Resource management: improving efficiency and reducing waste

UK

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RICS®

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RICS professional standard, UK

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Contents

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Document definitions

Document type	Definition
RICS professional standards	**Set requirements or expectations for RICS members and regulated firms about how they provide services or the outcomes of their actions.** RICS professional standards are principles-based and focused on outcomes and good practice. Any requirements included set a baseline expectation for competent delivery or ethical behaviour. They include practices and behaviours intended to protect clients and other stakeholders, as well as ensuring their reasonable expectations of ethics, integrity, technical competence and diligence are met. Members must comply with an RICS professional standard. They may include: • mandatory requirements, which use the word 'must' and must be complied with, and/or • recommended best practice, which uses the word 'should'. It is recognised that there may be acceptable alternatives to best practice that achieve the same or a better outcome. In regulatory or disciplinary proceedings, RICS will take into account relevant professional standards when deciding whether an RICS member or regulated firm acted appropriately and with reasonable competence. It is also likely that during any legal proceedings a judge, adjudicator or equivalent will take RICS professional standards into account.
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1 Introduction

This document provides guidance for property professionals in how to make more efficient and effective use of buildings and their support services; manage resources more effectively and reduce waste.

In the context of property and facilities management, resource should be considered as anything that is used in the provision of buildings and their support services, including:

- people
- natural resources and
- energy.

1.1   Objectives, structure and content

Organisations vary in their approach to managing resources from focusing on effective workplace design, to short term, low cost solutions to providing workspace. However, irrespective of the cost and value of property and workspace to an organisation, the alignment of property and associated facilities management support services to deliver those needs in the most resource efficient way apply equally.

This guidance looks at the different stages in the property life cycle and recognises how they vary between different organisations in their structure, management and operation from a property and facilities management perspective. It recognises that in many cases responsibilities and decision making within organisations is fragmented, and medium to long term property requirements are very difficult to establish and control. The crucial objective has been to align all these differing needs through the development of a common and comprehensive review process.

This guidance is intended to:

- develop a structured approach to improving efficiency and reducing waste
- make the approach applicable to the different professions, roles and responsibilities of those working within the industry, ranging from property planning through to support services
- recognise that there are many different aspects and phases of the property management cycle which need to be considered in developing the optimum plan and
- provide a methodology and source of reference for those using the document to analyse and support their organisation.

The outcome is a structured approach to the planning process, creating an outline template to be followed, with specific guidance on:

- setting vision, values and objectives

- design guidelines for each phase of the property life cycle and

- implementation and continuous improvement.

The process is aligned with the RICS guidance note Strategic facilities management and follows a similar approach to that used in the International Organisation for Standardisation (ISO) Standards. This ensures that the planning approach can be used as part of wider strategic and practical reviews in areas such as asset management and environmental management.

This is not a technical design document; technical aspects are covered by reference to specialist bodies such as the Chartered Institute of Building Services Engineers (CIBSE) and the British Institute of Facilities Management (BIFM), and to documents such as ISO standards, case studies and industry reports.

It is not designed specifically to reduce cost, but the content throughout looks at the cost implications and in the majority of cases improving efficiency results in less cost. It may take some initial investment but generally the cost benefits in most of the areas covered are soon delivered. It is a smarter way of conducting cost reduction exercises.

Similarly, this is not a design document for the space planning of working environments, but design features strongly in the process. Space within buildings should be designed to meet the needs of the user. Space must be considered as being flexible and not fixed to a given function, individual or department. Offices need to be agile to meet the changing needs of the organisation. In some cases it should be challenged whether an organisation actually needs its own office or should use more flexible space options. Flexible space brings many more options for looking at improving efficiency. Improving productivity, as a typical measure of output, is essential when looking at the efficiency of buildings. Space and productivity are directly related to waste and efficiency.

It does not offer specialist energy management guidance, but energy is a major factor in any process that looks at improving efficiency. Aligned with this is the requirement to improve efficiency and reduce waste from an environmental perspective. Environmental business objectives, often as part of a broader corporate social responsibility plan, are no different to other business objectives such as profit and sales; they are all factors which need planning as part of long term sustainability and success plans. Being more efficient in the use of natural resources is not driven solely by legislative requirements or business ethics; it is solid business planning which has real value to any organisation and its stakeholders.

Finally, this document is intended to collate existing guidance into a usable format. In content it is part strategic and part technical; it is founded on the principles of collaborative working and structured to provide a common approach.

Following this professional standard should produce a holistic plan with a clear set of objectives, taking account of all the factors that influence design and implementation, applied across all aspects of the property life cycle.

1.2 The target audience

The target audience covers:

- property managers looking at the short, medium or long term needs of the estate

- managing agents with a focus on the needs of both client and tenants in improving the efficiency of the working environment and challenging the amount of space actually required by an organisation

- building managers and workspace planners aligning the needs of the occupants with the cost and environmental impact of providing and managing the most effective working environment

- facilities managers employed to manage the building assets and support services; support the needs of the end users, and bring innovation and efficiency to every aspect of building management and

- procurement teams charged with aligning cost and performance through buying efficiency in support services contracts and building products.

The document should also provide useful reference for students and candidates working through their Assessment of Professional Competence (APC) programme.

2 Planning to deliver

This section explains how to develop and structure an improvement plan.

2.1 The planning concept

As with any method adopted in business planning, it is essential to follow a structured approach to deliver the required results. There are many standard practices, but this professional standard follows the EFQM RADAR approach. It is simple but effective and most importantly focused on delivering results.

The RADAR approach focuses on four key phases of the planning process:

- results – set clear objectives for what is to be delivered through the planning and review process
- approach – look at how these results can be achieved
- deployment – confirm how and when these results will be delivered and who is accountable for the outcomes and
- assess and refine – measurement of outputs and continuous improvement.

This approach has been developed into a process map as shown in Figure 2, which becomes the core to the detail and guidance given in the improving efficiency and reducing waste plan. The thinking behind each of the phases in the process is set out in the following sections.

2.2 Results

2.2.1 Focus on results

Establishing the desired **results** will stem from an analysis and understanding of the specific needs of the business. While this concept is obvious, with a clear emphasis on improving efficiency and reducing waste, establishing specific targets is unlikely to be as clear and straightforward.

The logic process is:

- What is the business trying to achieve and why? Confirm the outline vision, brief or project specific initiative.
- What is needed to support this objective? Understanding what is needed and which parts of the business need to be engaged.
- How can the objectives be delivered? What are the likely score, range and extent of change and impact needed to achieve the objectives?

The scope of the initiative could be simple, such as a plan to reduce energy costs, or more wide ranging looking at various aspects of business performance, efficiency and the cost of support services to building management. Taken to the extreme, the starting point is why an organisation, or parts of its operation, needs any committed space at all.

Simple or complex, the starting point is the same – an effective plan will need a clear set of results to work towards and these must be fixed prior to finalising the approach and deploying any change in process or potential investment in assets.

Establishing these objectives and fixing the target results is not necessarily obvious or straightforward and needs a structured thought process and design or management input.
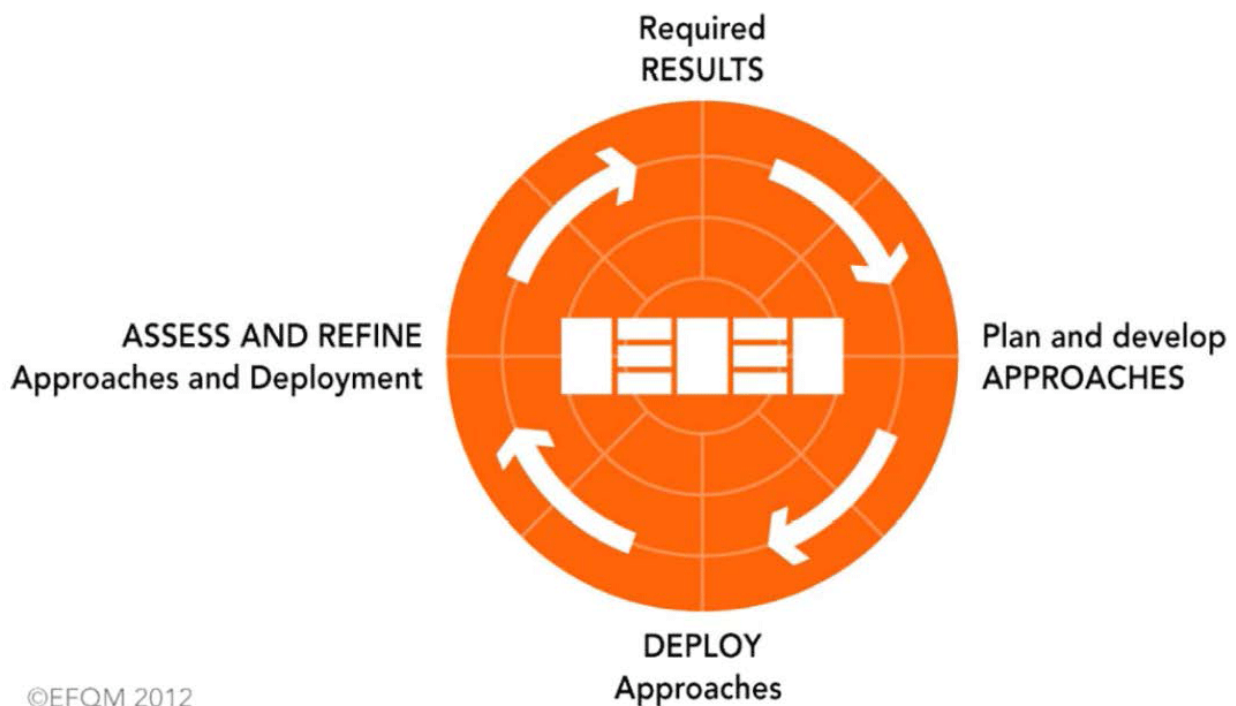
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Figure 1: The EFQM RADAR approach

2.2.2   Stakeholder value

Whatever the range and scope, stakeholder value is the common driver and business concept which underpins all business planning initiatives, and it is essential to understand and evaluate this as part of the process for setting objectives.

