
TOTAL
FACILITY
MANAGEMENT
FOURTH EDITION
BRIAN ATKIN
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Total Facility Management

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Fourth Edition

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Preface to the Fourth Edition

Facility management has progressed by leaps and bounds since we published the first edition back in 2000. In many countries, the subject and discipline could then be fairly described as in a formative stage of development. Defining the scope of the first edition to provide a coherent account of the subject was a challenge. The success of that first edition led to two major revisions and now this fourth edition. It represents a rethinking of our approach and what we presently consider to be within scope; yet, it retains those elements that our readers and reviewers have told us they value most.

The fourth edition consolidates current best practice, defines and develops emergent areas and offers a pathway for the future development of facility management. The body of knowledge that this new edition represents benefits from the publication of several national and international standards, none of which were around for the earlier editions. The structure and content aligns with these standards to provide readers and their organizations with a comprehensive treatment of the subject. Greater emphasis has been given to facility planning, especially the briefing stage in the design of a new or refurbished facility, design for operability, stakeholder management, outsourcing, procurement, transition, performance management, environmental management, sustainability, maintenance management, information management and building information modelling (BIM).

Facility management has become an internationally recognized discipline, a major sector and the means by which organizations are able to *think globally and act locally*. Primarily for this reason, we have adopted a minor change to the title of this new edition; but the ethos and style of our work remains true to the previous editions and our original aim, which was to develop the subject and discipline through a thorough treatment of concepts, practices and issues. We believe this new edition will continue to support individuals at all levels, whether encountering the subject for the first time or looking for answers to questions of strategic importance as well as those of operational necessity.

This new edition has been prepared for a worldwide market. Whilst every care has been taken in its drafting, it is not possible to cover or anticipate legislation, or indeed other requirements, prevailing in the reader's location. It is for the reader to ascertain the relevance of any such legislation or other requirements and the need for legal or other specialist advice.

Finally, we must express our appreciation to a number of individuals who have contributed their expertise. Our sincere thanks go to Roine Leiringer, Robert Wing, Rachel Stewart, Martin Hooper and Stefan Olander.

Brian Atkin
Reading

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Abbreviations

AEC	architecture, engineering and construction
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers
BIM	building information modelling
BIMs	building information models
BEMS	building energy management system
BMS	building management system
BPR	business process re-engineering
BREEAM	Building Research Establishment Environmental Assessment Method
CAD	computer-aided design
CAFM	computer-aided facility management
CAPEX	capital expenditure
CCTV	closed circuit television
CO_2-eq	carbon (dioxide) equivalent
CMMS	computerized maintenance management system
COBie	Construction Operations Building information exchange
CPD	continuing professional development
CPE	continuing professional education
CREM	corporate real estate management
CSF	critical success factor
CSR	corporate social responsibility
DBFO	design, build, finance and operate
EDI	electronic data interchange
ERP	enterprise resource planning
FM	facility management or facilities management
GPS	global positioning system
HRM	human resources management
HSSE	health, safety, security and the environment
HVAC	heating, ventilating and air-conditioning
ICT	information and communications technology
IFC	Industry Foundation Classes
IFMA	International Facility Management Association
KPI	key performance indicator
LEED	Leadership in Energy and Environmental Design
MVD	model view definition

OLA	operating level agreement
OPEX	operational expenditure
PEST	political, economic, social and technological
PPE	personal protective equipment
PPM	planned preventive maintenance
PPP	public–private partnership
RASCI	responsible, accountable, supported, consulted and informed
RCM	reliability centred maintenance
RFI	request for information
RFID	radio frequency identification
SBS	sick building syndrome
SLA	service level agreement
SMEs	small and medium-sized enterprises
SPV	special purpose vehicle
SQL	structured query language
SWOT	strengths, weaknesses, opportunities and threats
TCO	total cost of ownership
TFM	total facility management
TPM	total productive maintenance

Introduction

Effective management of non-core business (i.e. support services) enables an organization to function at its most efficient level. The focus is facility management, which was once regarded as the poor relation among the construction and real estate disciplines. The significance of facility management is nowadays far more widely recognized. In support of the further development of the discipline, this book offers a comprehensive treatment of what facility management means to owners, operators, tenants, facility managers and professional advisors. The book contains advice on how facilities can be better managed from a number of perspectives, although the approach is not intended to be prescriptive.

