

PAS 55-2:2008

Asset Management

Part 2: Guidelines for the application of PAS 55-1

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Foreword

This part of PAS 55 (PAS 55-2) contains guidelines for the application of PAS 55-1. Please note that the terms and definitions are contained in PAS 55-1, and are not repeated in this part. The presentation style is similar to that adopted in BS EN ISO 9004 and OHSAS 18002.

The requirements specified in PAS 55-1 are reproduced in the outlined boxes and the associated guidance appears beneath these boxes.

Consultation

This PAS has been developed in consultation with a large number of organizations and individuals that are active and proficient in the field of asset management (see Acknowledgements).

Publishing information

This PAS comes into effect on 15 September 2008.

This PAS has been prepared and published by BSI, which retains its ownership and copyright. BSI reserves the right to withdraw or amend this PAS on receipt of authoritative advice that it is appropriate to do so. This PAS will be reviewed at intervals not exceeding two years, and any amendments arising from the review will be published as an amended PAS and publicized in *Update Standards*.

This PAS is not to be regarded as a British Standard.

Supersession

PAS 55-1:2008 and PAS 55-2: 2008 supersede PAS 55-1:2004 and PAS 55-2:2004, which remain current and obsolescent until 1 March 2010 when they will be withdrawn.

NOTE *Obsolescence is declared where the content of a standard, which is superseded by new provisions (in the form of a new standard), still retains a commercial need or relevance (to a specific technology, industry or process). The document is superseded but it is not withdrawn.*

Information about PAS 55:2008

PAS 55-1:2004 and PAS 55-2:2004 have been fully revised as follows:

The revision of PAS 55-1:2004 introduces the following principal changes:

- The term “infrastructure” has been removed from the **title** of the PAS;
- The **Foreword** and **Introduction** have been revised;
- **Figure 1** has been transferred and adapted from PAS 55-2:2004;
- **Figures 2, 4 and 6** have been revised and **Figures 3 and 5** are new;
- New **definitions** have been added, and existing definitions revised;
- Asset management objectives and asset management targets are now jointly referred to as **asset management objectives**, and their definition has been revised accordingly (see **3.5**);
- The section on **Asset management plan(s)** (see **4.3.3**) has been extended to more clearly identify the requirements for optimizing plans and the interaction between life cycle phases;
- The requirements for emergency preparedness and response have been extended to include continuity planning and the section has been renamed “**Contingency planning**” (see **4.3.4**);
- A new section “**Asset management enablers and controls**” (see **4.4**) has been created to consolidate the generic requirements of: structure, authority and responsibilities; training awareness and competence; communication, participation and consultation; asset management system documentation; information management; risk management; legal and other requirements; and management of change;
- New requirements have been introduced for **Communication, participation and consultation** (see **4.4.4**);
- **Information management** (see **4.4.6**) brings together the requirements of the previous clauses for “Document, data and information control” and “Asset management information system”;

- **Management of change** is discussed in a separate clause (see 4.4.9);
- The requirements in the former “Operational control” have been divided between “**Implementation of asset management plan(s)**”, “**Management of change**” and “**Asset management system documentation**”;
- “**Implementation of asset management plan(s)**” has been expanded to address the **Life cycle phases** of managing assets (see 4.5);
- New requirements for **Evaluation of compliance** have been introduced (see 4.6.3);
- “Checking and corrective action” has been renamed “**Performance assessment and improvement**” (see 4.6), with the structure for the sub-clauses adapted from those described in PAS 99 and ISO Guide 72; and
- New requirements have been introduced for **Management review** (see 4.7).

In addition to the above changes made to PAS 55-1:2004, the revision of PAS 55-2:2004 introduces the following principal changes:

- The **Introduction** has been revised;
- **Figures 1, 2 and 3** from PAS 55-2:2004 have been revised and now appear as **Figure 1, 2 and 4** in PAS 55-2:2008. **Figures 3 and 5** are new additions to PAS 55-2:2008;
- New guidance has been introduced for **Contingency planning** (see 4.3.4); and
- New guidance for **Evaluation of compliance** has been introduced (see 4.6.3).

Presentational conventions

The requirements of PAS 55-1 are reproduced in outlined boxes. Explanatory guidance, commentary on, and general information about, these requirements is presented in roman (i.e. upright) type. Supplementary notes and further guidance are presented in smaller, italics font.

The word “should” is used to express recommendations within PAS 55-2. The word “may” is used in the text to express permissibility, e.g. as an alternative to the primary recommendation of the clause. The word “can” is used to express possibility, e.g. a consequence of an action or an event.

Notes and commentaries are provided throughout the text of this PAS. Notes give references and additional information that are important but do not form part of the recommendations. Commentaries give background information.

Contractual and legal considerations

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with this PAS cannot confer immunity from legal obligations.



0 Introduction

0.1 What is asset management?

PAS 55-1 defines asset management as:

systematic and coordinated activities and practices through which an organization optimally and sustainably manages its assets and asset systems, their associated performance, risks and expenditures over their life cycles for the purpose of achieving its organizational strategic plan

This definition of asset management represents a significantly greater scope than just the maintenance or care of physical assets, and is closer to the central purpose of an organization. Good asset management

considers and optimizes the conflicting priorities of asset utilization and asset care, of short-term performance opportunities and long-term sustainability, and between capital investments and subsequent operating costs, risks and performance. "Life cycle" asset management is also more than simply the consideration of capital costs and operating costs over pre-determined asset "life" assumptions. Truly optimized, whole life asset management includes risk exposures and performance attributes, and considers the asset's economic life as the result of an optimization process (depending upon the design, utilization, maintenance, obsolescence and other factors).

