AAMCoG

Guide to **Integrated Strategic Asset Management**

Acknowledgements

This guide is based on the Australasian Procurement and Construction Council Inc.'s (APCC) publication, Asset Management 2001. It reflects advances in asset management since the previous guide was developed and aims to bring it in line with the contemporary asset management environment. APCC's role in developing the previous guide and contribution to this update is greatly appreciated.

> APCC

The Australian Asset Management Collaborative Group's (AAMCoG) contribution to this updated Guide is also appreciated. The main aim of AAMCoG is to collaborate nationally on asset management strategies between all asset management groups.

> AAMCoG

This guide has been produced as a result of practice needs identified within the membership of the Cooperative Research Centre for Infrastructure and Engineering Asset Management (CIEAM) and was developed with their support and assistance. CIEAM is dedicated to improving the efficiency and sustainability of infrastructure and engineering asset management, and the profitability of Australian industry.

> CIEAM

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Introduction: An Integrated Approach to Strategic Asset Management

The reported value of built assets across Commonwealth, state and territory governments at June 2010 exceed $600 billion dollars. These assets are crucial for the nation to function. Replacement of these built assets is an expensive and major undertaking and is not often widely considered, planned or budgeted for; as a result their strategic management is critical.

> **Strategic Management of Assets**

This Integrated Strategic Asset Management Guide (The Guide) provides a contemporary outline to assist those responsible for delivering and managing built assets to meet community and service delivery needs. The Guide also highlights the need to minimise risk, achieve value-for-money, and promote sustainability. It articulates key strategies to assist in this undertaking.

> **The Guide**

Integrated Strategic Asset Management (ISAM) brings together economics, engineering, information technology, sustainability and human elements to form a holistic approach to the delivery of built assets. This approach recognises the combination of these elements into a greater whole as well as their interrelationships and interdependencies. It focuses on the long term direction for overall management of infrastructure and engineering assets, while considering the immediate operational matters. The Guide provides a basis for decision-making and implementation of asset management.

> **Integrated Strategic Asset Management**

This Guide focuses on an integrated approach to managing built assets. It takes into account the built form and considers human and ecological elements. It also highlights that organisations can work together to deliver maximum outcomes.

> **Scope of Guide**

What is Asset Management?

Asset management is the process of organising, planning, designing and controlling the acquisition, care, refurbishment, and disposal of infrastructure and engineering assets to support the delivery of services. It is a systematic, structured process covering the whole life of physical assets.

> **Definition**

The objective of asset management is to optimise the service delivery potential of assets and to minimise related risks and costs and ensure positive enhancement of natural and social capital over an asset life cycle. Good governance and the intelligent deployment of business systems, processes and human resources are key aspects of this endeavour.

> **Objective**

Challenges

Society is facing the serious and compounding challenges of increasing resource scarcity, degrading environments, and climate change. An ageing and increasing population with growing demands for energy and material wealth exacerbates these challenges, and is pushing our natural environment's ability to support the economy to its limits. Furthermore, the public is expecting more from its assets. The potential for litigation against asset owners and managers is increasing.

Infrastructure, and asset providers, owners and operators need to be cognizant of these increasing stresses on society so that their assets do not add to adverse impacts on the environment or society.

Well designed, well maintained and operated assets can and should contribute positive improvements to our natural and social capital as well as providing economic benefit. Asset managers need to understand the significance of "sustainability" as it relates to all aspects of the ISAM framework.

Sustainability for asset managers is not simply about prolonging the life of their assets, and ensuring that they operate efficiently and economically. It is also about considering how the delivery and operation of their asset impacts on the environment and on society.

As population increases, the demand for more assets and their increased utilisation will create greater environmental pressures, such as increased resources, water, energy and land consumption, and a subsequent increase in waste and pollution to land, water and the atmosphere.

It is now universally accepted that despite efforts to mitigate the causes, climate change is inevitable. This situation will bring a range of challenges to asset managers such as an increase in average temperatures, increasing frequency and intensity of severe weather events, ocean acidification, and rising sea levels with the intrusion of salt water into vulnerable assets.

