Assets in action

AN ASSET MANAGEMENT GUIDE FOR NON-TECHNICAL MANAGERS

NHS Estates

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Asset management is important in terms of both reducing the costs associated with assets and maximising the quality of services that those assets are used to produce. An attractive and well-maintained environment also makes an important contribution to the well-being of patients.

Executive summary

Asset management is a systematic approach to ensuring that the asset base of your organisation directly supports business objectives, and that the life-cycle costs of holding assets are minimised for any given service level. It is about meeting users' needs and quality standards, and achieving best value. **It should not be the sole preserve of technical specialists, but a major area of resource with which general managers should concern themselves.**

The main driving forces for an increased focus on asset management within the NHS are:

- recognition that the quality of the physical environment plays a key role in the well-being and recovery of patients;
- recognition that better asset management offers considerable potential for cost savings, which can release resources for other uses.

Asset management should form part of your organisation's planning process together with management of staff, finance, IT and other resources needed to deliver service objectives. This should be formalised in a written estate strategy.

Whatever your organisation's structure, every asset should have an "owner", with specific responsibility for the asset's operation and maintenance throughout its life. There should be mechanisms in place for managers to be actively involved in agreeing the appropriate budget allocation to maintain their assets at a properly functioning level. There should also be procedures for regularly assessing the productivity and opportunity costs of each asset.

As well as "hard data" from performance indicators, you should use data from consumer surveys, personal observation and discussions with clinical staff, in order to measure the performance of your assets.

Assets can be valued using a number of different methods, depending on asset type, but always at current cost. The most common method of valuation is depreciated replacement cost. Land and buildings in operational use for which market comparisons are available are valued on the basis of market value for existing use. All assets are indexed every year, and land and buildings are re-valued periodically.

An understanding of the full life-cycle costs of assets is critical to minimising costs and to making effective investment, maintenance and replacement decisions. Assets incur both capital charges and a variety of running costs.

Capital charges comprise depreciation and interest charges. They represent respectively the cost of "using up" the asset and the opportunity cost of tying up capital in the asset. On average, they represent over half the revenue cost of land and building assets.

Asset utilisation is a major cost driver. There is an optimum level of use where unit costs are minimised. Understanding the pattern of use and the variables that influence it is essential in order to make improvements. The involvement of clinicians is critical in understanding asset use.

The full cost of purchasing and maintaining assets must be recovered through income received.

The management of medical equipment is an increasingly important aspect of asset management and needs to be co-ordinated under one department. A future option for management of this service is total outsourcing, which may lead to more clearly defined outputs and improved cost control.

Good asset information is critical to proper asset management. The main source of asset information is your asset register, held by your estates department. The benefits of a good register are:

- access to a real time information system covering all your assets;
- the provision of a firm baseline for improved asset management;
- the capacity for a better planned replacement programme for your assets;
- the opportunity for greater inter-trust comparisons and improved performance indicators.

Asset registers vary and are not always in user-friendly form for non-specialist managers. It is important to discuss with your estates manager a format suited to your needs.

There needs to be a clear process in place for keeping the register up to date. Clinical and other asset users are a vital source of qualitative information on inefficiencies in asset use. Asset register data can be linked to property appraisal and cost data and mapped onto site plans to improve your ability to manage assets actively.

This manual provides departmental and general managers with the necessary information, tools and techniques to improve asset management. For ease of use, it has been divided into four sections:

- the managerial and organisational context;
- basic building blocks – asset costs and information sources;
- tools and techniques for effective asset management;
- measuring performance.

A series of questions – under the heading "Activity" – offers a useful exercise to help readers apply the knowledge outlined in preceding sections.

This guidance builds on and replaces the original 'Assets in action', which was commissioned by the Performance Management Directorate of the NHS Management Executive in 1993.

Important note

This publication is subject to amendment from time to time. Please refer to the version published on our website (http://www.nhsestates.gov.uk), which will be updated as and when required.

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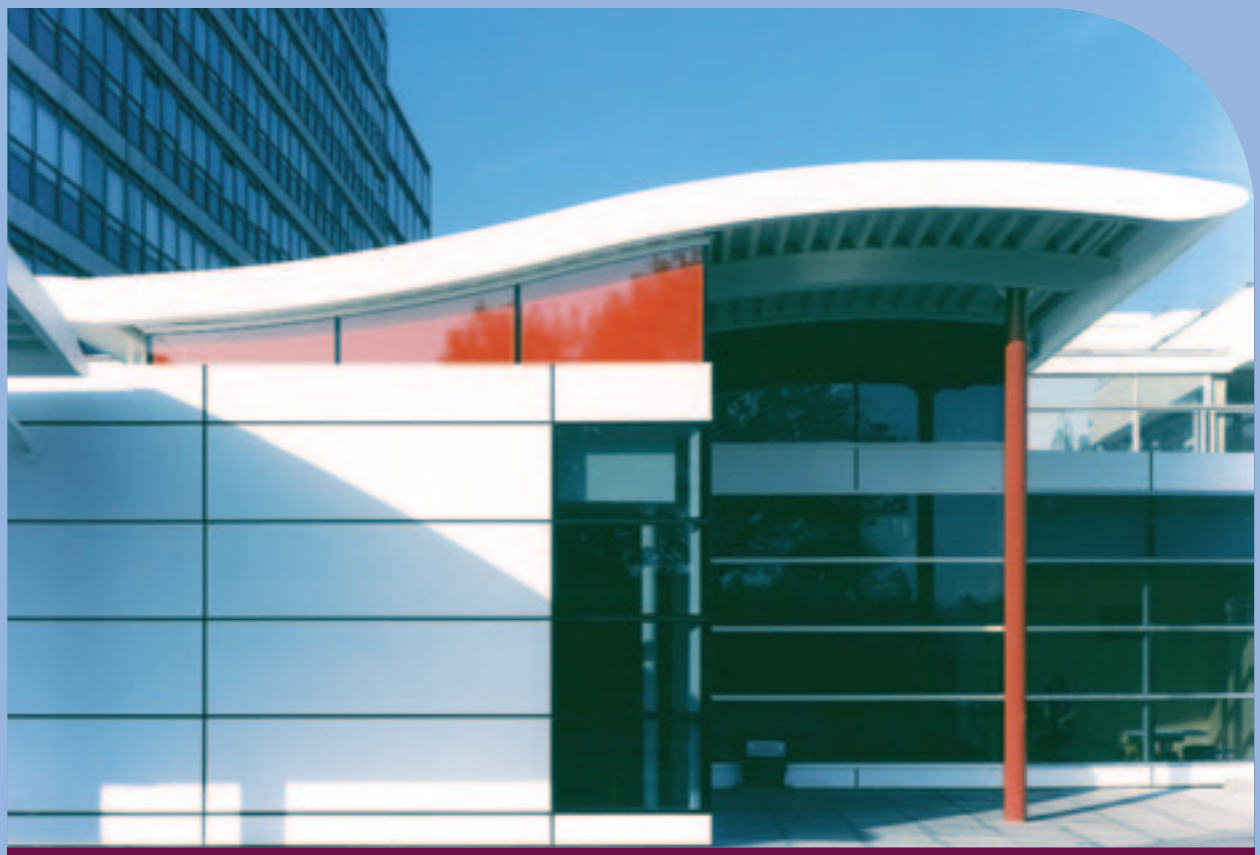
Contents



Using this manual

Using this manual

Who is this manual for?

This manual has been written for general and departmental managers who have responsibility for assets, whether at strategic or operational level. This includes:

- chief executives of NHS and Primary Care Trusts;
- trust board directors/members;
- clinical directors/business unit managers;
- departmental managers;
- support function managers.

It is not primarily intended for estates professionals. However, they may find it useful as a guide to the level and type of support they should be providing to line managers.

Purpose of this manual

This manual is intended to help you to:

- understand the role that asset management plays in supporting service and business objectives and in improving patient care;
- identify the main asset management issues with which you should be concerned;
- identify what support and information you should be seeking from other members of your management team, such as estates and facilities managers and finance staff;
- acquire the necessary tools and techniques for addressing asset management issues;
- develop ideas about the innovative use of assets and challenge assumptions about the need for investment and service change.

The manual is intended to be a practical introduction to the subject. It has been designed for you to study at your own pace and to concentrate on those sections that are most relevant to you. It is intended to complement, rather than duplicate, other manuals and training material that already exist but have been produced for a more specialist audience.

Figure 1

SELF-ASSESSMENT QUESTIONNAIRE

	Yes	No
For major pieces of equipment and facilities for which I am responsible:		
• I know the level of utilisation required to cover the full cost of the equipment/facility		
• I know the level of utilisation required to minimise the unit cost		
• I know how extending the life of the equipment will change the capital charge related to it		
• I understand how to apply the principle of life-cycle costing in investment appraisal decisions		
For the buildings and space for which I am responsible:		
• I know how the performance of my department in terms of space utilisation has changed over the last two years		
• I know what percentage of my total space use is surplus to capacity		
• I have identified the priority building enhancement which would support my service objectives		
• I have identified any potential for new developments or increases in activity		
For all assets for which I am responsible:		
• I obtain regular information, in a meaningful format, from the asset register		
• I provide input to the estates strategy of my trust		
• I have identified the most relevant performance measures for my assets and have a system for regularly collecting the necessary data		

The self-assessment questionnaire (Figure 1) indicates the key issues that this manual should help you to address. Unless you can answer “yes” to all these questions, this manual will be of benefit to you.

Figure 2

USING THIS MANUAL

Which sections are *most* relevant to which types of manager?

	Paragraphs	
CHIEF EXECUTIVES/ BOARD DIRECTORS	1.1–1.48	The managerial and organisational context
	2.47–2.84	Information sources
	3.4–3.19	Matching assets to patient needs
	3.20–3.25	Developing flexible assets
	3.26–3.31	Space utilisation
	3.55–3.64	Risk management
	3.65–3.73	New asset investment
	3.74–3.76	ProCure 21
	4.1–4.19	Measuring performance
CLINICAL DIRECTORS/ BUSINESS UNIT MANAGERS	1.1–1.48	The managerial and organisational context
	2.4–2.46	Asset costs
	3.4–3.19	Matching assets to patient needs
	3.20–3.25	Developing flexible assets
	3.26–3.31	Space utilisation
	3.32–3.47	Asset utilisation
	3.48–3.54	Maintenance and replacement decisions
	3.55–3.64	Risk management
	3.65–3.73	New asset investment
	3.77–3.89	Management of medical equipment
	4.1–4.19	Measuring performance
SUPPORT FUNCTION MANAGERS	1.1–1.48	The managerial and organisational context
	2.4–2.46	Asset costs
	3.20–3.25	Developing flexible assets
	3.26–3.31	Space utilisation
	3.32–3.47	Asset utilisation
	3.48–3.54	Maintenance and replacement decisions
	4.1–4.19	Measuring performance

Figure 3

USING THIS MANUAL

Which sections are *most* relevant to which types of management activity?

	Paragraphs	
BUSINESS/SERVICE PLANNING	1.1–1.48	The managerial and organisational context
	2.47–2.84	Information sources
	3.4–3.19	Matching assets to patient needs
	3.20–3.25	Developing flexible assets
	3.26–3.31	Space utilisation
	3.32–3.47	Asset utilisation
	3.48–3.54	Maintenance and replacement decisions
	3.55–3.64	Risk management
	3.65–3.73	New asset investment
	4.1–4.19	Measuring performance
BUDGET REDUCTION/ EFFICIENCY REVIEW	2.4–2.84	Asset costs and information sources
	3.26–3.31	Space utilisation
	3.32–3.47	Asset utilisation
	3.48–3.54	Maintenance and replacement decisions
	3.77–3.89	Management of medical equipment
NEW ASSET INVESTMENT	3.4–3.19	Matching assets to patient needs
	3.20–3.25	Developing flexible assets
	3.26–3.31	Space utilisation
	3.65–3.73	New asset investment
	4.1–4.19	Measuring performance

Figures 2 and 3 indicate which sections are most relevant to different management roles.

Introduction

What is asset management?

Asset management is about managing physical assets – land, buildings and equipment – in a way that directly supports the service objectives of your organisation. Specifically, it is a systematic approach to ensure that only those physical assets that most effectively support service and business objectives are acquired and maintained; and that the total costs of assets over their whole life, from acquisition through to final disposal, are minimised for any given level of service. This is summarised in Figure 4.

In the past asset management has focused on:

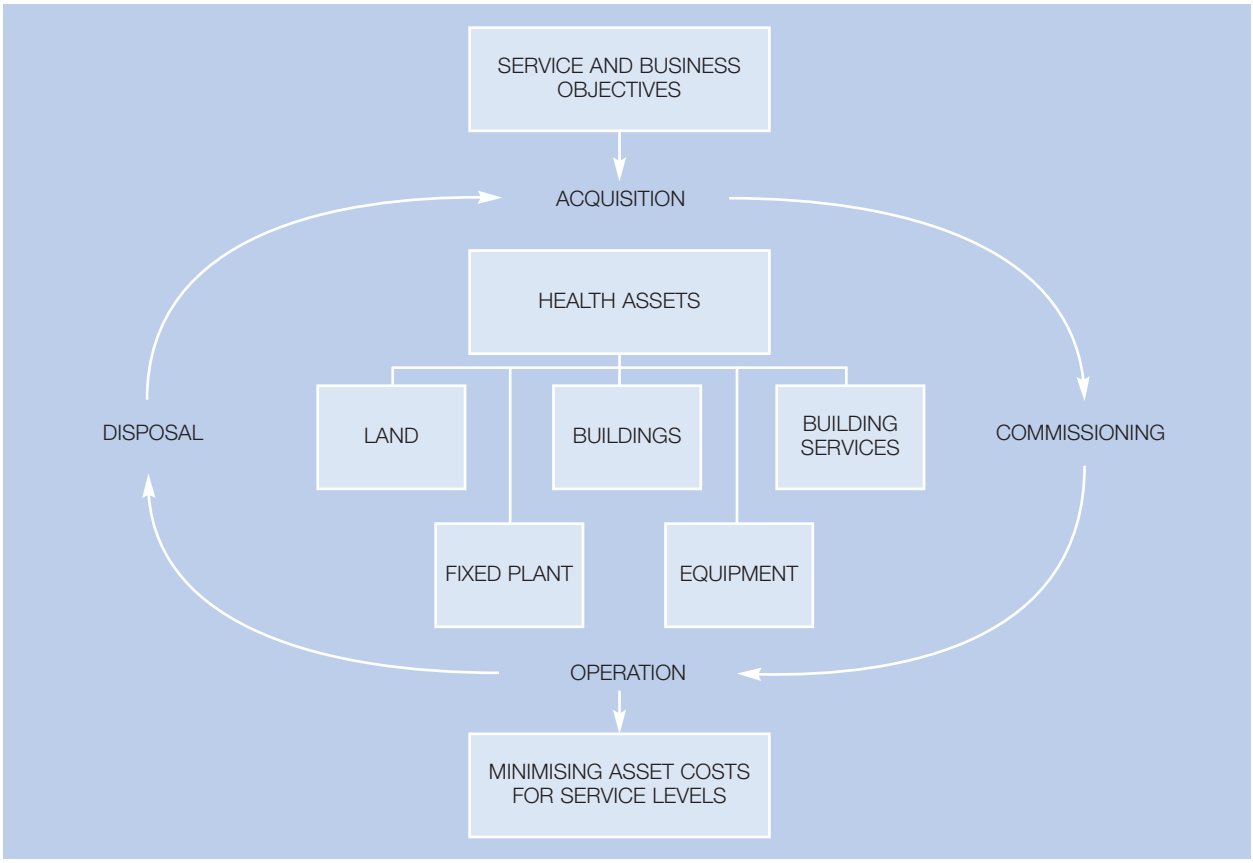
- capital schemes for new buildings;
- procurement and support of major pieces of electro-medical equipment;
- operational management and maintenance of existing assets.

This manual seeks to move away from a view of asset management as the preserve of technical specialists and to place it firmly on the general management agenda. It presents a framework for asset management encompassing:

- user needs;
- quality standards;
- best value.

This manual seeks to show the interaction between different aspects of asset management, and the complementary roles that managers and specialists have to play.

Figure 4 Asset management should be driven by business and service objectives



Why is asset management important?

Asset management is important in terms of both reducing the costs associated with assets and maximising the quality of services that those assets are used to produce.

The value of capital assets currently held by the NHS is £23bn (current use value), while the cost of replacing them with good modern assets is £72bn.

The cost of holding existing assets is also considerable and includes:

- the cost of capital associated with these assets – approximately £2bn;
- running costs – energy, cleaning, maintenance, rent and council tax – approximately £1.8bn;
- the cost of backlog maintenance work – approximately £3.1bn.

The estate overhead (or occupancy cost) of an average NHS trust is typically 20% of its revenue budget. More efficient asset management can, therefore, release considerable resources.

In addition it is now recognised that an attractive and well-maintained physical environment makes an important contribution to the well-being of patients.

The risks of not paying sufficient attention to asset management are:

Excessive costs because of high capital charges

Capital charges are usually the biggest cost element of any asset. The full cost of capital charges needs to be recovered from commissioners through service level agreements. Providers with high capital costs will face questions and consequent pressure from commissioning Primary Care Trusts to adjust their cost base over time.

Inadequate service quality

Assets that are not well matched to service needs, in terms of quality or functional capabilities, will reduce the quality of service being offered.

Excessive costs because of poor asset utilisation

Assets that are under-used have high unit costs, which will reduce the volume of service that can be purchased.

Legal accountability for assets

Chief executives are formally accountable for the assets of their trusts and can now be subject to criminal prosecution for failure to maintain assets to acceptable safety and environmental standards.

As well as the "stick" provided by these negative incentives, there is also the "carrot" of very positive benefits to be gained. Some examples are given in Figure 5.

Figure 5

EXAMPLES OF BENEFITS FROM EFFECTIVE ASSET MANAGEMENT

- Land use

  Sales of surplus land yield large sums for reinvestment

- Space utilisation

  One space utilisation project reduced the cost of a new build project from £115m to £83.5m

- Equipment utilisation

  Studies of operating theatre use have shown that making better use of operating theatre facilities throughout the NHS could provide for an additional 11,000 operations

- Matching assets to patient needs

  An ambulatory care centre has proven benefits for patients and the cost per investigation or treatment can be 10–20% cheaper than in traditional facilities, depending on specialty

All these factors are increasingly forcing asset management to the top of the NHS management agenda.

The primary care dimension

Figure 6 (overleaf) provides a checklist of the asset management issues that need to be considered at primary care level.

Figure 6

PRIMARY CARE – ASSET MANAGEMENT CHECKLIST

Organisation	• Is there someone with asset management responsibility at PCT board or executive level?
	• Who is leading on the primary care investment plan?
	• Are premises, equipment, IT and vehicles included in the plan?
	• Does your maintenance service cover all the above?
Information	• Do you have access to the current guidance on the primary care estate?
	• Does someone in your organisation understand the "red book" (GMS terms and conditions)?
	• Do you have a comprehensive register of your assets (both owned and leased)?
	• Does this include the GP-owned estate?
	• Has a condition appraisal been carried out on all the estate?
Investment planning	• Are you exploring all the avenues for investment open to you? (Treasury capital, PFI, improvement grants, joint development with local authority, special allocations)
	• Are you aware of the new premises' flexibilities?
	• Are you able to access the Local Improvement Finance Trust (LIFT)?
Strategic change	• Is your investment plan service-led?
	• Can you use the estate appraisal data to challenge existing patterns of working, and to make your asset base more productive?
	• Have you explored joint ventures or leased space with others, for example local authorities, shopping centre developers?
	• Have you considered mobile service delivery units, particularly for rural areas?

Section 1 The managerial and organisational context

1.0 The managerial and organisational context

INTRODUCTION

1.1 The objectives of this section are:

- to help you assess how asset management could be linked more effectively into overall planning and resource management;
- to explore alternative organisational arrangements for asset management, and to help you to relate this to your organisation.

1.2 Topics covered in this section are:

- developing an estate strategy linked to the service objectives of your organisation;
- the main types of managerial decisions that relate to assets at different levels in your organisation;
- key principles of the asset management process, including asset accountability;
- organisational frameworks and models for asset management.

THE MANAGERIAL CONTEXT

The NHS Plan

1.3 The NHS Plan, issued in mid-2000, gave new emphasis to the importance of the physical environment within which care is delivered to patients. It announced specific objectives in terms of additional acute and intermediate care beds, diagnostic and treatment centres, one-stop primary care centres, and a range of new medical and bedside equipment. A clean hospital programme was launched, as well as targets for a reduction in the age of the NHS estate, and in the maintenance backlog.

1.4 Mechanisms to achieve these objectives included an extended role for the Private Finance Initiative (PFI) and the creation of a new investment vehicle for primary care called the NHS Local Improvement Finance Trust (LIFT), as well as additional Treasury capital allocations.

1.5 Achieving this ambitious programme will require well-resourced estates departments, good working relationships between estates managers and operational directors, and good planning and project management skills.

Rethinking construction

1.6 Sir John Egan's 1998 report 'Rethinking Construction', which argued the possibility of reducing capital costs, construction times and defects while enhancing profitability for the construction industry, led to a government-wide initiative called 'Achieving Excellence'. NHS Estates responded to this, in conjunction with HM Treasury, through its policy document 'Sold on Health' published in 2000. The report sets out an ambitious disposal programme for surplus NHS land and buildings. It also creates an agenda for smarter capital procurement, badged as 'ProCure 21', by promoting:

- the development of long-term framework agreements between the NHS and private sector partners;
- the use of high quality designs;
- improved project management, thereby enabling the NHS to act as best client;
- improved performance management and the use of benchmarking.

Controls assurance

1.7 The controls assurance programme was launched in 1998 to ensure that NHS trusts put in place systems to assess and control all the main corporate and non-clinical risks that they face. A set of standards was developed for non-clinical risks against which every trust is required to carry out a self-assessment and report the results to their board. The standards and the consequent actions are set out in Figure 7 (see overleaf, based on work done by Milton Keynes General NHS Trust).

Figure 7

CONTROLS ASSURANCE REPORT

	STANDARDS	Initial and periodic status review	Commitment and policy	Organisation	Planning	Implementation	Monitoring and corrective action	Internal audit	Management review	External verification
	CORE STANDARDS									
1	Risk management strategy & system									
	STANDARDS FOR KEY NON-CLINICAL, NON-FINANCIAL RISK AREAS									
2	Buildings, plant and equipment									
3	Catering and food hygiene									
4	Contracts and control of contractors									
5	Emergency preparedness									
6	Environmental management									
7	Fire safety									
8	Health and safety management									
9	Human resources									
10	Infection control									
11	Information management & technology									
12	Medical devices management									
13	Medicines management									
14	Professional and product liability									
15	Records management									
16	Security									
17	Transport									
18	Waste management									
19	Decontamination									

KEY

•Substantive compliance
#Partial compliance
¶Substantive non-compliance
N/A Not applicable

All the above are likely to form key policy deliverables that will dominate the asset management agenda over the next few years.

Asset management and service development

1.8 Ensuring that you only have the assets you need to deliver your service objectives is not only about rationalising existing assets. It is also concerned with looking to the future and identifying new service opportunities and the assets needed to support them.

1.9 Minimising asset costs does not necessarily mean having only the cheapest assets. The cost of assets needs to be considered in the context of the quality of service required, and costs need to be assessed over the whole life cycle of the asset, including maintenance costs and resale value, and not just on the basis of the purchase cost. (Life-cycle costs are examined in more detail in Section 2.0.)

1.10 For example, a more expensive piece of equipment, or more expensive finishes in a new building, might have lower annual maintenance costs. Higher quality does not necessarily mean higher cost overall. Alternatively, an asset that allows the automation of laboratory testing activities might increase the accuracy of test results and reduce staff costs.

1.11 Determining the asset profile that provides the best value for money in supporting service requirements should be an integral part of business planning. Asset planning involves a constant review of four sets of issues:

- functional suitability;
- running costs;
- utilisation;
- capital costs.

