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Strategic asset management and master planning within the healthcare sector: exploring the theoretical need for evidence based change management in strategic planning

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AM (Accepted Manuscript)

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Mahadkar, Sameedha, Grant R. Mills, and Andrew D.F. Price. 2019. "Strategic Asset Management and Master Planning Within the Healthcare Sector: Exploring the Theoretical Need for Evidence Based Change Management in Strategic Planning". figshare. <https://hdl.handle.net/2134/9895>.

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**International Postgraduate Research Conference
Research Institute for the Built and Human Environment
University of Salford, Salford, M5 4WT, UK**

**Strategic Asset Management and Master Planning within the healthcare sector:
Exploring the theoretical need for evidence based change management in
strategic planning**

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Abstract:

The delivery of health and social care in the UK is undergoing profound change and being redesigned to provide high quality, person-centred services and improved capacity and performance. This is taking place in a context of: change in asset ownership; moves towards increased local autonomy in the provision of services; and the introduction of national, evidence-based standards and inspection. There has been considerable activity surrounding the planning, design and operation of healthcare services and facilities, however, Strategic Asset Management as a field of literature has not sufficiently developed in line with this change in emphasis. The recent move towards PFI, LIFT and World Class Commissioning within the NHS (National Health Service), has meant that roles and responsibilities for estates are shifting alongside commissioning competencies; however, the impact of this shift on the built healing environment is not well understood. Strategic Asset Management on a regional scale requires: reliable predictive data; effective tools and processes for developing and modelling future scenarios; and people with the appropriate skills and expertise, although these are not always available. As such, these factors need to be better understood and the stakeholders responsible for them defined.

Keywords: Asset Management, Healthcare, Strategic Planning

1. Introduction

The current rapid change environment within the NHS will provide a rich source of practical research and knowledge and learning; which if captured should enable the development of a more strategic, long-term community focussed approaches and help various agencies integrate their planning processes of healthcare infrastructure and service delivery. The aim of this study is to explore the master planning techniques that could facilitate strategic asset management and service reconfiguration of primary care trusts. There is a need to ensure that existing Strategic Estates Management tools can be used to plan integrated and contestable systems. Contestability and choice are essential in pushing public services towards an understanding of their customers to deliver better quality and reduced cost (Caldwell and Roehrich, 2008, Strobl and Bruce, 2000). In the last few years, there has been series of policies and initiatives to promote value for money during the procurement of construction projects for the public sector clients across diverse sectors, including healthcare. These have largely been driven by the increasing recognition of the greater benefits that can be achieved from the procurement process. While the initial focus has been on the optimisation of costs associated with the design, construction, operation and decommissioning of infrastructure projects (whole-life costs), there is now a shift towards the consideration of the needs and requirements of a broader range of stakeholders and encompassing wider economic, social and environmental issues related to the management of assets. However, there have been difficulties related to a real understanding of the whole-life value concept and the dearth of suitable assessment tools, methods and techniques to assist clients in making these evaluations at the various stages of infrastructure procurement (Bourke et al., 2005, Mootanah, 2005). This paper defines the principles of Strategic Asset Management and Planning, before investigating more specifically the tools that can help to deliver this change.

2. Changes in Healthcare Planning Policy, Strategic Asset Management and Master Planning

The reforms of the past 10 years have clearly moved the NHS forward, and the national and regional plans under the *Next Stage Review* set striving goals for the future. Lord Darzi in his NHS *Next Stage Review Interim Report 'Our NHS Our Future'* (Darzi, 2007, Darzi, 2008) suggests, the development of a more strategic, long-term and community focused approach to commissioning services, where commissioners and health and care professionals work together to deliver improved local health outcomes. Carvel (2008) stated in his article in *The Guardian*: 'NHS hospitals will be eligible for bonuses worth billions of pounds if they can demonstrate top quality clinical performance and hospitals would be required to publish "quality accounts" alongside the financial balance sheet.' The focus on prevention, improved quality and innovation will support the NHS in its drive to ensure the best possible value for taxpayers' money. Although Carvel (2008) also stated that 'the report set no new national targets and included no master plan for the reorganisation of services'. Stanton (2007) also presents the other key developments within the NHS: World Class Commissioning, Practise Based Commissioning, and Commissioning for Health and Well-Being. All these aim to deliver a more strategic and long-term approach to commissioning services, with a clear focus on delivering improved health outcomes.