All businesses are driven towards meeting the needs of the stakeholders. This profiling of stakeholders and stakeholder value will vary for each organisation, dependent on the type of business, ownership, size and structure. It can be categorised into four sections:

- **Society** – the benefit the organisation brings to society. Education and healthcare are prime examples of industry sectors that fit this category, but equally, there is an obligation on all organisations to be responsible parts of the society in which they exist. This can be dictated through legislation, such as the Climate Change Levy, or influenced by the views of customers, employees and shareholders.

- **Employees** – successful organisations will recognise the viewpoints and support the needs of their employees. Such employee engagement will have a different value in different organisations, but environmental and societal impact is often high on the list of employee priorities.

- **Customers** – all organisations exist to provide a service to their customers, for which they are rewarded through sales or financed through central funding, as in government agencies. The wider viewpoints of customers will similarly influence their approach to an organisation, the choice of products they buy and who they choose to buy from. The value that an organisation puts on this can therefore be directly related to customer choice and level of sales; organisations that promote environmental awareness need to demonstrate this to customers in their wider approach to business, not just the products they sell.

- **Shareholders** – while financial reward may be the largest driver behind shareholder investment, there is a lot of investment choice and sustainability and environmental awareness is a strong influence. Organisations do trade on their CSR credentials.

The underlying message here is that while every organisation may be unique, with different customers, employee requirements and shareholder values; all exist to serve their stakeholders and their goals and objectives will stem from the needs and aspirations of those stakeholders.

The role of leadership is to shape these stakeholder values into the shape, plan and objectives of their business. This will manifest in the vision and strategy of the organisation and it is then leadership's role to deliver the business objectives for the benefit of the stakeholders.

2.2.3   Business objectives

The business objectives have been structured into three core components – the target areas:

- environment
- efficiency and
- effectiveness.

There is no set formula when looking at business objectives; they should always mirror or align with the wider business plan and organisation goals. A typical example would be to develop the target areas to align with any existing or proposed CSR objectives. The actual objectives are flexible to suit the needs of each organisation and this document merely puts down some thoughts and structure to act as guidance.

However, the most important aspect of this approach is to ensure that all aspects of property management are taken into consideration to deliver the most effective result; to look at where to add value and improve performance as well as where to save energy and cost.

Setting the objectives and then developing them into specific targets will generally require an iterative approach, which will need some discussion and research within the business to establish the headline objectives:

- What would we like to achieve?
- What can we realistically achieve (under the scope of the project plan)?
- What is the likely scale of benefits?
- What are the risks and restrictions to implementation?

This is all part of forming the plan (or project) brief. As per any plan, it is critical to have a clear scope of works and not to begin analysis and planning until the brief has been approved. This approval process will establish leadership commitment and ensure that any resultant business case for change has the necessary support prior to implementation.

Cost benefits will inevitably be an important aspect of all these categories; improving efficiency and reducing waste generally saves money. The difference in approach for this plan is that while cost saving is one potential target; it is not the sole driver. This plan looks at the wider benefits with an obvious focus on resource efficiency and the environment. Cost saving exercises can be planned outside of an efficiency and waste reduction plan

However, cost efficiency and reducing waste are always directly linked. Improving space and asset utilisation will reduce building operating costs.

There are many different ways of categorising environmental objectives. Ultimately, everything can be worked back to carbon through carbon accounting, but sometimes this approach loses focus and perspective. Therefore, the following environmental target areas are suggested:

- resources
- energy
- water and
- waste.

'Resources' is introducing the concept of resource efficiency and current guidelines are issued through WRAP 2014a and CIBSE TM 56. Under this heading the following subjects can be introduced into the detail of the plan:

- resource consumption and waste
- increase reuse and enable reuse
- increase recycling and enable recycling
- match durability and life span of assets to required service life
- use resources with lower embodied carbon and lower embodied water
- reduce energy and consumption (for buildings in use and as a design factor in new build and refurbishment projects) and
- reduce water consumption.

The plan may look to identify the carbon benefits of improving efficiency and reducing waste, such as energy usage calculated as CO_2 emissions in accordance with the requirements of the Carbon Reduction Commitment.

Another approach could be to look at embodied carbon factors. Embodied carbon (EC) focuses on the material content in assets, equipment and consumables. The EC calculation looks at the amount of carbon used in the manufacture and transport of the items. Typical areas that should be considered are furniture, carpets, ceilings and general consumable products used in most building environments.

Embodied carbon is the quantity of materials in a product multiplied by the embodied carbon factor (ECF).The Waste & Resources Action Programme (WRAP) in collaboration with the UK Green Building Council and Arup has created a free and publicly available resource of ECFs to support organisations looking at embodied carbon in their choice of products used.

RICS has also issued an information paper, Methodology to calculate embodied carbon to provide guidance on how EC should be taken into consideration at different stages in the life of a project or building.

Following on from EC is the concept of embodied water, also referred to as water footprinting, looking at how water is used in the manufacture of products or food. It also looks at where water is sourced from in manufacturing to support decision making on reducing the amount of water used in dry or arid regions. While information is not as readily available as EC, embodied water reduction can still be an improvement target which forms part of the overall objectives (ISO 14046:2014 Environmental management – Water footprint – Principles, requirements and guidelines).

2.2.4 Objectives to SMART targets

Having established a range of business objectives, they should be converted into specific targets for the plan to deliver. An important part of the RADAR approach is to have specific targets to aim for.

The best practice approach is to ensure that these targets fit the SMART criteria:

- specific
- measurable
- achievable
- relevant and
- time-bound.

The targets may be pre-determined if resulting from a wider business edict, plan or specific project. Typical examples would be space efficiency targets as part of a business expansion or refurbishment project; material reuse in procuring furniture, fixtures and equipment (FFE), and reducing food wastage in a review of a catering strategy or procurement exercise.

Environmental targets are reasonably straightforward to specify and there is a lot of supporting research to aid in establishing achievable results. They are also driven to meet legislative requirements in Carbon Reduction Commitments or government objectives such as Greening Government Commitments targets.

Efficiency targets will be developed through the following areas:

- cost of service; rental, building operations and facilities management and
- space utilisation; workspace density, and capacity utilisation.

Effectiveness targets will pick up on the following areas of scope:

- productivity; output, functionality and
- quality; condition and flexibility.

Effectiveness is an area which will have a wide range of meanings and therefore measures across different industry sectors. Consider, for example, the different requirements in measurable outputs between retail, healthcare and general office environments.

What is common across all industry sectors, however, is the requirement to identify the needs of the users in designing the workplace strategy. One of the most effective ways to achieve this is through consultation with those users via employee survey or through space and asset utilisation surveys, such as desk occupancy levels.

More specific guidance in setting targets for all of these areas is given in the design guidelines in section 4.

While the focus for this guidance is improving efficiency and reducing waste rather than the design of work space, it is still important to consider its impact on productivity and output.

The combination of plan targets will vary for each organisation across different industry sectors, particularly in terms of efficiency and effectiveness. However, the goal is common; delivering the optimum value from a given use of resource, avoiding wasting the resources that are used and being clear about the efficiency of the business operation.

2.3   The approach

The approach is structured to recognise the different requirements, contractual arrangements, roles and responsibilities that both influence and contribute to the effective management of property. It is designed around the property management cycle; four distinct functions that operate in parallel to form the overall management process.

The operating and management structure will vary for different organisations, dependent on their type of business and size of building or estate. The distinction between the phases may not be evident in all organisations, or the four components may be combined into one single property or asset management plan. In many organisations there will be no plan; they operate in small areas of shared, rented space with little or no influence on their environment.

The four elements of the plan are summarised below:

- **Property and accommodation plan** – Looking at the business needs for the property, what space, if any, is actually required and what functions it is required to support. Responsibility often rests with the estates and property professionals, who may be external managing agents, and this is also the area where tenant and landlord liaison on improving efficiency will be managed.

- **Strategic asset management plan** – A whole-life plan focused on the management and performance of the physical assets in the buildings, inclusive of energy performance and water usage.

- **Planned interventions** – Short to medium term plans which impact on the building, such as change in use of floor space, building extensions and refurbishment and purchasing of FFE.

- **Building occupation, facilities management and occupier service support** – This is the day to day management of the space; the direct interface between support services and the creation of an effective environment for those who use the buildings. Such activities are frequently designed around a 12-month facilities management plan.

The detailed approach to the property management cycle is picked up in section 4 in the design guidelines.

The design guidelines look at the specific requirements from each individual phase to feed into the overall plan:

- How does each section of the property management cycle contribute to the overall management of the property and working environment?

- Who is responsible?

- How are services designed and delivered?

- What are the interfaces between the different phases and how aligned are they?

These sub-plans come together to form one, holistic approach to improving efficiency and reducing waste. How much value each of these sub-plans contributes to the overall plan will vary for differing organisations; in some the focus may only be on one single aspect such as reducing the amount of food and stationery waste in an office environment, while in others there may be a detailed plan for each phase, ranging from space efficiency and flexibility in rented accommodation, through to embodied water targets in the provision and cleaning of employee uniforms.

The output of this section will be a series of recommendations which should be presented in a business case format. This is critical to seek leadership approval and commitment prior to planning any form of implementation.