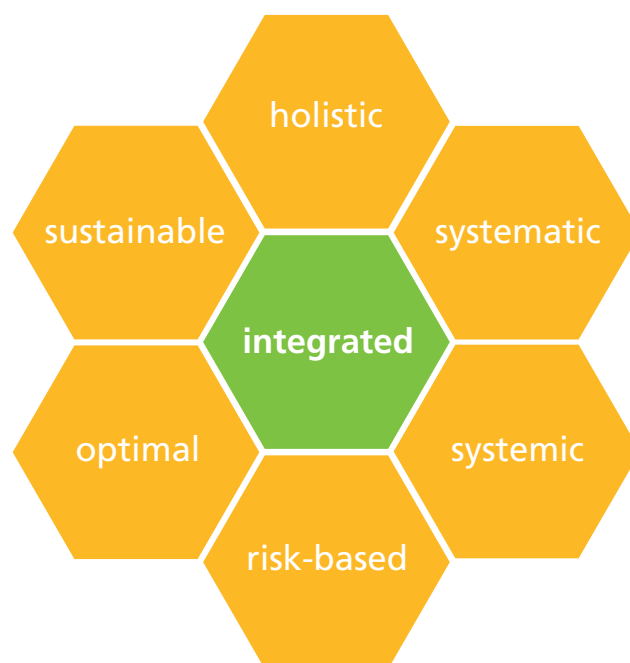


0.2 Dimensions of joined-up asset management

Asset management is an holistic view and one that can unite different parts of an organization together in pursuit of shared strategic objectives. PAS 55-1 identifies key principles and attributes of successful asset management (see **Figure 1**). These can be explained as follows:

- **holistic**: looking at the whole picture, i.e. the combined implications of managing all aspects (this includes the combination of different asset types, see **Figure 3**, the functional interdependencies and contributions of assets within asset systems, see **Figure 4**, and the different asset life cycle phases and corresponding activities), rather than a compartmentalized approach;
- **systematic**: a methodical approach, promoting consistent, repeatable and auditable decisions and actions;
- **systemic**: considering the assets in their asset system context and optimizing the asset systems value (including sustainable performance, cost and risks) rather than optimizing individual assets in isolation;
- **risk-based**: focussing resources and expenditure, and setting priorities, appropriate to the identified risks (see **4.4.7**) and the associated cost/benefits;
- **optimal**: establishing the best value compromise (see **4.3.3.2**) between competing factors, such as performance, cost and risk, associated with the assets over their life cycles;
- **sustainable**: considering the long-term consequences of short-term activities to ensure that adequate provision is made for future requirements and obligations (such as economic or environmental sustainability, system performance, societal responsibility and other long-term objectives);
- **integrated**: recognizing that interdependencies and combined effects are vital to success. This requires a combination of the above attributes, coordinated to deliver a joined-up approach and net value.

Figure 1 – Key principles and attributes of asset management



0.3 Enablers for good asset management

The following enabling elements are also considered to be essential for the successful implementation of these principles:

- an organizational structure that facilitates the implementation of these principles with clear direction and leadership;
- staff awareness, competency, commitment and cross-functional coordination;
- adequate information and knowledge of asset condition, performance, risks and costs, and the interrelationships between these.

PAS 55-1 indicates that good asset management requires coherent direction and guidance from top management and delivery by appropriately empowered and competent employees. Unless a clearly articulated organizational direction and set of priorities are provided, it is very difficult to determine how best to manage the assets. Conflicting priorities and messages, and/or the lack of staff understanding of such aspirations, or the lack of cross-functional collaboration to deliver them, can lead to inefficient and ineffective working and wasted effort and resources, as well as considerable frustration and de-motivation. For some organizations this may require a change in culture, new behaviours and ways of thinking. There are, therefore, a number of important “enablers” for good asset management (explained further in 4.4). These have a significant influence on the effectiveness and efficiency of an asset management system and include:

- structure, authority and responsibilities;
- outsourcing of asset management activities;
- training, awareness and competence;
- communication, participation and consultation;
- asset management system documentation;
- information management;
- risk management;
- legal and other requirements;
- management of change.

0.4 Decision making in asset management

Good decision making is also vital in joined-up asset management. This requires adequate information about the assets and their associated strengths, weaknesses, opportunities and threats. In particular, it is important to understand the relationship between asset management activities and their actual or potential effect upon short-term and long-term costs,

risks, performance and asset life cycles (or asset system sustainability). Only then can informed decisions be made about the optimal mix of life cycle activities (such as design/selection, acquisition/construction, utilization, maintenance, renewal, modification/enhancement, decommissioning or disposal). In many organizations, there will be more potential tasks to carry out than resources, time or budgets will permit. The continuous optimizing and prioritizing of tasks and plans are a way of life for such organizations.

There are numerous tools and methodologies associated with asset management that are widely available and employed by organizations. Such tools include value engineering, life cycle costing, reliability centred maintenance, risk based inspection, total productive maintenance, cost/risk optimization, etc. However, it is essential for organizations to recognize that good asset management cannot be achieved successfully through the use of these tools alone, and no single such tool can address, control or solve all the problems.

0.5 Asset-related risks

Where possible, performance requirements and significant risks, such as asset failure, need to be quantified in financial terms to enable like-for-like comparison and for the associated expenditure to be set accordingly. For example, in some instances it could be more cost effective to allow an asset to run to failure, whilst in other cases an increase in maintenance expenditure or capital investment might be more appropriate. It is not always possible to place a direct monetary value on the risks or performance associated with asset related expenditure. However, organizations can do so indirectly by turning the question around and asking, for example, “What would we be prepared to pay to avoid harm to our reputation?”.

0.6 Sustainability

Sustainable development is an increasingly important consideration within this overall context. In this respect, sustainable development is concerned with ensuring an appropriately long-term approach to economic activity, environmental responsibility and social progress. This is set out more fully in BS 8900.

The reasons for this increasing importance can be found in the strong links between effective asset management and long-term sustainability in several manifestations:

- Effective management of a nation’s infrastructure is an underlying component of successful economies. Without appropriate development of this

infrastructure over time, the economy will suffer.

- Asset managing organizations can have a huge impact on the environment. This is true from the viewpoint of the raw materials they consume (whether it is water resources, fossil fuels or other raw materials used) or the emissions released in the construction and operation of these assets (both in the form of waste materials and greenhouse gases that may contribute to climate change).
- Physical infrastructure assets provide a foundation stone of societal development, delivering power and warmth, water and sanitation, and the building structures and transport links that allow society to flourish. As such, physical assets are a key enabler for many social structures. Much of this infrastructure is of long life and delivers service from one generation to the next, helping to ensure that these societal structures are enduring.
- Have we given due consideration to the other aspects of the organization that affect our asset management plan(s), such as people, knowledge, finance and intangible assets? Conversely, have we considered the impact of our asset management plan(s) on these other aspects?
- Do we review the appropriateness of our asset management strategy in the light of changes in the operating, regulatory and financial environment?
- Are we continually improving our asset management system performance, and realizing the benefits of the improvements? Do we know what and where improvements will be most effective?
- Do we have the necessary asset management policy, strategy and plan to ensure that we manage our assets in a sustainable way?
- Does our approach to sustainable management of the assets take appropriate account of the needs of our stakeholders and are we open in our communication with these stakeholders?
- Are the working conditions, skills and wellbeing of our employees and contracted service providers given appropriate consideration?
- Are we optimizing our asset management process(es) and/or procedures in the light of the latest developments in technology and innovation?
- Can we answer all of these questions confidently, with a clear audit trail, and demonstrate the answers to our stakeholders?

