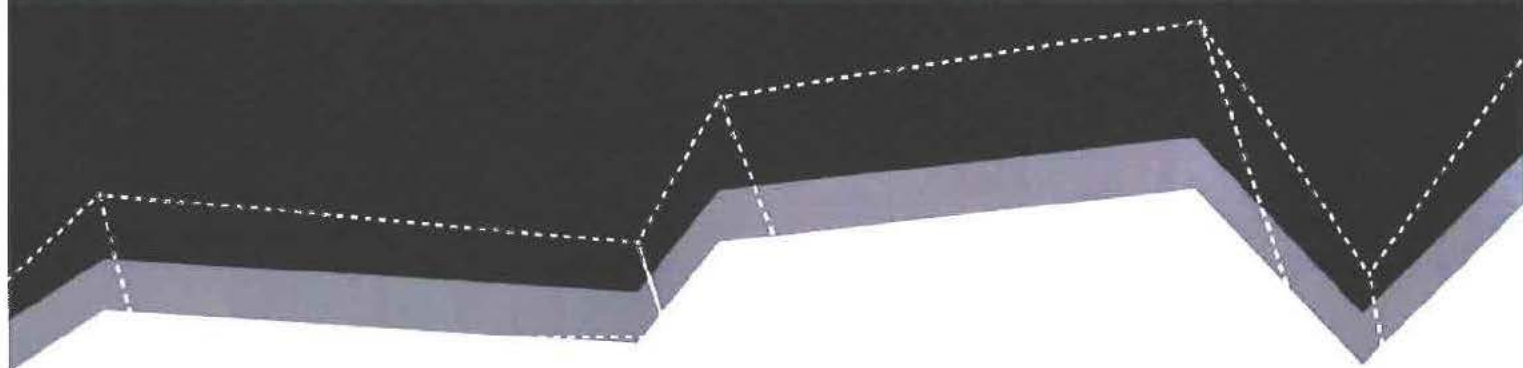


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**APPENDIX 6.5
TERTIARY EDUCATION
FACILITIES MANAGEMENT
ASSOCIATION (TEFMA)
SAM GUIDELINE**





The Strategic Asset Management Guideline



May 2010

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for

The Tertiary Education Facilities Management
Association (TEFMA)

TEFMA
Strategic Asset Management Guideline
ISBN No. 978-0-9808059-0-1

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1 Introduction

This “Strategic Asset Management Guideline” is an update of the 2000 AAPPA guideline¹. Although the broad objectives of both documents remain the same, the focus of the 2000 guideline was to provide direction in undertaking a Facilities Audit, while this updated version focuses on defining and supporting the process of developing a Strategic Asset Management (SAM) Plan for the Australasian Tertiary Education Sector.

The preparation of a SAM Plan will ensure that an institution's estate adequately supports the institution's overall goals and purpose (its mission), its strategic direction and its service delivery objectives.

This guideline should assist facilities managers to:

- Convert the institution's strategic direction and mission into asset service delivery objectives;
- Assess the current performance of the institution's estate against those objectives, identifying the performance gap;
- Develop prioritised non-asset and asset strategies that will close the performance gap over time;
- Translate the strategies into appropriate Space Management, Capital Investment, Maintenance and Surplus Asset Plans;
- Develop efficient and effective service delivery approaches for implementation of the various plans; and
- Achieve engagement with senior managers.

This guideline also has a broader objective. As highlighted in the 2000 document, the ultimate goal for a facilities manager is to provide strategic advice on asset management to the senior executive, as that strategic advice is essential to the long-term financial health of the institution. It is therefore vital that SAM is viewed as core institution business, in conjunction with finance, human resources (HR) and information technology (IT).

“Over the last 10 to 15 years, facilities management in both the private and public sectors has been evolving from a discipline historically focused on individual buildings to one focused on the total performance of an inventory of buildings and infrastructure (or estate) in support of the institution's overall mission.”²

Facilities Management in tertiary institutions must also evolve from being primarily concerned with tactical issues, such as maintenance and capital works delivery, to become more focused on strategic issues, such as strategic facilities planning and estate performance management. Facilities should no longer be viewed as simply an expense on the balance sheet, but as a tangible strategic investment that can enhance revenue streams for the institution and impact on staff and student recruitment and retention. This cannot occur unless the SAM Plan is viewed as an essential component of corporate planning by the institution's senior executive, and the SAM planning process is integrated into the institution's planning cycle. As this is the greatest impediment to developing an effective SAM Plan, this guideline suggests governance structures that, if implemented, elevate the profile of SAM to an appropriate level.

¹ AAPPA, Guideline for Strategic Asset Management: How to Undertake a Facilities Audit, Edition 1, October 2000.

² Key Performance Indicators for Federal Facilities Portfolios: USA Federal Facilities Council Technical Report Number 147.

2 The Strategic Asset Management Model

2.1 Overview

In general, an institution's level of investment in facilities is significant and typically accounts for almost one quarter of annual budgets. The US Committee on Business Strategies for Public Capital Investment³ highlighted that "best practice organisations implement a systematic facilities asset management approach that allows a broad-based understanding of the condition and functionality of the estate – as distinct from individual projects – in relation to their organisation's mission".

In keeping with best practice, a SAM model must support the day-to-day and long-term operations of an institution in meeting its mission. Effective SAM will result in an estate that:

- Is clearly aligned to and supportive of the mission; and
- Anticipates the institution's facilities requirements.

Poor facilities management usually results in:

- Inadequate facilities to support functional requirements;
- Excess facilities that divert available funds from direct mission support;
- Cost-inefficient facilities that waste scarce resources;
- Aging facilities that become increasingly costly to maintain and less supportive of the mission;
- Increased statutory compliance and legal risks for the estate; and
- Unavailable or inadequate facilities to meet anticipated needs.

The importance of the SAM approach is that it allows institutions to integrate facilities considerations into corporate decision-making and strategic planning processes. This is a significant shift from past (and perhaps current) practices, where facilities-related decisions were often made after an institution's strategic direction had been set. Using the SAM model will allow institutions to forge a link between institutional goals, facility investment decisions and day-to-day operations.

2.2 Strategic Asset Management

In refining SAM approaches for use by the Tertiary Education Facilities Management Association (TEFMA) members, a comprehensive audit has been undertaken of public sector practices in Australia, New Zealand, the United Kingdom and the United States of America. Asset Management has been a focus for the public sector for more than 20 years, and an examination of the various approaches taken has been used to develop the TEFMA framework.⁴

2.2.1 Definition

SAM can be described as the planned alignment of physical assets with service demand.

³ National Academies Press, *Investment in Federal Facilities: Asset management Strategies for the 21st Century*, 2004.

⁴ TEFMA, *Review of Approaches to Strategic Asset Management*, May 2009.

2.2.2 Principles

The principles of SAM are:

- Assets only exist to support the mission and the delivery of services;
- Asset planning is a key corporate activity that must be undertaken along with planning for HR, IT, finance, etc.;
- Non-asset solutions, full life-cycle costs, risks and existing alternatives must be considered before the construction of new assets; and
- The full cost and associate risks of providing, operating and maintaining assets needs to be understood and reflected in the delivery of services.

2.3 SAM Framework

The SAM Framework is the model used to inform key investment decisions by supporting the translation of corporate needs and strategy into integrated Space Management, Capital Investment, Maintenance, Surplus Asset, Estate Operations and Facilities Organisational Plans.

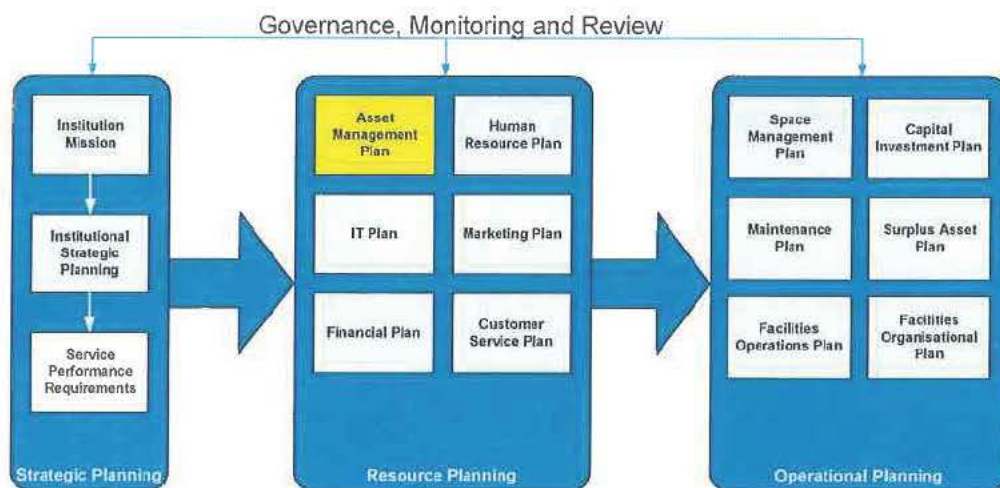


Figure 2.1. SAM Framework

Under the SAM Framework, there are several key components that must be in place to ensure investment decisions are aligned with the mission and goals of the institution:

- **Accurate data** of the entire facilities estate, not just individual buildings, to enable life-cycle decision making;
- **Models for predicting the future condition and performance** obtainable from these facilities as an estate;
- **Decision support tools** that enable competing investment approaches to be assessed;
- **Performance measures** that graduate estate performance to building/system/process performance; and
- **Continuous monitoring and review.**

A strong link must be forged between master planning and the SAM Plan. Both are aligned to the mission and strategic objectives of the institution. The goal of a Master Plan is to give physical form to an institution's mission, vision and strategic objectives. It should provide an analysis of site locations for research and teaching facilities, broader campus land use, landscape, formal and informal open space, as well as pedestrian and vehicular circulation.

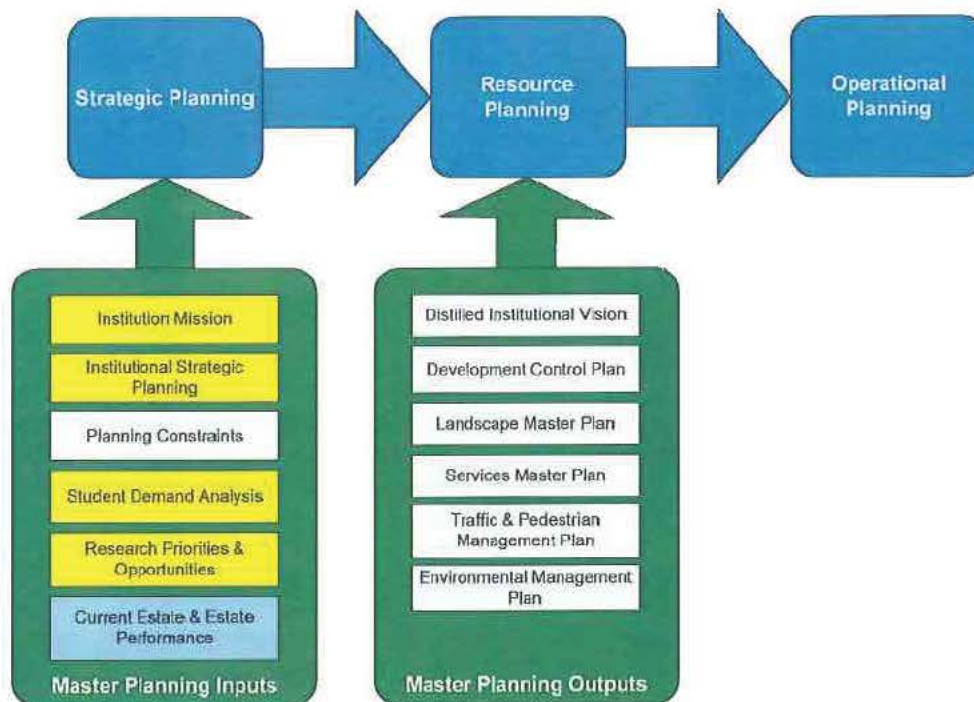


Figure 2.2. Link between Master Planning and SAM Framework

The SAM Plan should both inform and be informed by the Master Plan. A Master Plan will provide guidance and constraints to the SAM Plan by providing controls on development. However, the SAM Plan estate performance information and rectification strategies should also inform the campus master planning process.

The following chapters will review the primary components of the SAM Framework, examining:

- How institutional strategic priorities are translated into asset performance targets (Strategic Planning);
- The process of developing asset strategies that address the performance targets (Resource Planning); and
- How asset implementation plans are developed from the asset strategies (Operational Planning).

3 Strategic Planning (Developing Estate Performance Targets)

In general, institutions use a structured approach to identify strategies for learning, teaching and research that align with community and government expectations. These strategies are then presented to institution communities in the form of Institutional Strategic Plans, usually encompassing a five-year planning horizon.

Although these strategic plans are high-level, direction-setting documents, they generally fail to provide enough detail to enable the establishment of estate performance targets. More detailed plans are required, elaborating on the institution's strategies and providing specific estimates on key parameters, such as growth projections for learning, teaching and research. This information can then be translated into specific performance targets for both estate performance and facility service delivery performance.

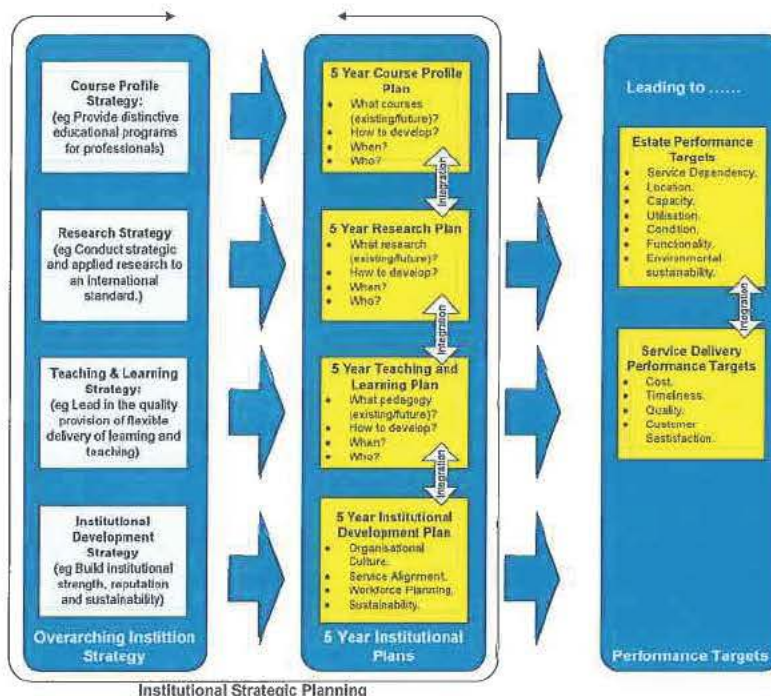


Figure 3.1. Strategic planning component of the SAM Framework

3.1 Five-Year Institutional Plans

Five-year Institutional Plans should elaborate on the broad strategic direction articulated in the Institution Strategic Plan and provide information on course and research priorities, detailing likely changes in those areas over the planning period.

For example, the University of Tasmania develops five-year plans known as the "Enrolment Plan" and the "Staff Profile Plan". The Enrolment Plan is a projection that "establishes a comprehensive profile of enrolments for both domestic and international students in research higher degrees, postgraduate coursework programs and undergraduate courses"⁵. The Staff Profile Plan identifies targets and strategies for staff recruitment that support the Institution's plans for growth in learning, teaching and research.

⁵ University of Tasmania, Strategic Asset Management Plan 2006-2011, Nov 2005.

The Enrolment Plan provides projected student numbers by discipline area, while the Staff Profile Plan identifies the projected growth in staff numbers. Both can be used to underpin the estimation of future requirements for office, teaching and research space and are key guiding documents for the development of a SAM Plan.

At present, few institutions produce these more detailed plans, which are critical, as they enable alignment of the SAM Plan and the Institutional Strategic Plans. Therefore, where Five-Year Institutional Plans do not exist, the facilities managers should endeavour to produce them in consultation with faculty and staff. The information captured in the plans should include:

- Current staff and student numbers by discipline area, for both teaching and learning, and research;
- Five-year projections for staff and student numbers by discipline area; and
- Priorities for changes by discipline area, highlighting new course or research priorities.

3.2 Estate Performance Targets

The objective of the SAM Plan is to match the level of performance provided by the estate, with the strategic objectives and mission of the institution. To do this, estate performance targets need to reflect the direction/priorities set in the five-year institutional plans for each key estate performance criteria (refer to section 4.1).

Estate performance targets should be established for each of the estate performance criteria as follows:

a) Service Dependency

This should establish the level of generic facilities that would be appropriate for each discipline area. The general aim should be to maximise the use of more generic types of space for the various teaching, learning and research activities.

For example, many institutions have developed research laboratory facilities that are focused on the needs of one research group only. The strategic objective of the institution may be to develop more generic laboratory research facilities, that can be utilised by a greater variety of research groups.

b) Location

Teaching and learning or research activities may be constrained by location. This usually results in some courses or research activities having to be at a specific campus, site or campus precinct. These constraints should be guided by campus Master Plans.

c) Capacity

The capacity of the facilities compares the space required to support the projected student, staff and research numbers against the current supply of space (refer to section 4.1.3). The SAM Plan should set targets for capacity that can be utilised in determining priorities.

d) Utilisation

The TEFMA space planning guidelines⁶ provide indicative utilisation performance targets for different types of teaching spaces.

e) Condition

A target condition standard needs to be selected for each building or group of buildings within the estate. The simplest approach is to select a condition standard using the simple framework that is outlined in the TEFMA Facilities Audit Guideline⁷.

More comprehensive methodologies for this assessment are available, including the Mission Dependency Index (MDI), developed by the US Coastguard, and the Asset Priority Index (API), developed by the US Department of Interiors. Some US institutions have adopted these methodologies to assist in prioritising assets and asset programs.

f) Functionality

Target functional standards need to be articulated for the core space types within the estate (learning and teaching, office, research and library), based on current trends and the strategic ambitions of the institution. The TEFMA Facilities Audit Guideline⁷ also describes a simple method for assigning the target functionality standards to each facility in the estate.

g) Environmental Sustainability

Most institutions now have specific targets for energy and water use within their Strategic Plans, which need to be translated to specific performance targets for the estate and individual facilities within the estate. The environmental performance targets should, at the minimum, set targets for an institution's carbon footprint that align with the Greenhouse Gas (GHG) Protocol⁸ and the National Greenhouse and Energy Reporting System (NGERS), where there are specific requirements to report on Scope 1 and Scope 2 Emissions⁹.

In selecting performance targets, an institution should understand current performance and set medium- and long-term targets that are consistent with institution and broader government objectives. A performance baseline should be established against which reduction targets can be determined. The current target of the Australian Federal Government is to achieve a 25% reduction of GHG emissions from year 2000 levels, by 2020¹⁰. The New Zealand Government has committed to a more ambitious target of between 10% and 20% below 1990 levels by 2020¹¹.

Further information on assessing GHG emissions can be found in the TEFMA Facilities Audit Guideline.

3.3 Service Delivery Performance Targets

Service delivery performance targets define the level of service required for each service for various components of the estate. These targets are dependent on the estate strategy adopted and generally cannot be developed until after the Asset Management Plans have been finalised. This is examined in detail when developing the Facilities Operations Plan (refer to section 5.5.2).

⁶ TEFMA, Space Planning Guidelines, Edition 3, 2009.

⁷ TEFMA, Facilities Audit Guideline, Edition 2, 2010.

⁸ World Business Council for Sustainable Development, The Greenhouse Gas Protocol; A Corporate Accounting & Reporting Standard, Revised Edition.

⁹ Definitions can be found in: TEFMA, Facilities Audit Guideline, Edition 2, 2010.

¹⁰ www.climatechange.gov.au/government/reduce.aspx

¹¹ www.mfe.govt.nz/issues/climate/emissions-target-2020/

4 Resource Planning (Developing the Asset Management Plan)

The Resource Plan for physical resources is known as an Asset Management Plan and guides the institution's asset response to its service requirements, through the assessment of shortfalls in the performance of the estate, the assessment of risk and the development of appropriate risk management strategies, and the identification of strategies that close the service 'gaps'.

The Asset Management Plan is prepared for a minimum five-year timeframe and is reviewed and updated annually, ensuring that:

- Sufficient time is allowed for the planning and implementation of changes to service requirements;
- Assets are utilised to their full potential; and
- Ongoing evaluation of asset performance is undertaken against current and future market trends to achieve the best long-term financial performance.

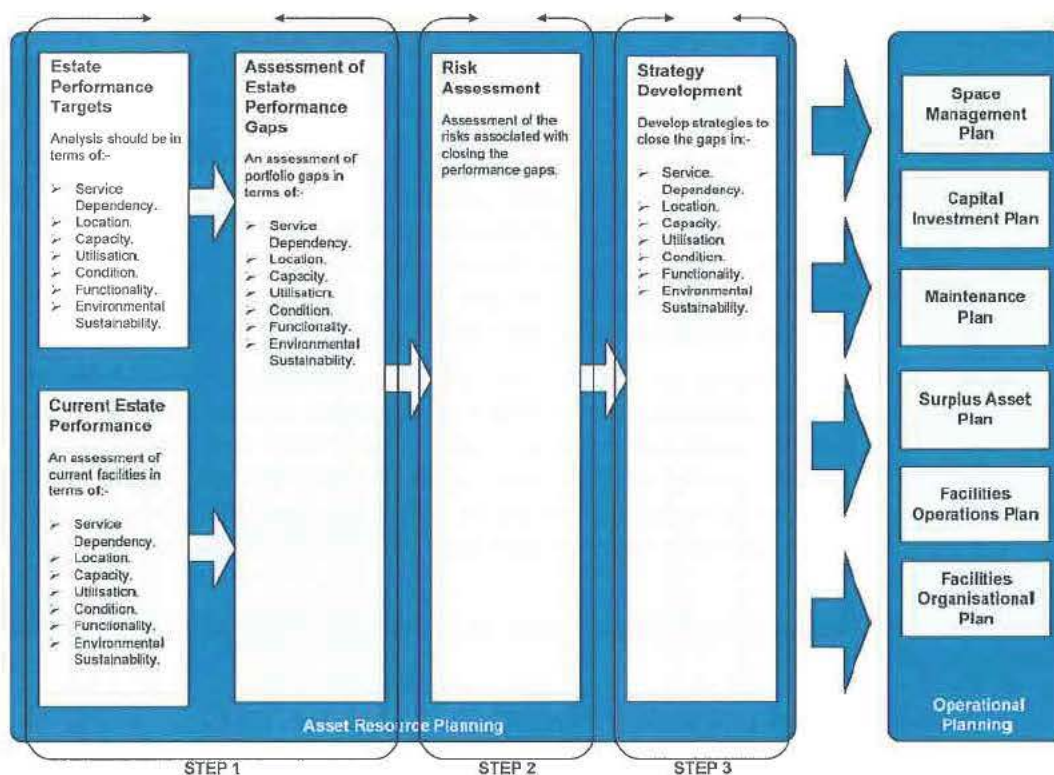


Figure 4.1. Asset Management Plan development process

Step 1:	Determine the estate and estate services that are required to support the institution's service delivery requirements. Compare that to the current estate and service performance and identify the performance gaps.
Step 2:	Assessment of the asset-related risks.
Step 3:	Develop response strategies that best address the performance gaps and risks identified in steps 1 and 2.

4.1 Estate Alignment (Step 1)

An institution's estate should represent the asset response to its learning, teaching and research requirements. The estate performance targets define the estate required to achieve the strategic objectives of the institution (refer to Chapter 3).

Matching the existing estate to the required estate involves examining the estate performance criteria (detailed in Figure 4.2). Current estate performance is compared to the estate performance targets, identifying the gaps in performance that need to be addressed.

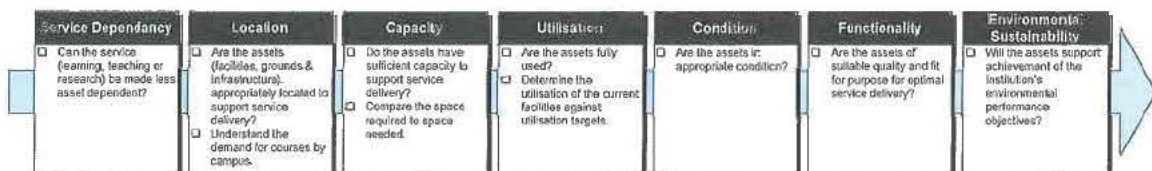


Figure 4.2. Estate Performance Criteria

4.1.1 Service Dependency

The analysis should examine the dependency of the institution's programs and services on the assets, and examine strategies for making those programs and services less asset dependent. For example:

- Examining the way courses are delivered, decreasing the reliance on face-to-face teaching where appropriate;
- Sharing the use and cost of operation of high-cost, highly-serviced facilities; and
- Using generic facilities to deliver services where possible.

4.1.2 Location

Many institutions now operate over multiple campuses. The Asset Management Plan needs to incorporate the demand for courses by location and assess whether that demand is likely to be sustainable, as this will impact on the strategies adopted. This has become all the more critical with the implementation of the Bradley reforms¹², where institutions that can predict course demand by locality and react in a timely manner may generate increased student numbers.

An institution's capacity to react to demand changes will be constrained by the quantity and type of facilities in each location. In general, more generic facilities should be situated in locations where demand is uncertain or likely to fluctuate. An attempt should be made to link demand risk to the types of facilities required at a particular location and investigate the ownership models used in those locations (i.e. leasing as opposed to ownership in locations where demand is uncertain).

¹² Australian Government (Department of Education, Employment and Workplace Relations), Review of Australian Higher Education, Dec 2008.

4.1.3 Capacity

Capacity in facilities relates to the space provided to fulfil the needs of the service. It involves calculating the space required for a course or research activity and comparing that to the space currently available or allocated.

A number of institutions use $m^2/EFTSL$ as their key performance measure for building capacity. The TEFMA Benchmarks provide a long-term average that can be used as a baseline for performance. Institutions over the baseline are likely to have excess capacity, while those under the baseline may have insufficient capacity.

In order to gain a broader understanding of space requirements, a more detailed analysis of capacity is generally required. Projected staff numbers and EFTSL by discipline group can be used to calculate space required by space type (office, laboratory, general teaching, specialist teaching and library). This can then be compared to actual space to assess the capacity of the existing estate. Identified capacity shortfalls then drive programs to provide additional space.

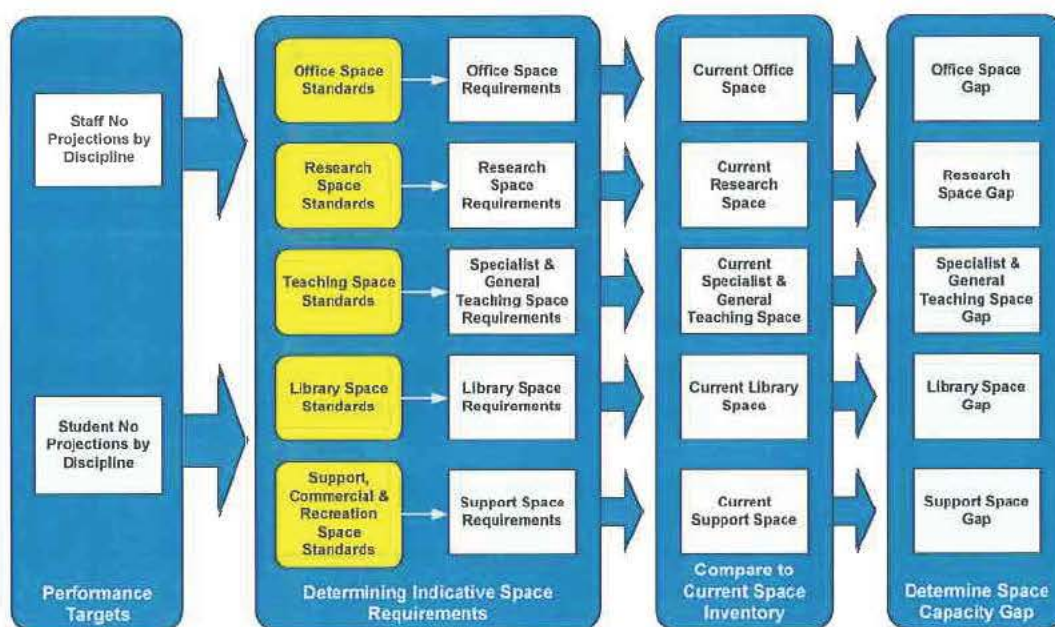


Figure 4.3. Facility Capacity Analysis

The TEFMA Space Planning Guidelines¹³ provide generic space standards and indicative models for the calculation of overall space requirement. However, the space standards may need to be modified to reflect an individual institution's needs.

In the case of infrastructure, capacity generally relates to flow. For example, the capacity of the sewerage and drainage systems is the flow rate that can be achieved through those systems.

The capacity of key service infrastructure (electricity, water, gas, reticulated high-temperature hot water) should also be considered when developing the SAM Plan. The capacity of these systems may constrain the use of individual buildings within the estate or development of campuses as a whole.

¹³ TEFMA, Space Planning Guidelines, Edition 3, 2009.

4.1.4 Utilisation

An analysis of the utilisation of teaching, research and office space provides an insight into how efficiently space is used. The TEFMA Space Planning Guidelines¹⁴ provide a method for calculating the Theoretical Utilisation (TU) rate for teaching space where:

$$\text{TU\%} = \frac{\text{SCH}}{\text{Capacity} \times \text{Hours Available}}$$

Where:

SCH = School Contact Hours to be delivered.

Capacity = Sum of room capacities.

Hours Available = Total number of hours for which the rooms are available for use over the period in which the SCH are to be delivered (e.g. 1 semester = 13 weeks x 67.5 hrs per week).

TU not only measures the maximum possible achievable utilisation (as it assumes all classes are attended), but it can also be used as a planning tool for new facilities. This method is used by VET Sector colleges in Victoria where student contact hours are the primary measure reported.

In the Higher Education sector, the following formula is employed to assess utilisation (refer to Space Guidelines¹⁴):

$$\% \text{ Utilisation} = \% \text{ Occupancy} \times \% \text{ Frequency}$$

A significant proportion of institutions use this measure to assess the efficiency of the use of teaching spaces, by measuring the utilisation performance of the timetable, and auditing actual utilisation of the rooms. Both methods should be used to gain a clear picture of teaching space utilisation.

4.1.5 Condition

A Facility Condition Audit is used to rapidly evaluate the physical condition of an existing estate of facilities and infrastructure. Its aim is to produce standardised facilities and infrastructure condition information, enabling meaningful comparisons within an inventory of similar facility and infrastructure types or functions. This comparison allows facilities and infrastructure to be ranked according to relative condition. It enables planning for redevelopment, refurbishment and replacement, based on objectively-applied criteria.

Information provided by a Condition Audit should be used to formulate key individual facility and estate performance measures, such as the maintenance backlog and facility condition index (refer Appendices). This information is then used to initiate broad estate realignment strategies.

The Condition Audit also forms part of effective maintenance planning. It can be used as an objective process for identifying the demand for condition-based maintenance works to meet strategic and operational priorities. Such works should form part of any comprehensive program of maintenance, in conjunction with preventative, statutory and corrective (unplanned) maintenance programs.

¹⁴ TEFMA, Space Planning Guidelines, Edition 3, 2009.

Refer to the TEFMA Facilities Audit Guideline¹⁵ for further information on undertaking Condition Audits.

4.1.6 Functionality

TEFMA describes Functionality Assessment as a measure of the extent to which an institution's facilities meet current teaching, research and legislative requirements.

In the Facility Audit Guideline¹⁵, a standard assessment methodology for functionality is outlined. The following table details the framework used to undertake the functionality assessment, where performance of a room, floor or building is rated using the listed criteria.

Table 4.1. Functionality Assessment Criteria

Aspects	Topics
1. Spatial Relationships (SR)	1.1 Scale/Layout (S)
	1.2 Location (L)
	1.3 Flexibility (F)
	1.4 Utilisation (U)
2. Environmental Comfort (EC)	2.1 Heating in Winter (TH)
	2.2 Cooling in Summer (TC)
	2.3 Ventilation (TV)
	2.4 Air Quality (TQ)
	2.5 Acoustics (TA)
	2.6 Lighting (TL)
3. Provision/Amenity (PA)	3.1 Safety & Security (PS)
	3.2 Power (PP)
	3.3 Data (PD)
	3.4 Appliances (PA)
	3.5 Furniture & Fitout (PF)
	3.6 Other (PO)
4. Legislative Compliance (LC)	4.1 Disabled Access (DA)
	4.2 Fire (F)
	4.3 Egress & Access (Stairs) (E&A)
	4.4 Environmental
	4.5 Other
5. Aesthetics (AS)	5.1 Context (C)
	5.2 Form & Appearance (F)
	5.3 Internal Environment (I)

¹⁵ TEFMA, Facilities Audit Guideline, Edition 2, 2010.

