed asset. Under PFI the contractor, therefore, has a clear interest in reducing whole-life

TABLE 2
Concepts and Examples of Suitable Applications of the Procurement Routes

Procurement route	Concept	Suitable applications
PPP/PFI	A private contractor is appointed to at least design, build, finance and maintain a facility. In most cases, the contractor will assume responsibility for operating the facility and, in many cases, for delivery of services.	Suits larger scale and duration projects. Includes on-going maintenance and operation provided by private sector as part of the service being procured.
Design and Build	A contract where a single supplier is responsible for both designing and constructing a built asset.	Often used on simpler projects, but can be used on complex ones. Comparatively less scope for integrated teamwork.
Prime contracting	A contract generally involving a main supplier, the prime contractor, with a well-established supply chain, to encourage increased quality and value for money.	Applies to a wide range of projects. Greater scope for repeatable integrated teamwork between the client and supplier.

Source: NAO (2005a).

operating costs. Central government departments often use one or more of the three methods across their construction programmes. For example, the Highways Agency and the Environment Agency both use both Prime Contracting and PFI. Defence Estates uses all three methods of procurement and the NHS Estates' ProCure21 approach, covering the majority of health non-PFI construction, incorporates best practice for both Design and Build and Prime Contracting.

The other two procurement approaches used in the UK construction industry are "construction management" and "reimbursable contracts." According to NAO (2005a), while both approaches can have considerable benefits in certain circumstances, they are not generally recommended by the OGC for government clients because they tend to suit experienced clients, who can manage the inherently higher levels of risk and uncertainty they involve. For example, reimbursable contracts" suit expert and well-resourced clients who carry out complex, business critical projects where quality is the absolute priority, who recognise that the transfer of risk to third parties is impractical and who can operate robust cost management systems and controls in a less structured and fast-changing environment. Such contracts are used in the nuclear industry, and are being used by British Airport Authority in developing Terminal 5.

In the last decade, some wider issues relating to procurement began to gain prominence, such as organisational learning and knowledge management, sustainable procurement and "developmentally-oriented procurement systems" that are charged with delivering wider social and/or economic benefits rather than just cost and time criteria (Dickinson & McDermott, 2006). In addition, there is now greater acknowledgement that the "softer" skills of persuasion and alignment are essential for the industry to best incorporate value creation and best practice in purchasing and procurement (Future Purchasing Alliance, 2003). Accordingly, the UK government has embarked on important agendas such as sustainable construction and sustainable development, which affect the way in which public and private sector organisations construct and manage assets. The UK Government's White Paper on sustainable development stated that "*construction activity has a major part to play in the achievement of the Government's Sustainable Development Strategy by building and maintaining*

sustainable communities and, in so doing, minimising waste, resource usage, and energy consumption" (Department of Environment, Transport and Regions (DETR), 1999). In addition, the business-led Sustainable Procurement Task Force challenged the UK Government to use its immense buying power to make rapid progress towards the sustainable development goals identified in the UK Government Sustainable Development Strategy (DFERA, 2005, p. 5). The Task Force defined *"sustainable procurement"* as a *"a process whereby organisations meet their needs for goods, services, works and utilities in a way that achieves value for money on a whole life basis in terms of generating benefits, not only to the procuring organisation, but also to society and the economy, whilst minimising damage to the environment."* The Strategy has set the ambitious goal of making the UK a leader in the EU in sustainable procurement by 2009, to support wider social, economic and environmental objectives in ways that offer real long-term benefits. Already, the UK has been identified as one of the seven best performers in Green Public Procurement (GPP) and amongst a group of countries (Switzerland, Belgium, France, UK, Netherlands, Finland, Austria, Norway, Canada, Denmark and New Zealand) that are taking steps and have processes or initiatives in place to promote socio-economic procurement. However, there is still significant room for improvement regarding GPP, and Sustainable Public Procurement (SPP) is still in the early stages of development (DFERA, 2007). Patel and Fortune (2006) emphasised stakeholders' education as the key to successful attainment of these sustainability goals. Following legal and policy analysis, case studies in England, Scotland and Wales and discussions with officials in HM Treasury, the Office of Government Commerce, the Scottish Executive, the National Assembly for Wales and other Government departments, Macfarlane and Cook (2002) concluded that community benefit requirements such as work and training opportunities can be included in contracts and agreements during procurement.