The organization

This book is directed at organizations within the private and public sectors acting primarily as owners and/or operators of facilities and tenants, as well as facility managers and professional advisors. The types of organization addressed might range from airport authorities and manufacturers to colleges and financial services firms. The structure, management and facility-related needs of these organizations will vary widely; however, the information contained in this book is intended to have a correspondingly wide application. It is necessary, of course, for each organization to consider the relevance to itself of the issues and points raised.

The customer as end-user

In the broadest sense, the customer is the organization in acting as a purchaser of services. These will sometimes be insourced (in-house) and sometimes sourced from external service providers (outsourcing). Although the distinction between purchaser and provider is more obvious in the case of outsourcing, it is important that the same distinction is recognized with insourcing. The customer in this instance might be an internal department being served by the organization's in-house facility management team, with a financial exchange between the

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two different cost centres. The relationship between the two parties therefore remains a formal one, requiring guidelines and procedures for its formulation and implementation.

In many organizations, customers will be the internal departments and their personnel as the principal end-users of the facility and its services. In some, such as leisure centres, entertainment complexes or department stores, the external user of the facility becomes an additional type of customer whose needs must be considered within the scope of facility management, as far as is practicable. This book generally refers to the former type of customer (internal user), with these users typically providing the interface between the external user and the service providers. For the most part, it is unnecessary to draw a distinction between internal and external customers and so the all-embodying term of *end-user* is used.

Principles, process and procedures

Many fields and disciplines are subject to guiding principles, defined processes and supporting procedures. Facility management is no exception; however, authoritative guidance has been lacking until fairly recently. The publication of a significant number of national, European and international standards has begun to inform practice through greater clarity and consistency of application on both the demand and supply sides. In an increasingly global context for facility management, the relevance of standards, at whichever level, ought to be recognized. The bibliography lists the most relevant standards together with others that help to define the overall framework within which facility management is undertaken. These cover the subjects of design briefing, operability, outsourcing, procurement, transition, asset management, maintenance management, quality management, environmental management, sustainability, business continuity management, risk and opportunity management, information technology, information management and building information modelling.

1 Fundamentals

Key issues

The following issues are covered in this chapter.

- There are a number of definitions of facility management. One that is commonly used is an integrated approach to operating, maintaining, improving and adapting the buildings and infrastructure of an organization in order to create an environment that strongly supports the primary objectives of that organization.
- In any discussion of facility management, it is necessary to stress the importance of integrative, interdependent disciplines whose overall purpose is to support the organization in the pursuit of its business objectives.
- The correct application of facility management techniques enables the organization to provide the right environment for conducting its core business to deliver end-user satisfaction and best value.
- If a facility is not managed properly, it can impact upon the organization's performance. Conversely, a well-managed facility can enhance performance by contributing towards the provision of the optimal working environment.
- Facility management covers a range of functions, including real estate management, financial management, human resources management, health, safety, security and environment (HSSE), change management and contract management, in addition to maintenance, domestic services (such as cleaning and catering) and utility supplies.
- There is no universal approach to managing facilities. Each organization will have different needs. Understanding those needs is the key to effective facility management measured in terms of providing end-user satisfaction and best value.

