

GFMAM Competency Specification for an ISO 55001 Asset Management System Assessor

Third Edition, Version 1.0
English Version



GFMAM

**Global Forum on Maintenance
& Asset Management**

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About this Document

The ISO standard ISO 55000 Asset Management was first published in January 2014, with its latest version released in June 2024. This standard explains the purpose and application of asset management in organisations. It has attracted significant interest from asset owners, regulators, and certification bodies, reflecting a global desire to enhance organisational value through effective management of both tangible and intangible assets.

Realising the benefits of effective asset management requires more than just processes. It demands skilled individuals who can apply asset management certification processes and use them to deliver the value organisations seek. Recognising this crucial role, the Global Forum on Maintenance and Asset Management (GFMAM), a non-commercial global association of professional asset management bodies, published a document specifying the required knowledge in asset management. This document is a vital tool that equips professionals to meet the requirements of ISO 55001 when performing audits or assessments.

The GFMAM specification plays a pivotal role in guiding professional bodies in certifying individuals who possess the necessary knowledge in asset management to carry out effective audits and assessments. This certification helps asset owners identify qualified individuals for audits or assessments. It's important to note that the specification focuses solely on asset management knowledge and does not cover auditing or assessment skills.

Certification bodies have also benefited from the GFMAM specification by using it to select individuals with Recognised asset management knowledge, ensuring that organisations can realise the value they aim to achieve.

This is the third edition of the GFMAM specification document. It includes:

- Differentiation between the roles of Auditor and Assessor,
- Updated requirements for Assessors aligned with ISO 55001, and
- Revised Assessor requirements based on the GFMAM Asset Management Landscape.

The Global Forum on Maintenance and Asset Management

The Global Forum on Maintenance and Asset Management (GFMAM) has been established with the aim of collaboratively sharing advancements, knowledge and standards in Maintenance and Asset Management.

The members of GFMAM (at the time of issue of this document) are:

- Asset Management Council (AMCouncil), Australia.
- Āpōpō New Zealand
- Brazilian Maintenance and Asset Management Society (ABRAMAN).
- European Federation of National Maintenance Societies (EFNMS), Europe.
- French Institute of Asset Management and Infrastructures (IFRAMI), France.
- Gulf Society of Maintenance and Reliability (GSMR), Arabian Gulf Region.
- Institute of Asset Management (IAM), UK.
- Institute of Public Works Engineering Australasia (IPWEA) Australia.
- Japanese Associate of Asset Management (JAAM).
- Japanese Institute of Plant Maintenance (JIPM).
- Moroccan Association of Reliability, Asset Management & Maintenance (MARAMM).
- Malaysian Asset and Project Management Association (MAPMA), Malaysia.
- PEMAC Asset Management Association of Canada, Canada.
- The Southern African Asset Management Association (SAAMA), South Africa.
- The Society for Maintenance and Reliability Professionals (SMRP), USA.

The enduring objectives of the GFMAM are:

1. To bring together, promote and strengthen the maintenance and asset management community worldwide.
2. To support the establishment and development of associations or institutions whose aims are maintenance and asset management focused.
3. To facilitate the exchange and alignment of maintenance and asset management knowledge and practices.
4. To raise the credibility of member organisations by raising the profile of the Global Forum.

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1 Background

The International Standard Organisation, ISO, published a suite of three standards on asset management in January 2014. The ISO 5500X Suite of Standards describes a management system for asset management. This is abbreviated to asset management system within the standard.

The three standards in the ISO 55000X suite are:

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

Note - ISO 55002 was revised in 2018 and is under revision in 2024.

There have been major global advances in Asset Management standards, models, and principles over the last three decades and since the original release of ISO55000 in 2014. The Global Forum on Maintenance and Asset Management determined the benefits of aligning these various advances and collaborating to develop a collective view, particularly for organisations operating asset management systems in many countries. In June 2024, the GFMAM Asset Management Landscape, Third Edition, (multiple languages) was published¹.

After consultation with stakeholders, it was clear that members and stakeholders of the GFMAM member organisations sought assistance in achieving results from the 5500x standards. In particular, organisations require competent and capable people, who may be employed as staff or brought in from external organisations to assess against or comply with ISO 55001.

The GFMAM Competency Specification for an ISO 55001 Asset Management System Assessor, Third Edition (Version 1, English), is structured to align with the ISO 55001 Standard and the GFMAM Asset Management Landscape, outlining the minimum knowledge and understanding requirements for personnel assessing compliance with ISO 55001. It does not provide any guidance on conducting an audit or assessment.