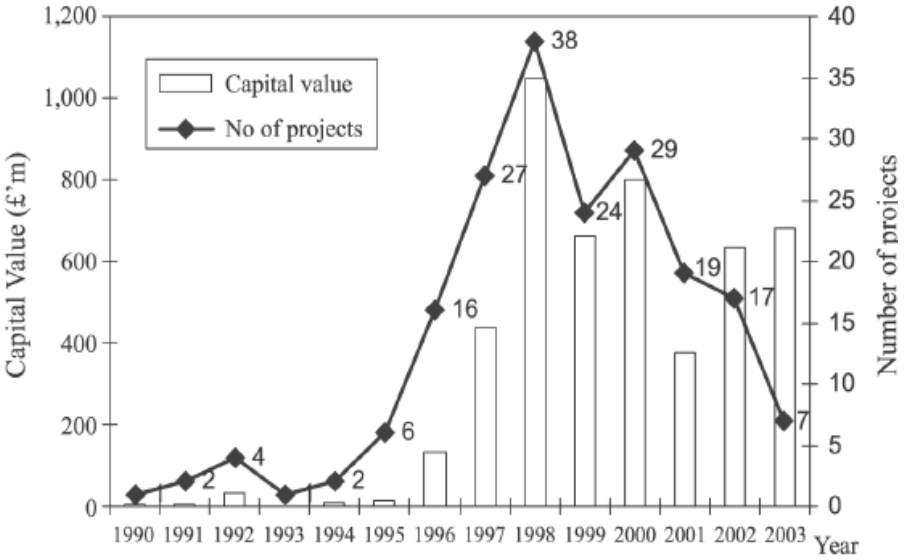
Procurement of Healthcare Facilities in the UK

On the basis of the reforms in UK construction procurement as discussed in the preceding sections, the four notable delivery forms that have evolved for the procurement of healthcare facilities of various sizes in the UK in recent years include the private finance initiative (PFI), NHS ProCure21, local improvement finance trust (LIFT)

and the capital funding regime (CFR). In the procurement of healthcare facilities in the UK, Goodier et al. (2006) noted a developmental shift from infrastructure production to service provision and highlighted the importance placed upon delivering end-user value.

Akintoye and Chinyio (2005) analysed the trend in the use of PFI in the UK healthcare sector from 1990 and showed that about £5 billion PFI schemes were signed up by end of 2003. They also showed that investment in the UK healthcare sector has increased significantly with over £600 million worth of PFI schemes signed annually (except for the drop to about £350 million in 2001), as shown in Figure 2. Yet investment in healthcare development through PFI procurement has continued to increase with further approval of 15 NHS hospital developments in 2004, worth more than £4 billion, as part of the *NHS Plan* to open 100 new hospitals by 2010 (DoH, 2004). In addition, approval for an additional seven PFI schemes was

FIGURE 2
Trend in Healthcare PFI Projects, 1998-2003



Source: Akintoye and Chinyio (2005).

granted in 2007 (DoH, 2007b). Over 100 hospitals have either opened to patients or are at finishing stages under construction (DoH, 2007b).

The NHS ProCure21 scheme, launched nationally in October 2003, followed 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 a report ("Kill or Procure," 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. To date over 200 NHS schemes have been delivered through ProCure21's £2.4bn programme (NHS Estates, 2008). While the original five year frameworks are due to end by September 2008, the DoH has already announced their extension by two years until September 2010.