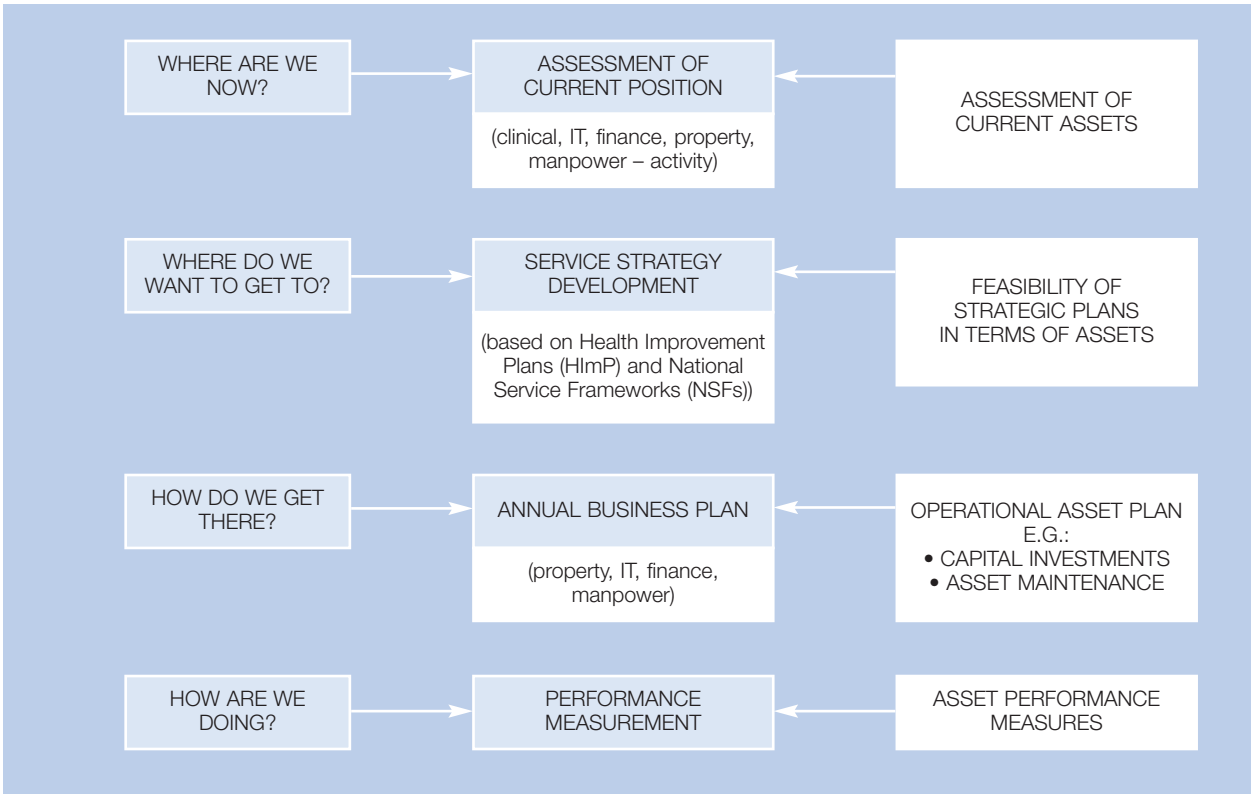
1.12 Figure 8 shows a typical service planning process, and how asset planning fits into the process.

Asset-related management decisions

1.13 The asset planning process (see Figure 8) applies equally at board level or at the level of a clinical directorate. The main difference lies in the scale of activity and resources examined. For example:

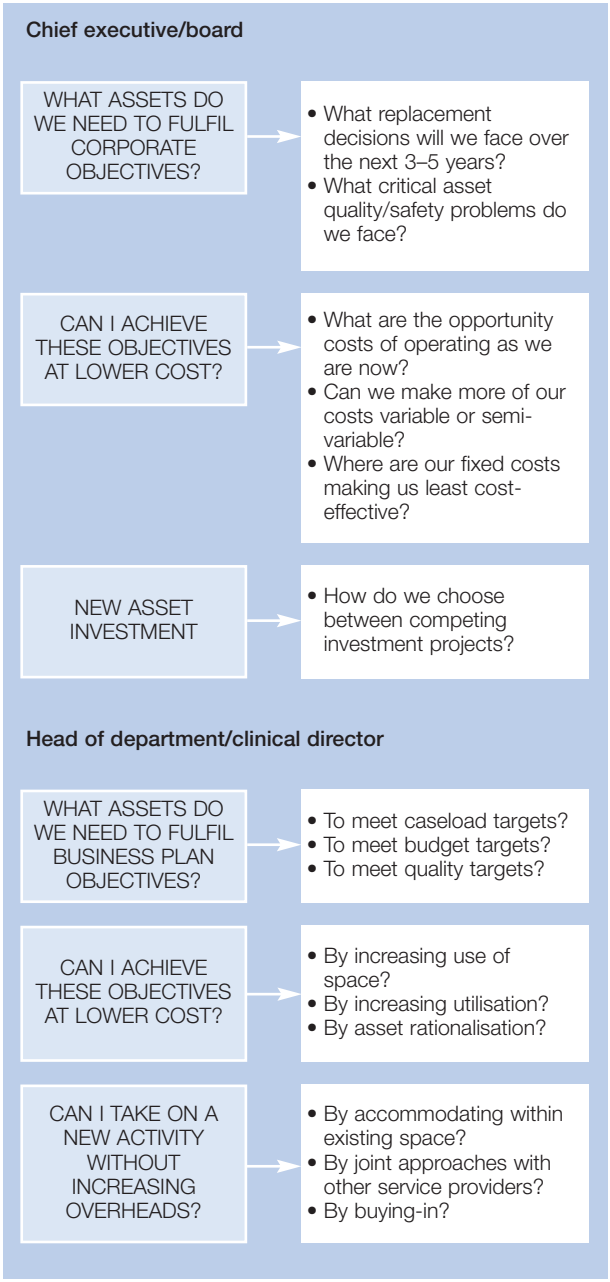
- corporate management might examine opportunities for large-scale asset rationalisation or development, such as merging several departments within one building, or refocusing hospital services, or transferring facilities from hospital to community settings;
- a clinical director might examine the scope for reorganising the layout of a particular department, for improving the utilisation of major pieces of equipment, or for optimising the maintenance and replacement schedule of a particular piece of equipment.

Figure 8 Service planning model



1.14 Examples of the types of asset-related decisions that are likely to be most relevant at different management levels are illustrated in Figure 9.

Figure 9 Key asset-related managerial decisions



What should an asset plan look like?

1.15 The existence of a comprehensive estate strategy in line with a service strategy is now a prerequisite to approval of capital allocations to NHS trusts.

1.16 'Developing an estate strategy', issued by NHS Estates in 1999, adopts the service planning model described in Figure 8. This begins with the gathering of accurate and detailed information about the current state of your assets and their utilisation. The appraisal process outlined in 'Developing an estate strategy' has since been replaced with the "six facet survey" (see Estatecode for further details), which collects data about:

- physical condition;
- functional suitability;
- space utilisation;
- quality;
- fire and health & safety requirements;
- environmental management.

1.17 This baseline information provides a dynamic picture of the current condition of your estate and informs investment decisions today to ensure that your estate is brought up to and maintained to acceptable standards.

1.18 An example of the output of such a survey is shown in Figure 10 (overleaf). This sets out the survey results for "Physical Condition" for part of Poole Hospital taken from its 'Estate Strategy 2000-2005', and shows how an overall picture is built up from detailed scores.

1.19 From this a summary of the issues that need to be addressed in the estate strategy can be drawn up (illustrated in Figure 11, page 15).

1.20 Outputs from the development of an estate strategy will include:

- greater awareness across the organisation of the important role that the estate plays in enabling service objectives to be delivered and patient care to be improved;
- a capital investment programme that sets out the sums required each year to meet the priority areas of need;
- a plan for change that enables progress towards goals to be measured;
- a commitment to comply with environmental and risk management requirements.

1.21 An example of a summary cash flow statement from the capital investment programme is set out in Figure 12 (page 15).

Figure 10

SURVEY RESULTS – PHYSICAL CONDITION

Block	Function	Floor	Rating				sq m	Overall block rating
			Building	Mechanical	Electrical	Average		
Block A	Support services	Basement	B/C	B	B	B	1401.26	B
	Wards	Ground	A/B	B	B	B	1089.97	
	Wards	1st	A/B	B	B	B	1067.66	
	Wards	2nd	A/B	B	B	B	1003.96	
	Wards	3rd	A/B	B	B	B	979.40	
	Wards	4th	A/B	B	B	B	986.55	
	Wards	5th	A/B	B	B	B	985.36	
	Residences	6th	A/B	B	B	B	582.92	
	Roof	Roof	B/C	–	–	B	–	
Block B	Engineering plant	Basement	B	B/C	B	B	2079.81	C
	Kitchen	Lower ground	C	C	C	C	2110.83	
	Ward	1st	B	B	B	B	814.07	
	Ward	2nd	C	C	C	C	846.38	
	Ward	3rd	C	C	C	C	853.44	
	Ward	4th	C	C	C	C	909.09	
	Ward	5th	C	C	C	C	927.14	
	Residences	6th	A/B	B	B	B	597.30	
	Roof	Roof	B/C	–	–	C	–	
Block C	Nuclear medicine/ ultrasound	Lower ground	B	B	B	B	1136.71	B
	A&E	Ground	B	B	B	B	1146.60	
	Ward/administration	1st	B	B	B	B	982.44	
	Ward	2nd	B	B	B	B	636.08	
	Ward	3rd	B	B	B	B	992.75	
	Roof	–	B	–	–	B	–	
Block D	SDU	Basement	C	C	C	C	708.23	C
	Ward	Ground	B/C	C	C	C	815.44	
	EBME/neurophysics	1st	B	C	C	B	755.27	
	Roof	–	B/C	C	C	C	129.27	

Figure 11

SUMMARY OF ISSUES TO BE ADDRESSED IN THE ESTATE STRATEGY

Block B: lower ground: kitchens	• Flooring and wall coverings need replacement • Refrigerators need upgrading • Pot wash needs re-siting • Ventilation poor • Overall layout fails to meet good practice for function
Block B: wards	• Windows and suspended ceilings need replacement throughout • Some sanitary facilities need improvement • Wards do not meet guidance on mixed sex accommodation • Poor heating and ventilation
Block D	• Sterilizing/disinfecting unit – plant needs replacement • Neurology/dermatology/ rheumatology ward – needs overall redesign and redecoration • Air-conditioning plant on roof needs replacement • Environmental controls throughout block in need of replacement

THE ORGANISATIONAL CONTEXT

Principles of asset management

1.22 There are a number of key principles that should govern organisational arrangements for managing assets:

- Ownership

  Every asset should have an identifiable owner who is responsible for it.

- Accountability

  The asset owner should be accountable for asset performance and costs.

- Information

  Asset information should be usable by both general and technical managers.

- Advice

  Technical advice should be available to managers from estates specialists.

- Management input

  Managerial time at all levels should be allocated to asset management.

Responsibilities of key managers

1.23 A key principle of asset management is that every asset should be owned by a person in the organisation.

Figure 12

BLOCK CAPITAL: OUTLINE CASH FLOW

Category	Year 1 £m	Year 2 £m	Year 3 £m	Year 4 £m	Year 5 £m
Ward improvements (eg HDU, Tyneham, D1, B and C block if no major capital)	0.5	0.5	0.5	0.5	0.5
Plant replacement (switchgear, air-conditioning, generators etc)	0.3	0.3	0.3	0.3	0.3
Building/external refurbishment (roofs, carpets, windows, roadways etc)	0.3	0.3	0.3	0.3	0.3
Departmental upgrading (eg pharmacy, X-ray, offices)	0.4	0.4	0.4	0.4	0.4
Support service refurbishment (eg lower ground areas, non-medical equipment, telecommunications)	0.3	0.3	0.3	0.3	0.3
Medical and IM&T equipment	0.5	0.5	0.5	0.5	0.5
Contingency	0.2	0.2	0.2	0.2	0.2
TOTAL	2.5	2.5	2.5	2.5	2.5

Reports on asset management in the 1980s and 1990s found that one of the reasons for the poor state of assets within the NHS has been the absence of any real sense of ownership by managers.

1.24 The responsibility for conducting the different types of asset review will fall on different managers (as shown in Figure 13).

1.25 The contribution that each of the key players make to this process will differ, but all need to ensure that the asset base of their organisation is both fit for purpose and is generating as low an overhead cost as possible.

The chief executive

1.26 Your chief executive must take ultimate responsibility for the cost and quality of the assets of your organisation. Together with the board, your chief executive should ensure that the appropriate questions are asked and decisions made.

Service managers

1.27 Heads of departments, clinical directors and business managers are the key middle managers in your organisation. They are responsible for the effective and efficient day-to-day management of assets, and hold the budgets for defined parts of your organisation.

Estates and facilities manager and finance manager

1.28 These are both specialist advisors and deliverers of services. The estates and facilities manager is the person who is able to draw on information about your estate (using the skills of estates staff) to ensure that assets are maintained in an appropriate order. This person also provides information and advice to line managers. The finance manager should provide financial information and advice on assets to managers on a regular basis. The level and type of information that should be provided is considered in detail in Section 2.0.

Organisational models

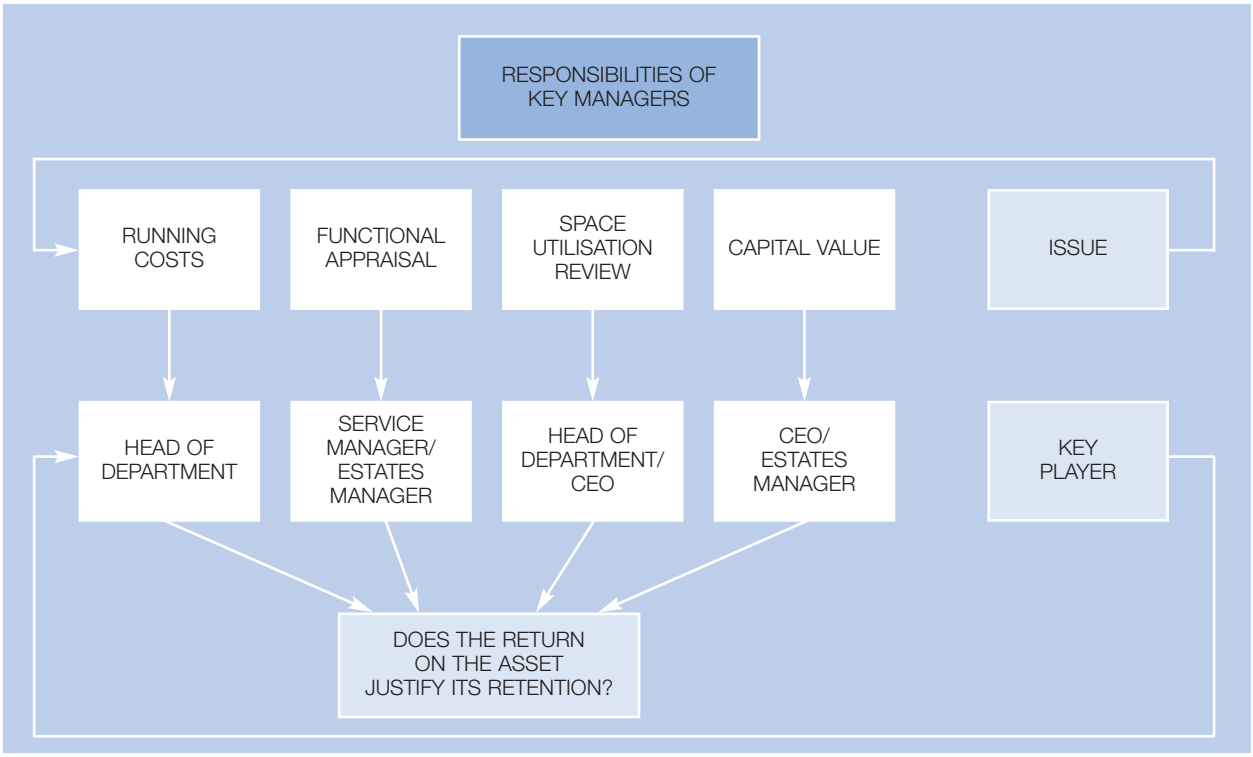
1.29 Your chief executive should delegate overall responsibility for the day-to-day management of assets to line managers. There are three possible models for doing this:

- delegation to line managers;
- functional management;
- outsourcing.

Model one – Full delegation to line managers

1.30 This model of asset management places full operational and financial responsibility for assets in a defined part of the organisation with a line manager. The line manager is given a budget to purchase maintenance services. These services are specified in asset maintenance agreements drawn up between the manager and the estates manager (or the supplies department), and are then delivered either through a direct labour force or through external contracts.

Figure 13



1.31 The estates manager acts as the "informed client" for purchasing asset management services, ensuring that the line manager receives best value for money, whether through an in-house or out-of-house service.

1.32 Questions relevant to this model include:

- Do your "middle managers" have the time, interest and expertise to enable them to take on such a role?
- Can departments be given clearly defined boundaries, so that all parts of the unit are assigned a manager?
- Who manages the common areas and those not easily linked to one department?
- Is the estates manager able to take the objective role of an "informed client", willing to consider bought-in solutions as well as the option of the direct labour force?

Model two – Functional/facilities management

1.33 In this traditional model, responsibility for asset management is drawn together centrally within the organisation and remains with the estates manager. The chief executive and the estates manager come to an agreement on the quality standards expected, and on the resources available to meet those standards. The estates manager then has responsibility for delivering the required service.

1.34 Decisions about spending priorities are largely determined by the estates manager in the context of the asset plans set out in the organisation's estate strategy and annual business plan. In this model, service or departmental managers have less influence on the way in which money is spent on assets, except through their input to the organisation's business plan.

1.35 Questions relevant to this model are:

- How does this approach tie in to how other budgets are allocated?
- What input can heads of departments have to discussions about the maintenance of their assets?
- How will the performance of the estates department be assessed?

1.36 It has become increasingly common for asset management to be drawn together with a number of other support functions that relate to the physical assets of the organisation – under a facilities management title. These may include domestic, laundry, transport, security and other support services. Management and budgetary responsibility for these services is centralised. The post of facilities manager is usually a higher level post than that of the traditional estates manager, reflecting the importance attached to a holistic view of the physical assets from which care is delivered.

1.37 Additional questions relevant to this model are:

- What is the remit of the facilities manager? Does the facilities manager have the authority to tackle sensitive issues such as the use of space?
- Does the facilities manager have a responsibility to ensure that services are rigorously tested for best value?
- What are the responsibilities of the facilities manager when services are outsourced under a PFI deal?

Model three – Outsourcing

1.38 The third approach is to outsource the asset management function, in whole or in part. This may be considered for one of two reasons: either the trust has signed a PFI deal in which a range of support services are provided by a third party under a service contract based on an output specification; or the trust is too small to justify the permanent overhead cost of an estates function. This is likely to be the case with many of the Primary Care Trusts that are being established.

1.39 In this model the service is bought in under a detailed written contract or service level agreement (SLA). Small organisations may not have an estates professional on their staff and may be reliant on negotiating a robust service agreement with a neighbouring trust's estates department.

1.40 Questions relevant to this model are:

- How much detail should be in the contract or SLA to ensure clarity and compliance?
- What in-house "informed client" function is needed and how can it be obtained?
- How much variation in the type and volume of service provided should be allowed from year-to-year, in order to give choice to the customer but avoid destabilising the provider?

Partnership working

1.41 For a number of reasons it has become necessary to consider capital investment and estate rationalisation on a health system-wide basis. These include:

- the need to review and rationalise acute services often between separate sites, to allow for effective sub-specialisation, to cope with junior doctor accreditation issues, and to meet changing staffing needs;
- the inter-relationship between changes in primary and community services, and secondary care settings.

Pressure to change and expand what can be done at primary care level will have implications on the use of community hospitals, and changing ways of delivering secondary care may depend on community facilities;

- investment in new technologies that may facilitate wider service and financial objectives across organisational boundaries of healthcare (for example telemedicine);
- recognition of the importance of bringing the GP-owned estate into consideration;
- acceptance that the NHS should work in a more collaborative and less competitive way, with priorities for investment in key areas being agreed across rather than just within organisations. This implies both HImP-led (Health Improvement Plans) investment and the possibility of joint development of sites with local authorities.

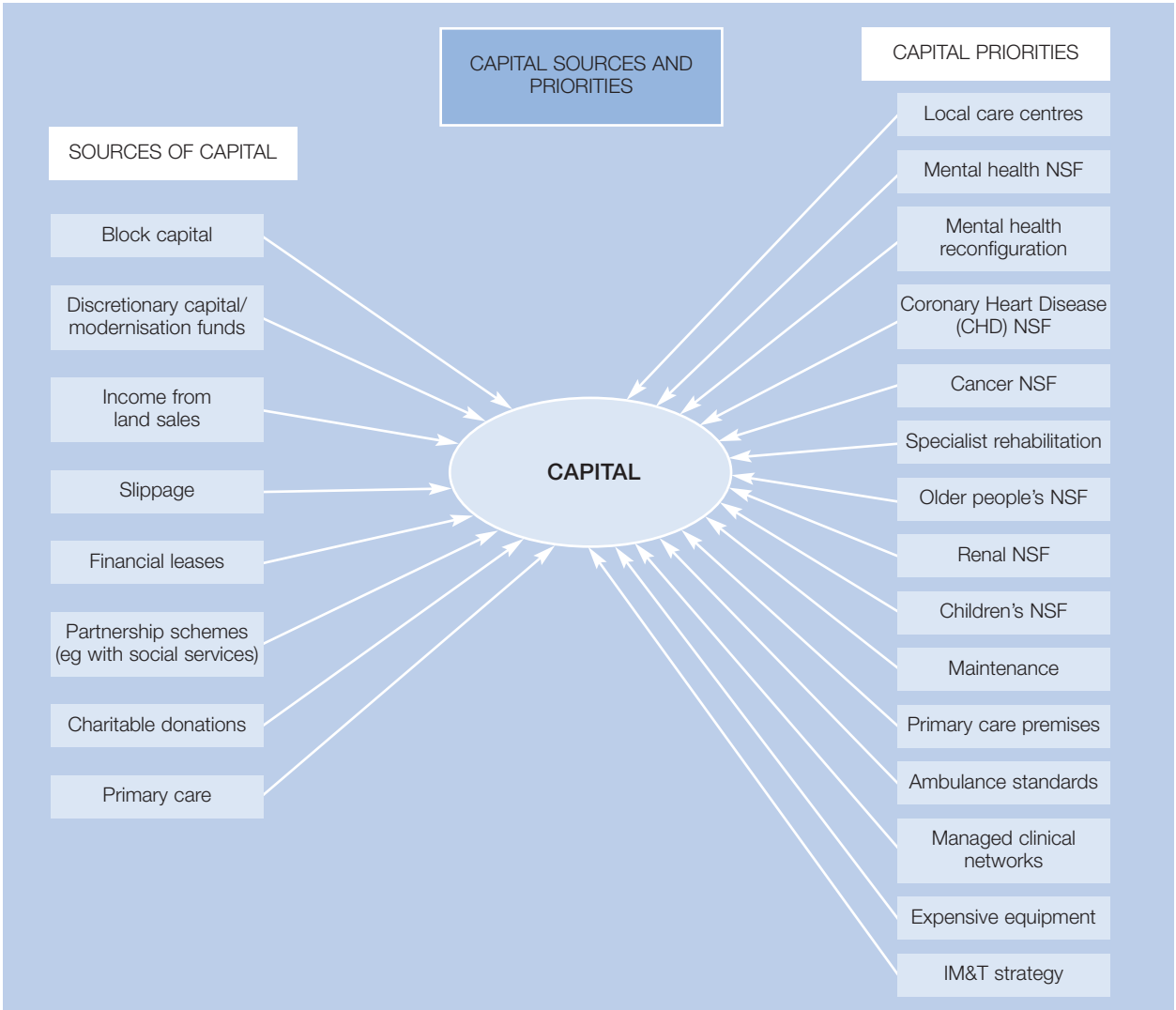
1.42 These factors require NHS organisations to work in partnership with each other, with local authorities and with the private and voluntary sector.

1.43 The process usually involves:

- the establishment of an estates steering group including the NHS and social services;
- pooling information about the extent and condition of the estate, both between NHS trusts and between trusts and social services;
- taking time to understand each others policies, priorities and rules;
- carrying out a performance analysis of the estate, including primary care premises;
- identifying opportunities for sharing sites and space;
- producing a system-wide capital investment programme.

1.44 The range of possible inputs and outputs is shown in Figure 14.

Figure 14



1.45 The benefits of such a partnership approach include developing a strategic vision across related organisations, and offering new opportunities to share space and co-locate services. It could also help to influence town planning policies and to explore issues such as the creation of affordable housing for public sector staff.

1.46 Figure 15 outlines the questions that need to be asked to determine whether capital investment and estate rationalisation on a health system-wide basis is appropriate.