2.4   Deploy, assess and refine

Having established a clear set of business objectives, developed SMART targets to support these objectives and designed a plan to deliver the required results, the next stage is to have a clear, structured plan for implementation and delivery of the targets that have been agreed.

This phase of the plan is structured in three sections following an approach that is common to most forms of project management and finalises the RADAR process:

- **deploy** – delivery plan
- **assess** – measurement and performance analysis and
- **refine** – corrective action and continuous improvement.

2.4.1   The delivery plan

This section of the plan offers simple guidelines on how to structure the implementation phase. It follows a standard format, covering the following aspects:

- plan ownership – accountability and responsibilities
- technical design
- implementation phases and timeline
- cost control and
- delivery of results.

The content of the delivery plan will vary for each organisation dependent on the improvement targets set and the scale of change required to deliver them. Some may require engagement with suppliers and subsequent procurement exercises; others may only require minor changes in operational processes.

2.4.2   Measurement and performance analysis

Performance analysis is a recurring process as data capture and understanding current performance is likely to have been a key part of setting the original targets. The gathering and analysing of information is essential in understanding how to improve any function of business

operation and performance. It is critical to ensure targets are being delivered through the implementation phase.

The measures that are established will be project and organisation specific, dependent on the scope and range of services and business processes under consideration. This is considered in more detail in section 3.1, which looks at typical values to be measured and how this should be managed.

2.4.3 Reporting process, corrective action and continuous improvement

The final section to the plan is a section on the reporting processes, providing a simple guideline to identify:

• ownership and reporting lines and

• format and frequency of progress reporting.

A common format adopted is to create a dashboard of metrics, confirming targets against the agreed timeline and subsequent progress in their delivery and resultant benefits.

2.5 The process map

The consolidated approach to all the design and implementation phases is represented in the process map shown in Figure 2. This embodies the core approach taken in the design guidelines and resultant plan.
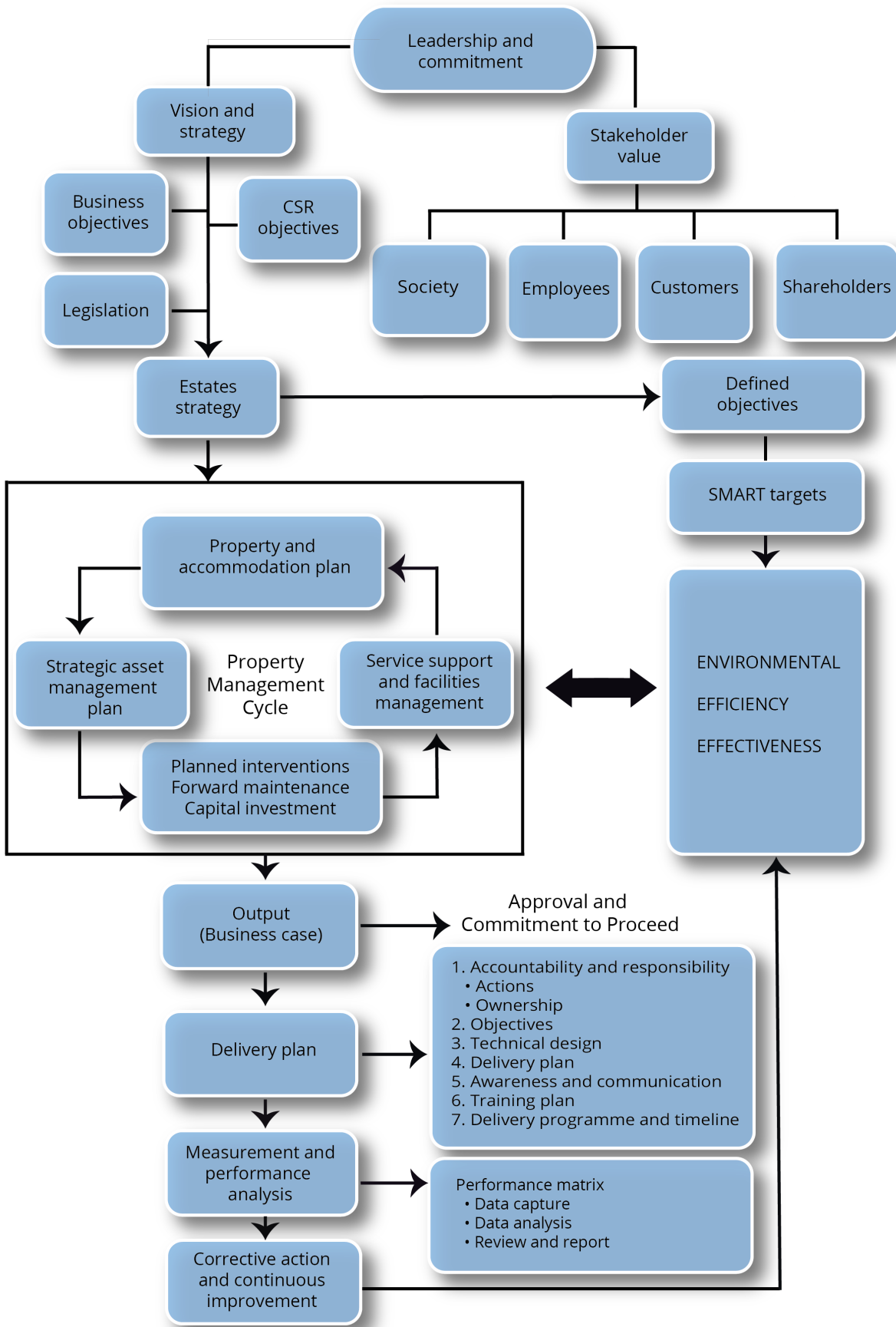
Figure 2: The process map (© Nick Shaw)

3 Building the plan

Having established a planning approach, it should provide the basic structure to be followed by any organisation in developing their plan for improving efficiency and reducing waste.

The core plan is comprised of three sections as shown in the chart below.

Stage 1 – Vision, values and setting objectives

Turning headline objectives into SMART targets

↓

Stage 2 – The property management cycle

Working to the design guidelines for each of the four stages of the property management cycle

↓

Stage 3 – Implementation

Delivery, review and continuous improvement
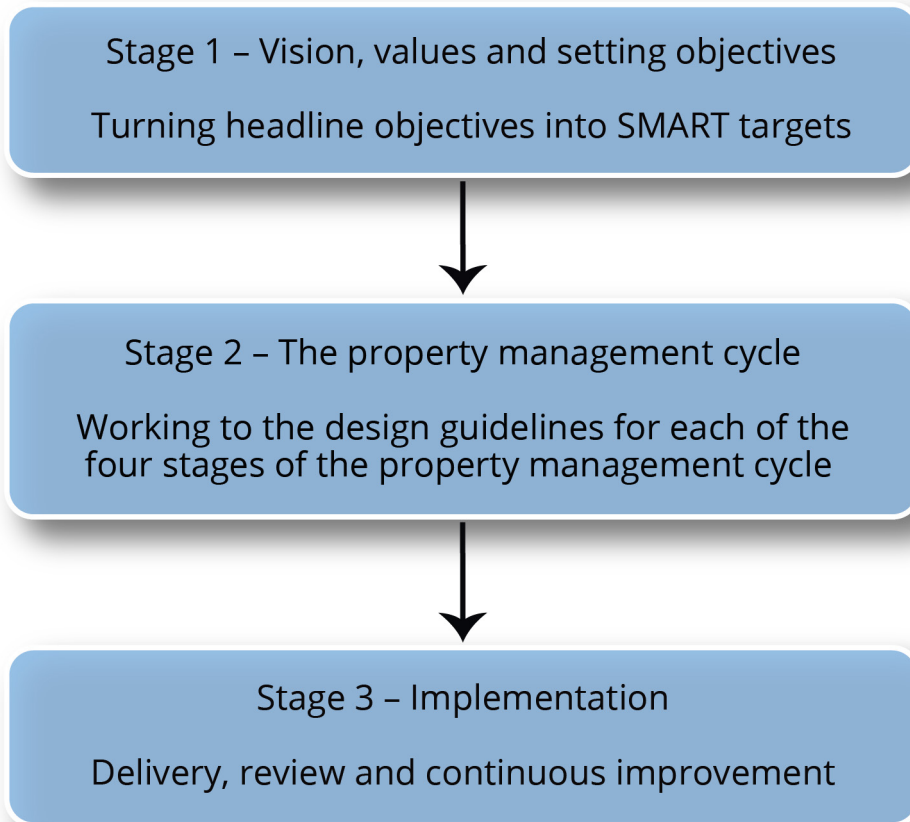
Figure 3: The core plan

Adopting this structured approach and following the direction provided in this document identifies the steps needed to produce a coherent plan, with defined objectives and deliverable targets.

3.1   SMART targets

As outlined previously in section 2.2.4, setting SMART targets is the essential first step in the formulation of the plan; setting the results to meet the business aspirations. To define such targets needs a structured process to determine what is specifically required, balanced by what can realistically be achieved. At the outset of the planning process, some organisations may have pre-determined objectives, coming from wider business planning exercises or specific projects (e.g. CSR objectives or business expansion and relocation projects).

Whatever the drivers behind the need for a plan, the core requirement at this stage is common to all organisations – a clear brief, defined objectives and an agreed set of SMART targets. These should be presented in a simple, understandable format, enabling progress to be tracked throughout the implementation phase of the plan.

The first stage of the approach should be to develop a situation analysis based on three core aspects:

- understanding stakeholder value – what does this actually deliver for the business (specific and relevant)
- benchmark – either within the business or across comparable industry sectors to set an initial scale to what is being achieved and what should be achieved; a Gap Analysis (achievable and relevant) and
- research – what support is there in terms of guidance, technology or business support to deliver such targets; how can they be delivered and what would this entail (achievable and time-bound)?