0.7 Asset management challenges

In order to achieve its organizational strategic plan and provide the assurance its stakeholders seek, an organization needs to ask, and to be able to answer, the following key questions:

- Do we know what (existing) assets we have, where they are, what condition they are in, what function they perform and their contribution to value? Do we know the quality of this information?
- Do we know what we want from our assets in the short, medium and long-term?
- Can our assets deliver our asset management objectives cost effectively?
- Are we getting the most value from our assets? (How could we get more value for money from them?)
- Do we have enough capability (or over capacity) in our asset portfolio? Have some assets or asset systems become redundant, underused, unprofitable or too expensive?
- Are we confident that the risks of our assets causing harm to people and the environment are tolerable and at organizational/legally accepted levels?
- Is our asset-related expenditure (capital investment and operating costs) insufficient, excessive or optimal and correctly assigned across the asset portfolio?
- Can we readily evaluate the benefits (performance, risk reduction, compliance, sustainability) of proposed work or investment and, conversely, quantify the total impact to the organization of not performing such work, not investing or delaying such actions?
- Are we allowing future problems to develop (such as performance deterioration, risks, expenditure requirements) in our efforts to obtain short-term gains?



0.8 Types of assets

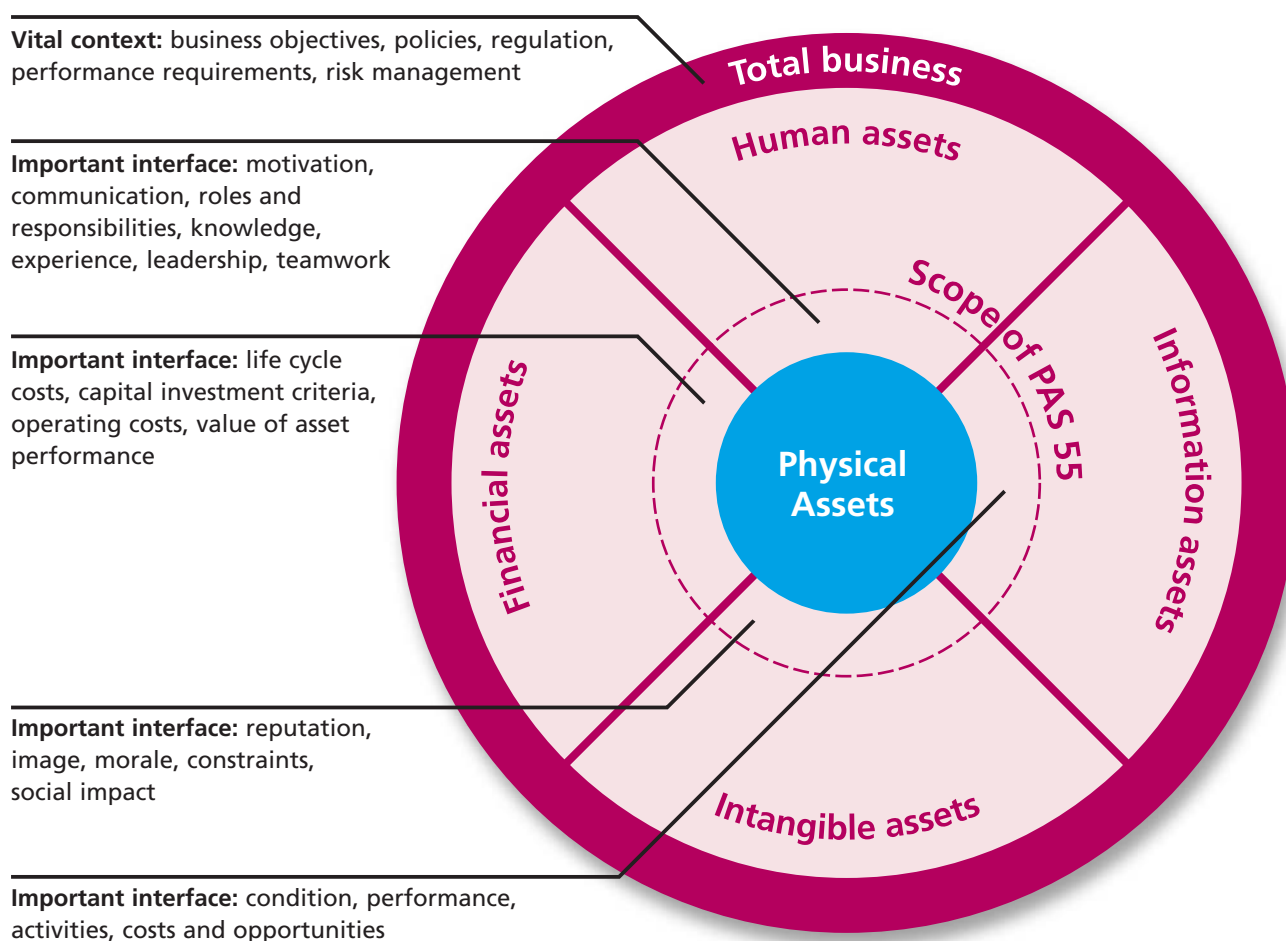
This PAS is focussed primarily on the management of physical assets, and other asset types are therefore only considered in this PAS insofar as they affect the optimal management of the physical assets. These interdependencies are extremely important in the holistic delivery of asset management objectives and, ultimately, the organizational strategic plan. These asset types, the scope of PAS 55, and the vital understanding of business context are illustrated in **Figure 2**. The asset management system should recognize such interdependencies and make appropriate provision for the indirect “enablers” that are required to optimize the value of physical assets. Conversely, organizations that are heavily dependent upon physical assets should also recognize that deficiencies in the management of other asset types may have a profound impact on the overall or long-term performance of their physical assets and thus

their organizational performance. Such organizations should recognize that all assets will need to be managed in an integrated and holistic manner.