> **Scope of Challenges**

> **Sustainability**

> **Growing Population**

> **Climate Change**

Infrastructure, and asset providers, owners and operators need to be cognizant of these increasing stresses on society so that their assets do not add to adverse impacts on the environment or society.

The Integrated Strategic Asset Management (ISAM) Approach

There has been a shift from a reliance on individual agencies/organisations as the sole provider of built assets. The complexity of the current operating environment means that people and agencies are no longer able to work in isolation. Instead a more integrated or collective approach to asset development and management has come to the fore. Such an approach allows organisations to access additional knowledge, expertise and resources to create collaborative advantage. This approach is not business as usual and necessarily requires a shift in the way in which infrastructure projects are developed, delivered and managed.

> **Context**

In this Guide an integrated approach incorporates and extends the previous framework with additional elements which should now be considered:

> **New Issues in Asset Management**

- **Environmental:** Greater appreciation of the interaction between built assets and the natural environment.

- **Sustainability:** Ensures that the social, economic and environmental needs of a community are met and kept healthy for future generations (Sustainability Victoria, 2010)

- **Resilience:** Increased emphasis on the asset, environment and the community to respond to and recover from external impacts.

- **Whole of life asset management:** Requires that decisions and actions across the entire lifecycle of the asset from design to disposal be considered.

- **Increased community demands:** information and communication technology (ICT) advances have led to higher citizen expectations for immediate and localised services. Closer alignment of policies, resources and projects will deliver better quality, more efficient and timely built assets.

- **Information management:** Information needs and capabilities are more demanding and complex.

- **Expanded governance arrangements:** Assets are now owned, governed and operated by an expanded set of decision-makers. Thus alongside conventional governance forms, there is now an array of hybrid models such as public-private partnerships, alliance and relational contracts. More innovative and variable governance approaches are required for these different models to manage the unique risks and opportunities associated with them.

The International Standard for Asset Management provides an overview of principles, concepts, attributes and capabilities of assets, asset management and asset management systems.

> **International Standard for Asset Management**

Principles

The following principles guide how Strategic Asset Management integrates with broader government and organisational planning:

- Assets exist to support service delivery. Therefore non-asset solutions should be considered.

- Agencies should manage assets consistent with whole-of-government policy frameworks and take into account whole of life costing, future service demands and, balance between capital expenditure and maintenance requirements.

- Asset management should be integrated with agency strategic and corporate planning.

- Asset management decisions should holistically consider sustainability outcomes: environmental, social, economic and governance.

- Governance arrangements should clearly establish responsibility for functional performance of, and accountability for, the asset and service delivery.

> **Principles of Strategic Asset Management**

An integrated approach enables agencies to access additional knowledge, expertise and resources to create collaborative advantage. This approach is not business as usual and necessarily requires a shift in the way in which projects are developed, delivered and managed.

