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Sustainable Facilities Management

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AIMS

After studying this chapter you should have developed an understanding of:

- The concept, growth and scope of facilities management (FM)
- How FM can most effectively contribute to a building's life cycle
- The concept of sustainable FM and the key constructs to implementing a sustainability policy
- Useful examples of sustainable FM practices across various FM services
- Making sustainable FM goals reality through implementing an environmental management system (EMS)





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■■■■ Introduction

Facilities Management (FM) is a recently founded profession, which only forty years ago was barely acknowledged within the property and construction industry. Since the late 1980s however, FM has gradually gained momentum as a profession within the property and construction industry [22].

In its most basic terms, for an organisation to exist, it must be able to house and support its business activities. Buildings therefore assist in this process, and represent a substantial investment. But what are these business activities? Essentially they are split into two categories:

- Core-business
- Non-core business.

The 'core' business objectives are in essence what the organisation is selling, or providing to a particular sector or industry. For example, a bank's core business would be the provision of financial services and support, a university's core business would be the delivery and transfer of knowledge and learning, and a car manufacturer's core business would be the production of automobiles. However, in order to deliver these core business objectives effectively, they must be supported by 'non-core' activities. These are essentially the services needed to *facilitate* and support the short- and long-term core objectives of the organisation. For example, there needs to be a clean and tidy workplace so that staff can work efficiently, catering facilities so that staff can stay hydrated, maintenance plans to ensure the building is secure, helpdesk-assistance for any problem-solving issues, and so on. The role of a facilities manager is to integrate the provision of these non-core services to support the primary (core) objectives of that organisation.

■■■■ Overview

Although all FM activities must take place within the built environment, this does not mean that only supporting the physical dimensions of a building is required. This would





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be too limited a view, and does not unravel the greater depths of the multidisciplinary subject that FM actually implies.

To help explain this more clearly, Table 13.1 highlights some of the essential services that fall under the remit of FM. It is common within FM also to distinguish between 'hard' (more mechanical and building related) and 'soft' (that is, more management focused) FM services. However, although hard services are vital, FM is evolving to incorporate a much wider breadth of 'soft' services, the latter with an emphasis on management and organisational behaviour.

Table 13.1 The FM remit.

FM function	Examples
Strategic management	Strategy and planning, performance measurement, customer satisfaction, environmental management, contract management and procurement, quality assurance and property and space management
Organisational and workplace behaviour	Human resources, communication, motivation and workplace productivity
Maintenance management	Cleaning, building fabric maintenance and grounds maintenance
Project management	New build, refurbishment and relocation projects
Compliance and risk	Standardisation, financial management, risk management, compliance and policy
Auxiliary services	Catering, mail room and security
Information technology	Smart buildings, sensors, WiFi and telecommunications

From a professional stance, the British Institute of Facilities Management (BIFM) defines FM as 'the integration of processes within an organisation to maintain and develop the agreed services which support and improve the effectiveness of its primary activities' [3].

The emphasis here on 'integration' of services and 'support' to primary business objectives is, however, again present, emphasising that FM as a strategic function is pivotal to achieving a total service. The BIFM expands on this, stating that 'facilities management is a vital strategic discipline because it "translates" the high-level, strategic change required by senior decision makers into day-to-day reality for people in their work or living space' [3].

It is also important to highlight the diversity and flexibility of FM, as it can operate in many organisations in many different sectors [22]:

- The focus of FM is the workplace – this is not limited to commercial office buildings but can include other building types such as medical, educational, and industrial workplaces
- FM is applicable to all organisations as they all occupy a space in which to work
- FM plays a supporting role in enhancing the performance of an organisation
- An integrated approach is required in practising FM.

More recent definitions however have attempted to build on these concepts, showing greater emphasis on strategy and processes, rather than on property and building. For ex-



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ample, a more common contemporary viewpoint of FM is ‘the integration and alignment of the non-core services, including those relating to premises, required to operate and maintain a business to fully support the core objectives of the organisation’ [18]. Here the emphasis is placed on the strategic focus of FM as a *business* function, not as a property function.

An important distinction to make is that organisations vary in their nature and characteristics, and consequently vary in their application of FM as either a strategic (long-term) or operational (short-term) function, whereas FM should also be considered as a ‘key function in managing facility resources, support services and working environment to support the core business of the organisation in both the long and short-term’ [6].

■■■ Facilities Management in Contemporary Business

The recent economic downturns have stimulated organisations to take a new look at how they manage their businesses. This has led to an increasing recognition that organisations need to take into account the wider implications of investing (or not) in their non-core business functions. Hence, FM is increasingly being acknowledged at a strategic level, where key FM decisions are increasingly being made in the boardroom, rather than the basement.

Strategic planning in FM is the process by which the FM function within an organisation envisions its future by linking its purpose to the strategy of the overall organisation, and then developing goals, objectives and action plans to achieve that future [10]. It is essential that FM functions clearly understand their strategic direction within their given market and industry, and have in place sufficient resources and competences to successfully achieve competitive advantage. While day-to-day operations are paramount within FM, ‘if you don’t have a strategy for what you do, you are probably just fighting fires and keeping the status quo’ [23].

Despite this, it is contended that ‘much FM practice remains cost focused, rooted in operations and concerned primarily with maintaining the steady-state position of an organisation’ [12]. Instead, FM should be about strategic planning and aligned to organisational needs, so it can demonstrate how to achieve business objectives. Because of this apparent gap in understanding between practice and research, it can be argued that very little is known about how strategic FM is created within different organisational contexts [12].