Tannis et al. (2005) supported the view that healthcare facilities that were considered as state of the art 20 or 10 years ago are fast becoming functionally obsolete based on

the exponential changes in clinical services and operational trends and new technologies. They further stated that ‘the challenge to all involved in the planning, construction and management of healthcare facilities is to anticipate, to the greatest degree, where changes are most likely to happen and to consider flexibility throughout all stages of the planning, design, construction and post occupancy phases’. The main challenge within planning construction and management of healthcare facilities is to anticipate the areas where change is likely to occur and consider flexibility throughout all the stages of planning designing and construction.

There is a fundamental shift in the way the NHS functions, from a hospital driven service to one that is more community based with a greater integration of various services. Shifting the balance of care has significant implications on the management of estates; hence it is important that the board has a clear understanding of the current asset base, including size, location and condition for future planning. National Audit Office (2007) note, ‘public service providers are expected to demonstrate to their communities that they are delivering better value for money addressing not only efficiency but also effectiveness in delivery’. In order to achieve this, the boards must be aware of the performance of their assets.

2.1 Justification:

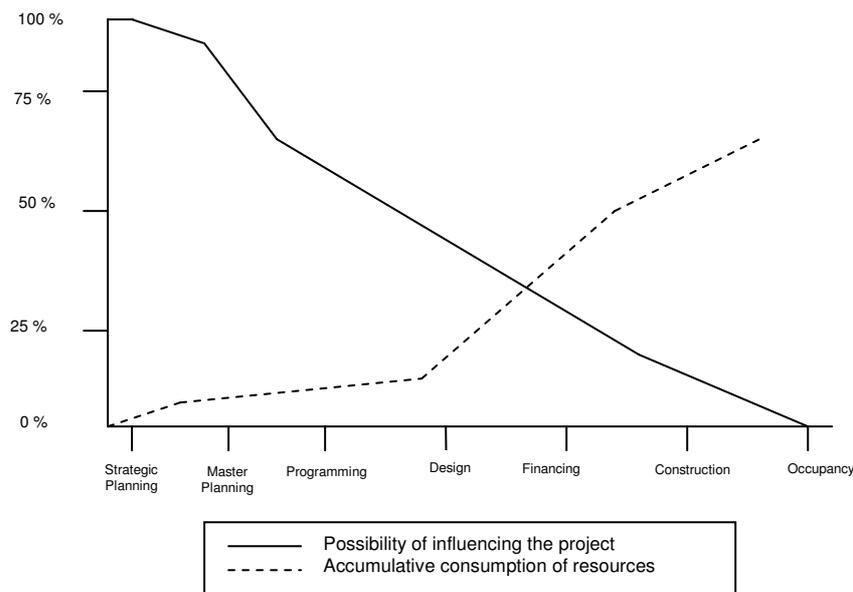


Figure 1: Conceptual diagram of resource consumption, adapted from planning healthcare facilities and managing the development process
 Source: (Hosking, 2004)

Figure 1 illustrates the importance of strategic and master planning within healthcare organisations, as it is in this stage that there is the highest possibility of influencing the project with the minimum consumption of resources.

2.2 NHS capability for change & Resulting Benefits

All organisations need to change and develop if they are to remain competitive and satisfy clients’ ever increasing expectations. The need to change is usually driven by

external factors such as new legislation or increased competition, or internal factors such as the implementation of new technologies (Price and Chahal, 2006). The implementation of change is a complex process and evidence from a number of sources suggest that many organisations within the NHS fall short on the change capability required to deliver the goals set forth by the Lord Darzi's NHS *Next Stage Review*. Bevan et al. (2008) further elaborate in their report a study of change capability in the NHS (2006) conducted by the office of Government of Commerce; the NHS scored at only two out of a possible five for seven out of the nine categories assessed. The NHS received low scores in the use of change management methods. A study of NHS trusts and PCTs by the University of Warwick (2006) looked for evidence of the kind of improvement approaches that have been used in industry for more than 50 years to improve operational efficiency and effectiveness. They found very limited capability in evidence based change management amongst majority of NHS organisations that are in the middle of the performance curve.

