

THE BUSINESS CASE DEVELOPMENT PROCESS IN THE DELIVERY OF NHS INFRASTRUCTURE

Sepideh Arkani, University of Reading
email: s.arkani@reading.ac.uk

Abstract

There is a lack of knowledge base in relation to experiences gained and lessons learnt from previously executed National Health Service (NHS) infrastructure projects in the UK. This is in part a feature of one-off construction projects, which typify healthcare infrastructure, and in part due to the absence of a suitable method for conveying such information. The complexity of infrastructure delivery process in the NHS makes the construction of healthcare buildings a formidable task. This is particularly the case for the NHS trusts who have little or no experience of construction projects. To facilitate understanding a most important aspect of the delivery process, which is the preparation of a capital investment proposal; steps taken in developing the business case for an NHS healthcare facility are examined. The context for such examination is provided by the planning process of a healthcare project, studied retrospectively. The process is analysed using a social science based method called 'building stories', developed at the University of California-Berkeley. By applying this method, stories or narratives are constructed around the data captured on the case study. The findings indicate that the business case process may be used to justify, rather than identify, trusts' requirements. The study is useful for UK public sector clients as well as consultants and professionals who aim to participate in the delivery of healthcare infrastructure projects in the UK.

Keywords: Business Case; Planning Process; Healthcare; Infrastructure.

Introduction

There is a lack of knowledge base in relation to the experiences gained and lessons learnt from previously executed National Health Service (NHS) infrastructure projects in the UK. This is in part a feature of one-off construction projects, which typify healthcare infrastructure provision, and in part due to the absence of a suitable method for conveying such information. The complexity of infrastructure delivery process in the NHS makes the construction of healthcare buildings a formidable task. This is particularly the case for the NHS trusts who have little or no experience of construction projects. To facilitate understanding a most important aspect of the delivery process, which is the preparation of a capital investment proposal; steps taken in developing the business case for an NHS healthcare facility are examined.

The business case development process is the planning procedure that every trust has to undertake in order to obtain approval from the NHS and, for projects of over £75 million, the Department of Health (Department of Health, 2008: 234) for investing in a capital project. The significance of the business case process is attributable to two factors. On the one hand it provides a framework of guidance for the trusts to prepare their investment projects in. On the other hand, it acts as a control mechanism for the Department of Health to ensure that the trusts

have thought through the services they want to provide, the infrastructure for service delivery, and the production and management of this infrastructure.

The history of the business case development is closely associated with the history of capital investment in the NHS. When the health service was nationalised in 1948, the Treasury became responsible for funding capital investments in healthcare. They imposed tight control and severe limits on capital expenditure, requiring the Ministry of Health to justify the revenue costs and benefits of Regional Hospital Boards' (RHB's) investment proposals. The Ministry of Health lacked the technical expertise to plan, design, and construct hospitals and the RHBs' ability to assess needs and manage capital programmes varied considerably (Mohan, 2002: Chapter 5). Consequently, during the first decade of the NHS some RHBs inadequately defined the hospitals they constructed and underestimated their construction cost (Smith, 1984a: 1298).

In 1961, the Ministry of Health initiated a guidance and control framework to help the RHBs prepare their ten year hospital building programme as part of the hospital plan that was introduced in 1962. The framework comprised three building notes. Two provided information about preparing a building programme, and calculating the cost of each hospital department and eventually the hospital. The third building note focused on the interrelations of different departments within a hospital, their communication with each other, and their future requirements for expansion (Smith, 1984b: 1437-8).

A year later the Ministry of Health introduced Capricode - health building procedures - in their Hospital Building Procedure Notes 1 to 6 to reduce the planning problems and cost and time over-runs of hospital projects. Capricode described the development of a hospital scheme in six stages (Froud, 1979). The design had to be approved by the then Department of Health and Social Security (DHSS) at each stage of the procedure and by the Treasury on major schemes (Smith, 1984c: 1600). Upon the approval of the design a contract was placed. However, by this time, a number of years had elapsed and the original scheme needed revisions.