For example:

- **human assets:** the behaviours, knowledge and competence of the workforce have a fundamental influence on the performance of the physical assets;
- **financial assets:** financial resources are required for infrastructure investments, operation, maintenance and materials;
- **information assets:** good quality data and information are essential to develop, optimize and implement asset management plan(s);
- **intangible assets:** the organization’s reputation and image can have a significant impact on infrastructure investment, operating strategies and associated costs.

Figure 2 – Focus and business context of this PAS in relation to the other categories of assets



0.9 The asset management system

An integrated asset management system is vital for organizations that are heavily dependent upon physical assets in the creation or delivery of their services or products. Large numbers of assets, or diversity characteristics of assets and asset systems, particularly in an environment of conflicting stakeholder expectations, further increase the importance of having a systematic approach to managing the asset portfolio.

There are different levels at which asset units can be identified and managed – ranging from discrete equipment items or components to complex functional systems, networks, sites or diverse portfolios (see **Figure 3**). Many organizations identify assets as equipment units (sometimes referred to as “maintenance significant items” – the unit at which maintenance tasks or work orders are directed), whereas others use the term to describe functional systems or even integrated business units. It does not matter at what such level an asset unit is identified, provided that:

- the organization’s goals and strategic priorities are directly reflected in the asset management plan(s);
- the asset life cycle costs, risks and performance are considered and optimized. (This will usually require definition of clear asset boundaries for measuring performance, life cycle expenditures and attributing associated risks.);
- the aggregations of assets (through integrated asset

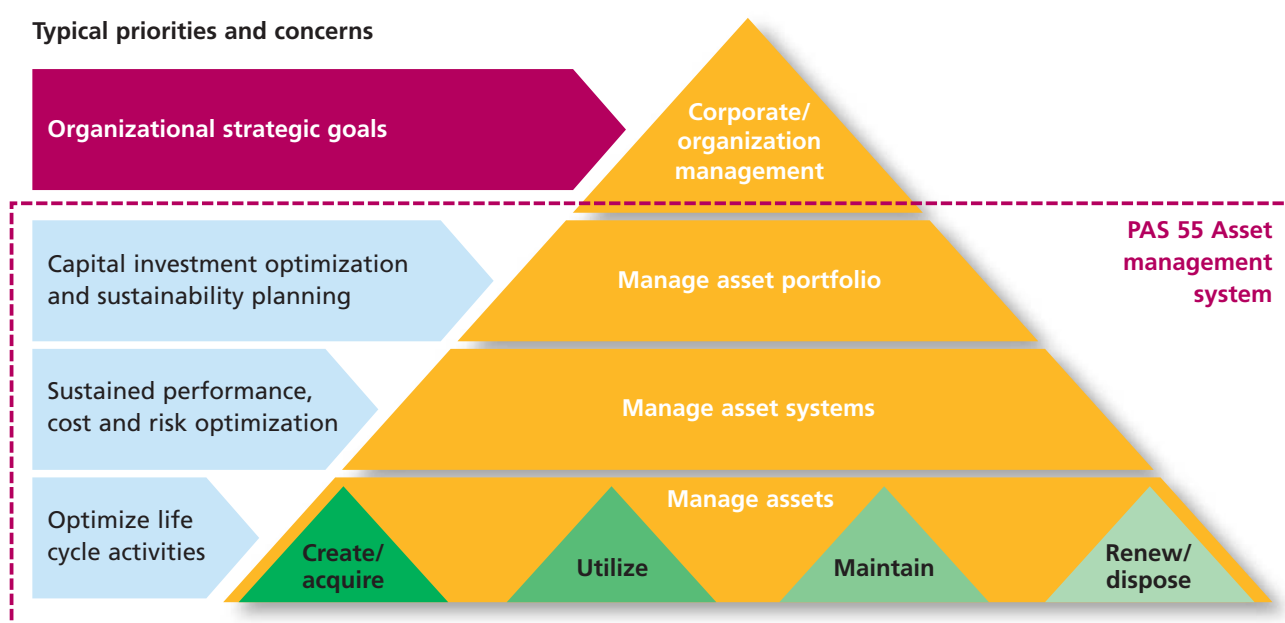
systems) and contributions of value (as part of the organization’s portfolio) are managed in a coordinated and consistent manner;

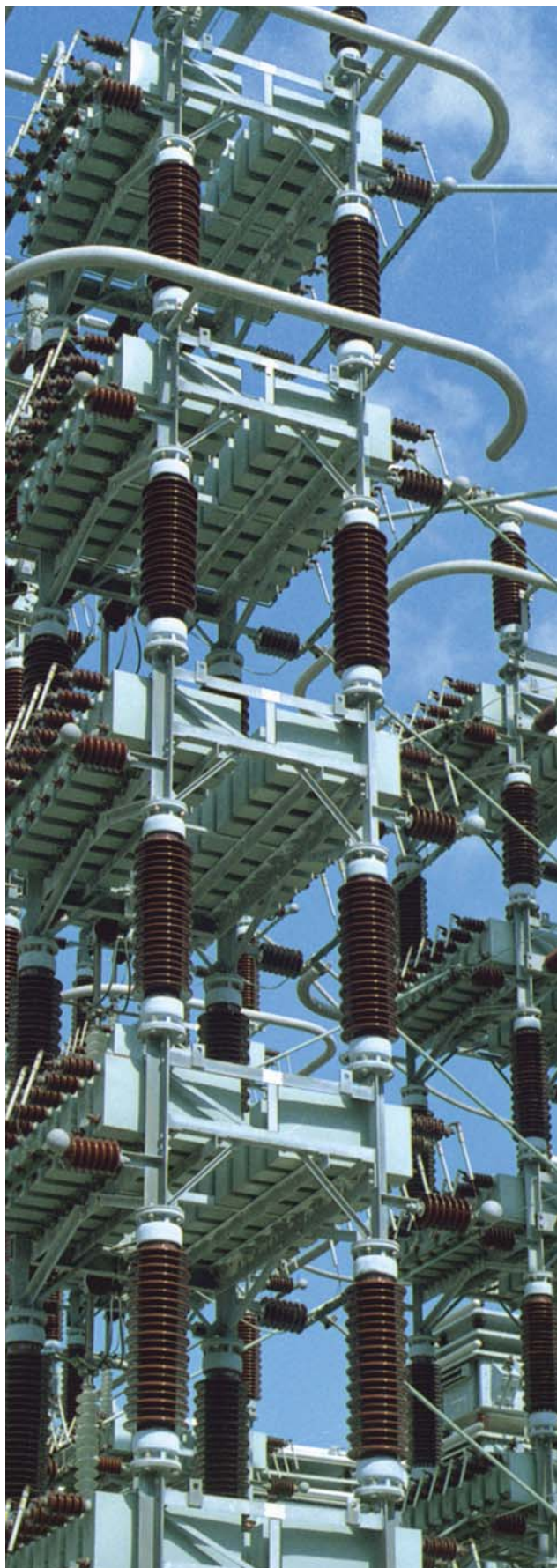
- all parts of the organization understand and use the same terminology in relation to the assets, their components and their asset system groupings or aggregations.