Integrated Strategic Asset Management (ISAM) Framework

The following framework reflects the increasingly complex and interconnected processes which government and its agencies need to take into account when delivering services. The framework demonstrates that ISAM is cumulative and each component is interdependent. A logical progression through each component is required for maximum service delivery outcomes.
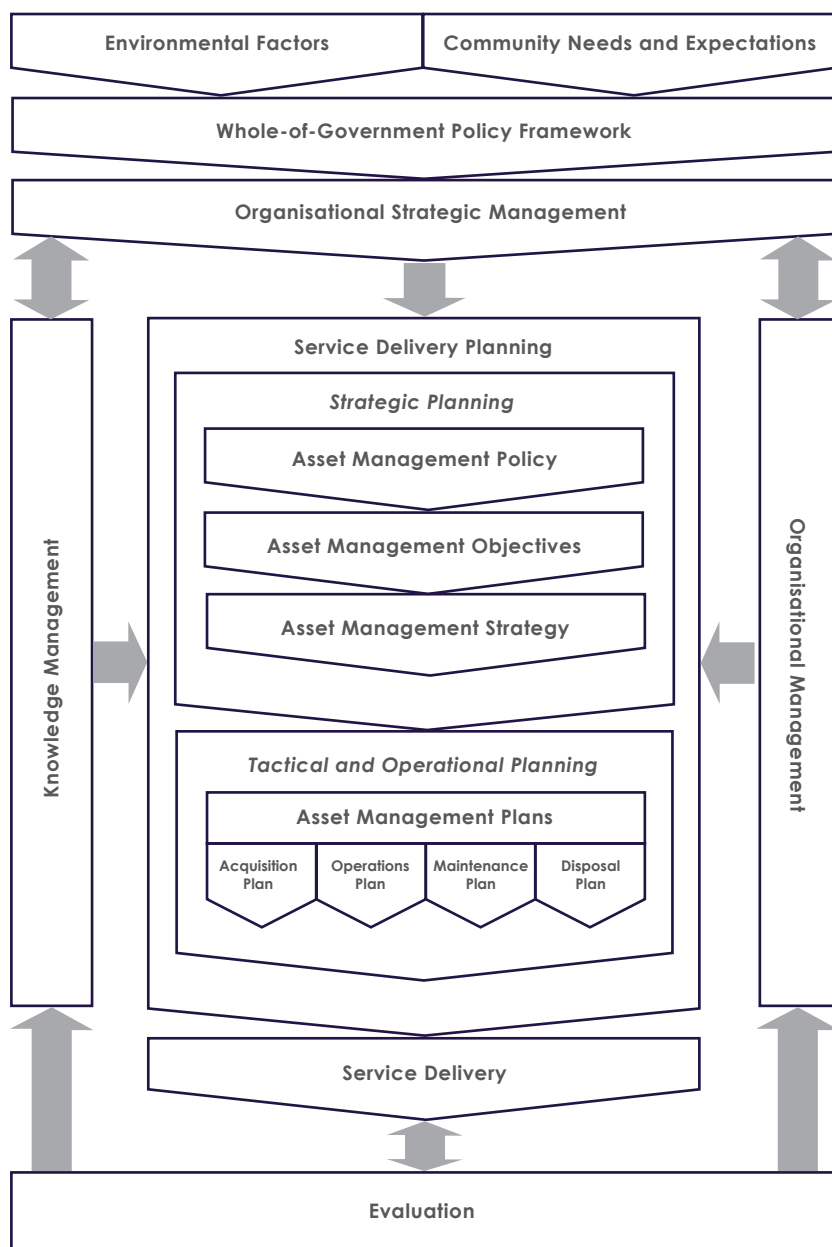
Whilst this ISAM framework focuses on the public sector, it is equally applicable to any organisation or sector.

The next sections in this guide explain each part of the framework in more detail.

> **Integrated Strategic Asset Management Framework**

> **Sector Scope**

> **Detailed ISAM Framework**

Environmental Factors	Community Needs and Expectations

Whole-of-Government Policy Framework

Organisational Strategic Management

Knowledge Management

Organisational Management

Service Delivery Planning

Strategic Planning

Asset Management Policy

Asset Management Objectives

Asset Management Strategy

Tactical and Operational Planning

Asset Management Plans

Acquisition Plan	Operations Plan	Maintenance Plan	Disposal Plan

Service Delivery

Evaluation

Environmental Factors

Since the publication of the previous APCC Guide in 2001, environmental concerns have been amplified. There is a greater need to take into account environmental impacts and more urgency to consider sustainability management. ISAM takes into account environmental, social and economic issues as well as governance.

The environment affects assets, their functions and their safety. Climate change now needs to be considered in asset management risk identification and planning. Risk Management provides a systematic way of identifying and analysing potential risks, and helps to create and implement adequate responses.

Human-caused environmental changes have created the need for organisations to apply sound environmentally and ecologically sustainable management practices to reduce the ecological footprint; the human demand on the Earth's ecosystems.

> **Environmental Factors**

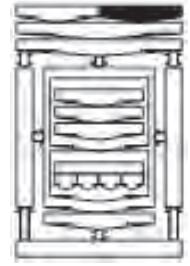> **Risk Management**

> **Sustainability Management**

There is a greater need to take into account environmental impacts and more urgency to consider sustainability management.