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- Quality of service or performance is a critical factor in any definition of value, and the relationship between quality (or performance) and cost (or price) has to be properly understood.
- Cost savings cannot be looked at in isolation from value. The organization must be able to demonstrate what it is getting for its money and should not assume that paying less today is proof of better value for money.
- The many risks involved in the search for best value should be recognized and allocated to those who are able to manage them effectively. This means that all options should be carefully examined and those that are most likely to achieve best value, whilst achieving and maintaining end-user satisfaction, should be considered.

Introduction

This opening chapter sets the scene, by discussing the importance of a facility to an organization (as the owner, operator or tenant acting as a client[1]) and how approaches to facility management can differ between organizations even within the same sector. There is no single formulation of facility management that will fit all situations. Nonetheless, the concept of the informed client function is common to all situations and is described and discussed in this chapter – see Key concepts. It is a theme that stands behind this book and one that reflects an organization's perspective, its values, culture and needs. This chapter also discusses the necessity of securing best value in the delivery of services and examines some of the attendant risks – more are to be found in Appendix C. The context for facility management is first described and an overview follows in the form of a simple functional model. This is developed in the text to show the distinction between core and non-core business – something that is essential to understanding the focus for facility management.

Background

Origins of facility management

Facility management – the operational environment needed to support and enhance an organization's core business processes and activities – has evolved over the past 150 years or so. It originated at some time in the 1800s, when the American railroad companies thought it better to provide the utility of *facilities* and not merely buildings. This broader interpretation of *facility* is reflected in this book.

[1] An organization that procures facility services by means of a facility management agreement (EN 15221-1:2006).

It was not until the late 1950s that facility management became associated with the effective and efficient coordination of services applied holistically to enhance the performance of the organization. The collective practices that we recognize today have therefore evolved fairly slowly.

Forty years ago there was only brief mention of facility management. Buildings were maintained, serviced and cleaned: that was about it. Building maintenance management was arguably the term most commonly identified with these tasks, yet it explicitly excluded a role that embraced the *softer* side of an organization's support services and concern for the well-being of personnel.

A unified concept for facility management was far from attracting broad acceptance in the real estate (or property management) world. Few common procedures were in circulation and it was left to innovative organizations – many of them in the fast-growing financial services, ICT and media sectors – to devise ways of more effectively managing their facilities. Today, facility management is a service sector in its own right and has helped to establish a new professional discipline with its own principles, processes, standards, codes and technical vocabulary.

Definitions

Facility management has been regarded as a relative newcomer to the real estate and AEC (architecture, engineering and construction) sectors. This is because it has been seen in the traditional sense of cleaning, janitorial services, repairs and maintenance. Nowadays, it covers real estate management, financial management, human resources management, health, safety, security and environment (HSSE), change management and contract management, in addition to minor building works, building maintenance, building services engineering maintenance, domestic services and utility supplies. These last three areas are perhaps the most visible. The others are subtler, although of no less importance. For facility management to be effective, both the *hard* issues, such as building services engineering maintenance, and the *soft* issues, such as managing people and change, have to be considered.

The International Facility Management Association[2] has defined facility management as *a profession that encompasses multiple disciplines to ensure functionality of the built environment by integrating people, place, process and technology*. This definition clearly underscores the holistic nature of the discipline and the interdependence of multiple factors in its success. Elsewhere, it has been defined as *the integration of processes within the organization to maintain and develop the agreed services that support and improve the effectiveness of its primary activities*.

An oft-cited definition is provided by Barrett & Baldry (2003), who see it as *an integrated approach to operating, maintaining, improving and adapting the buildings and infrastructure of an organization in order to create an environment that strongly supports the primary objectives of that organization*. They continue by reminding us that the scope of facility management is not constrained by the physical characteristics of buildings. The behaviour and efficiency of personnel and the effectiveness of ICT are important too. Whatever is adopted as a definition,

[2] www.ifma.org

either in this book or by personnel within the organization, it should stress the importance of integrative, interdependent disciplines whose overall purpose is to support the organization in the pursuit of its business objectives.