4.1.7 Environmental Sustainability

All institutions need to develop an environmental sustainability strategy that integrates into the SAM process. For example, strategies for institutional carbon reduction, environmental management, waste and recycling activities, water management, and biodiversity will impact on SAM elements such as landscape planning, design guidelines, building works programs, energy and water management programs and maintenance and operations of facilities.

In 2004, TEFMA produced "A Guide to Incorporating Sustainability into Facilities Management" to assist facilities staff with the development of environmental sustainability strategies. This guideline suggested that energy, water, land use and ecology, waste and indoor environment quality and outdoor air quality are the primary elements that should be considered when examining environmental sustainability.

Since 2004, there has been greater emphasis on greenhouse gas (GHG) consumption. The ratification of the Kyoto Protocol¹⁶ by the Australian Government in December 2007 has had a significant impact on environmental sustainability performance criteria and targets for Australian institutions. It is now commonplace for these institutions to report on, at the least, scope 1 and scope 2 GHG consumption.

Institutions should be developing integrated strategies that focus on the following elements of environmental sustainability:

- Energy consumption;
- Greenhouse gas emissions;
- Indoor environment quality and outdoor air quality;
- Water consumption;
- Waste management; and
- Land use and ecology.

The Facility Audit Guideline provides preliminary information on energy, GHG, water and waste auditing, which are the core components of developing an environmental sustainability strategy.

¹⁶ The Kyoto Protocol is an international agreement created under the United Nations Framework Convention on Climate Change (UNFCCC) in Kyoto, Japan, in 1997.

4.2 Risk Assessment (Step 2)

The Risk Assessment needs to examine the risks presented by poor performance of the facilities and/or infrastructure against the strategic importance of those facilities and/or infrastructure to the institution or faculty.

4.2.1 Risk Assessment

The objective of Asset Risk Management is to recognise and prepare for a range of possible future outcomes. Asset-related risks may include those that directly affect the assets during their useful life or which have an impact on the level of demand for services. When assessing asset-related risk to delivery of services, institutions should adopt a whole-of-life approach, as the risk exposure varies during the asset's life cycle. Asset Management requires the identification, analysis and evaluation of the risks associated with the acquisition, operation, maintenance and disposal of assets. Potential asset-related risks are numerous, but can be categorised as legal, financial, operational or public-image risks.

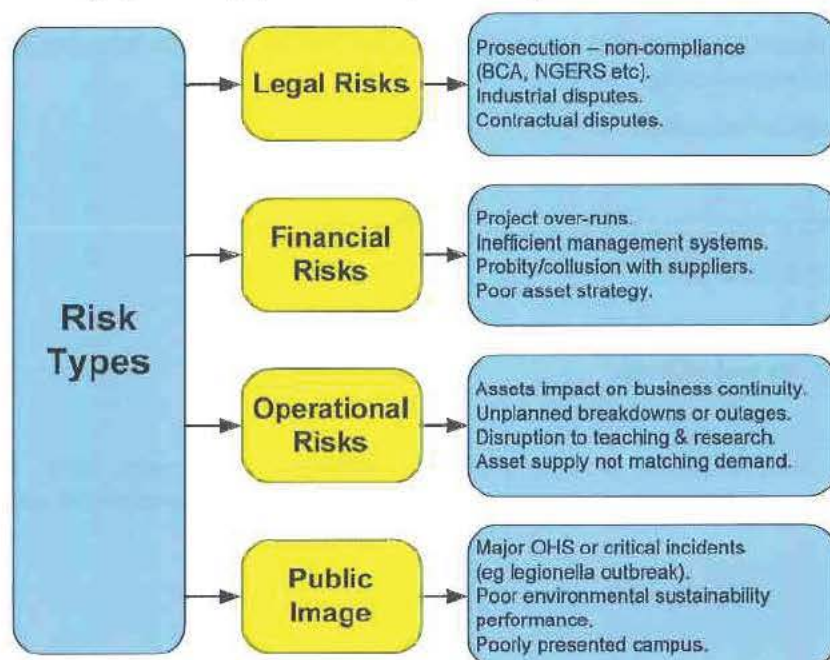


Figure 4.4. Example of risk factors in the SAM planning process

The Risk Assessment should focus on the areas of highest priority. Institutions need to identify their most important services, which consequently determines the relative importance of the assets that support those services. Assets can then be analysed and ranked according to their importance. This allows institutions to more effectively plan their Risk Management Strategies, and take more stringent measures for high priority services and assets, compared to less important areas.

The Risk Assessment examines the impact of the asset's performance on activities within the assets, using the AS 4360¹⁷ framework, where the likelihood and consequence of issues are assessed. This is used in concert with strategic priorities to prioritise likely Asset Management Plan work programs.

¹⁷ AS 4360: Risk Management.

A Risk Assessment needs to be undertaken for each area of below-target performance, (i.e. for each building element below the condition rating, or for each aspect below the functionality target). The assessment will highlight the consequence and the relative risk of any poor-performing areas of the facilities. For example, a lift that is in poor condition and working intermittently may only be a minor risk in a low-rise building but a high risk in a high-rise building. The treatment of the risk will vary, based on the relative consequence, although the condition rating may be the same.

Risk is to be rated on a likelihood versus consequence matrix. The following table provides general guidance on the applicable risk ratings.

Risk Likelihood

Likelihood	General Description	Rating
Rare	May occur only in exceptional circumstances.	A
Unlikely	Could occur at some time.	B
Moderate	Might occur at some time.	C
Likely	Will probably occur in most circumstances.	D
Almost Certain	Is expected to occur in most circumstances.	E

Risk Consequence

Consequence	General Description	Rating
Catastrophic	Asset is unusable. Immediate high risk to security, health and safety, property damage; very significant cost of delay/financial loss implication.	5
Major	Major disruption to service capability. High probability of risk to health and safety or property; high cost of delay/financial loss implication.	4
Moderate	Constant inconvenience to operations. Some risk to health and safety or property; medium cost of delay/financial loss implication.	3
Minor	Intermittent, minor inconvenience to operations. Probability of risk to health and safety or property is slight; low cost/financial loss implication.	2
Insignificant	No effect on service capability. Negligible consequence.	1

Priority Rating

The priority rating is assigned qualitatively by considering the risk likelihood and consequence, by allocating an alpha/numeric rating. The Risk Assessment matrix described has been developed in accordance with AS 4360.

The aggregation of likelihood and consequence determines the risk priority in the range demonstrated in the table below as follows:

- Extreme;
- High;
- Moderate; or
- Low.

This priority rating can be used for allocating limited funds to competing projects, on a building or estate basis.

Risk Assessment Matrix

Likelihood /Consequence	Insignificant 1	Minor 2	Moderate 3	Major 4	Catastrophic 5
A (Rare)	L	L	L	M	M
B (Unlikely)	L	L	L	M	H
C (Moderate)	L	L	M	H	E
D (Likely)	L	M	M	H	E
E (Almost Certain)	L	M	H	E	E

Legend:

- E: Extreme risk; immediate action required.
- H: High risk; senior management attention needed.
- M: Moderate risk; management responsibility must be specified.
- L: Low risk; manage by routine procedures.

4.2.2 Strategic Importance Assessment

To support the Risk Assessment, the “strategic importance” of the facilities needs to be understood. This is achieved by comparing the “strategic alignment” of the teaching, learning and research activities being conducted within the asset, with the “dependency” of those activities on the assets.

a) Strategic Alignment

The “quality” and “impact” of learning and teaching programs or research activities should be used to assess the overall strategic alignment of the activity (teaching, learning or research).

Quality

Rating	Criteria
5	Programs that are world leading or make an exceptional contribution in an area of particular significance to the institution.
4	Programs that meet world standards of excellence in their field or make an equally excellent contribution in an area of particular significance to the institution.
3	Programs that are recognised internationally as excellent, in terms of originality, significance and rigour but which nonetheless fall short of the highest standards of excellence.
2	Programs that are recognised as methodologically sound in their field and of high originality, significance and rigour.
1	Programs that fall below the standard of recognised quality work.

Impact

Rating	Criteria
5	Programs that have an outstanding social, economic, environmental and/or cultural benefit for the wider community, regionally, nationally or internationally.
4	Programs that have a significant social, economic, environmental and/or cultural benefit for the wider community, regionally, nationally or internationally.
3	Programs that have a noticeable impact on the end-user community.
2	Programs that are valued by the end-user community to address a social, economic, environmental and/or cultural issue regionally, nationally or internationally.
1	Programs that have limited or no identifiable social, economic, environmental and/or cultural outcome, regionally, nationally or internationally.

b) Facility Dependency

The dependency of the activity on the facility is assessed by examining the following factors:

- **Complexity** – is the facility unique or generic?
- **Dependency** – what are the implications for the institution's strategy if the facility is not provided?

Complexity of the facilities required

Rating	Criteria
5	Unique specialist facility – no similar facility available in Australasia.
4	Specialist facility required – no comparable facility on or near campus.
3	Specialist facility – other similar facilities available near campus.
2	Generic facility.
1	No specialist facility required.

Dependency on those facilities

Rating	Criteria
5	Critically dependent – activity cannot occur without the facility.
4	Highly Dependent – methodology compromised significantly without the facility.
3	Dependent – preferred methodology.
2	Low dependency – alternative approaches available.
1	No dependency – alternative approaches can be adopted without compromising methodology.

The level of strategic alignment can then be determined by using the following matrix:

Strategic Alignment/ Dependency	Insignificant 1	Minor 2	Moderate 3	Significant 4	High Priority 5
No Dependency	VL	VL	L	L	M
Low Dependency	VL	L	L	M	H
Dependent	L	L	M	H	H
Highly Dependent	L	M	H	H	E
Critically Dependent	M	H	H	E	E

Legend:

- E: Extreme strategic importance.
- H: High strategic importance.
- M: Moderate strategic importance.
- L: Low strategic importance.
- VL: Very low strategic importance.

The risk presented by poor performance and the strategic importance of the facilities affected, can then be used in concert, to prioritise the estate performance gaps and, as a consequence, the Asset Implementation Plans.

4.3 Strategy Development (Step 3)

There are limited strategies available to the facilities manager when developing strategies that close the estate performance gap. They are:

- Adjusting work practices (i.e. non-asset strategies, such as moving from face-to-face teaching to on-line delivery);
- Maintaining existing assets;
- Reallocation of space within existing assets;
- Reconfiguration of existing assets through refurbishment or redevelopment;
- Adding new assets through purchase, new construction or leasing; and
- Removing assets through sale, demolition, leasing out or moth balling.

The objective of strategy development is to use an appropriate combination of the above strategies to improve the alignment of the estate with business objectives, closing the performance gap in the estate performance criteria. The following table indicates the strategy options that may be appropriate to address these gaps in required performance:

Table 4.2. Strategy Options to address Estate Performance

Strategy	Service Dependency	Location	Capacity	Utilisation	Condition	Functionality	Environmental Performance
Adjust	✓			✓			
Maintain					✓	✓	✓
Reallocate	✓	✓	✓	✓		✓	✓
Reconfigure	✓		✓	✓	✓	✓	✓
Add	✓	✓	✓	✓	✓	✓	✓
Remove	✓	✓	✓	✓	✓	✓	✓

The process for developing and evaluating the mix of strategies that will most effectively address the estate performance gaps is as follows:

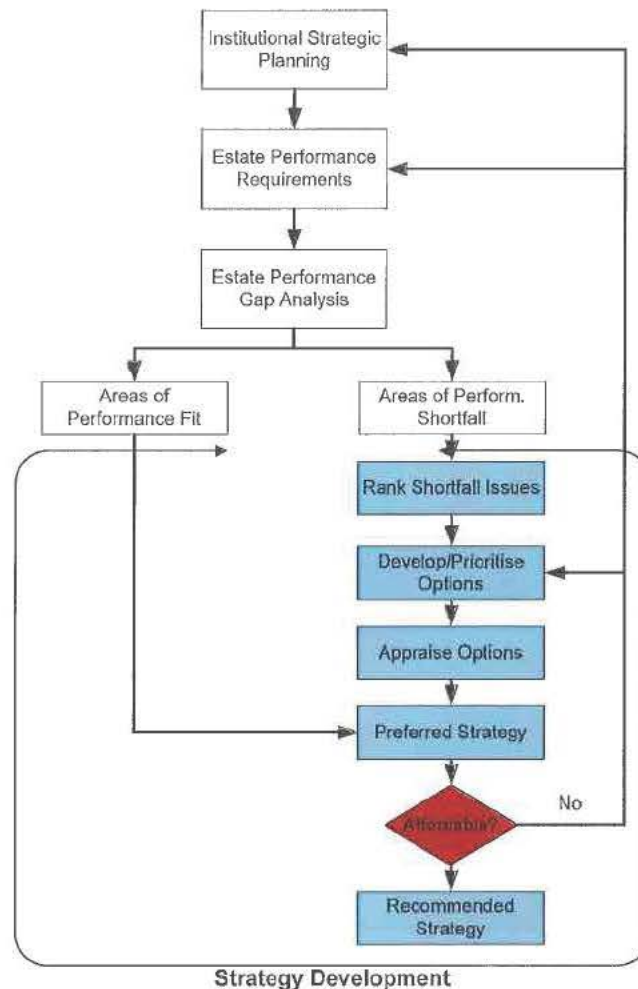


Figure 4.5. Strategy Development Process

The following section of the guideline focuses on the strategy development components of the process described in Figure 4.5.

4.3.1 Rank Shortfall Issues

In order to rank the issues, the following steps should be followed:

1. Identify the areas of below-standard performance from the gap analysis by asset or asset group (section 4.1);
2. Assess the level of investment required to close the gap and compare that to the current level of investment;
3. Assess the risk of poor asset performance on business activities (section 4.2.1);
4. Assess the importance of those business activities to the institution's mission (section 4.2.2); and
5. Balance the above factors to rank the issues.

4.3.2 Develop Options

The objective is to identify the most suitable combination of adjustment, maintenance, reallocation, addition and/or removal strategies that will close estate performance gaps. To achieve this objective, it is best to identify several possible options for assessment.

4.3.3 Appraise Options

When appraising options, the assessment firstly needs to determine the level of investment required. That analysis should take into account the whole-of-life implications of the strategies being considered. Often, the future costs associated with the use and ownership of the estate are greater than the initial acquisition cost, and can vary significantly between alternatives.

Best practice is undertaking an assessment of the level of investment required to own and operate the estate, using Life Cycle Costing (LCC) methodologies. Institutions need to consider the whole-of-life impact of decisions regarding the acquisition and management of major assets.¹⁸

An assessment of the current performance of the estate will enable current performance deficiencies to be identified. However, it is life cycle planning that will enable those deficiencies to be effectively managed.

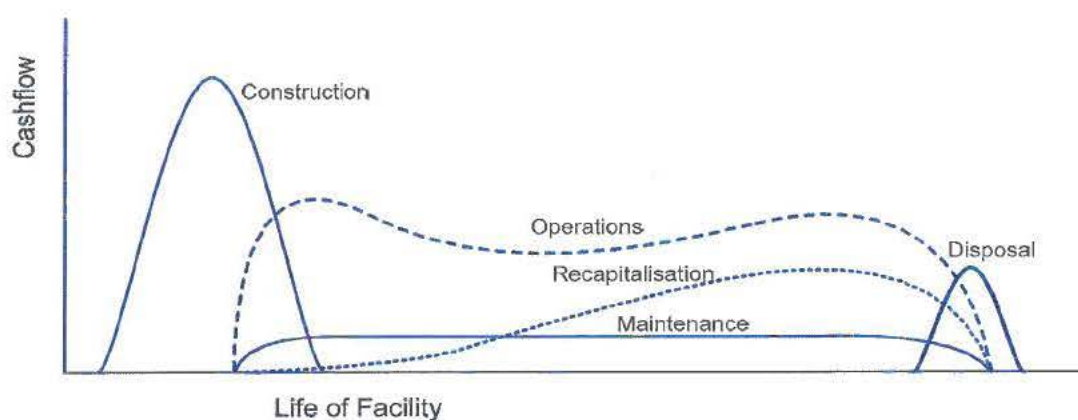


Figure 4.6. Facility Life Cycle

Assessing LCC costs and comparing them to current performance and current levels of investment will enable effective strategies to be developed. Historically, Australasian institutions allocate approximately 3% of total revenue to building operations (maintenance, cleaning, security and energy), though this figure fluctuates widely from institution to institution (ranging from 1.2% to more than 7%). The LCC modelling will identify the required level of investment for a particular institution's estate and enable more meaningful benchmarking of investment.

¹⁸ Australian National Audit Office, Life Cycle Costing – Best Practice Guide, December 2001.

4.3.4 Preferred Strategy

The options appraisal should identify and provide estimates of the LCC of the preferred option.

4.3.5 Affordability Assessment

The LCC analysis may reveal that the level of investment required to bring the performance of the estate up to the required standard, then sustain that standard, is greater than current investment and higher than the level of investment the institution is prepared to make.

The institution then needs to:

- Review the financial resources allocated to the estate programs;
- Review the options identified and attempt to identify a more affordable response;
- Lower the estate performance requirements by lowering the estate performance targets; or
- Re-examine the corporate strategies that are driving the asset programs.

4.3.6 Strategy Recommendations

The chosen strategies then need to be assigned to each asset, or asset group, to inform the development of the Asset Implementation Plans. The linkage between the strategies and the plans is normally as follows:

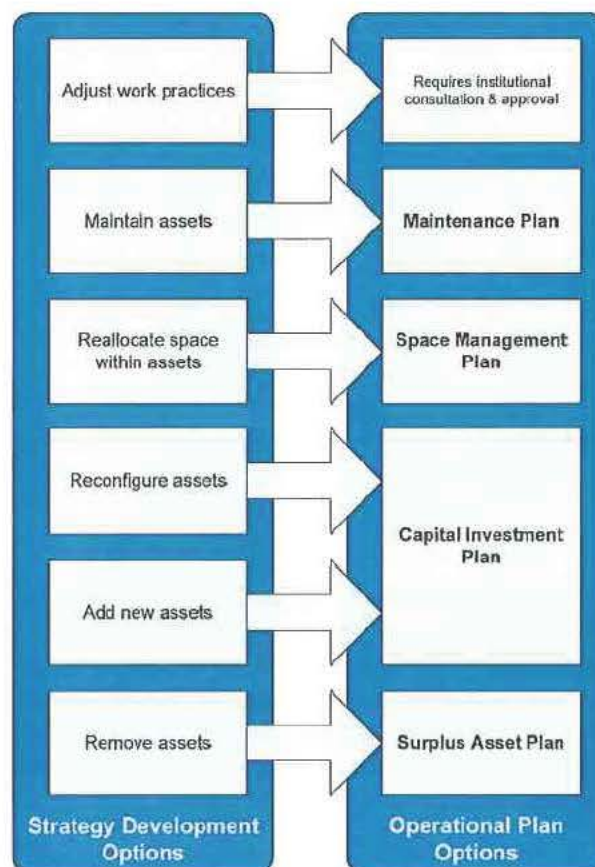


Figure 4.7. Strategy Development Linkage to Asset Implementation Plans

5 Operational Planning (Asset Implementation Plans)

Asset implementation plans should be developed and documented at the estate level and, where appropriate, at the asset level. The following plans should be provided:

- A **Space Management Plan** that describes the current allocation of space and the future requirements of space over a 5-to10-year timeframe.
- A **Maintenance Plan** that describes the estate maintenance approach.
- A **Capital Investment Plan** that describes the program for new construction, purchase, leasing, redevelopment and refurbishment over a 5-to-10-year timeframe.
- A **Surplus Asset Plan** that identifies and programs the sale, demolition, leasing out or mothballing of surplus assets.
- A **Facilities Operations Plan** that details the facilities services provision for services such as cleaning, security and utilities management.
- The **Facilities Organisational Plan** that deals with human resource requirements within the facilities business units of the institution.

These plans can be grouped into three broad categories:

1. Estate alignment plans (Space Management, Maintenance, Capital Investment and Surplus Asset Plans);
2. Service delivery alignment plan (Facilities Operations Plan); and
3. Structural Alignment Plan (Facilities Organisational Plan).

Where the estate alignment plans are directly formulated from the output of the asset management planning, service alignment and structural alignment flow from the estate alignment plans as shown below.

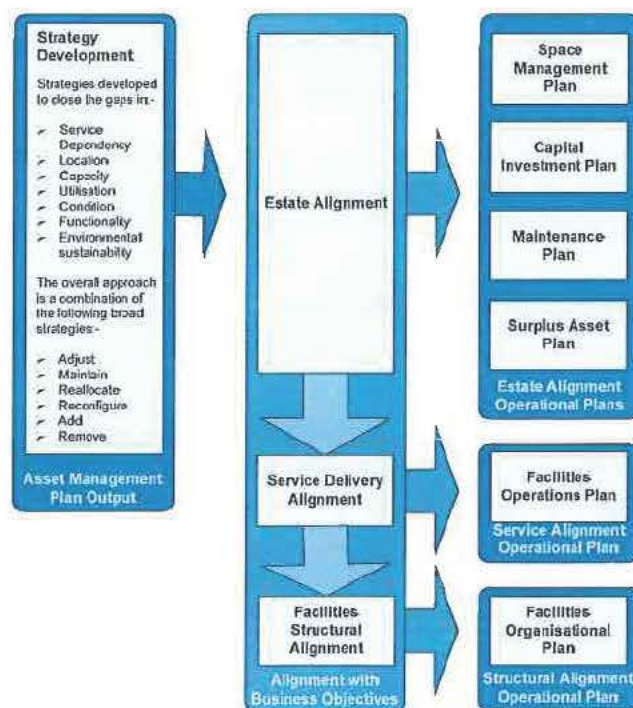


Figure 5.1. Alignment with Strategy Development

5.1 Space Management Plan

The Space Management Plan should include:

1. Details of the space standards adopted;
2. A summary of current space use, by space type and by business unit;
3. An assessment of the current utilisation and capacity of the space allocated, by space type and business unit;
4. An assessment of the future space needed to support learning, teaching and research strategy;
5. Options selected to address any shortfalls in space; and
6. Plans for the reallocation of space that also identifies reconfiguration requirements.

Points 1 to 5 summarise the key space management outputs from the Asset Management Plan. Point 6 of the plan should indicate the planned space allocation in five years and describe how the provision and allocation of space will move from the current space allocation to that planned allocation during the five-year period.

5.1.1 Space Standards

The Space Management Plan needs to either define or link to the space standards used to calculate the required office, teaching, research or library space.

Table 5.1. Space Standards

Space Type	Measure	Benchmarks
Office Space.	m ² /FTE	Government office standards are 14 m ² to 17 m ²
Research Space.	m ² /FTE	Varies by discipline
General Teaching.	m ² /EFTSL	1.2 m ² /EFTSL
Specialist Teaching.	m ² /EFTSL	Varies by discipline
Library Space.	m ² /EFTSL	1.0 m ² /EFTSL

The TEFMA Space Planning Guidelines¹⁹ are the initial source of information on space standards. These standards may need to be tailored to meet the specific needs of each institution, as they have been based on sector averages.

5.1.2 Performance Assessment

a) Location

In the campus environment, the location of space has a significant impact on service delivery and efficiency of operation. The Space Management Plan should identify the broad locational requirements of the business units and identify areas where operational issues exist.

On most occasions, the locational requirements are examined in the Master Plan. The SAM Space Management Plan should examine the current location of facilities relative to the locations recommended in the Master Plan, and use this information to inform any relocation planning.

¹⁹ TEFMA, Space Planning Guidelines, Edition 3, 2009.

This process is more difficult if the institution does not have an appropriate Master Plan in place. In these circumstances, a high-level Master Plan should be developed, as part of the SAM process, that identifies broad locations for faculties, administrative business units, research space, general teaching space, etc.

b) Space Utilisation

This assesses the number of work points that are being utilised (a work point can be an individual office, a workstation, a research laboratory work point, etc.). The actions required to assess utilisation vary by space type. The utilisation analysis for the various space types is as follows:

Table 5.2. Utilisation Benchmarks

Space Type	Assessment Method	Benchmarks
Office Space	<u>No. of work points occupied %</u> No. of work points available	95%
Research Space	<u>No. of work points occupied %</u> No. of work points available	80%
General Teaching	Frequency x Occupancy	Varies by type of space
Specialist Teaching	Frequency x Occupancy	Varies by type of space

A detailed description of how to assess the utilisation of teaching space can be found in the TEFMA Space Planning Guidelines.

c) Space Capacity

The Space Management Plan should provide:

- An inventory of space and its current use, by business unit;
- An assessment of future space requirements; and
- Details of the business units that are under or over capacity.

d) Space Dependency

The Space Management Plan should highlight the opportunities to reduce the dependency on space, by investigating non-asset or reduced-asset strategies that will improve the utilisation of the facilities or make best use of current capacity. Those could include:

- Improving the efficiency of timetabling;
- Re-allocating space to improve the equity of allocation or improve the overall performance of the estate;
- Moving to more open office plans; and
- Improving the sharing of spaces, such as meeting rooms, staff amenities, etc.

5.1.3 Five-Year Space Management Plan

The resultant Five-Year Space Management Plan should:

- Provide an inventory of current space;
- Provide a summary of space needs in one, three and five years;
- Identify additional space that will need to be procured by the Capital Investment Plan, including the timing of that procurement;

- Identify space that is to be refurbished or redeveloped (linking to the relocation plan); and
- Include a relocation plan that identifies:
 - The re-allocation of space to improve efficiency or accommodate growth; and
 - Any short-term decanting to accommodate refurbishment or redevelopment work.

5.2 Capital Investment Plan

The capital investment plan details the new assets or the major estate changes that an institution requires to support its teaching and learning and research programs. This plan should detail projects that address shortfalls in space requirements or underperforming assets. The strategies used are:

- New construction;
- Redevelopment or reconfiguration through refurbishment;
- Acquisition; and
- Leasing.

The Capital Investment Plan should deliver a five-year program for each of the above strategies that identifies the projects that are being implemented to address the priority needs of the institution. The plan should also identify the procurement approach to be taken to acquire the new space, how risks are being managed and how performance is assessed. More details on capital investment procurement, procurement risk assessment and performance assessment can be found in Appendix 3.

5.3 Maintenance Plan

The Asset Management Plan will define the components of the estate that need to be maintained, and the condition that needs to be achieved. The Maintenance Plan describes how these performance requirements are to be achieved and requires more detailed planning.

The outcome of an effective Maintenance Plan includes:

- A long-term reduction in life cycle costs;
- Better asset performance and service;
- The optimisation of asset life; and
- Improved perception of the asset's service and safety standards.

The preparation of an Asset Maintenance Plan will ensure that maintenance activity is undertaken in a targeted and timely manner, which facilitates the most cost-effective use of maintenance resources and protects the value of the portfolio of properties.

The process to develop an effective Maintenance Plan that links with other asset strategies is illustrated in Figure 5.2.

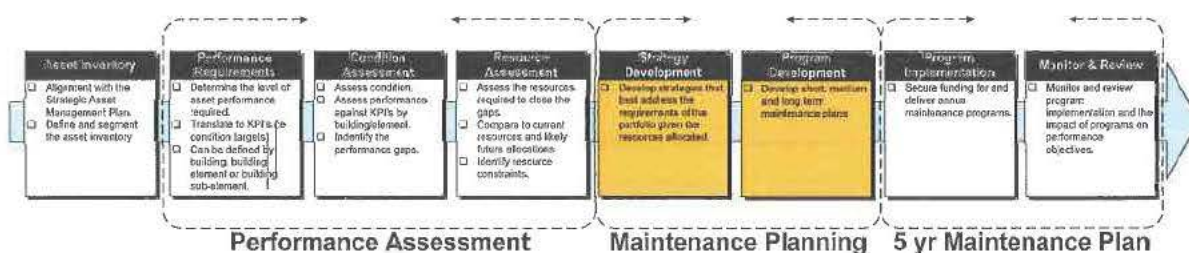


Figure 5.2. Maintenance Plan Development Process

5.3.1 Performance Assessment

The assessment of facilities performance has been discussed in Chapter 3, where a Condition Assessment is used to gauge the effectiveness of maintenance service delivery.

5.3.2 Maintenance Planning

Maintenance drivers and responses can generally be categorised as shown in Figure 5.3. The Maintenance Plan needs to match the appropriate response to particular asset types and categories. A maintenance strategy that sought to prevent all failures from occurring would be costly and disruptive. Similarly, a strategy that attended to all maintenance only after failure would also be costly and even more disruptive.

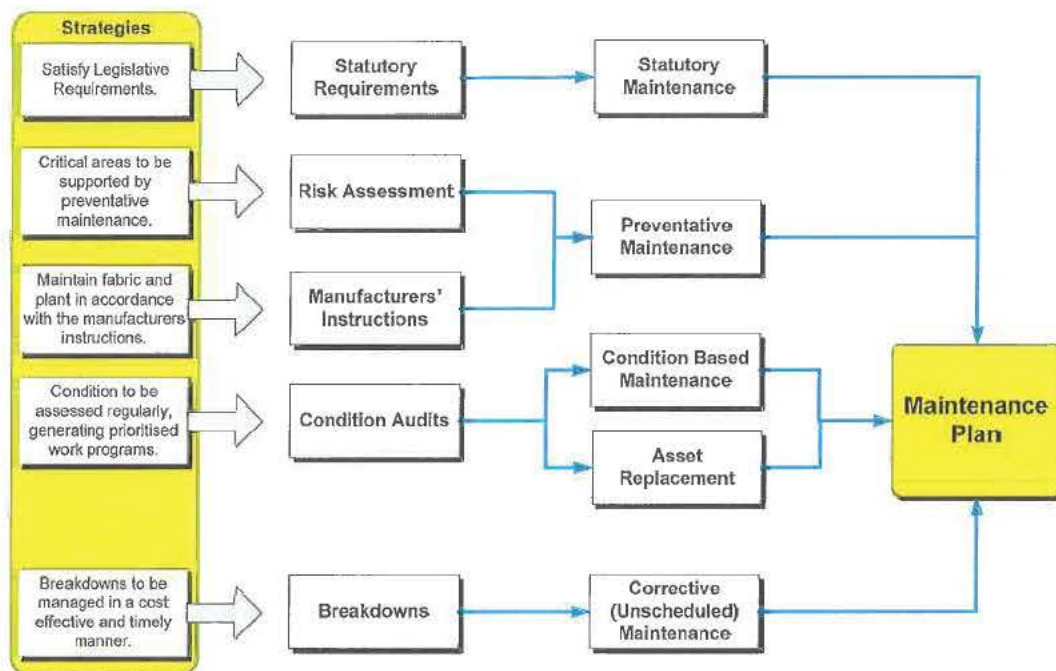


Figure 5.3. Elements of a Maintenance Strategy

An optimal balance between preventive and corrective maintenance is needed and will vary with each institution's requirements, resources and circumstances. The most appropriate strategy will depend on the type of asset, its condition, planned service life and the specific circumstances of the agency. These may include the:

- Type of asset to be maintained and its failure modes;
- Consequences of breakdown or non-performance of the asset; and/or
- Availability of resources to execute the maintenance.

5.3.3 Five-Year Maintenance Plan

The Maintenance Plan should distinguish between recurrently-funded (expensed) routine maintenance, and major periodic maintenance and asset enhancement expenditure, both capitally funded.

Program budget allocations should be made for the sub-categories of maintenance identified in Table 5.3, with financial systems also configured so that expenditure can be tracked against the same sub-categories.

Table 5.3. Maintenance Definitions

Category	Sub-category	Definition
Planned Maintenance	Preventative Maintenance	Maintenance performed to retain an item or asset in its operating condition by providing systematic inspection, detection and prevention of incipient failure.
	Condition-Based Maintenance	Maintenance initiated as a result of routine or continuous checking.
	Statutory Maintenance	Maintenance that must be carried out to meet statutory requirements.
Unplanned Maintenance	Corrective and Breakdown Maintenance	Maintenance performed, as a result of failure, to restore an item or asset to its optimal condition.
	Incident Maintenance	Returns an asset to an operational or safe condition following damage caused by storms, fire, forced entry or vandals.
Recapitalisation	Asset Replacement	Asset replacement is the replacement of building elements or major components, based on the recognised life of that building component.

5.4 Surplus Asset Plan

The options for dealing with surplus assets are:

- Sale;
- Demolition;
- Lease out; or
- Mothball.