The NHS reforms of 1991 led to the establishment of independent NHS trusts responsible for the provision, ownership, and management of hospitals (Office of Public Sector Information, 1990: C19). The government imposed charges on trusts' capital (buildings and equipment) influencing the affordability of new investments in infrastructure. They also expected trusts to finance new capital developments through internally generated resources (Mohan, 2002: 204). In 1992 the government launched the Private Finance Initiative (PFI) to introduce private sector capital into the NHS and reduce the Public Sector Borrowing Requirement (Clark and Root, 1999). These changes, together with the persistent problems of construction delays and cost overruns (NAO, 1998), required trusts to adopt more business oriented approaches to planning their hospitals (Froud and Shaoul, 2001: 249). Therefore in 1994 the NHS Executive produced detailed guidance on every stage of a capital scheme in the form of the Capital Investment Manual (CIM). The guidance covers both the technical aspects of the full capital appraisal process and the setting up of management procedures. It makes the approval of capital schemes conditional on the existence of these procedures. The CIM also outlines the appraisal process of privately financed proposals that chief executives of trusts are required to evaluate in comparison with the use of public money (NHS Executive, 1994: Overview).

One of the components of the CIM is the business case guide, which covers the procedure for the production of the business case. The business case is the document that supports the proposals for a new capital project (NHS Executive, 1994: Business case guide). Burgeoning literature has scrutinised specific components of the business case, such as the investment appraisal process (Gaffney et al., 1999b; Froud and Shaoul, 2001; Shaoul, 2005) and the affordability of schemes (Gaffney et al., 1999a), particularly in the context of investment decisions between public and private finance. What appears to have been least researched is the effectiveness and efficiency of the planning process in terms of how useful it is in identifying trusts' needs and how long it

takes. It is argued that decisions about whether to undertake a hospital project and how to finance it are subject to lengthy discussions and negotiations, and are not totally objective processes (Sussex, 2001). There is indication of hospitals being planned based on assumptions which vary widely amongst planners and which are not stated explicitly or supported by evidence (Edwards and Harrison, 1999: 1361). It has also been suggested that the planning process is reversed by designing services that fit predetermined outcomes and that justifying these outcomes appears to be the main planning task (Pollock et al., 1999). The National Audit Office (NAO), subsequent to their examination of major hospital building schemes in 1989, concluded that the assessment of the performance of these schemes must include the time spent in initial appraisal and approval (NAO, 1989: 2). This paper focuses on the nature of the business case process in terms.

The development phases of the business case

Based on the CIM business case guide, the business case is developed through three or four phases depending on whether the investment project is funded publicly or by private-sector finance. The business case for publicly funded projects is prepared through the phases of: strategic context, outline business case, and full business case. The phases collectively comprise nine steps in preparing the business case.

The strategic context sets out the procedure for an extensive strategic review of the trust and constitutes Step 1 in developing the business case. At the core of the review are three questions: Where is the trust now? Where does it want to be? Is capital investment affordable? The first question deals with the issues related to the trust, the purchasers, and the competitors. These include the nature of the healthcare services that the trust currently provides, its existing assets, its financial situation and cost structure, the role of purchasers and the nature of demand for healthcare services, and information about all the providers in the area and their services. The second question is concerned with understanding the future needs and demands for healthcare services, the scope for improvement, and establishing the case for change. The third question relates to the affordability of the proposed scheme. According to the CIM this phase may take three to six months.

The outline business case addresses the question of how the trust gets to where it wants to be. It sets out the procedure for identifying a preferred option from a number of possible alternatives in six steps, which comprise steps 2 to 7 in the business case development process. Step 2 defines the Trust's objectives in response to the service requirements established in the previous phase and identifies the benefit criteria based on which options are selected and assessed. Step 3 generates a long list of options to meet the objectives that emerged from the previous step and whittles this down to a short list. At this stage the business case guide recommends that the short list is discussed with the NHS Executive to confirm the decisions made so far. Step 4 describes how to measure the benefits that accrue from the options in order to rank them. Step 5 identifies the costs associated with the options. Step 6 examines the robustness of the ranking of options by testing their sensitivity to changes in the assumptions made when assigning costs and benefits to them. Step 7 analyses the information produced in steps 3 to 6 about the benefits, costs, and levels of risk of each option from which the senior management of the trust select a preferred option. The outline business case phase culminates in a written report by the same title which summarises the results of the strategic review (Step 1) and the investment appraisal (Steps 2 to 7). The report is submitted for approval to the Regional Office of NHS Executive. The business case guide recommends that the trust discusses the scope of the full business case with the NHS Executive once they have obtained approval. It indicates approximately three months for the completion of this phase.