Under the NHS LIFT initiative, the DoH provided a start-up fund of £195 million and aimed at leveraging up to £1 billion of private investment in primary care between 2000 and 2010 to refurbish or replace up to 3000 GP premises and establish 500 new one stop care centres (DoH, 2001). There were 42 LIFT projects in the first three waves and the go ahead for a fourth wave was announced by the government in June 2004. Since the seven fourth wave LIFT schemes were announced by the Secretary of State for Health in November 2004, no new schemes have been approved. Perhaps, this is to enable substantial lessons that have been learnt in the earlier schemes to be reflected in future schemes. The 49 LIFT projects are geographically spread across England and all the 42 schemes under the first three waves have reached financial close, and several are proceeding towards second and subsequent financial closes. The procurement process for the fourth wave schemes is under way with a number of projects having selected their preferred partners. Between 2003 and 2005, over 90 buildings with a total capital cost of over £700 million had become operational and open to patients, with an average of one new building opening every week across 2006 and 2007 (Partnerships for Health (PfH), 2006).

The DoH announced the capital funding regime (CFR) in January 2007 to encourage the participation of smaller local contractors in the acute hospital programme. The Plymouth Hospitals NHS Trusts

has already taken advantage of this new regime by opting for a £155 million refurbishment contract against their original £600 million PFI plans. Under the new arrangements, only the £30 million Planned Care Centre will use the PFI option whilst the £15 million Children's Hospital will be a Design and Built contract and the refurbishment programme has been packaged into smaller contracts worth no more than £3 million to £5 million ("Small Change," 2007). Several other Trusts are also keen to use this new initiative.

In addition to increasing capacity and efficiency, these huge investments in the construction and refurbishment of healthcare facilities in the UK have further highlighted the importance of considering healthcare buildings as "therapeutic environments". These therapeutic values of healthcare designs have been classified as *physical*, *social* and *symbolic* (Gesler, Bell, Curtis, Hubbard, & Francis, 2004). Gesler et al. (2004) also identified four significant emerging ideas regarding what constitutes good therapeutic healthcare designs: *clinical efficiency, integrated within the community, accessible to consumers and the public, and encouraging patient and staff well-being*. The Achieving Excellence Design Evaluation Toolkit (AEDET) is being used to evaluate healthcare building designs under the PFI, ProCure21 and LIFT schemes, broadly in terms of building quality, functionality and impact. Gesler et al. (2004) highlighted the shortcomings of using AEDET and suggested a conceptual matrix for evaluating healthcare building designs in terms of the three therapeutic values identified above. The mode of operation and some appraisals of each of these procurement routes are further discussed below.

Private Finance Initiative (PFI)

PFI is the principal model of PPPs in the NHS. According to the NHS Executive (1999), PPPs in the NHS are not simply about the financing of capital investments, but about exploring the full range of private sector management, commercial and creative skills. Major PFI schemes are typically design-build-finance-operate (DBFO), whereby the NHS makes annual payments for the use of privately owned facilities over a primary concession period of 25-40 years. Unlike PFI in other government infrastructure and service schemes, each PFI hospital is tendered by a separate Trust with its own limited budget

(Grimsey & Graham, 1997). This means that the private sector is responsible for the following (NHS, 1999):

- Designing the facilities (based on the requirements specified by the NHS);
- Building the facilities (to time and at a fixed cost);
- Financing the capital cost (with the return to be recovered through the continuing to make the facilities available and meeting the NHS's requirements); and
- Operating the facilities (providing facilities management and other support services).

The PFI procurement route is currently being used to deliver: healthcare facilities (e.g. hospitals, homes for the elderly, staff accommodations, residences, office blocks, community hospitals and primary healthcare schemes); and healthcare services (e.g. energy management schemes, IT systems, catering systems, integrated management systems, radio control systems) and equipment provision (generators, boiler plants, magnetic resonance imaging – scanners, accelerators and simulators, radios, etc.) (Akintoye & Chinyio, 2005). The health PFI facilities provision includes new building, conversions, redevelopment, site rationalisation, centralisation and modernisation works to meet projected demands.