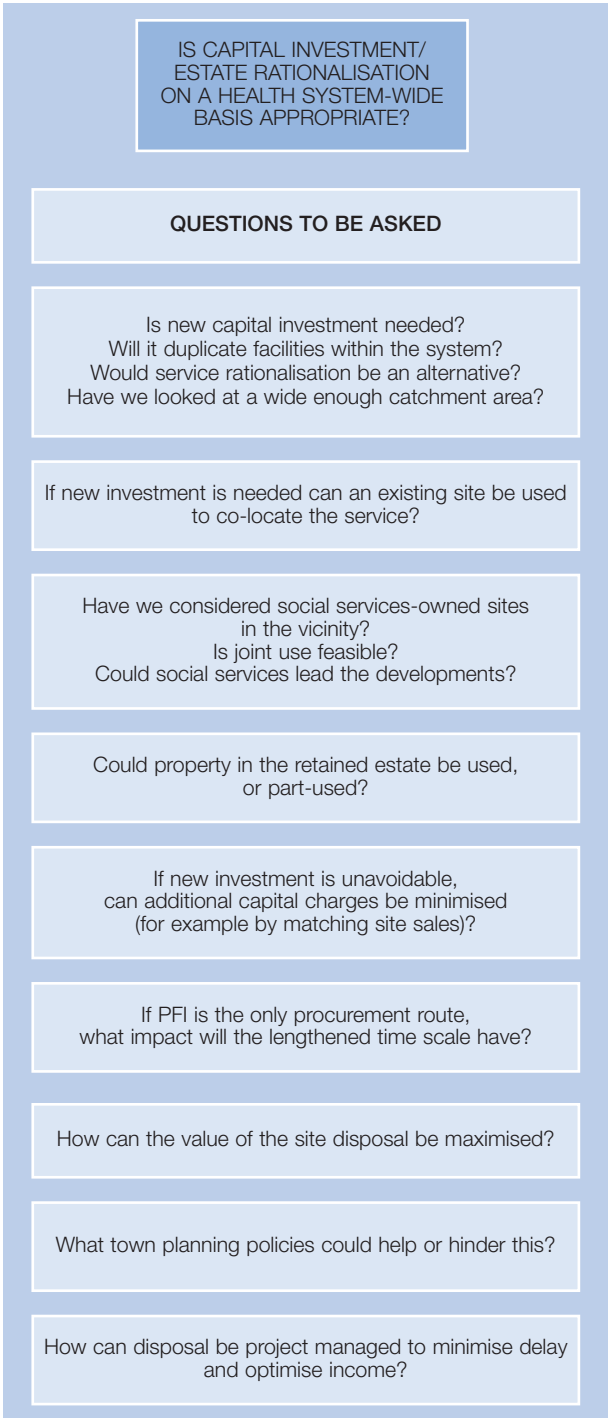
Role of the estates and facilities department

1.47 The estates and facilities department must be able to provide you with the following functions:

- day-to-day maintenance of each site, through directly employed or contracted labour;
- provision of technical services such as fire safety advice, estates information, energy management services, health and safety, sterilizer management, project management, and facilities management.

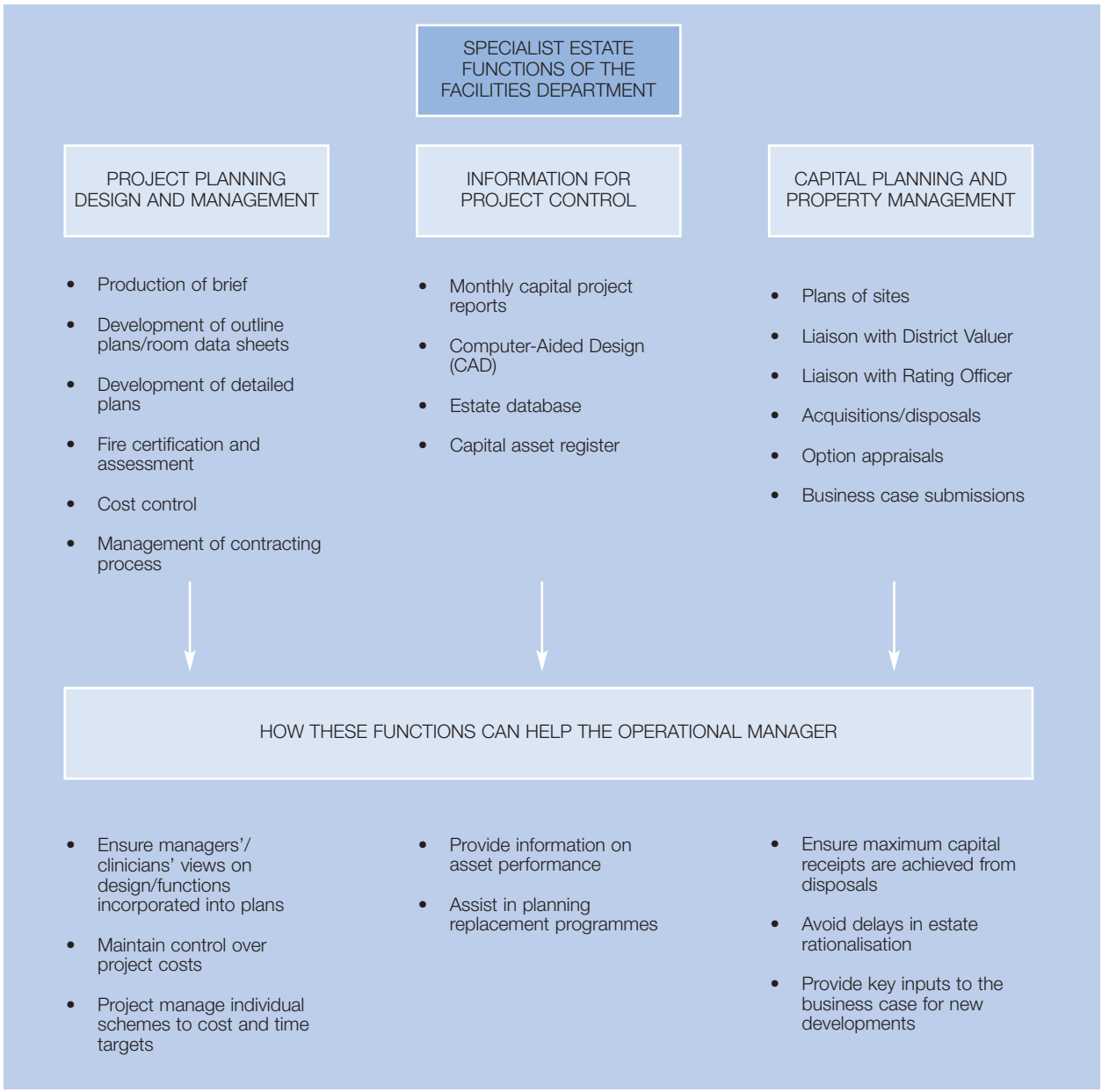
1.48 Not all these services may be present in every estates and facilities department. Some may be bought in as necessary, depending on the size of the trust. However, every trust will need to draw on these functions at some stage and should arrange to access the appropriate service from other sources. Project management and some technical services are functions that are commonly outside the scope of smaller departments. The key components of the more specialist functions, and how these can help the service manager, are shown in Figure 16 (overleaf).

Figure 15



(Note: Acquisition of new sites and disposal of existing sites must follow guidance in the Capital Investment Manual and Estatecode.)

Figure 16


SPECIALIST ESTATE FUNCTIONS OF THE FACILITIES DEPARTMENT
PROJECT PLANNING DESIGN AND MANAGEMENT
INFORMATION FOR PROJECT CONTROL
CAPITAL PLANNING AND PROPERTY MANAGEMENT
• Production of brief
• Development of outline plans/room data sheets
• Development of detailed plans
• Fire certification and assessment
• Cost control
• Management of contracting process
• Monthly capital project reports
• Computer-Aided Design (CAD)
• Estate database
• Capital asset register
• Plans of sites
• Liaison with District Valuer
• Liaison with Rating Officer
• Acquisitions/disposals
• Option appraisals
• Business case submissions
HOW THESE FUNCTIONS CAN HELP THE OPERATIONAL MANAGER
• Ensure managers'/ clinicians' views on design/functions incorporated into plans
• Maintain control over project costs
• Project manage individual schemes to cost and time targets
• Provide information on asset performance
• Assist in planning replacement programmes
• Ensure maximum capital receipts are achieved from disposals
• Avoid delays in estate rationalisation
• Provide key inputs to the business case for new developments

ACTIVITY

A. How well is asset management linked to your planning process?

Consider your current planning process. Review the extent to which you:

- explicitly consider assets as part of the process;
- link asset requirements to your service and business plans;
- review existing equipment against technical developments;
- develop an asset plan or contribute to the estate strategy;
- monitor asset performance.

B. Developing your planning process

ACTIONS

How might you develop your planning process in future to incorporate an asset plan? Make a list of action points.

C. The organisational context

Undertake an organisational audit of the arrangements for asset management in your unit. Answer the following questions and check your perceptions with your colleagues (possibly a non-executive board member or a clinical director), and with your estates manager.

- How is responsibility for asset management organised in your unit? Draw the current organisational structure. Are responsibilities clear?
- Who holds the budgets for annual maintenance? Are these divided between funds for buildings and funds for equipment?
- What involvement do departmental and clinical managers have in setting the level and standards of maintenance for the assets they use?
- What information on the cost and quality of assets is routinely presented to managers and in what form?
- What matters concerning asset management are discussed at board level? Does the board concern itself with quality, safety and disability access as well as with major capital investment and value for money issues?
- How are priorities for investment in new facilities or for backlog maintenance decided? What criteria for judging competing claims are used and who is involved in this process?
- How would you assess the current state of development and understanding of asset management?

If your perceptions differ from those of your colleagues, you should consider:

- whether this is due to lack of understanding or poor communication;
- whether it is a reflection of organisational muddle;
- how the situation could be improved.

Section 2 Basic building blocks – asset costs and information sources

2.0 Basic building blocks – asset costs and information sources

INTRODUCTION

2.1 The objectives of this section are:

- to explain how assets are valued;
- to identify types of costs associated with assets;
- to consider the impact of capital charges and how you can influence them;
- to identify the information required to manage assets cost effectively, and how to obtain this information.

2.2 This section covers the basic building blocks required to manage assets effectively. These are:

- definition of assets;
- valuation of assets;
- asset costs;
- the impact of capital charges;
- the asset register.

2.3 The self-assessment questionnaire (Figure 17) will give you an indication of the level of your expertise on subjects covered in this section. If you have financial experience you may be able to skim some of this section.

Figure 17

SELF-ASSESSMENT QUESTIONNAIRE – ASSET COSTS

1. What value must an asset have to be classified as a "capital" asset?
2. Would a set of 15 ward beds each worth £800 be classified as a capital asset?
3. What are the main capital and operational costs associated with assets?
4. What is the biggest cost associated with most assets?
5. Give an example of a semi-fixed cost.
6. What is depreciation and how is it calculated?
7. What is the interest rate used to calculate capital charges?
8. What major type of asset does not attract depreciation charges?
9. What is the impact of capital charges?
10. In what ways can capital charges be reduced?
11. What information do you need to know about an asset to judge whether it is being managed cost effectively?
12. What information is found on an asset register?

(Answers are given in Appendix I)

ASSET COSTS

Definition of assets

2.4 Assets include land, buildings and items of major equipment, with an expected economic life of at least one year, acquired for use in providing a service or carrying out an activity, and with a value of £5000 or more. They are acquired from capital rather than revenue budgets and, therefore, are often referred to as "capital assets".

2.5 Leased assets may be counted as capital assets, depending on the nature of the lease or licence. Finance leases are capitalised. Operating leases are not.

2.6 Another term commonly used for capital assets is "fixed assets" although, strictly speaking, this excludes moveable items – ranging from items of medical equipment to pieces of office furniture – which might come within the definition of assets set out above.

2.7 Groups of assets that individually have a value of less than £5000 are regarded as a single asset where all the following conditions are met:

- they are functionally interdependent;
- they were acquired at roughly the same time;
- it is anticipated that they will be disposed of at roughly the same time;
- the items are under single managerial control, for example within one ward.

2.8 For example, a network computer system would be regarded as one asset if its component parts were collectively worth £5000 or more. However, items such

as a set of ward beds or a suite of office furniture would not be regarded as meeting all the above criteria. Ward beds, for example, are not functionally interdependent.

2.9 Assets comprise not only all the internal and external physical assets of an organisation, but also associated features such as lighting, heating and ventilation. The main categories of assets are shown in Figure 18.

2.10 Assets costing less than £5000 still represent a considerable amount of money in absolute terms. For some of you, they may be the principal types of asset for which you are accountable. Effective inventory systems and management processes are still required for you to be able to carry out your custodial and managerial responsibility for such assets.

Valuation of assets

2.11 All assets are valued at their current cost. There are three methods of valuation:

- depreciated replacement cost – the estimated cost of a replacement asset at current prices, less a deduction for age, condition and functional obsolescence. This is the most common method of valuation for NHS assets;
- market value for existing use;
- market value for alternative use (for example for commercial or residential developments).

Figure 18

ASSET TYPES

- **Land**
- **Buildings**
  – main structure
  – finishes
  – engineering services (for example lighting, heating and ventilation)
- **Engineering installations** (for example main telephone networks)
- **Fittings**
- **Other engineering plant and equipment**
  – short life (5 years)
  – medium life (10 years)
  – long life (15 years)
- **Vehicles** (excluding ambulances)
- **Ambulances**
- **Furniture and soft furnishings** (for example office furniture, beds, curtains)
- **Office and IT equipment** (for example facsimile machines, radio pagers, but excluding main telephone networks and mainframe IT installations)
- **Medical and other equipment:**
  – short life (5 years)
  – medium life (10 years)
  – long life (15 years)
- **Mainframe IT installations**

2.12 The precise basis of valuation depends on the type of asset.

Land and buildings

2.13 The majority of NHS land and buildings that are in operational use are valued on the basis of depreciated replacement cost.

2.14 For general-purpose buildings, such as administration blocks, a market comparison may be available, in which case they are valued on the basis of market value for existing use.

2.15 Land and buildings that are declared surplus to requirements and not in operational use are valued at market value for alternative use. The level of valuation will depend on the scope for redevelopment of the land for housing or commercial use.

Equipment assets

2.16 Equipment assets are valued at depreciated replacement cost.

2.17 The current value of each asset for which you are responsible should be listed in the asset register (see paragraphs 2.63–2.84).

2.18 Land and buildings are revalued periodically. They are index-linked annually between valuations. Other assets are index-linked annually. Periodic revaluation of assets, particularly in relation to land, can cause significant fluctuations in the value of your asset base.

Who determines asset value?

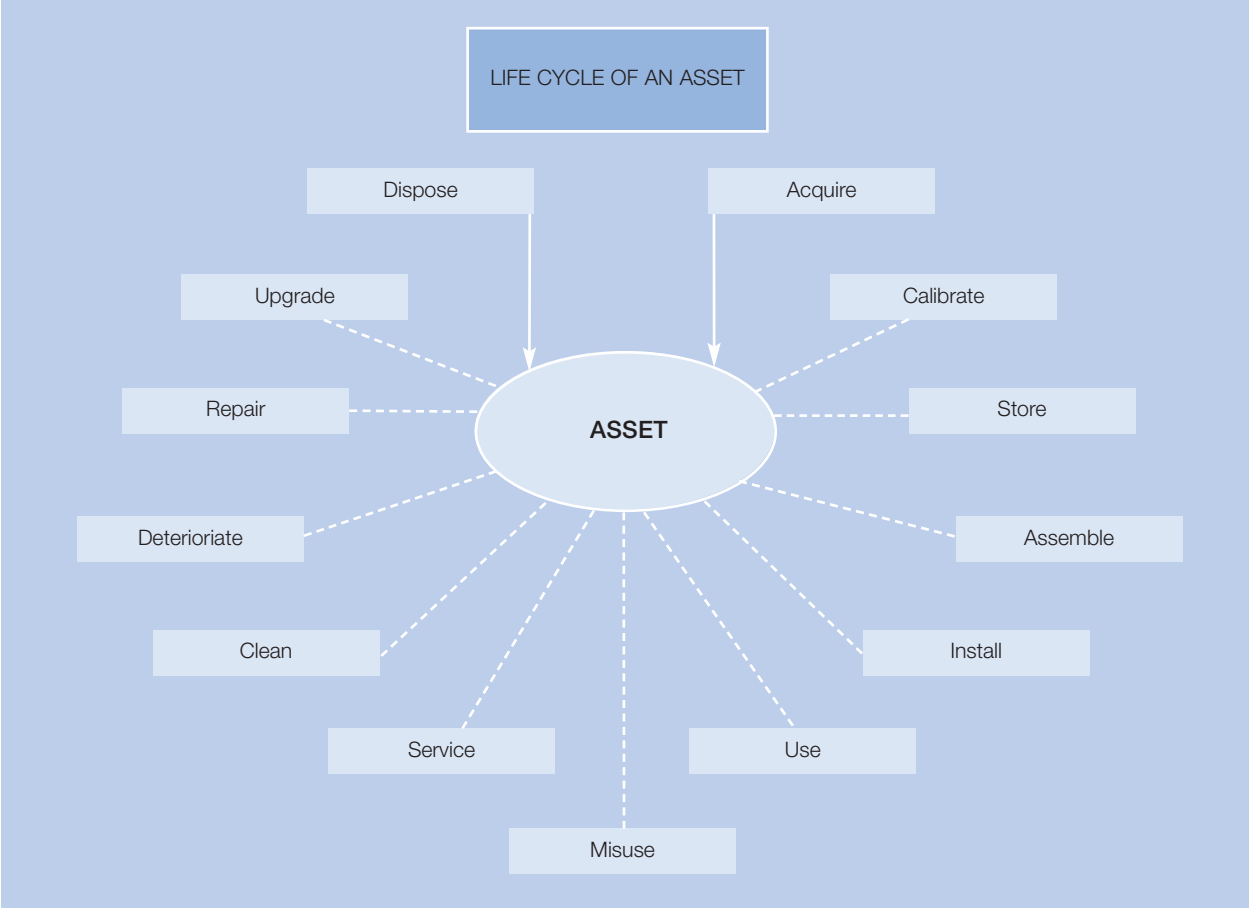
2.19 The value of your organisation's land and buildings is determined by the District Valuer, according to standard rules.

Life-cycle costs

2.20 All assets have a life cycle, which describes the stages of an asset's "life" from acquisition through to final disposal, although not all assets will necessarily go through every stage. The "life cycle" of an asset is shown in Figure 19 (overleaf).

2.21 Assets will have different cost structures at different points of their life cycles. For example, maintenance costs will become proportionately higher as an asset ages. Capital charges will be higher for a new asset than an old asset because it will have a higher capital

Figure 19



value. Understanding the point at which an asset is at in its life cycle, and the trade-offs between different costs, are important elements in effective asset management.

What are the main elements of an asset's life-cycle costs?

2.22 The main types of costs associated with assets (excluding the capital required to acquire the assets) are shown in Figure 20.

2.23 An example of the impact that life-cycle costing can have on asset costs is shown in Figure 21 (overleaf). Although scheme one has a lower initial cost, it is more costly than scheme two in terms of total life-cycle costs. (Investment appraisal and the concept of net present value is dealt with in more detail in Section 3.0 under "New asset investment", page 52.)

Typical cost structures

2.24 The cost structure of an asset varies according to asset type.

2.25 For buildings, a typical cost structure is shown in Figure 22 (page 28). Capital charges are the biggest element of cost, representing 56% of asset costs. Maintenance, at 17%, is the next biggest cost. This represents an average for the whole of the NHS. Individual trusts will vary, but the overall cost structure is likely to be similar.

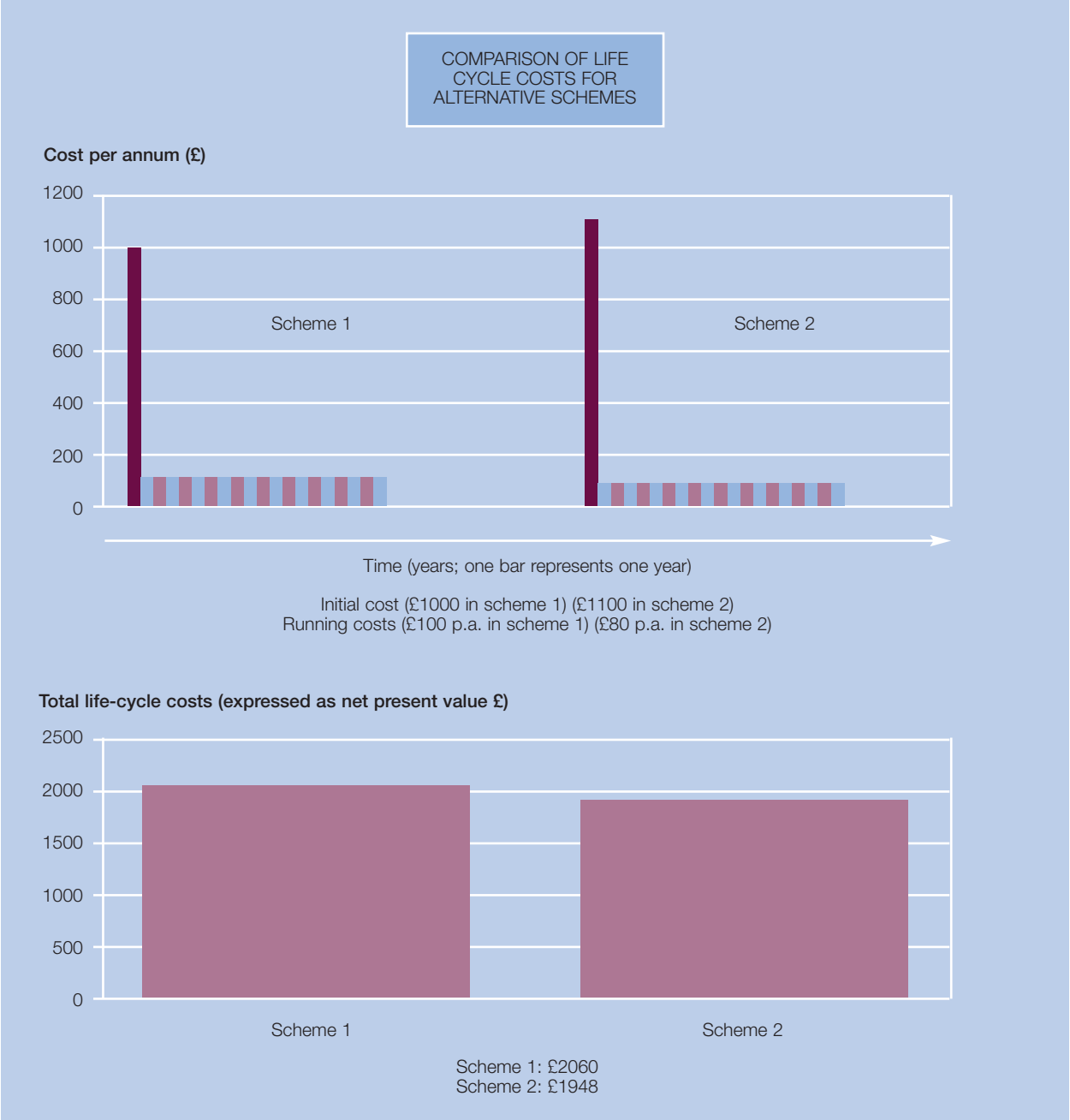
2.26 For equipment, the cost structure will be much more varied. Capital charges will often be a lower percentage of costs, because the capital value of equipment assets is generally lower than for land and buildings. For large items of equipment, such as CT

Figure 20

THE ELEMENTS OF LIFE CYCLE COSTS

	Capital charges	Operational costs
Land	• interest charges	• maintenance (for example gardens, car parks) • security
Buildings	• depreciation • interest charges	• rent • maintenance • cleaning • energy
Equipment	• depreciation • interest charges	• maintenance • variable running costs (for example energy) • rental for leased equipment

Figure 21



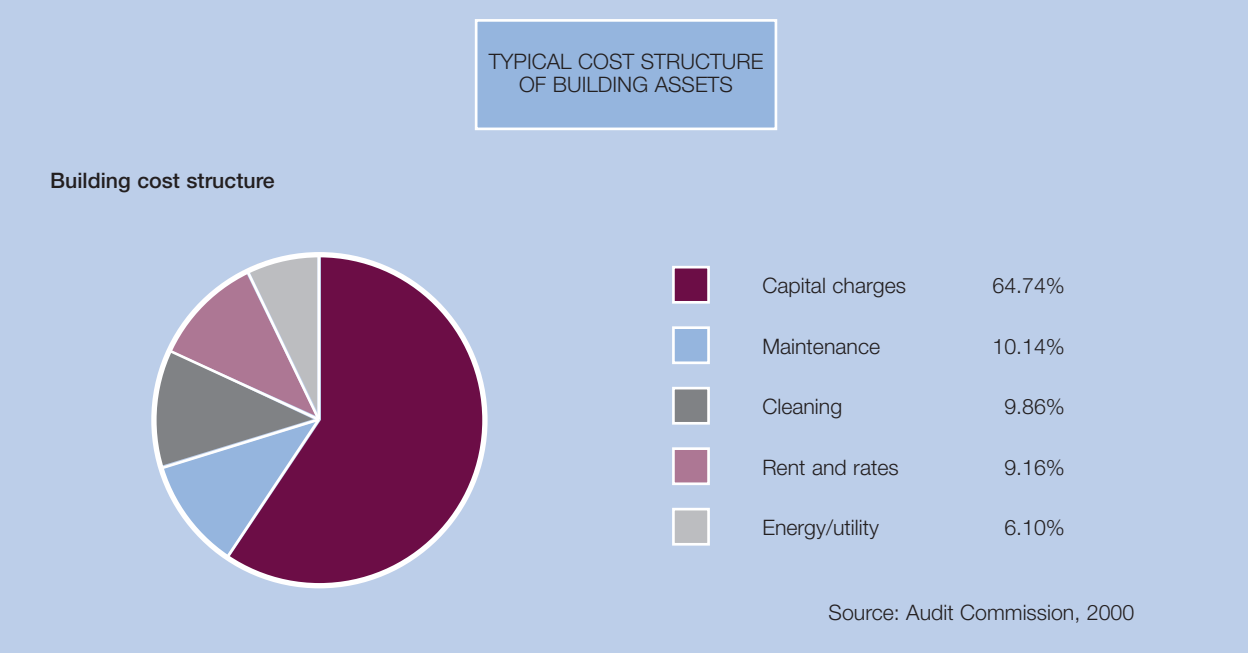
scanners, maintenance charges may be the major element of cost.