The full business case constitutes Step 9 in the business case development process. It reviews and refines the work done for the outline business case and develops and presents plans for

managing and controlling the project. The full business case report contains an updated strategic context (Step 1), changes made to the outline business case (Steps 2 to 7), and project management plans. The latter include project management arrangements, contract strategy, project monitoring and post-project evaluation plans, cash-flow projections, and risk management strategy. The report is submitted for approval to the Central NHS Executive and the Treasury. This phase is estimated to take six months to complete. The business case process for publicly funded projects is demonstrated in Figure 1.

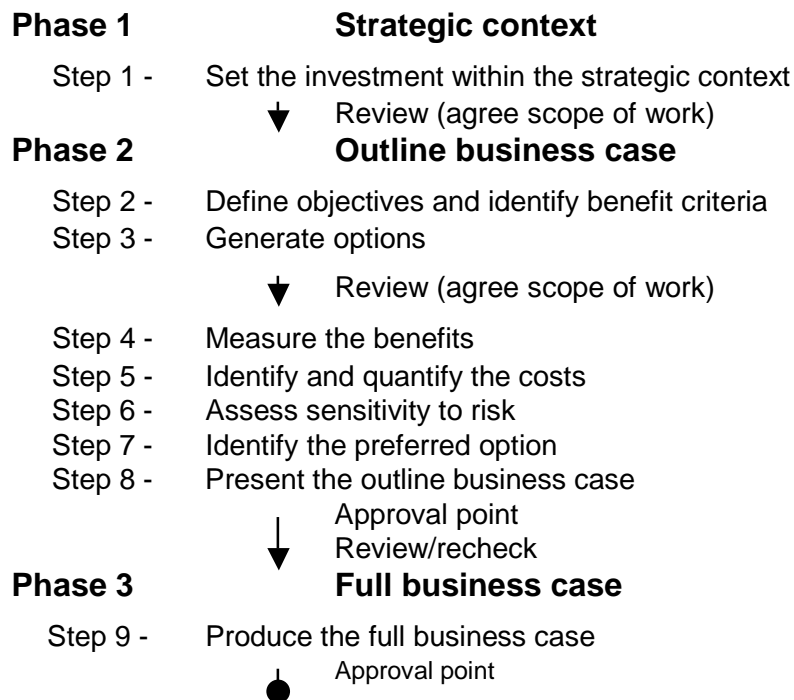


Fig. 1. The Business case process of publicly funded projects; source: Capital Investment Manual, NHS Executive, 1994.

There is an additional phase between the outline business case and the full business case phases in the development of business case process for projects financed by the private-sector. It is referred to as the private finance proposals and is covered by a separate guide (NHS Executive, 1998: The PFI procurement process). The guide sets out the steps from a trust first approaching the market place prior to formally advertising a scheme, through to selecting bidders, and to financial close. The business case process for private sector financed projects is demonstrated in Figure 2.