A number of guidance documents and reviews of PFI implementation in the NHS have been produced. For example, the two-part guidance NHS Executive (1999) contained in its first part, an explanation of the nature, purpose and structure of the guidance; whilst the second part summarised the operation of the PFI in the NHS. The document offers practical guidance on how PFI procurement should be undertaken in the healthcare sector and requires that all schemes demonstrate value for money (VFM) for expenditure, to be achieved by the private sector assuming risks which would otherwise have been borne by the public sector and through cost-effective management by the private sector. Boyle and Harrison (2000) provided a brief explanation of the PFI process as applied to the NHS together with a description of the major healthcare schemes and offered a series of recommendations to improve the procurement of health service buildings, equipment, infrastructure, and integration of both upstream and downstream

supply chain participants through a PFI agreed period. Harrison (2001) analysed PPP within the healthcare sector in relation to health care services, drugs, facilities, staffing, research and development, information technology and support services. The report concluded that the range of PPPs in NHS can be grouped as follows:

- Those contracts between the NHS and the private sector for the supply of clinical and support services;
- Less formally defined relationships (some of a quasi-regulatory nature); and
- Joint ventures.

However, Pollock et al. (1997) argued that the PFI has caused the transfer of responsibility for the planning of clinical services from health authorities to private consortia, who base decisions on financial, rather than clinical, needs. The consequences of this transfer have included a 25-30% bed reduction in acute specialties (Pollock et al., 1997); reduction in clinical workforce and service capacity (Pollock, Dunnigan, Gaffney, Price, & Shaoul, 1999; Pollock Pollock, Shaoul, & Vickers, 2002); budget constraints and increased inequalities in health and in wealth (Gaffney, Pollock, Price, & Shaoul, 1999b); and reduced bed rates (Dunnigan & Pollock, 2003). PFI deals have also been associated with the high costs of private finance which have resulted in annual charges of between 9.1% and 18% of the construction cost, whereas government can borrow at interest rates of 3% and 3.5% (Gaffney, Pollock, Price, & Shaoul, 1999a). Furthermore, although the government has often justified the extra cost of private finance to represent transfer of substantial risk to the private sector, Gaffney et al. (1999a) and Pollock et al. (2002) argued that the large risks said to be transferred are not justified. In addition, because the NHS Trusts are expected to find the extra money from their own resources to meet the extra costs, the resulting affordability gap has forced a redefinement of care entitlements (Gaffney et al., 1999b), by increasing the proportion of private beds (Pollock et al., 1999); more rationing of services; introducing user charges; and proliferating commercial activities around healthcare premises (Pollock, 2001). Pollock (2001) also argued that the NHS reimbursement mechanisms have been altered in ways to facilitate a shift to the US-style care of personal insurance

rather than social insurance and universal coverage that is reminiscent of the underlying historical philosophy of the NHS.

Akintoye and Chinyio (2005) examined the trends and risk assessment of PFI in the healthcare sector, and found that a plethora of risk management techniques, albeit to varying degrees, have emerged in the healthcare PFI projects. In addition, Akintoye and Chinyio (2005) also identified *experience* as the prime risk assessment technique, while *risk avoidance* was first explored before pricing and allocating any residual risks, whereas *risk prompts*, such as using checklists and risk registers have been used in the identification of risks. *Insurance cover* and *sub-contracting* were found to be the most prominent strategies employed for managing the risks.

NHS ProCure21

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, 2006). The aim is to establish long-term relationships between the NHS and the construction industry through partnering and effective supply chain management (NHS Estate, 2004) by the following means:

- Developing a *partnering programme* using pre-accredited supply chains engaged in a long-term framework agreement. The aim is to cut out waste and duplication of effort in the tendering process, and to bring the best of the construction industry together to deliver better value for money and better clinical facilities for patients.

- Enabling the NHS to be *best client*. Train the NHS to manage an NHS ProCure21 scheme effectively to maximise the benefits of the process.
- Achieving Excellence in *design*. Promote design as the key to VFM and 'best fit' solutions.
- Using *benchmarking and continuous improvement* to ensure long-term benefits.

It was intended that ProCure21 would negate the need for traditional adversarial procurement and tendering by using pre-agreed integrated supply chains and long-term framework agreements managed by the PSCPs. Under NHS ProCure21, it was recommended that the PSCPs be 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 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.