As explained in PAS 55-1, this hierarchy brings challenges and opportunities at different levels. For example, discrete equipment items may have identifiable individual life cycles that can be optimized, whereas asset systems may have an indefinite horizon of required usage. Sustainability considerations should, therefore, be part of optimized decision making. A larger organization may also have a diverse portfolio of asset systems, each contributing to the overall goals of the organization, but presenting widely different investment opportunities, performance challenges and risks. An integrated asset management system is therefore essential to coordinate and optimize the diversity and complexity of assets in line with the organization’s objectives and priorities.

The asset management focus will tend to differ at the various levels of asset integration in an organization. **Figure 3** shows examples of priorities that might be evident at the different levels of asset integration and management.

Figure 3 – Levels of assets and their management



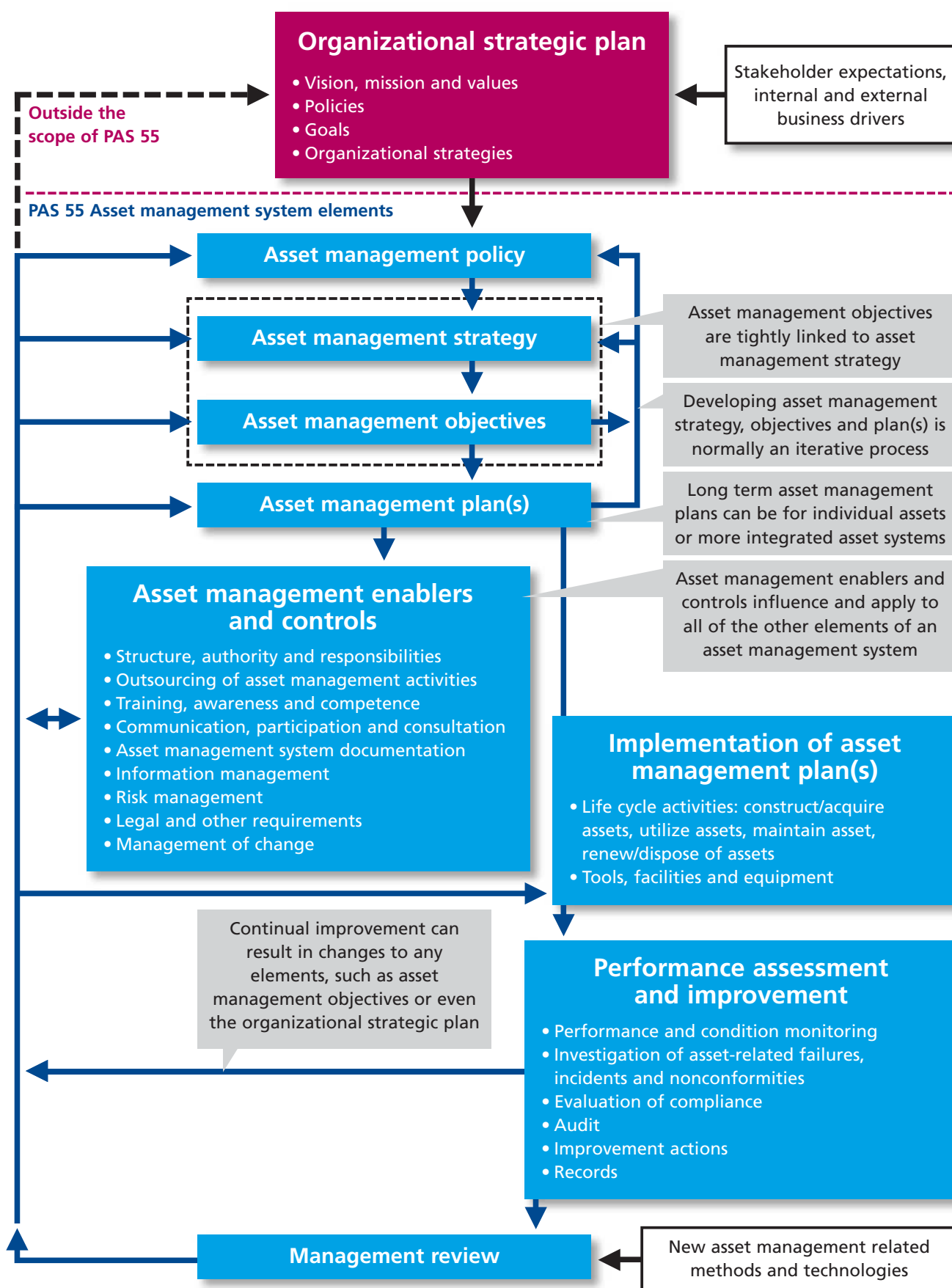


Increasingly, stakeholders (such as customers, the public, regulators and shareholders) are seeking assurance that the asset management system will deliver safety, continuity of service and financial performance. Organizations are ever more sensitive to the impact that adverse public opinion and negative publicity can have on their business when assets or asset systems fail. For most organizations, therefore, establishing, implementing and maintaining a formal asset management system is increasingly becoming a necessity rather than an option, and PAS 55 can facilitate this.

An asset management system is primarily designed to support the delivery of an organizational strategic plan, in turn aiming to meet the expectations of a variety of stakeholders. The organizational strategic plan is the starting point for development of the asset management policy, strategy, objectives and plans. These, in turn, direct the optimal combination of life cycle activities to be applied across the diverse portfolio of asset systems and assets (in accordance with their criticalities, condition and performance). This top-down connective thread is a key feature of an asset management system – the clear “line of sight” from organization direction and goals down to individual, day-to-day activities. Similarly, the bottom-upwards monitoring of asset characteristics, problems, risks and opportunities should provide the factual basis for adjusting and refining realistic asset management strategies and plans, through a process of continual improvement. Furthermore, such asset management realities should inform and influence the expectations of stakeholders and the aspirations of the organizational strategic plan.