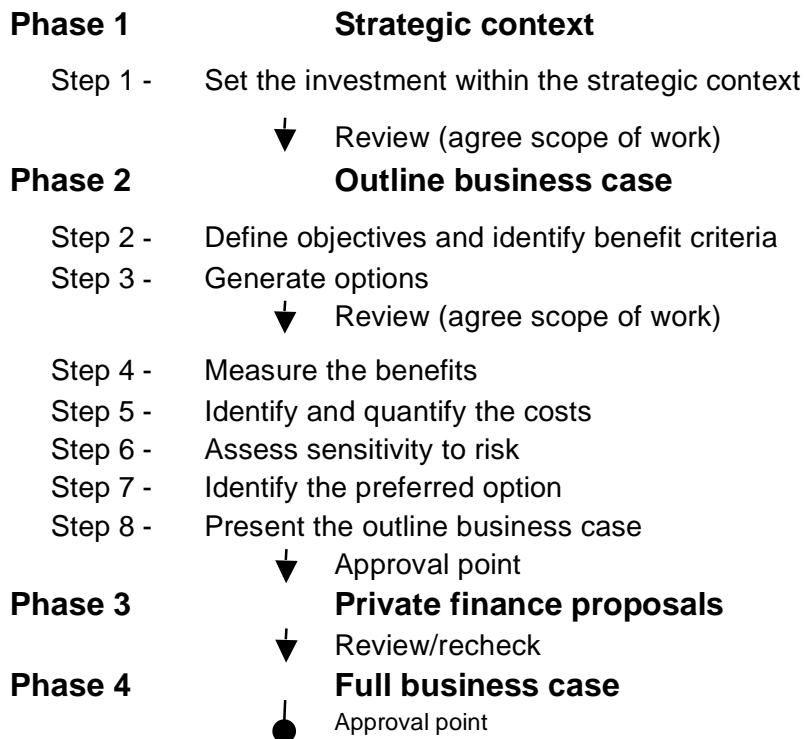


Fig. 2. The Business case process of private sector financed projects; source: Capital Investment Manual, NHS Executive, 1994.

Research methods

The aim of this investigation is to explore the process through which NHS trusts establish their need for a new healthcare facility. The research poses the question; 'what is the process for identifying and formulating the requirement for a new healthcare infrastructure in practice? The business case guide in the CIM (NHS Executive, 1994) is designed to direct the trusts to plan and submit a proposal for a new healthcare investment. It provides guidelines for planning the investment within time and to budget. One objective of this study is to discover the extent to which the trusts follow the guide and implement its procedure in practice. The other objective is to find out the extent to which the business case process itself is subject to budgetary and timescale constraints.

The focus of the study is a set of complex processes involving numerous human agents therefore, it needs to be in-depth. The research question posed is a 'what' question, hence exploratory case studies appear to be pertinent (Yin, 1994). The study is moreover concerned with exploring and capturing tacit knowledge embedded in business case processes and transferring it to NHS trust representatives, consultants, and professionals who aim to participate in similar processes. Consequently aspects of a second research method called 'Building Stories' is combined with the exploratory case studies (see Heylighen, Martin and Cavallin, 2004). Building stories is a method initiated and developed in the architecture programme at the University of California-Berkeley. It involves constructing narratives about building projects that are being designed or built as a means of capturing and transferring the design knowledge embedded in them. It is believed that parallels exist between building design and business case development processes. The viability of applying the method retrospectively has been checked with its initiators as it is intended to add these cases to their repository.

Research design

The planning process of NHS healthcare infrastructure comprises the unit of analysis and therefore the case being studied. The number of cases was limited to two due to the constraints imposed by the research program and resources. The selection of case studies was based on the completion date of infrastructure projects, the method of infrastructure funding, and the availability and accessibility of trusts willing to participate in the research. The cases were chosen from healthcare infrastructure projects designed and constructed in the last five years. This ensured that their planning was subject to the CIM guidance and control procedures. As the business case guide differs for projects that are funded publicly and those that are financed by the private-sector, two projects - one from each category - were selected for study. To secure access to the projects the contacts of the principal investigator in two NHS Trusts were cultivated.

The case studies relate to two diverse hospitals. One provides acute care services and was procured using public sector funding and general contracting, which entails direct engagement of private sector consultants and contractors by the client. The other hospital provides mental health and learning difficulties services, and was procured using private sector finance and the Private Finance Initiative (PFI) method of contracting. The latter involves a concession contract between the client and a Special Purpose Vehicle (SPV). The SPV acts as the main contractor and comprises the financing organisations, the constructor, and often the facility manager. The SPV in turn engages a design and build subcontractor during the design and construction phases and a facility manager during the operation phase.

The data are collected through interviews, documentation, and archived records. The interviews are semi-structured and conducted face-to-face with key people involved in the development of the business case. The interviewees include the business case planners and project managers. Five interviews have been conducted with business case planners and project managers on both projects. Two more interviews are scheduled to be conducted. The interviews are about one hour and thirty minutes long and are recorded and transcribed. The documents consulted comprise full business cases, clinical output specifications, and in the case of the PFI project the final invitation to negotiate. The archived records consist of project organisation charts, slide presentations, building layouts, and published articles. The use of the three different data sources is intended to triangulate the evidence and increase the reliability of the data collected.