The NHS is a complex adaptive system and major intervention changes not just aspects of the system but contribute to the very nature of the system itself (Bevan et al., 2008). However, the NHS as a system is inefficient, the numerous components of the system do not work together effectively and NHS organisations on the whole are slow to adopt new technologies and practices. The Darzi review provides an opportunity to rethink not only the organisation of healthcare service delivery, but also the NHS's approach to innovation (Barlow et al., 2008). The main premise motivating this paper is: can the effective use of ICT tools within the master planning process/strategic asset management process enhance the change process? This will be supported by an initial literature review of asset management and master planning, followed by the development a research methodology incorporating the study of the master planning process within a PCT (Primary Care Trust) and the study of the SHAPE tool and its potential to identify future services and asset requirements, based on the top quartile performance.

In order to have a meaningful discussion about master planning and strategic asset management, it is important to define these terms. The following sections entail a discussion around asset management, strategic asset management, master planning and planning.

3. Asset Management and Strategic Asset Management

Asset Management is a broad term. It can be defined as a process that guides the gaining of assets, along with their use and disposal in order to make the most of the assets and their potential throughout their life. Assets could refer to financial and personal assets or physical and public assets. Assets can be generically categorised as financial assets and non-financial assets. For the purpose of this research when we refer to assets, we mean tangible fixed assets (non-financial) such as infrastructure. This classification is based on European System of Accounts (1996). The term Asset Management is referred to in different ways by various organisations. Generally, practitioners tend to define Asset Management in terms of the infrastructure for which they are accountable. It is imperative that the assets are well maintained and have favourable locations that would positively support service delivery and enhance user experience. Benefits would also include:

- improving outcomes for people who use services;
- provision of safe, secure and appropriate buildings that support service requirements;

- means of identifying and disposing of surplus or poorly used assets;
- to achieve value for money in the costs associated with holding, managing and disposing of the NHS estate; and
- clear evidence of estate performance.

(Audit Scotland, 2008)

The effective planning and management of healthcare assets is essential to the provision of safe, secure, high quality services capable of supporting current and future service needs. Asset Management must take place at a number of different levels: starting at the strategic level and then moving towards a more operational level. The following Asset Management process is adapted based on a description in the ‘Audit Scotland, 2008 report’.

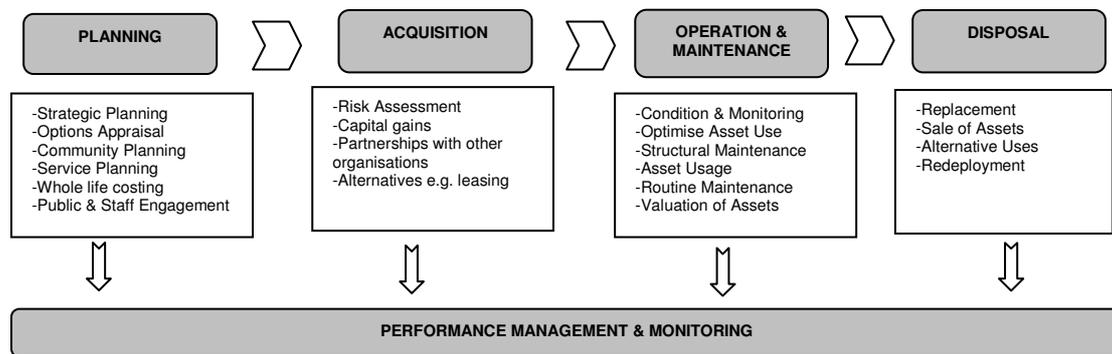


Figure 2: Asset Management Process, based on ‘Audit Scotland Report, 2008’

The above diagram depicts the key elements namely, planning, acquisition, operation and maintenance, performance management and monitoring of the Asset Management process. There are a large number of issues to be considered within each of these elements. Ruparel (2001) further adds that the procurement of new assets is only one phase in the asset management cycle and so the preparation of a Strategic Asset Management plan for new and existing assets is to be considered, including development plans, disposal plans, investment plans and maintenance plans in order to provide safe, functional and efficient assets. Such strategic plans are intended to ensure that the overall costs of prevailing assets owned, is lowered, the level of assets held by trusts do not exceed its service delivery needs and that the service potential of existing assets is maximised, and the demand for assets/facilities is reduced by promulgating effective use of alternative solutions.