The likelihood is that this initial situation analysis will establish a range of objectives to explore further, looking at current performance, wider business objectives and stakeholder expectations.

3.1.1   Quantifying stakeholder value

Initially, this should be a series of viewpoints and factual statements about the various stakeholders. It is unlikely to provide any hard figures at this stage.

- What matters to the stakeholders?
- How important is it, relative to everything else that they expect from the organisation?
- What targets can realistically be achieved under the scope and brief for the plan?
- What value and benefits will they bring?
- How do they align with other stakeholder aspirations and values; are there common values?

It may be more straightforward to consider senior management as representative of the voice of the stakeholder, especially if the primary focus is cost efficiency.

Each element should contain the following:

- What does the stakeholder want?
- What can be delivered?
- What impact value does this hold?

The impact value can be represented by a typical red, amber, green approach, to define which objectives to develop in more detail.

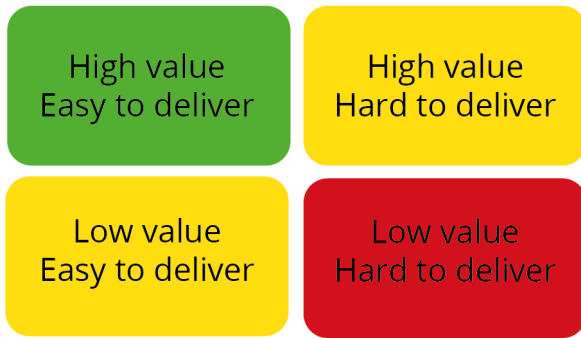| High value Easy to deliver	High value Hard to deliver
Low value Easy to deliver	Low value Hard to deliver

Figure 4: Impact value – red, amber, green

This review process should be supported by an assessment of value and deliverability – impact value – to create a realistic set of stakeholder values from which specific targets can be defined. One useful way of rationalising this is to develop a matrix of stakeholder values as shown in the table below.

Stakeholder values in effect become the **headline objectives:**

	Society (incl. legislation)	Employees	Customers	Shareholders
Environmental				
Efficiency				
Effectiveness				

With a matrix of headline objectives, the benchmarking and research review process should then seek to put some measure to these targets. Typical examples could be:

- reducing the amount of physical waste produced by 10%; placing the organisation in the highest quartile of efficiency when benchmarked with its peers

- reducing the amount of energy purchased per full time equivalent office user by x%; saving £x/annum

- becoming more environmentally focused, behind salary and office location, is the most important factor in an employee's choice of employer. CSR targets should be increased to x and y to compare with z delivered by competitors

- based on m^2/FTE the working environments are inefficient; re-plan the office environment to deliver xm^2/FTE. Why do we need any space at all? Every m^2 of space should be accountable to a specific business need.

- reduce occupancy waste by instigating a more flexible approach to meeting rooms and desk space. Benchmark targets are x desk/workspaces and ym^2 meeting room space per 100 employees

- x% of furniture to be produced from y% of recycled materials; a net saving of natural resource used of z tonnes per annum and

- to improve effectiveness as measured through improved productivity and quality of output. This will be evaluated through employee engagement and end user satisfaction studies; use the studies to establish benchmark improvement targets.

Turning stakeholder value and objectives into SMART targets will probably be an iterative process, but it is essential to complete this phase and produce a schedule of targets to take into the design phase in the property management cycle.

The following table shows a standard SMART target template.

Target area	Section	Description	Measure	Current	Target (range)	Sub-set (specific areas)
Environmental	Resources	Labour	Hours/m^2			
		Materials	Number/m^2			
	Energy	Consumption	kW/FTE or /m^2			
		Renewable sources	kW			
	Water	Consumption	m^3/FTE			
		Rain water harvesting	m^3			
	Waste	Disposal	N/A			
		Recycling				
Efficiency	Cost	FM service costs	£/m^2			
	Space	m^2 per FTE	m^2			
		m^2 per unit of output	m^2			
Effectiveness	Productivity					
	Quality	Delivery of service to SLA	KPIs			
		End User satisfaction	Customer and employee surveys			

Having established the targets for the plan to deliver in a recognised format, these should be presented for internal review and approval prior to going into the design phase.

These figures will be further appraised during the initial stages of the design process before going into the detailed analysis and production of resultant business cases.

This iterative process develops and refines the targets working from initial stakeholder values and business objectives. Once passed through an initial design assessment, the result is a clear set of SMART objectives for all the project team to work to in developing and implementing the final plan.

3.2 The property management cycle

As noted in section 2.3, the design approach is structured around the four phases of the property management cycle:

- property and accommodation plan
- strategic asset management plan
- planned Interventions, forward maintenance register and capital investment and
- service support and facilities management.

The same design evaluation process is used for each phase. It is important to use the same SMART targets template for each design phase. This will enable the specific benefits resulting from each phase to be consolidated into one business case. This makes it much simpler to present for approval prior to proceeding to the implementation phase of the plan.

While the approach is common, the information required and the design considerations are unique to each phase. Therefore, separate design guidelines have been provided for each phase of the property management cycle.

3.3 Implementation

The scope and brief of the plan for each organisation will vary dependent on the size and nature of the business and the headline objectives that the business is targeting. The implications for the more comprehensive and wide ranging plans are that there are four distinct phases in the property management cycle, each with their own requirements for an implementation plan.

As per the design phase, a common approach to implementation is recommended for each phase of the plan. This will enable the individual outputs from the plan to be consolidated into one single delivery plan.

The four phases to the implementation process are:

- the business case – consolidated output from each phase of the property management cycle
- the delivery plan – accountability to deliver the target results to the agreed timeline

- measurement and performance analysis – evidence of results and
- corrective action and continuous improvement.
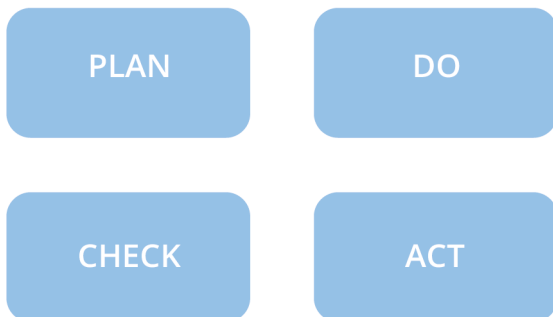
PLAN	DO
CHECK	ACT

Figure 5: Plan, Do, Check, Act

3.3.1 The business case

To meet the overall business objectives of the plan, the delivery of the SMART targets will be achieved through the outputs from each phase of the property management cycle. For example, energy efficiency may come through a combination of improved efficiency in the use of space, investment in energy efficient plant and equipment, and reducing energy wastage by end users and building occupiers. The overall plan target is the consolidated output from each of the four phases.

Therefore, for the business to approve the plan there should be a single business case, consolidating the outputs from each phase.

The actual structure of the business plan is likely to be business specific; it is more aligned to internal business process than anything specific to improving efficiency or reducing waste.

The evidence and information required to support the business case should be common to each phase:

- description of the specific initiatives
- cost of implementation and finance requirements
- value and benefits (for extended payback periods, probably measured through a net present value process)
- management and delivery partners – who will actually deliver the business case
- timeline – delivery dates and payback period and
- risk profile.

This is a standard approach to producing a business case.

RICS has published a series of case studies covering a range of strategic FM issues which can be used to provide evidence to support this process, including:

- delivering strategic FM services at NEC
- procurement via partnership – FM in health and social care

- how introducing smart working practices has helped National Grid create a sustainable legacy
- working to deliver FM services at the largest dedicated rugby union venue in the world, Twickenham
- providing specialist FM consultancy services in the United Arab Emirates and
- facilitating business and pleasure at the world's busiest airport

Further information on these and other case studies can be found on the [RICS website](#).

3.3.2   The delivery plan

Ultimately, the delivery of all aspects of the plan may be through one single phase implementation or may be a combination of small projects; it will be unique to each plan.

There may be one large project or a series of mini-projects, each with a defined owner. A business manager may be responsible for overall delivery of the plan or this responsibility may sit with external delivery partners.

For example, a plan to embed resource efficiency in the procurement of FFE may be managed by different project teams to one for installing renewable energy equipment in buildings. However, all such projects contribute to the projected outputs from the plan and all should have clear ownership and follow the same process of working to an agreed delivery plan.

The standard contents of a delivery plan are shown in the following table. The content should be focused and kept as simple as possible; generally most people concentrate on the ownership and results, leaving the doing part to those managing the project.

Plan section	Content
(i) Summary	Headline statement of key objectives and deliverables for the plan.
1. Accountability and responsibility	This is best delivered through a simple responsibility assignment matrix approach: • overall accountability • key reports • consults • inform.
2. Objectives	A schedule of the key deliverables: • What will be achieved? • When will it be achieved?

Plan section	Content
3. Technical design statement	A summary report of any technical input into the project or plan; an explanation of what is actually involved to implement the process and how this will be managed.
4. Implementation process • actions • timeline	A timeline and agreed next steps for delivery of the plan.
5. Support functions • awareness and communication • training	What further support is needed to deliver a successful outcome? How will this be communicated within the business?
6. Review process	What data should be captured to evidence progress and at what stages in the delivery of the project should this be reviewed and presented within the project team and business management team?

For more complex or multi-phased delivery plans it may be useful to combine the individual plans into a summary delivery matrix. A typical example is shown in the following table. All of these individual plans will still be contributing to one consolidated set of objectives in the master plan.