FM data and information is more readily available, fluid, and faster in contemporary businesses. Stakeholders therefore want to see the added value that FM can provide. One area that has received much attention in the industry in recent years is FM’s ability to deliver sustainable practices. It is important to remember that if we do not have an appreciation of the strategic direction of FM, then we are unable to apply the right sustainable operational requirements for its service delivery.

■■■ Sustainable FM and Implementing a Sustainability Policy

Sustainable FM is about being able to manage, implement and deliver an organisation’s non-core business services that contribute to the improvement of the economic, social and physical environment, and, in turn, to the greater environmental sustainability of an organisation’s core business objectives. Until fairly recently the drivers to implementing sustainable FM have not been widely documented, raising the question as to what is driving





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FM organisations to invest in sustainable strategies. Following a survey of BIFM members, research identified 'legislation' as the top driver (66 per cent), with 'corporate image' (61 per cent) and 'organisation ethos' (43 per cent) [13].

Facilities managers are at the forefront of making behavioural changes and are in a position to influence the productivity of those working in the business environment [7]. Environmental objectives are increasingly written into organisations' corporate strategies, meaning that FM organisations are expected to be part of delivering on environmental commitments [19]. As the FM remit increases in its strategic stance within organisations, and because facilities managers have vast awareness of the physical, human and managerial operations of an organisation's premises, they are expertly placed to deliver sustainable practices that impact on the non-core business activities of an organisation.

Good sustainability policies should establish frameworks for integrating sustainable concerns into an organisation's core business strategies [13]. Table 13.2 identifies some of the typical aspects that a sustainability policy may include.

Table 13.2 Aspects of sustainability policies.

Aspects of sustainability policy	Explanation and examples
Specification and purchasing of sustainable products and services	Consideration of the procurement of sustainable goods and services – for example, sustainable cleaning products; consideration to the ethical procurement of goods and services –for example, fair trade products
Information technology	Having an integrated computer-aided facilities management (CAFM) system in place that captures energy management data, links to green data centre, provides paperless facilities and utilises mobile devices.
Energy management and carbon foot-printing	Having sufficient reporting procedures in places for energy and environmental data – for example, reporting carbon footprint, utility usage of capital assets and energy emissions of mobile assets
Sustainable travel	Consideration of fleet management, and also of employee commuting patterns – for example, car pooling schemes and energy efficient purchasing of company fleet
Targets, measurement and reporting biodiversity	Having sufficient environmental reporting procedures in place and being aware of the organisations impact to local biodiversity – for example, conservation of local ecosystems
Space management and flexible working	Consideration of concepts such as hot-desking and office hoteling to maximise office space; consideration of social sustainability and the maximisation of workplace productivity – for example, working-at-home policies.
Waste management and recycling	Having sufficient procedures for waste disposal, recycling and reuse – for example, commercial waste, hazardous waste and food waste
Mechanical and electrical	Utilisation of mechanical and electrical equipment – for example energy efficiency of lifts and escalators, HVAC systems and lighting





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Recent studies have analysed the extent to which FM organisations adopt a sustainability policy [8, 19]. It can be argued that between 55 and 69 per cent of organisations have a sustainability policy, and most of these organisations are medium or large sized (19). Clearly, there is still room for improvement. Those organisations that do have a sustainability policy in place are much more likely to implement further sustainable initiatives, and sustainable practices within the FM industry are not yet truly embedded [19]. Moreover, only 26 per cent of organisations feel they are 'very good' or 'excellent' at effectively managing their sustainability responsibilities [8], with 41 per cent of respondents feeling their organisation is 'poor' or 'inconsistent', and the remaining 33 per cent feeling their organisation is 'adequate' at effectively managing its sustainability responsibilities [8]. The main reasons for such negative trends appear to be due to time constraints, lack of knowledge, lack of senior management commitment and financial constraints [8]. It is therefore critical that those issues are addressed early in the strategic planning stages.

Despite these concerns, it is apparent that sustainability is playing a more influential role, especially amongst larger sized organisations [19]. This is supported by the BIFM who has attempted to promote the importance of implementing a sustainability policy within FM organisations, through the release of an important guidance note for the industry [5]. In summary, the BIFM promotes ten critical steps to implementing a sustainability policy, as summarised in Table 13.3:

Table 13.3 Steps to implementing a sustainability policy – modified from [5].

1. Identify stakeholders and map their expectations	Recognise, prioritise and understand key stakeholders who have significant influence over your organisation's strategy
2. Confirm organisational strategy	Agree a policy aligned with the wider corporate strategy
3. Agree a sustainability policy mission	Gain consensus from your stakeholders on the aim of your policy and its link to the organisations core business objectives
4. Get a high-level sponsor	Gain support at boardroom level to who has an interest in sustainability
5. Agree policy boundaries	Define the scope and extent of your policy with regard to the coverage of topics and the main stakeholders affected
6. Provide adequate resources	Ensure adequate resources and staff competences are present to successfully implement your sustainability plans
7. Set SMART targets	Set policy targets that are simple, measurable, achievable, relevant and timely
8. Engage staff	Establish an appropriate level of communication at all levels of the organisational hierarchy to communicate your objectives
9. Communicate success	Provide timely feedback to both internal and external stakeholders
10. Review and feedback	Use the feedback received from stakeholders to further improve and change your sustainability strategy





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Sustainable FM – it's Contribution to Building Life Cycle

It is important to view the life-cycle of buildings from a holistic perspective, and this approach has been increasingly accepted in recent years [26]. FM, however, has been traditionally perceived as contributing to a building's life-cycle predominantly during the operational stages. For FM to effectively contribute to the environmental sustainability of a building, it should be integrated into all stages of the building life cycle, within the design, construction, operation and disposal. By including FM in the early stages of design and construction, it will inevitably lead to a more prolonged and sustainable use of the building during its operational stage. This allows sustainable FM to flourish, where sustainable FM practices can be considered and implemented carefully and accurately.