Rationale for facility management

Most facilities represent substantial investments for their organizations and usually have to accommodate and support a range of activities, taking into account competing needs. Within those activities is the organization's core business, for which an appropriate environment must be created in a facility that might not have been designed for the use to which it is now put. Yet, no matter how well focused an organization is on its core business, it cannot lose sight of the services needed to support it; that is, non-core business. The relationship between the two and the place of facility management is shown in Fig. 1.1.

The organization might have already considered the distinction between its core business and non-core business (e.g. security, waste management and cleaning) as part of the drive to achieve end-user satisfaction and best value. Since operational expenditure accounts for a significant part of annual expenditure, there is bound to be pressure to look for savings in non-core business areas. Cutting operating budgets can be financially expedient, but might not help the organization's long-term development. Since operations can involve complex, coordinated processes and activities, it is necessary to take an integrated view. A piecemeal approach to cutting costs is unlikely to produce the required savings and can impair the organization's ability to deliver high-quality services. For this and other reasons, we should be able to see why facility management is a more powerful concept than real estate management (or property management), because it takes a holistic view of the dynamics of the workplace – between people and processes and between people and their environment.

Facility management can thus be regarded as creating an environment that is conducive to the organization's primary processes and activities, taking an

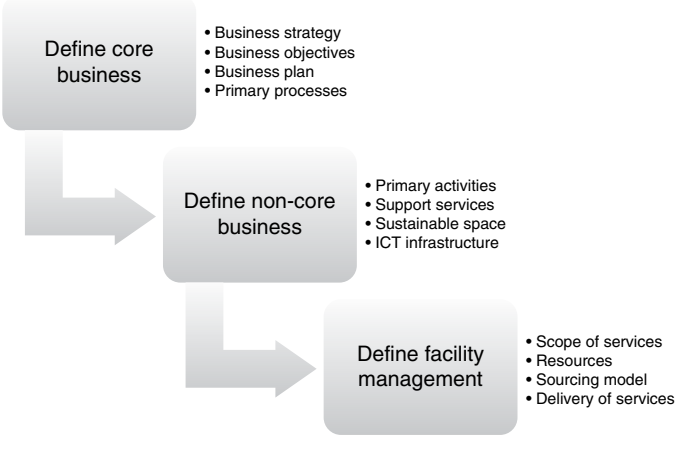

Fig. 1.1 The relationship between core business, non-core business and facility management.

integrated view of its services and support infrastructure, and using them to achieve end-user satisfaction and best value through support for, and enhancement of, the core business. We can develop this definition to describe facility management as something that has a number of distinct goals, and that will:

- Support people in their work and in other activities.
- Enhance individual well-being.
- Enable the organization to deliver effective and responsive services.
- Sweat the physical assets; that is, make them highly cost-effective.
- Allow for future change in the provision and use of space.
- Provide competitive advantage to the core business.
- Enhance the organization's culture and image.

The broad approach to facility management

There are common themes and approaches to facility management, regardless of the size and location of facilities, although these might not necessarily result in common solutions to problems. In some cases, services are contracted out – a form of outsourcing – and in others they are insourced, and for good reason in both cases. Many organizations operate what might be described as a *mixed economy* where some services, even the same services, are co-sourced. Whichever course of action has been taken, the primary concern is the basis of the decision. Where the decision has been arrived at for the right reasons, such as demonstrating better value for money from one approach as opposed to others, facility management can be regarded as working effectively. In order to reach this state, a basic plan for facility management (see Fig. 1.2) should be prepared to incorporate the following steps as a minimum:

1. Develop a strategy for facility management.
2. Determine the most appropriate model for sourcing services.
3. Procure the services, where outsourcing or co-sourcing applies.
4. Deliver the services, including mobilization and contract management.
5. Manage the performance of service providers and/or the in-house team.

This plan for facility management is something of a simplification to highlight key considerations. These and other relevant matters are elaborated in subsequent chapters.