Plan reference	Description	Plan owner	Outputs	Key dates
	Review of accommodation requirements for next 5, 10 and 20 years		Clear plan of space needs for the organisation to work to	
	Space efficiency benchmarking study		Space efficiency benchmarking	
	Develop a resource efficient procurement policy and delivery plan		Benefits through all future procurement to support SMART targets	
	Asset management renewals plan review to be liked to accommodation requirements study		Schedule of key asset renewals dates	

Plan reference	Description	Plan owner	Outputs	Key dates
	Resource management policy and plan for all future accommodation and capital project works		All future project works have a policy to work to (and hence deliver efficiency targets)	
	Embodied water study for all products produced or used by the organisation		Resource management plan for saving water	

3.3.3   Measurement and performance analysis

Capturing and reviewing performance data is essential to the successful management of all organisations. This applies to all aspects of improving efficiency and reducing waste and it is essential that the right data is captured and analysed. Most of this information will be readily available or easily obtainable.

Typical examples include:

- building occupancy levels (efficient use of space)
- asset utilisation; desk space and meeting room usage and occupancy levels
- energy usage and sub-metering
- water consumption
- efficiency through employee engagement (occupancy evaluation)
- food waste
- general waste and recycling (content and quantity)
- embodied carbon and water and
- reuse of current and new assets (resource efficiency).

Data is used to assess performance and set SMART targets; the same data should therefore be reviewed at various stages during and after implementation of the project works.

It may be that the quality of data captured is improved as part of the planning process. This will lead to better understanding of performance and greater opportunity for benchmarking against standard industry data or simply benchmarking between different buildings and locations within an organisation

3.3.4   Corrective action and continuous improvement

The final part involves a robust review procedure to ensure that the plan is delivering the agreed targets.

This should be built into the review process as part of the delivery plan. It is good practice to hold a plan review session at key stages in the implementation phase. This should simply focus on two key questions:

- Is the plan delivering the agreed targets?
- What have we learnt from the design and implementation of the plan and how much more could we achieve?

The process itself is straightforward. The challenge is to get the right people involved and ensure that both the right questions are asked and clear decisions and next steps are made as a result of the review process.

4 Design guidelines

The design guidelines take the approach developed in section 2.3 and look at how this should be applied in each of the four phases of the property management cycle.

The guiding principle is to adopt a common format for each phase, so that the outputs can be taken into a consolidated business case template and implementation plan (as developed in section 3.3.1).

The guidelines also provide some basic technical reference to support the appraisal of current and projected performance. The actual technical design appraisal will vary for each organisation based on the size, budget and resource committed to the plan.

4.1   Property and accommodation plan

4.1.1   Introduction

The property and accommodation plan is the starting point in delivering workplace strategy to support business objectives. Typical factors to be addressed are:

*   location, availability and cost of space
*   short, medium and long term planning of the property portfolio; what space is actually needed, how volatile are the needs, what are the risks on under-utilisation?
*   Flexibility and leasing options
*   workplace design, space planning and specification, to produce an effective working environment.
*   effectiveness of the space looking at productivity, output and satisfaction of the end users and
*   efficiency of the space looking at cost (rent/service) and space and asset utilisation.

One aspect which bears heavily on the approach taken in the property and accommodation plan is the landlord and tenant relationship for leasehold property. The contractual arrangements in any lease agreement create a boundary between the respective objectives and responsibilities of owner and occupier. This will be factored into the approach for each organisation and may well influence the scope of the plan.

RICS has issued the following general guidance on how the overall plan should be managed:

*   Strategic facilities management; section 3 Planning – the formulation of accommodation plans
*   Sustainability and the RICS property lifecycle and
*   Strategic public sector property asset management (the concept applies equally to the private sector).

Specific to the public sector, the government has issued two useful guidelines on property strategy:

• TW3 Working Beyond Walls – long term strategic planning for the workplace.
• TW3 Working Without Walls – design of effective working space.

Links to these and other reference areas are given in Appendix 1.

Focusing purely on sustainability, the BREEAM In-Use International scheme can provide a structured path to follow particularly when progressing to the design stage.

The challenge is how to channel these concepts into improving efficiency and reducing waste. If an organisation is looking at a long term, all-encompassing review of its estates strategy then all aspects of efficiency and waste will be captured in the plan.

However, if an organisation requiring a significant change in working space or environment is working within the constraints of short to medium term planning, a fixed building or estate, no plan and a limited budget, what improvements can realistically be implemented and what restraints need to be taken into consideration?

4.1.2 Scope

To completely omit a review of the accommodation plan and ignore workplace efficiency and effectiveness to focus on waste reduction would:

• miss the most important aspect of what a building is designed to provide and
• create a risk that any changes in the facilities and services provided may have an adverse impact on the effectiveness of the workspace.

Therefore, it is essential to review the following:

• short, medium and long term property requirements and alignment with business objectives
• alignment of estates strategy with CSR requirements
• understanding of the constraints or flexibility of the lease agreement for rented property
• understanding of the objectives/requirements of the landlord for rented property and
• effectiveness and efficiency of the building and/or estate.

The detail required in these areas will be specific to the scope of review set out by each individual organisation. As a minimum, it should be a clear set of factual statements which summarise the estates strategy. This will help to shape any decision making that may come out of the strategic asset management or facilities management plans. Ideally, the information available, or scope of review, will be more detailed giving both strategic and practical guidance on improving efficiency and reducing waste.

4.1.3 Data gathering and benchmarking

4.1.3.1 Business objectives and corporate strategy should come from:

- general company information on vision, strategy and core values (including CSR objectives) and

- existing property and estates plan (where one exists).

If the above are not clear, or there is no clear estates plan, then additional research should focus on the following key areas:

- stakeholder values

- company vision and strategy

- leadership objectives

- estates property strategy

- workspace strategy
    - workspace requirements and specification and
    - flexible working strategy both within the workspace and mobile/home working.

4.1.3.2 Property contractual issues:

- lease agreements identifying any restrictions or obligations within the agreement and

- landlord objectives – is the landlord equally focused on efficiency savings; does the landlord have CSR commitments to deliver, and is there any potential for mutual cooperation in any efficiency study?

4.1.3.3 Efficiency measures to see if:

- there is underuse or over-capacity in space or

- there is a more efficient or productive way of using the space.

This can be evaluated through:

- occupancy density studies

- actual building usage to identify both general and peak demands; restrictions in different types of space such as desk space, meeting rooms or relaxation areas (or equivalent measures for different environments in sectors such as retail, education or healthcare)

- review issues of 'occupancy waste' where space and assets are used inefficiently as they are assigned to specific departments and individuals; improving efficiency through a flexible working environment and

- review waste in the workplace by removing obstacles to end user productivity; space, noise, access, and amenity.

4.1.4 Effectiveness and outputs

This is a difficult area to benchmark as there are many factors which contribute to the effectiveness of the workspace and its resultant outputs, such as working environment, tools and equipment, and management and employee engagement. The working space is a factor and one of the most effective ways to understand this is to seek employee and end user opinion. A more detailed approach and guidance is given in BS EN 15221-7:2012 Facility Management: Guidelines for Performance Benchmarking.

It is important to understand these factors as part of the holistic approach to improving efficiency and reducing waste, even if change is not practicable or outside of the current scope. All organisations are constantly in a state of change and need to look for future requirements and improvements in output and productivity; only the strategic approach will vary.

4.1.5 Setting targets

The targets that result from this exercise should be established in a standard format comparable with all other phases of the property management cycle and aligned specifically to improving efficiency and reducing waste.

The environmental targets are likely to be confirmation of how the estates strategy is aligned to CSR objectives, with target figures coming from CSR objectives.

Target area	Section	Description	Measure	Current	Planned	Sub-set
Environmental	Resources					
	Energy	Consumption	% decrease			
	Water	Consumption	% decrease			
	Waste	Disposed to landfill	% total			Landfill Recycled Reused
Efficiency	Cost		£/m^2			Rent, Rates, Service costs
	Space	Density	FTE/m^2			
		Utilisation	% of total			
	Assets	Utilisation	% of total			
Effectiveness	Productivity	Output	Sector specific			
	Quality	Delivery of service to SLA	KPIs			

Target area	Section	Description	Measure	Current	Planned	Sub-set
		End user satisfaction	Employee surveys			

Efficiency and effectiveness targets may be difficult to specify, but as a minimum they should be noted for reference and possible sector benchmarking.

Ultimately, the overall objective is to maintain or improve the effectiveness of the working environment while increasing the efficiency of space and cost and using less resource.

It is not possible to create an effective efficiency and waste plan without understanding and without reference to property performance targets.

4.1.6   Design

The most important aspect at this phase is establishing headline objectives and targets for the estate, or specific building, some of which are then carried forward to following stages of the property management cycle:

- reduced energy and water consumption, or use of renewable energy, considered as part of the strategic asset management plan and
- waste reduction or recycling targets delivered through the facilities management plan.

The property and accommodation plan is usually designed around the headline business targets for an organisation. The first step in the design phase is to look for confirmation of these business objectives and approval of the targets that have been set, which should be based on the findings from the initial data gathering and benchmarking exercises. Confirmation does not mean approval and commitment to proceed; that can only come through the subsequent production of a business case.

Confirmation does mean assurance that the business is committed to its targets, especially CSR targets, and wants to commit some level of management resource and possibly design cost to evaluate efficiency and effectiveness improvements. It should also establish a timescale for the production of the business case. It gives authority to the remit, confirming the brief and hence the boundaries of the scope. It should also establish executive leadership and accountability for the planning exercise.

The design stage is then subject to a review of options standard to most building and workspace design approaches. It will include:

- further consultation with both managers and employees; impact on workspace productivity and end user satisfaction
- space and asset utilisation studies
- reference to design guides, including those listed previously in section 4.1.1
- engaging with the supply chain to seek specialist input and a case study and
- employing consultants if the agreed scope requires specialist input.