Operational costs

2.27 Operational costs may be analysed according to how they vary at different levels of activity. This is shown in Figure 23 (overleaf).

- **Variable costs** vary in direct or near direct proportion to the level of activity. An example might be the cost of paper used in document reproduction.
- **Semi-fixed costs**, also known as step costs, may vary with level of activity but not necessarily in direct proportion (that is, they are fixed for a given range of activity but may change at different thresholds of activity). For example, a small increase in the use of a piece of equipment normally serviced three times per year might not require additional maintenance requirements, whereas above a certain threshold of use it might.
- **Fixed costs** are independent of the level of activity in the short-term (normally defined as one year or less). Fixed costs include such items as rent and rates. Most costs associated with assets, particularly land and buildings, fall into this category. In the longer term, no costs are absolutely fixed. For example, in

Figure 22



the short term a building is a fixed cost. However, given time, the building can be vacated or sold, and the cost reduced or eliminated.

2.28 Variable and semi-fixed costs are more flexible than fixed costs, and can be increased or reduced as volumes rise or fall. Fixed costs can sometimes be transformed into variable costs to increase the responsiveness of the cost base to changes in volume. For example, agency staff can be used instead of full-time employees to cover peak loads, and leasing and rental arrangements can be considered for building, equipment and other assets.

Capital charges

2.29 Capital charges represent the cost of capital in holding an asset. Capital charges comprise two elements:

- interest;
- depreciation.

2.30 The capital charge represents a fixed cost or overhead, which must be recovered. Capital charges may be applied at all levels of management, down to

Figure 23

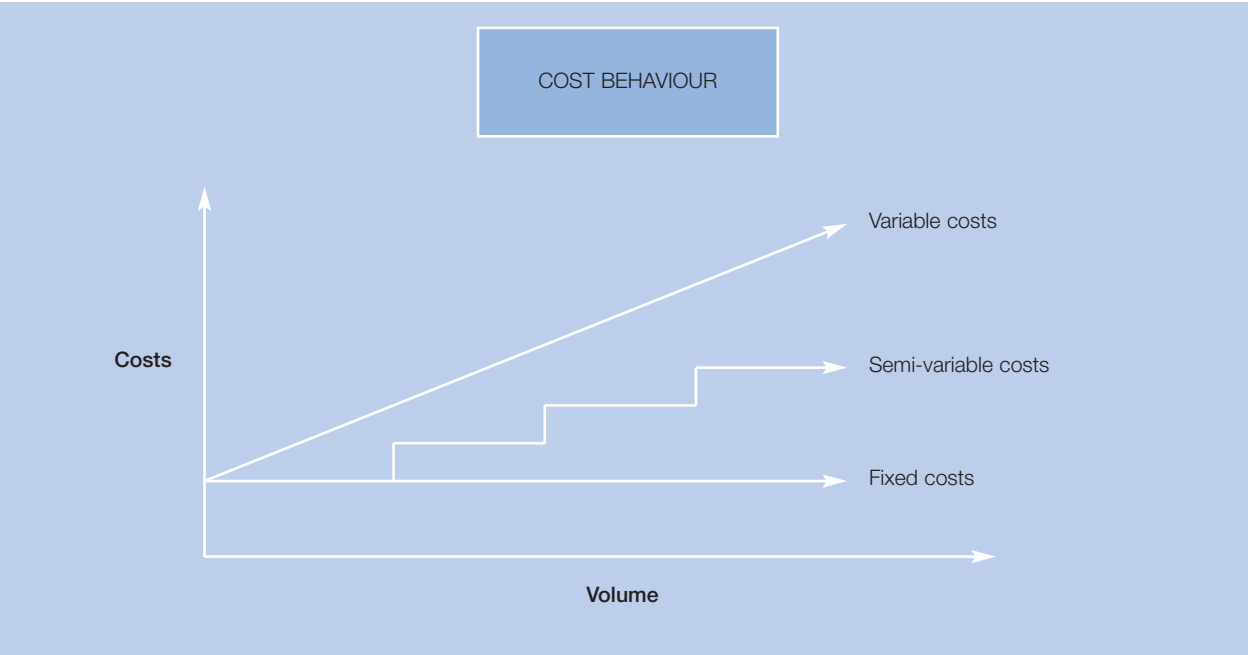
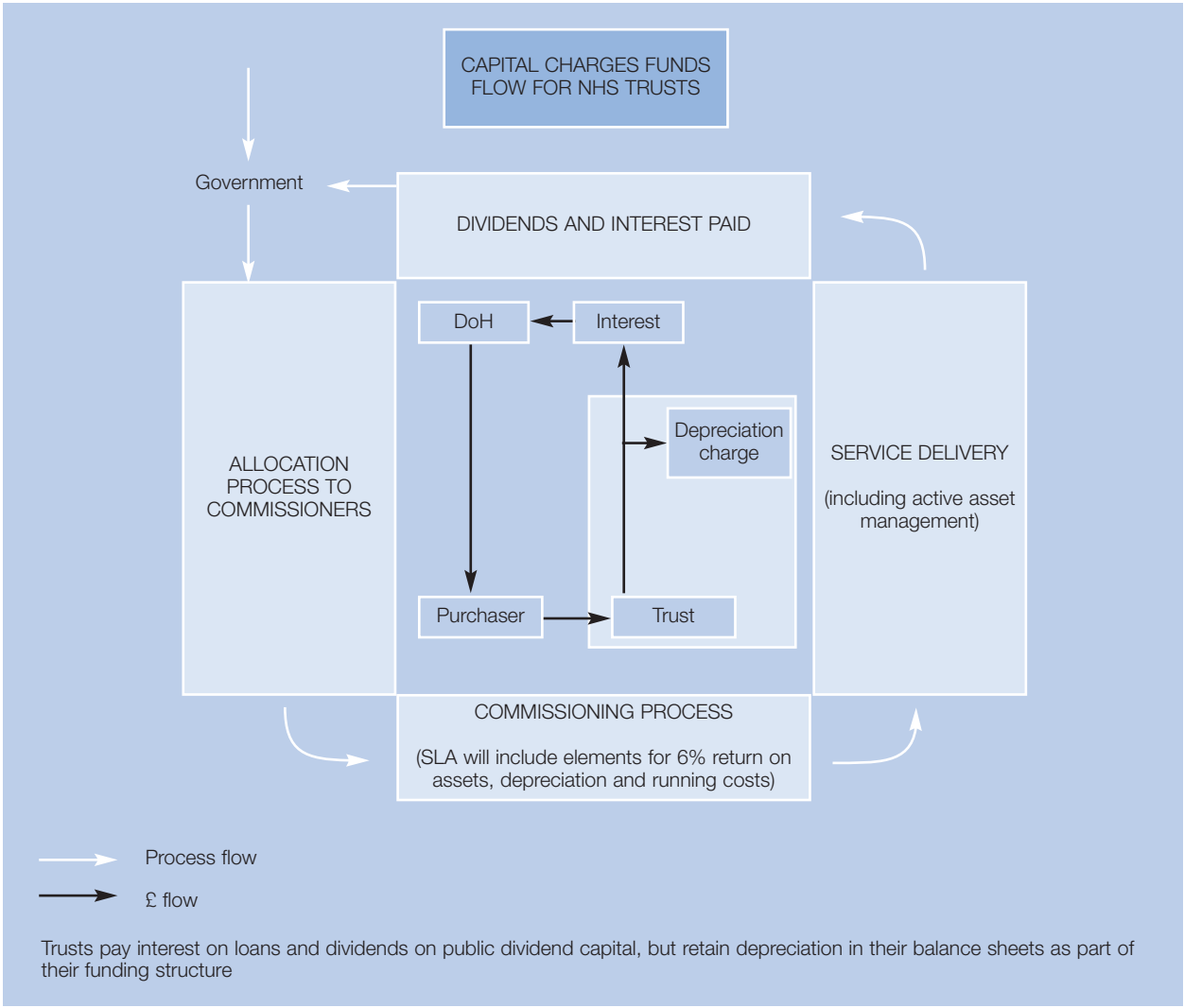


Figure 24



Trusts pay interest on loans and dividends on public dividend capital, but retain depreciation in their balance sheets as part of their funding structure

discrete healthcare functions. Where assets are shared the capital charges may need to be apportioned.

2.31 Capital charges are revenue costs and should be distinguished from capital costs, which are the amount of capital required to invest in the asset.

2.32 NHS trusts are required to achieve a return of 6% on average relevant net assets employed. They are also required to recover the cost of depreciation on the current value of fixed assets in use.

2.33 The main relevance of capital charges is that they represent costs that must be recovered.

Which assets are subject to capital charges?

2.34 All capital assets are subject to capital charges, with the following exceptions.

2.35 Donated assets (or in the case of assets that were bought partly by donation, a pro-rata percentage of the asset value) are not within the capital charge system. Donated assets do not attract any interest charge because no NHS capital has been invested in them and there is, therefore, no opportunity cost involved.

2.36 Finance leases are not subject to interest charges, so long as lease payments are higher than capital charges would be. Finance leases are subject to depreciation, but this is not payable as a capital charge.

2.37 Fully depreciated assets that are still fit for purpose and retained in use do not attract further capital charges.

How are capital charges funded?

2.38 Figure 24 shows funding for capital charges within NHS trusts.

Depreciation

2.39 Depreciation is an accounting charge made against an asset to take account of its decline in value due to ageing, wear and tear in use, and functional obsolescence. Depreciation spreads the cost of the

asset over its useful life, as the asset is gradually "used up".

2.40 Because depreciation is a non-cash charge, it does not affect cash flow. Nor does it represent a pot of money that NHS organisations can use to replace the asset at the end of its life. Capital for new asset investment must be identified under normal business planning processes and trusts must have regard to their external financing limit.

2.41 There are a number of different methods of depreciation. The simplest method used in the NHS is "straight line" depreciation. The straight line method of depreciation charges an equal amount of depreciation in each year of an asset's life, by writing off a constant percentage of the asset's original cost.

2.42 Depreciation is charged on all assets except land. This is because land is not expected to depreciate in value with use in the same way as buildings and equipment.

2.43 In the case of buildings, different elements of the building will be valued and depreciated separately. For example, a considerable portion of a building's value will relate to engineering services, such as lifts and power installations. These will often have much shorter lives than the fabric of the building. The different elements of a building are shown in Figure 25.

Interest charges

2.44 NHS trusts are required to earn a real return of 6% on their average relevant net assets, before taking account of:

- profit or loss on the disposal of assets, and
- interest payable and receivable.

2.45 The return is calculated as:

$$\frac{\text{relevant surplus}}{\text{average relevant net assets}} \times 100\%$$

2.46 Average relevant net assets is the simple average of opening and closing relevant net assets. Interest and Public Dividend Capital payment obligations must be paid from the surplus.

Figure 25

WHAT'S IN A BUILDING?

- Substructure (for example frame, upper floors)
- Superstructure (for example wall, floors and roof)
- Internal finishes (for example wall and ceiling finishes)
- Fittings (for example sanitary appliances, water installations, lifts)
- Services (for example drainage, external services, gas pipe work)

ACTIVITY

A. Reducing capital charges

Consider the variables that influence capital charges and in what ways you could reduce your capital charges in order to reduce your fixed costs.

Possible approaches are given in Appendix I.

INFORMATION SOURCES

What information is required?

2.47 The starting point for effective asset management is identifying the appropriate information required to monitor your asset base. As a minimum, you need to have access to the following information.

Your asset base

2.48 You need a complete list of the assets for which you are responsible, both equipment and buildings. This should be included in the asset register for your particular department(s).

2.49 A useful way of grouping assets is by function, for example: clinical assets (imaging equipment, operating theatres, etc); administration assets (offices, office equipment); and patient "hotel" assets (catering facilities, cleaning equipment).

Value of assets

2.50 The capital value of each asset should also be available from the asset register. It is helpful to group your assets by value, to ensure that you can clearly focus on the highest value assets.

Level of asset utilisation

2.51 Asset utilisation is a key cost driver. You need to know both the overall level of use and patterns of use. Are there any peaks and troughs in usage that are causing bottlenecks, and thereby affecting quality of service and limiting revenue?

2.52 The extent of information available depends on the quality of existing management information systems. Qualitative input from clinical staff is essential in understanding the factors that influence usage patterns.

Age and condition of assets

2.53 The age and condition of assets affect maintenance and replacement costs. Information on the age of assets and their planned replacement dates should be available from the asset register. Information on the condition of assets may be less accessible, although your estates department should have information from condition surveys, and the Electro Bio-Medical Engineering (EBME) department should be able to advise on medical equipment.

Suitability for purpose

2.54 The suitability of an asset for the purpose for which it is employed needs to be clearly linked to service and business objectives. Factors to take account of include:

- patient needs and expectations (for example welcoming reception areas);
- technological developments (for example equipment that is technologically up-to-date);
- layout of facilities (for example efficient patient flows).

2.55 There is unlikely to be any ready source of information on the question of suitability for purpose, assessment of which may be qualitative in nature. You will need to review each asset individually and consult quite widely with clinical and estates staff. Suitability for purpose relates directly to service and business planning, and this issue should be addressed as part of your organisation's annual planning cycle.

Statutory requirements related to assets

2.56 You need to be aware of the statutory responsibilities related to assets, including health and safety, and fire regulations.

2.57 Your risk management department is likely to be the primary source of information on statutory responsibilities related to health and safety (health and safety issues are dealt with later in this section). Your estates department will have undertaken a full risk assessment of the estate as part of the controls assurance procedure and you should ensure you have access to the reports made routinely to the risk management committee.

Energy efficiency

2.58 Energy efficiency is an important driver of costs for buildings. It may be possible for your estates department to provide you with information on your department's performance against targets. This depends on metering of energy consumption being undertaken. An example of a localised energy efficiency appraisal is set out in Figure 26 (overleaf).

Asset unit costs

2.59 Understanding the cost structure of your assets and the factors that drive up costs is critical to effective asset management. Your finance department should be able to provide you with unit costs for your assets.

2.60 The sophistication of costing varies throughout the NHS. Some trusts can provide detailed costings down to the level of an individual asset, whereas others cannot. Your finance department should be able to advise you on the degree of unit costing available. Clearly, the more detailed the costing information to which you have access, the more accurate a picture you will have to how effectively you are managing your assets.

Asset performance measures

2.61 Relevant measures of performance are essential for assessing whether assets are being effectively managed

Figure 26

ENERGY EFFICIENCY APPRAISAL

Block		GJ/100 m^3	Condition	Comment
A,B,C,E,F,G		44.42	A	
D		197.0	DX	Forced ventilation system in unit
James Abbot		55.0	B	
St Mary's Site	Maternity unit Breast screening Crèche	45.6	A	
Child development		38.9	A	
Forestside		21.2	A	
Boston Store		25.8	A	

Problem areas are "D" block and the main kitchens. The overall performance for the site is 44 GJ/100 m^3, which places it in condition A.

or not. NHS Estates has produced performance measures, which incorporate benchmarks developed by the Health Facilities Consortium, while the National Performance Advisory Group has set up separate benchmark initiatives. Performance measurement is dealt with in more detail in Section 4.0.

2.62 Asset information needs are summarised in Figure 27.

The asset register

2.63 The primary source of information is your trust's asset register. This will be held and maintained by your estates department or finance department. It is usually divided into a land and buildings register and an equipment register. In some trusts, the register may be split between the estates and finance departments.

Figure 27

SUMMARY OF ASSET INFORMATION REQUIRED AND SOURCES

Asset information required	Source
• Asset base	Asset register
• Value	Asset register
• Utilisation	Management information systems may have information Qualitative input from users
• Age and condition	Asset register for age Qualitative input from estates department and users on condition and maintenance spend
• Suitability for purpose	Qualitative input from users
• Disability Discrimination Act compliance	Estates department
• Energy efficiency	Estates department
• Statutory requirements (fire safety, health and safety, environmental)	Estates department/health and safety officer/fire safety advisor
• Unit costs	Finance department
• Performance measures	NHS Estates performance indicators Equipment manufacturers Medical professional bodies

2.64 As a minimum, your asset register should contain the following information:

- asset identification and description;
- location;
- date of acquisition;
- method of acquisition (for example by purchase, donation, loan);
- initial capital expenditure;
- gross replacement cost (for equipment);
- depreciated replacement cost (for buildings);
- assessed or standard life.

2.65 Some asset registers have been developed beyond this minimum and contain further information on issues such as condition and maintenance schedules. You will need to look at your register to find out what information is available from it.

2.66 An example of an asset register for an imaging department, with an explanation of the various headings, is shown in Figure 28 (overleaf). Taking the second item on the register, a radioscope film viewer, as an example:

- it came into use on 1 June 1989 and is due to be replaced in June 2004. It thus has an anticipated life of 15 years;
- at current prices, it will cost £15,000 to replace;
- it is located in the breast screening unit;
- it was a capital purchase;
- its 15-year life is described as “medium” term;
- its current depreciation value is £12,616.59.

2.67 There is no standard format for asset registers because they have been developed from the systems in place in different trusts. Most asset registers will look something like the example given, which is based on York NHS Trust.

2.68 Asset registers have been designed for professional estates staff, and you will see that they are not particularly user-friendly. It will often be helpful to ask your estates manager (or finance manager, if appropriate) to go through your asset register to help you interpret it and focus on the information you need.

Using asset register information

2.69 It is important to think creatively about how asset information can best be used and presented in a way that is helpful for those who are not estates specialists.

2.70 The asset register may be used to identify different groups of items – by type, location or cost. Figure 29 (page 35) shows how information from the register can be of help to an IT director.

2.71 This information can be graphed to show clearly where the peaks in investment arise (see Figure 30, page 35). The IT director could thus plan ahead on the basis of an asset’s life and estimated replacement cost to pinpoint departments, such as medical records, pathology and imaging, that have high forecast replacement needs. The IT director would be able to discuss this analysis with departmental managers, the director of finance and the board.

2.72 The data provides a basis for carrying out a risk analysis in relation to the departments or pieces of equipment most critical to the functioning of the hospital. Individual years could be examined to determine whether peaks of potential investment could be smoothed out.

2.73 Figure 31 (page 36) shows how information from an asset register on the age of an estate can be presented in a graphical format, which is more useful for service managers.

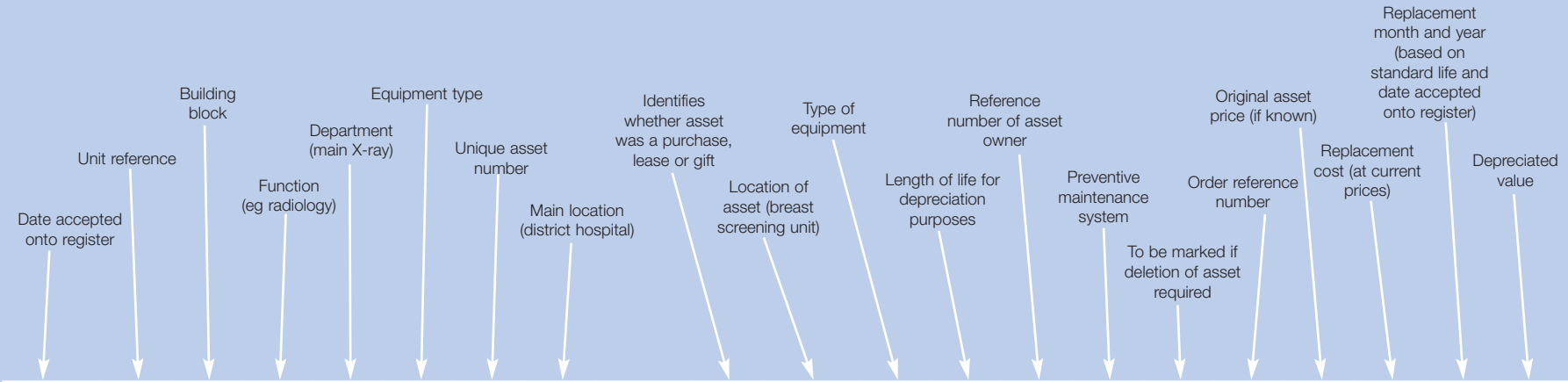
Managing an asset register – case study from York NHS Trust

2.74 Figure 32 (page 36) describes how York NHS Trust has involved managers in developing and maintaining an accurate and effective asset register. Estate managers have gone to considerable trouble to involve and interest managers in the creation of an accurate and effective asset register. They recognised that middle managers should be encouraged to take ownership of the asset register but that the volume of the register can be daunting.

2.75 A team from the estates department set up the register and checked its contents with each departmental manager. Updating takes place on a quarterly basis and spot checks are carried out on its accuracy. Asset acquisitions are identified on a standard form via the supplies, finance and estates departments. Disposals are recorded on the order form for the replacement item, as well as on control stationery. This allows scrutiny to prevent the organisation's asset base from expanding in an uncontrolled manner.