Under the ProCure21 scheme, of the £24 million of VAT approved under the scheme, about £2 million has been saved on external VAT consultants' fees using the free VAT recovery service. ProCure21 has resulted in tools that help the NHS measure design quality and manage risk and as a result of a range of factors, including early involvement of integrated supply chains and the benefits this brings such as improved design and construction process solutions. Under ProCure21, the conventional construction period for schemes over £11 million has been reduced from 32 to 19 months, which is equivalent to a saving of about 3.5 per cent of construction costs (NAO, 2005a). Currently, an average of nine months saving is achieved per project (NHS Estates, 2007a) whilst keeping design fees

down to 13% of the project cost ("Kill or Procure," 2007). ProCure21 Key Performance Indicators (KPIs) show that over the past 4 years ProCure21's clients are very satisfied with their final product and service received. General defects are minor, safety figures are above industry average and cost and time predictability figures show good performance (NHS Estates, 2008). Other indicators show that ProCure21 schemes are not more expensive than traditionally procured schemes and significant cost savings can be made through a shorter tender and construction time periods. Since ProCure21 contracts are not required to be advertised in accordance with EU rules, there is an average estimated time saving of six months per contract. Analysis of ProCure21 schemes also show comparatively shorter construction periods - 7 weeks for schemes between £1-5m and 17weeks for schemes between £5-15m – which could equate to cost savings of approximately 1% of capital cost depending on changing tender index figures (NHS Estates, 2008). According to NHS Estates (2006), the ProCure21 scheme encourages innovation such as the use of modern methods of construction and opportunities for offsite manufacture; and use of sustainable materials, practices and technologies. These have resulted in numerous benefits: early project delivery times, cost savings, improved health and safety records, increased access to natural light and ventilation (NHS Estates, 2007b).

While not much rigorous academic evaluation of the ProCure21 programme seems to have been carried out yet compared to the PFI method, DoH (2007c) showed very impressive results for the key performance indicators (KPIs) for 92 projects completed between 2004 and 2006. Seeney (2003) identified the basic tenet of the programme as partnering and examined how the new process of construction has evolved within one of the PSCPs by embracing the challenges and opportunities of partnering and ProCure21. In particular, he used case studies to illustrate how communication gaps identified between the various parties in traditional construction procurement were closed and how the pitfalls of partnering were avoided through learning from past failures. While criticising the methodologies adopted by Latham (1994) and Egan (1998) in recommending partnering, Cox and Ireland (2002) had identified some of the flaws of partnering to include false dichotomy between points of responsibilities that results in repeated formation and subsequent break-up of project teams in one-off projects. Khalfan,

McDermott, and Swan (2007) also reported from case studies involving NHS ProcCure21 projects that despite substantial investment and commitment to partnering ethos and principles prior to commencement of construction works, the same old adversarial, confrontational and sub-optimal quality of work resurfaced as the works progressed. This suggests that more training may be required to sustain the collaborative tempo developed at the early stages of ProCure21 projects.

NHS Local Improvement Finance Trust (LIFT)

The NHS Local Improvement Finance Trust (LIFT scheme was announced by the DoH in 2000 as a way of mobilising huge investments to improve the quality of primary care buildings, particularly in the deprived areas of the UK. One of the key objectives of the initiative is to bring together the various local stakeholders, interests and users from both public and private sectors that comprise the local health economy in order to seek to remedy some of the deficiencies in the existing arrangements and contribute to delivery of the modern and integrated primary and social care. The local *LIFTCos*., formed as PPPs between Partnerships for Health (PfH), private sector consortia and local stakeholders, enter long-term strategic partnerships with PCTs, giving them exclusivity to develop and deliver future schemes in response to local health priorities and strategies during the 25 to 30 years under the strategic partnering agreements. The exclusivity is conditional on showing value for money on each scheme, with the PCTs having the right to go elsewhere if value for money cannot be shown. However, the 50% shareholding of Partnerships UK (PUK) in PfH was sold to the DoH for the total consideration of £25.8 million on 21 December 2007, thereby making the DoH the sole owner of the PfH.