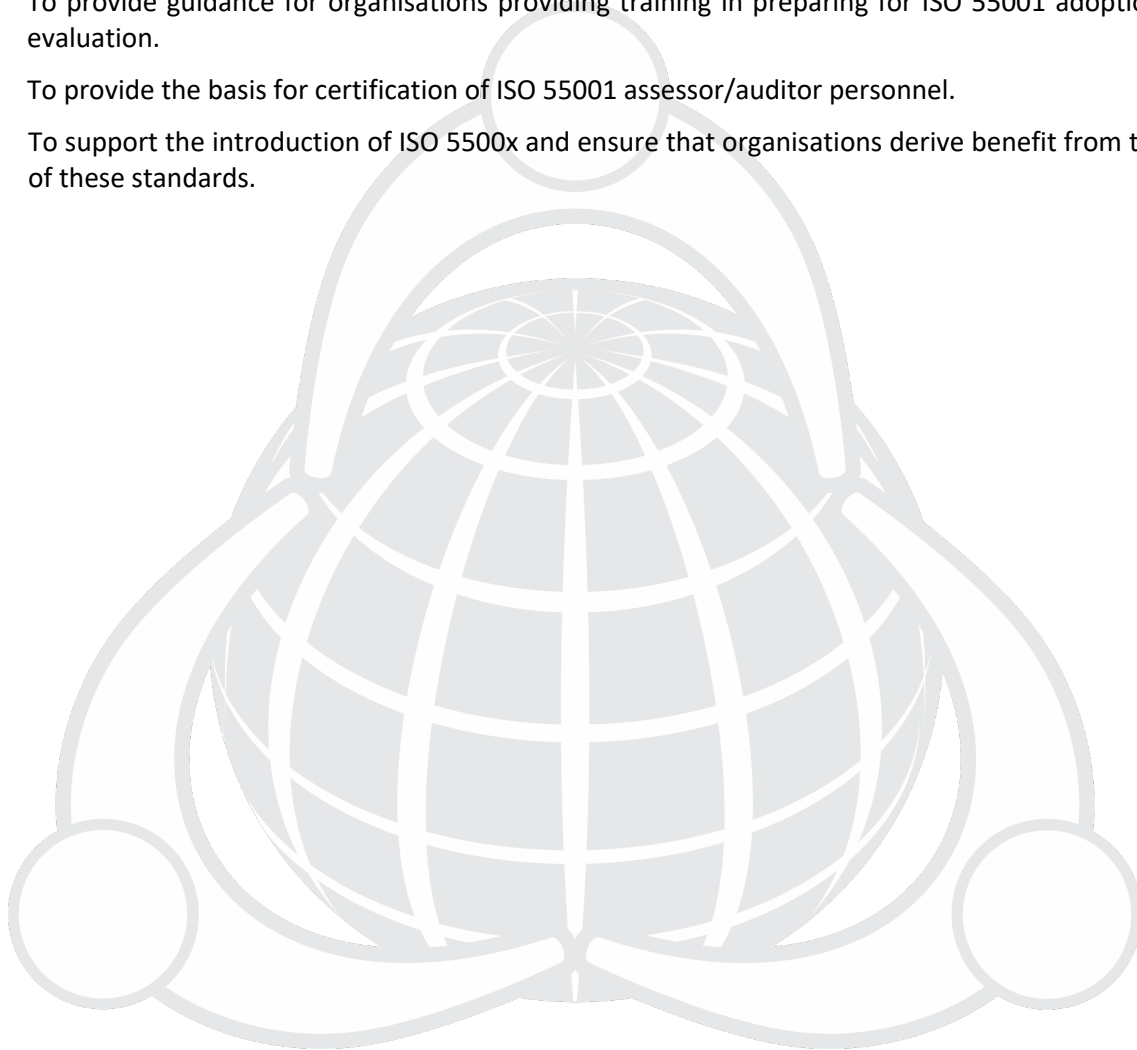
2 Purpose

These competency requirements have been created to assure the competence of people who audit or assess organisations according to ISO55001.

These competency requirements conform to, at least, the requirements and recommendations in ISO17021-5 and ISO 19011:2018.

Purposes include

1. To establish the minimum knowledge and understanding of asset management to perform duties as an assessor for ISO 550001.
2. To provide guidance for organisations providing training in preparing for ISO 55001 adoption and evaluation.
3. To provide the basis for certification of ISO 55001 assessor/auditor personnel.
4. To support the introduction of ISO 5500x and ensure that organisations derive benefit from the use of these standards.