Figure 28

EXAMPLE OF AN ASSET REGISTER



Accept Data Add Info	ASS1	ASS2	ASS3	ASS4	ASS5	Sub asset	Unit	Asset name	Cap LN GFT	Location	Item	Category	Own account	Main-tenance account	Rep	Order reference	Price	Replace-ment cost	Replace-ment date	Current value
01/07/01	B55	19	13	S	315	025	DH	PC Dell 32x	C	BSU Office	ZB06	L	240559	403112	1	Y0401	0.00	1015.08	0702	473.87
01/06/01	B55	19	13	S	315	029	DH	Radioscope film viewer	C	BSU RM	XA14	M	240599	403112	1	Y0431	0.00	15446.68	0604	12616.59
01/06/01	B55	19	13	S	315	030	DH	Trailer c/w Screen unit	C	BSU Mobile	XA20	L	240599	403112	1	N3426	0.00	102185.70	0608	74094.95
01/06/01	B55	19	13	S	315	036	DH	Fullite 4-way viewer	C	BSU	XA14	M	240599	403112	1					
01/06/01	B55	19	13	S	315	037	DH	Double Exal viewer	C	BSU	XA14	M	240599							
01/06/01	B55	19	13	S	315	042	DH	Film hopper	C	BSU	XA00	M								
01/06/01	B55	19	13	S	315	043	DH	High intensity illuminant	C											
01/07/01	B55	19	13	S	315	044	DH													

Figure 29

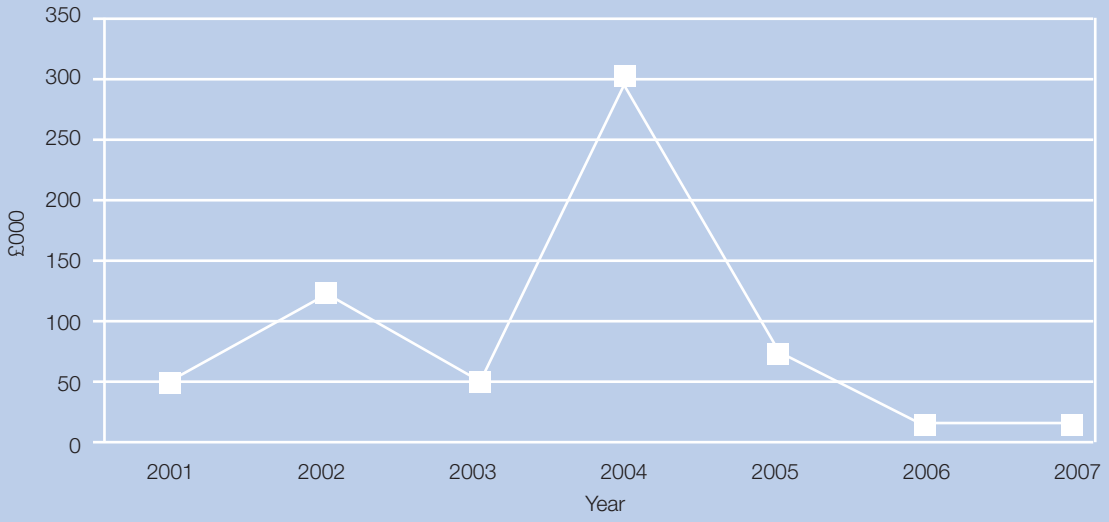
HIGH VALUE REPLACEMENT NEEDS BY MANAGEMENT UNIT

	Unit	Estimated replacement cost	Manager
1	Medical records	£292,500	Medical record manager
2	Pathology lab	£136,000	Pathology director
3	General management	£89,500	Chief executive/ information manager
4	Pharmacy	£30,000	Pharmacy services manager
5	Catering	£30,000	Catering manager
6	Estates department	£29,000	Estates director
7	Imaging	£20,000	Director of radiology
8	Wards	£6,000	Chief nurse
9	Audiology	£2,500	Clinical director

Figure 30

PRESENTING ASSET INFORMATION: IDENTIFICATION OF INVESTMENT PEAKS

Key replacement dates for computer equipment, by cost and time



Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
20,000 Chest unit	90,000 Chem. Path	46,000 Path	282,000 PAS	64,000 IT Dept	10,000 Med. Secs	2,500 Audiology
29,000 Estates	30,000 Catering		30,000 Pharmacy	16,000 Resource management	5,000 Personnel	4,500 CEO office
						6,000 Nursing
49,000	120,000	46,000	312,000	80,000	15,000	13,000

Figure 31

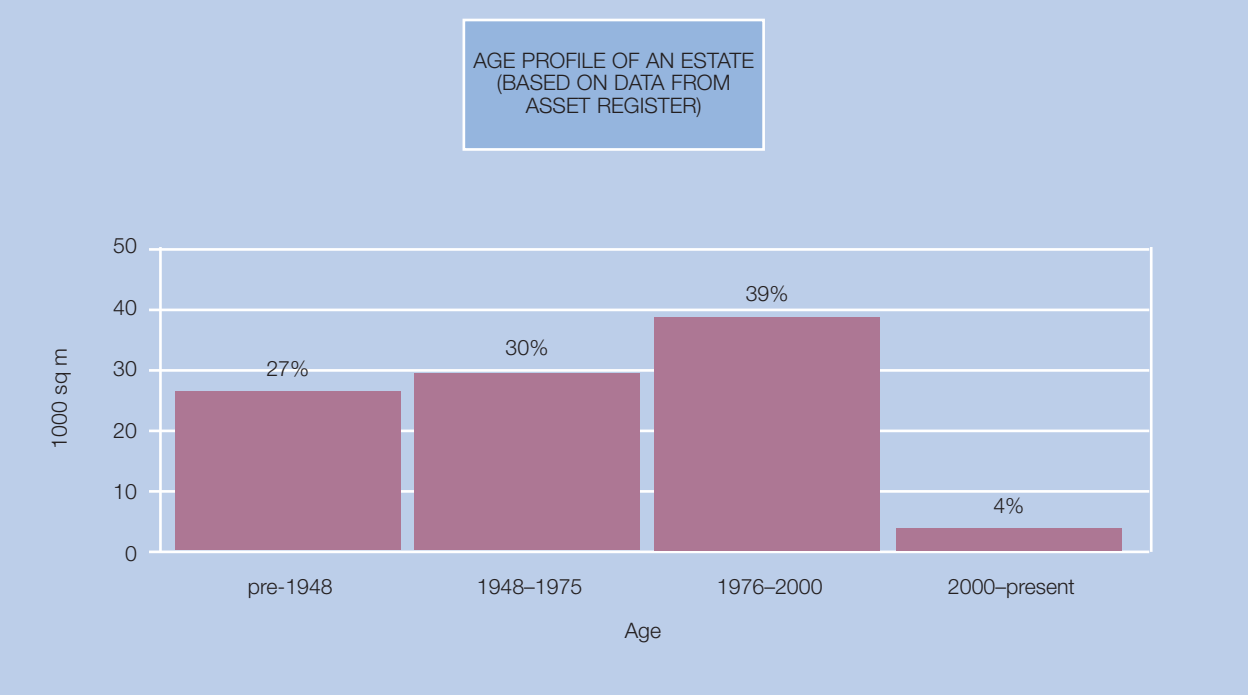
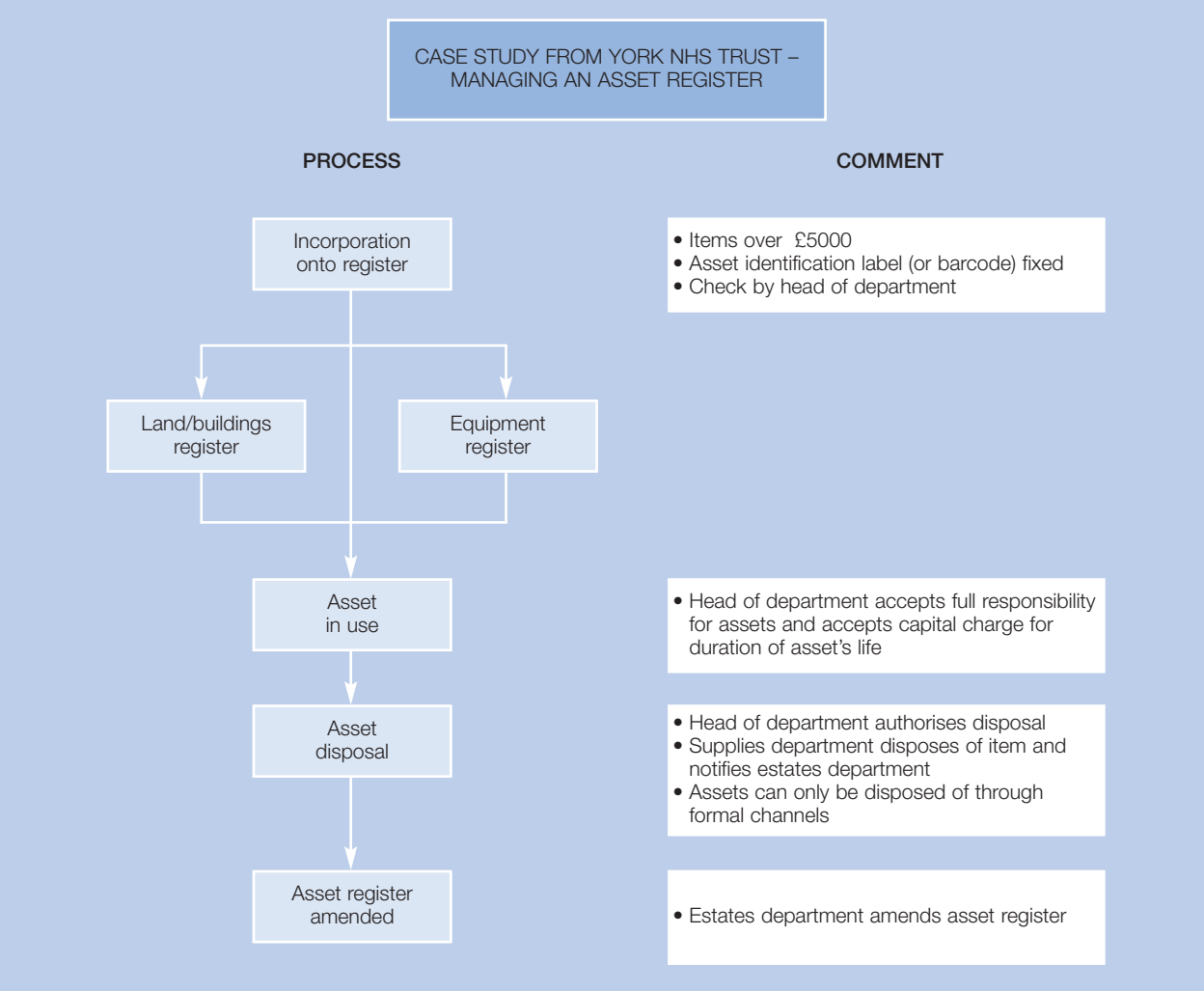


Figure 32



Environmental management

2.76 All NHS trusts are expected to "put concern for the environment at the heart of decision-making". This involves an audit of environmental issues as part of the preparation of your organisation's estate strategy, and the preparation of an environmental impact assessment in relation to each capital project undertaken.

2.77 A list of some of the measures that your trust should be considering is set out in Figure 33.

Environmental impact assessment

2.78 An environmental impact assessment for a specific capital scheme should have the following scope:

- purpose and physical characteristics of the project;
- access and transport arrangements;
- land use requirements during construction;
- effects of the project on people and buildings (population growth, visual effects and landscape, emissions and noise);
- effects on flora, fauna and geology;
- effects on land (soil erosion);
- effects on water (drainage pattern, water courses, water quality);
- effects on air and climate;
- measures to mitigate any adverse effects identified above.

Figure 33

STRATEGIC ENVIRONMENTAL MEASURES

- Consider the use of standby generators for "peak lopping" in order to reduce electricity cost (that is, cutting electricity use at peak tariff times)
- Implement an ongoing investment programme in modern lighting technology and controls to reduce electricity consumption
- Consider alternatives to incineration of clinical waste (heat disinfecting or autoclaving) in order to maintain emission standards at lower cost
- Implement waste minimisation and recycling
- Produce a transport plan that encourages car sharing, use of public transport, cycling, free bus passes, extension to hospital transport
- As an organisation, put in place an environmental management system

Energy management

2.79 Energy management has always been a prominent task for estates managers, and your estate strategy may include targets for reducing energy consumption.

2.80 High energy use is caused by:

- an extended heating season;
- poor thermal efficiency of buildings;
- air-conditioning plant;
- high technology equipment.

2.81 Improved performance can be achieved by a variety of measures including insulating buildings, installing combined heat and power (CHP), and the introduction of energy management systems that constantly monitor performance.

2.82 Your facilities department may have an estates professional who will advise on energy matters, keep statistics on energy performance, and devise trust-wide efficiency campaigns.

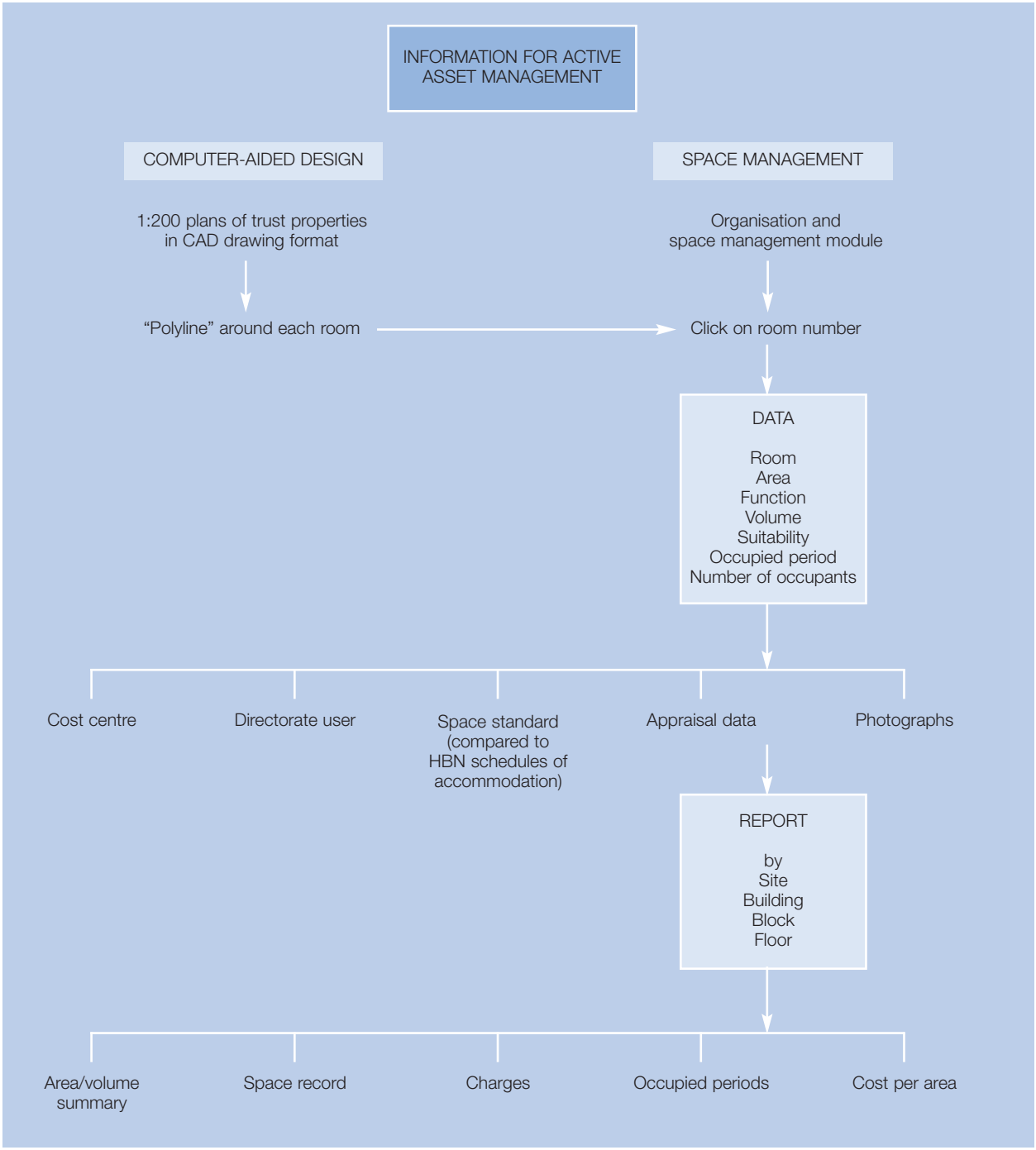
Information presentation

2.83 The difficulties caused by lack of asset information in user-friendly form are well recognised, and developments are under way to address this issue. Poole Hospital NHS Trust has for some time used a CAD package to link detailed site plans with information from their database and from property appraisal data. This allows the estates department to display information in a format that is readily understood by departmental managers and clinicians. The structure of the system is set out in Figure 34 (overleaf).

2.84 Such systems, though valuable, take time to set up and maintain. At Poole it took 12–18 months to collect, validate and input the data, and it requires 2–4 days per month to keep the system up-to-date. To be effective the system needs to be used regularly and users should let the estates department know if data needs to be changed. The system is used by staff from the estates and finance departments, and for presentations by departmental business managers. It has been applied to the following management issues:

- development of plans for alteration/extension;
- production of floor areas for District Valuer's valuations;
- space planning by departments;
- space control by the facilities directorate;
- departmental workflow analysis.

Figure 34


INFORMATION FOR ACTIVE ASSET MANAGEMENT
COMPUTER-AIDED DESIGN
SPACE MANAGEMENT
1:200 plans of trust properties in CAD drawing format
Organisation and space management module
"Polyline" around each room
Click on room number
DATA
Room
Area
Function
Volume
Suitability
Occupied period
Number of occupants
Cost centre
Directorate user
Space standard (compared to HBN schedules of accommodation)
Appraisal data
Photographs
REPORT
by
Site
Building
Block
Floor
Area/volume summary
Space record
Charges
Occupied periods
Cost per area

ACTIVITY

A. Developing your asset database

Using the sources suggested, complete Figure 35.

If you are unable to obtain this information, discuss with your estates and finance departments how you might obtain it in future and consider a suitable format for presenting it.

Figure 35

YOUR ASSET DATABASE

Asset	Value	Occupancy/ utilisation cost	Age, replacement date and condition	Functional suitability	Action needed
Buildings/space					
Equipment					

Section 3 Tools and techniques for effective asset management

3.0 Tools and techniques for effective asset management

INTRODUCTION

3.1 The objective of this section is:

- to present some tools, techniques and case studies, which should help you to address the most important issues and challenges in managing assets.

3.2 The issues covered are:

- matching assets to patient needs;
- developing flexible assets;
- space utilisation;
- utilisation of equipment and facilities;
- maintenance and replacement decisions;
- risk management;
- new asset investment;
- medical equipment management.

3.3 Some of these issues are more appropriate to certain types of assets than others. You may, therefore, be able to skim over some elements of this section.

MATCHING ASSETS TO PATIENT NEEDS

3.4 This section considers the role played by asset management in supporting quality standards for patient care, for example by providing welcoming reception and waiting areas or patient hotels. This information will be most useful to managers in departments dealing directly with patients, rather than those in support activities.

3.5 There are four main aspects of quality for any given asset:

- safety;
- accessibility;
- condition;
- comfort.

3.6 Safety is dealt with in more detail later in this section under “New asset investment”.

3.7 Accessibility includes the means of access to sites, signposting, car parking, drop-off zones, walkways and link corridors, and provision for disabled people to ensure compliance with the Disability Discrimination Act 1995.

3.8 Condition covers the quality of the physical fabric of a piece of equipment or a building, including the quality of decoration, and its cleanliness.

3.9 Comfort is concerned with the overall visual impression of an asset, whether it is correctly heated and ventilated and the effects of noise disturbance on those who work in or use the building.

3.10 There are a number of ways in which you can evaluate the quality of your assets, and some are suggested in Figure 36 (overleaf).

The patient-focused hospital

3.11 The concept of the patient-focused hospital was developed in the US and is increasingly used in new build and redevelopment projects in the NHS. This approach is based on the concept of decentralising services within hospitals/trusts and organising resources around specialist patient centres, which as far as possible cater for all the care needs of a particular group of patients, including diagnostic and therapeutic needs. The centres include clinical support functions, such as imaging and pathology.

3.12 Such an approach can provide a higher quality of patient care, since patients are cared for by a small group of staff who are experienced in the patient’s particular medical condition and who can deal with a range of patient needs. It requires multi-skilling of local staff. For instance, a patient-focused hospital may train local nursing or technical staff to provide basic imaging services, rather than employ additional radiography staff.

3.13 It is important to reach a proper balance between asset utilisation, quality and costs. Maximum use and minimum unit costs do not always go hand-in-hand with the highest quality of patient care. The patient-focused hospital recognises that it can sometimes be preferable to accept a degree of under-use of localised services compared with centralised provision, for example in the

Figure 36

QUALITY EVALUATION MATRIX

Quality factor	Assessment tool
Safety	• Health and safety inspectorate reports • Fire inspection reports • Environmental health reports • Routine testing of water cooling systems (cooling towers) for legionella • Use of internal health and safety committees • Infection control reports
Accessibility	• Personal observation • Advice from sign posting specialists • Consumer satisfaction surveys • Advice from local disabled groups • Complaints • "Mystery customer" reports
Condition	• Data from condition surveys • Asset-specific maintenance histories • Information on engineering services • Surveyors' reports on individual buildings or sites • Audit tool to measure contract compliance on cleanliness. • Reports from Patient Environment Action Teams (PEAT) • Patient questionnaires
Comfort	• User opinion through staff and patient surveys • Temperature monitoring linked to predetermined levels • Photographic surveys • Advice from design and landscaping specialists • Use of noise level meters • Complaints • Records of incidence of physical or verbal abuse

case of imaging services, in return for the benefits to be gained from better quality of care.

3.14 An alternative to this approach is to bring together similar healthcare services in one area, which can cater for all the needs of a wide range of patients. This is the aim of the ambulatory care centres that are being built. These centres group together a comprehensive range of diagnostic and treatment services that are used exclusively by patients who do not require admission to an in-patient bed.

Recent approaches to the patient environment

3.15 The Patient Environment Action Teams (PEAT), set up, following publication of the NHS Plan in 2000, to visit NHS trusts and assess standards of cleanliness and the quality of the patient environment, have done much to re-emphasise the importance of this subject. There has also been an emphasis on re-empowering ward or departmental managers, so that they have the authority and resources to take local action to improve standards; and an emphasis on consumerism, that is, meeting the needs of patients and visitors.

3.16 All this has led to activity in a number of areas:

- asking patients and visitors about their experiences;
- mapping the "patient's journey" and addressing problem areas;
- identifying exemplar sites, to demonstrate what is expected in a high-quality patient environment;
- tidying up signage and removing "home-made" notices;
- improving disabled parking and access, and creating additional drop-off zones;
- making common areas "lighter and brighter";
- repairing damage to doors and walls;
- giving departmental managers the resources to improve decoration, furnishing and cleanliness using the NHS Purchasing Card system;
- upgrading toilets in public areas, and improving the frequency of cleaning and monitoring;
- funding improvements to staff areas (changing and rest rooms etc);
- improving security to prevent vandalism.

The effect of the environment on patient outcomes

3.17 Recent academic research has begun to demonstrate a clear link between the physical environment in which patients are treated and the speed and quality of their recovery. You should be aware of the broad conclusions of the research and consider how you can apply it in your organisation.

3.18 Studies have explored the experience of patients in both general acute wards and psychiatric units. It has been established that patients can recognise good and bad design, that colour and decoration substantially influence patient well-being, and that noise is a significant irritant.

Figure 37

THE EFFECTS OF A QUALITY ENVIRONMENT ON PATIENT OUTCOMES

Acute sector	Mental health sector
• Patients' recovery time is reduced	• Patients respond better to their treatment
• Levels of analgesia can be reduced	• Reduced levels of verbal abuse/threatening behaviour
• Patient control over environment (lighting, ventilation) reduces stress	• Reduced levels of self-harm
• Some patients respond well to single rooms	• Reduced treatment periods may result
• Some patients prefer shared rooms (so choice is important)	
• Forced moving of patients, especially at night, may impact on health outcomes	

3.19 The effects of a quality environment on patient outcomes are outlined in Figure 37.

DEVELOPING FLEXIBLE ASSETS

3.20 Medical technology and clinical systems are constantly developing. It takes a long time to build a new hospital or a major extension, and there is a risk that construction may be designed around yesterday's needs and technology. Equipment is constantly being enhanced, and is often being reduced in cost. It is important, therefore, to consider how you can develop flexible assets.

3.21 The following options should be considered:

- lease or hire privately-owned large equipment assets, such as mobile scanners or magnetic resonance imaging equipment, rather than purchasing such assets. A case study is shown in Figure 38;
- lease equipment until its long-term viability becomes clearer;
- reduce the volume of expensive in-patient accommodation by transferring caseloads to day centres;
- share the use of expensive items of equipment with other healthcare providers;
- contract out services in order to pass some of the capital investment costs to contractors (for example IT services could be subcontracted to an external facilities management company, which could use its computer equipment to process your unit's data);
- share office space, to enable substantial reductions in the need for this expensive overhead, including use of hot-desking and teleworking;
- design buildings in such a way that changes to the size and shape of departments can be made more easily;
- review the patient process flow through your unit to determine whether some activities could be provided in lower technology settings;
- use just-in-time purchasing, in order to remove the need for expensive stock holdings and storage space within the hospital;
- transfer some services to an adjacent, privately-owned unit (for example through permanent or ad hoc joint-venture arrangements with the private sector);
- extend the working day, in order to use expensive fixed overheads in the evenings or at weekends (for example theatres, imaging departments and radiotherapy services).

Patient hotels

3.22 In hospitals, the management of "hotel" services, which are concerned with non-medical activities such as catering, cleaning, provision of beds and bed linen, has become a specialist activity. This concept has been taken a step further with the development of "patient hotels", which offer improved hotel facilities for patients and lower costs for hospitals.

Figure 38

MOBILE IMAGING

A general hospital had been referring patients for MRI scans since 1988 to centres in the north, Midlands and London. This meant long distances for patients to travel, a relatively high unit cost for each scan and long waiting lists for some units.

Growing demand for the service led to the decision to contract a mobile service from a private company. The aims of purchasing a mobile service were:

- to improve quality for patients, through reduced travelling time;
- to save costs, through avoidance of hotel and travelling expenses;
- to introduce the operation of MRI to the trust.

The result has been very successful, and more examinations are now carried out with the same funding. Previously, the cost of sending patients outside the locality was approximately £500 per investigation. As a result of generating extra income from private work, negotiating discounts from the company for extra visits, and by extending the working day to 0800-2200 hours, it is now possible to undertake an average of 24 examinations per weekly visit. This gives an average unit cost of £80 per investigation.

Figure 39

A PATIENT HOTEL CAN REDUCE YOUR COSTS

Kingston Hospital Trust opened the first NHS patient hotel in July 1991. This "mini-hotel" is a converted ward in an existing ward block. It illustrates the benefits of such an approach:

- upgrade costs were £60,000 to provide an attractive hotel environment – considerably less than the upgrade costs of an equivalent 16-bed surgical ward;
- maintenance costs in the first year were minimal in comparison to those of an ordinary ward;
- the alternative to refurbishing an existing ward would have been a new stand-alone unit, costing at least £400,000;
- Kingston gained valuable experience in developing low-cost accommodation and the opportunity to test and build demand for the hotel.