Traditionally, Asset Management is only related to managing the current assets of an organisation but in order to ensure the long-term viability of the organisation it is imperative to consider the continual improvement of this process along with the strategic direction of the organisation. This is where the overarching term of *Strategic Asset Management* is introduced, which includes elements of Asset Management tied into the strategic objectives of the organisation. Various definitions of Strategic Asset Management are proposed by building, utility, healthcare and other infrastructure organisations. Each of these organisations develops a strategic asset management plan based on the organisational needs and drivers. Maheshwari (2006) defined Strategic Asset Management as: “a process of developing, creating, maintaining and disposing assets through a complex series of interlinked well-defined processes that are

continually improved, over the life cycle of an organisation, with an aim of achieving the objectives of the organisation”. Strategic Asset Management can also be defined as the planned alignment of physical assets with product or service demand. It is achieved by the systematic management of all decision-making processes taken throughout the life of the physical asset (Griffith University, 2005, Knowledge Group Consulting, 2006). The real indicator of the success of Strategic Asset Management is enhanced product or service delivery.

3.1 The Planning Process:

The initial planning phase undertaken towards the realisation of a physical hospital plan is often referred to as master programming/planning. This establishes the framework for addressing the health program’s potential site and facility needs over a specified period of time. Issel (2004) adds that the focus should not be on strategic planning rather on tactical planning which is a set of planning activities done to implement a broader global strategy. He describes it as a cyclic activity rather than a linear process with recursive events requiring additional or refreshed courses of action for the health program. The following diagram represents this planning and evaluation cycle. The indirect trigger for planning could be the information generated from an evaluation that reveals either the failure or success of a health program or the need for additional programs.