Data analysis

The data are analysed using the framework provided by the building stories method. This framework comprises a core and a web of stories or narratives constructed around it. The core includes six topics: actors, context, organisation, practices, programme and resources. It provides a profile of the project. Actors are individuals or groups of individuals who make decisions about the project. Context is the physical location of the project and related issues. Organisation refers to the predetermined organisational structure that affects the outcome of project. Practices include use of operating procedures, methodologies, and/or tools within the Trust. Programme refers to the users/Trust needs and requirements to be accommodated by the project within the given scope, time, and budget. Resources are the time and budget within which the project is to be realised including the documents, tools, and conditions that provide the Trust with special capacities to do so. The stories or narratives are composed around the core as a 'network of events'. Each event consists of two elements: activities and outputs. Activities are actions and interactions performed by the actors. Outputs are created or used by the actors in the event (Heylighen, Martin and Cavallin, 2004: 7-8).

The retrospective nature of the study makes identification of actions performed by specific actors difficult. The interviews shed some light onto this process however they do not allow the full sequence of activities to emerge. For this reason the evidence for events having taken place is

established by linking the procedure the actors are expected to have followed to the outputs they produced. The actors' anticipated course of action is laid out in the CIM and was outlined in the introduction. The actors' outputs are recorded in the full business case document. This evidence is complemented with that emerging from interview analyses. The interviews are coded based on the CIM steps using Nvivo.

Research Question:

- What is the process for identifying and formulating the requirement for a new healthcare infrastructure in practice?
- How do NHS trusts decide that they need a new healthcare facility?
- How do NHS trusts determine what type of facility they require?

Research Objectives

- To what extent do NHS trusts follow the business case guide in the CIM?
- To what extent does the business case process facilitate timely planning of healthcare projects within specified budgets?

Research results

Owing to the on-going research that this paper reports on, only some of the results emanating from the analysis of one of the cases is presented here. The case is the planning process of the hospital providing mental health and learning difficulties services procured by private sector finance. The profile of the case is as follows:

Actors

There was a Trust board comprising the chief executive, non-executive directors, and executive directors. It monitored the progress of the project, synthesised the evaluation of bids, and made cost-related decisions. The chief executive signed off the contract documents. There was a project board headed by the project director and included two project managers. One manager was involved during the early stages of the planning process (1988-1990) and then during the PFI process (1999-2000). He was responsible for producing the approval in principle, the outline business case, and the full business case documents. In addition, he coordinated the PFI procurement process at the stage when the number of bidders was down to six and prepared the present site for the commencement of building works. The other manager was also involved during the PFI process (1999-2000). He was responsible for drafting the original project plan, tender evaluation scoring mechanism, the output specification, coordinating the work relating to the design, and setting up focus groups that assessed the designs proposed by the bidders. There were operational groups that carried out the planning work. They comprised design, facility management, legal/risk and financial advisors.

Context

The Trust selected the location of the new facility for two reasons. First, the site is geographically closer to the population it serves and has better public transport links. It is therefore more likely to

attract staff than the previous facility. Second, the buildings that formerly stood on the site were owned by the Trust and were partially occupied by administration functions.

Organisation

The predetermined organisational structure that affected the outcome of the business case process was the Trust hierarchy comprising the chief executive, the project director, and the project managers. The operational groups reported to the project managers who in turn reported to the project director. The project director reported to the chief executive. The reporting structure of the business case process is presented in Figure 3. The boxes represent individual or group entities. The lines represent reporting activities.