3.23 Some patients cannot be treated as day patients but do not need the full nursing care provided on a hospital ward; for example radiotherapy patients, mothers with new-born babies and patients undergoing certain diagnostic routines. This situation led to the development of "patient hotels". Germany and Sweden have taken the lead in this area, but the concept has also been applied in the UK.

3.24 Patient hotels are standard hotel buildings located on or near hospital sites. They are considerably cheaper to develop than wards and significant cheaper to staff. They can improve the quality of accommodation offered to patients compared to wards, as well as offering potential new revenue opportunities from non-patients.

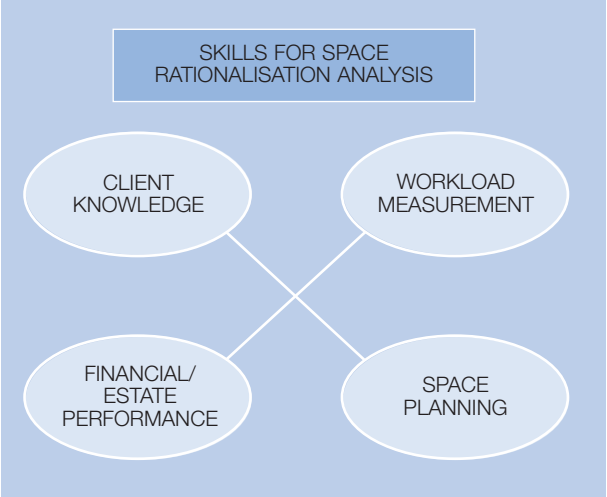
3.25 The NHSME Value for Money unit published a report 'The Patient Hotel' in October 1992, which gives examples of how the concept is developing in the UK. A case study is described in Figure 39.

SPACE UTILISATION

3.26 This section considers the use of space and buildings. The average property overhead cost in the NHS is over £50 per square metre per year (excluding capital charges). The identification of under-used space and spare capacity, from conducting feasibility and rationalisation studies, offers the biggest potential for reducing costs through better asset management.

3.27 The greatest scope for cutting costs probably lies at corporate level, through re-examining new build schemes or finding space savings across a number of departments. This information will, therefore, be of greatest interest to corporate rather than departmental managers. Nevertheless, there is also scope for making better use of space on a smaller scale, within departments or even smaller units.

Figure 40



3.28 Savings can occur as a result of one or more of the following:

- revenue savings on space foregone;
- capital receipts from assets disposed of;
- large savings in new capital investment, through better use of existing assets rather than investment in new assets.

3.29 Space utilisation is an area that is complex and sensitive, since it involves people's perceptions of territory and status. The skills needed for successful analysis of space use are illustrated in Figure 40.

3.30 A useful process for carrying out a space rationalisation study has been found to include the steps set out in Figure 41 (overleaf). This approach can lead to substantial savings by relocating functions or services into space created elsewhere. Capital investment may be needed, but this can often be recovered within a few years through revenue savings.

3.31 A case study of space utilisation in an imaging department is given in Figure 42 (overleaf).

ASSET UTILISATION

3.32 This section covers the use of equipment and facilities and their relationship to unit costs, including the variables that affect usage rates. This information will be relevant to any manager with responsibility for large items of equipment or facilities.

3.33 Asset utilisation is a key driver of unit costs. The lower the utilisation, the smaller the number of units over which overheads can be spread and the higher the unit cost.

Figure 41

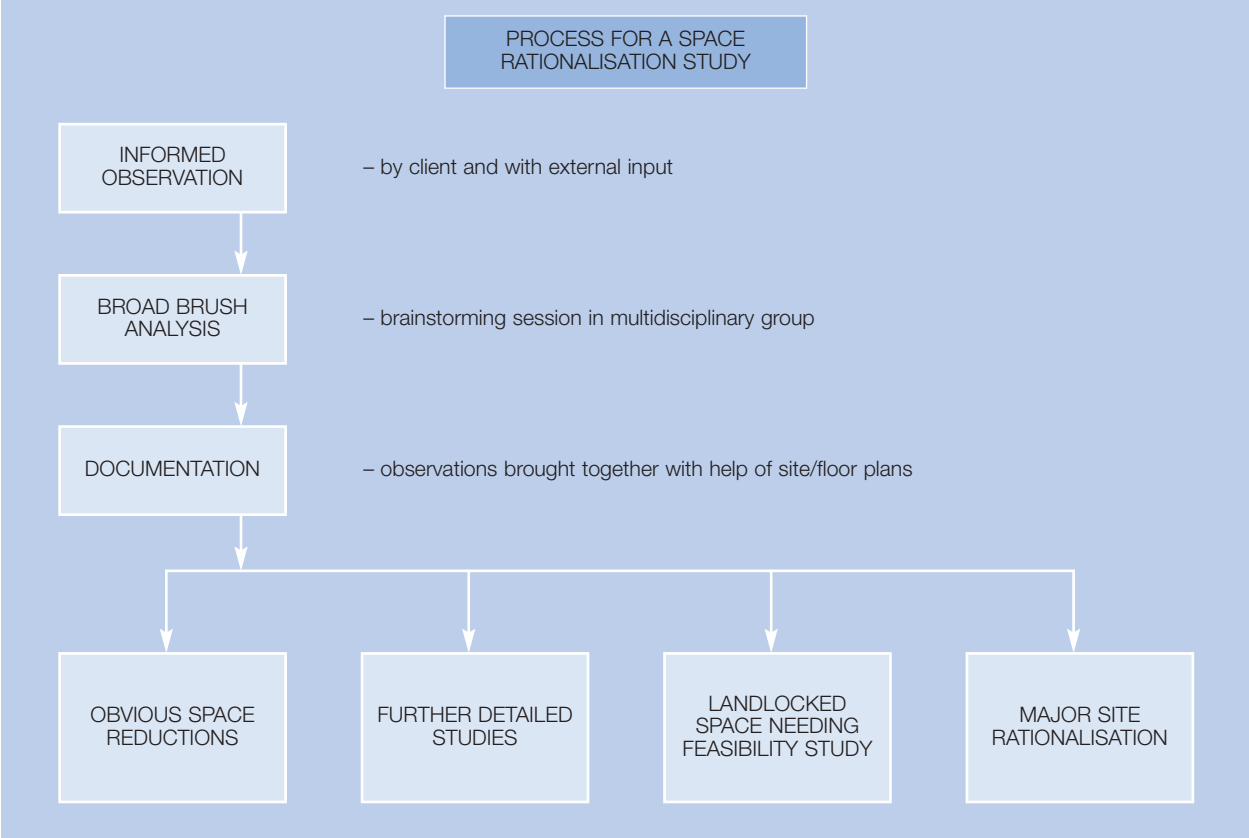


Figure 42

SPACE UTILISATION IN AN IMAGING DEPARTMENT: A CASE STUDY

At the request of the estates manager a review of space was carried out by an external body. This followed concerns by the imaging department manager that examination rooms were under pressure, and office space for radiologists needed to be increased. The space utilisation study needed to consider the following questions:

- Is the department correctly sited for key users?
- Should satellite departments be incorporated in a new single area?
- Is the clinical space in the main department adequate?
- Are support areas adequate (office, waiting areas, storage)?
- Is there adequate privacy?
- What might be the implications of future technological change?

The availability of national standards and external benchmarks was essential in enabling the study to move beyond the subjective views of departmental staff. The data produced unexpected conclusions, suggesting that an increase in X-ray rooms was not needed, but that improved patient waiting and administrative areas were the priority.

Picture archival systems will change the need for conventional X-ray film storage and initially may reintroduce central reporting. Radiographers will increasingly assess and report on images by themselves, and so will need access to reporting areas. The results of the study, therefore, needed to be considered in the context of these predicted changes.

Recommendations were made for improved space management at both strategic level (major change requiring significant capital investment), and on a smaller scale (simpler changes, which could be implemented within annual resources).

The process of data gathering and analysis included the following:

Subject	Source
FUNCTIONAL SUITABILITY AND QUALITY OBJECTIVES	NHS Estates Design and Briefing Guidance (Health Building Notes)
SPACE ANALYSIS (guidance versus actual)	NHS Estates Design and Briefing Guidance (Health Building Notes)
CURRENT/ PROJECTED WORKLOAD	Korner workload statistics
EXTERNAL REVIEWS/ BENCHMARKING	King's Fund organisational analysis Keele Clinical Benchmarking Company

3.34 There are two aspects of utilisation that require management:

- overall intensity of use;
- patterns of use – peaks and troughs can cause bottlenecks, which affect the quality of service offered and may mean that revenue is not being maximised.

3.35 Prior to carrying out an examination of asset utilisation, it is essential to ascertain the capacity of each asset. Methods for measuring the capacity of buildings and departments, or pieces of equipment, can usually be established fairly easily. Measures of capacity will vary, for example a kitchen might have a daily capacity of 1000 meals, an operating theatre suite of 200 operations, and a pathology laboratory of 600 tests.

3.36 Typical measures relate to:

- throughput per time period (for example tests per hour, patients per day, operations per day); or
- occupancy or usage rate (for example hours in use as a percentage of total hours available).

3.37 Once the capacity has been established, the gap between this and the current average or actual use can be determined.

Identifying utilisation problems

3.38 Identifying when assets are under-used is not easy in the absence of good information on what a "good" level of use might be. It is important to focus management attention on:

- assets with the highest value, where savings from higher utilisation are likely to be greatest;
- assets that have the lowest levels of utilisation (for example the bottom 10%);
- assets used in delivering services that are least cost competitive;
- assets where utilisation appears to be declining significantly;
- assets that show a markedly poor utilisation compared to any indicators that are available (the availability and use of indicators is considered in Section 4.0);
- assets that have significant peaks and troughs in usage.

3.39 It is vital to obtain qualitative input from clinical staff to identify how historical patterns of use have developed, the variables that affect utilisation and the impact on related activities of increasing use. Equipment users will often have a good "feel" for whether the equipment/facility is well used or not and where inefficiencies lie.

3.40 Typical variables that affect utilisation include:

- the efficiency of booking systems for use of equipment, which may not adequately reflect the pattern of demand;
- forecast patterns of use, which may not match actual use (for example if there are high levels of cancellations, by patients or clinicians);
- time available for use (for example high "downtime" for maintenance, unavailable at weekends);
- patterns of demand (for example peaks and troughs in demand by time of day, day of the week, or time of the year);
- interdependencies with other activities that are experiencing blockages (for example a shortage of beds for admissions may reduce the utilisation of operating theatre equipment).

Minimising unit costs

3.41 Increasing the use of equipment and facilities will reduce the cost per unit of a particular service, by spreading overheads over a large number of units. However, increasing use is also likely to incur additional revenue costs, as variable and possibly semi-variable costs rise. For example, there may be a need for extra staff or greater overtime working or increased use of materials or energy.

3.42 There will be a level of use where the unit cost will be minimised. This will be the point where the variable cost per unit plus the overhead cost per unit is minimised. This is illustrated in Figure 43 (overleaf).

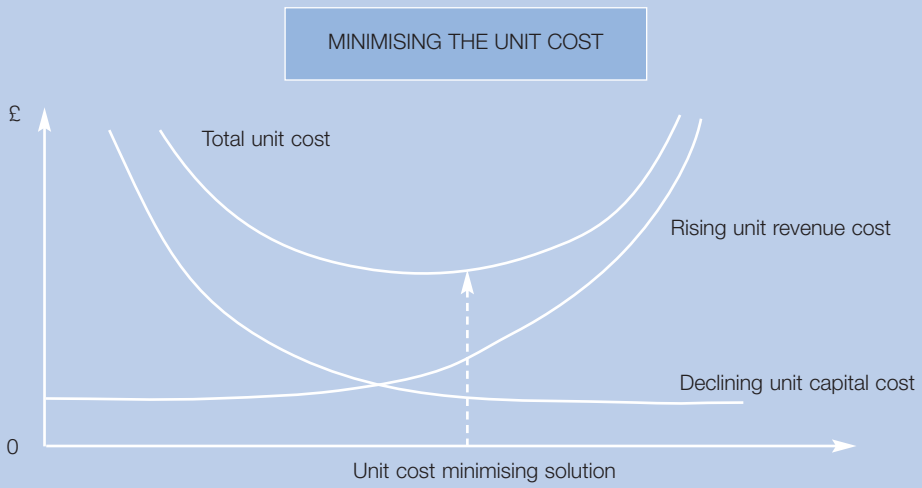
Study of the use of operating theatres

3.43 Successive reports over the past 15 years on the use of operating theatres have identified substantial under-use of operating theatre assets.

3.44 Studies have typically found that:

- 28% of operating theatre availability was unstaffed and not regularly scheduled for use;
- 23% of scheduled theatre time was not used, mainly due to cancelled sessions, whilst the duration of sessions was often significantly different from that planned;
- there were wide variations in use of operating theatres between different departments and individual clinicians;

Figure 43



Source: Introduction to estates management, NHS Training Directorate, 1990

- overall, only 50–60% of available theatre time was used;
- there was little planned weekend use of theatres, which could have reduced the cost per patient by up to 3%;
- full use of scheduled theatre time could have increased throughput by as much as 11,000 operations per year.

3.45 The main reasons for the poor levels of use were identified as:

- allocation of theatre time on a historical basis, with no adjustment made for actual patterns of use;
- theatre planning not being co-ordinated with admission planning, and theatre managers not always having access to waiting lists or detailed estimates of likely operating time and lengths of stay for individual patients, and no mechanism for predicting bed availability in advance;
- no effective measures to control patient cancellations or failure to attend;
- staffing shortages preventing expansion of theatre capacity;
- lack of ICU and HDU beds, which limit theatre use for some operations.

Options for improving asset utilisation

3.46 A decision tree provides a useful means of identifying all the possible options for improving asset utilisation, and to map a logical path for each option. One option will always be to dispose of the asset completely, and this is useful as a baseline.

3.47 Figure 44 (overleaf) shows a simple decision tree of options for improving theatre use.

ACTIVITY

A. Identification of under-used assets

Consider the list of assets for which you are responsible. Using the criteria set out in paragraph 3.38, identify up to three assets for improved utilisation.

If you are unable to do this, develop an action plan for how you will obtain the necessary information.

B. Reasons for under-utilisation

Once you have identified the assets for improvement, consider the reasons for their current poor level of use and how these might be overcome. Use the pro-forma provided (Figure 45, overleaf). You may also like to try developing a decision tree for generating options.

C. Assessing the optimum use of your assets

Using Figure 43, try to assess the optimum use of one of the assets for which you are responsible. You will need to:

- identify the total fixed costs allocated to the asset;
- list all the variable and semi-variable costs and estimate how they increase at different levels of use;
- plot the fixed costs, variable/semi-variable costs, and total costs per unit at different levels of use;
- read off the level of use that corresponds to the lowest point on the total cost per unit curve.

Figure 44

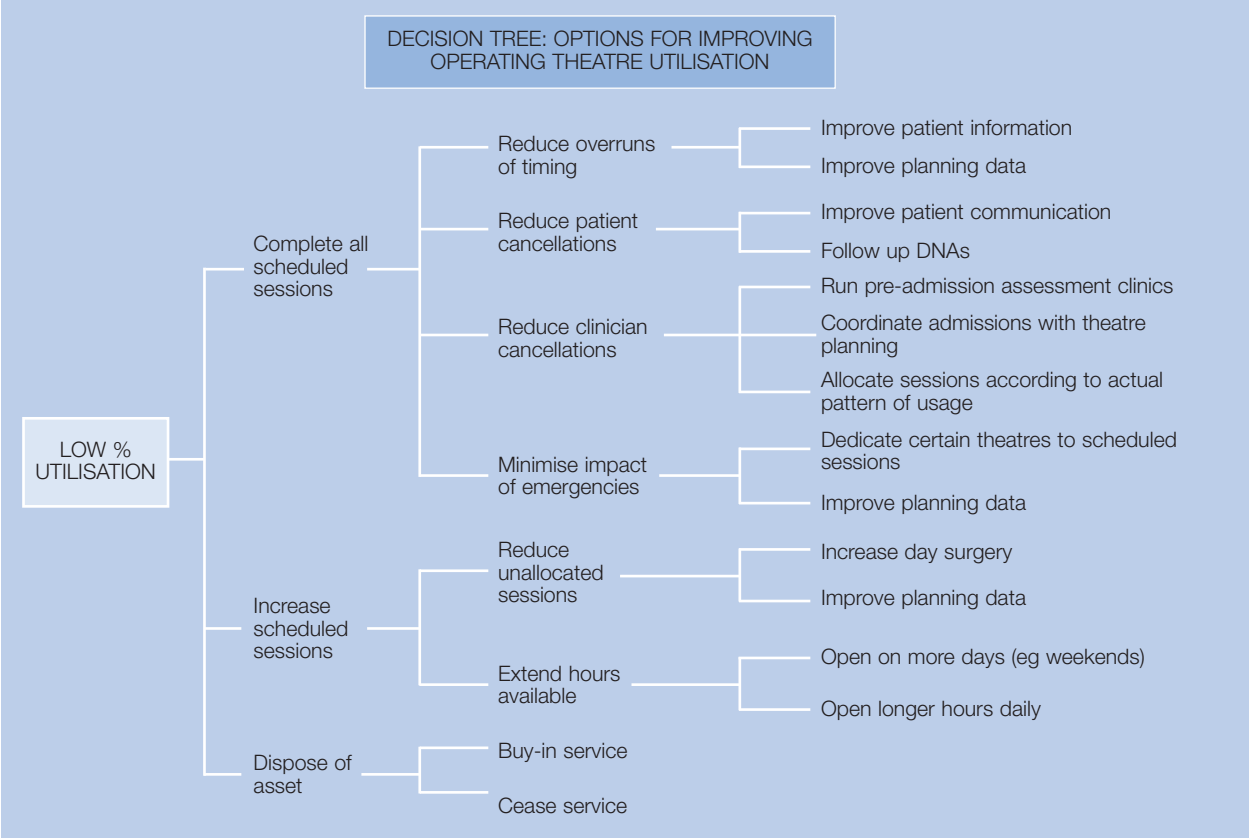
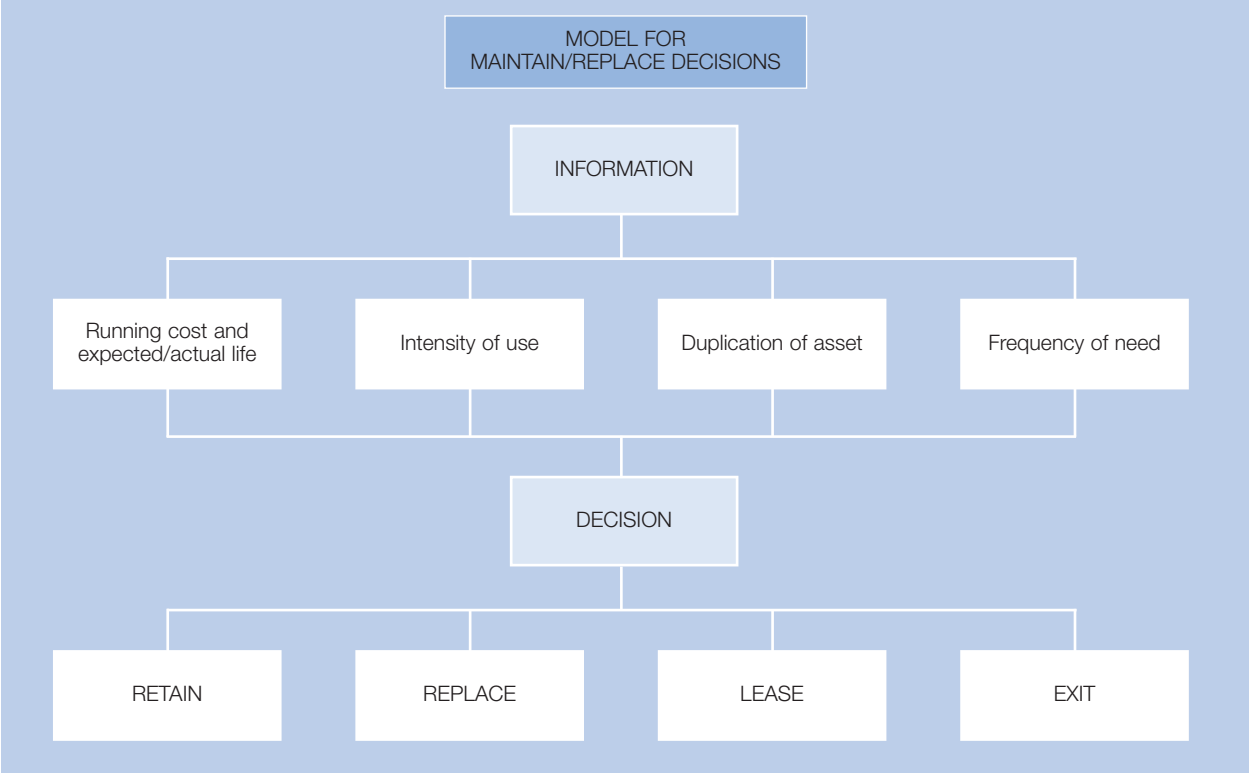


Figure 45

IDENTIFYING ASSET UNDER-UTILISATION – PRO-FORMA

Asset	Possible reasons for under-utilisation	Options for improvement	Barriers to be overcome
Example			
Operating theatre	High level of cancelled sessions Theatre staff not available	Allocate sessions on evidence of use Plan admissions and theatre usage jointly	Clinicians reluctant to alter traditional practices Lack of system to co-ordinate theatre and admissions planning
Asset 1			
Asset 2			
Asset 3			

Figure 46



MAINTENANCE AND REPLACEMENT DECISIONS

3.48 This section considers the role of the manager in setting maintenance agreements and in deciding on the best time to replace an asset. This information will be relevant to any manager with responsibility for major facilities or items of equipment.

3.49 The tradition in the NHS is for assets to be retained in use long after their standard asset life has expired. While standard lives are only a guide to the useful life of an asset, the maintenance costs of the asset will almost certainly increase with time. You must, therefore, know how these costs change over time, and this requires a system for logging the maintenance history of each asset.

3.50 On the basis of this information, in discussion with your maintenance provider, you can decide what the future costs of the asset are likely to be, and whether the optimum replacement point has been reached.

3.51 Maintenance strategies are not just concerned with costs. They affect the level of clinical risk to which the asset owner is exposed, and the risk of loss of production, however that may be defined for any individual department. There may be as much danger in over-maintaining an asset as in under-maintaining it.

3.52 You should seek information that enables you to consider the total costs involved in either retaining or replacing an asset. It is possible to forecast the increasing maintenance cost to which an ageing asset is liable. At a certain point, it becomes uneconomic in relation to the residual value of the asset.

3.53 You will need information on breakdown frequencies of major assets, linked to maintenance cost trend data and forecasts of future costs. You should also draw on utilisation data in order to assess intensity of use. A model for the "maintain versus replace" decision is shown in Figure 46.

3.54 As an example of this model in action, the facilities manager at an NHS trust studied the pattern of anaesthetic machines in use and under repair at any one time over a 12-month period. This showed that, without compromising the work of the operating theatres, two machines could be disposed of rather than replaced, giving a useful saving in operating costs and in capital charges. A further study is examining whether, with better organisation, the number could be reduced further, giving even greater financial returns to the trust.

RISK MANAGEMENT

3.55 This section looks at risk management, particularly health and safety issues.

3.56 Since April 1991, the provision of Section 60 of the NHS and Community Care Act 1990 removed Crown Immunity from health authorities and NHS trusts. NHS organisations are required to comply with a huge range of health and safety and other statutory workplace regulations.

Figure 47

HEALTH AND SAFETY LIABILITY

BASIC NEEDS	CRIMINAL OR CIVIL LIABILITY COULD RESULT IF:
SPACE	• Specified minimum workspace is not met
	• Restricted workspace results in medical disorders
AIR	• Clean air requirements of COSHH Regulations are not met
	• Sick Building Syndrome causes health problems
SOUND	• Noise at Work Regulations are ignored and deafness occurs
LIGHT	• Electricity at Work Regulations are ignored, leading to risk of electrocution
	• Inadequate lighting levels cause eyestrain
WARMTH	• Minimum temperatures are not maintained
WATER	• Supplies are not available to meet fire regulations, the water supply is polluted, sewage systems are inadequate, or the supply is stored at temperatures where there is a risk of legionella bacteria surviving
FOOD	• Food Safety Act requirements are ignored and there is a risk of salmonella or other food poisoning
SHELTER	• Building regulations are not met
WORK	• Health and Safety notices are not located in a clearly visible place, or injury or stress is caused through work practices
PRODUCTS	• General or specific safety regulations are not adhered to, or any product liability is incurred

3.57 Health and safety regulations are based around the basic needs of people who work in, or attend, healthcare premises. These govern the framework of legislation and regulations, and their attendant criminal and civil liabilities. Criminal law specifies minimum standards for the public good. Common law or contractual liabilities lay down a duty of care, leading to civil liability for negligence. The main areas of risk are set out in Figure 47. Your estates department should be able to advise you on the detailed provisions of these Acts and regulations.