Like the PFI, LIFT is a way of accessing private money for public projects. But while the former is simply a contract to build and finance a building or group of buildings, LIFT involves a much deeper partnership. The LIFT philosophy embodies an integrative way of working between organisations from public and private sectors and demands the harmonisation of their working practices to enable them to deliver LIFT objectives in a collaborative fashion (DoH, 2001). However, organisations from the public-sector stakeholder groups (e.g., the health and social care professionals) have traditionally

worked independently (Moulin, 2002), and the complexities involved in having to work collaboratively with other public sector organisations and private sector consortium exert tremendous pressure on the skills needed to support the resulting structure and processes. Ibrahim, Price and Dainty (2006a) revealed that the *LIFTCos.* do not aggregate and fully utilise the competences available within the partner organisations, largely as a result of the ingrained culture of distrust and fragmentation in the construction industry. In order to maximise the efficiency of the competences available within the partnerships, Chan and Cooper (2006) suggested the mapping of an 'as is' skills mix so that the gaps can be identified and subsequently filled preferably from within the partner organisations, and outsourced only where absolutely necessary and covering the three levels of human resources practices of recruitment, deployment and development at the partnership, project and team/individual levels respectively.

In addition, Hudson, Capper, and Holmes (2003) used the NHS Environmental Assessment Toolkit (NEAT) to demonstrate that LIFT schemes are delivering more sustainable solutions compared to buildings delivered through the traditional procurement route. However, Holmes, Capper and Hudson (2006) argued that demonstrating value for money in the implementation of two case-study LIFT schemes was difficult because the bidding process was an unequal struggle between large consortia and inexperienced clients, which resulted in a wasted opportunity to obtain the optimum design and price.

Although NAO (2005b) concluded that LIFT was an attractive way of securing improvements in primary and social care and that the schemes examined were effective and offered value for money, it observed that local management frameworks needed further strengthening. Also, the attainment of the contractual requirements for both the demand and supply sides to continuously improve performance under the LIFT scheme still remains elusive. Specifically, the NAO report was critical about the inconsistencies in the evaluation and performance measurement arrangements, and emphasized the need for strengthening the accountability framework. Ibrahim, Price and Dainty (2006b) explored the practices of the achievement of continuous improvement (CI) through learning and revealed that *ad hoc* procedures were often used for capturing

lessons learned during the planning and implementation of the various LIFT projects, and hence the reuse of the captured knowledge has been largely ineffective. Ibrahim Price and Dainty (2008b) revealed that many of the organisations involved in LIFT schemes are aware of the potential competitive advantage obtainable from harvesting individual experiences (tacit knowledge) into well-structured explicit knowledge to be reused, and different technological tools such as applications based on advanced databases, the internet and groupware technologies have been developed to support these transmission processes. However, most of the existing tools only process data and information and often ignore the personal dimensions associated with the process. For example, the existing tools often underscore the need to stimulate individual affection in order to generate knowledge as knowledge cannot be extracted from individuals without their participation and motivation.

The key barriers to achieving CI in NHS LIFT projects were distrust and lack of mutual understanding, difference in *modus operandi* and timeframes of the key participants, lack of clarity and communication, lack of appropriate skills and competencies (Ibrahim et al., 2006b); and adversarial contexts despite efforts to integrate stakeholders and supply chain participants through formal mechanism and building of trust through informal processes (Khalfan et al. 2007). Ibrahim, Price and Dainty (2008a) also showed that there is considerable evidence that the LIFT initiative is delivering the expected economies of scale in providing modern facilities for the provision of integrated primary and social care services. Although they also revealed that there were significant differences in the maturity levels of the schemes evaluated in terms of appropriate systems, processes and structures in the planning and implementation of the schemes and that there are potentials for more improvements generally, the pattern of progress made generally confirmed an evolving system, with some evidence of performance improvement from project-to-project.

Capital Funding Regime (CFR)

The DoH announced the capital funding regime (CFR) in January 2007 as a way of encouraging the continued participation of local and smaller hospital contractors in the delivery of acute hospital programme, which had hitherto being procured using the larger

contractors through the PFI option ("Kill or Procure," 2007). This new CRF for NHS Trusts is loan-based and as such, similar to the regime for the Foundation Trusts. Under this initiative, Trusts will no longer have an "operational capital" allocation, but will be able to retain depreciation charges (as well as other internally generated funds such as surpluses, land sale receipts, etc.) to fund on-going essential capital expenditure. Beyond these internal sources of funds, they will have to call on external borrowing to fund capital investment either in the form of a loan from the DoH (interest bearing debt) or through the PFI option.