Community Needs and Expectations

Understandably the community expects governments in particular to deliver their services expeditiously and at the local level. This higher level of expectation has largely been facilitated by rapid advancements in ICT. As a result of this people are acutely aware of what is available to other citizens and are utilising ICT as a means to make demands for better and more localised services.

Appropriate solutions for service delivery depend on a range of stakeholders, which may include for example, other government agencies, asset users and the broader community. Stakeholders exhibit a range of levels of interest and influence, and some stakeholder requirements and needs cannot be addressed in the same way as for other stakeholder group. This situation means different approaches may be required for key stakeholders to properly consider the impact of assets on the community, the environment and society at large.

> **Community Needs and Expectations**

> **Stakeholder Management**

The community expects governments to deliver their services expeditiously and at the local level.
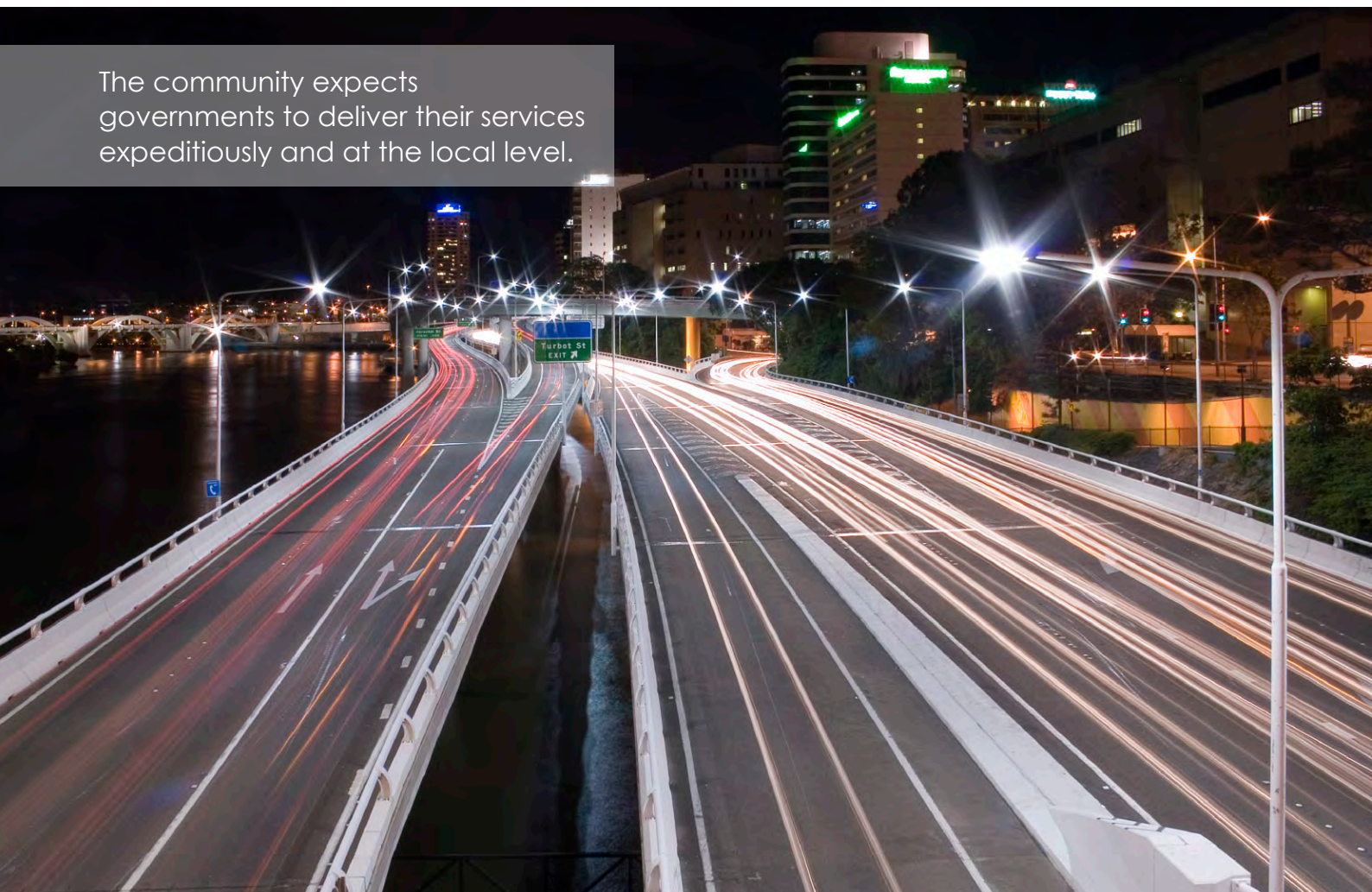
Whole-of-Government Policy Framework