4.2 Strategic asset management plan

4.2.1 Introduction

The term 'asset management' has a different context in different industry sectors. In finance and investment it usually relates to the management of investment portfolios; in transport it means all aspects of property and infrastructure, and when used generally in conjunction with the term facilities management, it often relates to the management of building assets. There is no set rule to follow, but in the context of this guidance it is the latter definition – buildings, building services, and the maintenance, repair and renewal of these assets.

Energy and water saving initiatives are also picked up in this section. While these subjects are relevant to and influenced by all aspects of the property management cycle, it is often through investment in or adaptation of assets that benefits are realised.

Long term asset planning is often a challenge for many organisations. The reasons are simple to understand:

- Most organisations work to short or medium term business plans at best; asset planning looks at aspects that are 'too far in the future'. Transport and industrial sectors may be exceptions as asset management is core to their business strategy.

- Many organisations occupy rented properties and as such do not own the assets. Even where taking responsibility through full repairing and insuring (FRI) leases, asset planning is usually thought of as minimum input to suit the requirements of the lease (e.g. repair obligations at the end of the lease).

- Asset management, if not part of a strategic plan, generally requires investment in services that are not considered highest priority and may often be competing with front line services, people costs and short term profitability.

Having no asset management plan is a business risk and will ignore potential efficiency benefits that could be realised. Reviewing asset condition and investment costs, and then deciding to do nothing is not the same; that implies understanding what the risks and benefits are and then evaluating and prioritising them against other business demands.

Each organisation should look at asset management specific to its own business model. There is no set requirement although the structure and content of asset planning follows a common format; it just needs to be applied to suit the business needs. In the context of this guidance it focuses on how to improve efficiency and reduce waste through understanding and analysing asset condition and performance.

4.2.2 Scope

Ideally, the scope should be developed as part of a wider strategic asset management plan. There is lots of industry guidance on how to develop such a plan, most notably from the Institute of Asset Management and ISO 55001: Asset Management.

A typical asset management plan would look at:

- asset type and location

- condition and life expectancy

- business criticality

- asset performance and

- cost of maintenance, repairs and renewals.

Through this, a short, medium and long term plan can be developed and reviewed subject to fluctuating needs and finances within the business.

Specific to improving efficiency and reducing waste, and focusing on asset condition and performance, the plan will seek to identify and make informed decisions about:

- the current performance of assets, looking at the ability to service the needs of the building users, the number of faults, the cost of ongoing maintenance and repairs, the energy efficiency of the assets and

- the need for planned renewals based on age and criticality, to identify any planned interventions and capital investment.

The scope can be comprehensive and cover all building assets or can be focused on specific elements such as heating and cooling equipment, lighting and lifts. When looking at energy consumption there should also be a review of the air leakage and insulation values of the building fabric to evaluate energy wastage.

Specific to energy, efficiency in un-regulated energy consumption will also need to be considered. This primarily relates to IT equipment and is often a significant factor in energy usage within a building – too often it is not considered and there is only focus on heating, cooling and lighting.

As noted in section 2.2.3, all assets will have an embodied carbon factor which should be analysed as part of the longer term planning strategy. Even assets that do not consume significant amounts of energy, such as fire protection and security systems, will have an energy and natural resource input into their manufacture and installation. Longer term efficiency planning will need to identify this as part of the asset management strategy, especially when looking at asset renewals over the design life of the building.

Water consumption should also be considered as part of any design review by looking at how this can be made more efficient, as well as the embodied water factors of assets and equipment that are installed within the buildings.

4.2.3   Data gathering and benchmarking

Data is essential for effective management.

The above statement applies to any business metrics. Asset management data is core to all planning, and importantly most of the asset information that is required should either be readily available or straightforward to source. The basic requirement comprises three parts:

- establish current schedule of assets, condition and performance

- analyse the asset data to identify areas for improvement and possible intervention and

- create a performance plan to appraise current performance and risks against future improvements and associated investment costs and payback periods.

If a complete asset plan or asset register does not exist, core asset information should as a minimum be held within the facilities management team or supplier database as this is used for planned maintenance and statutory compliance requirements. The frequency of service failures should be captured through the maintenance regime, either as recorded faults in equipment or the level of end user complaints about service quality (e.g. building too dark, too cold, too warm, etc.).

To complement the basic asset register the asset life expectancy should be added. Information used to determine this will come from a combination of:

- manufacturers' literature

- industry guidance – CIBSE Concise Handbook; Guide M Maintenance engineering and management or

- technical reports from maintenance engineers.

With this information included, there should be a clearer picture of the current condition of the estate and future investment requirements.

The energy efficiency of the plant and equipment should also be considered. This may require a technical appraisal of the design of the systems as installed and service performance requirements, or it may be focused on isolated pieces of equipment such as boilers. Either way, maintenance teams, specialist advisers and manufacturers should all be able to provide the information. It is their core business and asking for such information should not necessarily mean additional cost (especially at benchmarking and appraisal stage).

Benchmarking of performance can also come from internal sources, such as benchmarking between different locations within an estate, possibly different zones within a building, and if outsourced maintenance or asset management teams are employed, benchmarking across the different portfolios that they manage.

From external sources there is the CIBSE Handbook, which provides industry benchmark information and the BSRIA *Rules of Thumb Guidelines for Building Services*. While containing lots of technical design guidance, the BSRIA guidelines also provide benchmark information for asset performance in terms of asset life, maintenance costs and energy performance.

CIBSE Technical Guidance Note TM54 *Operational Energy Performance of Buildings* looks at how to ensure operational performance matches design predictions. While focused on the design of building services, it does look at the wider aspects of building use and provides guidance when looking at the performance of existing buildings.

4.2.4 Setting targets

Target area	Section	Description	Measure	Current	Planned	Sub-set
Environmental	Resources	Labour	Hours/m²			
		Materials	Number/ m²			
	Energy	Consumption	kW/FTE or /m²			
		Renewable sources	kW			
	Water	Consumption	m³/FTE			
		Rain water harvesting	m³			
	Waste	Disposal	N/A			
Efficiency	Cost	FM service costs	£/m²			
	Space	N/A				
Effectiveness	Productivity					
	Quality	Delivery of service to SLA	KPIs			
		End user satisfaction (with building	Employee surveys			

As part of a long term asset management plan, there are three core areas to focus on:

- improve the efficiency of building and asset performance, particularly with respect to energy consumption, energy wastage and water usage
- reduce waste in asset maintenance in terms of labour, parts and consumables and
- improve service performance to end users.

To support these, the use of renewable energy sources and water reclamation schemes should be considered. WRAP, The Carbon Trust and The Energy Savings Trust are all reference sources for renewable energy initiatives and funding sources. *The Rippleffect: water efficiency for business* guideline issued by WRAP provides a reference source for assessing how much water a business uses and ways to improve efficiency and reduce consumption.

For larger organisations, the requirements under the Energy Savings Opportunity Scheme (ESOS) Regulations 2014 oblige them to look at assets and energy performance to ensure that they have a plan for improving energy efficiency. The regulations state that:

'If you don't have an ISO 50001 energy management system which covers all your energy use, you must carry out an ESOS assessment.

To do this you will need to do all of the following;

- measure your total energy consumption
- identify areas of significant energy consumption
- consider available routes to compliance
- ensure areas of significant energy consumption are covered by a route to compliance
- appoint a lead assessor (unless you have zero energy - see section 6)
- get one or more board level directors to review the findings of the assessment
- make a notification of ESOS compliance online.'

In summary, this legislation forces companies to look at their plans for improving energy efficiency. It should also compel landlords and tenants to develop a holistic approach to energy management. More information about ESOS is available through the Environment Agency guidance note, *Complying with the Energy Savings Opportunity Scheme (ESOS)*.

Some organisations may have considered seeking ISO 50001 accreditation to support their energy management initiatives. More information on ISO 50001 is available from the ISO website from which the following statement is extracted:

'ISO 50001 is based on the management system model of continual improvement also used for other well-known standards such as ISO 9001 or ISO 14001 [or ISO 55001]. This makes it easier for organizations to integrate energy management into their overall efforts to improve quality and environmental management.

'ISO 50001:2011 provides a framework of requirements for organizations to:

- Develop a policy for more efficient use of energy
- Fix targets and objectives to meet the policy
- Use data to better understand and make decisions about energy use
- Measure the results
- Review how well the policy works, and
- Continually improve energy management.'

4.2.5   Design

The level of detailed design required will be specific to each organisation or building, dependent on the proposed schemes to be implemented. Apart from simple proposals, it is likely that some input from technical experts will be required. This can come from current service partners and suppliers or specialist consultants may need to be engaged.

All schemes will be finance lead and it is important to address all financial aspects, including:

- cost of implementation, including any temporary works requirements (e.g. temporary relocations in office space)
- potential for external finance for energy efficiency schemes
- savings in reactive maintenance costs due to equipment renewals (which can be quite significant and often overlooked)
- offset of depreciation values of new assets
- savings in carbon tax costs and
- the increase in rental value for property owners, not just in terms of building specification but also green credentials to both new and existing tenants.

4.3   Planned interventions

4.3.1   Introduction

During the typical design life of a building, works are regularly carried out to change or upgrade assets and facilities. If a building has a design life of 60 years and the plant and equipment within the building 20 years, then by default this means three sets of building services are needed in the planned life of the building. Such activities may also result from a change of circumstance, such as a change of occupancy, or may be part of a wider business or asset management plan.

The common factor across all these interventions is that they may be regular, substantial projects, with a significant impact on improving efficiency and reducing waste. Another important consideration is that new build projects tend to have more focus on environmental and resource efficiency compared to smaller upgrade or refresh projects. However, simple assessment of how much of a 'building' is actually replaced over its design life implies that more focus should be given to such planned interventions; collectively they have more impact than the new build itself.