Facilities managers are in a unique position to view the entire life-cycle process [9], and are well placed to take the lead in devising strategies for making the most out of their properties [28]. One approach that can significantly enhance the impact that FM can have on a building's life cycle is to ensure ongoing data consistency from construction through to operations [26]. This can be achieved through the successful implementation of a computer-aided facilities management (CAFM) system to contribute to sustainable FM. CAFM systems can be defined as providing efficient information technology tools for mapping, evaluating and controlling FM structures and processes [14]. By seeking to improve the processes involved in capturing and measuring data, FM organisations can enhance their service provision [24]. CAFM systems can either be designed as bespoke systems tailored to the needs of individual organisations, or can be provided by specialist information technology providers. Typically, CAFM systems have the potential to capture masses of data, which can be hugely effective in facilities managers' day-to-day roles, as they are naturally dealing with large quantities of diverse information. Figure 13.1 provides a summary of the general elements that CAFM systems can accommodate.

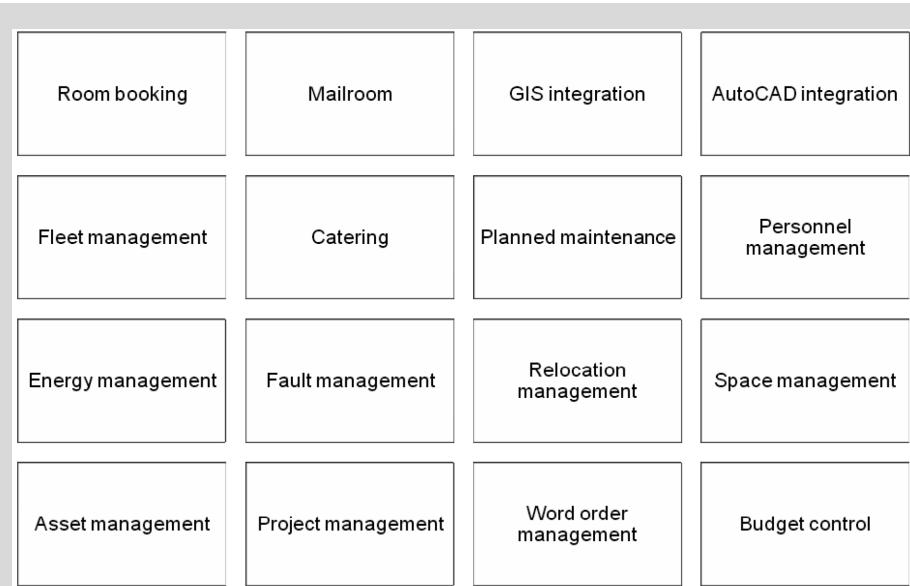


Figure 13.1 Scope of CAFM systems – modified from [2].



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The importance and growth of CAFM systems escalated in the early 1990s and predominately focused on how CAFM systems can be implemented within FM. More recent research has focused more on raising FM efficiency and value. A key area where FM can add value to its delivery and functionality is through sustainability. It is surprising however that there is very little research investigating the value of implementing sustainability data within CAFM systems. A recent study claimed that 41.5 per cent of facilities managers are not using CAFM to monitor energy management issues [2], which can potentially lead to substantial savings for organisations and reduce carbon footprints. Therefore, this is an area where facilities managers can potentially add significant value to their sustainable FM functions by investing in the collection, analysis and evaluation of energy and wider sustainability data.

■■■■ The Workplace and Sustainability

FM organisations are now expected to provide services supporting the environmental management of their customers [17]. A huge challenge to facilities managers is that many existing buildings were constructed during a time when the environmental design, construction and performance of buildings was not so important [25].

The way in which workspace is provided should be a direct response to the needs of people for support in their work endeavours [15]. FM naturally has a vital role to play in effectively supporting the provision of workspace. Moreover, it can be argued that the workplace is constantly changing, where 'work is no longer a place – it is an activity that can be conducted anywhere' [15]. Hence, for facilities managers to maintain an effective role in the organisation, they will need to find innovative ways of providing workplace services to provide value-added solutions to the business [15]. One area that has raised interesting debate is the topic of 'healthy, productive workplaces' [21], emphasising the need to integrate sustainable FM practices within the office environment.

There are many different elements that contribute to healthy workplaces, such as the amount of privacy an individual has, the level of personalisation that individuals attribute to their workspace and the types of interior colours, windows and lighting used. One area that has generated interesting research in recent years is the use of interior planting in workplaces (Figure 13.2).