The operational elements (**Figure 4** shows such typical elements) and processes of an asset management system should be developed to enable such connectivity, integration, total value optimization and continual improvement.

Figure 4 Typical elements of an asset management system



There is no explicit requirement for these elements to be documented separately, and the requirements of PAS 55-1 can be achieved through documents that are not exclusive to asset management. However, the documentation describing how physical assets will be managed to achieve the organizational strategic plan needs to be adequately informative and unambiguous. The asset management policy, in particular, mandates the direction, principles and absolute requirements, and is a key driver for the asset management system.





1 Scope

This part of PAS 55 (PAS 55-2) provides guidelines for the application of the requirements specified in PAS 55-1. It provides guidance on the establishment, implementation, maintenance and improvement of an asset management system and its coordination with other management systems.

PAS 55-2 does not prescribe mandatory approaches, methods or tools for the implementation of the requirements of PAS 55-1, but rather aids understanding and implementation by means of examples and illustrations.

This part of PAS 55 does not create any additional requirements to those specified in PAS 55-1.

2 Reference publications

There are no normative references at present (i.e. references indispensable to the full compliance with this PAS).

Informative references (i.e. publications that provide information or guidance) are listed in the Bibliography. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.



3 Terms and definitions

For the purposes of this part of PAS 55, the terms and definitions given in PAS 55-1 apply.

4 Asset management system requirements

4.1 General requirements

The organization shall establish, document, implement, maintain and continually improve an asset management system in accordance with the requirements of this PAS.

The organization shall define and document the scope of its asset management system.

Where an organization chooses to outsource any aspect of asset management that affects conformity to the requirements of **Clause 4** of this PAS, the organization shall ensure control over such aspects in accordance with the requirements of **4.4.2**.

NOTE This PAS requires that organizations establish, implement and maintain an asset management policy, strategy, objectives and plans. **Figure 5** illustrates the relationship between the organizational strategic plan and these elements of the asset management system.

The above requirement is a general statement concerning the establishment and maintenance of an asset management system within an organization. "Establish" implies a level of permanency and the system should not be considered established until all its elements have been demonstrably implemented. "Maintain" implies that, once established, the system continues to operate appropriately – this requires active effort on the part of the organization. Many systems start well but deteriorate due to lack of review and maintenance. Several elements of PAS 55-1 (such as performance assessment and improvement **4.6**, and management review **4.7**) are designed to ensure active maintenance of the asset management system.

An organization seeking to establish an asset management system that conforms to PAS 55-1 should determine its current position with regard to its asset management by means of a review (see **4.1.2**). In determining how it will fulfil the requirements of PAS 55-1, the organization should consider the conditions and factors that affect, or could affect, its asset management; what policies it needs, and how it will manage its asset management risks. The level of detail and complexity of the asset management system, the extent of the documentation, and the resources devoted to it, are dependent on the nature (size, structure, complexity) of an organization and its activities.

4.1.1 Asset management system

Organizations seeking to establish asset management systems that conform to PAS 55-1 should follow the recommendations and guidance provided below.

- a) The organization should establish and maintain an asset management system that conforms to all of the requirements of PAS 55-1. This should also assist the organization in meeting legal, regulatory, statutory and other asset management related requirements that are applicable to it.
- b) The level of detail and complexity of the asset management system, the extent of documentation and the resources devoted to it are dependent on the size of the organization and the nature of its activities. The system should be of appropriate depth, detail and coverage to enable the organization to meet all of the requirements of PAS 55-1.

NOTE Some organizations call this an Asset Management Regime or an Asset Management Business Model.

- c) An organization has the freedom and flexibility to define the boundaries of the asset management system and may choose to implement PAS 55-1 with respect to the entire organization, or to specific operating systems or units of the organization. However, care should be taken in defining the boundaries and the scope of the asset management system. The scope of the asset management system should cover the full portfolio of assets that are required for the successful delivery of the organizational strategic plan and not exclude any assets or asset systems that are critical to the business goals.
- d) It is likely that the organization's asset management system draws upon processes already in existence and controlled within its quality, environmental and health and safety management systems, etc. While there is no need to establish a separate asset management system in such cases, care should be taken to ensure that processes work together to form an effective overall system, and that there is effective control of this entire system by the relevant management and other personnel.

4.1.2 Review against PAS 55-1

An organization seeking to develop and implement an asset management system which conforms to PAS 55-1 should conduct a review to compare the organization's current management of its assets against the requirements of PAS 55-1 and determine the extent to

which these requirements are being met or whether improvements can be made. Such a review should map the requirements of PAS 55-1 against the organization's existing business processes to identify alignments and/or variations in terminology between the two.

The review will provide information which an organization can use to identify if there are any existing gaps in the asset management system with respect to the PAS 55-1 requirements, and will guide the organization in formulating plans for implementing and prioritizing improvements. Note, however, that compliance with all the requirements of PAS 55-1 represents the *minimum* standard that should be regarded as good asset management practice – it does not represent “best practice”, and should not be seen as a limiting goal (some organizations may need or wish to exceed the requirements of PAS 55-1 in their management of assets).

The aim of a review should be to consider how delivery of the organizational strategic plan is supported by, and reflected in the design of, the asset management system. An organization should consider, but not limit itself to, the following items within its review:

- the organizational strategic plan;
- legal, regulatory and other mandatory requirements;

- identification and evaluation of the asset management risks faced by the organization;
- existing asset management practices, process(es) and/or procedure(s);
- the performance of the assets and asset systems (including suitability, utilization, condition, longevity and costs);
- feedback from the investigation of previous incidents, accidents and emergencies;
- relevant management systems, competencies and available resources (internal and external).

A suitable approach to the review can include the use of checklists, interviews, direct inspection and measurement, results of previous management system audits or other reviews depending on the nature of the organization's activities. Where asset management processes already exist, they should be reviewed for adequacy against the requirements of PAS 55-1.

It is emphasized that a review against PAS 55-1 is not a substitute for the implementation of the structured, systematic approach to asset management and adoption of continual improvement processes as described in 4.6 and 4.7. However, a periodic review can provide additional inputs to the planning of these processes.



4.2 Asset management policy

The organization's top management shall authorize an overall asset management policy.