With regards to public sector borrowing, each Trust will be held to a Prudential Borrowing Limit (PBL) by the DoH which will limit the ability to fund capital schemes (over and above retained depreciation). The setting of PBLs is largely intended to reflect financial standing and risk, and therefore the Trust's ability to service additional loans from within available sources. While the PBL will depend on the strength of the individual Trust's balance sheets, the system nonetheless gives Trusts much greater freedom to decide how and when they deliver their capital programmes ("Kill or Procure," 2007). Schemes under this model of procurement are still at infancy stages and yet to witness any critical evaluation.

CONCLUSIONS

Following a number of government-backed reviews of the industry, some preferred procurement routes have emerged to redress the persistent problems of fragmentation, adversarialism, inefficiency, delays, cost overruns and dissatisfied clients. This paper has reviewed the variety of new procurement routes used in the UK construction industry in terms of concepts, suitable areas of application, nature and intensity of the involvement of the senior managers. Some preferred procurement routes such as PPP/PFI, Prime Contracting and Design and Build have emerged for delivering construction projects across various central government departments and agencies. In responding to these developments, the UK healthcare sector evolved some methods, such as the PFI, ProCure21, LIFT and CFR, aimed at revamping the deteriorated facilities and building of new ones in order to increase the capacity and efficiency of the healthcare system.

The delivery teams under these new procurement routes are expected to form and work as integrated supply chain, i.e. multi-disciplinary and multi-functional groups across organisational boundaries, in atmospheres that facilitate information sharing, open communication, trust and team-working towards common project objectives. This review revealed that some important strides have been made in enhancing the performance of construction projects through the promotion of integration, increased certainty of completion cost and time, and enhanced clients' satisfaction. However, this review has revealed that more collaboration is needed to establish an enduring innovative culture that will lead to the attainment of long-term value for money through continuous learning and improvement. Finally, healthcare procurement has the real potential to act as a lever for achieving wider social, economic and environmental objectives. It arguably offers a route to achieving the ambitious goal of making the UK a leader in the EU in sustainable procurement by 2009 if the buying power of the NHS can be mobilised in this direction.

Given the huge investments in public construction programmes across many sectors including healthcare that have consequences on future generations, assessing the long-term value for money of these projects has become imperative. Some of the key areas requiring further studies are outlined below:

- Ascertaining the effectiveness and appropriateness of these preferred procurement methods in facilitating supply chain integration through collaborative working and efficient delivery process in an environment that was (and is still likely to be) largely characterised with attitudes and culture that are individualistic and often adversarial;
- Exploring ways by which long-term value for money can be facilitated, measured and enhanced through these procurement methods;
- Exploring how to mitigate the barriers to effective learning from project-to-project and effective sharing of best practices from scheme-to-scheme;
- Investigating the drivers, stimulants and barriers to innovation in the implementation of the preferred procurement routes for the

benefits of the projects and all the participants, and identifying effective mitigating strategies;

- Assessing the extent to which these preferred procurement routes facilitate the meeting of sustainable construction agenda of the government both through whole-life value considerations and investigation of sustainable construction materials and/or methods that can further aid the attainment of those objectives; and
- Further investigation of innovative design and construction methods that can facilitate the attainment of therapeutic values of healthcare buildings in terms of improving medical outcomes, increasing patient safety, reducing patient stress, increasing patients' and carers' satisfaction with care, improving staff morale and retention, increasing overall effectiveness in delivering care and strengthening institutional financial performance.

These issues are being tackled through engagement with different supply chain participants and diverse stakeholders using a variety of research methods by the authors as part of a sponsored collaborative research between Loughborough University, Imperial College London and the Universities of Reading and Salford under the Health and Care Infrastructure Research and Innovation Centre (HaCIRIC) project. The ongoing research is leveraging on the capabilities of the collaborating universities and researchers.

NOTES

1. Bennett and Jayes (1995, p. 2) 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."
2. 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; p. 3). Framework agreements are now used in several national programmes such as NHS ProCure21, Ministry of Defence's SLAM project and BSF schemes (involving around £45 billion over 15 years).

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