In one such piece of recent research, extensive trials centred around live indoor plants were carried out to examine the building occupants' perceptions of the office environment [21]. This was measured using an online survey administered to both an experimental group and a control group before and after plants were installed. The main conclusions were that those that had plants within their workplace were more productive, less pressured and experienced greater privacy and comfort, with a perception that offices with plants have greater aesthetic quality. Most significantly, occupants with plants in their office were less likely to perceive that the workplace contributed to pressure from their jobs and were less concerned about their health at work. This research exemplifies for the first time that plants in offices have a significant positive effect on short-term sickness absence, which decreased substantially in the area with plants – but this would require further validation to provide a more substantiated claim.





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Figure 13.2 Interior planting.

Operational Considerations for Sustainable FM Services

It is now appropriate to consider the operational potential that multiple FM services can have within an organisation's workplace, through the incorporation of sustainable practices. It is important to note however that the examples provided below should be embedded within an organisation's sustainable policy so they can be managed effectively. This section provides a snapshot of some of the latest thinking on implementing sustainable practices into FM service delivery, with relevant practical examples.

Sustainable Cleaning

Companies may wish to develop or source other cleaning products and materials of high sustainability profile. For example, companies can join in the Charter for Sustainable Cleaning, an initiative of A.I.S.E., the International Association for Soaps, Detergents and Maintenance Products. The Charter is a voluntary industry initiative to encourage companies in that sector to undertake continual improvement in terms of sustainability, along all the life-cycle stages, and also to encourage consumers to adopt more sustainable ways of doing their washing, cleaning and household maintenance. Companies who adhere to the 2010 Charter are able to use the Charter logo on their products, as illustrated in Figure 13.3, provided they meet all requirements, including external verification. For more information on the Charter, visit <http://www.sustainable-cleaning.com/en.home.orb>.



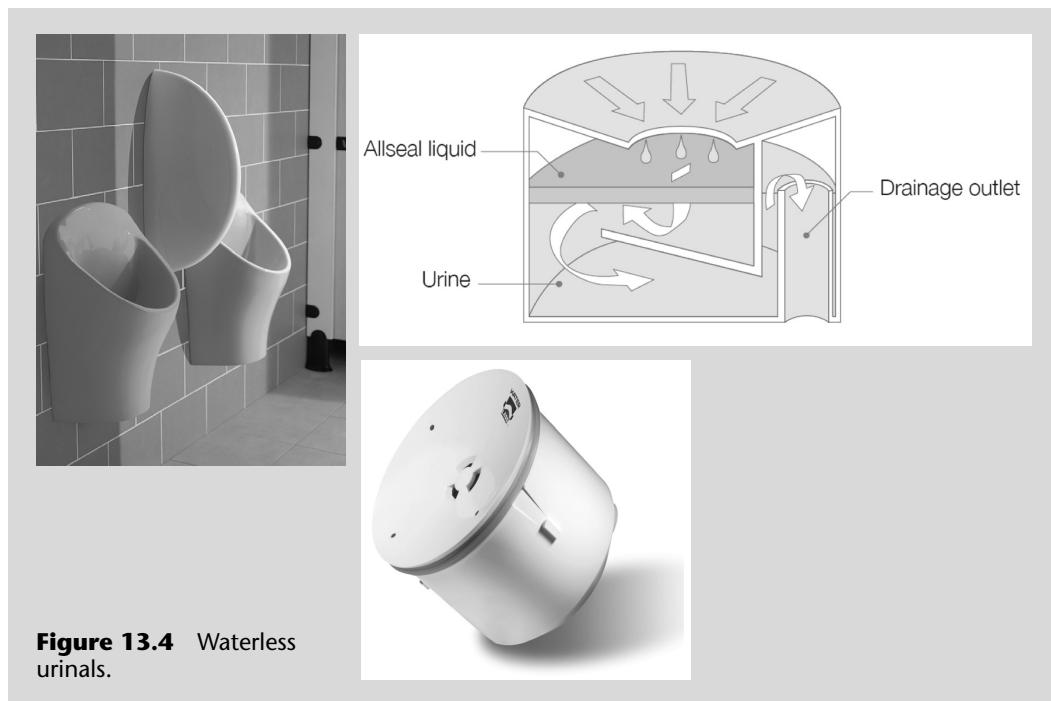


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An interesting development of toilet facilities is the increasing use of automated toilet functionality, for example, the implementation of sensory taps and flushes, low discharge/spray taps and waterless urinals. The main benefit of these particular products is the considerable water-savings that they can make. Waterless urinals however are often mis-conceived as releasing strong odours and are not attractive to users of such facilities. However, products supplied by companies such as Armitage Shanks (Figure 13.4) provide excellent waterless urinal facilities that can actually not only save on water consumption but also provide cheaper installation, easier maintenance and hygiene. Figure 13.4 demon-





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strates the basic functionality of a waterless urinal. Urine flows down the urinal into the Sealtrap cartridge, which is filled with a special, perfumed liquid called Allseal. The liquid prevents foul air rising from the drains into the bathroom area. Maintenance is low and the cartridges need to be replaced roughly every three months.

Sustainable Catering

Implementing a food waste strategy to include pre-consumer waste and post-consumer waste (leftovers) is something that all companies should try to adopt. Simple food composting systems can be purchased to recycle food waste and are financially viable and easy to assemble. Other composting alternatives that are increasingly popular include wormeries with composting worms for faster, more efficient composting turnaround times (Figure 13.5).