The policy shall:

- a) be derived from, and be consistent with, the organizational strategic plan;
- b) be appropriate to the nature and scale of the organization's assets and operations;
- c) be consistent with other organizational policies;
- d) be consistent with the organization's overall risk management framework;
- e) provide the framework which enables the asset management strategy, objectives and plans to be produced and implemented;
- f) include a commitment to comply with current applicable legislation, regulatory and statutory requirements and with other requirements to which the organization subscribes;
- g) clearly state the principles to be applied, such as the organization's approach to health and safety or sustainable development;
- h) include a commitment to continual improvement in asset management and asset management performance;
- i) be documented, implemented and maintained;
- j) be communicated to all relevant stakeholders, including contracted service providers, where there is a requirement that these persons are made aware of their asset management policy-related obligations;
- k) be reviewed periodically to ensure that it remains relevant and consistent with the organizational strategic plan.

NOTE 1 Organizations may choose to have a detailed asset management policy for internal use which should provide sufficient information and direction to drive the asset management system (parts of which may be confidential) and have a summarized (non-confidential) version for dissemination to its stakeholders.

NOTE 2 Organizations may also have one or more functional policies relating to specific asset management activities, such as capital investment, operation, maintenance or contracting. It is essential, however, that alignment is maintained between such functional policies and the overall asset management policy.

Organizations seeking to implement the requirements of PAS 55-1 on asset management policy, should consider the recommendations and guidance provided below:

- a) The asset management policy plays a leading part in driving the asset management system. The asset management policy is a means for top management to communicate to its managers, employees and stakeholders the organization's position and intentions with regard to asset management. It provides a high level statement of the organization's principles, approach and expectations relating to asset management. The asset management policy should be seen as the same level of commitment as an organization's safety policy.

For example, the policy might start with the following:

We are committed to maximizing the return on our shareholder's investments through providing high value services to our customers in a legally and environmentally compliant and sustainable manner, without compromising the health and safety of our employees, customers or the public. We shall achieve this by ...

The asset management policy provides the framework around which the asset management strategy, objectives and plans are developed and implemented. The asset management policy should be drafted in such a way as to be consistent with the organization's overall approach to risk management.

- b) Top management should arrange for the production of the asset management policy. The steps to forming, implementing and maintaining the asset management policy would typically be as follows:
 - Identify the requirements of the organizational strategic plan in terms of how it will be achieved through the management of the physical assets, and the principles that should be applied. These should reflect the requirements and potentially conflicting expectations of the organization's stakeholders.
 - The asset management policy should clearly define how it facilitates, supports and enables achievement of the organization's vision, mission and business objectives and align with the organization's other policies (such as safety and environmental policies). It should consider risks, objectives, strategy, constraints, boundaries, timescales and responsibilities.
 - Identify all legal, regulatory, statutory and other top management designated, mandatory asset management requirements (i.e. it is usual to

include a compliance statement in the asset management policy).

- Develop and agree the draft asset management policy at top management level, ensuring it is consistent with the organizational strategic plan.
 - Discuss the draft policy with the organization's relevant managers, employees and other stakeholders. Amend accordingly to achieve an appropriate level of consensus.
 - Ensure the policy is worded in a form and style that can be understood by all those to whom it is to be communicated.
 - Communicate the asset management policy to the relevant managers, employees and other stakeholders. This can be achieved by posting the document on notice boards, intranet, internet and by face-to-face activities such as briefings, meetings, etc. Many organizations display the policy prominently within their premises. Others use electronic means, e.g. via an intranet. The visible endorsement of top management is important in achieving the appropriate level of attention and commitment.
 - Ensure that the asset management policy has been communicated to all relevant personnel, and that it has been understood and accepted, i.e. check understanding throughout the business.
 - Ensure that the asset management policy remains relevant and is being complied with. It is essential that the asset management policy remains "alive" and relevant to the changing influences of business drivers and obligations.
- c) A policy statement could be used in a court of law, either in favour of the organization or against it.
- Therefore it would be prudent to have it reviewed by a person who is competent in legal matters.
- d) Adherence to the asset management policy is fundamental to the effective, efficient and safe management of an organization. Top management should therefore provide adequate arrangements (such as resources, communication, facilities, supervision and training) to ensure that the asset management policy is adhered to.
- e) It is important that, when developing its asset management policy, an organization considers the issues of sustainable development – an enduring, holistic approach to economic activity, environmental responsibility and social progress. It should also consider how it can maintain an appropriate trade-off between long- and short-term requirements. The growing importance of climate change and its associated risks should not be underestimated in doing so.
- f) The asset management policy should be regularly reviewed, at a frequency determined by the organization, and following significant changes to the operational context of the organization. Issues identified should be addressed and changes, where appropriate, should be implemented. These reviews serve two purposes:
- to ensure that the asset management policy is current and effective;
 - to ensure that the policy is continuously improved in light of developments in appropriate fields such as technology, operations, asset care techniques, etc.



4.3 Asset management strategy, objectives and plans

4.3.1 Asset management strategy

The organization shall establish, document, implement and maintain a long-term asset management strategy which shall be authorized by top management.

NOTE *The time horizon for a long-term asset management strategy would normally be aligned with that of the organizational strategic plan.*

The strategy shall:

- a) be derived from, and be consistent with, the asset management policy and the organizational strategic plan;
 - b) be consistent with other organizational policies and strategies;
 - c) identify and consider the requirements of relevant stakeholders;
 - d) consider the life cycle management requirements of the assets;
 - e) take account of asset-related risks (see 4.4.7), asset and asset system criticalities;
 - f) identify the function(s), performance and condition of existing asset systems and critical assets;
 - g) state the desired future function(s), performance and condition of existing and new asset systems and critical assets, on timescales aligned to those of the organizational strategic plan;
 - h) clearly state the approach and principal methods by which assets and asset systems will be managed;
- NOTE** *This may include, for example, the criteria to be adopted for determining asset criticality and value, the life cycle and sustainability basis for asset management planning, the approach to asset risk and reliability management and the methods of optimization and decision-making.*
- i) provide sufficient information, direction and guidance to enable specific asset management objectives and asset management plan(s) to be produced;
 - j) include criteria for optimizing and prioritizing asset management objectives and plans;
 - k) be communicated to all relevant stakeholders, including contracted service providers, where there is a requirement that these persons are made aware of their asset management strategy-related obligations;

- l) be reviewed periodically to ensure that it remains effective and consistent with the asset management policy and organizational strategic plan and with other organizational policies and strategies.