Sale, lease out or demolition of assets are strategies that should be examined to address under-performing or under-utilised assets. Disposal can release capital for other uses, as well as reducing ongoing maintenance and refurbishment costs. The Surplus Asset Plan needs to identify the assets recommended for disposal and highlight the impact of disposal on other programs.

Decisions to dispose of an asset require thorough examination and economic appraisal. Like acquisition decisions, they must be taken within an integrated planning framework that takes account of service delivery needs, corporate objectives, financial and budgetary constraints and overall resource allocation objectives.

While disposal may represent the final stage in the SAM process, disposal action may generate the need for a new or replacement asset to support the continuing delivery of services.

Disposal is therefore a crucial component of the facility's life cycle (refer Figure 4.6), which should not be addressed in isolation.

5.5 Facilities Operations Plan

Successful institutions ensure services are aligned with their mission, have well-defined processes that support the services, an established customer service culture within the institution, and a well-defined culture of measurement, review and improvement of the alignment and quality of those services.

Facilities Operations Plans should be developed for each core service and should:

- Reflect how services are aligned to the mission;
- Define the scope of the service and roles/responsibilities;
- Refer to appropriate statutory requirements and internal policy documents;
- Include a Risk Assessment;
- Identify the strategies being implemented; and
- Identify how performance will be monitored and reported.

The Facilities Operations Plans should also identify how a service culture is being established in the institution and how that culture is being maintained.

5.5.1 Core Facilities Services

The following services are provided by facilities service groups within an institution. The estate maintenance and realignment services are generally provided by all facilities groups within Australasian institutions. Some – but not all – institutions provide the allocating and servicing services.

- “Maintaining/Operating” the estate:
 - Maintenance
 - Grounds Maintenance
 - Cleaning and Waste Removal
 - Security Services and Systems
 - Traffic and Parking
 - Utilities Management
 - Environmental Sustainability
- “Changing/Realigning” the estate:
 - Planning and Master Planning
 - Capital Works
 - Minor Works
 - Capital Improvement
- “Allocating” the estate:
 - Office Allocation
 - Timetable Management/Room Bookings
 - Event Management
- “Servicing” the estate:
 - Mail and Courier
 - Fleet Management
 - Printing
 - Warehouse

At the minimum, a Facilities Operations Plan should be provided for each of the services that maintain operation of the estate (the "maintaining" services). These are seen as core facilities operations services and are supported by the TEFMA benchmarks²⁰.

5.5.2 Facilities Operations Plan

a) Service Alignment

The level of service must align with the institution's objectives, and the efficiency (cost and timeliness) and effectiveness (quality) of the service must be appropriate. The level of service will both drive and be driven by cost and quality.

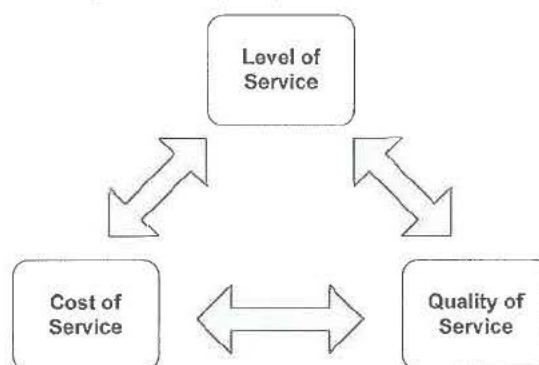


Figure 5.4. The service triad

As the level of service required increases, the cost and quality of the service usually also increases. The level of service adopted needs to reflect institutional need, ensure value for money is being achieved for the resources allocated and be delivered to an appropriate quality (generally an assessment of customer satisfaction is the most suitable indicator of quality).

The process for ensuring service alignment is:

1. Identify the core facilities services that are required to support teaching, learning and research;
2. Determine the level of service required to support the core services; and
3. Examine the efficiency and effectiveness of those services, linking this to resource allocation.

APPA²¹ have prepared a series of guidelines²² that enable resource levels to be determined from a level of service matrix. The APPA service matrix can be adopted as a standard template to define the service outcome required. This approach provides the following significant advantages:

- It enables a clear connection between the level of service required and the resources required to deliver those services. Often there is a mismatch between the service expected and the resources allocated to achieve the service.
- It provides in-built benchmarking in that the resourcing for particular levels of service is benchmarked against the US Higher Education Sector through use of the APPA guidelines.
- It establishes the connection between level of service required and work provide the necessary base for service level agreements or external contracts.

²⁰ Tertiary Education Facilities Management Association – Annual Benchmark Report.

²¹ APPA: The Association of Higher Education Facilities Officers (the US equivalent of TEFMA).

²² An example of one guideline is the Operational Guidelines for Grounds Maintenance. The service matrix from this guideline can be found in Appendix 5. A similar guideline has been prepared for maintenance.

The process of analysis required to effectively align and determine the appropriate level of service is:

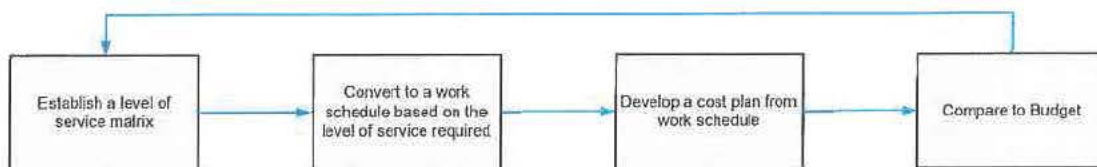


Figure 5.5. An approach for assessing the appropriate level of service for facilities services

b) Service Scope – Roles/Responsibilities

The level of services adopted defines the scope of the service being provided.

The level of service document needs to be supported by a document that describes the roles and responsibilities of both the service provider and stakeholder in the delivery of a service. It can be included in the definition of the level of service (as above) or more formally articulated in documents, such as a Service Charter.

A Service Charter is a short publication that describes the service experience a stakeholder can expect from a service provider. It allows for an open and transparent approach that all parties understand and can work within, and covers key information about a provider's service delivery approach and the relationship the stakeholder will have with the service provider, including:

- What the service provider offers;
- How to contact and communicate with the service provider;
- The standard of service stakeholders can expect;
- Stakeholders' basic rights and responsibilities; and
- How to provide feedback or make a complaint.

The service charter generally links to Service Level Agreements (SLAs), that detail how service performance will be assessed. Performance against these measures is then reported back to stakeholders annually.

c) Statutory Requirements/Policies

The Facilities Operation Plan should list the legislative requirements that impact on the Operations Plan and provide direction to the policies and procedures that support the service being described.

There are a significant number of legislations and standards which impact on the facilities operational services. The Australian legislation includes, but is not limited to:

- The Workplace Health and Safety Act;
- The Building Act and Regulations;
- The Building Code of Australia;
- The Electricity Act and Regulations;
- The Environmental Protection Act;
- Gas Act and Regulations;
- Sewerage and Water Supply Act and Regulations;
- The Anti-Discrimination Act;
- The Fire Safety Act;
- The Security Providers Act;
- Australian Standards for the maintenance and operation of plant and equipment (such as fire services, lifts and air-conditioning);

- Vermin Control Regulations;
- Plant Protection Act;
- Noise Abatement Act;
- National Greenhouse and Energy Reporting Act;
- Energy Efficiency Opportunity Act;
- Asbestos Management legislation; and
- Heritage legislation.

d) Risk Assessment

The methodology used in the risk assessment is based on the Australian Standard AS/NZS 4360, where:

RISK = FUNCTION (Likelihood, Consequence)

This is examined in detail in Section 4.2.

e) Strategies

The Facilities Operation Plan should identify the strategies being implemented and how they relate to the SAM Plan strategies. The two basic strategies adopted can be either in-house or outsourced service delivery. Institutions need to determine which strategy, or combination of strategies, best meets their requirements.

Although many factors need to be considered when determining the appropriate strategy, in general, the higher the uncertainty of scope, the less cost effective it is likely to be to outsource service delivery.

f) Performance Assessment and Reporting

Cost benchmarking is often used to compare service performance. The higher education sector is well serviced in this area, with the annual production of the TEFMA benchmarks. However, examining these benchmarks by themselves is of limited value, as the costs are likely to vary, as the level of service delivered varies. The quality of the service should be assessed in concert with cost, in order to assess its overall performance.

The measurement of quality is best achieved by the consistent assessment of customer satisfaction. Appendix 5 provides a standard approach to customer satisfaction assessment that will enable institutions to consistently compare both cost and quality of service. The customer satisfaction Key Performance Indicators (KPIs) that can be extracted from the survey and consistently applied are as follows:

Table 5.4. Customer Satisfaction KPIs

KPI	Calculation
Customer Satisfaction Index	The average customer satisfaction score as %
High Score Index	$\frac{\text{No. very satisfied}}{\text{Total No. Surveyed}}$
Top Box – Bottom Box Index	$\frac{(\text{No. Satisfied \& Very Satisfied})\% - (\text{No. dissatisfied \& Very Dissatisfied})\%}{1}$

5.5.3 Service Principles

There are several principles that should be followed when developing Facilities Operations Plans and strategies for service delivery:

- Levels of service should be determined in consultation with stakeholders. That consultation should be used to determine the level of service that the institution needs and can afford. If adjustments are required, stakeholder consultation should occur before any change is made;
- Once determined, the level of service provided should be clearly articulated to stakeholders;
- Access to service should be consistent, have multiple pathways and be easy to find;
- The service delivery processes should be identified, and needs to be stakeholder oriented;
- Service performance should be measured (cost, time and quality) and reported back to stakeholders, annually (at the minimum); and
- The performance measurement needs to be coupled with process review and improvement.

5.6 Facilities Organisation Plan

The Facilities Organisation Plan should:

- Detail the in-house staff and systems required to support service delivery;
- Provide organisational structure for those staff resources;
- Identify key practices that are aimed at creating a high performance workplace that should include:
 - Internal governance and leadership;
 - The provision of appropriate training and development opportunities; and
 - Employee performance management and recognition programs.

6 Governance

For a SAM Plan to be effective, the senior managers in the institution must be engaged in the process. The SAM Plan needs to be:-

- Viewed by senior management of the institution as a key institution planning document, alongside the Financial Plan, Human Resource Plan, IT Plan, etc.;
- Aligned and seen as an integral part of the institution's budget process;
- Endorsed and supported by the senior executive of the institution; and
- Reviewed and monitored by a senior management group within the institution.

To achieve appropriate levels of engagement with the senior executive, institutions should establish a Strategic Asset Management advisory committee, as a committee of the Vice-Chancellor. This committee should advise the Vice-Chancellor on high-level strategic management of the institutions estate, and should be made up of members of the institutions senior executive.

This SAM committee should be responsible for the annual review of the SAM Plan and prioritisation of projects identified by the SAM Plan for integration in the institution's budget processes.

The terms of reference for the SAM committee should be to:

- Ensure that management of the estate supports the institution's strategic plan;
- Ensure the institution's SAM Plan reflects the strategic priorities of the institution;
- Prioritise budget allocations for asset strategies;
- Ensure those asset strategies align with the campus Master Plan; and
- Facilitate reporting and communication with the institution community and stakeholders.

The role of the facilities group is to:

- Prepare and annually review the SAM Plan for submission to the SAM committee;
- Advise and report to the SAM committee on asset and accommodation submissions from the faculties and divisions;
- Prepare and review the TEFMA benchmark submission; and
- Review resources, policies, procedures, programs and systems that support the SAM Plan.

7 Monitoring and Review

SAM Plans are generally cumulative in nature. They will improve with regular review and reporting through the governance structures. Regular reviews encourage analysis of performance, which will in turn keep the plans relevant to the institution.

Appendix 6 summarises the KPIs that should be developed and reviewed as part of the SAM Framework. Institutions should understand the level of investment being made in the estate, and be able to compare that to the estate and service delivery performance outcomes being achieved.

The level of performance being achieved for the level of investment being made should then be reported, at least annually.

APPENDIX 1 - A Common Vocabulary

The consistent application of key terms and performance metrics is fundamental to the ability to develop, implement and review any SAM Plan and support sound decision making.

This common vocabulary must be applied to:

- Describing the assets themselves, including the application of consistent element structures and space definitions;
- Defining the key expenditure types and work types; and
- Defining the KPIs.

The following definitions form the common vocabulary for institution facilities managers, based on Australian and International definitions.

A1.1 Asset Definitions

These definitions apply to any building, structure, or an item of building fabric, plant or equipment that provides service potential or future economic benefits over a period greater than one year and includes:

- The components of an estate (buildings, central energy systems, site works and external services); and
- The definition of space type.

Element Structures

The National Public Works Council (NPWC) has devised the most commonly used terms for element structures in Australia. These terms have the endorsement of the Australian Procurement and Construction Council (APCC) and the Australian Institute of Quantity Surveyors (AIQS). The element structure can be found in the AIQS document, *Cost Management Manual – Volume 2 : Elemental and Sub-Elemental Definitions*.

The NPWC element structure can be applied throughout the facility life cycle to capture new construction, maintenance and refurbishment costs (Tables A2.1 and A2.2).

Table A1.1: NPWC Building Element Structure

Level 1 Major Group	Level 2 Sub Group	NPWC Element Structure		
Substructure	Substructure	1	SB	Substructure
Superstructure	Superstructure	2	CL	Columns
		3	UF	Upper Floors
		4	SC	Staircase
		5	RF	Roof
		External Fabric & Finishes	6	EW
	7		WW	Windows
	8		ED	External Doors
	Interiors	Internal Fabric	9	NW
10			NS	Internal Screens
11			ND	Internal Doors
Internal Finishes		12	WF	Wall Finishes
		13	FF	Floor Finish
		14	CF	Ceiling Finishes
Fittings		15	FT	Fitments
		16	SE	Special Equipment
Services	Plumbing	17	SF	Sanitary Fittings
		18	PD	Sanitary Plumbing
		19	WS	Water Supply
		20	GS	Gas Services
	HVAC	21	SH	Space Heating
		22	VE	Ventilation
		23	EC	Evaporative Cooling
		24	AC	Air Conditioning
	Fire Protection	25	FP	Fire Protection
	Electrical	26	LP	Light & Power
	Communications	27	CM	Communications
	Transport	28	TS	Transport Systems
Other	29	SS	Special Services	

Table A1.2: NPWC Grounds Element Structure (external elements).

NPWC Group Classification	NPWC Element Structure		Element Description
Central Energy Systems	30	CE	Centralised Energy Systems
Site Works	32	XP	Site Preparation
	33	XR	Roads, Footpaths & Paved Areas
	34	XN	Boundary Walls, Fencing & Gates
	35	XB	Outbuildings and covered ways
	36	XL	Landscaping and Improvements
External Services	37	XK	External Stormwater drainage
	38	XD	External Sewer
	39	XW	External Water Supply
	40	XG	External Gas
	41	XF	External Fire protection
	42	XE	External Light & Power
	43	XC	External Communications
	44	XS	External Special Services

A number of institutions are already utilising the US Standard element structure, Uniformat II. While this structure provides a similar view of the facilities, it is important that one standard element structure terminology be adopted over the life of the facility, rather than using mixed terminology for the element structures for capital delivery and maintenance. That standard should preferably be the NPWC Element Structure.

Space Types

The current Space Management guidelines define the following broad types of space:

- Academic Space (including research space);
- Administrative Space;
- Commercial Space;
- General Teaching Space;
- Library Space;
- Student Services Space; and
- Other Space.

However, a quick review of institute websites indicates that there is no standard, consistently applied approach to the categorisation of space across all institutions. Such an approach must be adopted if meaningful analysis of space use is to be undertaken.

Building Areas

The key definitions applicable to building areas²³ are as follows:-

Gross floor area (GFA): The sum of the fully-enclosed covered floor area and the unenclosed covered floor area of a building at all floor levels, where:

Fully-enclosed covered area (FECA): The sum of all fully-enclosed and covered building areas at all floor levels, including basements (except unexcavated portions), garages, floored roof spaces and attics, penthouses, enclosed porches and attached enclosed covered ways, equipment rooms, lift shafts, vertical ducts, staircases and any other fully enclosed spaces and useable areas of the building. The FECA is calculated by measuring from the normal inside face of exterior walls, ignoring any projections such as plinths, columns or piers. It excludes open courts, light wells, connecting or isolated covered ways, and net open areas of upper portions of rooms, lobbies, halls, and interstitial spaces etc. which extend through the story being measured.

²³ Source: NCRB & Standards Australia, HB50: Glossary of Building Terms, 5th Edition, 2004.

Unenclosed covered area (UCA): The sum of all unenclosed covered areas at all building floor levels, including roofed balconies, open verandas, porches and porticos, attached open covered ways alongside the building(s), useable space under the building(s), unenclosed access galleries (including ground floor) and any other trafficable covered areas of the building which are not totally enclosed by full weight walls. The UCA is calculated by measuring from the inside face of any enclosing walls, balustrades or supports, but excludes connecting or isolated covered ways, and eaves, overhangs, sun shading, or awnings unless they relate to clearly defined trafficable covered areas.

Usable floor area (UFA): The FECA of a building or a floor less "Common use areas", "Service areas" and "Non-habitable areas". See also: Fully-enclosed covered area; Common use area; Non-habitable area; Net occupiable area (as defined in HB50).

These definitions can be translated into a graphical representation of the defined areas, illustrated in Figure A1.1.

Diagram illustrating area definitions Summary by Jurisdiction

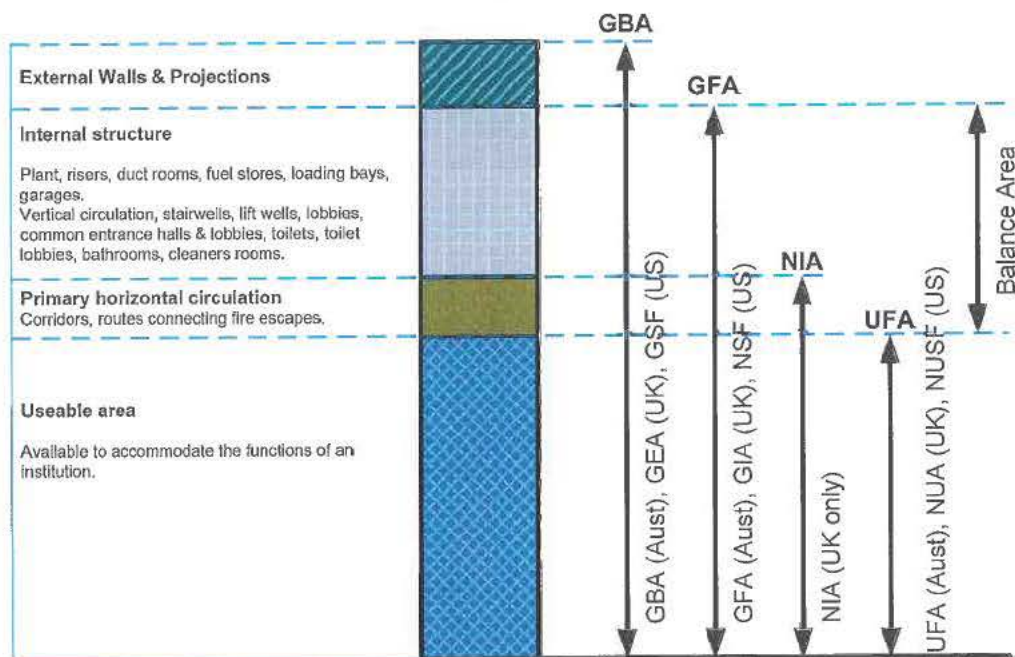


Figure A1.1. Area definitions by jurisdiction

A1.2 Expenditure Definitions

Many of the following definitions have been extracted from Rose²⁴, who attempts to provide standard definitions for the major facilities expenditure categories over the life of the building. It draws heavily on the International Facilities Managers Association (IFMA) standard definitions, particularly for Recapitalisation. Rose states that "a critical element of any investment framework is to develop a simple method for understanding different cost categories, which must be universally accepted and consistently applied".

Where available, HB50²⁵ definitions have been used. However, several of the maintenance definitions have developed from the Queensland Government Maintenance Management Framework²⁶ definitions, in conjunction with HB50.

The operations definitions are based on the range of services currently included in the TEFMA benchmarks, which differ significantly from the more expansive Rose definitions.

The following definitions are built around the three core cost categories:

- Birth to Burial Costs;
- Maintenance and Operations Costs; and
- Recapitalisation Costs.

Birth to Burial Costs:

These are one-time costs associated with the funding, planning, design and construction/installation of facilities, including the removal of the facility from the asset inventory.

a) Planning and Design Costs

These costs include the activities necessary for the development and analysis of feasible solutions to institutional needs through the provision of facility solutions:

- Planning defines the scope or statement of work; and
- The design phase begins once the statement of work or preferred design approach has been developed and may continue through the construction phase.

b) Financing Costs

These are the costs associated with the use of funds required for the capital investment. Examples include the cost of interest, development fees and fees incurred as a result of accessing funding.

c) Construction, Installation and Acquisition Costs

These costs are related to procurement, erection, installation, assembly or fabrication activities required to create a new facility or to alter/extend an existing facility.

²⁴ Rose, Rodney, Buildings...The Gifts That Keep on Taking: A Framework for Integrated Decision Making, APPA (CFaR), 2007.

²⁵ NCRB & Standards Australia, HB50: Glossary of Building Terms, 5th Edition, 2004.

²⁶ Queensland Department of Public Works, Maintenance Management Framework, 2nd Edition, December 2007.

d) Decommissioning, Demolition and Disposal Costs

These costs involve the removal of a building or fixed asset from the institution's facilities portfolio. In general, decommissioning removes the asset from service, while demolition and disposal physically remove the asset.

Maintenance and Operations Costs:

These are the annual costs required to support the functionality of the building on a daily or annual basis. The costs are focused on those actions or requirements that are predictable and are based on normal wear and tear.

e) Operations

These are costs associated with the routine, day-to-day use, support and operation (non-maintenance) of the facilities. This includes operations such as security, cleaning, waste management and parking.

f) Maintenance

These costs relate to activities funded through the annual budget cycle with the objective of achieving either the originally anticipated life cycle of the asset or an established suitable level of service. Maintenance can be further divided into the key elements outlined in Table A1.3.

Table A1.3. Maintenance Definitions²⁷

Category	Sub-category	Definition
Planned maintenance	Preventative maintenance	Maintenance performed to retain an item or asset in its operating condition, by providing systematic inspection, detection and prevention of incipient failure.
	Condition-based maintenance	Maintenance initiated as a result of routine or continuous checking.
	Statutory maintenance	Maintenance that must be carried out to meet statutory requirements.
Unplanned maintenance	Corrective and breakdown maintenance	Maintenance performed as a result of failure, to restore an item or asset to its optimal condition.
	Incident maintenance	Restores an asset to an operational or safe condition, following damage caused by storms, fire, forced entry or vandals.

²⁷ NCRB & Standards Australia, HB50: Glossary of Building Terms, 5th Edition, 2004.

g) Utilities

These costs are associated with the consumption of utility services by the asset. The essential elements of utilities are:

- Electricity;
- Water;
- Gas;
- Wastewater;
- Chilled water; and
- Other fuels (oil, coal, wood, biomass etc.).

Recapitalisation Costs:

These are periodic costs associated with the reinvestment of funds in the facilities. These projects are typically larger in size than annual maintenance work and often involve replacing or renewing a building's major subsystem or areas. Recapitalisation can be further subdivided into:

h) Non-Statutory Refurbishment

Extensive work that is intended to bring an asset up to a new standard or to alter it for a new use. (This excludes statutory refurbishment.)²⁸

i) Statutory Refurbishment

Work that must be carried out to meet statutory requirements.²⁸

j) Asset Replacement

The replacement of building elements or major components based on the recognised life of that building component. For example, a building fire alarm system has a life cycle of 10 years, while the building may have a design life of 50 years. Therefore, the fire system will need to be replaced four times over the life of the facility.

A1.3 Outcome Definitions

The outcome measures relate to the condition and/or functionality of the facilities portfolio. These key measures require the consistent assessment of maintenance or recapitalisation backlogs, and should be aligned to the maintenance and recapitalisation definitions with a broad structure as follows:

²⁸ NCRB & Standards Australia, HB50: Glossary of Building Terms, 5th Edition, 2004.

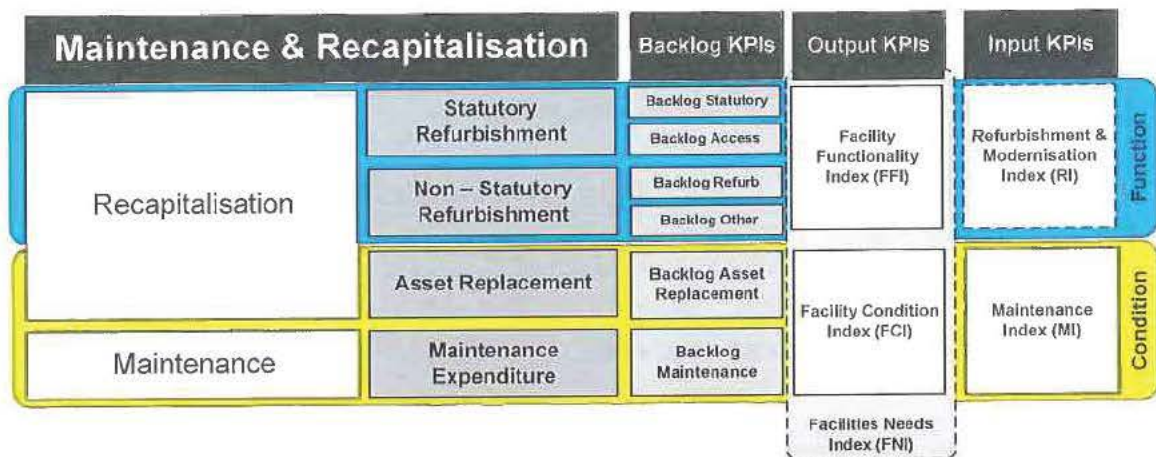


Figure A1.2. Link between maintenance/recapitalisation types and KPIs

Condition

The core measure is the Facilities Condition Index (FCI), which is a universal measure for reflecting condition.

The FCI is calculated using the following formula:

$$FCI = 1 - \left(\frac{(\text{Backlog Maintenance (BM)} + \text{Backlog Asset Replacement (BAR)})}{ARV} \right)$$

Where:

Backlog Maintenance and Backlog Asset Replacement: The total dollar amount of existing maintenance repairs and required replacements, not accomplished when they should have been, not funded in the current fiscal year or otherwise delayed to the future. Typically identified by a comprehensive Facilities Condition Assessment/Audit of buildings, grounds, fixed equipment and infrastructure. Maintenance work that has not been scheduled to be accomplished in the current budget cycle and, thereby, has been postponed until future funding budget cycles. Projects that have received a lower priority status than those to be completed in the current budget cycle.

Asset Replacement Value: The cost of replacing an existing asset. It is the best estimate of the current cost of constructing a new asset containing equal amounts of service potential which is designed and equipped for the same use as the original asset and which meets currently accepted standards of construction and also complies with all contemporary environmental and other regulatory requirements.²⁹

²⁹ NCRB & Standards Australia, HB50: Glossary of Building Terms, 5th Edition, 2004.

Functionality

The Facilities Functionality Index (FFI) is defined as:

$$\text{FFI} = 1 - \left(\frac{\text{Backlog Functionality (BF)}}{\text{ARV}} \right)$$

Where:

$$\text{BF} = \text{BR} + \text{BS} + \text{BA} + \text{BO}$$

and

BR = Backlog Refurbishment (refurbishment that is necessary to bring a room, building or service up to a new standard)

BS = Backlog Statutory Refurbishment (refurbishment that is necessary due to changes in legislation)

BA = Backlog Access Works (all works that are necessary to meet current access codes or standards)

BO = Other Backlog Works

Overall Maintenance and Refurbishment Need

The Facilities Needs Index (FNI) reflects the overall performance of an asset, taking into account the asset's condition and functional performance.

The FNI is calculated using the following formula:

$$\text{FNI} = 1 - \left(\frac{\text{Backlog Functionality (BF)} + \text{Backlog Maintenance (BM)} + \text{Backlog Asset Replacement (BAR)}}{\text{ARV}} \right)$$

APPENDIX 2 - Glossary of Terms

Asset	Buildings, central energy systems, site works and external service, or any item of the building fabric, plant or equipment that provides service potential or future economic benefit over a period greater than one year (HB-50) ³⁰ .
EFTSL	Equivalent Full Time Student Load. (The NZ equivalent is EFTS.)
Estate	The estate includes the campuses, buildings, grounds and in-ground infrastructure that support teaching, learning and research activities.
Facility	Buildings, structures, roads and associated equipment or a combination thereof, which represents a single management unit for financial, operational, maintenance, or other purposes (HB 50).
Facilities Management	Process of planning, managing, maintaining, rationalising and accounting for facilities and associated services, while simultaneously seeking to reduce the associated overall cost for a specified level of performance (HB 50).
FTE	Full Time Equivalent.
GFA	Gross Floor Area.
Mission	The mission is a succinct statement of your organisation's unique reason for existence. The mission statement defines who you are, what you do, and why you are doing it. The mission is linked to the vision by a Strategic Plan.
NGERS	National Greenhouse and Energy Reporting System.
Redevelopment	Planning and construction of new buildings or facilities on a large site involving extensive demolition and replacement of existing buildings and structures (HB50).
Refurbishment	Extensive work intended to bring an asset up to a new standard or to alter it for a new use (HB50).
Strategic Asset Management	Asset Management covering the development and implementation of plans and programs for asset creation, operation, maintenance, refurbishment, replacement, disposal and performance monitoring to ensure that the desired service levels and other operational objectives are achieved at minimum cost (HB-50).
Strategic Plan	A disciplined, coordinated, systematic, and sustained effort that enables an organisation to fulfil its mission and achieve its vision. A Strategic Plan covers a five-year rolling timeframe, and links the mission to the vision.
UFA	Usable Floor Area.

³⁰ HB-50 : Glossary of Building Terms, Standards Australia, September 2004.

APPENDIX 3 - Capital Investment Procurement

A3.1 Procurement Approaches

a) New Construction, Redevelopment and Refurbishment Projects

Currently, TEFMA does not use a consistent framework for describing the various procurement approaches. The NSW Government framework for describing the procurement options available for construction projects³¹ reflects industry best practice. The procurement framework requires the selection of an appropriate procurement approach for each project (or group of projects) that involves establishing:

- The most appropriate **delivery system** for the procurement;
- A **contract system** for each of the contract or work packages; and
- A **management system** that best matches the delivery system and contract system selected.

The delivery system options available include:

- **Single contract** – where the institution awards one contract with one contractor to undertake all of the project works.
- **Multiple contract** – where the institution divides the project and awards a number of contract packages (these are usually divided into trade packages).
- **Managing contractor** – where one contractor is engaged early in the life of the project to manage and undertake the scope definition, design, documentation and construction of the project works using consultants and subcontractors. The contract usually includes incentives for achieving agreed target price limits and other performance requirements when the scope is defined.
- **Alliance contract** – involving an agreement between an institution and other entities to undertake work cooperatively, reaching decisions jointly by consensus, using an integrated management team and intensive relationship facilitation.
- **Privately financed project** – where the institution arranges asset procurement under an agreement with a private sector entity, involving entity financing, development, ownership/control (possibly operation) and provision of the asset for a concession period.
- **Direct labour** – where the institution directly hires and supervises trades-persons.
- **Period contract** – where an existing standing offer contract for a particular type of work, such as goods, services or product supply, is used to deliver the project works.

The contract systems are as follows:

- **Construct only (CO)** – contract for construction and a minimum of design;
- **Design development and construct (DD&C)** – contract for construction and design, based on at least a concept design provided by the Principal.
- **Design and construct (D&C)** – contract for construction and design, based on at least a project/functional brief.
- **Design, novate and construct (DN&C)** – contract for construction and design, where the previously engaged designer is novated to the contractor.

³¹ NSW Government, Procurement Methodology Guidelines for Construction, Feb 2005.

- **Design development construct and maintain (DDC&M)** – contract for construction, design, based on at least a concept design by the Principal, and then maintenance of the constructed asset.
- **Guaranteed maximum price (GMP)** – design (or design development) and construct contract with conditions restricting the price/time for the work.