3.58 Health and safety issues should form part of your organisation's controls assurance plan for non-clinical systems. This should be part of the overall corporate governance process for your trust. The need to change operational procedures should thus be determined at the top of your organisation, and the need to allocate resources to correct deficiencies should be given equal priority to clinical developments.

3.59 A number of different inspectors may have access to healthcare premises at any time. They will certainly visit if an accident or incident occurs. The options within the procedures they follow are set out in Figure 48.

3.60 The main Acts and Regulations bearing on health and safety in NHS premises are:

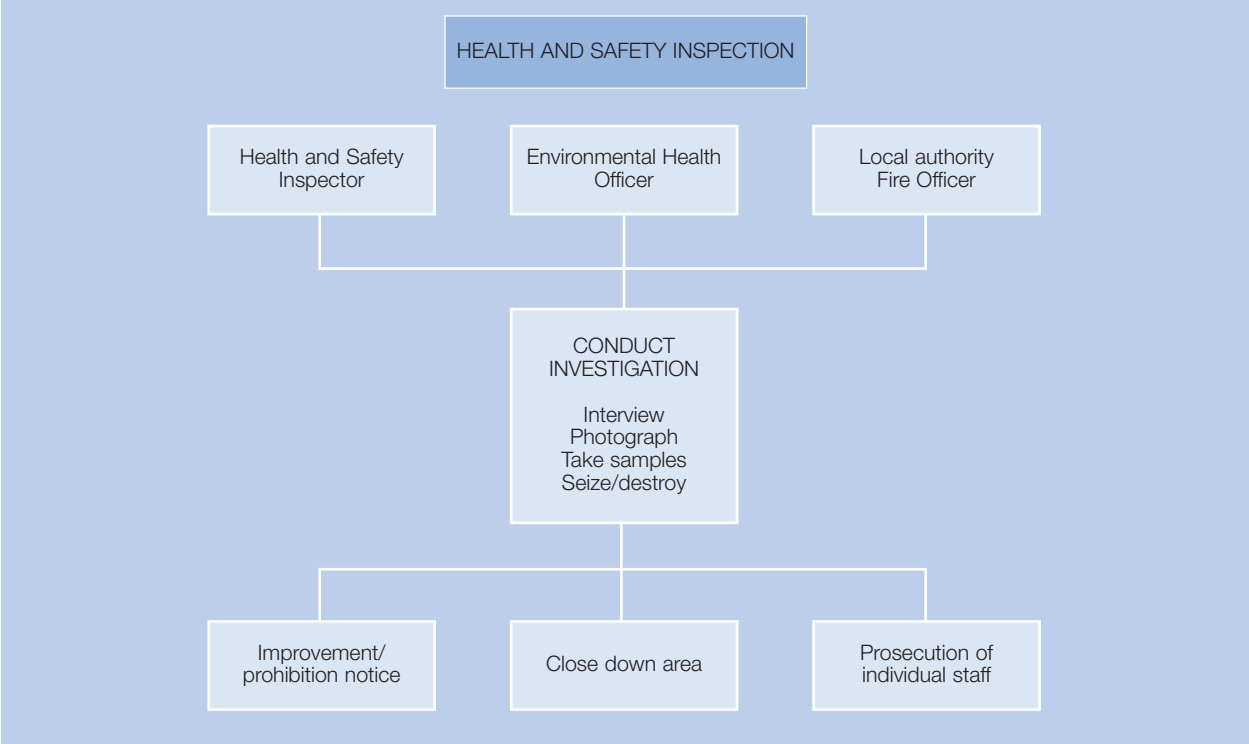
- the Disability Discrimination Act 1995;
- the Health and Safety at Work etc Act 1974;
- the Fire Precautions Act 1971;
- the Fire Precautions (Workplace) Regulations 1977 (as amended) 1999;
- the Building Act 1984;
- the Registered Homes Act 1984;
- the Housing Act 1985;
- Manual Handling Regulations;
- Management of Health and Safety at Work Regulations 1999;
- Radioactive Substances Act 1993;
- Ionising Radiation Regulations 1985;
- Control of Asbestos at Work 1987 and amendment 1998;
- Provision and Use of Work Equipment Regulations 1998;
- Noise at Work Regulations;
- Electricity at Work Regulations;
- Committee on Substances Hazardous to Health (COSHH) Regulations.

3.61 In addition to the legal framework within which health assets have to be managed, there is also a considerable body of guidance, together with codes of practice, and policy information, issued by the Health and Safety Executive and by NHS Estates. Examples include:

- HTM 2040 'The Control of Legionella in Healthcare Premises – A code of practice';
- Safe Disposal of Clinical Waste: Health Services Advisory Committee;
- HGN 'Safe Hot Water and Surface Temperatures'.

3.62 In addition to inspectors mentioned in Figure 48 (overleaf), there are also environment agency and local authority building control officers.

Figure 48



3.63 Risk management needs to ensure "business continuity" by maintaining – on a planned preventive basis – those assets that are classed as "life critical". This will include items such as emergency generators, lifts, operating theatres and key items of medical equipment.

3.64 When assets malfunction, a defects and failures reporting system should be implemented. Operated by NHS Estates, this system is similar to that run by the MDA (see paragraph 3.82). Heads of departments need to be aware of the process. In more serious cases it will be necessary for a report of the incident to be submitted to the Risk Management Committee of the trust board.

NEW ASSET INVESTMENT

3.65 This section covers the issues surrounding investment in new assets, particularly investment appraisal procedures and the scope for raising capital from the private sector through leasing and other arrangements. This information will be of relevance to any manager who makes new investment decisions.

Option appraisal

3.66 New asset investments are a key area of management decision-making in relation to assets, and potentially one of the most risky. Decisions are reached through the option appraisal process, which is described in detail in the Capital Investment Manual.

What is option appraisal?

3.67 Option appraisal is the systematic examination of objectives and of different ways of meeting those objectives before committing resources. The purpose of option appraisal is to:

- clarify the objectives of the potential investment;
- gain a full understanding of the relative advantages and disadvantages, both qualitative and quantitative, of different options;
- identify the option that represents best value for money.

What sort of decision is option appraisal used for?

3.68 The most common applications for option appraisal for asset-related decisions are:

- new or replacement capital projects, for example whether or not to undertake a project, when to undertake it, or whether to buy one piece of equipment versus another;
- the disposal or replacement of existing assets, for example whether to sell land, whether to replace facilities or relocate facilities;
- "make or buy" decisions, that is whether to provide services in-house or contract them out;
- financing decisions, for example whether to lease or buy assets.

How is an option appraisal done?

3.69 The quantitative technique used to compare options is discounted cash flow analysis. This is a method of putting different options, which may have different time horizons and different profiles of capital and revenue cash flows, onto a common footing for comparison. This is done by converting all the future costs and revenues associated with each option to their equivalent value today (the net present value).

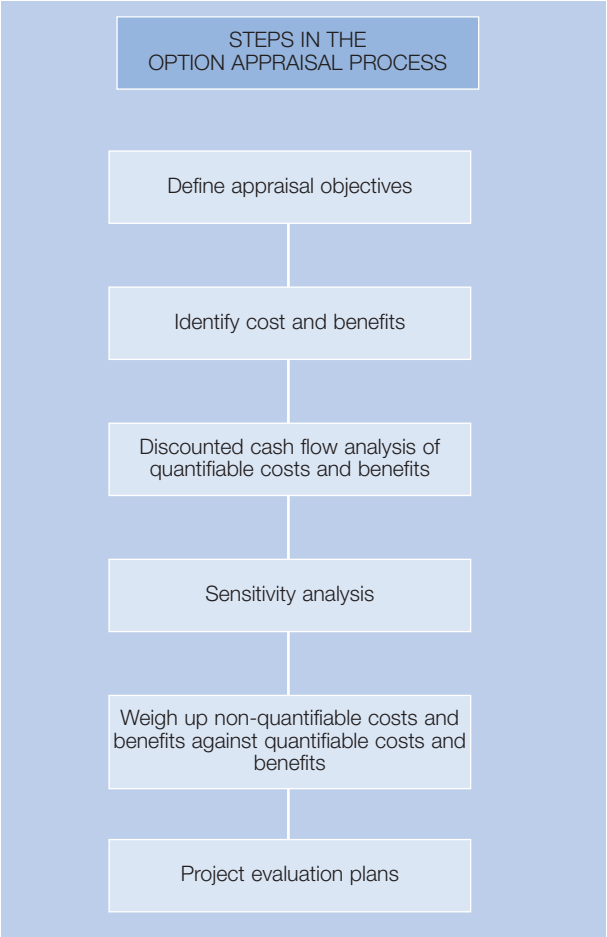
3.70 The reason for translating future costs and revenues into today's values is that £100 is worth more today than £100 would be in 12 months' time. This has nothing to do with inflation but the fact that £100 can be exchanged for goods from which benefit can be derived for the period of 12 months. For this reason, both the government and the private sector appraise projects on the basis of attributing a lower value to income streams received in the future than to those received today.

3.71 The government applies a real discount rate of 6% to all its investment projects. This means that £100 in 12 months' time is worth 6% less than £100 today. To be exact, £100 received after 12 months is "worth" only £94.34 and, after 24 months, only £89.00 at today's "present value".

3.72 The basic steps in an option appraisal are summarised in Figure 49 and are as follows:

- define the objectives of the proposed investment, for example a specific improvement in service quality, a reduction in costs, or an increase in income;
- consider the options available. These will normally include a "do nothing" option as a base for comparison with other options. It is important to think widely and creatively about the range of options, before choosing a small number to appraise more fully;
- identify the costs, benefits and uncertainties of each option, for example the initial capital costs, residual value of capital assets, operating costs over the appraisal period, and measures or descriptions of those costs or benefits that cannot be quantified;
- use discounted cash flow analysis to identify a net present value for each option;
- weigh up the uncertainties, using sensitivity analysis, to assess the impact on net present value of different assumptions, for example different cost and revenue assumptions;
- consider the non-quantifiable aspects of each option (for example environmental factors, questions of equity, planning feasibility) and weight these up against the net present value;

Figure 49



- develop project evaluation plans, to ensure that the chosen option is monitored and evaluated properly.

3.73 Discounted cash flow analysis provides one input into investment appraisal decisions, by identifying the least costly option. However, investment appraisal is as much an art as a science and qualitative judgements are also important for assessing those aspects that cannot be quantified: for example, how well each option meets service quality objectives.

PROCURE 21

3.74 The report 'Sold on Health' published jointly by the Treasury and NHS in 2000 announced a major overhaul of the capital procurement process. The programme being led by NHS Estates is known as ProCure 21, details of which are set out in the 'Partnering Handbook Manual 2'.

3.75 The objective of the programme is to improve capital procurement by:

- developing long-term relationships between NHS clients and local private sector partners;
- promoting high quality design and enabling innovation to be shared;

- ensuring sound performance management and benchmarking;
- establishing the NHS as “best client”.

3.76 An outline of the process is shown in Figure 50. The assumption is that each supply chain partner will obtain approximately £20m work per annum through this process. Profit levels will be agreed and ring fenced but more risk will be handled by the partner’s supply chain as shown in Figure 51. This will produce a radical change in the procurement process and in the relationship between the client and contractor.

MANAGEMENT OF MEDICAL EQUIPMENT

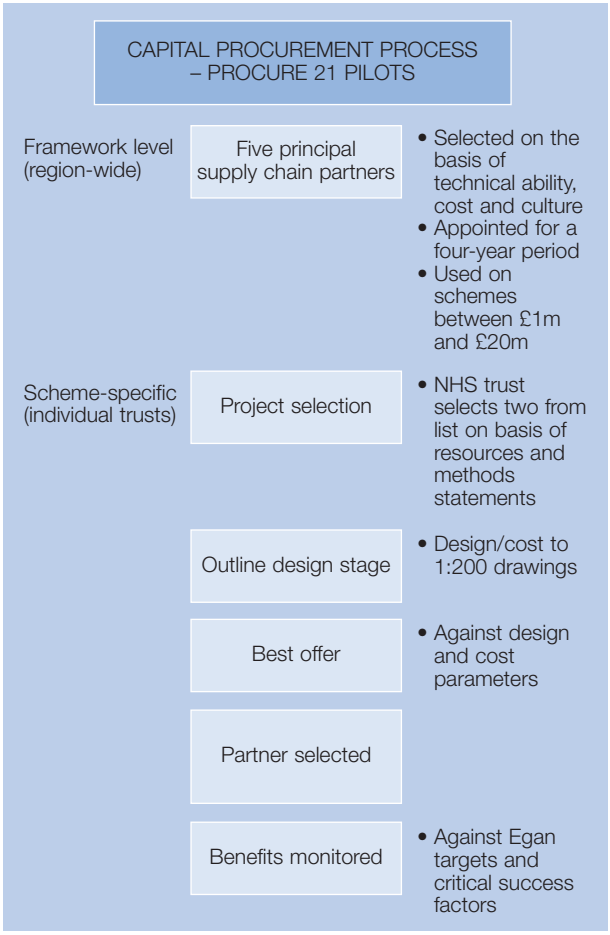
Organisation of the Electro Bio-Medical Engineering (EBME) function

3.77 Management of medical equipment is usually a separate discipline within acute hospitals. It is sometimes part of the estates function but may be managed by the medical physics or Electro Bio-Medical Engineering (EBME) department.

3.78 The management of medical equipment has become increasingly important over the past 10 years as acute hospitals have become more dependent on technology, and the cost of managing and maintaining medical equipment has grown. The EBME department will not necessarily manage all medical equipment: equipment used in pathology and radiology departments may be managed by the respective department. You will need to check in your own trust exactly where the responsibility for management of medical equipment lies.

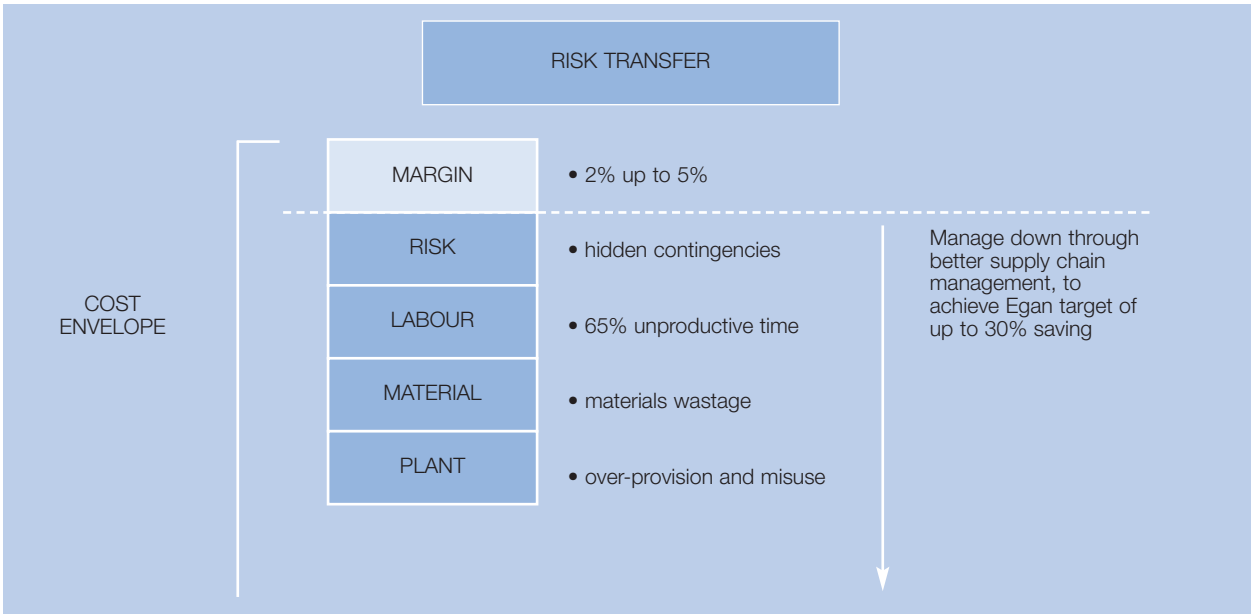
3.79 The manager of the EBME department is responsible for the following:

Figure 50



- direct maintenance of front-line medical equipment;
- direct maintenance of some specialist equipment;
- management of external EBME maintenance contracts;

Figure 51



- management of the trust's EBME inventory;
- liaison with Medical Devices Agency;
- co-ordination of response to hazard warnings;
- advice on implications of new equipment purchases;
- provision of training to clinical users.

3.80 Sometimes the budget for external maintenance contracts is held centrally by the EBME department; in other cases it has been devolved to clinical directorates. Due to the cost of contracts there is a move to carry out across-the-board, front-line maintenance in-house, reserving external contracts for preventive maintenance and major faults.

The Medical Devices Agency

3.81 The Medical Devices Agency (MDA) is an executive agency of the Department of Health, and its role is:

> "to take all reasonable steps to protect the public health and safeguard the interest of patients and users by ensuring that medical devices and equipment meet appropriate standards of safety, quality and performance and that they comply with relevant Directives of the European Union."

3.82 The MDA has three main tasks:

- to negotiate, introduce and enforce controls as set out in the European Medical Devices Directives;
- to evaluate medical devices and publish the findings;
- to investigate adverse incidents associated with medical devices.

3.83 Each hospital has a MDA liaison officer (usually the EBME manager). The EBME manager distributes hazard warnings from the MDA, reports adverse incidents, and distributes evaluation reports.

Inventory management

3.84 A record of your organisation's equipment assets is the responsibility of the EBME manager, and will be in a similar format to the asset register shown in Figure 28 (page 34). Every directorate manager should expect to receive a printout of their EBME assets, updated on at least an annual basis, so that they can:

- check for items that should be on the register but are not;
- check for losses;
- carry out maintenance planning;
- identify when warranties run out;
- compile equipment replacement programmes/ submissions.

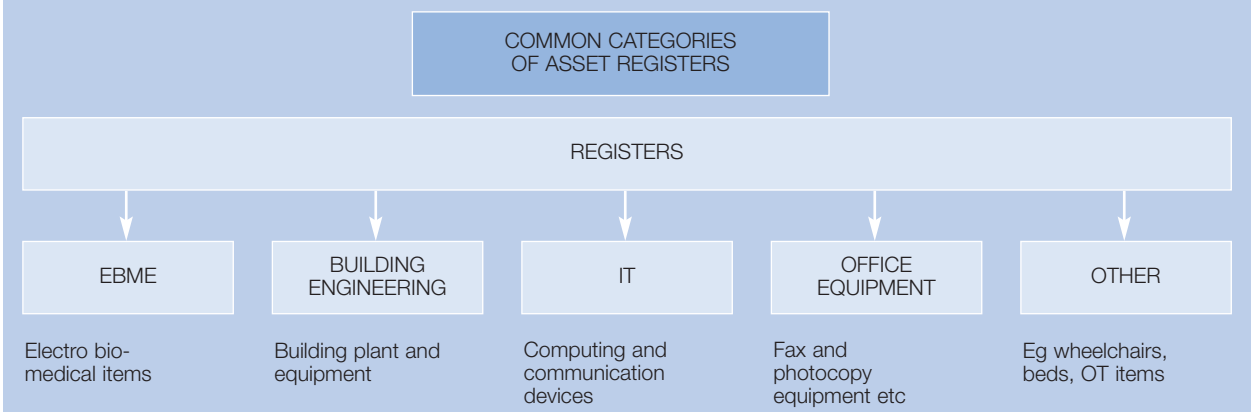
3.85 Asset details should not be duplicated between different registers. Figure 52 shows the most common categories of asset registers.

3.86 Most computer-based equipment management systems have similar functionality, which include:

- equipment inventory management;
- maintenance management;
- contract management;
- spare parts management;
- hazard notice management.

3.87 Much of this information is of most value to technical staff. However, some trusts are beginning to explore the use of intranets to allow users to access information on assets directly, and to enter requisition information when a piece of equipment breaks down.

Figure 52



An equipment library

3.88 In many cases it makes sense to bring together the large number of frequently-used items of equipment, such as infusion pumps, nebulisers and other portable devices, into a single library, from which users can book them out when needed. The advantages of such a facility are that:

- it ensures equipment is fully ready-for-use when needed;
- it avoids hoarding at ward and departmental level;
- it allows equipment to be cleaned and regularly calibrated;
- it reduces maintenance costs and the overall investment in assets;
- it encourages standardisation of equipment.

3.89 Although ward staff may be initially concerned that they are losing "their" piece of equipment and that it won't be available when needed, in practice experience everywhere has shown such a system works.

Figure 53

WHOLESALE OUTSOURCING – A CASE STUDY

Until recently the EBME function was provided in-house throughout the NHS. Recently the option of completely outsourcing has been offered by a few companies, and Milton Keynes General NHS Trust has chosen to contract out their entire EBME department.

At Milton Keynes the trust faced a number of difficulties:

- escalating contract prices;
- significant growth in high-tech equipment;
- severe problems in recruiting EBME staff in the local market;
- new equipment purchased without thought to the maintenance "tail".

The director of facilities wanted to ensure a good quality of service whilst at the same time capping costs. It was not seen as an exercise in reducing costs.

The bidding process took 12–18 months. An advert was placed in the *European Journal*, four firm responses were received and three were invited to tender. Bidders were given a complete asset register, which was divided into an "A" list (those requiring fully comprehensive breakdown and planned preventive maintenance (PPM) cover) and a "B" list (those covered by basic PPM but where breakdowns would be paid for ad hoc). A draft specification of the service was prepared, which caused the most problems and needed rewriting six times. Milton Keynes were trailblazing and had no models to copy. The difficulties included the following:

- what to do about the existing technical equipment of the department – it was valued and sold to the company at a nominal fee;
- how to define "consumables", which were excluded from the contract price (for example batteries, finger probes, some glassware) – the definition agreed upon was "something which has a fixed life";
- allocating equipment to list A or B – an exercise in risk assessment;
- how far to reduce external contracts and include the work in the contract;
- whether to charge the company for trust space occupied – in the event workshop space was provided free, but office expenses were charged for;
- how to quantify new developments that were included in the contract, such as the introduction of an equipment library.

The contract was signed for a three-year period with an option to extend for a further two years. It provides for an increase in technical staff on site, which includes the existing staff who were TUPE'd across. There is provision for monthly monitoring meetings on the basis of a report from the company covering volumes, cost and quality issues.

The trust believes it still needs to take an informed client role within the estates department and is fortunate to have a senior manager with EBME experience. The only concern is whether it will receive completely impartial advice on equipment purchases in the future, although it considers itself to have adequate in-house expertise to compensate.

ACTIVITY

A. Whether to maintain EBME equipment internally or externally

Consider what steps you need to take to influence the decision to maintain EBME equipment internally or externally for your part of your organisation.

What information can you obtain from the asset register about the maintenance history of key items?

What are you getting for your money from current external contracts? Is there a possibility that some items are being over-maintained?

Draw up a plan of action and questions to discuss with your EBME manager.

Section 4 Measuring performance

4.0 Measuring performance

INTRODUCTION

4.1 The objectives of this section are:

- to identify performance measures;
- to consider how performance measurement information can best be presented;
- to identify the benefits and difficulties associated with using performance measures.

4.2 The ability to measure performance is essential to improving standards of asset management in the NHS. In this section, we examine the range of asset performance indicators that are available and some of the principles of performance management.

THE MONITORING PROCESS

4.3 In the past there has been little management of performance in the estates function. NHS trusts have been required to make a 6% return on their assets; a range of estate returns are expected to be completed every year, and major cost overruns on new capital schemes caused the occasional investigation.

4.4 More recently steps have been taken by regional office (now regional office of director of health and social care) estates staff, part of NHS Estates, to develop a more consistent and robust framework of performance monitoring. The important work programme in Chapter 4.0 of the NHS Plan, "Investing in NHS facilities" will add to the performance management agenda. The performance management function is undertaken by Strategic Health Authorities.

4.5 The approach in one former regional office (South West region) had three main elements, which are shown in Figure 54. Monitoring was carried out through quarterly meetings on site and was seen as a supportive and developmental process. In order to make this process a robust and helpful one it is important to have access to reliable data collected over time. Estates data is collected through the Estate Returns Information Collection (ERIC) system, which is described in more detail later in this section.