Limited resources mean governments have to exercise sound financial, social and environmental management and make prudent decisions to best prioritise services to meet community needs and expectations.
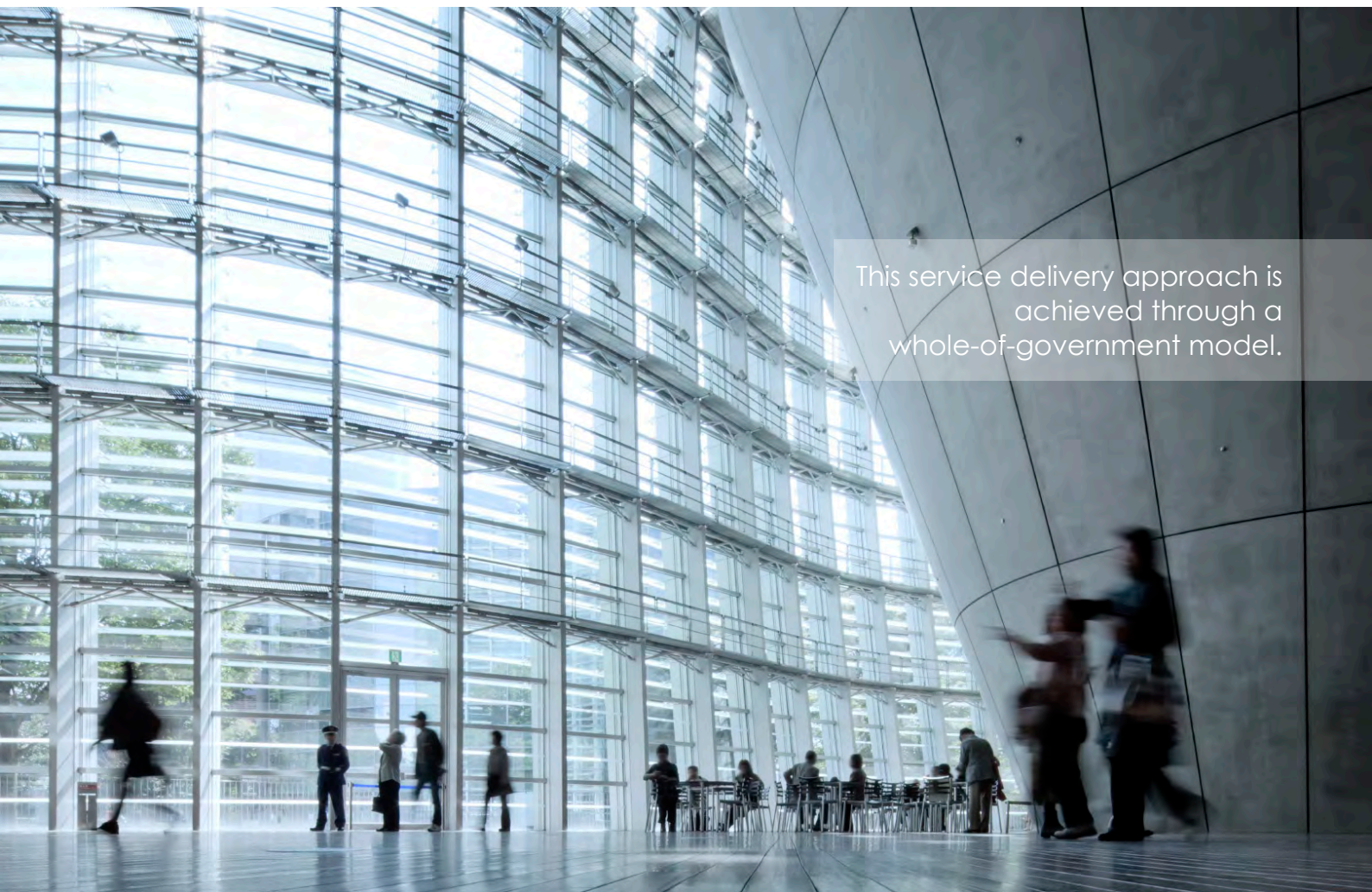
This service delivery approach is achieved through a whole-of-government model comprising:

- legislation

- policies

- plans, service delivery strategies and standards

- capital and recurrent budgets and

- government institutions; and

- partnerships including with working groups, community based organisations and private providers.

This Guide is designed to assist effective and accountable service delivery across all levels of government as well as within the private and community sectors.

> **Whole-of-Government Policy**

> **Whole-of-Government Model**

This service delivery approach is achieved through a whole-of-government model.

Organisational Strategic Management

Organisational Strategic Management gives effect to whole-of-government policy through service delivery. The organisation is responsible for delivering the service; therefore it needs to determine how this should occur and what is required.

This involves considering the following components:

- service delivery strategy and planning, including identification of risks, whole-of-life operation and maintenance of the assets

- the need for new or reused built assets

- requisite budgetary allocation and monitoring

- organisational capability including skills, expertise and knowledge

- the ability to access and leverage existing social and organisational relationships; and

- the local environmental context (physical, social and political).

> **Organisational Strategic Management**

> **Components of Organisational Strategic Management**

Organisational Strategic Management is the conduit between whole-of-government policy and service delivery.

Service Delivery Strategic Planning

Service delivery is indicated by the Level of Service (LOS) provided by an asset. A Service Delivery Strategy translates the broad aims of an organisation into specific service outcomes. It clearly outlines the plans to deliver services and the overall strategy that will be adopted to satisfy community needs and obtain value for money. There are multiple vehicles to deliver a service, ranging from non-asset solutions including contracted services supplied by external parties, the re-use of existing assets to the provision of a new asset.

> **Service Delivery Strategic Planning**

The service delivery strategy acknowledges the high level of inter-connection between both the core stages of the service delivery process and the various provider components.

> **Service Delivery Strategy**

Service delivery rarely occurs through a single-agency or 'siloed' approach. The increasingly complex nature of services required and inter-dependencies between providers, calls for more cooperative and innovative planning both within and among organisations.

Service delivery planning is fundamental in defining each aspect of the services to be provided, their boundaries and development of the required strategies to deliver the outcomes. This planning should facilitate service delivery options within prevailing resource constraints whilst also exploring new and creative service delivery solutions.

> **Service Delivery Planning**

To assist the achievement of high value service delivery outcomes a number of aspects need to be considered including:

> **Achieving High Value Service Delivery Outcomes**

- intra- and inter-agency planning to facilitate seamless and complementary delivery of all government services

- alignment of policies, budgetary priorities and resource allocation with the overall strategic direction of service delivery

- challenging accepted assumptions and practices

- considering organisational capability including skills, expertise and knowledge

- examining new ways of thinking and creative responses provided by integrated information systems; and

- utilising business processes and knowledge-based decision making in the evaluation of service delivery options.

Organisations should consider sustainability management when developing their policies, objectives, strategies and plans by including for instance sustainability principles. They should also commit to sustainable asset management and use.

> **Sustainability Management in Service Delivery**

An Asset Management Policy is the translation of the Corporate Strategy for the process area of Asset Management; as such it is based on the Corporate Policy and Corporate Objectives. It has to be consistent with the Government Policy Framework and the Government Objectives, and has to help to satisfy the Community needs and expectations.

An Asset Management Policy is the overall basis of all Asset Management decisions and activities and, like the Corporate Policy, it includes a Vision and a Vision Statement, a Mission and a Mission Statement, and Principles for the area of Asset Management.