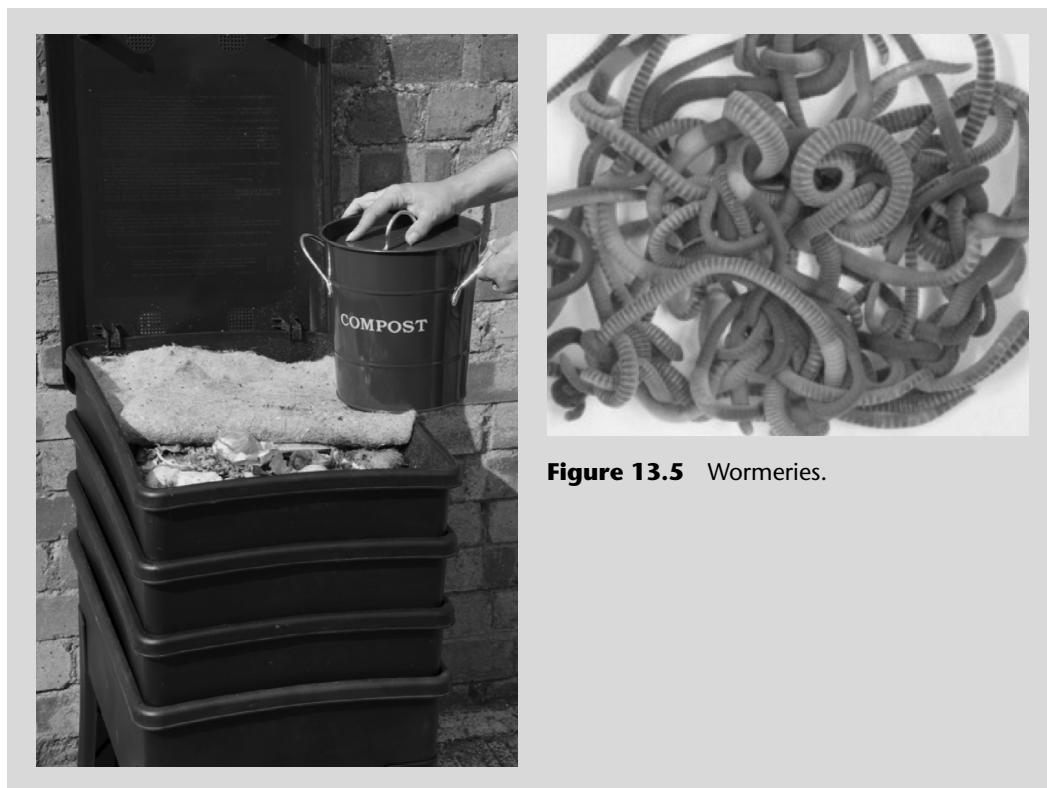


Figure 13.5 Wormeries.

Other useful sustainable catering practices include using locally grown food, organic food, ethically produced, reusable, compostable or recyclable dinnerware to minimise fleet management costs and carbon footprinting. Introducing the concept of 'intelligent cooking' is a relatively new term but can provide energy and savings to building utilities; for example, introducing energy saving menus, dishwashing alternatives, refrigerator maintenance, and staff surveys to understand catering demands. Moreover, such catering menus can also be ordered and accessed by integrating into an organisation's CAFM system, which can save time and space when preparing, disseminatin and collecting materials (Figure 13.6).





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Catering Menu

Your company logo, with optional link to your company website
Your client's logo, with optional link to your client's website

Catering Group Filter
Items Filter

[Return to Room Booking](#)
[Upload Catering Group Pictures](#)

Catering Menu

Attach No Items (only available between 00:00 and 23:45)

Beverages (only available between 01:00 and 17:00)

Available Catering Items

- Fresh Fruit Basket (x10)
- Fresh Fruit Basket (x5)
- Tea, Coffee and a Selection of Afternoon Cakes
- Tea, Coffee and Biscuits
- Tea, Coffee and Breakfast Danish
- Tea, Coffee and Muffin
- Tea, Coffee and Scones served with Clotted Cream
- All Butter Croissant Served with a Selection of Mixed Fruit, Preserves and butter
- Assorted Danish Pastries
- Apple Pie

All coffee is Fair Trade

Additional Options

Testing 1

Breakfast Pick and Mix (only available between 00:15 and 16:00)

Available Catering Items

- Assorted Granola Pots
- Cumberland Sausage in a Soft Roll
- Fresh Cut Chunky Fruit Salad
- Hot Thick Hand Cut Toast with Preserves
- Rindless Back Bacon in a Soft Roll
- Vegetable kebabs

brunch

Desserts (only available between 08:00 and 16:00)

Drinks

Figure 13.6 Intelligent catering booking.

Sustainable Travel

Sustainable travel may be an area that is not immediately considered under the remit of FM, however being aware of any fleet management activity and your end-user commuting patterns is critical to consider in relation to an organisation's overall carbon footprinting strategy. Reporting and monitoring information of company vehicle use emissions can assist with this. The most extreme end of the spectrum is to influence an organisation's fleet





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Figure 13.7 Car sharing schemes.

management through the implementation of catalytic converters or electric vehicles. However, softer approaches can be implemented very effectively to organisation's end-users through sustainable travel plans. Sustainable travel plans include schemes such as car sharing (Figure 13.7), bicycle facilities, including bicycle shelters, staff drying rooms with pooled bicycle equipment (Figure 13.8), staff showers, green travel guides and bicycle purchase discount schemes. Organisations such as Sustrans give excellent good practice information and support to organisations in providing such sustainable travel plans and facilities.