3 Auditor or Assessor

The GFMAM Assessor Specification is focused on the technical competence requirements of an asset management assessor. This is the minimum knowledge and understanding of asset management considered necessary for an assessor or auditor to effectively assess or audit asset management practices.

The GFMAM Specification does not include generic auditing or assessment competencies

The core asset management competencies set out in the GFMAM Assessor Specification can be applied across a range of audit and assessment activities beyond just those that require ISO17021-5 compliance.

The additional competencies for planning and undertaking effective auditing are addressed in:

- ISO 17021-1:2015 Annex A for certification audits – *‘Required knowledge and skills’* (Note that these are the overall competencies for a Certification Body, not an individual auditor)
- ISO 19011:2018 Clause 7.2 for other types of audits – *‘Determining auditor competence to fulfil the needs of the audit programme’*

Although the skills and activities for generic management system auditing are well defined in ISO 19011 and ISO 17021-1, no equivalent requirements/guidelines are available for assessment activities, though the principles of ISO 19011 are often adopted.

Both ISO 17021-1:2015 and ISO 19011:2018 define an auditor as a *‘person who conducts an audit’*. What varies is the type of audit, and the auditing competences required to undertake these different types of audits. Table XX identifies the more common categories of audit and assessments.

Table XX		
Type of Audit / Assessment Activity	Undertaken By	Relevant Generic Auditing Standard / Guidelines
ISO 55001:2024 accredited certification audits	Third party Certification Bodies independent of the client organisation	ISO 17021-1:2015
ISO 55001:2024 gap assessment (with a view to certification)	Third party auditors (not necessarily Certification Bodies) independent of the client organisation	ISO 17021-1:2015
ISO 55001:2024 gap assessment (without a view to certification)	Third party auditors (preferable) or Assessors (not necessarily Certification Bodies) independent of the client organisation	ISO 17021-1:2015
ISO 55001:2024 (Third party) audits	• parties having an interest in the organisation, such as customers, or by other persons on their behalf • Staff of the client organisation, or a contracted third party on behalf of the organisation, auditing its supplier(s) of asset management services	ISO 19011:2018
ISO 55001:2024 internal audits	• The organisation’s own internal audit and other assurance functions, or • contracted third party or parties on behalf of the organisation (but not its Certification Body)	ISO 19011:2018 and ISO 55001:2024 (Clause 9.2)
Asset management regulatory audits (financial, technical, risk)	Regulatory (or third party contracted) auditors	ISO 19011:2018 or bespoke methodologies
Asset management maturity assessment	Independent third-party asset management maturity assessors	No applicable standards. Preference – GFMAM Competency Specification for an ISO 55001 Auditor Specification
Asset management self-assessment	Staff of the organisation	No applicable standards.

		Preference – GFMAM Competency Specification for an ISO 55001 Auditor Specification
Asset management benchmark assessments	Independent third-party asset management maturity assessors	No applicable standards. Preference – GFMAM Competency Specification for an ISO 55001 Auditor Specification

Annex A of ISO 17021-1:2015 identifies 11 areas of knowledge and skills that a certification body requires. A proportion of these are required for audits not related to certification, and assessment.

ISO 17021-1:2015 Table A.1 ‘*Table of Knowledge and Skills*’ has been modified as Table YY below to illustrate the commonality, and differences, between the competencies:

- applicable to:
 - AM certification audits,
 - AM internal audits and other categories of AM audits, and
 - AM assessments
- addressed within the GFMAM Assessor Specification

Table YY					
Knowledge & Skill		AM Certification Audits	Internal and Other AM Audits	AM assessments	Covered by GFMAM Specification
(1)	Knowledge of organisation management practices	✓	✓	✓	Y
(2)	Knowledge of audit principles, practices, and techniques	✓	✓	✓	
(3)	Knowledge of specific management system standards/normative documents	✓	✓	✓	Y
(4)	Knowledge of certification body's processes	✓			
(5)	Knowledge of client's organisation sector	✓	✓	✓	Y
(6)	Knowledge of client products, processes, and organisation	✓	✓	✓	Y
(7)	Language skills appropriate to all levels within the client organisation	✓	✓	✓	
(8)	Note-taking and report-writing skills	✓	✓	✓	
(9)	Presentation skills	✓	✓	✓	
(10)	Interviewing skills	✓	✓	✓	
(11)	Audit-management skills	✓	✓		

In addition, ISO/IEC TS 17021-5: Competence requirements for auditing and asset management system certification support these skills.

This Technical Specification (TS) specifies additional competence requirements for personnel involved in the audit and certification process for Asset Management Systems and complements the existing requirements of ISO/IEC 17021-1.