> **Asset Management Policy**

Asset Management Objectives are indicators for the implementation of the Asset Management Policy and the achievement of the Asset Management Strategy. They are derived from the Government Objectives and Corporate Objectives and on a functional level they can relate to the required performance or condition of an asset.

Asset Management Objectives should detail how each objective is measured over time to evaluate the organisation's performance. Objectives should include:[1]

> **Asset Management Objectives**

- the attribute to be measured (e.g. share of market, or customers/clients serviced)

- the scale on which the attribute is to be measured (e.g. percentage points)

- a goal (level of the attribute desired)

- a specified period of time to achieve the goal.

The Asset Management Strategy (Organisation's Service Delivery Strategy) follows the specifications of the Asset Management Policy and sets out activities, which help to achieve the Asset Management Objectives. In essence it also supports the Corporate Strategy and the achievement of the Corporate Objectives.

> **Asset Management Strategy**

How an organisation's Asset Management responds to Community needs and expectations is guided by the Asset Management Strategy which outlines the development of an asset portfolio, risk management strategies and asset performance measures.

The Asset Management Strategy identifies any requirements needed ('gaps') to support services and outlines the organisation's response to these by identifying appropriate acquisitions (planned capital investment), maintenance and disposal (such as replacement and/or upgrading).

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[1] Viljoen J, Dann S (2000): Strategic Management: planning and implementing successful corporate strategies, 3. Edition, Pearson Education Australia

The Asset Management Strategy:

- outlines how the organisation's asset portfolio will support its service delivery

- develops an asset portfolio to support service delivery

- sets asset management priorities

- undertakes gap analysis to identify difference between the existing and required assets

- identifies asset-related risks which may potentially affect service delivery

- sets asset performance levels needed to achieve efficient service performance

- provides the basis for the more detailed Asset Management Plans (acquisition plan, operations plan, maintenance plan, and disposal plan)

- meets international and national Standards for Asset Management.

The Asset Management Strategy supports the Corporate Strategy and the achievement of the Corporate Objectives.

Service Delivery Tactical and Operational Planning

Service Delivery Tactical and Operational Planning is the implementation of an organisation's asset management strategy.

The acquisition, operations, maintenance and disposal plans underpinning the asset management strategy detail how the organisation will effectively and efficiently manage its assets across their full life-cycle to achieve service objectives.

Specific activities include:

- Acquisition plan: decisions to acquire assets are based on consideration of options including non-asset alternatives, risks, life-cycle costs, and are demonstrably linked to an organisation's service delivery requirements, budgeting processes, and work schedules.

- Operations plan: asset condition and performance is actively monitored and managed and operational costs are accounted for in line with clearly defined responsibilities and standards.

- Maintenance plan: planned and unplanned maintenance occurs and optimises the useful life of assets and the achievement of service delivery needs and performance standards established within the operations plan.

- Disposal plan: Appropriate disposal strategies are developed and implemented for surplus assets based on a consideration of alternatives including non-disposal options. Where appropriate, disposal activities focus on optimising the financial return on functionally inadequate or under-utilised assets including funds available for subsequent capital reinvestment.

> **Service Delivery Tactical and Operational Planning**
> **Asset Management Plans**

> **Acquisition Plan**

> **Operations Plan**

> **Maintenance Plan**

> **Disposal Plan**

The acquisition, operations, maintenance and disposal plans underpinning the asset management strategy detail how the organisation will effectively and efficiently manage its assets across their full life-cycle to achieve service objectives.

Service Delivery

Service delivery comprises the actual provision and maintenance of services, in accordance with the strategic and tactical plans, and the operational management.

> **Service Delivery**

Service delivery activities would generally comprise the creation, maintenance, renewal/upgrading and disposal of the assets but may also include operational activities. For example a building comprising an aquatic centre would require ongoing expenditure on maintenance and upgrade of facilities as well as expenditure on operating activities such as staff, chemicals and utilities.

> **Service Delivery Activities**

For optimal service delivery clear assignment of responsibility and accountability should be established for each asset and its related operations.

> **Optimal Service Delivery**

This includes the identification of assets, the capture of information and the assessment of performance against the agreed level of service.