Organizations seeking to implement the requirements of PAS 55-1 on asset management strategy, should consider the recommendations and guidance provided below:

- a) The asset management strategy should set out how the asset management policy will be achieved. It is the co-ordinating mechanism for ensuring that activities carried out on physical assets are aligned to optimally achieve the organizational strategic plan. This requires a high level plan or scheme for converting the asset management policy into specific asset management objectives and activity plans across the whole asset portfolio.
- b) The asset management strategy should describe, at a high level, the mechanisms for achieving the requirements of PAS 55 throughout the activities of the business (including the methods of prioritization, optimization, sustainability and risk management). Where appropriate, this should also include reference to required performance and condition requirements for assets, or provide guidance to ensure that these are set out in derived asset management objectives and associated procedures or functional specifications.
- c) The asset management strategy should make reference to improvement programmes, and provide long-term guidance on continuous improvement. The duration of "long-term" will be dependent on the asset management policy and will vary from one organization to another and from one industry sector to another.
- d) The asset management strategy is often set out in terms of the major business functions (or organizational goals), natural groupings of the asset portfolio (for example, sites, areas or business units) or in terms of logical asset life cycle phases, ensuring the co-ordination and alignment of activities, processes and enablers (such as asset information).
- e) The asset management strategy should include references to strategic approaches to be adopted to enable the delivery of the asset management policy, such as whole -life costing, risk management and sustainability. This should be sufficiently detailed to enable their consistent and integrated application

across the asset management system, and to provide adequate guidance for application through operational documents such as functional policies, and the development of appropriate improvement initiatives.

- f) The asset management strategy should be realistic, well thought out, appropriately detailed and it should take account of the views of all relevant stakeholders. Failure to do this could lead to unnecessary or inappropriate work being done, or failure to meet key business objectives.
- g) When establishing and reviewing its asset management strategy, the organization should ensure that it is derived from, and consistent with, its asset management policy, organizational strategic plan and other organizational strategies. The organization should also consider the following items:
- stakeholder requirements/expectations that influence the management of the assets (including legal, regulatory, statutory and other asset management requirements);
 - the previous asset management strategy, if applicable, and any need for a transition plan;
 - existing asset management plan(s), if applicable;
 - changes in priorities that the organization is aware of, or that might arise in the future;
 - the forecast demand for the service or the product (including demographic and geospatial information and relevant trends);
 - the predicted availability and cost of necessary resources, raw materials and essential supplier services;
 - asset-related risks;
 - the physical condition of the assets, age profile, flexibility and suitability for the desired usage;
 - asset deterioration mechanisms, and failure modes and effects;
 - historical asset-related information such as reliability, maintenance records, operational performance and condition data;
 - criteria for capital investments and for comparing options;
 - methods for determining optimum operating and maintenance strategies, including resources, task justifications and intervals, process(es) and/or procedure(s) and standards;
 - methods for efficient delivery of work and resources, such as work management systems, project and resource planning;
- constraints including legal, regulatory, statutory, financial, resources, physical access, logistics and timescales;
 - the results of benchmarking, audit results and assessments of current and best practices;
 - the results of the management review (see 4.7);
 - scenario planning, “what if?” analysis, and contingency planning, i.e. considering the effects of unexpected events and possible responses. Scenario planning can become a complex task, therefore the organization should use appropriate tools and techniques;
 - sensitivity analysis: changing the values of key variables and assumptions in order to determine which are the most sensitive to fluctuations, thereby identifying risks and any requirements for improving the accuracy of the analysis. Organizations should use appropriate tools and techniques to carry out sensitivity analysis;
 - opportunities to achieve the asset management strategy in a more cost effective way, i.e. attaining the same objective at lower costs without compromising sustainability or risk exposure levels. Such opportunities can be identified through advances in technology, management practices, contractual arrangements, partnering, etc.;
 - opportunities to add value, i.e. increasing the worth of an asset/asset system compared to its costs, e.g. generating income from sharing an underused asset/asset system with another operator.
- h) The asset management strategy should demonstrate how the asset management policy is to be implemented and how it will support the organizational strategic plan. It should include the following items:
- the desired outcomes related to the existing or new asset(s);
 - the summaries of broad plans and programmes to achieve these desired outcomes with defined timescales and responsibilities. These should also include details of the resources that are needed to deliver the plans and the actions required to secure them;
 - the assumptions made and financial costing if appropriate;
 - the targets against which the performance of the asset management strategy can be measured (see 4.6.1).

- i) The means to effectively measure and report the performance and success of the asset management strategy should be described. In addition to targets, organizations should use a coordinated set of key performance measures to help them achieve this.
- j) The following is an example of a typical asset management strategy, derived from an organization's business strategy:

Business strategy

To improve the current profit before tax by 15% within a period of 3 years through expanding capacity to meet the predicted 10% increased customer demand, funded through private finance, which will be repaid through future profits.

Corresponding asset management strategy

To upgrade the core infrastructure, to meet the increased demand, by efficiently investing up to £XXm investment over the next 5 years and development and implementation of optimal operating and maintenance strategies.



4.3.2 Asset management objectives

The organization shall establish and maintain asset management objectives, which shall:

- a) be measurable (i.e. quantified and/or capable of being demonstrated as achieved through objective assessment);
- b) be derived from, and consistent with, the asset management strategy;
- c) be consistent with the organization's commitment to continual improvement;
- d) be communicated to all relevant stakeholders, including contracted service providers, where there is a requirement that these persons are made aware of their obligations;
- e) be reviewed and updated periodically by the organization to ensure that they remain relevant and consistent with the asset management strategy;
- f) consider legal, regulatory, statutory and other asset management requirements;
- g) take account of the expectations of relevant stakeholders and financial, operational and business requirements;
- h) take account of asset management related risks;
- i) consider improvement opportunities including new technologies and asset management tools, techniques and practices (see 4.6.5.2).

NOTE Objectives may be set for the asset management system, asset management activities and/or the performance or condition of asset systems or assets.

Organizations seeking to implement the requirements of PAS 55-1 on asset management objectives, should consider the recommendations and guidance provided below:

- a) It is necessary to ensure that measurable asset management objectives are established throughout relevant parts of the organization to enable the asset management policy to be implemented and the asset management strategy to be achieved.
- b) Asset management objectives should be derived from, and be consistent with, organizational objectives.
- c) Using pertinent information or data, appropriate levels of management should identify, establish and prioritize asset management objectives. During the establishment of asset management objectives, consultation with those most likely to be affected should assist in ensuring that the objectives are reasonable and more widely accepted. To help ensure achievable asset management objectives are