Figure 13.8 Bicycle changing rooms and parking facilities.





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Waste Disposal and Recycling

Recycling policies are now extremely common within organisations and it is now commonplace to include facilities such as central printing zones, paper shredding, bin colour coding, dry cell batteries recycling, digital media (CDs and DVDs), fluorescent tubes and electrical waste, no-bin policies in office areas, waste compression and transportation and eBay schemes. Some companies are making attempts to integrate such waste facilities with other sustainable features, for example, the integration of interior planting with recycling bins (Figure 13.9).

Space Management

The practice of space management is not new, in terms of analysis of existing space usage and utilisation rates and the mapping of trends for new building design. However, a growing trend in recent years has been the emergence of flexible working options for employers, which consequently has had a dramatic impact on the ability of managers to utilise building space and usage. Facilities managers are increasingly adopting concepts such as hot-desking, where employees do not have a designated desk space and are able to use a selection of pooled central resources. A further development of hot-desking has been the emergence of office hoteling, where employees can use a booking management system to reserve and use resources. Technology in this area is now very sophisticated and can be integrated into an organisation's CAFM system. Such software allows users to select specific times and dates and also to decide on room layout and design (Figure 13.10).

Reducing Energy from Mechanical and Electrical (M&E) Services

A good example of reducing energy from a common M&E component is through the amount of energy generated from lifts, which can contribute considerably to the organi-





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Viewing Room Information

Your company logo, with optional link to your company website Your client's logo, with optional link to your client's website

[Return to Bookings Grid](#) [Print Information](#)

4.1

General Information ...

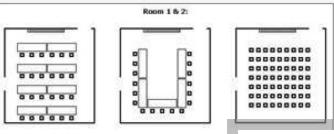
Building	Pokerstars
Room Information	Not Specified
Venue Details	None
Catering Permitted	No
Equipment Permitted	No
Visitors Permitted	Yes
Total Length	0
Total Width	0
Total Area	0
Standard Equipment	projector, smartboard, 20 chairs, 10 tables
Disabled Access is OK	Yes
Room has an Induction Loop	Yes
Room has a Wireless Network	Yes
Number of Network Points	1501

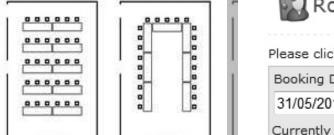
[Building Information](#)

Available Room Layouts for 4.1 (click a layout below to view the layout picture) ...

Layout	Description	People Capacity	Open Time	Close Time
Classroom		10	00:15	00:00
Boardroom	check	10	00:45	00:30

Boardroom Layout Picture

Room 1 & 2:


Room 2 & 3:


Room Bookings Day View

Your company logo, with optional link to your company website Your client's logo, with optional link to your client's website

Please click a blank cell on the grid below to request a room booking.

Booking Date Grid Start Time Building Room Group
31/05/2012 08:00

Currently displaying Thursday 31 May 2012, for All Buildings and All Room Groups

[Refresh Grid](#) [Reset Filters](#) [Search for a Room](#) [Bookings Month View](#)

Room Name (click for info)	8	9	10	11	12	13	14	15	16	17	18
4.1											
Committee Room 3											
Committee Room 4											
Committee Room 5											
Committee Room 6											
Committee Room 7											
Committee Room 8											
Conference Room 1											
Conference Room 2											
Conference Room 3											
Directors Boardroom											
Directors Boardroom2											
EF2-D90	New	Building	Development								
EF3-D90	New	Building	Development								
EF4-D90	New	Building	Development								
EG1-D90	New	Building	Development								
EG2-D90	New	Building	Development								
ES1-D90	New	Building	Development								
ES2-D90	New	Building	Development								
Astro Turf Pitch											
Astro Turf Pitch - Away											
Astro Turf Pitch - Home											
Cricket Pitch											
Football Pitch											

Booking Preparation Provisional Blocked Blocked Request
 Confirmed Booking Room Request

Figure 13.10
Booking management software.



Proof

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Energy Efficiency & Energy Costs				
Life Span (average)		50,000 hours	1,200 hours	8,000 hours
Watts of electricity used (equivalent to 60 watt bulb)		8 watts	60 watts	15 watts
LED's use less power (watts) per unit of light generated (lumens). LED's help reduce greenhouse gas emissions from power stations and lower your electricity bills.				
Kilo-watts of electricity used per year		70.08 Kwh/yr	525.60 Kwh/yr	131.40 Kwh/yr
Annual operating cost based on 12p/Kw and 8 hours a day usage		£2.80	£21.02	£5.26
Total cost of replacements over the lifetime of the LED bulb		£18.00	£28.29 (based on 69p each)	£30.00 (based on £6.00 each)

Figure 13.11 LED lighting benefits.

sation's total energy consumption, sometimes in the region of 8–10 per cent. Organisations therefore need to look at more intelligent ways of saving or even recovering energy generated from vertical mobility in buildings. Useful examples include the potential for organised shut-down periods and zones for lifts and escalators, standby solutions for escalators, such as non-use speed reduction or shut-down, and energy recovery from lift usage. Lift technology is increasingly becoming more energy efficient and the emergence of eco-lifts is beginning to become more mainstream. These types of lifts operate with machine room less (MRL) gearless technology, where most of the lift's components are within the lift shaft, via a MRL control board, often allowing them to use less energy than standard traction or hydraulic drive lifts. This also provides increased space and cost savings, as no machine room is needed to house the lift components. Moreover, if this is coupled with the use of light emitting diode (LED) lights then further energy savings can be made (Figure 13.11).