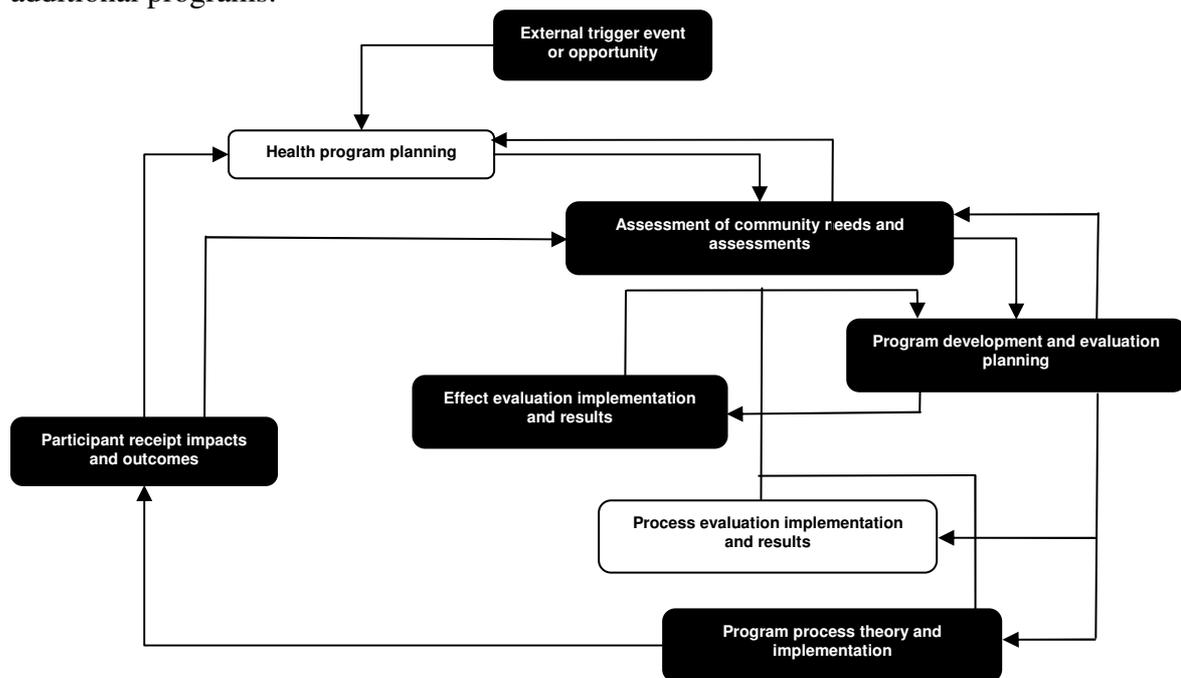


Figure 3: The Planning and Evaluation Cycle
 (Adapted from: Issel, 2004 *Health Program Planning and Evaluation: A practical, systematic approach for community health.*)

Figure 3 can be adopted to gain a better understanding of the current scenario within the NHS. The external trigger is the changing policies and environment within NHS. The participants in this case are the community that is impacted by the various service reconfigurations of the hospital facilities within that particular region. This study focuses around the health program planning and process evaluation and implementation; which is the Strategic Asset Management and Master Planning process. It can be inferred from the above diagram that this process is highly iterative

and interdependent on various activities such as planning considerations and capabilities. Planning is the key element of the Strategic Asset Management process. Based on an initial review, it was identified that various authors refer to planning, master planning and facility planning as interchangeable terms. Issel (2004) defined planning within health programs as: ‘the set of key activities in which the key individuals define a set of desired improvements, develop a strategy to achieve those desired improvements and establish a means to measure the attainment of those desired improvements’. Dr Kevin Woods Director General Health, Chief Executive NHS Scotland defined master planning as “the act of managing and making the most of change; of understanding how the context of a large, complex site will develop over time; of considering potential and realising best value from investment” (Hoskins, 2004). It establishes a shared vision of the future; a flexible framework that guides individual developments and promotes a sense of place. Wolper (2004) further states that facility planning is the planning, designing and building of the physical facility. Generically, the planning process can be applied to all types of healthcare facilities. Various approaches can be adopted, these are elaborated below.

*Table 1: Various Approaches to Planning
(Issel, 2004. Health Program Planning and Evaluation:
A practical, systematic approach for community health.)*

Incremental approach	Apolitical Approach	Advocacy Approach	Communicative Action Approach	Comprehensive Rational Approach	Strategic Planning Approach
It addresses the immediate concerns and hopes that disconnected plans and actions have a cumulative effect on the problem. This is helpful when the resources are limited and this method can lead to small gains in immediate problems. The major disadvantage is that small planning efforts may lead to conflicting plans and confusing or non-integrated programs.	This is a problem solving approach which relies solely on technical knowledge to arrive on a solution and assumes that technical knowledge makes it possible to achieve compromises among those involved in the health problem and the planning process. It is implicitly the gold standard for planning. Forester (1993) criticises this approach as it does not account for interpersonal dynamics and neglects cultural issues involving the potential program participants and staff.	The planning is client focussed and includes mandated citizen participation in the planning activities. It is a bottom up form of comprehensive rational planning. Planners would speak on behalf of those with the health problem. The advantages of this approach are most evident in situations in which the clients or citizens are not empowered to convey their own preferences or concerns. The disadvantages are that the clients or citizens may not agree with the opinions or views of the advocate. This approach implicitly entails some degree of conflict which may have negative repercussions in the long term.	It is concerned with the distribution of power and communication. Those involved in planning make efforts to empower those with the problem through communication and sharing of information. This approach is predicated on making those with the problem equals in the planning process. A major advantage in this method is that members of the target audience gain skill knowledge and confidence in addressing their own problems. However the planner involved needs to have a different set of skills needed to do rational or incremental planning.	This is fundamentally a systems approach involving problem analyses by drawing upon ideas from the systems theory-namely feedback loops, input and output, systems and subsystems. It assumes that factors affecting the problem are known and virtually all contingencies can be anticipated. It is comprehensive in the sense that planners can take into account those contingencies and peripheral influences. The planners set goals, identify alternatives, implement programs and monitor results. One advantage of this method is that it facilitates obtaining information from stakeholders who may otherwise be reluctant to share information because it diffuses power from an authority base to information base. This approach yields more information for decision making and allows planners to face issues faced by the entire system.	This focuses on the organisation and its ability to accomplish its mission in a fiscally responsible manner. It is particularly applicable to the infrastructure level. The resources needed for addressing the health problems are identified through strategic planning and are considered in terms of mission of the organisation. This approach is advantageous as it takes into account the context weather competition or policy as well as having a long term focus. Despite having the capability to quantify the decision making process, knowing the best option does not always guarantee the best decision or program plan. One of the disadvantages could be the lack of flexibility to respond to new environmental opportunities or threats.