Risks and opportunities

There are innumerable factors and events that can impact an organization's business objectives, planning and operations. Downside risks have the potential to hinder, even negate, attempts at achieving best value. Table 1.1 identifies some downside risks that the organization can face in its facility management. The chapters in which the underlying issues are considered are indicated in Table 1.1. Some of these risks might be easier to address than others. In certain cases, the organization will have to acquire new skills or insights into how problems can be solved.

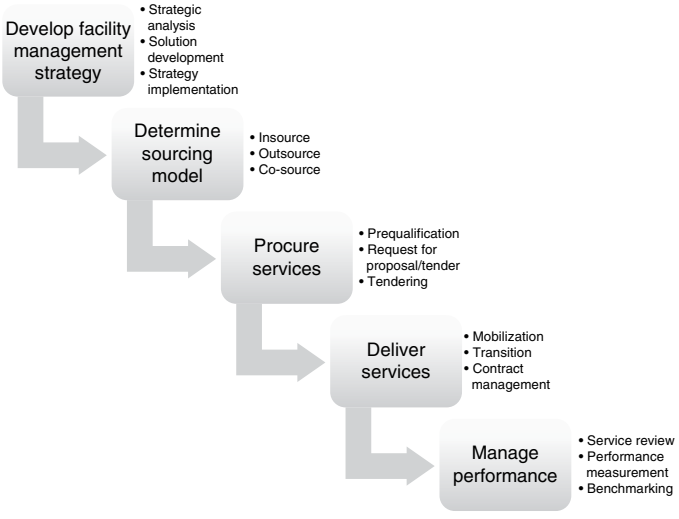

Fig. 1.2 A basic plan for facility management.

In pursuing more efficient and effective facility management, the organization should also be aware of opportunities (upside risks). Some upside risks do, in fact, mirror the downside risks to counter their influence (see Table 1.2).

Key concepts

The informed client function

The organization needs to act as an informed client if it is to be sure of achieving end-user satisfaction and best value. The informed client function is a requisite irrespective of how services are procured – see also the later section in this chapter on Key roles, responsibilities and accountabilities.

The following outlines the scope of the informed client function:

- Understanding the organization, its culture, end-users and their needs.
- Understanding and specifying service requirements and targets.
- Brokering services with, and amongst, stakeholders.
- Managing the implementation of outsourcing.
- Minimizing uncertainty and risks through proactive risk and opportunity management.
- Agreeing standards for control purposes.
- Managing service providers and monitoring their performance.
- Benchmarking the performance of services.
- Surveying end-users for satisfaction with service delivery.
- Providing management reports.
- Reviewing the scope of services and service levels against end-user requirements.
- Developing, with service providers, delivery strategies for services.
- Agreeing, with service providers, changes to service requirements.

Table 1.1 Risks (downside) faced in facility management.