The following management systems can then be used:

- **Project management** – where the overall management of the whole project is the responsibility of a consultant, in-house or institution personnel (a person or team) engaged as a project manager.
- **Project/construction management** – involving project management and a more intense approach to managing the construction phase of the project, where direct labour or many small work/contract packages are involved.
- **Project/contract management** – involving project management, but with only one main contract for the remainder of the project work.

b) **Purchase and Leasing**

Institutions need to develop suitable approaches for the purchase or lease of accommodation. In order to locate the most suitable approach, the following broad process should be followed:

1. Develop a brief for the accommodation requirements that includes:
 - a. A budget for the purchase or lease project;
 - b. An assessment of the space requirements (from the accommodation plan); and
 - c. Environmental performance requirements.
2. Investigate accommodation options. Institutions need to understand what the market is offering in the areas of interest.
3. Establish the transaction terms that best meet business needs before going to the market (this includes the lease conditions).
4. Develop a strategy for procuring the most appropriate property or properties. This can extend from purchasing or leasing directly from the market, to undertaking an expression of interest, based on the institution's accommodation and/or lease requirements.
5. Undertake a market valuation and building appraisal of the accommodation before entering into either purchasing or leasing arrangements.

A3.2 Risk Management

a) New Construction, Redevelopment and Refurbishment Projects

Institutions need to have appropriate Risk Management strategies in place to effectively manage new construction, redevelopment or refurbishment projects. Although the process for managing such projects will vary for each contracting system, in general, it should align with that adopted by the Queensland Government³² as shown in Figure A3.1.

³² Queensland Government, Department of Public Works, Capital Works Management Framework: Policy for managing risks in the planning and delivery of Queensland Government building projects, Second Edition, June 2008.

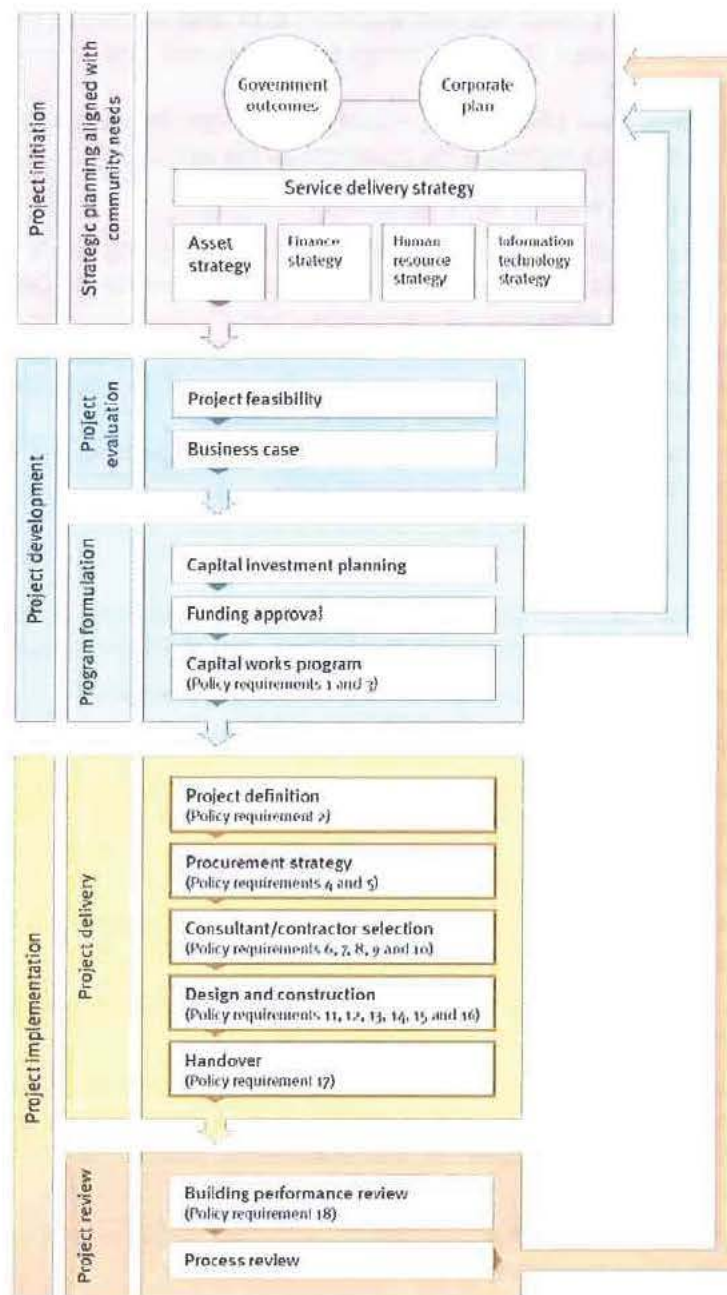


Figure A3.1. Qld Government Capital Development Process

Project Initiation occurs during the development of the Asset Strategy. Outputs include the draft Capital Investment, Maintenance and Surplus Asset projects and programs.

Project Development includes an assessment of project feasibility and the development of project business cases. Various specialist reports and studies should be included as a part of the Business Case, depending on a project's value, level of procurement risk and timing. These documents may include a:

- Value Management Study;
- Economic Appraisal;
- Financial Appraisal;
- Risk Analysis; or
- Gateway Review Report.

A framework should be established for defining business case requirements that reflects the institutional risks. The most common framework used in the government sector in both Australia and New Zealand is the Gateway Review Process. For example, the NSW Government has adopted the framework outlined in Figure A3.2 for Government Sector Capital Projects.

Stage of process	Agency <u>completes</u> all the material listed below	Agency <u>submits</u> material to Treasury when the project is:			
		High risk ⁽¹⁾ or:	Not high risk and:		
		> \$50m	\$10m–\$50m	\$1m–\$10m	\$0.25m–\$1m
In support of funding proposal	Gateway Risk Profile Assessment ⁽¹⁾	✓	✓	✓	✓
	Business Case ⁽²⁾ , with supporting documents ⁽³⁾ :				
	• Project profile, with links to RSP and TAM plans	✓	✓	✓	✓
	• Financial Impact Statement ⁽⁴⁾	✓	✓	✓	✓
	• Economic/Financial Appraisal ⁽⁵⁾	✓	✓	✓ ⁽⁶⁾	
	• Risk Assessment, Mitigation & Valuation Report	✓			
	• Supporting Info eg engineering reports	✓			
	• Business Case Gateway Review Report and agency response ⁽⁷⁾	✓	✓		
Prior to going to tender	Procurement Strategy Report ⁽³⁾	✓	✓		
	Pre-Tender Estimate Report ⁽³⁾	✓	✓		
Prior to contract award	Post-Tender Review Report ⁽³⁾	✓			
Post contract award	Material Variations Reports ⁽³⁾	✓			

⁽¹⁾ See Gateway Risk Profile Tool at www.asset.gov.com.au/gpps.

⁽²⁾ See Premier's Dept website www.premiers.nsw.gov.au for Business Case Guidelines.

⁽³⁾ See www.treasury.nsw.gov.au/procurement/procure-intro.htm for Treasury Appraisal/Monitoring Arrangements.

⁽⁴⁾ template to be provided

⁽⁵⁾ Required for projects \$1m or over. See www.treasury.nsw.gov.au for Guidelines Papers 99-1, 97-4, 97-2.

⁽⁶⁾ For projects in this category, summaries of economic/financial appraisals are sufficient to submit to Treasury.

⁽⁷⁾ See www.treasury.nsw.gov.au/procurement/procure-intro.htm for information on the Gateway Review Process.

Figure A3.2. NSW Government Risk Framework

The final phase in the project development process is program formulation. It is during this phase that the impact of effective strategic planning and project evaluation becomes evident. The project evaluation process should deliver a Capital Development Plan that is based on accurate and accountable information, and reduce the risk of the following:

- Overall capital works program under-expenditure or over-expenditure;
- Setting unachievable project budgets;
- Projecting unachievable project cash flow and time lines; and
- Setting inappropriate procurement strategies.

The key – and often neglected component – of the project delivery phase is the project review. The project review should evaluate both the performance of the building against the

portfolio performance objectives and the performance of the capital development process, where performance on cost, time and quality should be assessed.

b) Purchase and Leasing

The broad process for acquiring or leasing accommodation is:

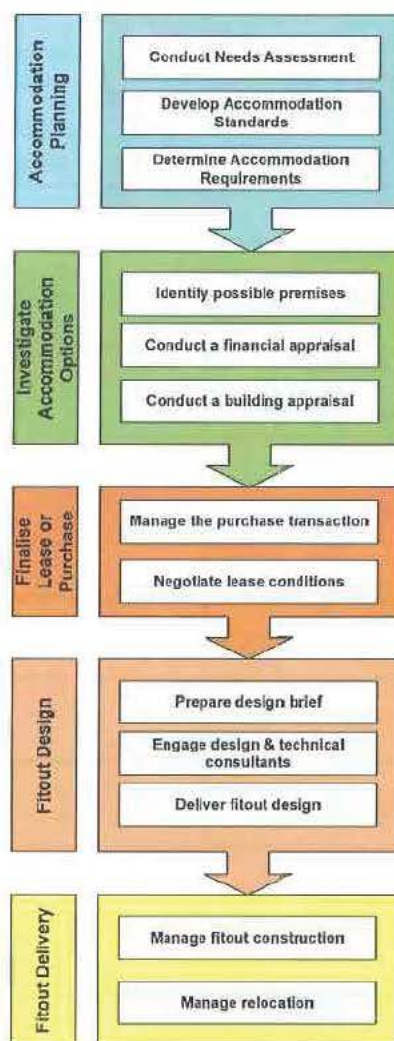


Figure A3.3. Acquisition/Lease Process

The Space Management Plan provides the requirements for the accommodation.

The institution should then investigate the market where accommodation is required, identifying the current market conditions and accommodation that might be available for lease or purchase. Independent expert analysis is likely to deliver a superior outcome, particularly as internal resources would be unlikely to have as comprehensive a knowledge of current market conditions. The market analysis should inform a procurement strategy for the purchase or lease. The preferred approach would be an expression of interest process so the institution can access all options available. This process needs to be supported by:

- A market or lease valuation of short listed options;
- A building appraisal focusing on the base building;
- An assessment of the environmental performance of the building;

- The purchase transactions or lease engagement are specialist fields where the institution can benefit from external advice; and
- The fit-out design and delivery can then be managed as a refurbishment project.

A3.3 Performance Assessment

The performance of both the accommodation being acquired and the acquisition process should be evaluated. A Post Occupancy Evaluation (POE) should be conducted to inform the Performance Assessment.

The performance criteria should be set by the project brief and this should drive the POE assessment criteria. However, to enable benchmarking of the performance criteria to occur, the outcomes need to be measurable and able to be benchmarked. AUDE³³ has developed a framework and tools for undertaking POEs that examines:

Table A3.1. Capital Project Performance Assessment

Process:	How did the implementation team perform?
Performance (functional performance):	How does the building support the user aspirations and business needs?
Product (technical performance):	How well does the fabric of the building achieve its specification/performance requirements?

³³ AUDE, Guide to Post Occupancy Evaluation, 2006.

APPENDIX 4 - Grounds Service Matrix

Level of Service	5	4	3	2	1
Description	Showpiece Landscape	Comprehensive Stewardship	Managed Care	Reactive Management	Crisis Response
General	State of the art maintenance applied to a high-quality diverse landscape. Associated with high-traffic urban areas, such as public squares and malls.	High-level maintenance. Usually associated with well-developed public areas.	Moderate-level maintenance. Associated with areas that have moderate to low levels of visitation.	Moderately low-level maintenance.	Minimum-level maintenance
Turf Care	Grass height maintained according to species and variety. Mowed at least once every five working days. Aeration as required but not less than four times p.a. Reseeding and resodding as needed. Weed control undertaken so that no more than 1% of the surface has weeds.	Grass cut once every five working days. Aeration as required but not less than two times per year. Reseeding or resodding when bare spots are present. Weed control practiced when weeds present a visible problem or when weeds represent 5% of the turf surface.	Grass cut once every 10 working days. Normally not aerated unless turf quality indicates a need or in preparation for fertilising. Reseeding only done when major bare spots occur. Weed control used when 15% of the general turf is invested with weeds.	Low frequency mowing scheduled based on species. Low-growing grasses may not be mowed. High grasses may receive periodic mowing. Weed control limited to legal requirements for noxious weeds.	Low-frequency mowing scheduled, based on species. Low-growing grasses may not be mowed. High grasses may receive periodic mowing. Weed control limited to legal requirements for noxious weeds.
Fertiliser	Adequate fertilisation applied to plant species according to their optimum requirements. Application rates and times should ensure an even supply of nutrients for the entire year.	Adequate fertiliser level to ensure that all plant materials are healthy and vigorous. Amounts depend on species, length of growing season, soil and rainfall. Rates should correspond to at least the lowest recommended rates.	Applied only when vigour is low. Low level application done once a year.	Not fertilised.	Not fertilised.
Irrigation	Sprinkler irrigation with automatic control. Frequency linked with rainfall, temperature, season length and plant requirements.	Sprinkler irrigation with automatic control. Frequency linked with rainfall, temperature, season length and plant requirements.	Dependent on the climate. Automatic irrigation in low rainfall areas. Manual irrigation in the remainder.	No irrigation	No irrigation.
Litter Control	Minimum of once a day, seven days per week. Extremely high visitation may increase the frequency. Receptacles should be plentiful enough to hold all the trash usually generated between visits.	Minimum of once per day, five days a week. Off site movement of rubbish dependant on the size of containers and use. High use may require daily removal.	Minimum service of two to three times per week. High use may dictate higher levels in hot weather.	Once a week or less.	On demand or on a complaint basis.

Pruning	Frequency dictated primarily by species and variety of trees and shrubs. Length of growing season and design concept also controlling factors (i.e. clipped vs natural hedge). Timing scheduled to coincide with low demand periods or to take advantage of special growing characteristics.	Usually done once per season, unless species planted requires more frequent attention. Sculpted hedges or high growth species may need more frequent attention.	When required for plant health or reasonable appearance. With most trees and shrubs, pruning should occur once every two to three years.	No regular trimming. Safety and storm damage dictate work schedule.	No pruning unless safety is at risk.
Disease and Insect Control	The controlling objective is to avoid public awareness of any problems. It is anticipated that, at this level, problems will either be prevented or corrected early.	Usually done when disease or insects are inflicting noticeable damage, are reducing the vigour of the plants or are considered a bother to the public.	Done only to address epidemics or serious complaints. Control measures may be put in place when the health or survival of the plant material is threatened or when public safety is at risk.	None except where the problem is epidemic and threatens resources or the public.	No control except in epidemic or safety situations.
Surfaces	Sweeping, cleaning and washing of surfaces should be done so that at no time does an accumulation of sand, dirt, or leaves distract from the looks or safety of the area.	Should be cleaned, repaired, repainted or replaced when their appearance has noticeably deteriorated.	Cleaned on a complaint basis. Repaired or replaced as budget allows.	Replaced or repaired when safety is a concern	Serviced only when safety is at risk.
Repairs	Repairs to all elements of the design should be done immediately when problems are discovered. When disruptions to the public might be major and the repair is not critical, repairs may be postponed to a time period that is least disruptive.	Should be done whenever safety, function or appearance is in question.	Should be done whenever safety or function are at risk.	Should be done when safety or function is at risk.	Done only when safety is at risk.
Inspections	A staff member should conduct inspections daily.	Inspection should be conducted by a staff member at least once a day.	Inspections conducted once per week.	Inspections are conducted once a month	Inspections conducted once a month.
Floral Plantings	Normally, extensive or unusual floral plantings are a part of the design. These may be ground-level beds, planters or hanging baskets. Often multiple plantings are scheduled with at least two blooming cycles per year. Maximum care, including watering, fertilising, disease control, debudding and weeding is required. Weeding of flowers and shrubs should be done at least once a week, as the desired standard is essentially weed free.	Normally, no more complex than two rotations per year. Care cycle is usually at least once a week. Health and vigour dictate the cycle of watering, fertilisation and disease control. Beds should essentially be kept weed free.	Only perennials or flowering trees or shrubs.	None.	None.

APPENDIX 5 - Customer Satisfaction Survey

Service Area	1 = POOR 2 = BELOW AVERAGE 3 = AVERAGE 4 = GOOD 5 = EXCELLENT							
	Not Applicable (please tick if you do not use this service)	Accessible (location, easy to contact)	Responsive (response and job completion times)	Reliable (ability to complete a task)	Competence (staff knowledge, skill and problem solving ability)	Understanding (of customer need)	Communication (quality and consistency of communication with stakeholders)	Current Level of Overall Satisfaction
Facilities Management as a Whole	<input type="checkbox"/>	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤
Maintenance	<input type="checkbox"/>	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤
Grounds Maintenance	<input type="checkbox"/>	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤
Cleaning & Waste Removal	<input type="checkbox"/>	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤
Security	<input type="checkbox"/>	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤
Access Control & Parking	<input type="checkbox"/>	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤
Utilities Management	<input type="checkbox"/>	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤
Master Planning	<input type="checkbox"/>	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤
Capital Works	<input type="checkbox"/>	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤
Minor Works	<input type="checkbox"/>	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤

Capital Improvement	<input type="checkbox"/>	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤
Timetabling/Room booking	<input type="checkbox"/>	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤
Mail	<input type="checkbox"/>	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤
Fleet Management	<input type="checkbox"/>	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤
Printing	<input type="checkbox"/>	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤
Environmental Sustainability	<input type="checkbox"/>	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤

APPENDIX 6 : Summary of Key Performance Indicators

A6.1 Estate Performance Measures

Capacity

Measure	Calculation	Comment
Asset Utilisation Index (AUI)	$\frac{\text{Theoretical Space \%}}{\text{Actual Space}}$	Usually applied by space type, but can be used as an indicator of overall performance of the estate
Average area provided by each Institution	$\frac{\text{m}^2\text{GFA}}{\text{EFTSL}}$	Current TEFMA Benchmark measure

Utilisation

Measure	Calculation	Comment
Theoretical Utilisation (TU)	$\frac{\text{Contact Hours}}{\text{Capacity} \times \text{Hours Available}}$	Refer to TEFMA Space Management Guidelines, Edition 3
% Utilisation	$\% \text{Occupancy} \times \% \text{Frequency}$	Refer to TEFMA Space Management Guidelines, Edition 3

Condition

Measure	Calculation	Comment
Overall Condition Rating (OCR)	$\text{OCR} = \Sigma (\text{CR} \times \text{RV}) / \Sigma \text{RV}$	Refer to TEFMA Facility Audit Guideline
Backlog Maintenance (BM)	$\Sigma \text{Facilities Backlog}$	Refer to TEFMA Facility Audit Guideline
Facility Condition Index (FCI)	$1 - \left(\frac{\text{BM} + \text{BAR}}{\text{ARV}} \right)$	Refer to TEFMA Facility Audit Guideline

Functionality

Measure	Calculation	Comment
Overall Functionality Rating (OFR)	$OFR = \sum (AR \times W)$	Refer to TEFMA Facility Audit Guideline
Backlog Functionality (BF)	$BF = BR + BS + BA + BO$	Refer to TEFMA Facility Audit Guideline
Facility Functionality Index (FFI)	$1 - \left(\frac{BF}{ARV} \right)$	Refer to TEFMA Facility Audit Guideline
Facility Needs Index (FNI)	$1 - \left(\frac{BM + BAR + BF}{ARV} \right)$	A US performance measure that is used to reflect the total backlog

Environmental Sustainability

Measure	Calculation	Comment
Energy Consumption	MJ/m ² GFA	Current TEFMA Benchmark measure
Greenhouse Gas Emissions	Kg CO ₂ /m ² GFA	Current TEFMA Benchmark measure
Water Consumption - Building	kL/m ²	Current TEFMA Benchmark measure
Water Consumption - Campus	kL/ha	Current TEFMA Benchmark measure

A6.2 Level of Investment Performance Measures

Measure	Calculation	Comment
Maintenance Index (MI)	$\frac{\text{Maintenance Expenditure}}{ARV}$	Current TEFMA Benchmark measure
Refurbishment & Modernisation Index (RI)	$\frac{\text{Refurbishment Expenditure}}{ARV}$	

A6.3 Operational Performance Measures:-

Customer Satisfaction

Measure	Calculation	Comment
Customer Satisfaction Index	The average customer satisfaction score. Equivalent to the customer satisfaction scoring out of 5 used by TEFMA, but expressed as a %.	Current TEFMA Benchmark measure
High Score Index	Indicates the number of customers who are delighted with the service as a percentage. $\frac{\text{No. very satisfied}}{\text{Total Number Surveyed}}$	
Top Box – Bottom Box Index	$\frac{(\text{No. Satisfied \& Very Satisfied})}{(\text{No. dissatisfied \& Very Dissatisfied})} \%$	

Cost of Service

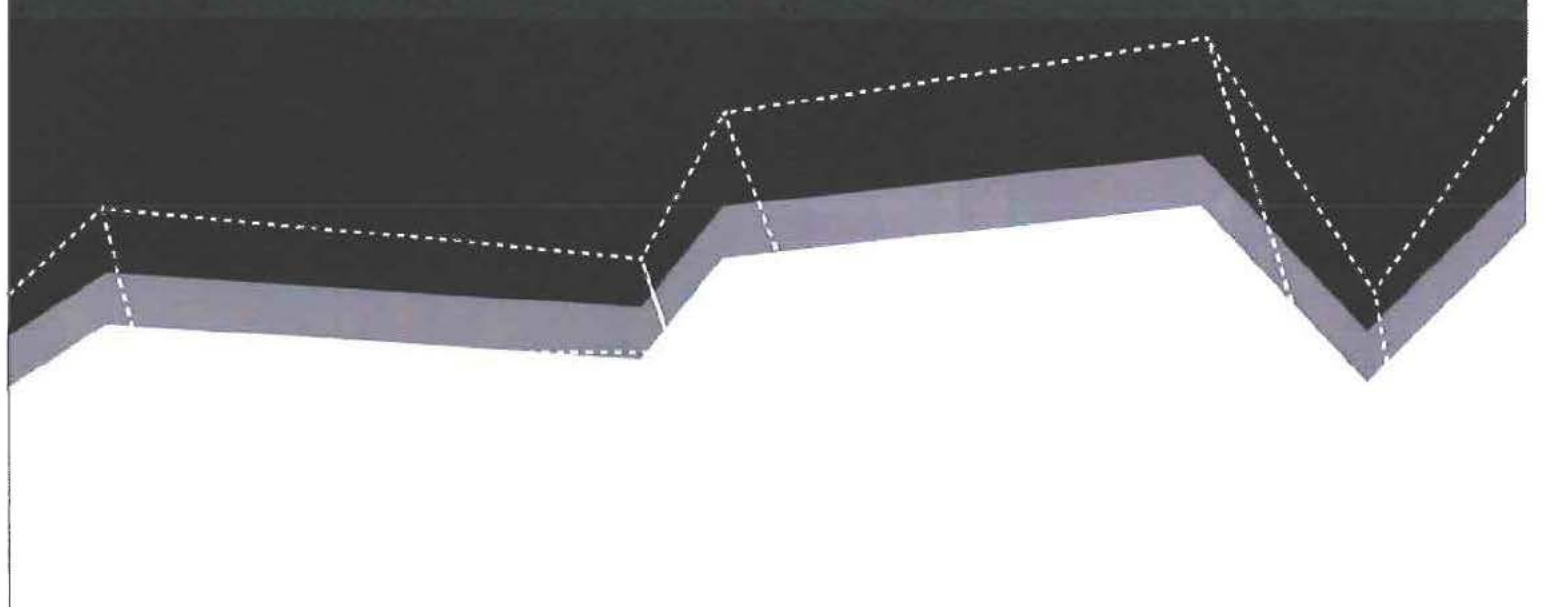
Measure	Calculation	Comment
"Maintain" services		
Maintenance Cost	Cost/m ² GFA	Current TEFMA Benchmark measure
Grounds Cost	Cost/m ² GFA Cost/ha	Current TEFMA Benchmark measure
Cleaning Cost	Cost/m ² Cleaning area	Current TEFMA Benchmark measure
Security Cost	Cost/m ² GFA	Current TEFMA Benchmark measure
Utilities Cost	Cost/m ² GFA	Current TEFMA Benchmark measure
"Realign" services		
Capital Project Soft Cost Index	$\frac{\text{Soft Costs} \times 100}{\text{Total Actual Project Cost}} \%$	APPA measure. Data for the measure collected as part of the UK KPI Process.
Capital Project Design Cost Index	$\frac{\text{Design Consultant Actual Cost}}{\text{Total Project Costs}} \%$	APPA measure. Data collected as part of UK KPI Process.

Predictability Design Cost – Capital projects	$\frac{\text{Actual Design Cost} - \text{Predicted Cost}}{\text{Predicted Design Cost}}$	UK/NZ KPI ³⁴ .
Predictability Construction Cost – Capital projects	$\frac{\text{Actual Const. Cost} - \text{Predicted Cost}}{\text{Predicted Cost}}$	UK/NZ KPI.
Predictability Total Project Cost – Capital Projects	$\frac{\text{Actual Total Cost} - \text{Predicted Cost}}{\text{Predicted Design Cost}}$	UK/NZ KPI.
Predictability Total Project Cost – Minor Works Projects	$\frac{\text{Actual Total Cost} - \text{Predicted Cost}}{\text{Predicted Design Cost}}$	UK/NZ KPI.
Predictability Total Project Cost – Capital Improvement Projects	$\frac{\text{Actual Total Cost} - \text{Predicted Cost}}{\text{Predicted Design Cost}}$	UK/NZ KPI.

³⁴ Department of Building and Housing, The New Zealand Construction Industry National KPIs, June 2006.

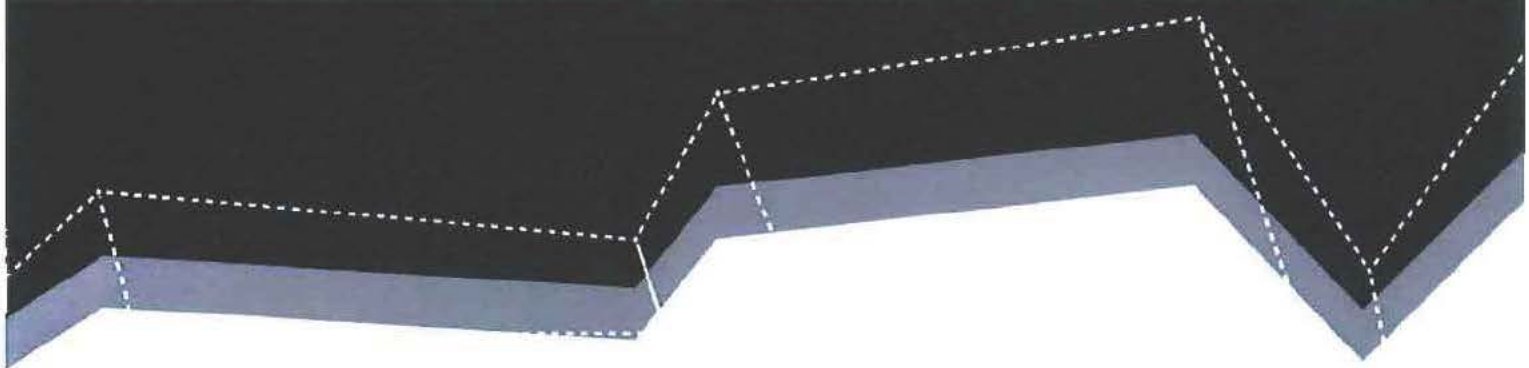
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APPENDIX 8.2
ASSET MANAGEMENT
CAPABILITY FRAMEWORK
ASSESSMENT REPORT



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**ACT HEALTH
ASSET MANAGEMENT
CAPABILITY FRAMEWORK
ASSESSMENT**





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ACT HEALTH ASSET MANAGEMENT CAPABILITY FRAMEWORK ASSESSMENT

May 2016

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EXECUTIVE SUMMARY

There are two components of a robust Strategic Asset Management Framework (SAMF). Both of these components align to the strategic goals of the organisation from which organisational service delivery objectives are derived. The two elements are as follows:

- **Alignment of the Asset Portfolio.** The focus of this component is on the asset portfolio, and aligning the asset portfolio to corporate strategies (i.e. Health Service Delivery Plan);
- **Alignment of Asset Management Capability (management of the asset portfolio).** This examines the alignment of asset management business systems as opposed to the asset portfolio itself. The Capability Assessment initiative focuses reviewing the asset management systems and processes that underpin the management of the estate. These systems and policy settings are integral in setting the framework for leadership, planning, enabling asset management activities and evaluating performance in an environment of continuous improvement.

Figure 1 illustrates the components of a SAMF and how these integrate into a broader organisational construct. It is important to note that asset cycle activities (create/acquire, utilise, maintain, renew/dispose) are operationally focused and sit at the bottom end of the SAMF. Often, organisations conduct asset cycle activities without reference to and in the absence of a SAMF. This process does not enable a considered and measurable way of linking asset cycle activities with the strategic objectives and service delivery outcomes of the organisation and as a result can lead to ill-informed expenditure on asset portfolios and also management of the estate.

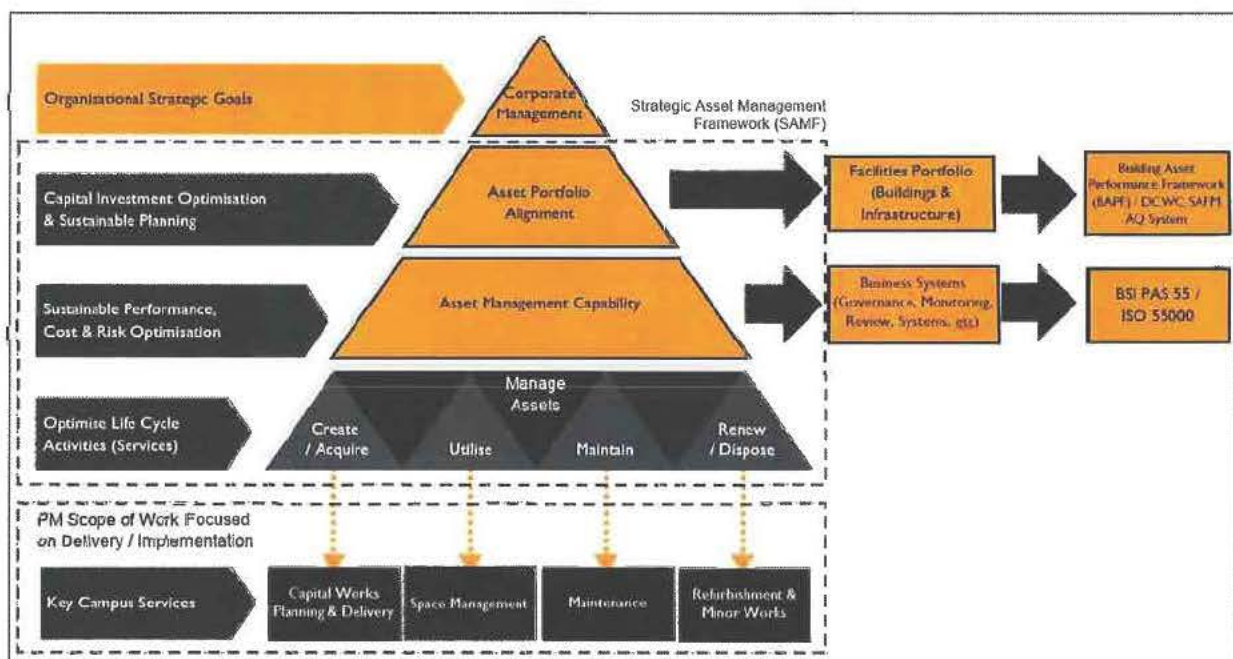


Figure 1: DCWC Framework for SAMF Development¹

The development of a robust SAMF is therefore critical to the efficient and effective management of an asset portfolio, both in terms of asset alignment and asset management capability. For a SAMF to provide tangible benefit it must achieve the following outcomes:

- The SAMF needs to be **integrated** with **corporate governance** processes;
- The SAMF must include a **robust performance assessment framework** for the asset portfolio;

¹ Adapted from PAS55: 2008

- A **Strategic Asset Management Plan (SAMP)** is a core component of the SAMF, focusing on alignment of the asset portfolio with an organisations business objectives;
- A SAMP needs to convert corporate strategies and goals into **measurable asset management objectives** that align to the performance assessment framework; and
- A SAMP must provide a **consistent lens** that can be applied to all stages of the asset lifecycle

As previously outlined, the key elements of the SAMF development process are:

- **Alignment of the asset portfolio.** A framework for this analysis is included in the ANAO Better Practice Guidance² and is also the focus of documents like the NSW Government Total Asset Management (TAM). The focus of this component is on the asset portfolio, and aligning the asset portfolio to corporate strategies (i.e. Health Service Delivery Plan). It is critical that this alignment is conducted in an informed manner using performance based measures that meet the institution's strategic objectives as stated in defined Asset Management (AM) objectives. Tools such as the Queensland Government's Building Asset Performance Framework (BAPF) are a best practice tool for empirical measurement of the performance of an asset portfolio;
- **Alignment of Asset Management Capability (management of the asset portfolio).** This examines the alignment of asset management business systems as opposed to the asset portfolio itself. The assessment generally uses international best practice standards such as the Institute of Asset Management's (IAM) PAS 55 and ISO 55000 or its equivalent. An assessment, as a minimum, should examine:
 - Governance;
 - Strategic Asset Management Planning;
 - Asset Management (AM) Implementations plans (such as asset management plans and AM capability improvement plans);
 - Key enablers such as:
 - Policies and procedures;
 - Information systems;
 - Risk management;
 - Procurement framework;
 - Life Cycle Analysis;
 - Performance assessment; and
 - Review and continuous improvement.