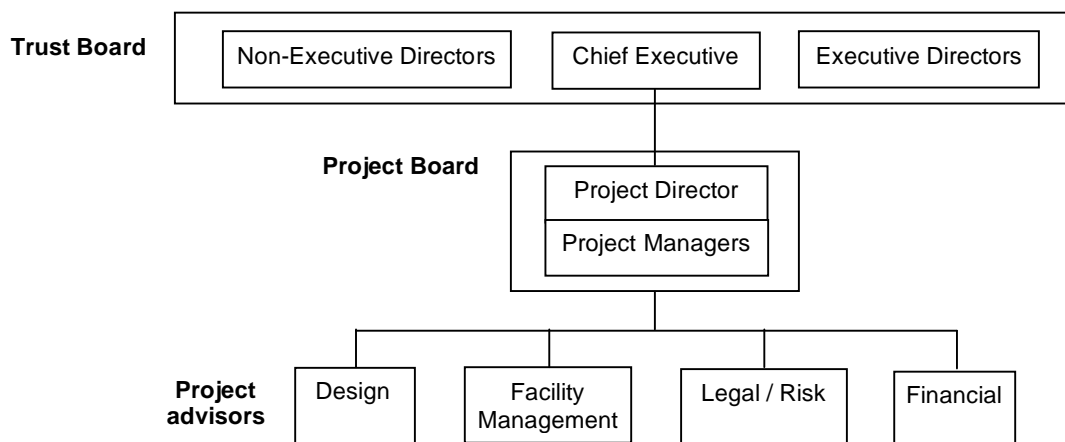


Fig. 3. The organisational structure of the planning process

Practices

The evidence from the full business case document and the interviews suggests that the Trust was informed by the CIM guidance during the business case process. This section focuses on the private finance proposals. The Trust designed the PFI procurement process based on the procedure laid out in the CIM, in consultation with their advisors and representatives from the Private Finance Unit and the Treasury Task Force. The process included:

- Publishing contract notices relating to the scheme in the then Official Journal of the European (OJEC) Communities in December 1998.
- Issuing the memorandum of information for the scheme and pre-qualification questionnaires to 52 organisations responding to the OJEC notice in January 1999.
- Evaluating the questionnaires received from 16 responding organisations in February 1999 based on the public procurement rules such as experience and capability.
- Short-listing six consortia in March 1999 and issuing them with preliminary invitation to negotiate documents in May 1999.
- Evaluating and scoring bids submitted in July 1999 and presented in August 1999 based on agreed criteria such as building and design, facilities management, finance, contracting, and construction – various service users and interests undertook the design evaluation which was based on the clinical output specification. The project board decided the weighting for each criterion and the Trust procurement group chose the bids to go forward to the final invitation to negotiate stage.

- Short-listing three consortia in September 1999 and issuing them with final invitation to negotiate documents including the project agreement.
- Evaluating and scoring bids submitted in November 1999 and amended in December 1999 based on agreed criteria reflecting both clinical and facility management output specification. These comprised building and design, construction approach, facilities management, finance, legal issues, bid coherence/robustness, and value for money – service users carried out the design evaluation and technical groups and advisors the evaluation of the non-design elements under the direction of the procurement group.
- Short-listing two consortia in January 2000, and issuing them with best and final offer letter.
- Evaluating best and final offers, submitted in March 2000 and amended in April 2000. Concluding that neither bid provided adequate information and assurances for the Trust to select a preferred bidder and informing the consortia accordingly in May 2000.
- Issuing the two consortia with a letter regarding the resubmission of best and final offer in June 2000.
- Selecting the preferred bidder in August 2000 based on their financial advantage over the other consortium conveyed by their best and final offer submitted in July 2000.
- Engaging in detailed negotiations with the preferred bidder in August and September 2000.

Programme

The Trust's requirements were twofold. On the one hand they wanted to resettle the long-stay patients of the previous hospital in new more appropriate facilities in the community. On the other hand, they wanted to replace the old hospital with modern accommodation that met both the needs of the patients and the policy guidelines. These requirements had two sources. First, the mental health service provision was moving from an institutional to a community-based model. Second, the previous facility was totally unsuitable for its users. Its fabric was in poor condition and a state of disrepair. It was far away from the population it served and difficult to access by public transport. It therefore faced problems in recruiting staff and consequently had to close some wards.

Resources

The data sources do not reveal any evidence of time or budgetary constraints having been placed on the planning process of this hospital at the outset. The only significant date identified in 1995 as part of the risk assessment of the previous facility is its anticipated closure in autumn 2002. The timescale for the business case process was attributed to that indicated in the CIM. No evidence was found in relation to the budget for the process.

The Trust relied on a number of documents during the development of the business case. It based its new service provision on the policy statements in the discussion document published by the regional health authority in June 1997. The Trust ensured that the standards of the proposed inpatient facilities met those set out in the 'Safety, privacy and dignity in mental health units' guidance (NHS Executive, 2000). It worked out the bed requirements by reviewing the work of Wing (1992), the regional mental health need assessment, and the National Bed Survey.