Evaluation

Evaluation is the measuring, reporting and reviewing of asset performance against asset management, organisational and government objectives. Contemporary evaluation now incorporates not only the evaluation of the asset but also the evaluation of the impact of the asset on the environment and society.

> **Evaluation**

Assets deliver services to the community to meet demand. By measuring asset performance agencies can determine how effectively assets support services. Agencies can measure costs, use, value and condition. An evidence-based assessment provides the tool to affirm and assure quality service delivery and to support internal and external reporting.

> **Asset Performance Measurement**

Decision-makers use comprehensive information on service delivery and asset management performance. Organisations also need to carefully measure the performance of contracted providers to assure they are delivering services according to contract.

> **Management Reporting**

Organisations need to regularly review the performance of their assets and their management to ensure these align with asset management service delivery objectives and that outputs meet service delivery requirements. The review typically involves processes such as strategic analysis, gap analysis, demand management and risk management.

> **Review**

Audits can lead to improvements in asset management. Auditors assess whether or not the organisation is complying with regulatory frameworks and whether services are being delivered efficiently and effectively.

> **Audit**

Evaluation is the measuring, reviewing and reporting of asset performance against asset management, organisational and government objectives.

Knowledge Management

In the current knowledge rich environment, the management of information and information systems is a central task. Integrated information systems and effective knowledge management processes underpin the capacity to develop new ways of thinking and the creative responses necessary to improve decision-making, and increase productivity.

Assets exist to support service delivery and must be accounted for and depreciated correctly. Asset Registers, integrated into information systems, are integral components of a functional knowledge management process. An asset register is a fundamental resource allowing for items to be readily cross-referenced and retrieved.

Asset data and information includes details on asset characteristics, categorisations and asset valuations. While ICT systems can assist in the management of information it is important that professional information managers are involved. They add value by carefully assessing the information needs of staff, the way staff access and use information and how the integrity of shared data can be maintained.

> **Knowledge Management**

> **Asset Register**

> **Asset Data**

Integrated information systems and effective knowledge management processes underpin the capacity to develop new ways of thinking and the creative responses necessary to improve decision-making, and increase productivity.

Organisational Management

Managers at all levels need to be proactive in their support for strategic asset management to enable its effective integration into organisational structures, and to optimise service and asset management outcomes.

A challenge for strategic asset managers is to motivate employees to align their individual goals with organisational and asset management objectives. They therefore need the personal and social competence to lead successfully, as well as the professional skills and techniques needed for their own jobs.

Sometimes an organisation has to change its culture, aspects of work or employee behaviour to achieve corporate asset management goals. The transition is called change management and needs to be led from the top of an organisation.

This integrated approach requires an ability to layer traditional management and leadership skills on top of emergent and necessary cross-boundary capacities and capabilities. To achieve this, organisations will need to audit their current skill sets to identify any gaps and the resources required.

An organisational ethos that promotes optimal asset management outcomes often requires significant and deliberate cultural change. Pushing cultural boundaries may be necessary to embed a sustainable asset management culture.

> **Organisational Management**

> **Leadership**

> **Change Management**

> **Organisational Competencies and Skills**

> **Asset Management Culture**

Asset management integration into the organisation is now a fundamental issue concerning organisational performance.

Conclusion

Integrated strategic asset management has never been more crucial or challenging. Modern societies rely on a well connected system of purposeful and functional assets to maximise their wellbeing. Economic modelling demonstrates that developing and replacing existing and often aging public assets is an increasingly expensive process; drawing on already constrained budgets. Coupled with this economic imperative is a growing appreciation of the importance of embedding a consideration of the sustainability of the environment in which assets are located. Together these elements call for a more holistic conceptualisation of public assets and how they combine to provide a comprehensive system of service outcomes.

This Guide contains a contemporary set of practices to assist those responsible for the delivery and management of assets. Rapid advances in knowledge and technologies mean that asset management practice, and therefore this Guide, will be subject to continued evolution and change.

> **Integrated Strategic Asset Management Conclusion**

Integrated strategic asset management has never been more crucial or challenging.

Notes

For more information

For more information about this publication or other related material please visit:

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http://www.aamcog.com

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