- Inadequately resourced or inexperienced client function (Chapters 4, 7, 8 and 9).
- Inadequate planning of implementation – limited preparation and/or allocation of responsibilities (Chapters 7, 8, 9, 14 and 15).
- Misapplication of transfer of employment of personnel (Chapters 4, 8 and 14).
- Poor relationship between service provider and facility/contract manager (especially if the latter was once involved with preparing an in-house tender) (Chapter 9).
- Conflicts of interest when dealing with in-house tenders, arising from inadequate split between purchaser and provider personnel (Chapter 4).
- Unclear or imprecise roles, responsibilities and targets for effective teamworking (Chapters 7, 8, 9, 14 and 15).
- Possible loss of control over the facility management function and ownership of, and access to, documents and knowledge (Chapters 8, 9, 10 and 14).
- Lack of standard forms of facility management contracts or inadequate conditions of contract (Chapter 8 and Appendix D).
- Inappropriate allocation of risks and rewards between the organization and service providers (Chapter 7).
- Inadequate definition of the scope and content of services (Chapters 7, 8, 9 and 14).
- Lack of consideration of all stakeholders in the facility management sphere (Chapters 2, 3, 7, 8 and 14).
- Specifications that are overly prescriptive and/or concentrate on procedures, not outputs (Chapter 8).
- Stakeholders' *gold plating* of requirements (Chapter 8).
- Poorly controlled changes to end-user requirements (Chapters 8, 9, 10, 11 and 14).
- Excessive monitoring of service provider performance (Chapters 9 and 11).
- Absence of, or a poor system for providing, incentives to raise performance (Chapters 8, 9 and 11).
- Inflexible contracts unable to accommodate changes in end-user requirements during the contract and work outside scope/specification (Chapter 11).
- Failure to take account of relevant health and safety legislation at the correct time, leading to penalties and later excess cost (Chapters 6, 7, 9, 12 and 14).
- Redundancy in the supply chain where cost is added without necessarily adding value (Chapters 7, 8 and 9).
- Poor bundling/grouping of services to be outsourced (Chapters 7, 9 and 10).
- Absence of shared ownership of outcomes (Chapter 10).
- Poor cash-flow position for the organization and/or service providers (Chapters 8 and 9).
- Financial failure of chosen service provider during the contract period (Chapters 8, 9, 10 and 14).
- Absence of benchmarks against which to measure performance and improvement (Chapters 2, 4, 8 and 11).
- Lack of education and training in facility management (Chapters 3, 4, 6, 9, 11 and 14).
- Fraud or irregularity in the award and management of contracts (Appendix B).

- Maintaining the ability to re-tender as and when required.
- Understanding the facility management market and how it is developing.
- Undertaking strategic planning.
- Safeguarding public funds, where applicable.
- Developing in-house skills through education, training and continuing professional development/education (CPD/CPE).

A distinction does need to be drawn between types of organization. Differentiation between them can be based on various criteria and terms; for instance, the *not-for-profit* and *for-profit* sectors. For our purpose, the distinction is based upon the applicability and extent of regulatory control over decision-making and accountability. In most countries, the public sector is therefore clearly defined and, by the presence of far fewer regulatory controls, so too is the private sector to a large extent.

Private-sector organizations

Whilst organizations in the private sector appear to be able to set their own agenda for their affairs, the requirements of corporate governance, including compliance with various legislation and standards (especially financial), mean that greater

Table 1.2 Opportunities (upside risks) arising in facility management.

- Enhancing organizational capability and quality of service delivery, and proper assessment of requirements in the scope of services (Chapters 7, 8, 9 and 14).
- Identification and allocation of risks on a rational basis to help clarify relationships between service providers and the organization (Chapter 7).
- Proper separation of duties between purchasers and service providers (Chapters 8 and 9).
- Clear roles, responsibilities and targets for effective teamworking (Chapters 7, 8, 9, 14 and 15).
- Proper contract documentation with appropriate conditions of contract for insourced as well as outsourced services (Chapter 8 and Appendix D).
- Proper allocation of risks and rewards (Chapter 7).
- Improved response to end-user requirements (Chapters 8, 9, 10, 11 and 14).
- Improved performance with proper incentivization (Chapters 8, 9 and 11).
- Health and safety legislation incorporated into facility management policies and procedures at the appropriate time (Chapters 6, 7, 9, 12 and 14).
- Shared ownership of outcomes (Chapter 10).
- Proper monitoring of contract performance (Chapters 9, 11 and 14).
- Improved cash-flow forecasting and budgeting (Chapters 2, 3, 8, 9, 11 and 14).
- Opportunity to build up benchmarks against which to measure performance and improvement (Chapters 2, 4, 8 and 11).
- Properly focused education and training for in-house personnel in facility management (Chapters 3, 4, 6, 9, 11 and 14).
- Proper assessment of services to be grouped/bundled for outsourcing (Chapters 7, 9 and 10).

transparency is now expected in commercial dealings. Growing recognition of the importance of being a *good* organization extends to facility management, where it is likely to be judged on how well it satisfies or not the end-users of services. Corporate social responsibility – see Chapters 8 and 13 – is now a feature of corporate life and with it come particular responsibilities for facility managers. The direction of travel for the private sector is, consequently, likely to be towards increasing standardization of processes, procedures and practices for its non-core business. In this regard, there is much the private sector can learn from the public sector, where accountability is a given and openness and transparency are the norm.