Outline of the story of the business case development process

The start of the thought process leading to the requirement for a new healthcare facility predates the business case process discussed so far. The mental health establishment preceding the current Trust contemplated resettling long-stay patients into community settings as early as 1988 by carrying out their first major option appraisal. This led to the production of the approval in principle document in 1990, which identified the current location of the hospital as the potential site. Around the same time the need for a more business oriented approach to planning healthcare facilities was being talked about. In April 1993 the NHS Trust preceding the current Trust was formed. It commissioned an independent external risk assessment of the previous mental health hospital in 1995, which concluded that the hospital had to close in autumn 2002. In December 1996 the Trust conducted another option appraisal exercise involving representatives from health authorities, social services, clinical staff, and general practitioners to determine the location of the new hospital. In September 1997 the Trust submitted the outline business case to the regional office of the NHS Executive. Between December 1998 and September 2000 the Trust engaged in the PFI procurement process outlined in the Practices section above. The outcome of this process was incorporated in the full business case document that the Trust submitted to the central office of the NHS Executive and the Treasury in November 2000. The Trust obtained approval for the new hospital in December 2000.

Discussion and conclusions

The introduction of the business case process in the planning of healthcare infrastructure projects appears to have been a response to the deficiencies in knowledge and management skills of those responsible for this task. Consequently the business case guide in the CIM presents a step-by-step procedure for identifying what the trusts need and how to achieve it. It moreover provides broad estimates of budget and timescale within which outline and full business cases may be carried out. Currently no known repositories containing information about the implementation and success or failure of business case processes exist.

An in-depth study of the planning process of a trust providing mental health and learning difficulties services has produced some illuminating preliminary results. The Trust identified the need for a new facility in 1988 due to the severe shortcomings of their previous facility. They submitted their requirement for a new hospital in an approval in principle document in 1990. This was a few years prior to the introduction of the CIM and the business case process. For reasons that have not yet been clearly established but may be attributable to the restructuring of the NHS and the introduction of business procedures in 1991, the Trust had to undertake the business case process. The evidence suggests that they followed the procedure laid out in the CIM. The Trust resubmitted their requirement for a new facility in an outline business case in September 1997 followed by a full business case in November 2000. Based on these dates the first and second phases of the process took longer than the six to nine months indicated by the CIM. The third and fourth phases, on the other hand, are likely to have been completed within the period indicated in the CIM. No evidence of the budget allocated to the business case process was available.

Despite indications that the Trust followed the CIM procedure it is not believed that they used it to identify and formulate their requirements. The findings emanating from the data indicate that the Trust provided detailed evidence on which their decisions appeared to be based. This is contrary to claims made by Edwards and Harrison (1999) about hospitals being planned on assumptions that are not stated explicitly or supported by evidence. However, it is likely that the Trust selected the evidence and used the procedure to justify their needs while basing the formulation of these needs on operational experience and policy guidelines. This result supports Pollock et al.'s (1999) claim about the planning process being used to design services to fit predetermined outcomes and the main planning task being to justify these outcomes. The Trust also took longer to

complete the first and second phases of the business case process than the CIM suggests despite having identified their requirements in a previous option appraisal. This finding agrees with Sussex's (2001) argument that decision making processes about a hospital project involve lengthy discussions and negotiations, and are not totally objective. These preliminary results demonstrate that undertaking the business case process is a long, complex and costly exercise. If it is used merely to validate a pre-determined outcome, engaging in the process would be a wasteful application of precious resources.

Key Lessons Learned:

- NHS trusts may identify and formulate their requirement for a new facility based on their operational experience and in line with policy.
- NHS trusts may use the CIM procedure to justify their predetermined needs and appear to be following it because this is what they are expected to do.
- The implementation of the business case process is long and costly, it may not result in timely planning and may be a waste of precious resources.