The way the projects themselves are managed also has waste implications in both the specification and design of any new equipment, as well as controlling waste arising from the delivery stage of the project.

4.3.2   Scope

Typical examples of such planned interventions include:

- extensions and refurbishment projects, either major projects transforming the condition or use of the building, or simple refresh programmes to rebrand/refresh the condition for the occupants
- change of occupancy to either a whole building or part thereof
- fixed asset renewal programmes, resulting from the strategic asset management plan
- FFE renewals and

- forward maintenance register works; cyclical repair works that are standard as part of medium term asset management programmes.

When considering these projects, the factors that need to be considered as part of the scope are:

- resource efficiency in the design and planning of the works and the specification of new assets and equipment to be used
- reuse of equipment surplus to future requirements
- recycling of redundant equipment and
- energy and water efficiency (if not considered as part of an asset management initiative in section 4.2).

4.3.3   Data gathering and benchmarking

The first stage in data gathering is to create a consolidated schedule of all planned or projected activities within the business over a medium term period. A standard approach would be to develop a three to five year forward projection.

With this consolidated set of information it is possible to decide what considerations should be taken into specification, design and procurement. The focus is likely to be on the impact of future works and ensuring that resource efficiency is taken into the design and procurement brief.

RICS Ska rating good practice measure for offices and retail gives guidance on typical building components and environmental considerations in their specification and use. Manufacturers' literature is especially useful when looking at FFE.

Specific targets can be set for each individual project or opportunity covered within the overall scope and brief. It should be possible to set some common measures, such as specifying the percentage of materials to be reusable at the end of the design life for new equipment and furnishings or refurbishing and reusing a certain percentage of existing equipment.

Finally, it could prove more beneficial to lease FFE particularly for organisations which are subject to constant change, refresh, or short term business planning. It reduces the amount of resources that are purchased and disposed of prior to the end of their useful life.

4.3.4   Setting targets

The targets in this section are generally more focused on longer term objectives to reduce the amount of resource used rather than immediate change in efficiency and waste reduction. Resource efficiency and circular economy initiatives, looking at the most effective use of natural resource, provide very strong business models in this context.

The work undertaken by WRAP and the REBus project provides guidance on the economic as well as the environmental benefits of resource efficiency. A typical example is the Switched on to Value report, which provides economic figures on the reuse of electrical goods.

Organisations such as the Aldersgate Group and UK Green Building Council also provide reference sources for such projects.

Target area	Section	Description	Measure	Current	Planned	Sub-set
Environmental	Resources	Materials	% reuse			Furniture
						Flooring
						Ceilings
			% source from reused or reclaimed materials			
	Energy	Embodied Carbon	%			
	Water	Embodied Water	%			
	Waste	Disposal	% Landfill			
			Reuse			
			Recycle			
Efficiency	Cost					
	Space					
Effectiveness	Productivity					
	Quality	End user satisfaction	Employee surveys			

4.3.5 Design

There are three aspects that should be considered in the design:

- Specification of materials and products – for fixtures and fittings this can be done by reviewing manufacturers' product literature and looking at what materials are reclaimed or reclaimable in their products. Information on embodied carbon, and to a lesser extent embodied water, is also usually provided to support decision making on specification.

- Resource efficiency in plant and equipment – this is more complex as it encompasses the design requirements of the equipment as well as energy performance, materials and design life. Specialist technical advice may be needed as part of the overall design brief. It may look at the materials used and how easy they are to re-use or recycle at the end of their design life.

- Installation – for more complex projects, such as refurbishment works, it is good practice to build in waste and efficiency targets into the project brief. The RICS Ska guideline can

be used, as can similar schemes such as the BREEAM UK Non-Domestic Refurbishment and Fit-Out approach.

All three design approaches should have a clear target established into the design and procurement stages and embedded into the project brief and plan targets.

4.4 Building occupiers, service support and facilities management

4.4.1 Introduction

This section focuses on the activities that influence efficiency and contribute to waste production in a building. There are two main considerations:

- the activities and behaviours of the building users and occupants and
- the facilities management services that support the building functions.

The design and functionality of the workspace is considered in the property and accommodation plan in section 2.3. This section looks at the behaviours of occupants and the guidance provided on using the assets and space in the most efficient way.

4.4.2 Scope

The scope can be split into two main areas:

- building users and occupants and
- facilities management.

4.4.2.1 Building users and occupants

The environmental and resource efficiency of a building is clearly influenced by the behaviours and practices of those who occupy and work in the building. One area that should always be considered is whether the occupants, or those who manage the building for them, actually know how the building services are designed to work and be controlled. In particular, this should focus on the operation of the heating, cooling and lighting systems. Many systems can be over-complicated and communication and awareness, training and user guides are as important as the design and commissioning of building services. Other areas for consideration from a building user perspective are the control of unregulated electrical usage, such as laptops and the management of consumables such as paper.

4.4.2.2 Facilities management

FM can be delivered through various business models. These include a combination of in-house and outsourced delivery plans. Outsourced solutions can be delivered as single service, bundled or integrated management solutions. Whatever the delivery structure, all will contain similar elements which are all in scope and usually defined as shown below:

Hard services – Planned and reactive maintenance:

- building systems such as heating and ventilation, electrical and plumbing

- lighting
- specialist equipment such as lifts and
- building fabric and grounds maintenance.

Soft services

- cleaning
- catering and food waste
- consumables and general waste management and
- support functions such as security, reception and administration services.

Note: Energy management is a specialist area which has been covered in section 2, Asset management. It can be directly linked to the FM plan and can sit equally well in this section, particularly if aligned to an integrated FM outsource solution.

4.4.3 Data gathering and benchmarking

For building users and occupants the main areas to review are:

- an understanding of how to operate the services and how well this is managed in practice
- benchmarking of waste production in the working environment (office consumables, paper and food waste) and
- end user views on improvement measures.

Data for the review of facilities management hard services should be readily obtainable and should include:

- a planned maintenance regime to identify the resource used in standard maintenance of the assets, which will be a combination of:
  - parts and consumables
  - labour
- reactive faults – numbers and categorisation broken down into parts and labour and
- asset design and condition reports. This will usually focus on critical assets such as heating and ventilation, and lifts, but should also include building fabric and insulation properties (U-values). This information will feed into section 2, Strategic asset management plan.

With the core data available, the design and efficiency of the FM function can be analysed and benchmarked. The benchmarking can be internal, looking at performance between different buildings or external looking at industry standards. Most suppliers will provide information in this context based on their experience working with different clients and industry sectors, as will most equipment manufacturers. Lighting for example is covered by the Waste Electrical and Electronic Equipment Recycling Regulations (WEEE Regulations) whereby all suppliers have to record the amount of lighting products that are recycled and fund measures that promote and support recycling.

In summary, the resultant analysis should identify the amount of products that are used in supporting the building services and provide a benchmark on how this compares with manufacturers' guidelines and industry standards.

The amount of labour used, through both planned and reactive activities, is also important as labour always carries an inherent resource requirement (e.g. fuel usage for mobile engineers, provision and maintenance of consumables such as workwear).

For cleaning services there is a combination of labour, equipment, cleaning products and consumables. As with hard services, this information should be captured and reviewed through internal and external benchmarking exercises.

For general waste management, the exercise should look at the volume and type of waste that is gathered, provisions for segregation in the workplace, and recycling processes as waste is disposed of. Sustainability in catering and food waste is a specialist area as it is a function of both the service provided and the efficiency of its management. Core data should include which food products are used, where they are sourced from and how much food is wasted each day.

4.4.4   Setting targets

Targets should be established against the benchmark measure which aligns the closest. For example, waste and water are directly proportional to building usage, whereas asset management usually is proportional to the size of building. Energy can sit equally against either measure.

Service quality performance reports are useful in assessing how well the service is delivered and will also monitor the impact of any change in service resulting from the implementation of the plan. For example, if energy or water efficiency measures are seen to impact adversely on the working environment then this should be noted and addressed as part of the post completion studies.

Target area	Section	Description	Measure	Current	Planned	Sub-set
Environmental	Resources	Labour	Hours/m^2			
		Materials	Number/ m^2			
		Sustainable sourced food or materials	% of total consumed			Sustainable food
	Energy	Consumption	kW/FTE or/m^2			(part of SAMP)
	Water		m^3/FTE			
	Waste	Disposal	kg/FTE			Non food

Target area	Section	Description	Measure	Current	Planned	Sub-set
						Food waste
		Disposed to landfill	%			
Efficiency	Cost	FM service costs	£/m^2			
	Space	N/A				
Effectiveness	Productivity					
	Quality	Delivery of service to SLA	KPIs			
		End user satisfaction	Employee surveys			

4.4.5 Design

For the design of building maintenance in hard services, the industry recognised standard most frequently used is SFG20, as issued by The Building and Engineering Services Association. This standard has been restructured into three main elements – core, customer compliance and customer service model and has been designed to suit different industry sectors. It is essential that each element of any current planned maintenance schedule is reviewed and optimised to ensure that the most efficient and effective model is used. Manufacturers will also provide advice as standard on maintenance requirements for the equipment they supply.

CIBSE provides technical guidance on the design of building services systems. CIBSE and WRAP have issued a joint guidance note TM56: Resource Efficiency of Building Services 2014. This document looks at some of the important factors to be considered in resource efficiency and provides guidance for specific opportunities in heating, cooling, ventilation, lighting, lifts and escalators.

For the design of soft services there are various industry reference standards from both the British Institute of Facilities Management (BIFM) and the British Institute of Cleaning Science (BICSc).