Although the examples provided regarding LED lighting and vertical mobility are effective, they do require investment and have initial financial implications. One of the most simple and cost effective methods of reducing energy through M&E services, however, is through awareness-training schemes such as using the stairs and switching-off light campaigns. Half of the battle in making such investments work is about having good organisational behaviour culture regarding sustainable issues and, unless such technologies are properly communicated, they will fail to be optimised.

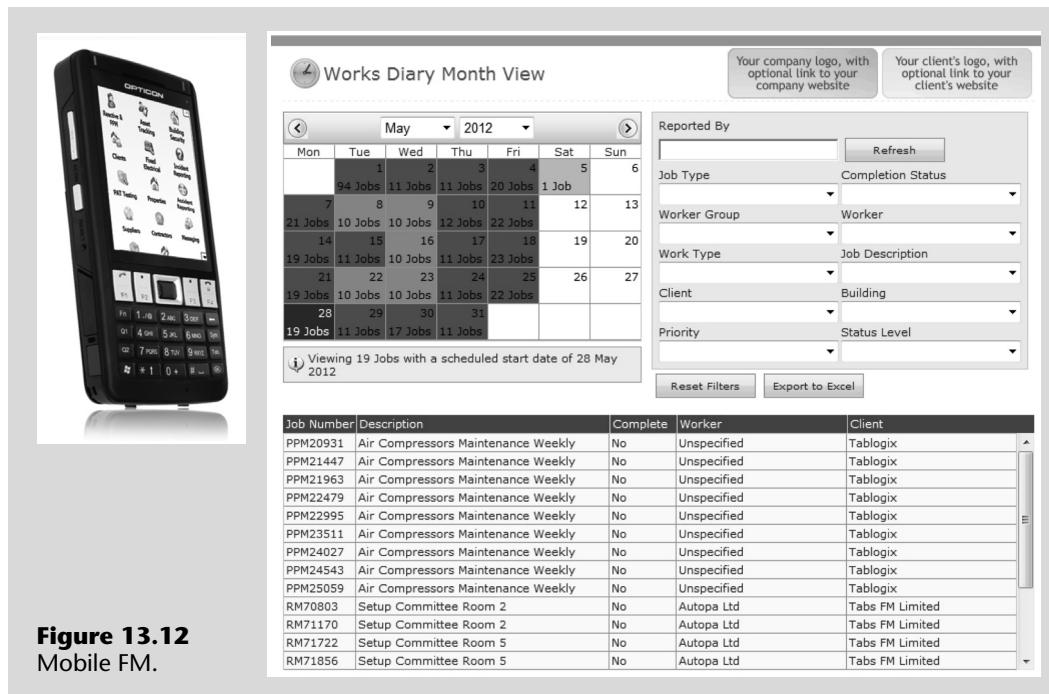
Information Technology and Data Management:

Sufficient investment in sustainable data centres is often overlooked as an important FM cost, as they are often located off-site. However, data centres store considerable amounts



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of energy and can be a considerable contributor to overall energy costs. New advances in technology include using heat exchange cooling systems that do not rely on mechanical cooling and can use the natural air to help cool the data centre. Hence, investing in a sustainable data centre that provides free cooling / direct air, high efficiency devices, airflow containment and peak provisioning can create significant energy savings.

It has already been demonstrated in this chapter that the utilisation of a CAFM system to manage environmental issues can be extremely beneficial and rewarding by helping to monitor and reduce energy usage. This can be further improved through the use of hand-held devices to make data accessible wherever you are (Figure 13.12). Moreover, a CAFM system can be used at the design and construction phase to tag asset management data and link to design plans, and also at the operations phase to capture all FM data.

■■■ Environmental Management

Although all of the aspects discussed so far are important in respect to sustainable FM, sustainable policies and operational practices are much more likely to fail if an organisation does not have an appropriate environmental system (EMS) in place to review, monitor, check and improve such practices. An effective tool to enhance the ability of an organisation to successfully implement sustainable FM is through the implementation of an EMS within the FM function. The successful implementation of an EMS helps to encourage organisational environmental improvement, promotes a better understanding of environmental issues and plays a significant role in developing an appropriate systems approach to FM [27]. It involves the development of organisational structure, planning activities, designating roles and responsibilities, procedures, processes and resources. Through an





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Table 13.4 Environmental management systems.

Stage	Explanation
Environmental policy	<ul style="list-style-type: none"> This is a declaration of the organisation's overall aims and principles with respect to the environment, It should be signed by its senior management and be publicly available.
Environmental review	<ul style="list-style-type: none"> Identifies the impacts that the organisation has on the environment, and their significance levels Compliance and understanding of relevant environmental legislation and regulations relating to all impacts is needed here Appropriate measures and targets for environmental improvement are then needed once the impacts and their significance levels are identified
Implementation	<ul style="list-style-type: none"> Practical actions should be implemented to improve the organisation's environmental performance Individual responsibilities should be allocated to achieve the objectives and targets, and training provided where appropriate The EMS needs to be communicated both internally and externally so that all stakeholders are aware of its importance All procedures need to be documented
Checking	<ul style="list-style-type: none"> Reliable and robust information on the environmental performance of the organisation is essential to track progress against its environmental objectives and targets Typically this can be achieved through integration with the organisation's CAFM system Periodic evaluation of policy and legislation is needed to ensure that legal compliance is being achieved.
Review and improvement	<ul style="list-style-type: none"> Reviewing the EMS at top level is crucial to ensure that continuous improvement is taking place Periodic reviews should occur, and changes should be enforced and managed where necessary