This report focuses on alignment of asset management capability. The alignment of asset management portfolios is covered under a separate report. The preparation of this report is informed by a literature review, both national and international, of existing frameworks for asset management capability assessments. The findings of this review are summarised in this report to facilitate a high level comparison of existing frameworks to better inform which may be the most suitable framework for ACT Health. Donald Cant Watts Corke SAFM has also included a recommendation on which framework may best facilitate the development of an ACT Health SAMF. The selection of the framework will determine which survey process will be used in the next stage of this project.

² ANAO - Better Practice Guide on the Strategic and Operational Management of Assets by Public Sector Entities, Sept 2010

I BACKGROUND

Public health services all around Australia, including ACT Health, are facing significant challenges arising from a need to meet ever increasing demand for services with constrained budgets, limited resources and ageing infrastructure. The typical response to the situation that is confronting most public health services is to deliver new capital projects in an attempt to meet ever growing demand for services. This inevitably leads to an ever expanding asset portfolio that is expensive to maintain and operate over time and that puts ever more pressure on operating budgets.

Meeting these challenges requires a different way of thinking, excellent planning and the effective activation and utilisation of assets to enable the delivery of services in an ever more efficient and effective way.

Health service delivery is heavily dependent on the use of built assets and associated infrastructure such as specialised medical equipment, ICT and non-medical plant and equipment. Effective management of the ACT Health asset and infrastructure portfolio (approximately \$1,100M asset replacement value) is therefore critical to the efficient and effective delivery of health services by ACT Health.

The most important component of an effective asset management framework is ensuring that assets align with the strategic aims and service delivery objectives of the organisation. This may seem like an obvious statement but even a cursory look at most public sector asset portfolios highlights that their asset portfolios are poorly suited to meet the current strategic objectives and service delivery requirements of the organisation and the future challenges that confront these institutions.

A Strategic Asset Management Framework (SAMF) provides an integrated approach for the effective management of assets and infrastructure through the alignment of asset portfolios and asset management capability. Only in this way can an organisation be confident that it is maximising the use of their asset portfolio in support of institutional outcomes and service delivery objectives.

Benefits of Asset Management Capability assessment:

- Demonstrates competence, establishes improvement priorities and makes better, clearer connections between strategic organisational plans and the actual day-to-day work and asset realities;
- Identifies weak spots in terms of best practice that can be addressed to reduce risk;
- Integrates planning and delivery; in the integrated management of acquisition/creation/ operation, maintenance, disposal/renewal, and in the many generic 'enablers' that underpin sustainable, optimised performance;
- Provides clear evidence of sustainable good governance to all stakeholders;
- Develops a robust framework for the management of assets that will improve strategy development, service delivery and asset performance;
- Demonstrates progress over time as the process is repeatable and sustainable; and
- Provides a benchmarking tool for ACT Health's asset management practices and processes against other institutions and organisations within an international framework.

This report compares a range asset management capability frameworks to act as a guide for the development of a best practice framework for ACT Health. There are some asset management capability practices/assessments that are available publicly and some generated by consulting organisations (AMBOK, etc.). Donald Cant Watts Corke SAFM has not purchased AMBOK for review and inclusion as part of this report.

Table 1: Summary Findings of Selected Asset Management Capability Assessment Tools

Asset Management Capability Assessment Tools	Country or Source	Brief Description	Number of Questions	Year Introduced
IAM PAS 55 BSI (Publicly Available Specification 55-BSI)	British, UK	Applicable for the optimisation management of physical assets.	121	2004
IAM ISO 55000 (International Standard)	British, UK	Applicable for the management of any asset type.	39	2014
AMBoK (Asset Management Council)	Australia	Built on ISO 55001 and other standards.	Around 150	Not assessed
TAM (Total Asset Management)	NSW Government, Australia	Built on EFQM. For any type of asset management, ranging from asset management to operational	65	2004
PAMCAM (Property Asset Management Capability Assessment Model)	Office of Government Commerce, UK	Built on EFQM - Made specific for property asset management	38	2009, relaunched 2014

*Note that OGC and TAM are both based on the EFQM (European Foundation for Quality Management)

An important aspect of the current ACT Health SAMF project is to adopt clearly articulated and understood terms of reference regarding definitions of the four asset classes in scope. The definitions employed by NSW Health for each corresponding asset class are included in the below table by means of reference for ACT Health in refining their asset class definitions.

NSW Health asset class definitions include:

- **Building Fabric** – includes all building fabric such wall finishes, doors, floor finishes, etc
- **Building Services** – includes mechanical, hydraulic, electrical and fire protection services
- **Facility Equipment** – includes FF&E, office equipment, training and education equipment
- **Infrastructure, Grounds and Gardens** – includes all external assets and tools
- **Medical Equipment** – includes all medical equipment from patient care to imaging, laboratory, etc
- **IT & Communications** – includes all IT equipment and communication equipment such as PCs, servers, mobile phone, PABX, Nurse call system
- **Security** – includes alarms, CCTV, monitors, etc
- **Laundry Equipment** – includes washing machines, dryers, presses, etc
- **Catering Equipment** – includes kitchen equipment, dishwashers, delivery systems, etc

Table 2: Asset Class Definition Guideline

Asset Class	Alignment of NSW Health Asset Class ³
Built assets	Building Fabric – includes all building fabric such wall finishes, doors, floor finishes etc
	Building Services – includes mechanical, hydraulic, electrical and fire protection services
Medical Equipment	All medical equipment from patient care to imaging, laboratory etc
ICT	All IT equipment and communication equipment such as PCs, servers, mobile phone, PABX, Nurse call system
Non-Medical and Plant Equipment	FF&E, office equipment, training and education equipment etc

³ Section A - Guideline For Asset Descriptions, Referencing And Data Standards, October 2003

2 ASSET MANAGEMENT CAPABILITY ASSESSMENT FRAMEWORKS/TOOLS

2.1 PAS 55 BSI

PAS 55 is the British Standards Institution's (BSI) Publicly Available Specification 55 (PAS 55) for the optimised management of physical assets. It provides clear definitions and a 28-point requirements specification for establishing and verifying an integrated, optimised and whole-life management system for all types of physical assets. Now internationally recognised, PAS 55 is an essential, objective definition of what is required to demonstrate competence, establish improvement priorities and make better, clearer connections between strategic organisational plans and the actual day-to-day work and asset realities.

PAS 55 applies to any private or public sector organisation that is highly dependent on physical infrastructure or equipment for the delivery of its services. PAS 55 describes integrating planning and delivery and the integrated management of asset cycle activities (acquisition/creation, operation, maintenance, disposal/renewal) as well as the 'enablers' that underpin sustainable, optimised performance. The objective of PAS 55 is to provide an optimal and systematic, risk-based, sustainable and integrated framework for the management of an asset portfolio.

As a precursor to ISO 55000, the PAS 55 framework provides an objective definition of what is required to demonstrate competence, establish improvement priorities and make better, clearer connections between strategic organisational plans and the actual day-to-day work and asset realities.

PAS 55 was first introduced in 2004 and since then has proven very successful, with widespread adoption in many sectors including utilities, transport, mining, process and manufacturing industries worldwide. The 2008 update (PAS 55:2008) was developed by 50 organisations from 15 industry sectors in 10 countries. The International Standards Organisation (ISO) accepted PAS 55 as the basis for the new ISO 55000 series of international standards.

PAS 55 is also able to be used to provide clear evidence of sustainable good governance to customers, investors, regulators and other stakeholders. PAS 55 achieves this by seeking specific evidence of alignment between the good intentions of an organisation or institution and real, on-the-ground, day to day service delivery. It is a valuable mechanism to ensure that the principles of whole life cycle planning, risk management, cost/benefit, customer focus and sustainability are actually delivered within asset cycle activities.

PAS 55 is an Excel-based survey tool that can also be used to benchmark an organisation's asset management practices and processes against other organisations from within the same sector, and, perhaps more importantly, external to the sector. Organisations can receive accreditation under PAS 55 that clearly demonstrates best practice management of their asset portfolio.

PAS 55 provides a best practice framework for assessing the asset management competency and systems within an organisation and examines the following key areas:

- Governance;
- Planning;
- Key enablers such as:
 - Policies and procedures;
 - Information systems;
 - Risk management;
 - Procurement framework;

- Life Cycle Analysis;
- Performance assessment; and
- Review and continuous improvement.

The PAS 55 capability assessment includes 121 questions to be rated based on level of maturity shown in Figure 2:

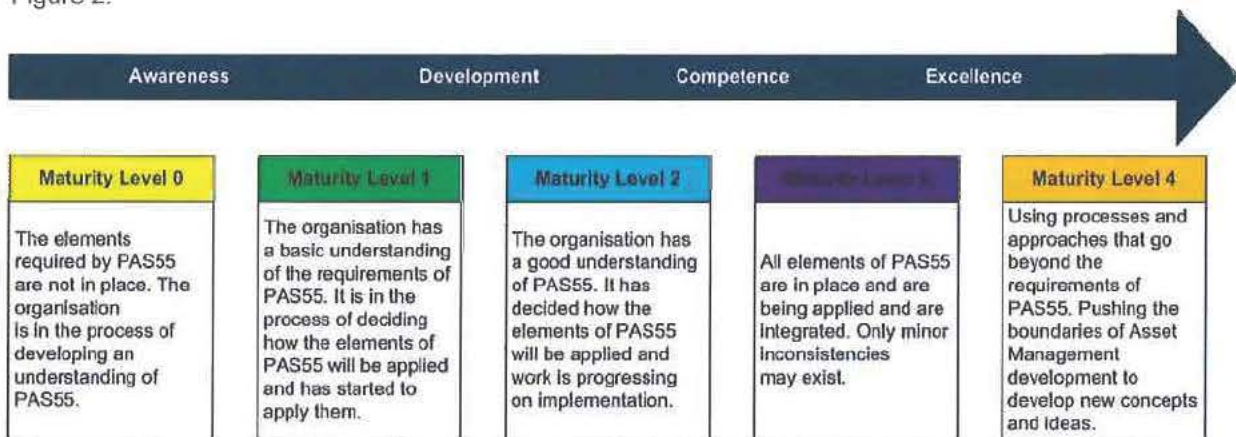


Figure 2: PAS 55 Maturity Level

A sample of the PAS 55 survey results is included below in the form of a spider diagram. This diagram provide any organisation using this tool with a clear representation of their asset management maturity against each of the elements.

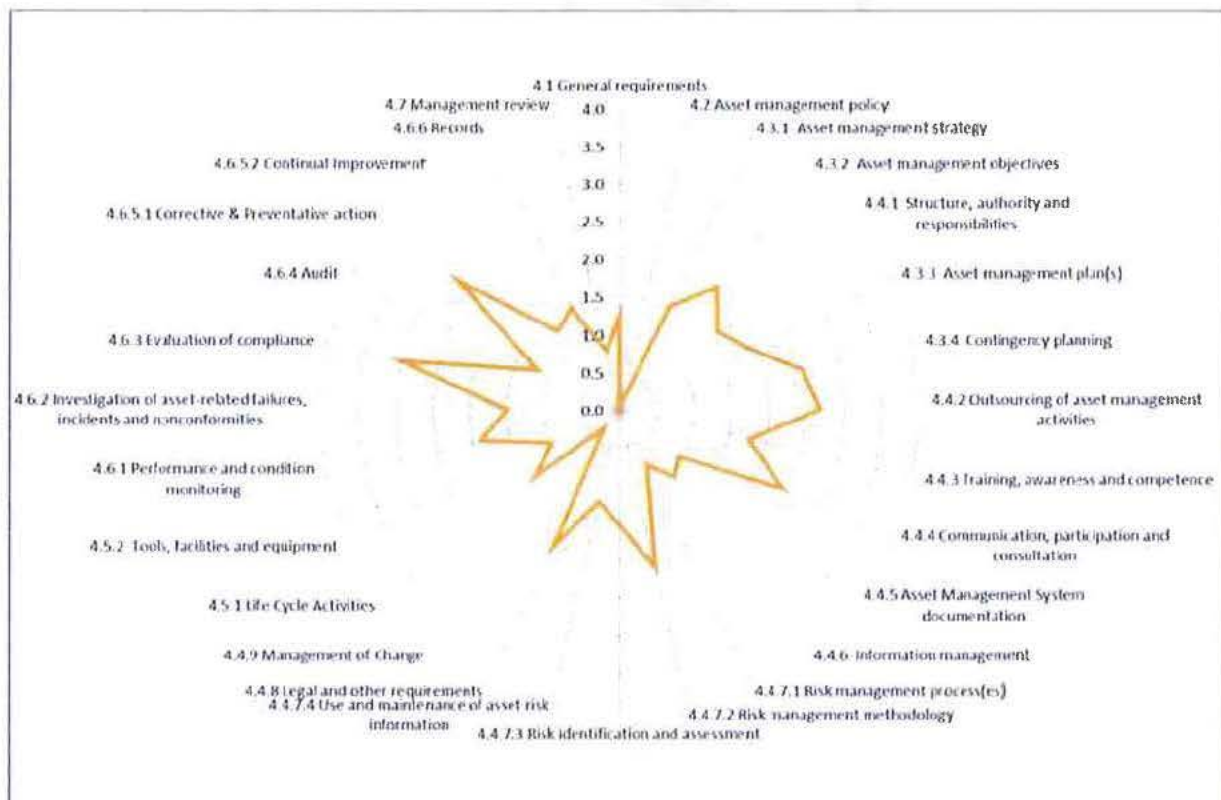


Figure 3: Sample Spider Diagram

Further information on PAS 55 is included in the Section 6.1 of this report.

2.2 ISO 55000

ISO 55000 provides an overview of asset management and asset management systems. The ISO 55000 series of standards comprises three documents:

- ISO 55000 Asset management — Overview, principles and terminology
- ISO 55001 Asset management — Management systems — Requirements
- ISO 55002 Asset management — Management systems — Guidelines for the application of ISO 55001.

In creating these three separate documents, elements that were combined in PAS 55-1 are now split into ISO 55000 and ISO 55001. The ISO 55001 standard contains the requirements specification only, whereas the subject matter introduction, along with key terms and definitions, reside in ISO 55000.

ISO 55002 corresponds directly to PAS 55-2, providing guidance on the interpretation and application of the ISO 55001 requirements.

These standards relate to a management system for asset management and are intended for use by organisations that are wanting to improve the realisation of value from better use of their asset base, those that are involved in the establishment, implementation, maintenance and improvement of an asset management system and organisations involved in the planning, design, implementation and review of asset management activities.

The use of the ISO 55000 series of standards enables organisations to achieve their institutional objectives through the efficient and effective use of its assets and do so consistently and sustainably over time.

The ISO 55000 capability assessment questions to be rated based on level of maturity shown in Figure 4:



Figure 4: ISO 55000 Maturity Level

Further information on the ISO 55000 series has been included in Section 6.2 of this report.

2.3 AMBOK (ASSET MANAGEMENT COUNCIL)

This new tool, which was launched at the AMPEAK conference in April 2015, refines the current maturity improvement program into a new model. This model includes a framework to objectively, transparently and reliably assess the asset management maturity of an organisation. The assessment contains around 150 questions and assesses performance across a range of perspectives relevant to asset management including:

- Process
- Organisational roles
- Competency
- Decision making
- Risk management
- Leadership and culture
- ISO 55001

2.4 TOTAL ASSET MANAGEMENT (TAM), NSW

The New South Wales Government's Total Asset Management (TAM) Capability Assessment Tool is designed for Government agencies to assess their level of capability or readiness to implement Total Asset Management. The assessment process is called a Capability Review. The TAM Capability Assessment Tool uses a questionnaire to help agencies review their Asset Management capability, including strengths and areas for improvement.

The TAM Capability Assessment Tool is designed to evaluate TAM capability in its widest sense. That includes examining how an agency plans to achieve its corporate results, planning the role assets play in supporting this and how asset management is implemented, including how assets are acquired, managed and disposed of in line with the asset management lifecycle.

The EFQM Excellence Model has established weights for each of the nine sections in the Tool, as shown in the diagram below. The weights are based on research from a range of organisations into the factors that most affect good overall performance.

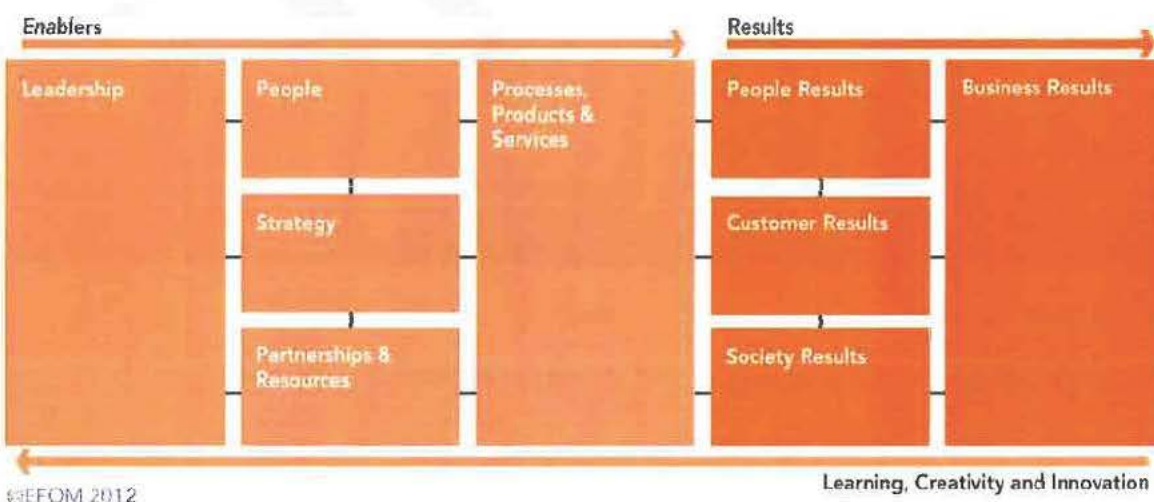


Figure 5: European Foundation for Quality Management (EFQM) Diagram

The TAM NSW capability assessment questions are to be rated based on level of maturity shown in Tables 3 and 4:

Table 3: Maturity Level Guidelines for Sections 1-5, TAM NSW

Description	Score
Don't know	0
No	1
Yes, but inconsistently	2
Yes, but could be improved	3
Yes, and achieve real benefits.	4
Yes, regarded as best practice.	5

Table 4: Maturity Level Guidelines for Sections 6-9, TAM NSW

Description	Score
Don't know	0
No	1
Yes, but don't use the information	2
Yes, and can show improving trends	3
Yes, steady improvement over 3 years	4
Yes, excellent improvement over 5 years	5

Further information on the TAM, NSW has been included in Section 6.3 of this report.

2.5 PAMCAM (PROPERTY ASSET MANAGEMENT CAPABILITY ASSESSMENT MODEL)

The Property Asset Management Capability Assessment Model (PAMCAM) was jointly developed by the UK Office of Government Commerce (OGC) and the UK National Audit Office (NAO), with consultancy assistance from Price Waterhouse Coopers (PWC). It was first launched in January 2009.

PAMCAM is an on-line, self-assessment tool that enables government organisations to measure their corporate property asset management capability and identify areas for improvement. It is aimed primarily at central civil government organisations but is broadly applicable to the wider public sector.

In 2013, it was decided to refresh and re-launch the tool. The result is a reduction in the number of questions (from 67 to 38) and a much simpler interface through an e-portal named e-PIMS, enabling continued access by nominated e-PIMS users. The new PAMCAM was launched in July 2014 and replaces the original 2009 model.

The questions are spread across 9 chapters which represent the principal corporate management streams of a fully functioning organisation. There are 38 questions in the 2014 Survey. The number of questions may vary in subsequent years depending on a range of other factors, such as changes in policy or machinery of government. The tool examines the capability of organisations in terms of:

- Four Property Asset Management (PAM) lifecycle activities
 - Strategy
 - Planning
 - Delivery
 - Operation

- Five organisation and management arrangements that enable effective and efficient PAM activity and outcomes including:
 - Governance
 - Capacity & capability
 - Policies & standards
 - Data & Management Information (MI)
 - Performance management, audit & review

The dashboard feature of the original PAMCAM, which measured performance between Awareness through to Excellence, has been replaced with a simpler traffic light red/amber/green methodology which draws upon the No/Partial/Yes responses to the questions. This is primarily to highlight where additional activity or improvements may need to be made rather than suggesting any crisis.

Further information on the PAMCAM, UK has been included in Section 6.4 of this report.

3 OVERVIEW

Table 5 below provides a high-level assessment of each asset management capability assessment tool described in this draft report. The Dimensions referred to in the table below have been established using a paper on 'Integrated Strategic Asset Management: Frameworks And Dimensions'⁴ to group them together. It has resulted in summarising each assessment using the following dimensions:

- Organisational: organisational, technology and information; and human factors management
- Time: operational and the strategic management of the asset
- Spatial: interaction between assets, stakeholders and clients, ecological environments, industry, and government

The Elements utilised in the below table have been adopted from another research paper - Towards An Integrated Maturity Model of Asset Management Capabilities⁵ - that provide a common ground for comparing the different asset management capability assessment tools.

Table 5: High Level Asset Management Capability Frameworks Comparison

Dimensions	Elements	Areas	PAS 55	ISO 55000	AMBOK	TAM NSW	PAMCAM
Organisational	Organisational Governance	Corporate Governance					✓
		Corporate Policy					✓
		Corporate Strategy					✓
	Knowledge Management	Data Management	✓	✓		✓	✓
		Asset Register	✓	✓		✓	✓
		Information Systems	✓	✓		✓	✓
		Knowledge Management	✓	✓		✓	
	Organisational Management	Leadership				✓	
		Change Management	✓	✓		✓	
		Competence Management	✓	✓		✓	✓
		Organisational Culture				✓	
Time	Service Delivery Planning	Asset Management Policy	✓	✓		✓	
		Asset Management Objectives	✓	✓		✓	
		Asset Management Strategy	✓	✓		✓	✓
		Acquisition Plan	✓	✓			✓
		Operations Plan	✓	✓			✓
		Maintenance Plan	✓	✓			✓

⁴ Laue, M., Brown, K., Scherrer, P., and Keast, R., Springer Link, Integrated Strategic Asset Management: Frameworks and Dimensions, December 2013

⁵ Mahmood, M., Dhakal, S., Wiewiora A., Keast, R. and Brown, K., Proceedings of the 7th World Congress on Engineering Asset Management, Springer London, Deajeon, Korea, Towards An Integrated Maturity Model of Asset Management Capabilities, 2012

Dimensions	Elements	Areas	PAS 55	ISO 55000	AMBOK	TAM NSW	PAMCAM
	Service Delivery	Disposal Plan	✓	✓			
		Performance and Condition Monitoring	✓	✓		✓	✓
		Incident Management	✓	✓			
		Corrective and Preventative Actions	✓	✓			✓
		Procurement	✓	✓		✓	✓
Spatial	Community Needs and Expectations	Stakeholder Management	✓	✓		✓	
		Demand Management					
	Environmental Factors	Sustainability Management					
		Climate Change					
	Organisational Governance	Interagency Collaboration				✓	
	Whole of Government Policy Framework	Whole of Government Policy	✓	✓		✓	✓
		Whole of Government Model	✓	✓		✓	✓
Statistical Evaluation	Environmental Factors Evaluation	Risk Management	✓	✓			
		Asset Performance Management	✓	✓			✓
		Management Reporting	✓	✓			✓
		Review	✓	✓			✓
		Audit	✓	✓			✓

As outlined in the table above and also in the broader report, both PAS 55 and ISO 55000 provide the means for undertaking a comprehensive, empirically based performance assessment of organisational asset management capability. Both of these frameworks are able to be used to assess asset management capability for large, public sector organisations such as ACT Health that have a high dependency on the use of physical assets for the delivery of services. Both of these are proven tools that have been used over a period of time by a large number of organisations both nationally and internationally and represent a best practice approach. A more detailed analysis of PAS 55 and ISO 55000 is provided below to better inform which of these tools is best suited for use by ACT Health in the development of a SAMF.

4 ANALYSIS OF PAS 55/ISO55000

4.1 SCOPE OF APPLICATION

The most significant change between the suite of ISO 55000 and PAS 55 is the scope for application. PAS 55 is overtly focused on physical assets with acknowledgement of the application to other asset types. ISO 55001 is designed to apply to any asset type, whilst recognising applicability to management of physical assets. It therefore, has more generalised language for integration with different asset management contexts.

ISO 55000 an internationally-based attempt to include the generically applicable essential items for the management of *any asset type*. It does not include, however, the 'how to guide' as this depends on the organisational context and the assets to be managed.

The uptake of ISO 55000 series has not been as quick as expected by commentators within the asset management industry, with questions asked of industry professionals as to why this may be the case.

Corresponds with PAS55-1:

- ISO 55000 Asset management – overview, principles and terminology
- ISO 55001 Asset management – management systems – requirements

Corresponds directly with PAS55-2:

- ISO 55002 Asset management – management systems – guidelines for the application of ISO 55001.

Despite these differences between high level scope of application between PAS 55:2008 and the ISO 55000 series, strong themes that are retained in in ISO 55000 suite, continued on from PAS55: 2008 include:

- Alignment with organisational objectives (line of sight) feeding clearly into asset management strategies, objectives, plans and day-to-day activities.
- Whole life-cycle asset management planning and cross-disciplinary collaboration to achieve optimal outcomes.
- Risk management and risk based decision-making although the required steps for risk management are reduced in ISO 55001 because the required level of detail is provided in ISO 31000, *Risk Management*.

The enablers for integration and sustainability; particularly leadership, consultation, communication, competency development and information management.

4.2 VARYING DEFINITIONS

Asset management is defined in ISO 55000 as a 'coordinated activity of an organisation to realise value from assets'.

PAS 55 defines asset management as 'systematic and coordinated activities and practices through which an organisation 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 organisational strategic plan'.

4.3 DIFFERING ASSET MANAGEMENT SYSTEMS

There is an increased focus on leadership in ISO 55001 compared to PAS 55 and its scope seems to stretch further into the organisational structure, roles, responsibilities, authority and organisational strategic plan than PAS 55 as demonstrated in Figures 6 and 7.

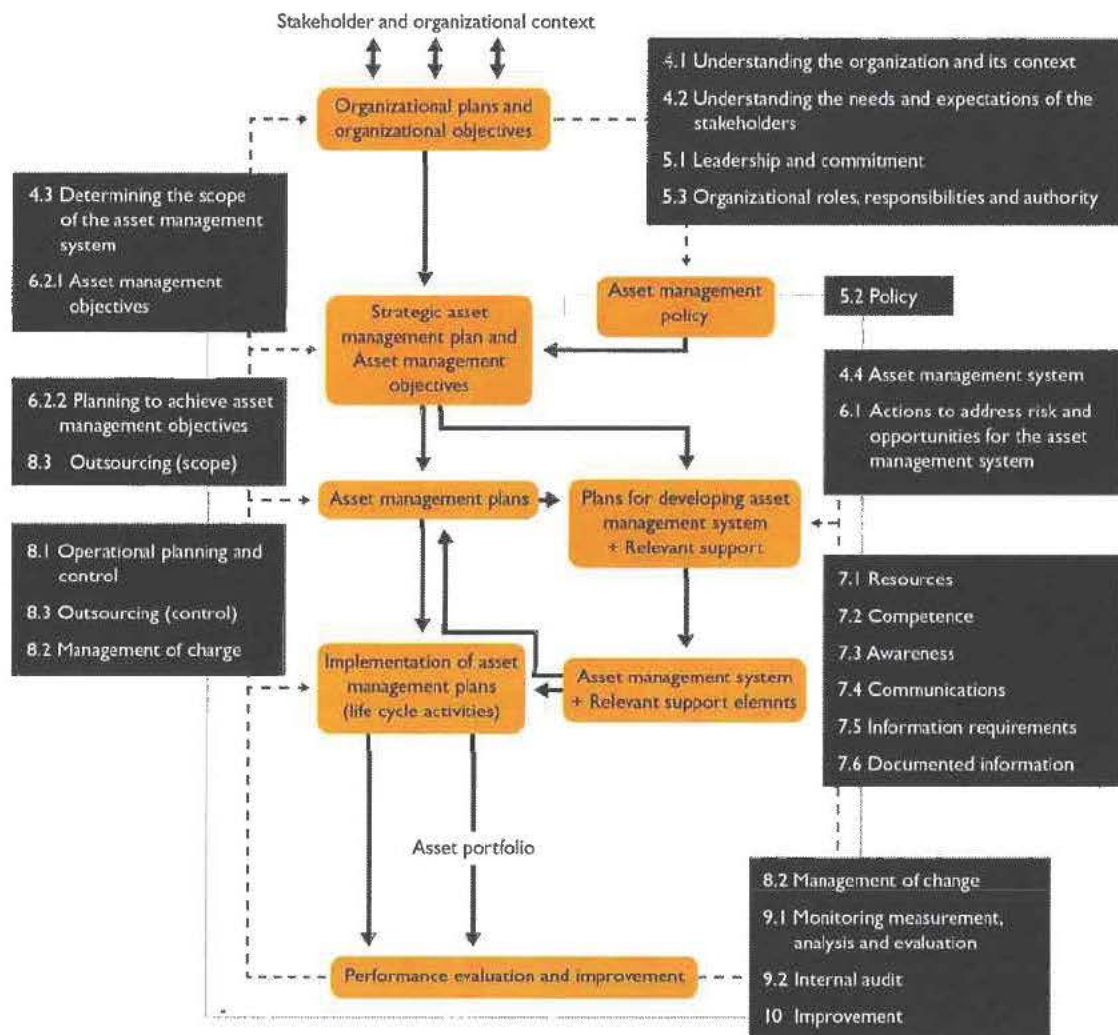


Figure 6: ISO 55000 Asset Management System

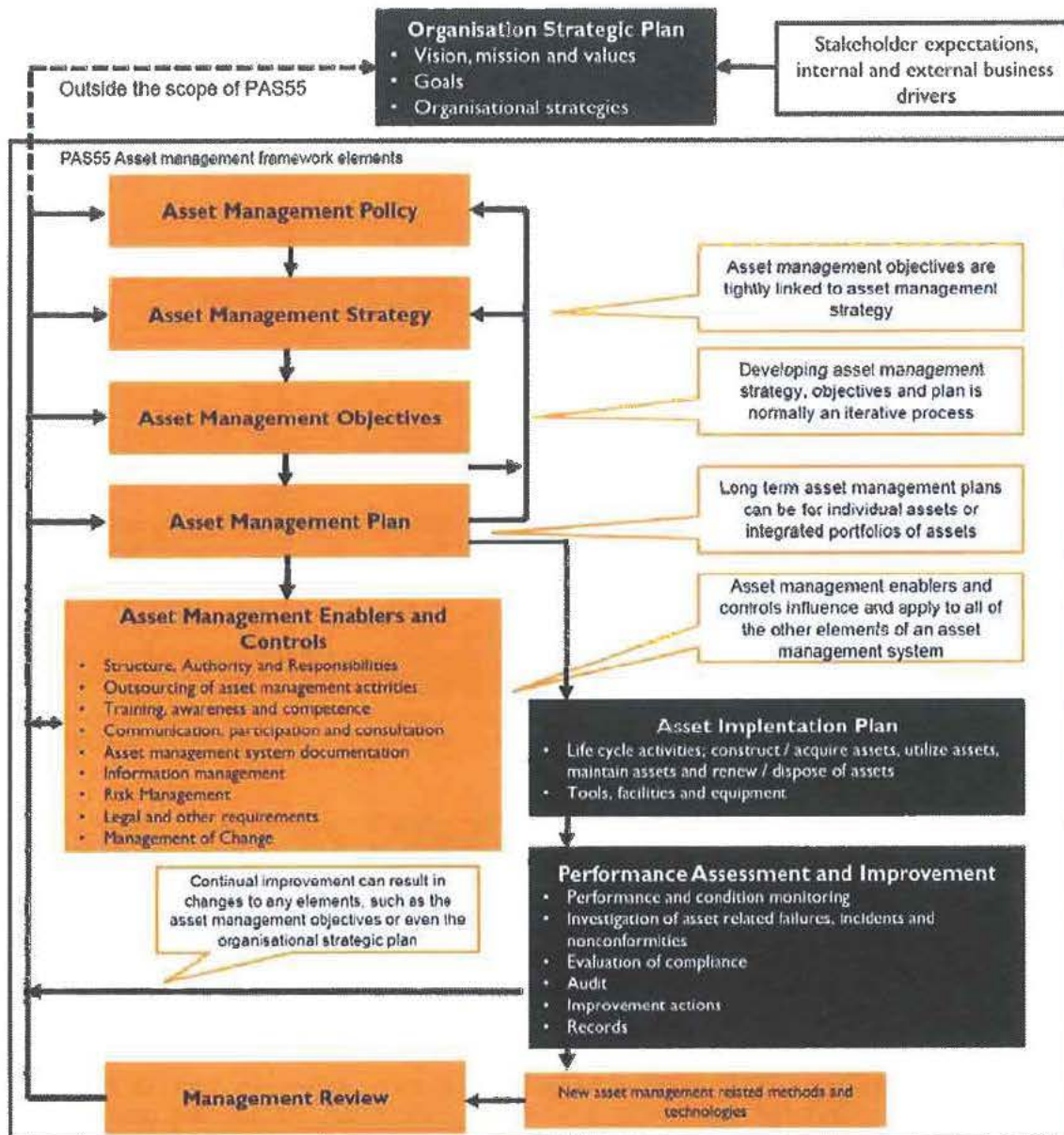


Figure 7: PAS 55 Asset Management System

ISO 55000 does not distinguish between different life cycle activities, (create / acquire, operate, maintain, renew / dispose) to accommodate more diverse cycle stages of different asset types.