Understanding waste and efficiency in the design of food services is complex and varies between the needs of different industry sectors. When focusing on sustainable food sourcing and food waste reduction WRAP provides guidance through their Hospitality and Food Service (HaFSA) on reducing waste in food and packaging, as well as information on the reuse of waste through anaerobic digestion and composting systems.

5 Conclusion

Resource Management – 'the management of resources' – in itself is a simple term to understand, but has many different interpretations and applications in building and facilities management. The emphasis can be on reducing cost, energy and consumption of natural resources. Equally, it can be focused on improving efficiency and productivity; increasing output from the same resource. It is therefore essential to have clarity of objectives when looking at ways to improve efficiency and reduce waste. This is the starting point of the review process and is a theme that is strong throughout this guidance document.

Guidance is given on how this is best approached, through engagement and quantifying stakeholder value. However, a predetermined set of objectives may be issued, coming from wider business planning processes and requirements. When this is the case, then the guidance document still provides a platform to work to. As a minimum, it emphasises the need for a rounded approach to deliver the optimum solution.

Identifying stakeholder values requires wider engagement through the review process. It also brings recognition that there are many factors that influence and are dependent on the outcomes. As per any review or change management process, without consultation outcomes will not meet expectations and barriers will arise where least expected.

Some aspects of resource management can be quite technical, but supporting information and expertise is readily available. This document aims to provide structure to the review process, rather than a catalogue of technical specifications and solutions, and in the majority of cases the required technical support can be sourced from in-house resource or through existing supply chain.

As per any business plan, avoid over complexity in developing targets and solutions. Clear objectives will always deliver the best outcome. If the plan is to deliver a single objective, such as reducing energy consumption or reducing physical waste, then focus on that single objective, but always review the best way to deliver the required result.

Where areas for review are deemed out of scope, then as a minimum identify what they are and the possible benefits that are not captured. Doing so will help to reinforce the plan that is ultimately delivered. For example, if consolidation of work space is deemed to be the most effective way to manage resources, but this is not considered a viable option, then confirming this will as a minimum say that it has been considered and not taken forward; it will help to explain what decisions have been made in setting objectives and forming the plan.

Technology and environmental legislation continue to provide drivers for change in how resources are managed. All organisations are continuously seeking improvements to be more efficient and effective in all aspects of their operations and all organisations should deliver better results if they manage their resources more effectively.

Resource management is constant in the business process and this guidance seeks to provide a tool to support this review process, with a focus on how best to deliver the optimum result in the management of buildings and facilities.

The overriding message is: always focus on clear objectives, engagement and a simple, structured delivery plan.

This section is intended to provide references and links to further research for some of the subjects that have been introduced in this guidance.

Appendix 1: References and sources of further information

Resource efficiency

The [European Commission definition of resource efficiency](#) is 'using the Earth's limited resources in a sustainable manner while minimising impacts on the environment. It allows us to create more with less and to deliver greater value with less input.'

[WRAP](#) provides examples of innovative resource efficient business models giving alternatives to traditional purchase, use, and dispose options for services and equipment. This also includes links into the REBus (Resource Efficient Business) project where WRAP is supporting organisations and evaluating resource efficiency in different industry sectors.

Traditional and circular economy

A traditional economy is one where materials are extracted from natural sources, manufactured into products and then at the end of their useful life, disposed of. Manufacturing may focus on how to minimise the quantity of products (and energy) used and recycling looks at how they can be re-introduced into the production process, but ultimately the business model focus is on cost efficiency.

The 'circular economy' is focused on resource efficiency, looking at how resources are optimised in their use, and looking at keeping:

'...products, components, and materials at their highest utility and value at all times, distinguishing between technical and biological cycles. It is conceived as a continuous positive development cycle that preserves and enhances natural capital, optimises resource yields, and minimises system risks by managing finite stocks and renewable flows. It works effectively at every scale. This economic model seeks to ultimately decouple global economic development from finite resource consumption'.

This definition is provided by the [Ellen MacArthur Research Foundation](#).

Cradle to cradle and closed loop

These subjects support initiatives to the circular economy concept. The cradle to cradle philosophy was developed by Braungart and McDonough and was presented through their 2002 publication: Cradle to Cradle – Re-making the way we make things. The Cradle to Cradle Products Innovation Institute administers the [Cradle to Cradle Certified™ Product Standard](#) (which was gifted to the Institute by its founders, McDonough and Braungart, in 2010).

Closed loop is another term for circular economy initiatives where the resources and products used by an organisation are planned and tracked through their life cycle with a focus on producing no net waste and pollution.

The carbon economy

The carbon economy is a concept based on reducing the concentrations of greenhouse gases in the atmosphere, in particular the level of CO2 emissions that are released. The 1997 Kyoto Protocol is designed around countries reducing their level of greenhouse gas emissions, based on their current level of emissions, wealth, and capacity to make reductions. To support this objective, the government introduced carbon tax levies to incentivise companies to reduce the level of carbon used in their business operations and also to promote the use of low carbon and renewable energy sources. Similarly, there is a green levy on domestic fuel bills to encourage using less energy and raise funding to support research and innovation in energy efficiency schemes.

The Department for Business Innovation and Skills issued a report in March 2015, The Size and Performance of the UK Low Carbon Economy, which provides an overview of the subject and its size and impact on the economy.

Energy saving opportunity schemes (ESOS)

ESOS is the central government legislation which requires all 'large undertakings' (more than 250 employees or turnover exceeding €50m) to complete the ESOS Assessment and notify the Environment Agency of compliance for itself and any subsidiary undertakings. If the organisation has an ISO 50001 accredited energy management system it is deemed compliant. If not, it must carry out an ESOS assessment to:

- 'measure your total energy consumption
- identify areas of significant energy consumption
- consider available routes to compliance
- ensure areas of significant energy consumption are covered by a route to compliance
- appoint a lead assessor (unless you have zero energy – see section 6)
- get one or more board level directors to review the findings of the assessment
- make a notification of ESOS compliance online.'

More information on ESOS is available from the Environment Agency publication Complying with the Energy Savings Opportunity Scheme.

TM 56: Resource efficiency of building services (2014)

This document is a joint publication by CIBSE and WRAP, looking at resource efficiency in building services relating to heating, cooling, ventilation, lighting, lifts and escalators. It is designed for use by building professionals with an interest in resource efficiency as well as building services engineers and design consultants. The approach developed in the document is to look at the resources used in the manufacture of the equipment, the durability and design life, and embodied carbon as well as the energy and water efficiency of the equipment in use.

Green leases

Organisations such as the British Council of Shopping Centres, the Better Buildings Partnership (Green Lease Toolkit), the Carbon Trust (Landlord's Energy Statement – Tenants Energy Review (LES-TER) and RICS all offer advice on how to embed green clauses into standard lease agreements. The extent of these clauses and the obligations covered will vary dependent on the environmental and resource efficiency objectives of the contracting bodies. They are most effective when landlord and tenant work collaboratively to joint objectives. One common method of incorporating such objectives is through a Memorandum of Understanding incorporated into the Lease Agreement. ESOS will drive all large undertakings, whether landlord or tenant, to incorporate green leases to satisfy the requirements for planning to improve energy efficiency in buildings.

See the Better Buildings Partnership Green Lease Toolkit at the Better Buildings Partnership website.

The Way We Work (TW3)

The Way We Work (TW3) is the Cabinet Office led cross-departmental programme designed to help realise the Civil Service Reform Plan's aim of 'Creating a decent working environment for all staff, with modern workplaces enabling flexible working, substantially improving IT tools and streamlining security requirements to be less burdensome for staff.'

All government departments have now started smarter working strategies coordinated through the TW3 programme. There are three documents which provide the guidance:

- Smarter Working: Top Tips
- Working without walls
- Working beyond walls

These documents look at all aspects of creating better, modern flexible working environments and can be adopted for use in any working environment. While very comprehensive and wide ranging in approach, the core principles are the same as those developed in this guidance – to establish defined goals and objectives and then work holistically to develop the optimum plan,

Workplace management

Workplace management, to create an effective working environment, has many different interpretations and implications; it is dependent on the type of business or organisation, the activities in the workplace and the limitations of space and budget. The requirement to produce the most effective workplace is common to all organisations, even if the objectives and constraints are different. There is a common need to have an effective plan.

RICS publications

The following RICS publications are all useful reference guides for supporting different aspects of plans to reduce waste and improve efficiency in facilities management:

- Strategic facilities management 2013

- Sustainability and the RICS property lifecycle
- Sustainability: improving performance in existing buildings
- Building maintenance: strategy, planning and procurement
- *Strategic public sector property asset management*
- Methodology to calculate embodied carbon of materials
- Ska Rating: Good practice measures for offices

RICS also provides a suite of training courses providing further guidance in corporate real estate and facilities management.

RICS property measurement standards

International standards establish universally agreed best practice and promote confidence among end users of surveying professional services. In sectors such as valuation, RICS already requires chartered surveyors to follow the international standards (IVS), which are incorporated in the RICS Valuation – Global Standards (Red Book Global Standards).

With regard to the measurement of property, RICS members should adhere to the *International Property Measurement Standards* (IPMS).

In the UK when taking measurements of property you must adopt the current edition of the RICS Valuation – Global Standards (Red Book Global Standards), and refer to this in any report to your client.

See the current edition of RICS property measurement on the RICS website.

Delivering confidence

We are RICS. Everything we do is designed to effect positive change in the built and natural environments. Through our respected global standards, leading professional progression and our trusted data and insight, we promote and enforce the highest professional standards in the development and management of land, real estate, construction and infrastructure. Our work with others provides a foundation for confident markets, pioneers better places to live and work and is a force for positive social impact.

Americas, Europe, Middle East & Africa
aemea@rics.org

Asia Pacific
apac@rics.org

United Kingdom & Ireland
contactrics@rics.org

RICS®   rics.org