Key factors that need to be taken into account within service and facility planning are the population growth and the changing demographics. The ongoing challenge in the UK is to continue to reconfigure services to match changing population and services needs and to provide an asset base which maximises this responsiveness. Given the current environment within the NHS, it would be interesting to identify which of the above approaches could be utilised and would be suitable for a planning process within a primary care trust.

4. Capabilities and Considerations for Strategic Asset Management and Master Planning Change

Effective planning activities require a wide range of competencies and capabilities which will be required at different points within the planning process. Goldman (2002) suggested the following areas for consideration.

- Data sources and resources
- Primary research tools and techniques
- Healthcare industry structure
- Healthcare programs and services
- Buyer and consumer behaviour
- Local/regional market conditions
- National business and economic trends
- General business acumen

Tannis et al. (2005) described strategic planning programs and services at a high level and suggests detailed information gathering with regards to the site or possible sites (existing or new) for the development of the facility. These investigations include:

- adequacy of site to accommodate anticipated use;
- location relative to the existing population;
- proximity to major highways for emergency vehicle access;
- sufficient size of the facility and real estate to ensure changes, growth, renewal is possible in the future; and
- analysis such as soil testing, topographical analysis, traffic flow patterns, capacity to access municipal services (water, sanitation, power).

Wolper (2004) suggests that planning should take place at a corporate level in organised delivery systems. The physical facility planning process should begin once the strategic plan is established. The two major phases of the facility development process are: planning/designing and implementation/construction. Master site and facility planning includes:

- needs of all delivery sites in the organised delivery system;
- interdepartmental relationships within those sites;
- flow of patients, visitors, staff and supplies throughout the system and within the sites;
- site development, including parking needs and traffic patterns;
- other current and planned facilities on site, such as ambulatory care centre, physicians, parking structure and speciality centres;
- a functional and engineering evaluation of the immediate and long range value of each structure;
- property acquisition and disposal;

- vertical and horizontal transportation systems; and
- future expansion of services and programs.

A dynamic Strategic Asset Management plan will encompass planning the reconfiguration of facilities to meet the current and future health needs and enable informed decision making based on a collection of consistent base data set. It is up to the management to organise planning, provide analytical support and coordinate planning efforts throughout the organisation. In order for planning to be effective as an organisational management tool, Goldman (2002) suggested that the following activities to be performed.

- 1) **Conduct environmental scans and forecasts**- to provide information regarding the demographic, social, economic, technological and political trends, competitor initiatives and market structure and direction.
- 2) **Educate key participants in planning techniques**-to ensure that individuals involved in the planning process have clear expectations as to the purpose, order and expected outcomes of each activity.
- 3) **Design and administer a planning process**- to organise activities to take place and function as a co-ordinating mechanism for business line and operating unit plans
- 4) **Develop policies and procedures to support the planning activities**- to ensure that consistent standards and approaches are used across the organisation for all the planning activities.
- 5) **Reconcile planning outcomes with other key organisational processes such as budgeting and recruitment**- to ensure effective management of resources
- 6) **Monitor and evaluate plans**- to provide an impact on the initiatives
- 7) **Plan for planning**- to ensure adequate resources for planning are retained and developed.

The above planning considerations and capabilities can be mapped against the actual process that takes place within a primary care trust. Other considerations that would be required to be taken into account include costs of repairs to existing facilities, provision of care closer to home, investment required to upgrade sites, investment decisions based on clinical quality, local need, health inequalities, risk, local health and priority access. There are a number of barriers to moving resources, including the significant amount of resources tied up in secondary care and the need to maintain hospital services during periods of change. Shifting the balance of care has significant implications on the planning process for example; reconfiguring services may imply additional combined use of facilities with other public bodies as services move into the community. The NHS faces considerable challenges in progressing these changes. Can ICT tools assist in the planning process and aid in dealing with change? The following section discusses this issue further.