References

- Clark, G.L. and Root, A. (1999) "Infrastructure shortfall in the United Kingdom: the private finance initiative and government policy" *Political Geography* Vol. 18, pp. 341-365.
- Department of Health (2008) *Departmental Report*. Norwich: TSO.
- Edwards, N. and Harrison, A. (1999) "The hospital of the future: Planning hospitals with limited evidence: a research and policy problem" *British Medical Journal*, Vol. 319, pp. 1361-1363.
- Froud, B. (1979) "Capricode - hospital building procedures explained" *Nursing focus*, Vol. 1, No 3, pp.111-5.
- Froud, J. and Shaoul, J. (2001) "Appraising and evaluating PFI for NHS hospitals" *Financial Accountability and Management*, Vol. 17, pp. 0267-4424.
- Gaffney, D., Pollock, A.M., Price, D. and Shaoul, J. (1999a) "The Private Finance Initiative: NHS capital expenditure and the private finance initiative – expansion or contraction?" *British Medical Journal*, Vol. 319, 3 July, pp. 48-51.
- Gaffney, D., Pollock, A.M., Price, D. and Shaoul, J. (1999b) "The Private Finance Initiative: PFI in the NHS – is there an economic case?" *British Medical Journal*, Vol. 319, 10 July, pp. 116-119.
- Heylighen, A, Martin, W.M. and Cavallin, H. (2004) "From repository to resource. Exchanging stories of and for architectural practice" *Journal of Design Research*, Vol. 4, No 1, inderscience.com.
- Mohan, J. (2002) *Planning, markets and hospitals*. London and New York: Routledge.
- National Audit Office (1998) *Cost over-runs, funding problems and delays on Guy's hospital phase III development*, HC-761. London: HMSO.

- NHS Executive (1994) *Capital investment manual: Business case guide*. London: HMSO.
- NHS Executive (1998) *The PFI procurement process, PFI in the NHS*.
- NHS Executive (2000) *Safety, privacy and dignity in mental health units: guidance on mixed sex accommodation for mental health services*.
- Office of Public Sector Information (1990) *National Health Service and Community Care Act 1990: C 19*. The National Archives. Norwich: TSO.
- Pollock, A.M., Dunnigan, M.G., Gaffney, D., Price, D. and Shaoul, J. (1999) "The Private Finance Initiative: Planning the "new" NHS: downsizing for the 21st century" *British Medical Journal*, Vol. 319, 17 July, pp. 179-184.
- Shaoul, J. (2005) "A critical financial analysis of the Private Finance Initiative: selecting a financing method or allocating economic wealth?" *Critical Perspectives on Accounting*, Vol. 16, pp. 441-471.
- Smith, J. (1984a) "Hospital building in the NHS - Policy I" *British Medical Journal*, Vol. 289, 10 November, pp.1298-1300.
- Smith, J. (1984b) "Hospital building in the NHS - Ideas and designs I: from Greenwich to best buy" *British Medical Journal*, Vol. 289, 24 November, pp.1437-1440.
- Smith, J. (1984c) "Hospital building in the NHS - things that go wrong" *British Medical Journal*, Vol. 289, 8 December, pp.1599-1602.
- Sussex, J. (2001) *The economics of the Private Finance Initiative in the NHS*. Office of Health Economics, BSC Print Ltd: London.
- Wing, J. K. (1992) *Epidemiologically-based mental health needs assessment. Review of research on psychiatric disorders (ICD-10, F2-F6)*. London: Royal College of Psychiatrists, College Research Unit.
- Yin, R. (1994) *Case study research: Design and methods (2nd ed.)*. Thousand Oaks, CA: Sage Publishing.

Author's Biography



Dr Sepideh Arkani is leader of Theme 2: Procurement for Innovation in HaCIRIC (Health and Care Infrastructure Research and Innovation Centre), a £7.5 million programme of research funded by the Engineering and Physical Sciences Research Council and involves four universities. She is responsible for the development and management of research on the practice of built environment infrastructure procurement that enables service providers to deliver effective healthcare.

Sepideh is a trained architect with five years practice experience in the industry. She has an MSc in Construction Economics and Management from the Bartlett School of Architecture and Planning, University College London. Sepideh completed her PhD at the School of Business and Management, University of Greenwich. She has a particular research interest in building infrastructure procurement methods and their impact on project participants' behaviour and performance. Her other research interests include power and politics in building project coalition, and procurement of repair and maintenance services in local authority housing in the UK.