ISO 55001 specifies requirements for an asset management system, while the other standards detail sector-specific, asset-specific or activity-specific technical requirements or give guidance on how ISO 55001 should be interpreted and applied within a specific sector or to particular asset types.

4.4 CERTIFICATION

Certification across PAS 55 to ISO 55000 is not a 1-1 relationship due to the differences in cross-mapping requirements under ISO 55000 clauses and PAS 55 elements. Organisations should not experience difficulty in transferring certification across, although some effort will be required to understand and potentially restructure some of the organisation's system elements.

Furthermore, certifying to ISO 55000 will also require compliance against another set of requirements to demonstrate subject-specific knowledge and perform their assessments effectively. This requires ISO IEC/TS 17021-5 *Competence Requirements for Auditing and Certification Asset Management Systems*.

4.5 DETAILED ANALYSIS

There are two assessment methodologies that can be used to determine the asset management maturity of an organisation:

- PAS 55 Assessment Methodology (PAM), 2009 – Utilises the PAS 55:2008 questionnaire which includes a series of 121 elements covering each of the 28 elements of PAS 55: 2008. Can be executed in-house by a competent asset management professional, or conducted through an external asset management professional organisation.
- Self-Assessment Methodology (SAM), 2014 – To be executed by professionals with extensive knowledge of PAS 55:2008 or ISO 55001 methodologies and their application in determining AM maturity. Both PAS 55:2008 and ISO 55001 have extensive questionnaires used to undertake a SAM assessment from within the organisation by utilising the extensive knowledge of the organisation's asset management workforce and relevant external contractors.

The ISO 55001 question set includes 39 questions covering each of the 27 clauses and sub-clauses of ISO 55001. Although the ISO 55001 question set is not as exhaustive as the PAS 55:2008 set, it covers the critical elements of asset management with a number of notable differences:

- It employs a stronger emphasis on Leadership and Commitment within the organisation as well as a more direct focus on understanding the organisation and its context before constructing an appropriate Asset Management System.
- There is stronger emphasis on systematised asset management rather than PAS 55:2008 that compartmentalises the strategic asset management space into asset management policy, asset management strategy, asset management objectives and asset management plans.
- There is greatly reduced scope for the assessment of risk, risk management, risk management systems, use of asset risk information, planning for risk and contingency planning under ISO 55001 as these are covered in other International Standards. This suggests that the auditing tool used under ISO 31000 *Risk Management* would also require employment to comprehensively assess an organisation's AM maturity. This potentially presents significant shortfalls in employing the ISO 55001 methodology as the applicability of ISO 31000 to asset risk management, specifically, needs further assessment. Furthermore, the integration between ISO 55001 and 31000 also requires further investigation to determine suitability for asset management assessment purposes.
- ISO 55001 does not cover an organisations' legal obligations for asset management or the regulatory context under which it operates. This presents a significant risk for its adoption and is a significant shortfall in comparison to the PAS 55:2008 methodology and corresponding question set.
- Asset Management Enablers and Controls are omitted from ISO 55001.

5 RECOMMENDATIONS

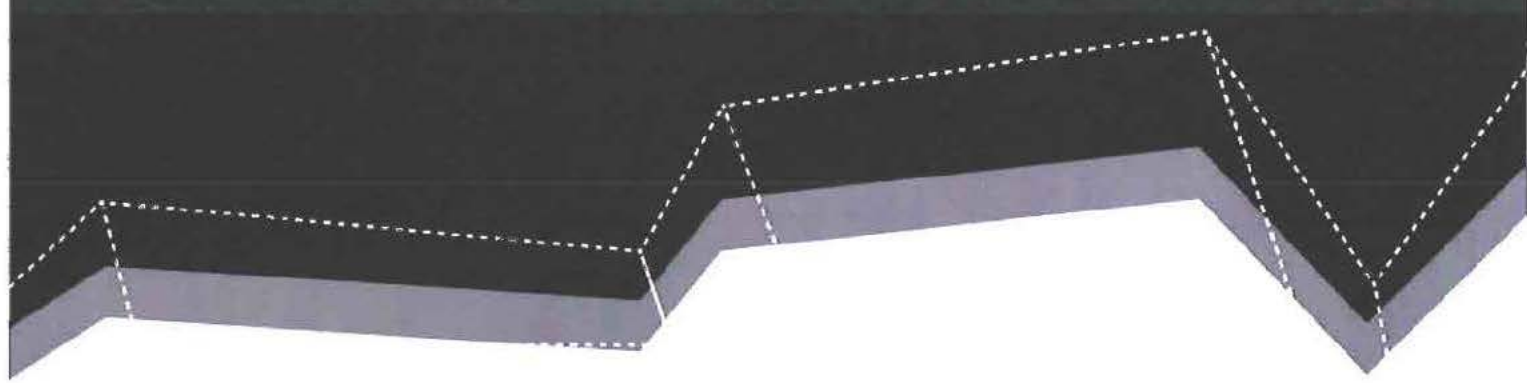
Both PAS 55 and ISO 55000 provide an evidence based understanding of an organisation's asset management capability. However, PAS 55 provides a greater level of analysis and insight into organisational capability. As outlined in PAS 55 – 1:2008 PAS 55 applies to the following:

- Any asset intensive business, where significant expenditure, resources, performance dependency and/or risks are associated with the creation/acquisition, utilisation, maintenance or renewal/disposal of assets;
- Any organisation that has, or intends to manage or invest in, a significant portfolio of assets, or where the performance of asset systems and the management of assets are central to the effective delivery of service, product or other business objectives;
- Organisations where there is a business or public accountability requirement to demonstrate best value in the safe management of assets and provision of associated services (e.g. education and health sectors).

While undertaking a PAS 55 review process requires additional effort by participants at the outset, the benefit of undertaking the process significantly outweighs this initial effort. It is therefore recommended that ACT Health adopt PAS 55 as the framework for enabling a comprehensive capability assessment of ACT Health's asset management capability.

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APPENDIX 6.1
PAS 55 BSI





The PAS55 Assessment Methodology

Guidance: Version 1

February 2009

General Guidance Notes on the use of the IAM Assessment Methodology
for use with BSI PAS 55:2008

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Background

The Institute of Asset Management (IAM) is the independent organization for professionals dedicated to furthering the knowledge and understanding of Asset Management. In particular it seeks to spread good practice and develop decision support tools and techniques.

In pursuance of these aims the IAM, in conjunction with the BSI, took a major step in sponsoring the development and launch, in 2004, of BSI PAS 55. This was developed in response to demand from industry for a standard for carrying out asset management and is applicable to any organization where physical assets are a key or critical factor in achieving its business objectives and in achieving effective service delivery. In 2008, the original BSI PAS 55:2004 was reviewed and modified to reflect the views from the Review Panel sourced from a range of industrial sectors around the world.

PAS55 is published in two parts:

- PAS55 Specification for the optimised management of physical infrastructure assets;
- BSI PAS 55:2008 Guidelines for the application of Part 1 (PAS55).

As a further aid to the application of PAS55, the IAM, in conjunction with a number of sponsoring organizations, has led the development of this high-

level Assessment Methodology to enable organizations to measure their conformance with BSI PAS 55:2008. It is designed to promote good asset management practice and embodies the principle of continuous improvement.

The user is advised that reference to the BSI PAS 55:2008 documentation is essential as this Assessment Methodology is complementary to it and in no way replaces it.

The PAS55 Assessment Methodology comprises the following components:

- Overall guidance notes to assist the user of the IAM's PAS55 Assessment Methodology;
- Question and answer sets that enables a user to assess the approach of an organization to, and adoption of, each of the 28 elements of BSI PAS 55:2008;
- Specific guidance to provide targeted advice and information for each question;
- A maturity scale based on that contained in the International Infrastructure Management Manual (IIMM), which provides a display of the results of the assessment on a scale of 0 to 4;
- An Excel-based tool that embodies the question and answer sets together with the question-specific guidance.



Purpose and structure of guidance notes

The specific purpose of this document is to provide general guidance for users wishing to assess the asset management capabilities of an organization by means of this Assessment Methodology against BSI PAS 55:2008.

These general guidance notes are structured as follows:

- **Section 2** outlines the objectives of the IAM's PAS55 Assessment Methodology, and provides guidance on how the scope of an assessment should be determined;
- **Section 3** provides high-level guidance on the appropriate application of the Assessment Methodology in order to ensure that maximum benefits are obtained;
- **Section 4** describes the maturity scale that has been developed to enable an organization to assess the extent to which it conforms with each of the 28 requirements of BSI PAS 55:2008;
- **Section 5** provides an overview of the structure of the question and answer set and the associated question specific guidance;
- **Section 6** contains a brief overview of the main features of the Excel based tool for the PAS55 Assessment Methodology.



Context and Objectives of the IAM's PAS55 Assessment Methodology

An asset management assessment is designed to provide an organization with the following:

1. Quantified empirical evidence to assist its understanding of its current level of application of asset management processes, tools and techniques, including any significant gaps in application calibrated against a recognized scale;
2. A baseline and benchmark upon which it can build action plans to address key gaps and monitor progress over time. This can be used to compare its own asset management capability against other organizations;
3. A better understanding of good practice in asset management to aid in the preparation of an improvement programme or action plan.

The IAM firmly believes that the basis of a rigorous assessment lies in the following fundamental principles:

- It should be based upon the documented asset management system and actual evidence of its implementation;
- It should assess inputs from representative areas of an organization (often referred to as 'horizontal and vertical slices'), and include an adequate sample size;
- It should include a documentary review and audit of the implemented activities;
- There should be a record of evidence for the system documentation and implemented activities (i.e. an audit trail to demonstrate the successful operation of the asset management system).

The IAM's PAS55 Assessment Methodology has been developed such that it:

- Can be applied to all infrastructure sectors;
- Is free of any commercial bias;
- Allows organizations to assess their capability across the 28 elements of BSI PAS 55:2008, including:
 - Strengths and weaknesses;
 - Deficiencies;
 - Areas of excellence.
- Is complementary to and supportive of certification to BSI PAS 55:2008;
- Enables organizations to share and compare their own capability with others (industry peers and stakeholders alike) should they wish;
- Facilitates the identification of best practice;
- Facilitates the preparation of action plans for improvement;
- Allows organizations to track improvements in their asset management systems.

The scope of an asset management assessment should match the scope of an organization's asset management system.

Further guidance on defining the scope of an asset management system is contained in Section 4.1 of BSI PAS 55:2008.

Users and Usage of the IAM's PAS55 Assessment Methodology

This Assessment Methodology is designed for use by an organization that is not 'new' to PAS55 and already has experience of asset management. The following recommendations are made in order to maximise the benefits to you of using the IAM's PAS55 Assessment Methodology.

Organizations are advised to consider whether they wish to carry out their assessment using internal resources or an experienced external asset management assessor. Both approaches have their merits and the PAS55 Assessment Methodology may be used with either. In either event the assessor must be experienced in asset management and the use and interpretation of BSI PAS 55:2008.

Prior to undertaking the assessment, the organization should:

- a. Appoint a coordinator who will be responsible for all matters concerning the assessment, including:
 - i. Organising the people within, the organization, who will be acting as respondents to the questions;
 - ii. Arranging for all information to be captured within the tool;
 - iii. Reporting to the organization on the results of the assessment;
- b. Determine the scope of the asset management system that it wishes to assess;
- c. Consider the form it wishes the assessment process to take. In this context, the principal formats are generally taken to be interviews, facilitated groups /panels or a combination of the two;
- d. Arrange for appropriate 'vertical and horizontal' cross-sections of its workforce, and where

appropriate outsourced service providers and stakeholders, to act as respondents during the assessment exercise;

- e. Provide appropriate pre-assessment communication and introductory training to ensure that, as a minimum, the proposed respondents are aware of the assessment process and the part within it that they are being asked to play.
- f. Identify which questions are to be asked of which respondents – in general a maximum of approximately 30 questions is appropriate.

Based on experiences from organisations that have used the previous version of this Assessment Methodology, it is suggested that in planning an assessment, the following timescales are used to review the question and answer sets (this does not include seeking evidence of documentation or for the implementation of activities):

- Using the group / panel approach, the time taken to reach a consensus on the appropriate response is approximately 8 minutes per question. It is advised that the group approach is used with great caution as the make up of the group can heavily distort results and in addition there is a loss of granularity in results;
- For individual 1/1 interviews, the response time required per question is approximately 2.5 minutes.

Additional time should be allowed for preparatory discussion, recording of answers and close out discussion. If responses are limited to recording the level of achievement, this time is likely to be reduced.

The overall duration of an entire 'end-to-end' assessment will be dependent upon the depth of the assessment and the size of the organization;

Certification to BSI PAS 55:2008

The IAM's PAS55 Assessment Methodology is designed to provide an organization with a framework by which it can carry out its own high-level assessment of its conformance with the requirements of BSI PAS 55:2008 by identifying their strengths and weaknesses against the 28 elements of the specification, based on an estimation of capability scaled against reference examples.

This Assessment Methodology is not to be used in place of an assessment for certification to BSI PAS 55:2008, but is aligned to be consistent with certification. Assessment for certification may include the use of this assessment question set. An assessment carried out for certification purposes will be to a much greater depth and will include, for example, verification of compliance with the organization's policies and procedures. This should be carried out by suitable independent assessors consistent with auditing requirements set out in BSI PAS 55:2008 clause 4.6.4

The Assessment Methodology does **not** provide a framework:

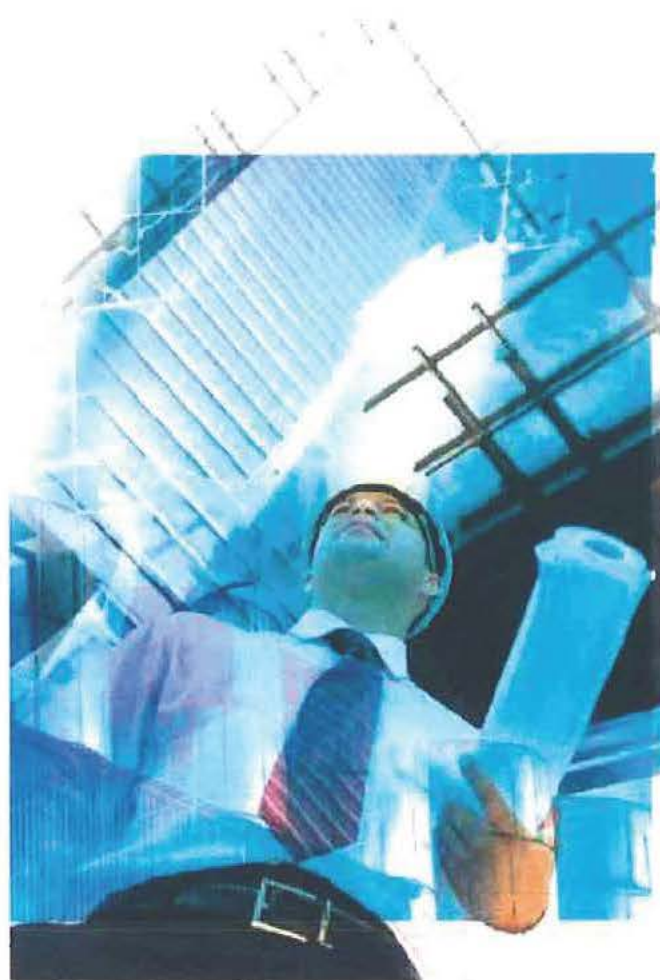
- To enable an organization to satisfy itself of the appropriateness and quality of the various documents, procedures and processes etc. that it has implemented;
- To enable an organization to establish whether or not its procedures and processes are being applied consistently across the organization, both of which would form part of the certification process.

Terminology

A number of special terms relating to asset management have been defined in PAS55 Section 3 'Terms and Definitions'. For the avoidance of doubt, where such terms are used within the IAM's PAS55 Assessment Methodology the meaning is identical.

The term 'appropriate' is used throughout this PAS55 Assessment Methodology and its intended meaning here is defined as follows:

Appropriate: An action, approach, process or procedure, etc that has been determined by the organization to be suitable for its needs in achieving a specific outcome.



Maturity Scale

The IAM's PAS55 Assessment Methodology considers five "levels" of maturity (Level 0 up to and including Level 4) against which an organization can measure its conformance with each of the 28 elements of BSI PAS 55:2008. These are aligned with the principles of the International Infrastructure Management Manual (IIMM), as indicated in **Figure 1**.

The maturity scale includes an indication of where this Assessment Methodology considers BSI PAS 55:2008 compliance to rest. Users should note that, whilst the maturity levels are designated 0 to 4, this does not have an upper limit. Through continuous improvement an organization can choose to achieve a higher level of maturity than is required for PAS55 compliance if that meets its business needs.

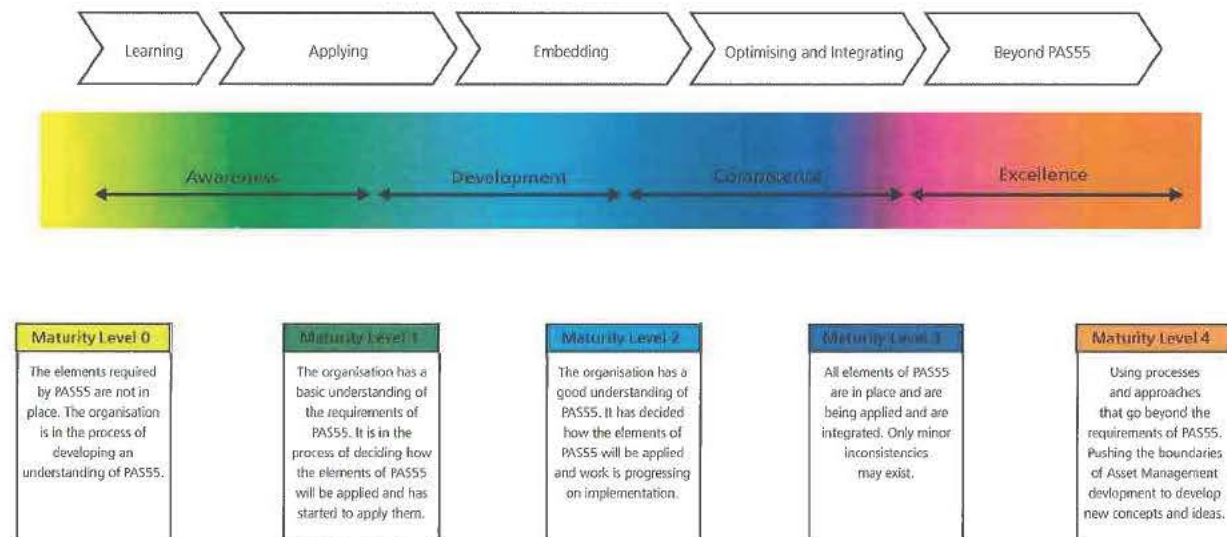


Figure 1 Maturity Scale

Notes on the use of the Maturity Scale	
1	As indicated by the colour transitions, the boundaries of the Maturity Scale are not hard values.
2	Compliance with BSI PAS 55:2008 is within Maturity Level 3.
NB: As stated at Note 1 above, this is not an absolute 'pass' or 'fail' numerical value but lies within the dark blue zone.	
3	There is no upper limit to 'excellence'.

Evidence builds from the lowest to the highest maturity levels, i.e. from 0 to 4, therefore in order to achieve a particular level of maturity; an organization should satisfy itself that the contents of all columns to the left have been considered.

Thus, it is recommended that a user commences by considering whether the organization has achieved maturity level 0 before progressing to consider maturity level 1, and so forth.

Questions, Performance Criteria and Associated Guidance

The IAM's PAS55 Assessment Methodology provides 122 questions covering each of the 28 elements of BSI PAS 55:2008. Each question comprises the following components:

- Five possible answers describing the performance criteria associated with each level of maturity;
- Guidance on why the question is being asked;
- Guidance on who should be able to provide a response to the question;
- Guidance on additional documentation and evidence that could be reviewed to assist with assessing the maturity level of the organization;
- An organization will obtain an indication of its degree of conformance to BSI PAS 55:2008 by honestly assessing its answers to each of the questions.

Whilst not exhaustive, the maturity answers are provided to help the organization determine its level of maturity, or conformance, with the requirements of BSI PAS 55:2008. These maturity answers, together with the overall guidance notes, are not intended to take the place of an experienced assessor.

In some organizations, certain elements of PAS55 will have greater significance than others and the importance or 'weight' of certain questions will vary from organization to organization. In designing this Assessment Methodology, no order of importance has been applied and each question carries the same weight when assessing the response to it.



Alignment of Questions with BSI PAS 55:2008

Section	Element	Element Title	No. of Questions (per element)	No. of Questions (per section)
4.1	4.1	General requirements	2	2
4.2	4.2	Asset management policy	6	6
4.3	4.3.1	Asset management strategy	10	
	4.3.2	Asset management objectives	7	
	4.3.3	Asset management plan(s)	7	27
	4.3.4	Contingency planning	3	
4.4	4.4.1	Structure, authority and responsibilities	9	
	4.4.2	Outsourcing of asset management activities	3	
	4.4.3	Training, awareness and competence	5	
	4.4.4	Communication, participation and consultation	6	
	4.4.5	Asset management system documentation	3	
	4.4.6	Information management	7	
	4.4.7.1	Risk management process(es)	2	52
	4.4.7.2	Risk management methodology	4	
	4.4.7.3	Risk identification and assessment	3	
	4.4.7.4	Use and maintenance of asset risk information	4	
	4.4.8	Legal and other requirements	3	
	4.4.9	Management of change	3	
4.5	4.5.1	Life cycle activities	6	7
	4.5.2	Tools, facilities and equipment	1	
4.6	4.6.1	Performance and condition monitoring	4	
	4.6.2	Investigation of asset-related failures, incidents and nonconformities	4	
	4.6.3	Evaluation of compliance	1	
	4.6.4	Audit	5	
	4.6.5.1	Corrective and preventive action	4	22
	4.6.5.2	Continual improvement	3	
	4.6.6	Records	1	
4.7	4.7	Management review	5	5
Total				121

The Question Set in this Assessment Methodology has been designed to cover the requirements of BSI PAS 55:2008, including the inter-dependencies and linkages.

A tabulation showing the cross-references to the 28 elements of BSI PAS 55:2008 is shown in **Figure 2**.



Figure 2 Alignment of Questions with PAS55

Software Tool

The IAM has documented this Assessment Methodology in a Microsoft Excel based software tool. Guidance on how to use the tool is included within the application. This section provides a brief overview of the main features of the tool.

The tool can be used to capture the results from multiple interviewees. The interviewees can be single individuals or a group/panel of individuals. This enables views and opinions from across the organisation to be compared and contrasted.

Where more than one response is provided to an individual question as part of a single assessment survey, the score for each question is then the un-weighted average of the individual responses to that question.

The tool enables the response(s) to the individual questions to be captured and displayed graphically. Each question is scored using the five-point maturity scale presented in Section 4.

A score is provided for each of the 28 elements of BSI PAS 55:2008 based on the un-weighted average of the responses provided to the questions relating to that particular element of BSI PAS 55:2008, which is displayed in the form of either a RADAR plot or a bar chart, as shown in **Figure 3 and 4**.

Users need to be aware that, within any element, a significant deficiency or weakness may be masked in a RADAR plot by other questions that have scored highly. The bar graph shows both the average score per clause and the score range.

- 4.1 General requirements
- 4.2 Asset management policy
- 4.3.1 Asset management strategy
- 4.3.2 Asset management objectives
- 4.3.3 Asset management plan(s)
- 4.3.4 Contingency planning
- 4.4.1 Structure, authority and responsibilities
- 4.4.2 Monitoring of asset management activities
- 4.4.3 Training, awareness and competence
- 4.4.4 Communication, participation and consultation
- 4.4.5 Asset Management System documentation
- 4.4.6 Information management
- 4.4.7.1 Risk management process(es)
- 4.4.7.2 Risk management methodology
- 4.4.7.3 Risk identification and assessment
- 4.4.7.4 Use and maintenance of asset risk information
- 4.4.8 Legal and other requirements
- 4.4.9 Management of Change
- 4.5.1 Life Cycle Activities
- 4.5.2 Tools, facilities and equipment
- 4.6.1 Performance and condition monitoring
- 4.6.2 Investigation of asset-related failures, incidents and nonconformities
- 4.6.3 Evaluation of compliance
- 4.6.4 Audit
- 4.6.5.1 Corrective & Preventative action
- 4.6.5.2 Continual improvement
- 4.6.6 Records
- 4.7 Management review

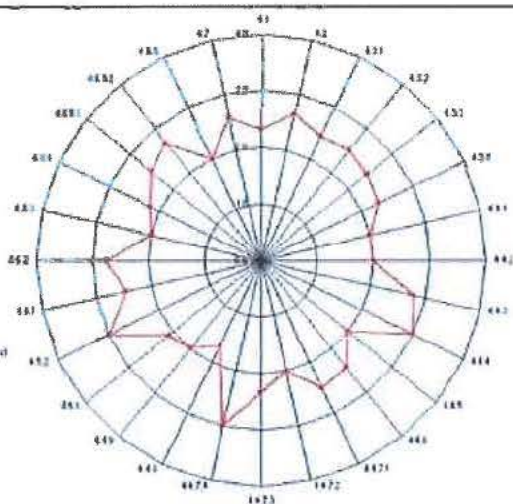
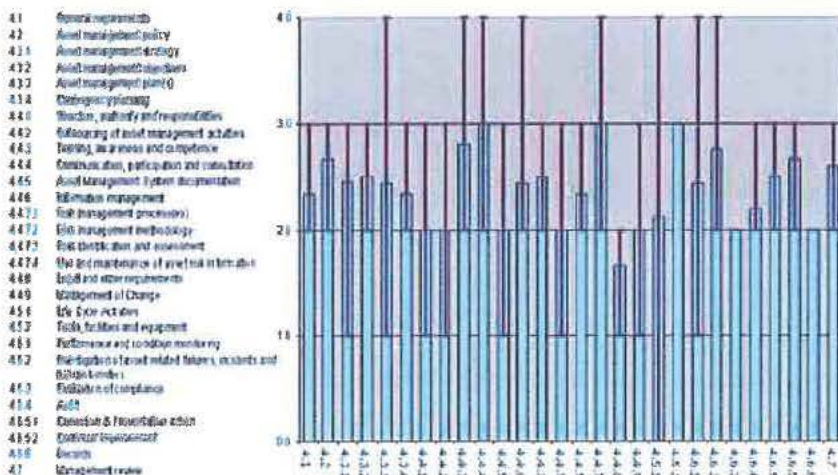


Figure 3 and 4 RADAR and Bar Chart Results

The tool also provides users with the option to capture user-specific comments and evidence observed within the assessment tool.



Feedback on the PAS55 Assessment Methodology

The IAM is interested in obtaining feedback from users of the PAS55 Assessment Methodology and this will be considered in future revisions and releases of the methodology. Details on how to provide feedback can be found on the IAM website.

Acknowledgements

This Assessment Methodology and associated guidelines, maturity scale and tool, for use with BSI PAS 55:2008, have been produced by the Institute of Asset Management through the significant effort of many individuals and organizations. The Institute would like to thank the following in particular for their contributions:

Project Director on behalf of the Institute of Asset Management	Aled Williams, National Grid
Deputy Project Director	Gill Duffy, National Grid
Project Team	Dave Bird, London Underground Matt Skinner, AMCL Steve Bird, MCP Paul Smeaton, Scottish Water Steve McCaffrey, National Grid Andy Watts, AMT-Sybex Noel Grinsted, MCP Malcolm Winterburn, Metronet Peter Jackson, MCP
Independent Reviewers	David Gooda Peter Jay

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Please refer to the IAM's website where the latest release of the Assessment Methodology may be downloaded free of charge under the terms and conditions explained there.

About the IAM

The IAM is the professional body for those involved in acquisition, operation and care of physical assets, particularly critical infrastructure - and for professionals worldwide dedicated to furthering our knowledge and understanding of Asset Management.

Our Objectives

- Advance for the public benefit the science and practice of Asset Management
- Promote and recognise high standards of practice and professional competence
- Generate widespread awareness and understanding of the discipline.

Please contact us

Successful Asset Management requires a combination of skills, techniques and knowledge, particularly finance and we welcome engagement and collaboration with other expert bodies and interested individuals.

Please visit us at www.theIAM.org

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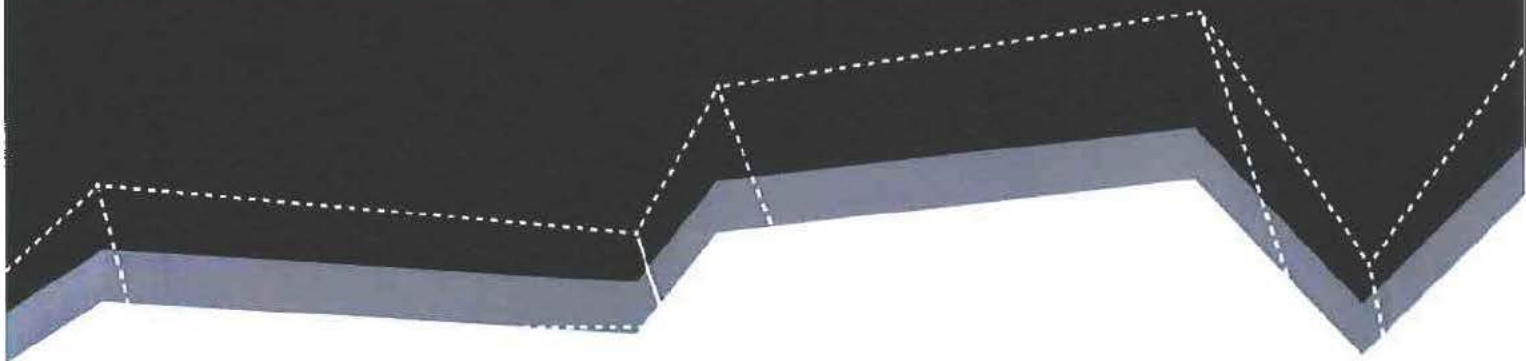
The IAM accepts no responsibility for any problems, costs or damages resulting from the use of this Assessment Methodology and associated guidelines, maturity scale and tool howsoever caused.

Version control log

Version	Date	Change
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APPENDIX 6.2 ISO 55000





The Self-Assessment Methodology - *Guidance*

Version 1

June 2014

General Guidance Notes for using the SAM: a Self-Assessment Methodology
for use with BSI PAS 55:2008 and ISO 55000/1/2:2014

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Background

The Institute of Asset Management (IAM) is the independent organisation for professionals dedicated to furthering the knowledge and understanding of Asset Management. In particular it seeks to spread good practice and develop decision support tools and techniques.