EMS, companies, increasingly using voluntary schemes and standards, can ensure their environmental remit is built into company strategy. One of the most prominent international standards for EMS is ISO14001. Depending on the size and scale of the company implementing an EMS, it may employ an external consultant to assist in the development of the EMS, or to develop it in-house. An EMS is defined in the latest revision to ISO14001 (2004) as 'part of an organisation's management system used to develop and implement its environmental policy and manage its interaction(s) with the environment'. The standard goes on to say that it should provide an interrelated set of requirements used to establish policy and objectives.

Companies are increasingly gaining certification to EMS schemes such as ISO14001 as they provide a seal of approval for their environmental performance. Certification is not mandatory, but there are a number of benefits that can be gained by an organisation having its EMS externally certified, including the following:

- Confidence that the EMS meets recognised requirements and standards
- A means of maintaining momentum and driving continual improvement



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- A fresh pair of eyes to review an organisation's environmental responsibilities
- The potential for recognition from stakeholders.

There are also a number of drivers for the implementation of EMS schemes, including:

- The increasing number of larger companies requesting smaller suppliers to gain certification
- Increasing requirements within tendering briefs, either as a mandatory or a desirable requirement
- It can lead to competitive advantage in tendering situations
- The general improvement of environmental processes and awareness
- It can act as an effective cost-saving strategy towards environmental initiatives.

The basic process for implementing ISO14001 is illustrated in Table 13.4. An EMS helps to ensure that the organisation's overall environmental objectives, as set out in its environmental policy, are implemented throughout the organisation and that employees, contractors and suppliers know their roles and responsibilities in helping the organisation to achieve them.

Not Forgetting Social Sustainability

A large proportion of this book focuses on the physical aspects of sustainability. Yet it is also important to consider the wider social implications of sustainability in the built environment. With regard to sustainable FM, ensuring community participation in decision-making processes that affect wider society [7] should not be neglected. It is acknowledged that to achieve sustainable FM and to implement an effective sustainability policy, it is important to consider the triple bottom line of sustainable development – environmental, economic and social. It can be contended that a better understanding of the social value of FM is needed [1].

Those who want to bring social processes, such as employee education, ethical purchasing, community initiatives, local investment and customer involvement, into their control will be socially responsible organisations. This concept is now widely recognised in business and is often termed 'corporate social responsibility' (CSR). CSR focuses on how organisations can go beyond the minimum obligations they feel they have to their stakeholders. Minimum obligations to stakeholders would consist of business drivers such as revenue, profit and legal obligations. Activities exceeding minimum obligations would consist of business drivers such as community investment, human rights and employee relations, ethical conduct and wider environmental practices. Typically, not all organisations will associate the same level of importance to CSR as others, for whom the hard reality of meeting the minimum stakeholder obligations will outweigh the soft rhetoric of exceeding such minimum obligations. Despite this, organisations are increasingly recognising the importance of CSR and the impact this has on the delivery of an organisation's core and non-core business activities. FM organisations should aspire to become 'shapers of society' where they are influencing social and market change through visionary leadership in the industry, creating multi-organisational alliances, and taking individual responsibility to initiate such change through the organisation [11].



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REFLECTIVE SUMMARY

- FM has a relatively recent and contested history, particularly with regard to its organisational position and its professional ownership.
- FM can therefore be viewed as the integration and alignment of the non-core services, including those relating to the premises required to operate and maintain a business that fully supports the core objectives of the organisation [18].
- The FM umbrella is now a complete service function, ranging from physical building support (such as energy management, maintenance, grounds and gardens and cleaning) to non-core business process support (such as environmental management, workplace management, human resources and information technology).
- FM has a crucial role to play within the workplace, and is considered to have an influence on user perceptions, either directly or indirectly. This has stimulated further research into the added value FM can offer by improving workplace productivity through its users.
- The development of an FM strategy is crucial to ensure that the FM function within an organisation is strategically linked to support the core business needs and objectives of that organisation.
- Viewing FM through the whole life cycle of buildings will make them more sustainable. The input of FM in the early stages of design and construction will lead to a more prolonged use of the building during its operational stage.
- Facilities managers should be at the forefront of the development of an organisation's sustainability policy, as they have vast awareness of the physical, human and managerial operations of an organisation's premises, and are expertly placed to deliver sustainable practices.
- Ensuring environmental performance within the facilities manager's role is now of high importance, with facilities managers seeking to achieve positive perceptions from building users through the delivery of healthy workplaces.
- There are a number of operational sustainable FM practices that organisations can implement in order to successfully implement the strategic objectives set out in an organisation's sustainability policy.
- The implementation of an environmental management system (EMS) within the FM function can significantly improve the capability of FM organisations to deliver the sustainable goals outlined in their sustainability policy, putting theory into practice.
- The recognition of the social importance of FM should not be forgotten, and FM is ideally placed to influence an organisation's CSR policy.

REVIEW TASK

What steps would you take to ensure that the goals set out in your sustainability policy become a reality, and are translated into operational sustainable practices?