5. Innovation within the NHS

The NHS's performance in taking up and spreading innovations and existing best practice is variable (Barlow et al., 2008). According to Barlow the key challenges include 'NHS organisations' capacity and receptiveness for innovation, the lack of long-term strategic thinking, fragmentation between healthcare organisations, professional and cultural silos and the funding system'. In order to reduce costs and increase the potential advantages it is imperative that evidence-informed design goals and approaches be included early in the process of facility programming and design

(Ulrich, 2000). Evidence based planning with supportive ICT tools can affect the internal configuration and overall design of the facility. The 2007 Comprehensive Spending Review (CSR) linked variations in NHS productivity to variable practice and technology uptake. It stated that “reducing such unnecessary variation could potentially generate net cash savings of £1.5 billion per year by 2010-11” (Barlow et al., 2008).

Simulation and modelling tools are being used to develop virtual health systems which would enable a planner to test new models of care in a hypothetical context. Such tools can also evaluate the potential impact of changes in population, demand and burden of disease (Sellers and Hankey, 2008). These tools also help illustrate the impact of service changes on the available options or models of care. There are a number of off the shelf simulation packages, which have been used by parts of the NHS to test future service changes, model the impact of disease outbreaks or to forecast the impact of population growth, e.g. SIMUL8, GoldSim, Powerism and Scenario Generator (NHS Institute of Innovation and Improvement, 2008). Another such tool called ‘SHAPE’ was developed by the Department of Health and will be studied as a part of this research. The adoption of innovations in ICT is underpinned by a vast literature on technology transfer which is beyond the scope of this paper, but could be the subject of further research.

5.1 SHAPE

SHAPE is a NHS web based benchmarking software. SHAPE stands for ‘Strategic Health Assets and Performance Evaluation’; it allows providers and commissioners to compare costs and activity by condition, to look at length of stay, day surgery and outpatient rates. The software can be used to identify future services and asset requirements. The system is also linked to a geographical information system, allowing comparison between the various demographic trends of the local population. It can be used to test whether different service configurations could be improved performance. The software is pre-loaded with five years of Health Episodes Statistics data (HES), 2001 census demographics and estates information for 99 per cent of health and social care estates, including GP practices and private hospitals (DOH, 2004). SHAPE uses the latest ClearNET data to produce preset reports. These reports show comparative performance against the top ten high impact changes and other performance indicators which enables identification of areas for potential improvement. In addition, there is a module that assesses bed, theatre and clinical equipment and space necessary to meet demand. The strategic analysis component calculates the cost benefit of a health system running at optimal capacity and productivity.

6. Research Methodology:

This section entails the methodology adopted for conducting this research along with suitable data collection techniques employed, giving due consideration to the scope of this research project. A qualitative paradigm is selected for this research as the data collected will chiefly be non-numeric. A case study of a PCT (Primary Care Trust) would be undertaken in order to investigate the intuitive multi agency and multi stream approach to Master Planning/Strategic Asset Management. This will be supported by interviews of key individuals involved in the process, to validate the actual process taking place within the PCT. This will be followed by a desk study of the SHAPE tool to understand the capabilities and application of it. The final piece of

this research would be to validate and trail the SHAPE tool against a real life service and estates reconfiguration.

7. Conclusion and Further Research:

The challenges in today's healthcare environment have placed pressure on PCTs to develop better planning systems. The structure of healthcare delivery is changing and PCTs are now adopting an integrated/service reconfiguration approach. Although traditional forms of planning focus on internal factors of administration there is a growing need to incorporate other sophisticated systems to support the planning process. As part of this research a comprehensive information flow model of this process is being developed to help planners manage the complexity and understand and optimise the iterative design process. What this depicts is that Master Planning and Strategic Asset Management are closely interlinked and that multiple stakeholders from different organisations and agencies must work cooperatively in the strategic and tactical decision making. This model will also depict that various infrastructure decisions will be driven by different planning evidence gathered by numerous activities and stakeholders in what is a very complex and interrelated system, process mapping is a tool that has been identified as a key tool in understanding and driving system improvement.

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