In pursuance of these aims the IAM, in conjunction with the BSI, took a major step in sponsoring the development and launch, in 2004, of BSI PAS 55. BSI PAS 55 was developed in response to demand from industry for a standard for carrying out asset management and is applicable to any organisation where physical assets are a key or critical factor in achieving its business objectives and in achieving effective service delivery. In 2008, the original BSI PAS 55:2004 was reviewed and modified to reflect the views from the Review Panel sourced from a range of industrial sectors around the world.

BSI PAS 55:2008 is published in two parts:

- BSI PAS 55-1:2008 Specification for the optimised management of physical infrastructure assets;
- BSI PAS 55-2:2008 Guidelines for the application of BSI PAS 55-1:2008.

As a further aid to the application of BSI PAS 55-1:2008, the IAM, in conjunction with a number of sponsoring organisations, led the development of a high-level Assessment Methodology to enable organisations to measure their conformance with BSI PAS 55:2008. This was known as the PAS 55 Assessment Methodology (PAM).

In 2014, in response to growing international demand, a new suite of Asset Management Standards describing asset management and asset management systems (ISO 55000/1/2) were published by the International Standards Organisation (ISO) and are available through BSI. This marked the culmination of some three years of development using PAS 55 as the base document.

ISO 55000 Series is published in three parts:

- ISO 55000 Asset Management – Overview, Principles and Terminology;
- ISO 55001 Asset Management – Management Systems – Requirements;
- ISO 55002 Asset Management – Management Systems – Guidelines for the application of ISO 55001

As an aid to the application of ISO 55001, the IAM decided to update/upgrade the existing PAM tool into an Assessment Methodology that enables organisations in all sectors to measure their capabilities against the requirements of both BSI PAS 55:2008 and ISO 55001. SAM has been deliberately designed to retain the same look and feel of PAM but be complementary to (and supportive of) certification to both BSI PAS 55:2008 and ISO 55001. This combined BSI PAS 55:2008 and ISO 55001 methodology is called the Self-Assessment Methodology (SAM).

The user is advised that reference to BSI PAS 55:2008 & ISO 55000, 55001 and 55002 documents is essential as the assessment methodology is complementary to it and in no way replaces the Standards.

The Self-Assessment Methodology comprises the following components:

- Overall guidance notes to aid the use of the Self-Assessment Methodology tool;
- Question and answer sets that enables a user to assess the approach of an organisation to, and adoption of, each of the 28 elements of BSI PAS 55:2008;
- Question and answer sets that enables a user to assess the approach of an organisation to, and adoption of, each of the 27 sub-clauses of ISO 55001;
- Specific guidance to provide targeted advice and information for each question;
- A maturity scale based on that contained in the International Infrastructure Management Manual (IIMM), which provides a display of the results of the assessment on a scale of 0 to 4 to be used for the BSI PAS 55:2008 assessment;
- A maturity scale based on that developed by the IAM Maturity Group, which provides a display of the results of the assessment on a scale of 0 to 3, which is the level of compliance with ISO 55001. The scale also allows for a score of 'Beyond' to be recorded when it has been assessed that an organisation goes further than ISO 55001 compliance requires.
- An Excel based tool that embodies the question and answer sets together with the question-specific guidance.

Purpose and Structure of Guidance Notes

The specific purpose of this document is to provide general guidance to support and assist users wishing to assess the asset management capabilities of an organisation using the Self-Assessment Methodology.

Whilst a single tool has been developed to allow assessment against either BSI PAS 55:2008 or ISO 55001, there are separate methodologies for each type of assessment contained in this guidance. In some areas the two are intertwined and in others they are separated out for clarity.

These general guidance notes are structured as follows:

- **Section 2** outlines the objectives of the Self-Assessment Methodology, and provides guidance on how the scope of an assessment should be determined;
- **Section 3** provides high-level guidance on the appropriate application of the Self-Assessment

Methodology in order to ensure that maximum benefits are obtained;

- **Section 4** describes the maturity scale that has been developed to enable an organisation to assess the extent to which it conforms with each of the requirements of BSI PAS 55:2008 together with the maturity scale that has been developed to enable an organisation to assess the extent to which it conforms with each of the requirements of ISO 55001;
- **Section 5** provides an overview of the structure of the BSI PAS 55:2008 question and answer set, and the associated question specific guidance together with an overview of the structure of the ISO 55001 question and answer set, and the associated question specific guidance;
- **Section 6** contains a brief overview of the main features of the Excel based tool for the Self-Assessment Methodology.



Context and Objectives of the IAM's Self-Assessment Methodology

An asset management assessment is designed to provide an organisation with the following:

1. Quantified empirical evidence to assist its understanding of its current level of application of asset management processes, tools and techniques, including any significant gaps in application calibrated against a recognised scale;
2. A baseline and benchmark upon which it can build action plans to address key gaps and monitor progress over time, and which can be used to compare its own asset management capability against other organisations;
3. A better understanding of good practice in asset management to aid in the preparation of an improvement programme or action plan.

The IAM firmly believes that the basis of a rigorous assessment lies in the following fundamental principles:

- It should be based upon the documented asset management system and actual evidence of its implementation;
- It should assess inputs from representative areas of an organisation (often referred to as 'horizontal and vertical slices'), and include an adequate sample size;
- It should include a documentary review and audit of the implemented activities;
- There should be a record of evidence for the system documentation and implemented activities (i.e. an audit trail to demonstrate the successful operation of the asset management system).

The IAM's Self-Assessment Methodology has been developed such that it:

- Can be applied to all sectors;
- Is free of any commercial bias;
- Allows organisations to assess their capability across the 28 elements of BSI PAS 55:2008 and the 27 sub-clauses of ISO 55001, including:
 - Strengths and weaknesses;
 - Deficiencies;
 - Areas of excellence.
- Is complementary to and supportive of certification to BSI PAS 55:2008 and ISO 55001;
- Enables organisations to share and compare their own capability with others (industry peers and stakeholders alike), should organisations wish;
- Facilitates the identification of best practice;
- Facilitates the preparation of action plans for improvement;
- Allows organisations to track improvements in their asset management systems.

The scope of an asset management assessment should match the scope of an organisation's asset management system.

Further guidance on defining the scope of an asset management system is contained in Section 4.1 of BSI PAS 55:2008 and Section 4.3 of ISO 55001



Users and Usage of the IAM's Self-Assessment Methodology

The Self-Assessment Methodology is designed for use by an organisation that already has experience of asset management and is familiar with BSI PAS 55:2008 or ISO 55001:2014, depending upon the standard being assessed against.

The following recommendations are made in order to maximise the benefits of using the Self-Assessment Methodology.

Organisations are advised to consider whether they wish to carry out an assessment using internal resources or use an experienced external asset management assessor. Both approaches have their merits and the Self-Assessment Methodology may be used with either. In either event the assessor must be experienced in asset management and the interpretation and application of BSI PAS 55:2008 or ISO 55001:2014, depending upon the standard being assessed against.

Prior to undertaking the assessment, the organisation should:

- a. Decide whether a PAS 55 or ISO 55001 assessment is going to be undertaken.
- b. Appoint a coordinator responsible for all matters concerning the assessment, including:
 - Organising the people within the organisation who will be respondents to the questions;
 - Arranging for all information to be captured within the tool;
 - Reporting on the results of the assessment to the organisation.
- c. Determine the scope of the asset management system that it wishes to assess;
- d. Consider the format it wishes the assessment process to take. In this context, the principal formats are generally to be to use SAM for 1:1 interviews, facilitated groups/panels, and/or a combination of the two;
- e. Arrange for appropriate 'vertical and horizontal' cross-sections of its workforce, and where appropriate outsourced service providers and stakeholders, to act as respondents during the assessment exercise. Consideration should be

given to sampling, such that different stages of the asset lifecycle and different sections of the asset base are assessed, on a risk basis.

- f. Provide appropriate pre-assessment communication and introductory training to ensure that the respondents are aware of the assessment process and their part within it.
- g. Identify which questions are to be asked of which respondents (in general approximately 30 questions is appropriate).
- h. Agree why the assessment is being undertaken and how the output will be used.
- i. Consider other internal and external audit schedules. It may not be appropriate to audit areas that have already been scrutinised as part of another audit.

Based on experiences from organisations that have used the previous version of the Assessment Methodology, it is suggested that for planning an assessment, the following timescales are used to review the question and answer sets (this does not include seeking evidence of documentation or for the implementation of activities):

- Using the group / panel approach, the time taken to reach a consensus on the appropriate response is approximately 8 minutes per question. It is advised that the group approach is used with great caution as the make up of the group can heavily distort results and in addition there is a loss of granularity in results;
- For individual 1:1 interviews, the typical response time required per question is approximately 2.5 minutes however the interviews are likely to be undertaken through general discussion.

Additional time should be allowed for preparatory discussion, recording of answers and close out discussion. If responses are limited to recording the level of achievement, this time is likely to be reduced.

The overall duration of an entire 'end-to-end' assessment will be dependent upon the depth of the assessment and the size of the organisation.

Certification

The IAM Self-Assessment Methodology is designed to provide an organisation with a framework by which it can carry out its own high-level assessment of its conformance with the requirements of BSI PAS 55:2008 or ISO 55001 by identifying their strengths and weaknesses against the elements of the specifications, based on an estimation of capability scaled against reference examples.

The IAM Self-Assessment Methodology is not to be used in place of an assessment for certification to BSI PAS 55:2008 or ISO 55001, but is aligned to be consistent with certification.

Assessment for certification may include the use of these assessment question sets. An assessment carried out for certification purposes will be to a much greater depth and will include, for example, verification of compliance with the organisation's policies and procedures.

For PAS 55 certification this should be carried out by experienced IAM Endorsed Assessors consistent with auditing requirements set out in PAS 55:2008 clause 4.6.4 together with the Global Forum for Maintenance and Asset Management (GFMAM) minimum knowledge requirements for asset management.

For ISO 55001 this should be carried out by experienced IAM Endorsed Assessors consistent with audit requirements set out in ISO 55001 Clause 9.2 together with requirements contained in ISO/IEC DTS 17021-5 and the Global Forum for Maintenance and Asset Management (GFMAM) minimum knowledge requirements for asset management.

Terminology

BSI PAS 55:2008 Assessments:

A number of special terms relating to asset management have been defined in BSI PAS 55:1:2008 Section 3 'Terms and Definitions'.

For the avoidance of doubt, where such terms are used within the BSI PAS 55:2008 section of the IAM Self-Assessment Methodology, the meaning is the same as that defined in Section 3 of BSI PAS 55:2008.

In addition, the term 'appropriate' is used throughout the IAM PAS 55:2008 Assessment Methodology and its definition within the scope of this project is defined below.

Appropriate: An action, approach, process or procedure, etc. that has been determined by the organisation to be suitable for its needs in achieving a specific outcome.

ISO 55001 Assessments

A number of special terms relating to asset management have been defined in ISO 55000 Section 3 'Terms and Definitions'.

For the avoidance of doubt, where such terms are used within the ISO 55000 section of the IAM Self-Assessment Methodology, the meaning is the same as that defined in Section 3 of ISO 55000.

Maturity Scales

The previous version of the IAM PAS 55:2008 Assessment Methodology included a maturity scale that defined five levels of maturity. This scale has been retained in the Self-Assessment Methodology in order to retain consistency with historical assessments.

However, for ISO 55001 a separate maturity scale has been defined using the output from the IAM's Maturity Group within the IAM Faculty. Both maturity scales are defined hereafter.

BSI PAS 55:2008 Maturity Scale

The Self-Assessment Methodology considers five "levels" of maturity against which an organisation can measure its conformance with each of the 28

elements of BSI PAS 55:2008.

These are aligned with the principles of the International Infrastructure Management Manual (IIMM), as indicated in Figure 1.

The maturity level scale includes an indication of where the Self-Assessment Methodology considers BSI PAS 55:2008 compliance to rest.

Users should note that, whilst the maturity levels are designated 0 to 4, the latter does not have an upper limit and through continuous improvement an organisation can choose to achieve a higher level of maturity than is required for BSI PAS 55:2008 compliance if that meets its business needs.

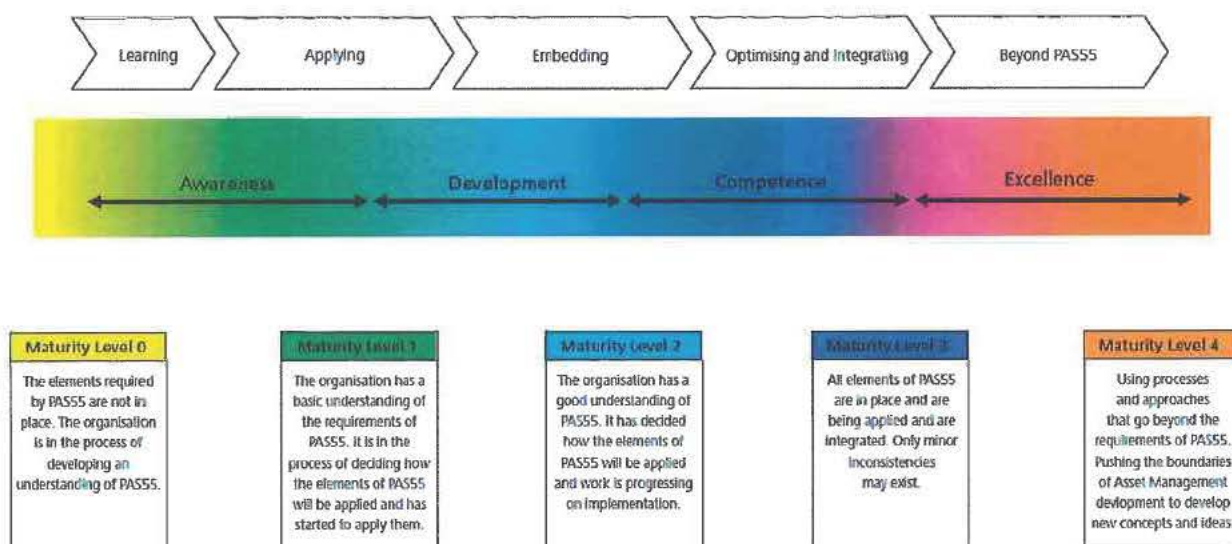


Figure 1 BSI PAS 55:2008 Maturity Scale

	Notes on the use of the Maturity Scale
1	As indicated by the colour transitions, the boundaries of the maturity scale are not hard values
2	Compliance with BSI PAS 55:2008 is within Maturity Level 3. <i>NB: this is not an absolute 'pass' or 'fail' numerical value but lies within the dark blue zone.</i>
3	There is no upper limit to excellence

Evidence builds from the lowest to the highest maturity levels (i.e. from 0 to 4) therefore in order to achieve a particular level of maturity; an organisation should satisfy itself that the contents of preceding maturity levels have been considered. Thus, it is recommended that a user commences by considering whether the organisation has achieved maturity level 0 before progressing to consider maturity level 1, and so forth.

ISO 55001 Maturity Scale

The scope of the Self-Assessment Methodology is limited to assessing compliance with ISO 55001 as the standard does not indicate what 'beyond' compliance entails. This has resulted in the development of a question set that is intended to indicate competency in terms of ISO 55001 requirements.

The IAM Maturity Group has produced a maturity scale which includes an indication of the characteristics that an organisation surpassing the requirements of ISO 55001 is likely to exhibit.

The table below illustrates the different maturity levels and accompanying characteristics to be considered when carrying out an ISO 55001 assessment.

However, because the ISO 55001 question set contained in the Self-Assessment Methodology has been designed to assess up to level 3 'Competent' only then SAM limits the range of maturity levels that can be applied as 0 – 3. Level 4 (Optimising) and Level 5 (Excellent) have been combined and are referred to as 'Beyond', as illustrated in Figure 2.

Scale	Description	Definition	Maturity Characteristic
0	Innocent	The organisation has not recognised the need for this requirement and/or there is no evidence of commitment to put it in place	
1	Aware	The organisation has identified the need for this requirement, and there is evidence of intent to progress it.	Proposals are under development and some requirements may be in place. Processes are poorly controlled, reactive and performance is unpredictable.
2	Developing	The organisation has identified the means of systematically and consistently achieving the requirements, and can demonstrate that these are being progressed with credible and resourced plans in place.	Notes: this is a 'transition state'. Processes are planned, documented (where necessary), applied and controlled at a local level or within functional departments; often in a reactive mode but could achieve expected results on a repeatable basis. The processes are insufficiently integrated, with limited consistency or coordination across the organisation.
3	Competent	The organisation can demonstrate that it systematically and consistently achieves relevant requirements set out in ISO 55001.	This involves a formal documented asset management system embedded within the organisation. The performance of the asset management system elements is measured, reviewed and continually improved to achieve the asset management objectives.
4	Optimising	The organisation can demonstrate that it is systematically and consistently optimising its asset management practice, in line with the organisation's objectives and operating context.	Notes: this is 2nd 'transition state' characteristics of being in this stage will include: Monitoring and quantification of performance; and resolution of trade-offs between competing goals in an agile decision-making framework, innovation is a way of life, continual improvement can be widely demonstrated with evidence of results, benchmarking is employed to identify further improvement opportunity, and the management system is even further integrated and effective.

5	Excellent	The organisation can demonstrate that it employs the leading practices, and achieves maximum value from the management of its assets, in line with the organisation's objectives and operating context.	This is a dynamic and context-sensitive state, so the evidence must include demonstration of awareness of benchmarking positions against similar best in class organisations and that, in both asset management practices, and asset management results (value realisation) there are no known improvements that have not already been implemented.
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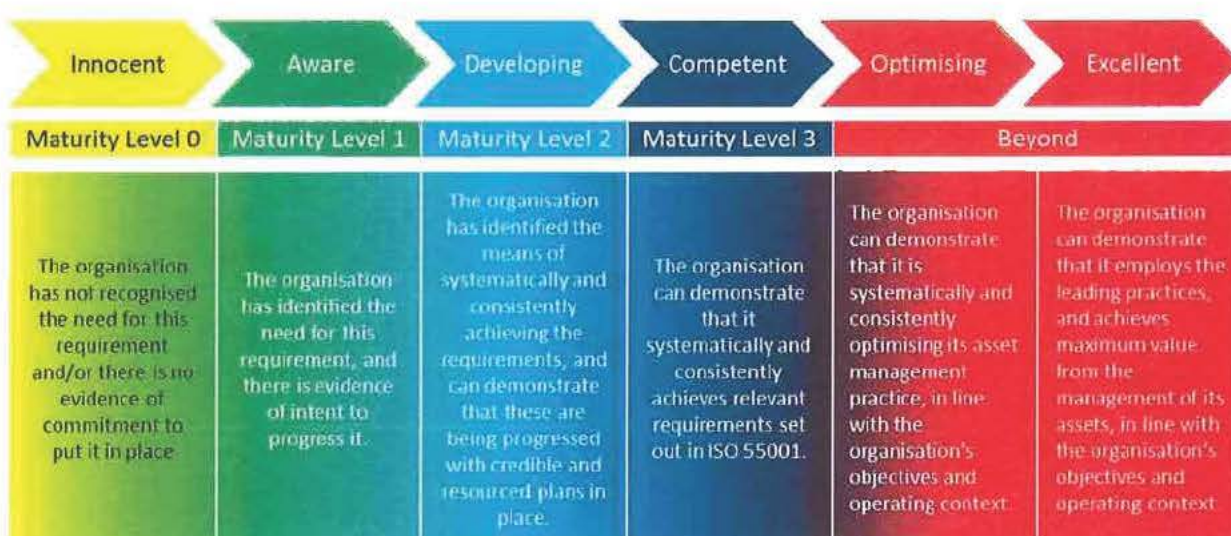


Figure 2 ISO 55001 Maturity Scale

	Notes on the use of the Maturity Scale
1	As indicated by the colour transitions, the boundaries of the maturity scale are not hard values
2	Compliance with ISO 55001 is within Maturity Level 3. <i>NB: As stated at note 1 above, this is not an absolute 'pass' or 'fail' numerical value but lies within the dark blue zone.</i>
3	There is no upper limit to excellence

Evidence builds from the lowest to the highest maturity levels, i.e. from 0 to 3, therefore in order to achieve a particular level of maturity an organisation should satisfy itself that the contents of all columns to the left have been considered.

Thus, it is recommended that a user commences by considering whether the organisation has achieved maturity level 0 before progressing to consider maturity level 1, and so forth.

Questions, Performance Criteria and Associated Guidance

The Self-Assessment Methodology provides two question sets; one to assess compliance against BSI PAS 55:2008 and the other to assess compliance against ISO 55001.

BSI PAS 55:2008 Guidance

BSI PAS 55:2008 Question Set

The Self-Assessment Methodology Question sheet for PAS 55 provides 121 questions covering each of the 28 elements of BSI PAS 55:2008. Each question set comprises the following components:

- Five possible indicators describing the performance criteria associated with each level of maturity;
- Guidance on why the question is being asked;
- Guidance on who should be able to provide a response to the question;
- Guidance of additional documentation and evidence that could be reviewed to assist with the assessment of the level of maturity of the organisation;
- An organisation will obtain an indication of its degree of conformance to BSI PAS 55:2008 by honestly assessing its answers to each of the questions.

Whilst not exhaustive, the maturity answers are provided to help the organisation determine its level of maturity, or conformance, with the requirements of BSI PAS 55:2008. These maturity answers, together with the overall guidance notes, are not intended to take the place of an experienced assessor.

In some organisations, certain elements of BSI PAS 55:2008 will have greater significance than others and the importance or 'weight' of certain questions will vary from organisation to organisation.

In designing the IAM Self-Assessment Methodology for BSI PAS 55:2008, no order of importance has been applied and each question carries the same weight when assessing the response to it.

ISO 55001 Guidance

ISO 55001 Question Set

The Self-Assessment Methodology Question sheet for ISO 55001 provides 39 questions covering each of the 27 clauses and sub-clauses of ISO 55001. Each question set comprises the following components:

- Five possible indicators describing the performance criteria associated with each level of maturity;
- Guidance on why the question is being asked;
- Guidance on who should be able to provide a response to the question;
- Guidance of additional documentation and evidence that could be reviewed to assist with the assessment of the level of maturity of the organisation;
- An organisation will obtain an indication of its degree of conformance to ISO 55001 by honestly assessing its answers to each of the questions.

Whilst not exhaustive, the maturity answers are provided to help the organisation determine its level of maturity, or conformance, with the requirements of ISO 55001. These maturity answers, together with the overall guidance notes, are not intended to take the place of an experienced assessor.

In some organisations, certain elements of ISO 55001 will have greater significance than others and the importance or 'weight' of certain questions will vary from organisation to organisation.

In designing the Self-Assessment Methodology, no order of importance has been applied and each question carries the same weight when assessing the response to it.

Alignment of Questions with BSI PAS 55:2008

This question set has been designed to cover the requirements of BSI PAS 55:2008, including the inter-dependencies and linkages. A tabulation showing the cross-references to the 28 elements of BSI PAS 55:2008 is shown in Figure 3.

Section	Element	Element Title	No. of Questions (per element)	No. of questions (per section)
4.1	4.1	General requirements	2	2
4.2	4.2	Asset management policy	6	6
4.3	4.3.1	Asset management strategy	10	27
	4.3.2	Asset management objectives	7	
	4.3.3	Asset management plan(s)	7	
	4.3.4	Contingency planning	3	
4.4	4.4.1	Structure, authority and responsibilities	9	52
	4.4.2	Outsourcing of asset management activities	3	
	4.4.3	Training, awareness and competence	5	
	4.4.4	Communication, participation and consultation	6	
	4.4.5	Asset Management System documentation	3	
	4.4.6	Information management	7	
	4.4.7.1	Risk management process(es)	2	
	4.4.7.2	Risk management methodology	4	
	4.4.7.3	Risk identification and assessment	3	
	4.4.7.4	Use and maintenance of asset risk information	4	
	4.4.8	Legal and other requirements	3	
	4.4.9	Management of Change	3	
4.5	4.5.1	Life Cycle Activities	6	7
	4.5.2	Tools, facilities and equipment	1	
4.6	4.6.1	Performance and condition monitoring	4	22
	4.6.2	Investigation of asset-related failures, incidents & nonconformities	4	
	4.6.3	Evaluation of compliance	1	
	4.6.4	Audit	5	
	4.6.5.1	Corrective & Preventative action	4	
	4.6.5.2	Continual Improvement	3	
	4.6.6	Records	1	
4.7	4.7	Management review	5	5
Total			121	121

Figure 3 Alignment of Questions with BSI PAS 55:2008

Alignment of Questions with ISO 55001

The question set has been designed to cover the requirements of ISO 55001, including the inter-dependencies and linkages. A tabulation showing the cross-references to the 27 clauses and sub-clauses of ISO 55001 is shown in Figure 4.

Section	Element	Element Title	No. of Questions (per element)	No. of questions (per section)
4	4.1	Understanding the organisation and its context	2	8
	4.2	Understanding the needs and expectations of stakeholders	3	
	4.3	Determining the scope of the asset management system	1	
	4.4	Asset management system	2	
5	5.1	Leadership and commitment	1	3
	5.2	Policy	1	
	5.3	Organisational roles, responsibilities and authorities	1	
6	6.1	Actions to address risks and opportunities for the asset management system	1	4
	6.2.1	Asset management objectives	1	
	6.2.2	Planning to achieve asset management objectives	2	
7	7.1	Resources	2	9
	7.2	Competence	1	
	7.3	Awareness	1	
	7.4	Communication	1	
	7.5	Information requirements	1	
	7.6.1	Documented information general	1	
	7.6.2	Creating and updating documented information	1	
	7.6.3	Control of documented information	1	
8	8.1	Operational planning and control	2	5
	8.2	Management of change	2	
	8.3	Outsourcing	1	
9	9.1	Monitoring, measurement, analysis and evaluation	2	5
	9.2	Internal audit	1	
	9.3	Management review	2	
10	10.1	Nonconformity and corrective action	3	5
	10.2	Preventive action	1	
	10.3	Continual improvement	1	
Total			39	39

Figure 4 Alignment of Questions with ISO 55001

Software Tool

The IAM has documented the Self-Assessment Methodology in a Microsoft Excel based software tool. Guidance on how to use the tool is included within the application. This section provides a brief overview of the main features of the tool.

The tool can be used to capture the results from multiple interviewees. The interviewees can be single individuals or a group/panel of individuals. This enables views and opinions from across the organisation to be compared and contrasted.

Where more than one response is provided to an individual question as part of a single assessment survey, the score for each question is then the un-weighted average of the individual responses to that question.

The tool enables the response(s) to the individual questions to be captured and displayed graphically. Each question is scored using the five-point maturity scale(s) as presented earlier for PAS 55 and ISO 55001.

A score is provided for each of the 28 elements of BSI PAS 55:2008 and for the 27 elements of ISO 55001 based on the un-weighted average of the responses provided to the questions relating to those particular elements, which is displayed in the form of either a radar plot or a bar chart.

Users need to be aware that, within any element, a significant deficiency or weakness may be masked in a radar plot by other questions that have scored highly. The bar graph shows both the average score per clause and the score range.

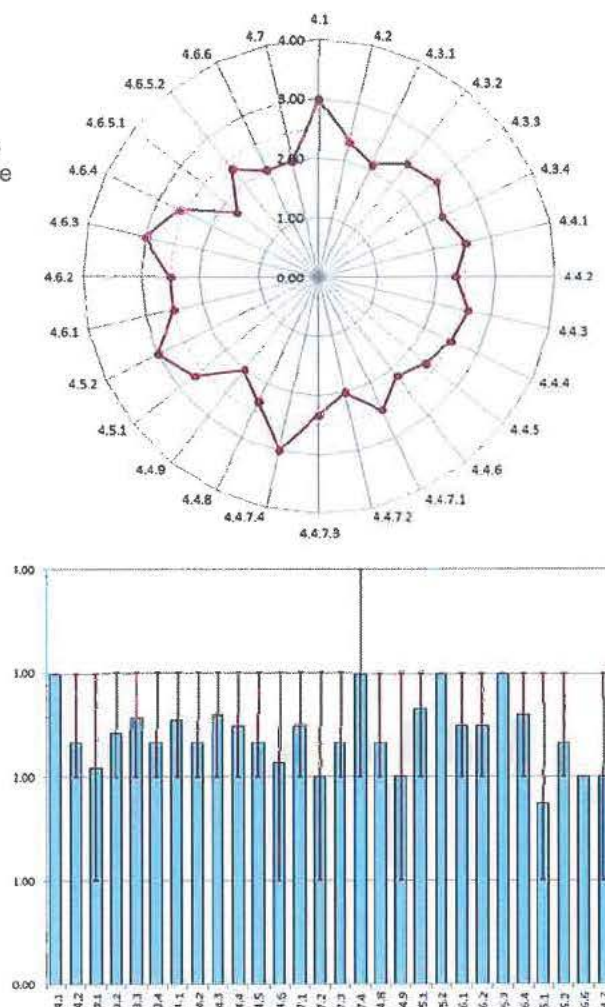
PAS 55

The tool also provides users with the option to capture user-specific comments and evidence observed within the assessment tool.

The Bar chart in this sheet displays the average score per clause in blue and the score range in burgundy.

This enables the assessor to easily tell whether a poor score has been masked due to the calculation of average scores.

However, assessors should be aware that, within any element, a significant deficiency or weakness may be masked in the radar plot by other questions that have scored highly.



- 4.1 General requirements
- 4.2 Asset management policy
- 4.3.1 Asset management strategy
- 4.3.2 Asset management objectives
- 4.3.3 Asset management plan(s)
- 4.3.4 Contingency planning
- 4.4.1 Structure, authority and responsibilities
- 4.4.2 Outsourcing of asset management activities
- 4.4.3 Training, awareness and competence
- 4.4.4 Communication, participation and consultation
- 4.4.5 Asset Management System documentation
- 4.4.6 Information management
- 4.4.7.1 Risk management processes
- 4.4.7.2 Risk management methodology
- 4.4.7.3 Risk identification and assessment
- 4.4.7.4 Use and maintenance of asset risk information
- 4.4.8 Legal and other requirements
- 4.4.9 Management of Change
- 4.5.1 Life Cycle Activities
- 5.2 Tools, facilities and equipment
- 4.6.1 Performance and condition monitoring
- 4.6.2 Investigating asset-related failures, incidents and nonconformities
- 4.6.3 Evaluation of compliance
- 4.6.4 Audit
- 4.6.5.1 Corrective & Preventative action
- 4.6.5.2 Continual Improvement
- 4.6.6 Records
- 4.7 Management review

ISO 55001

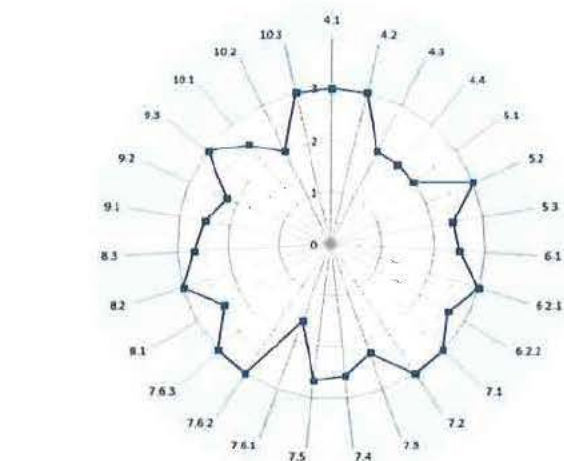
The average score for each clause is shown on the radar charts against the five-point maturity scale.

Note: maturity Levels 4 and 5 are combined into 'Beyond'

A dotted line has been entered at a score of 2.5 as the assessor may wish to use their discretion as to compliance if the average score is between 2.5 and 3.

Assessors should be aware that, within any element, a significant deficiency or weakness may be masked in the radar plot by other questions that have scored highly.

Similarly if the two areas on either side are scored 0 then the middle one will also appear as 0.



Feedback on the Self-Assessment Methodology

The IAM is interested in obtaining feed-back from users of the IAM PAS 55 Assessment Methodology. This will be considered in future reviews of the methodology. Details on how to provide feed-back can be found on the IAM website. www.theIAM.org/SAM

Acknowledgements

The IAM Self-Assessment Methodology and associated guidelines, maturity scale and tool have been produced by the Institute of Asset Management through the significant effort of many individuals and organisations. The Institute would like to thank the following in particular for their contributions:

Project Director on behalf of the IAM	Jerry Holdsworth, Jacobs
Project Team	Trevor Taylor, Arup Aled Williams, Independent Consultant Gordon Scott, NATS Mike Dixon, The Woodhouse Partnership Limited Navil Shetty, Atkins Danielle Humphrey, eAsset Management Mark Sexton, AMCL Tomislav Nesovanovic, Haya Water
Peer Reviewers	Peter Jay, The Woodhouse Partnership Limited Steve Bird, MWH

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The tool provides for a rigorous and structured assessment of an organisation's asset management system but must only be used in conjunction with BSI PAS 55:2008 and/or ISO 55000/1/2:2014.