Public-sector organizations

The imperative of openness and transparency in commercial dealings has been a long-standing preoccupation of the public sector. Often derided for its unimaginative approach to new ideas and novel practices, most public-sector organizations nowadays have both the competence and confidence to devise more effective, cost-efficient and value-adding methods of working. Fixed capital investment in the public sector brings with it responsibility to extract best value for taxpayers. The public sector has, in many countries, become adept at understanding the inherent risks in delivering facilities and the impact their operation would have if they fall short on requirements. For these reasons, we are witnessing something of a renaissance in the role of the public-sector organization and one that can be as informed as the best in the private sector.

Stakeholder engagement

Effective management of those individuals and groups with an interest in a facility is a key factor in the success of facility management. These individuals and groups are referred to as stakeholders and collectively will determine the nature of facility management, including its processes and activities and the extent to which they are able to satisfy their (i.e. stakeholder) interests (see Chapters 2 and 7).

End-user experience

Both inside and outside the organization, the individuals or groups that will experience the impact of facility management are appropriately termed end-users. As the ultimate customers of facility management, their needs and expectations must be properly counselled and managed. They exist for both private- and public-sector organizations. Examples include:

- hospitals;
- financial services companies;
- airport authorities;
- manufacturing companies;
- colleges and universities; and
- entertainment complexes.

As the above examples might suggest, the structure, management and space requirements of organizations can vary widely, but the most important point is to realize that the implementation of best practice facility management is relevant to all. Undoubtedly, some aspects and requirements will be more significant than others, depending on the type of organization and its business objectives and drivers.

The following are examples of individuals or groups as end-users of facility management:

- A *procurer of services* – the general definition of a customer and also the recipient of services.
- An *internal department* – an organizational unit served by the facility management function (perhaps operating as a separate unit) with financial exchange between the two and *internal end-users* as the recipients of services.
- The *external end-users* of the organization's facility and services, as would be found in the customer service sector.

Best value

Value for money is a term long used to express the relationship between the cost of a good or service and its quality or performance. The term *best value* extends the concept of value for money to imply the need to strive continually for something superior at the lowest practicable cost. The organization might not be aware of the extent to which value for money in facility management can be improved; that is, through the search for best value. This would suggest that it is not the outcome that needs to be scrutinized, but the decision-making that leads to it and the assumptions upon which it is based.

The best value decision is generally cited as the determinant of whether to outsource a service or not. Whilst value is about the relationship between cost and quality, it is often equated with achieving a reduction in cost. The organization might believe it is achieving best value if it is paying less for a given service this year compared with the previous year. Whereas cost is easier to measure, best value is concerned with the quality of a service and the efficiency and effectiveness with which it is delivered. The organization should therefore set itself cost and quality objectives for the management of its facility, with the cost objective taking priority only where financial necessity dictates.

When choosing options for service delivery and service providers, there needs to be an assessment not only of cost implications but also of quality (see Chapter 8 on Tender evaluation). The organization should choose the approach and service delivery that offers best value, not simply lowest cost, and measure performance against both cost and quality. Benchmarking can help in checking performance (see Chapter 11).

Normally, the achievement of best value is demonstrated by acceptance of the lowest tender price in a competition where all other criteria (quality, performance, terms and conditions) are equal. Best value can also be achieved through collaborative arrangements with suppliers and service providers. Economy of scale offered by bulk purchasing of utility supplies – see Chapter 8 – is an obvious example. An additional benefit from collaboration is that risks are also shared.