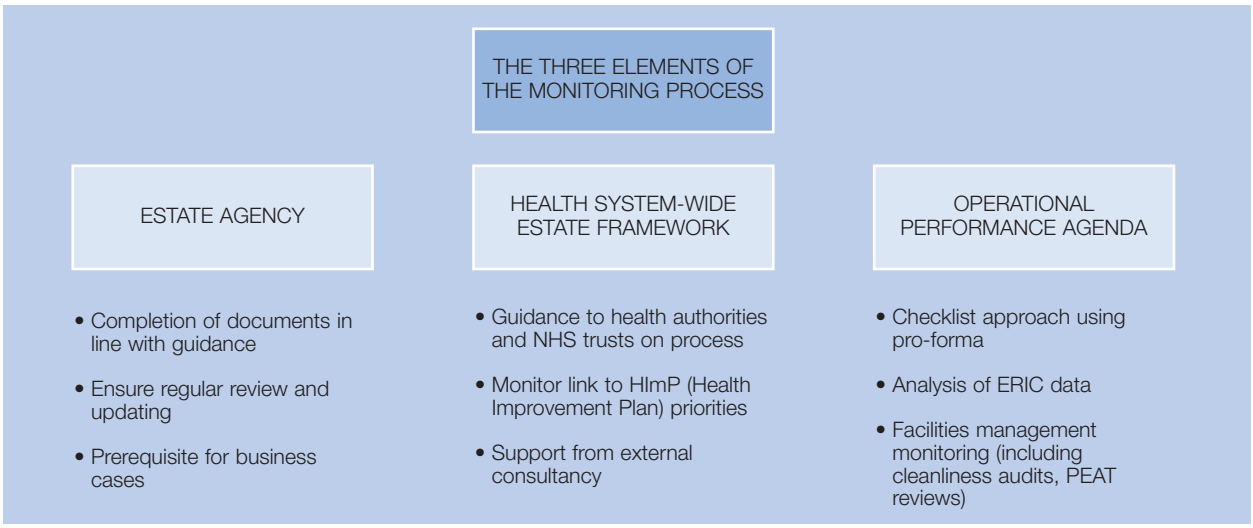
ASSET PERFORMANCE MEASURES

Health gain – asset effectiveness

4.6 Despite the difficulties, you should attempt to measure the health gain to the community of asset investment by using patient questionnaires and commissioning qualitative research. In addition, you should ask the following questions of capital investment in which you have been involved:

- Has the investment enabled greater throughput to be achieved?
- Has it significantly improved the quality of care or service? How can you tell?

Figure 54



- Has it enabled a new model of care to be introduced?
- What do users think of the layout and design of the facilities they visit?
- What do staff think?

Return on capital – asset effectiveness

4.7 The most commonly used measure of the return generated by assets is "return on net assets" (RONA). Another common term for this measure is "return on capital employed" (ROCE). In the private sector, this measure is one of the key indicators of performance. However, there are two difficulties with applying it to the NHS:

- it measures profit, which is not strictly relevant to the NHS;
- it includes all assets employed in the business, including financial assets such as equity, long-term loans and debtors, and not just physical assets.

4.8 A component part of the RONA calculation is "net asset turnover". This isolates the contribution of physical assets to overall return on capital employed in the business. It is calculated by:

revenue/value of capital assets

4.9 "Net asset turnover" is a useful way to think about the use of capital tied up in assets. It measures how hard the capital is working by measuring the number of times that the capital is being "turned over" in generating revenue in a period. It can also be thought of as representing the number of pounds in revenue generated for each pound of capital invested in assets to provide a particular service.

4.10 For example, a trust has a service level agreement for a paediatric service worth £400,000. The assets required to deliver this service include a paediatric ward, an operating theatre, equipment and vehicles, with a capital value of £600,000. The asset turnover is therefore:

400,000/600,000 = 0.66

4.11 For every £1 invested in the assets, 66p is generated in revenue. This is not in itself very meaningful. However, since the figure is less than one, it should lead you to question whether the assets could be better used or whether the service could recover more of its costs.

Asset efficiency measures

4.12 For strategic purposes a suite of estate strategy performance indicators have been devised (see Figure 55 for details). All are based on indicators that are expressed as a ratio of a trust's building and land areas. They are set out in detail in the document 'Developing an estate strategy' and are presented in the form of "radar" charts.

4.13 These enable trusts to start thinking about their performance in relation to the national average for similar organisations. You should discuss them with your estates manager and they should form the basis for board level discussions in conjunction with your estate strategy planning.

The ERIC returns

4.14 The content of the ERIC estate data collection system is currently being changed to include three types of measure – input, service improvement and output – and to cover a broader range of facilities disciplines. Figure 56 (overleaf) lists the performance areas that may be covered by the new performance measurement system.

4.15 This information, which has recently become web-based and interactive, provides the basis for a range of ratios and indicators. Much depends on the accuracy and consistency of data collection over time. At present it is not possible to automatically obtain information on how your organisation compares with others. This can be done through a request to NHS Estates.

The "balanced scorecard"

4.16 One way to bring together hard and soft data in order to review performance is by using the "balanced scorecard" approach. This links traditional estates data, which is focused on cost and volume, with data on users' perspectives, issues of environmental and service quality, and how safe or risk sensitive the service is to staff and consumers. This work has been initiated by NHS Estates.

Figure 55

PERFORMANCE INDICATORS

Indicator	Aim
Space efficiency	To relate the estate and its annual occupancy cost to the output of your trust
Asset productivity	To demonstrate the actual cost of owning assets
Asset deployment	To compare the make-up of the asset base
Estate quality	To give a balanced view of the overall condition of the estate relative to age and value
Cost of occupancy	To identify the profile of occupancy costs

Figure 56

PERFORMANCE AREAS

1	Basic trust information	
2	Site information – stock	• Floor area • Land area • Occupied floor area • Unoccupied floor area • Leased-in floor area • Leased-out floor area • Age profile
3	Site information – quality of buildings	• Cost to achieve physical condition "B" (acceptable) • Amount in "B" to be disposed of • Floor area in condition "C" or "D" (unacceptable) • Cost to achieve statutory and safety compliance • Cost to achieve fire safety compliance • Amount in above to be disposed of • Floor area in fire/safety condition "D" • Cost to achieve compliance with disability discrimination standards
4	Site information – patient and non-patient areas	• m^2 of patient and support accommodation
5	Site information – capital charges	• Land • Buildings • Equipment • Depreciation and interest • Donated assets • Rent and rates • Cost of lease/income from leases
6	Site information – environmental	• Use of combined heat and power • Energy inputs and outputs • Annual financial savings
7	Site information – energy	• Electricity, gas, oil, coal • Locally produced energy • Exported energy • Costs • Degree days
8	Site information – water and waste	• Water volume and cost • Sewage volume and cost • Clinical waste volume and cost • Special waste volume and cost • Domestic waste volume and cost
9	Site information – access and signage	• Patient satisfaction • Staff satisfaction • Complaints
10	Estate maintenance	• Pay and non-pay costs • EBME costs • Day-to-day work (%) • Planned maintenance (%) • Average response time • Number of managers/supervisors • Turnover rate
11	Quality of service	• Patient satisfaction with environment (%) • Staff satisfaction with environment (%) • Complaints
12	Other facilities	• Cleanliness • Ward housekeepers • Food services • Communications • Linen services • Safety, security and fire • Car parking • Portering • Sterile services • Transport • Residential services

Equipment performance benchmarks

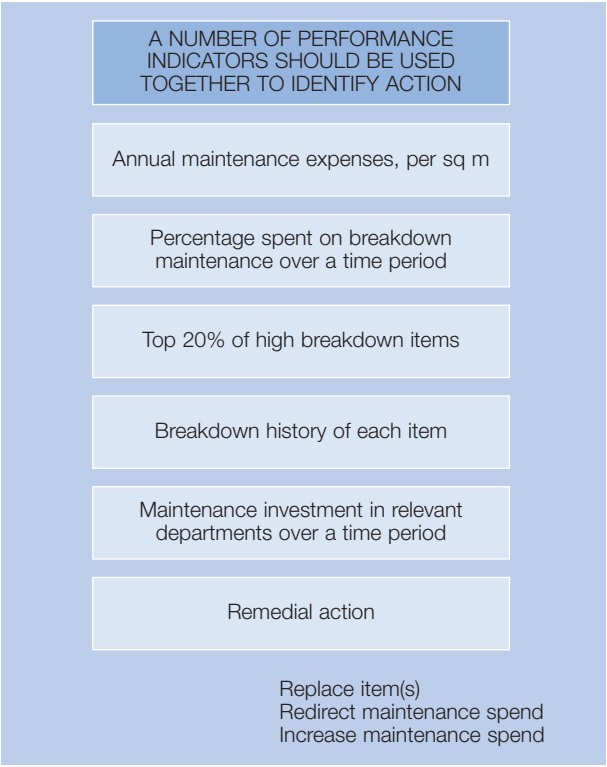
4.17 Performance benchmarks in relation to equipment are less well developed, and will usually be specific to the type of equipment (X-ray, laboratory, computer etc). Most of the performance benchmarks for equipment have been developed by manufacturers. Information can be obtained either from manufacturers, or from technical heads of department, or from the EBME department. One important measure is a comparison of the equipment's use against its maintenance profile.

USING PERFORMANCE MEASURES

4.18 It is important to remember that performance indicators only give an indication of issues that justify further study. They are not absolute measures. It is worth noting that:

- a single statistic will only tell a limited story – it is best if a comparison can be made, either through a time series or with similar data from other sites;
- care should be taken to compare like with like – data from an acute hospital site should not be compared with data from a mental illness hospital site, even if the size of the sites appear similar – the age of buildings on different sites, or their configuration may be very different;
- the accuracy of data that is collected can be suspect – allowance should always be made for at least a +5% error;
- it will usually be necessary to track through a number of performance indicators in order to identify the action to be taken, as shown in Figure 57 (overleaf).

Figure 57



4.19 The measurement of performance is growing in importance in the NHS. While initially focused on clinical issues, the work of external bodies such as the Commission for Health Improvement (CHI) is widening the scope of performance measurement to include estates and facilities issues. This reflects the recognition that the quality of a patient's experience of the NHS depends on both the quality of clinical care and the physical environment.

ACTIVITY

A. Developing asset performance measures for your assets

Define a number of key asset performance measures for your part of your organisation. Use those described in this section or create measures that are directly relevant to your operation. In identifying measures, consider how far the information to derive the measures is readily available in comparative form.

Ask your estates manager for the indicators from systems such as the ERIC returns, and ask for the information to be presented in a graphical or other user-friendly way.

Investigate what performance measures are available for major items of equipment on which your organisation depends.

Find out what higher-level indicators are considered by the trust executive or board on a quarterly or annual basis, and consider whether those are the most appropriate.

Appendices

Appendix I – Answers to questions in Section 2.0

SELF-ASSESSMENT QUESTIONNAIRE (SECTION 2.0: FIGURE 17)

1. £5000

2. No, because they are not functionally interdependent.

3. Capital cost:
   – interest and depreciation.
   Operational costs:
   – land – maintenance, security, payments in lieu of rates;
   – buildings – rent, maintenance, cleaning, energy;
   – equipment – maintenance, variable running costs (for example energy), rental (for leased equipment).

4. Capital charges represent, on average, 56% of buildings costs. For equipment, the largest element of cost may be maintenance or capital charges.

5. A semi-fixed cost may vary with level of activity but not necessarily in direct proportion (that is, they are fixed for a given range of activity but may change at different thresholds of activity). Examples include staff and maintenance costs.

6. Depreciation is a non-cash accounting charge made against an asset to take account of its decline in value, due to ageing, wear and tear in use and functional obsolescence. It is calculated by:

   indexed net book asset value/remaining life.

7. 6%

8. Land.

9. Capital charges represent a cost that must be fully recovered in prices, without cross-subsidisation. This cost, therefore, adds to prices, and can potentially make units with above average capital charges uncompetitive.

10. Possible approaches to reducing capital charges include:

   – extending asset life;
   – using assets more intensively;
   – disposing of assets;
   – buying in services rather than delivering the service through directly-owned assets;
   – allocating capital charges on a different basis.

11. Asset information required for effective asset management includes:

   – the assets "owned";
   – their value;
   – their level of utilisation;
   – their age and condition;
   – their suitability for purpose;
   – statutory requirements related to the asset;
   – their energy efficiency;
   – their unit costs;
   – measures of their performance.

12. The minimum data set found on an asset register is:

   – asset identification and description;
   – asset location;
   – date of acquisition;
   – method of acquisition;
   – initial capital expenditure;
   – gross replacement cost (equipment);
   – depreciated replacement cost (buildings);
   – assessed or standard life.

ACTIVITY – REDUCING CAPITAL CHARGES

Possible ways of reducing capital charges include the following.

Extending the life of your assets

By extending an asset's life, the annual depreciation charge can be reduced. Once an asset has been fully depreciated, capital charges cease altogether. The trade-off is that you will have older assets that may provide a lower quality of service or may become more expensive to operate due to more extensive maintenance. There is also a limit on the percentage of fully depreciated assets that can be retained on an asset register.

Using your assets more intensively

Since capital charges are a fixed overhead, spreading the cost over more units will reduce the unit cost. Asset utilisation is dealt with in more detail in paragraphs 3.32–3.47.

Disposing of assets

Reducing the amount of space you use or disposing of land and buildings that are surplus to requirements will reduce or eliminate the capital charges associated with these assets. Space utilisation is considered in paragraphs 3.26–3.31.

Buying-in rather than delivering direct

Buying-in services rather than delivering them direct avoids the need to own assets and, therefore, the requirement to pay capital charges. Contractors will include a charge to cover the cost of capital and depreciation of assets used in providing services under contract, but if contractors can use assets more intensively than provider units, these costs will be lower than the capital charge associated with providing services in-house. Photocopiers and mobile scanners are often acquired in this way.

Allocating capital charges on a different basis

Some provider units will have more sophisticated costing systems than others and will be able to cost their services with more accuracy. Although this will not reduce the total capital charge that the unit must recover, it might affect the balance of costs between services. Inaccurate allocations may be making some services under- or over-competitive.

Appendix II – Glossary of terms

Alternative use value
Alternative use value is the value of an asset, usually of land, if it were sold on the basis of whatever planning consents were available to develop the asset for a use other than its present one.

Assets
Assets are items of value that are possessed by a business. Assets must be measured in terms of money, and comprise land, buildings, plant and equipment. In this context, they do not include financial assets, such as money owed by individuals or other enterprises to the business.

Asset register
The asset register is the physical record, usually held on computer, of all the physical assets of the business, which are individually valued at £5000 or over. Each item is listed against a unique identifying number, and a standard range of information is held about it.

Average relevant net assets
The average relevant net assets are a measure of assets used in calculating interest charges for trusts. The average relevant net assets are the simple average of opening and closing relevant net assets.

Capital asset
A capital asset is an asset purchased from a capital allocation rather than from the revenue account. This covers larger items of equipment and all land and buildings.

Capital charge
A capital charge is a payment on all capital assets owned by the NHS. It comprises an interest payment and a depreciation payment, which reflect both the cost of acquiring the asset and the loss of value as it wears out.

Depreciation
Depreciation is the process of allocating part of the cost of a fixed asset as an expense to a particular accounting period. This is done to take account of the amount of the asset "used up" during the period. Accumulated depreciation on an asset is the total amount so provided to date.

Depreciated replacement cost
The depreciated replacement cost is the estimated cost of a replacement building or item of equipment at current prices, less a deduction for age, condition and functional obsolescence of the asset. Depreciated replacement cost is the basis for valuation of plant and equipment, unless the item can be sold and has a readily determinable second hand value.

Discounted cash flow analysis
Discounted cash flow analysis is the technique of discounting the time stream of future monetary costs and receipts to derive the net present value of an investment.

Discounting
Discounting is the technique of converting future monetary sums to their equivalent value in today's terms by applying a discount rate. Discounting reflects the fact that present consumption of goods and services is preferred to future consumption now or later, as a larger quantity of future goods will need to be offered. Conceptually, discounting is the inverse of compounding interest.

Discount rate
The discount rate is the rate at which the present value of a future pound falls away through time in real terms. The discount rate currently set for investment appraisal purposes in the NHS is 6%, which is consistent with the interest element of capital charges.

Existing use value
The existing use value is the market value of land and buildings assets for their existing use. This is the basis of valuation for assets in operational use.

Finance lease
A finance lease is a non-cancellable commitment, usually lasting for at least half the asset's economic life, where total lease payments usually exceed the total cash purchase price, and repairs are the responsibility of the lessee.

Fixed asset
A fixed asset is a resource with a relatively long economic life, acquired for use in providing a service or carrying out an activity. Such assets are subject to depreciation, with the exception of land.

Marginal costing
Marginal costing is a method of allocating costs to activities, which takes into account only variable costs directly associated with the activity, ignoring indirect or overhead costs. It is to be contrasted with absorption costing, which includes indirect and overhead costs.

Net book value
Net book value is the difference between the cost of a fixed asset (or in some cases the amount of its valuation) and the accumulated depreciation in respect of that asset. It does not represent market value.

Non-cash costs
Non-cash costs are accounting charges, which have no impact on cash flow. They are charges that appear as items in a trust's balance sheet and income statement. They represent costs that must be fully recovered. Capital charges are one example of non-cash costs.

Opportunity cost of capital
The opportunity cost of capital is the value of the next best opportunity foregone, or of the net cash inflow lost as a result of preferring one option to the next best one.

Public dividend capital
Public dividend capital (PDC) is a form of long-term government finance on which a trust pays dividends to the government. It is similar in concept to equity funding for a company. PDC has no fixed repayment obligations but, in the long run, the overall return on PDC is expected to be less than that on an equivalent loan. Dividends need not be paid annually, but only when the trust makes a surplus after meeting fixed interest obligations.

Residual value
Residual value is the amount for which a fixed asset can be sold at the end of its useful life. The expected residual value is taken into account in calculating depreciation during the asset's life. In the NHS, it is treated as zero.

Sensitivity analysis
Sensitivity analysis is the systematic analysis of the effect of changing the variables (for example timing of capital outlays) assumed for a project. It is an important component of investment appraisal.

Straight line method of depreciation
The straight line method of depreciation charges an equal amount of depreciation in each year of an asset's life, by writing off a constant percentage of the asset's original cost.

Appendix III – Further reading

The NHS Plan, Chapter 4.0, Investing in NHS facilities, July 2000.

Developing an estate strategy, NHS Estates, 1999.

Sold on Health: Modernising procurement, operation and disposal of the NHS estate, Department of Health, 2000.

Estates and Facilities Management in the NHS, PSI Group in partnership with NHS Estates, published quarterly.

Designing Primary Healthcare Premises: a resource, prepared by the Medical Architecture Research Unit (MARU), South Bank University, 1996.

2020: Healthcare Building for Tomorrow, MARU, published report of a seminar at the British Medical Association, 1999.

Effective Use of Space in the NHS, Management report by Facilities Management Graduate Centre, Sheffield Hallam University, 1999.

The Management of Medical Equipment in NHS Acute Trusts in England, National Audit Office, 1999.

Equipped to Care: The safe use of medical devices in the 21st century, Medical Devices Agency, 2000.

The Capital Investment Manual, Department of Health, 1994 (in process of being updated).

Use of Operating Theatres in the NHS, National Audit Office, 1987.

NHS Estate Management and Property Maintenance, Audit Commission, 1991.

Patient Hotels: A Quality Alternative to Ward Care, NHS Value for Money Unit, 1992.

Scanning the Spectrum of Healthcare from Hospital to Home in the UK, MARU, Viewpoints Seminar Programme, 1996.

Capital Investment Strategy for the Department of Health, Department of Health, 1999.

In addition there is a vast range of more technical publications available from NHS Estates. Information about these documents can be obtained from the NHS Estates website – http://www.nhsestates.gov.uk

About NHS Estates guidance and publications

The Agency has a dynamic fund of knowledge which it has acquired over 40 years of working in the field. Our unique access to estates and facilities data, policy and information is shared in guidance delivered in four principal areas:

Design & Briefing

These documents look at the issues involved in planning, briefing and designing facilities that reflect the latest developments and policy around service delivery. They provide current thinking on the best use of space, design and functionality for specific clinical services or non-clinical activity areas. They may contain schedules of accommodation. Guidance published under the headings Health Building Notes (HBNs) and Design Guides are found in this category.

Examples include:

HBN 54, Facilities for cancer care centres
HBN 28, Facilities for cardiac services
Diagnostic and Treatment Centres: ACAD, Central Middlesex Hospital – an evaluation
Infection control in the built environment: design and planning

Operational (Engineering, Facilities Management, Fire, Health & Safety and Environment)

These documents provide guidance on the design, installation and running of specialised building service systems and also policy guidance and instruction on Fire, Health & Safety and Environment issues. Health Technical Memoranda (HTMs) and Health Guidance Notes (HGNs) are included in this category.

Examples include:

HTM 2007, Electrical services supply and distribution
HTM 2010, Sterilization: operational management with testing and validation protocols
HTM 2040, The control of legionellae in healthcare premises – a code of practice
HTM 82, Fire safety – alarm and detection systems

Strategic

These are documents which deal with areas of broad strategic concern and planning issues, including capital and procurement.

Examples of titles published under this heading are:

Estatecode
How to Cost a Hospital
Developing an Estate Strategy
Sustainable Development in the NHS

NHS Estates Policy Initiatives

In response to some of the key tasks of the NHS Plan and the Modernisation Agenda, NHS Estates has implemented, project-managed and monitored several programmes for reform to improve the overall patient experience. These publications document the project outcomes and share best practice and data with the field.

Examples include:

National standards of cleanliness for the NHS
NHS Menu and Recipe Books
Sold on Health

The majority of publications are available in hard copy from:

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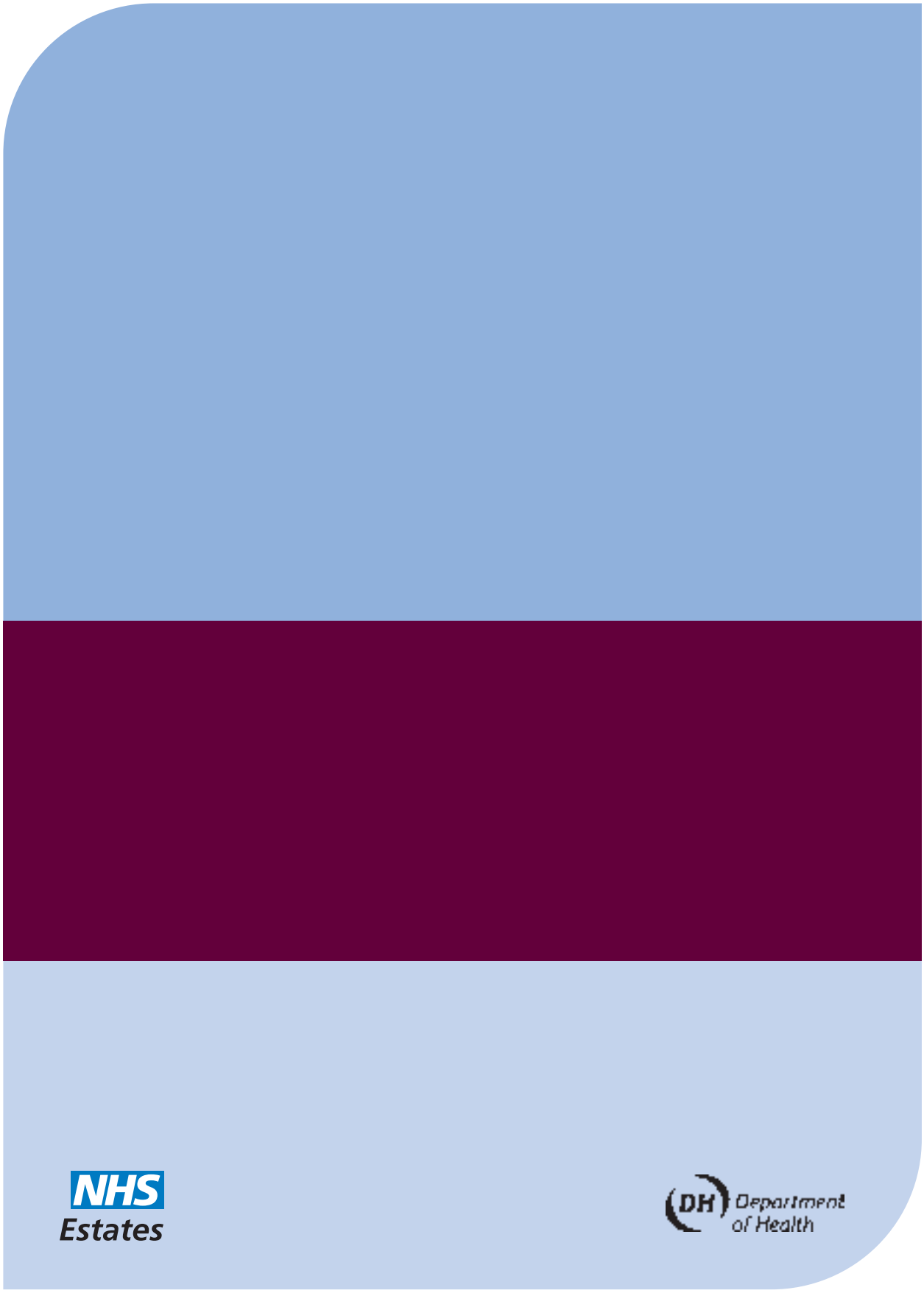
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