The user is advised that reference to these specifications and standards is essential as the Self-Assessment Methodology has been designed to be complementary to them and in no way replaces them.

Please refer to the IAM's website where the latest release of the Self-Assessment Methodology may be downloaded free of charge under the terms and conditions explained there. www.theIAM.org/SAM

Disclaimers

Full details of the Terms & Conditions for accessing and using the SAM are shown on the download page.

The IAM accepts no responsibility for any problems, costs or damages resulting from the use of the IAM Self-Assessment Methodology and associated guidelines, maturity scale and tool however caused.

Maturity & Excellence

The topics of Maturity and Excellence are developing fast and the IAM has a number of related initiatives in play at the time of publication of the SAM and these Guidance Notes.

If you are interested in this area, you may like to read more on our website or contact us.

About the IAM

The IAM is the professional body for those involved in the acquisition, operation and care of physical assets, particularly critical infrastructure - and for professionals worldwide dedicated to furthering our knowledge and understanding of Asset Management.

Our Objectives

Our formal Objectives are to:

- Advance for the public benefit the science and practice of Asset Management
- Promote and recognise high standards of practice and professional competence
- Generate widespread awareness and understanding of the discipline.

However, you may find it more helpful to read more or download our Summary of Strategy for Members here. www.theIAM.org/Strategy

Please work with us

Our values are Independence, Inclusiveness, Collaboration, Transparency, Integrity and Respect; and we try to collaborate rather than compete in the interests not only of our Members but of society in general.

Successful Asset Management requires a combination of skills, techniques and knowledge, particularly finance as well as engineering, and we welcome engagement and collaboration with other expert bodies and interested individuals.

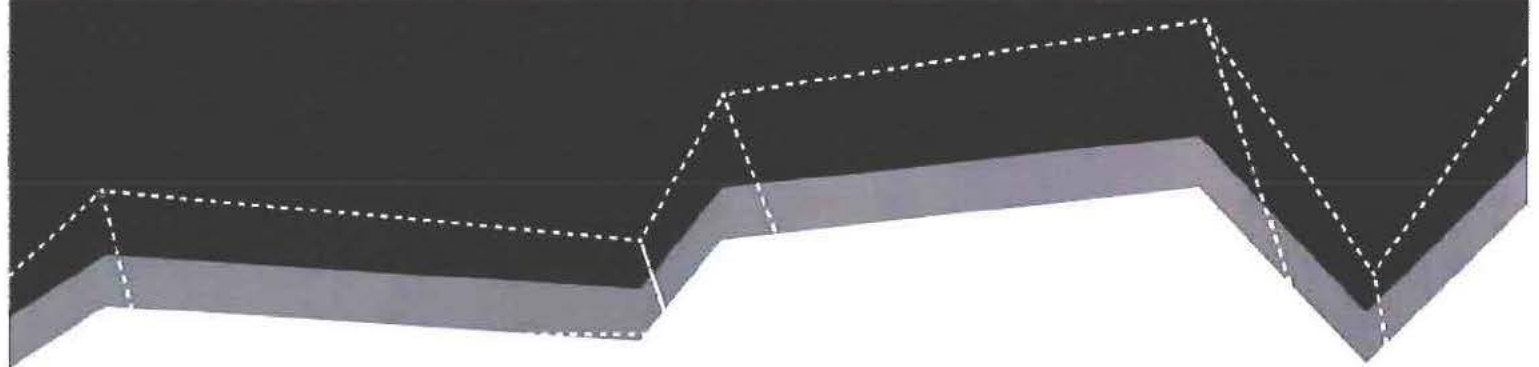
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Contact Us

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DONALD CANT WATTS CORKE

APPENDIX 6.3 TOTAL ASSET MANAGEMENT (TAM), NSW





TOTAL ASSET MANAGEMENT

Total Asset Management Capability Tool – The Guide to Conducting a Full Capability Review

September 2004

TAM04-17

The guide to conducting a full capability review

September 2004
TAM04-17

ISBN 0 7313 3325 X (set)
ISBN 07313 3314 4

1. Asset management – New South Wales.
2. Capital Investment.
3. Public administration – New South Wales
- I. Title. (Series : TAM 2004)

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This publication can be accessed from the Treasury's Office of Financial Management Internet site [<http://www.treasury.nsw.gov.au/>].

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Set consists of:

ISBN 07313 3302 0	Total Asset Management Capability Tool TAM04-15
ISBN 07313 3308 X	Total Asset Management Capability Tool - Snapshot Capability Review TAM04-16
ISBN 07313 3314 4	Total Asset Management Capability Tool - The Guide to Conducting a Full Capability Review TAM04-17
ISBN 07313c3320 9	Total Asset Management Capability Tool- The Capability Review Report Kit TAM04-18

Further publications are also available in this series on the following topics:

ISBN 07313 33314	Asset Strategy Planning TAM04-1
ISBN 07313 33373	Capital Investment Strategic Planning TAM04-2
ISBN 07313 3230X	Asset Maintenance Strategic Planning TAM04-3
ISBN 07313 32369	Asset Disposal Strategic Planning TAM04-4
ISBN 07313 32423	Office Accommodation Strategic Planning TAM04-5
ISBN 07313 32482	Total Asset Management Template TAM04-6
ISBN 0 7313 3254 7	Asset Information Guideline TAM04-7
ISBN 0 7313 3260 1	Demand Management Guideline TAM04-8
ISBN 0 7313 3266 0	Heritage Asset Management Guideline TAM04-9
ISBN 0 7313 3272 5	Life Cycle Costing Guideline TAM04-10
ISBN 0 7313 3278 4	Post Implementation Review Guideline TAM04-11
ISBN 0 7313 32849	Risk Management Guideline TAM04-12
ISBN 0 7313 32903	Sustainable Development Guideline TAM04-13
ISBN 0 7313 32962	Value Management Guideline TAM04-14

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GUIDE TO CONDUCTING A FULL CAPABILITY REVIEW

1. About the Asset Management Capability Tool package

There are three basic components of the Asset Management Capability Tool:

1. The Snapshot Capability Review

This short guide is an abridged version of the full Tool. It leads agencies through a checklist of questions about their practices and outcomes. Using this guide, agencies can quickly assess their asset management capability, identify their strengths and weaknesses, and decide whether to conduct a full Capability Review.

This guide is the Guide to Conducting a Full Capability Review



2. The Guide to Conducting a Full Capability Review

This step-by-step guide shows agencies how to conduct a Capability Review using the Tool. The review is based on a detailed questionnaire and workshop, in which participants assess the organisation's practices and outcomes.

3. The Capability Review Report Kit

This kit provides a template for writing up the outcomes of the Capability Review. Agencies can enter numerical scores into the macros included for a quick performance indicator. The kit also has a template for writing up the full Capability Review Report and an Improvement Plan based on the outcomes.

2. Introduction

The Asset Management Capability Tool is designed for Government agencies to assess their level of capability or readiness to implement Total Asset Management. The assessment process is called a Capability Review.

This guide provides step-by-step instructions on how to conduct a Capability Review. It takes you through each stage, from deciding the boundaries of the review and assembling a Project Team, to using the Capability Review Questionnaire (contained in this guide), discussing the outcomes and, finally, using the findings.

3. How to Use the Asset Management Capability Tool

The Asset Management Capability Tool uses a questionnaire approach to help government agencies and organisations review their Asset Management capability, including strengths and areas for improvement. The Capability Review questionnaire is at item 6.

You can use the Tool to assess any type of asset management activity, from centralised asset management to a highly devolved operation. It is designed to evaluate Total Asset Management capability in its widest sense. That includes examining how your organisation plans to achieve its corporate results, planning the role assets play in supporting this and how asset management is implemented, including how assets are acquired, managed and disposed of.

It's up to the Project Team Leader to decide the scope of the Capability Review. The organisation could be evaluated in one single review, or in a series of separate reviews covering individual asset management functions (eg. specifying service outcomes and outputs, asset planning, management, service delivery etc). Depending on the scope, some aspects of Total Asset Management covered by the questionnaire may not be relevant. This can be explained in the report.

The steps and the approximate time it takes to carry out a Capability Review are listed below:

3.1 Preparation

2–3 hours

- Decide the scope and boundaries of the review. For example, are you reviewing capability to conduct simple asset management or complex asset management functions, or both?
- Establish a team to conduct the review. It should include people with different levels and types of responsibility, plus a Project Team Leader to drive the process and an Executive Sponsor to provide high-level support.
- The Project Team Leader determines the timeframe of the review. He or she must set dates for discussion meetings and a deadline for producing an Improvement Plan and for communicating outcomes and recommendations.
- The Project Team Leader briefs participants to ensure that everyone's approach is consistent. By setting out ground rules about how information will be used, you establish trust and an open approach to the review.

3.2 Doing the review

1–2 hours

- Participants complete the questionnaire individually. They must also provide supporting evidence for their answers. This evidence is the most important part of their response as it explains why performance is strong or weak.

3.3 Collating the data

2 hours

- This is an administrative activity. Set out the raw scores on the spreadsheet provided in the Capability Review Report Kit.
- Collate the supporting evidence provided for each answer so the outcomes can be discussed.

3.4 Reaching a consensus 2–3 hours

- The Project Team Leader holds a consensus meeting between all participants.
-
- During this meeting, participants discuss what score they gave each question and why.
-
- Based on this discussion, participants decide on a score consensus (not an average) for each question, taking into account all valid contributions. The Prompter Card (see item 5) helps participants focus on what factors they should consider when deciding what constitutes good practice.
-
- The participants review and confirm the evidence for each question.
-

3.5 Using the Capability Review Outcomes 2–3 hours

- The Project Team Leader (with administrative support) produces a Capability Review Report, using the template in the Capability Review Report Kit as a guide. This report shows the organisation's numerical score as well as summarising key strengths and areas for improvement.
- The Project Team Leader prepares an Improvement Plan, focusing on areas that are a priority for improvement (see the Capability Review Report Kit for a template). The plan can be incorporated into the organisation's existing business planning cycle and expressed as part of its annual Asset Management Plan.
- Submit the Improvement Plan to the Executive Sponsor, who signs it off.
- Communicate the Improvement Plan to all relevant people in the organisation.

3.6 Reviewing progress and internal benchmarking

- Check the organisation's progress against the Improvement Plan regularly. Such checks should be factored into the program.
- Conduct repeat Capability Reviews annually (or more frequently if required).

3.7 Reporting and benchmarking

- Agencies should provide an outline of their Capability Review and plans for improvement in their annual Total Asset Management Plans. These are submitted to the NSW Treasury each year as part of the funding submission.
- This will provide indicative information about the Total Asset Management capability of the NSW Government as a sector and will drive improvement across the sector by making performance measurable and transparent.

4 The Capability Review Questionnaire – producing an outcomes report

A Capability Review will identify strengths as well as weaknesses in your organisation's asset management capability so that performance can be improved. You can highlight and address those areas that need improvement in the Capability Review Report (see the Capability Review Report Kit).

Each question in the Capability Review Questionnaire has space for participants to provide evidence to support their answer. This evidence is the most important part of the questionnaire. Participants should provide as much detail as they consider relevant to explain why they have given a certain answer.

Some questions give prompts about what sort of evidence to supply, but it's generally left up to participants to decide what is relevant. Participants discuss this evidence during the consensus meeting—the Prompter Card (see item 5) can help you ask the right questions when considering your responses during that meeting. The most relevant points are then entered in the Capability Review Report.

The agency should use this report to set priority areas for improvement and develop an Improvement Plan based on the template in the Capability Review Report Kit.

4.1 Obtaining a numerical score

The Capability Review Questionnaire uses a numerical scoring system to score participants' answers. This is a useful shorthand way to indicate areas of strength and areas where improvement is needed. It also helps an organisation monitor its performance over time. And by using the numerical score, your organisation can benchmark its outcomes against the best in New South Wales, particularly as the Tool becomes widely used and leading agencies emerge.

Sections 1 to 5 ask questions about the "enablers": systems and processes that an organisation with best practice Total Asset Management in place should have considered to deliver the results required. Tick one of the boxes after each question based on your perception of what happens in your organisation. The possible answers are:

Description	Score
Don't know	0
No	1
Yes, but inconsistently	2
Yes, but could be improved	3
Yes, and achieve real benefits.	4
Yes, regarded as best practice.	5

Sections 6 to 9 ask questions about the results: your organisation's ability to actually deliver the outcomes in a number of key areas. The possible answers are:

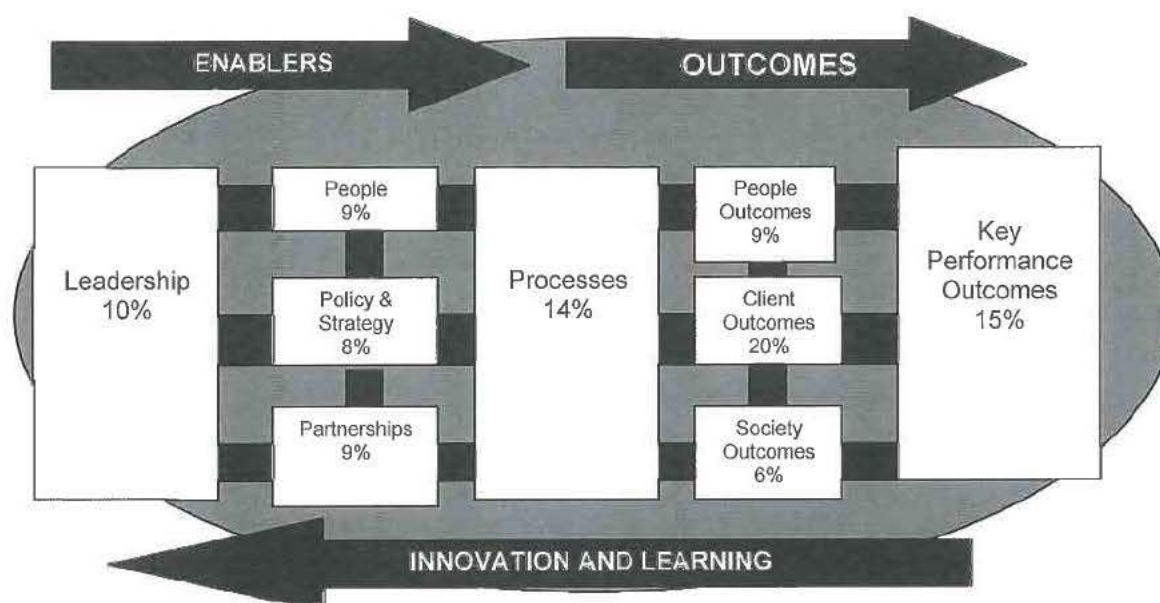
Description	Score
Don't know	0
No	1
Yes, but don't use the information	2
Yes, and can show improving trends	3
Yes, steady improvement over 3 years	4
Yes, excellent improvement over 5 years	5

If you answered questions by ticking the options that score 4 or 5, then these are the organisation's areas of strength and you can build on them. Identify why they are strengths: what is it that you are doing that makes them so effective? Can these practices be transferred to other areas that need improvement?

In those areas where you scored 0 to 3, you may decide to make improvements. To do this, work out priorities and make real, actionable plans to achieve the performance you require.

4.2 Scoring matrix

The EFQM Excellence Model has established weights for each of the nine sections in the Tool, as shown in the diagram below. The weights are based on research from a range of organisations into the factors that most affect good overall performance.



5. The Prompter Card

Each question in the questionnaire has space for evidence to support your answer. All participants discuss this evidence during the consensus meeting. The Prompter Card can help you consider your responses during that meeting.

ENABLERS (Sections 1–5)

Processes

Are the processes:

- soundly based?
- focused on stakeholder needs?
- supporting the organisation's policy and strategy?
- linked with other appropriate approaches?
- sustainable?
- innovative?
- flexible?
- measurable?

Implementation

Are the processes:

- implemented in all possible areas across the organisation?
- implemented to their full potential or capability?
- achieving all the planned benefits?
- systematic?
- understood and accepted by all stakeholders?
- measurable?

Assessment and Review

Are the processes and their implementation:

- measured for their effectiveness regularly?
- providing learning opportunities?
- compared with other organisations (eg, competitors, industry averages or "best in class")?
- improved based on the results from learning and performance measures?

RESULTS (Sections 6–9)

Do the results:

- cover all appropriate stakeholders?
- measure all the relevant approaches and deployment of approaches, and does the measuring use both perception and performance indicators?
- show positive trends or sustained good performance? If yes, for how long?
- have targets? If yes, are the targets achieved?
- include comparisons with other organisations (eg, competitors, industry averages or "best in class")?
- compare well with other organisations?
- show a cause and effect link to approaches?
- measure a balanced set of factors both now and in the future?
- give a holistic picture?

6. The Capability Review Questionnaire

ENABLERS	Don't know	No	Yes, but inconsistently	Yes, but could be improved	Yes. This is recognised as the way we do business and we achieve real benefits.	This is an integral part of our culture and operation and can be regarded as best practice.	Evidence to support answer
1. LEADERSHIP Do managers lead by example in demonstrating the role and importance of Asset Management? (MANAGERS WILL BE IN THE BEST POSITION TO COMPLETE THIS SECTION BECAUSE OF THEIR OVERVIEW OF THE ORGANISATION'S PRACTICES. HOWEVER, ALL STAFF SHOULD ANSWER, GIVING THEIR PERCEPTIONS OF A GIVEN SITUATION.)							
1.1 Is your organisation's Executive Board or Executive Committee involved in defining or endorsing the organisation's Total Asset Management objectives? <i>Eg, the Executive endorses Total Asset Management and is involved in development of Total Asset Management Plans</i>							
1.2 Are your organisation's Total Asset Management activities aligned to its overall strategic objectives? <i>Eg Total Asset Management objectives are clearly linked to objectives in the corporate and the Results and Services Plan.</i>							
1.3 Are managers with responsibility for the agency's asset management aware of the organisation's strategies and procedures for Total Asset Management?							

ENABLERS	Don't know	No	Yes, but inconsistently	Yes, but could be improved	Yes. This is recognised as the way we do business and we achieve real benefits.	This is an integral part of our culture and operation and can be regarded as best practice.	Evidence to support answer
1.4 Do managers comply with the organisation's asset management procedures? <i>Eg, the results of internal audits could show this.</i>							
1.5 Do managers make ongoing improvements to the agency's asset management practices?							
1.6 Do managers take a role in managing stakeholders? <i>Eg clients, staff, partners, service providers etc.</i>							
1.7 Do managers treat Total Asset Management as having an important role within the organisation? <i>Eg, staff attend conferences, are kept informed of the agency's service delivery focus and are made aware of new trends / initiatives.</i>							
1.8 Do managers update and improve their own Total Asset Management capability?							

ENABLERS	Don't know	No	Yes, but inconsistently	Yes, but could be improved	Yes. This is recognised as the way we do business and we achieve real benefits.	This is an integral part of our culture and operation and can be regarded as best practice.	<i>Evidence to support answer</i>
<p>2. POLICY AND STRATEGY</p> <p>What asset strategies does your organisation have? How are they developed?</p> <p>(MANAGERS WILL BE IN THE BEST POSITION TO COMPLETE THIS SECTION BECAUSE OF THEIR OVERVIEW OF THE ORGANISATION'S PRACTICES. HOWEVER, ALL STAFF SHOULD ANSWER, GIVING THEIR PERCEPTIONS OF A GIVEN SITUATION.)</p>							

ENABLERS	Don't know	No	Yes, but inconsistently	Yes, but could be improved	Yes. This is recognised as the way we do business and we achieve real benefits.	This is an integral part of our culture and operation and can be regarded as best practice.	Evidence to support answer
<p>2.1 Does your organisation have an Asset Strategy? <i>Eg. An assessment of the asset base it requires and can resource to deliver the services agreed by government, addressing risks the assets may pose to service delivery.</i></p> <p>2.2 Is the Asset Strategy consistent with the NSW Government's Total Asset Management requirement? <i>Eg. Is it aligned with the agency's Results and Services plan and has Capital Investment, Asset Maintenance, Asset Disposal and Office Accommodation integrated with it.</i></p> <p>2.3 Does your organisation prepare a Service Delivery Strategy? <i>Eg. Detail of the service and how it will be delivered.</i></p> <p>2.4 Does your organisation have Asset Management guidelines? <i>Eg. Agency asset management guidelines, procedures, delegation manual etc.</i></p>							
<p>2.5 Are those Asset Management guidelines and supporting documents consistent with the NSW Government's Total Asset Management requirements?</p>							

ENABLERS	Don't know	No	Yes, but inconsistently	Yes, but could be improved	Yes. This is recognised as the way we do business and we achieve real benefits.	This is an integral part of our culture and operation and can be regarded as best practice.	Evidence to support answer
2.6 Do the Asset Management guidelines address environmental, regional and social considerations?							
2.7 Does your organisation prepare an Annual Total Asset Management Plan? <i>Eg. Asset Strategy and integrated Capital Investment, Asset Maintenance, Asset Disposal and Office Accommodation Strategic Plans.</i>							
2.8 Do the Asset Management guidelines clearly indicate when risk assessments are required? <i>Eg. Where assets impose risks to current or future service delivery.</i>							
2.9 Does your organisation periodically review its asset management practices, taking into account changes in overall resource levels and stakeholder's expectations?							
2.10 When reviewing its asset management practices, does the organisation take new Total Asset Management and Budget planning approaches into account? <i>Eg. Asset Strategy reporting, integration of the Asset Strategy with Results and Service Plans.</i>							

ENABLERS	Don't know	No	Yes, but inconsistently	Yes, but could be improved	Yes. This is recognised as the way we do business and we achieve real benefits.	This is an integral part of our culture and operation and can be regarded as best practice.	Evidence to support answer
2.11 Does your organisation communicate its asset management practices, including internal procedures on delegation and authority, to staff? Eg. Staff know the Key Performance Indicators and related corporate and asset outcomes							
3. PEOPLE Does your organisation have people with Total Asset Management skills and experience? Does the organisation provide the right environment to develop their capability? (ALL STAFF SHOULD COMPLETE THIS SECTION.)							
3.1 Does your organisation attract and retain people who understand Total Asset Management and have asset management skills and experience? Eg. Specialist project managers in charge of asset management programs, appropriate planning, assessment and procurement skills.							
3.2 Are people responsible for asset management given the freedom and support they need to work as effectively as possible? Eg. Act on their own initiative, cooperate within their teams and across functions, work creatively and innovatively etc							

ENABLERS	Don't know	No	Yes, but inconsistently	Yes, but could be improved	Yes. This is recognised as the way we do business and we achieve real benefits.	This is an integral part of our culture and operation and can be regarded as best practice.	Evidence to support answer
3.3 Do staff responsible for asset management have detailed performance measures that are linked to overall organisational objectives?							
3.4 Are staff responsible for asset management competent in the key aspects of measuring performance? This includes asset planning, tendering, leasing, evaluating tenders, managing contracts and disposal of assets.							
3.5 Are there training programs for staff responsible for asset management? <i>Eg. Internal or external programs or formal systems of knowledge transfer.</i>							
3.6 Are staff encouraged to pursue other professional development opportunities, not including training? <i>Eg. Involvement in corporate and asset planning, attend conferences on asset management issues, membership of relevant associations</i>							

ENABLERS	Don't know	No	Yes, but inconsistently	Yes, but could be improved	Yes. This is recognised as the way we do business and we achieve real benefits.	This is an integral part of our culture and operation and can be regarded as best practice.	Evidence to support answer
<p>3.7 Are staff responsible for asset management encouraged to liaise and network with stakeholders?</p> <p><i>Eg. Network with other agencies to develop benchmarks, liaise with financial and service delivery planners to appreciate resource allocation challenges.</i></p>							
<p>4. PARTNERSHIPS</p> <p>Does your organisation create beneficial partnerships within the agency as well as with other agencies, and stakeholders to achieve the best Total Asset Management outcomes?</p> <p>(MANAGERS WILL PROBABLY BE BEST EQUIPPED TO ANSWER THE QUESTIONS ABOUT STRATEGIC RELATIONSHIPS. OTHER STAFF MAY HAVE A BETTER SENSE OF WHAT HAPPENS AT A DAY-TO-DAY LEVEL.)</p>							
<p>4.1 Do managers with asset management responsibility manage their relationships with key stakeholders to ensure that they get the best possible <i>outcomes</i>?</p>							
<p>4.2 Do staff with asset management responsibility develop their relationships with key stakeholders to ensure they get the best possible <i>outcomes</i>?</p>							

ENABLERS	Don't know	No	Yes, but inconsistently	Yes, but could be improved	Yes. This is recognised as the way we do business and we achieve real benefits.	This is an integral part of our culture and operation and can be regarded as best practice.	<i>Evidence to support answer</i>
4.3 Does your organisation pursue long-term, mutually beneficial relationships with stakeholders?							
4.4 Does your organisation have mechanisms to share good asset management practice with other organisations? Eg. Participate in networks and cross-Government working groups on Total Asset Management issues, share best value deals etc.							
4.5 Does your organisation aggregate its asset management needs with other agencies? Eg. Inter-agency working parties to manage Total Asset Management planning, joint agency contracting, Joint use of facilities.							
5. PROCESSES What asset management processes does your organisation have in place to manage assets effectively? (All Staff should complete this section.)							

ENABLERS	Don't know	No	Yes, but inconsistently	Yes, but could be improved	Yes. This is recognised as the way we do business and we achieve real benefits.	This is an integral part of our culture and operation and can be regarded as best practice.	Evidence to support answer
5.1 Has your organisation defined the asset management processes necessary to attain its objectives? Eg. Asset Management guidelines on asset planning, value management, risk management, implementation, performance measurement and reporting.							
5.2 Does your organisation prepare a business case for each major, complex or strategic asset management proposal?							
5.3 Is there a specific commitment to improving processes in your organisation?							
5.4 Do you have an established mechanism in place to communicate good asset management practice in one area of the organisation to other areas where the practice can be adopted?							
5.5 Has your organisation automated any of its asset management processes to improve efficiency? Eg. Internet for data transfer and reporting, advanced asset condition and reliability assessment techniques.							

ENABLERS	Don't know	No	Yes, but inconsistently	Yes, but could be improved	Yes. This is recognised as the way we do business and we achieve real benefits.	This is an integral part of our culture and operation and can be regarded as best practice.	<i>Evidence to support answer</i>
<p>5.6 Are your clients, service providers, partners and other stakeholders consulted and involved in improving Total Asset Management processes?</p> <p>Eg. Consult with people in the organisation so they understand objectives of their performance; ensure that results are communicated to them and to the community.</p>							

RESULTS	Don't know	No	Yes, but we don't use the information	Yes, and we can show improving trends	Yes, and we can show steady improvement over 3 years	Yes, and we can show excellent improvement over 5 years	Evidence to support answer
6. CLIENT RESULTS Is your organisation meeting your clients' needs? How do you know this? (All staff should answer this question, although you may not need to answer all questions. The section is split into two parts, covering internal and external clients. If your organisation only measures performance on its own behalf, simply complete questions 6.1-6.7. If your organisation measures performance for another organisation (eg. cross-agency programs) you should also answer questions 6.8-6.14. The score will be adjusted accordingly.)							
INTERNAL CLIENTS							
6.1 Does your organisation have systems and measures to assess stakeholder satisfaction with asset management service delivery? Eg. Satisfaction surveys, benchmarks or project-specific post-implementation reviews.							
6.2 Are your clients' views consistent with your organisation's views of its asset management services?							
6.3 Does your organisation have any targets for client satisfaction with asset management or any objectives to improve these targets? Eg. Service level agreements.							
6.4 Are these targets being met?							
6.5 Does your organisation have an effective system to handle and resolve complaints quickly?							
6.6 Does your organisation analyse complaints and make appropriate improvements?							
6.7 Does your organisation provide client service training for staff?							

RESULTS	Don't know	No	Yes, but we don't use the information	Yes, and we can show improving trends	Yes, and we can show steady improvement over 3 years	Yes, and we can show excellent improvement over 5 years	Evidence to support answer
EXTERNAL CLIENTS							
6.8 Does your organisation have systems and measures to assess client satisfaction with asset management delivery? <i>Eg. Satisfaction surveys, benchmarks or project-specific post-implementation reviews.</i>							
6.9 Are your clients' views consistent with your organisation's views of its asset management services?							
6.10 Does your organisation have any targets for client satisfaction with asset management or for improving these targets? <i>Eg. Service level agreements.</i>							
6.11 Are these targets being met?							
6.12 Does your organisation have an effective system to handle and resolve complaints quickly?							
6.13 Does your organisation analyse complaints and make appropriate improvements?							
6.14 Does your organisation provide client service training for staff?							
7. PEOPLE RESULTS Do staff with Total Asset Management responsibility feel they are valued and cared for, and that their needs are properly addressed? (Non management staff are likely to have the greatest input into this section. However managers should also give their perspective).							

RESULTS	Don't know	No	Yes, but we don't use the information	Yes, and we can show improving trends	Yes, and we can show steady improvement over 3 years	Yes, and we can show excellent improvement over 5 years	Evidence to support answer
7.1 Are staff responsible for asset management given opportunities to learn and develop their asset management expertise?							
7.2 Do staff responsible for asset management get appropriate support, coaching and training when they need it?							
7.3 Do you have evidence that gaining asset management experience is seen as important by people in your organisation? <i>Eg, as a factor in furthering your career.</i>							
7.4 Is there a career path for staff responsible for Total Asset Management in your organisation?							
8. SOCIETY RESULTS How do the asset management activities and investment of your organisation support its service delivery objectives? This includes whole-of-Government objectives such as economic, regional development, social and environmental outcomes. <i>(MANAGERS MAY BE IN THE BEST POSITION TO COMPLETE THIS SECTION BECAUSE OF THEIR OVERVIEW OF THE ORGANISATION'S PRACTICES. HOWEVER, ALL STAFF SHOULD GIVE THEIR INPUT.)</i>							
8.1 Does your organisation measure the impact of its asset management on the locality where it operates? <i>Eg, in terms of regional development, social and environmental considerations and outcomes.</i>							

RESULTS		Don't know	No	Yes, but we don't use the information	Yes, and we can show improving trends	Yes, and we can show steady improvement over 3 years	Yes, and we can show excellent improvement over 5 years	Evidence to support answer
8.2	Does asset management have a positive impact on local communities in terms of work and business opportunities? <i>Eg, create job opportunities, particularly in regional areas; maximise opportunities for small- to medium-sized enterprises; Aboriginal employment.</i>							
8.3	Are your organisation's asset management practices consistent with those promoted by regulatory bodies? This includes ethical, OH&S, environmental and social practices. <i>Eg, the Environmental Protection Agency, WorkCover NSW, the Independent Commission Against Corruption.</i>							
8.4	Does the organisation enforce requirements for safety, quality and sustainability on its service providers? <i>Eg. These requirements are included in tender documents, contracts and service provider performance mechanisms.</i>							
9. KEY PERFORMANCE RESULTS Can your organisation demonstrate its asset management performance to clients and/or other stakeholders who have an interest in the operation? (MANAGERS MAY BE IN THE BEST POSITION TO COMPLETE THIS SECTION BECAUSE OF THEIR OVERVIEW OF THE ORGANISATION. HOWEVER, ALL STAFF SHOULD RESPOND TO INDICATE AWARENESS OF PERFORMANCE OUTCOMES).								
9.1	Does your organisation have measures that demonstrate the cost-effectiveness and efficiency of its asset management activities?							

RESULTS	Don't know	No	Yes, but we don't use the information	Yes, and we can show improving trends	Yes, and we can show steady improvement over 3 years	Yes, and we can show excellent improvement over 5 years	Evidence to support answer
9.2 Does your organisation have measures that demonstrate the contribution that its asset management activities make to the overall operation of the agency? <i>Eg. Savings, better service delivery outcomes, post-implementation reviews, benefit-realisation assessments etc.</i>							
9.3 Does your organisation monitor the actual outcomes of its major, complex or strategic asset management decisions against expected outcomes at key points in the asset management process? <i>Eg. Key reviews during the life cycle of the procurement decision-making process, Gateway Review outcomes etc.</i>							
9.4 Does your organisation have indicators in place that will predict future performance in key areas of asset management activity? <i>Eg. Potential savings or efficiency opportunities identified as a result of aggregation or e-procurement initiatives.</i>							
9.5 Does the organisation monitor the outcomes of any improvements it makes? <i>Eg. Savings from rationalisation of ordering and delivery, better response to tenders due to e-tendering etc.</i>							
9.6 Does the organisation monitor and assess the benefits of working with partners and service providers? <i>Eg. Share innovative ideas by participating in cross-agency networks.</i>							