Operability

The success of a new or refurbished facility depends to a certain extent on ensuring that design takes proper account of operational requirements through a thorough process of briefing. Like all *good* decisions, those in design have to be based on the correct information and data, and the impact of a design on operations has to be understood before it is committed to construction and/or installation. Once the facility is operational, it is too late to take issue with the *fitness for purpose* of the design. The principle of constructability is widely applied by designers and design teams; however, the principle of design for operability is not necessarily recognized to the same extent. Designing a new or refurbished facility without understanding the requirements of operability is likely to have negative consequences for both its operational efficiency and energy performance (see Chapter 2 on Design and facility management briefing).

Other concepts

Facility planning

Changes in the use of a facility, whether at the level of routine minor adjustments or as part of a major restructuring of the organization, have to be planned. As a stage within the life cycle of a facility, facility planning serves to determine if the organization has the most appropriate facility to support its core business into the future, providing a formal basis for initiating a process of managed change where found necessary (see Chapter 14).

Sustainability

The organization might have, as an objective for its facility, the requirement to optimize operational cost over the life cycle. The facility might have to sustain operations over many decades in an environment in which pressure to reduce energy consumption and, by implication, carbon emissions is likely to increase significantly. A long-term view of the operability of any facility should be taken so that the organization is aware of its obligations and liabilities into the future. Important in this regard is an understanding of a facility's carbon footprint (see Chapter 13).

Decisions in design have of necessity to take account of the carbon embodied in the manufacture of components and materials and in the construction or refurbishment of a facility (see Chapter 2 on Design and facility management briefing). Account must also be taken of carbon produced during the operation of the facility. Patterns of use over the life of a facility will affect the overall carbon load and will be influenced by the actions of all stakeholders, not just occupants and other end-users. A refurbished facility can be designed for zero carbon, but decision-making might inadvertently ignore the longer-term sustainability of the facility; for instance, occupants and other end-users, together with suppliers of various goods and commodities, will contribute to the facility's carbon footprint throughout its operational life. The result could be a significant underestimation of the carbon impact of the refurbished facility. A whole-life perspective has to

be taken, which involves understanding the stakeholders who will be influential in this regard; in particular, their interest in, and impact upon, the facility (see Chapter 13).

Outsourcing

The process by which services are delivered to an organization by an external provider is known as outsourcing and is based upon a sourcing decision. Outsourcing is the alternative to obtaining services from within the organization (i.e. insourcing) and can involve highly prescribed procedures, especially within the public sector. Co-sourcing is where outsourcing and insourcing are combined. Chapter 7 considers the outsourcing decision.

Procurement

Procurement concerns the acquisition of goods and services from an external source and so is the practical manifestation of outsourcing. It is, however, necessary to regard procurement as more than the activity of obtaining quotations from service providers and placing orders. A range of issues has to be taken into account and that normally requires technical knowledge of the services in question. Chapter 8 considers the procurement of services.

Performance management

Services are provided according to agreed performance levels. Measuring actual performance and comparing with stipulated performance levels will show if the service is being provided as agreed or if some action needs to be taken to correct performance (see Chapter 11).

Management of change

Facility management is concerned with routine, minor change arising in the course of day-to-day operations and should be capable of minimizing disruption as well as safeguarding business continuity. Larger and more complex change is better handled outside the normal routine and constituted as a defined project with clear objectives and supporting plans (see Chapter 14).

Human resources management

Managing the delivery of services involves, to a large extent, managing personnel: these might be internal or external to the organization. It means ensuring that services are delivered safely, efficiently and cost-effectively by those involved. Facility management embodies human resources management to an extent that procedures should both reflect and be sensitive to the broader issues and requirements facing the organization. A close working relationship between the human resources manager and the facility manager is desirable to ensure that matters affecting personnel are adequately addressed and that there are no ambiguities.