4 Asset Management Competency Context

4.1 Roles and Responsibilities

An assessor will undertake activities as a member of a team of auditors/assessors.

The role of an asset management system assessor is to:

- Provide strategic knowledge from multiple disciplines and organisations to interpret integrated and diverse processes and systems.
- Evaluate technical and non-technical aspects of organisations' asset management systems; and
- Interrogate and interpret a wide range of documents, systems, and personnel.

4.2 Competency requirements

A competent assessor will be able to demonstrate that they possess the following:

Asset Management System Competency - The asset management specific knowledge and skills required of an assessor for the requirements as defined within the 'ISO 55001 Requirements for an asset management system standard, including the components of an asset management system, as well as a holistic understanding of elements of policy, strategy, objectives, plans, processes, resources and related artefacts that comprise the asset management system.

It is assumed that:

1. A demonstrated knowledge and understanding of asset management processes and systems does not imply proficiency in execution.
2. No individual has a detailed knowledge and understanding of all processes and systems of asset management (given broad coverage, life cycle opportunity and interdisciplinary nature).
3. There are some processes and systems in asset management that serve as an exemplar for other processes and systems (e.g. project management and shutdown management have similar characteristics); and
4. There are some processes and systems specifically mentioned as part of ISO55001 – e.g. Asset Management Policy, Asset Management Strategy, Strategic Planning, Asset Management Plan, Asset Data and Knowledge, Asset Management Leadership, Organisational Structure & Culture, Competence & Behaviour, Management Review, Audit & Assurance, Stakeholder Relations.

General Asset Management Competency -The minimum asset management knowledge and understanding established by the Global Forum on Maintenance and Asset Management

This means that they can:

- Identify the features and understand the benefits of integrated asset management processes and systems.
- Understand how organisational elements relate to the requirements of an asset management system.
- Demonstrate understanding of asset management as a set of integrated technical and financial risk-based processes.
- Communicate with managers and resources.

- Determine what is appropriate in terms of asset management given the organisation's context, complexity, strategic objectives and level of maturity.
- Understands the value proposition within the context of the organisation.

A competency statement generally reads like this: "Assessors should be able to (requirement statement)." In this document, the verbs that fill these blanks are carefully chosen to represent the degree of applied skill required, using Bloom's taxonomy as a reference, attached as Appendix I. To 'know and comprehend', for example, represents the lower levels on Bloom's taxonomy, whereas the ability to 'evaluate and synthesise' is at the highest. Effective assessment methods should be designed with this taxonomy in mind.

4.3 Background Prerequisites

In addition to the competence requirements set out in this specification, assessors are expected to have five years' experience working in Asset Management.

4.4 Bloom's Taxonomy

Bloom's Taxonomy (2001) describes 6 categories of intellectual achievement: remember, understand, apply, analyse, evaluate and create. If there is any doubt, when interpreting what is required in an Assessor, it should be remembered that Assessors will be operating primarily at the 'understand through evaluate' levels.

Appendix A contains more details on Bloom's taxonomy

4.5 Competencies

The competencies that meet the above requirements are considered in two areas:

- Section 5.0 - ISO 55001 requirements
- Section 6.0 - AM Landscape requirements

The combination of these competencies is acknowledged to provide the minimum knowledge and understanding requirements for an assessor

5 Competency against ISO 55001:2024 requirements

This section defines the changes introduced by ISO55001:2024.

5.1 Section 4.0 - Context of the Organisation

Context Identification and Analysis

- Conduct an analysis of internal and external issues relevant to an organisation's asset management system.
- Apply tools (e.g., SWOT analysis) to determine how these issues affect the achievement of intended outcomes.

Stakeholder Requirement Integration

- Map stakeholder requirements to specific aspects of the asset management system.
- Demonstrate the application of stakeholder impact analysis to prioritise resource allocation and decision-making.

Scope Definition and Documentation

- Develop a clear and actionable scope statement for an asset management system, including boundaries, applicability, and asset portfolio coverage.
- Ensure the scope aligns with organisational objectives and integrates with other management systems.

Decision-Making Framework Implementation

- Use the defined context and stakeholder requirements to establish and apply criteria for asset management decision-making.
- Create scenarios where decisions are made considering risks, opportunities, and contextual influences.

Adaptation to Contextual Changes

- Apply processes for updating the asset management system when external or internal contexts (e.g., regulatory changes, market dynamics) evolve.
- Design and implement contingency plans for emerging issues such as climate change impacts.

Communicating Contextual Relevance

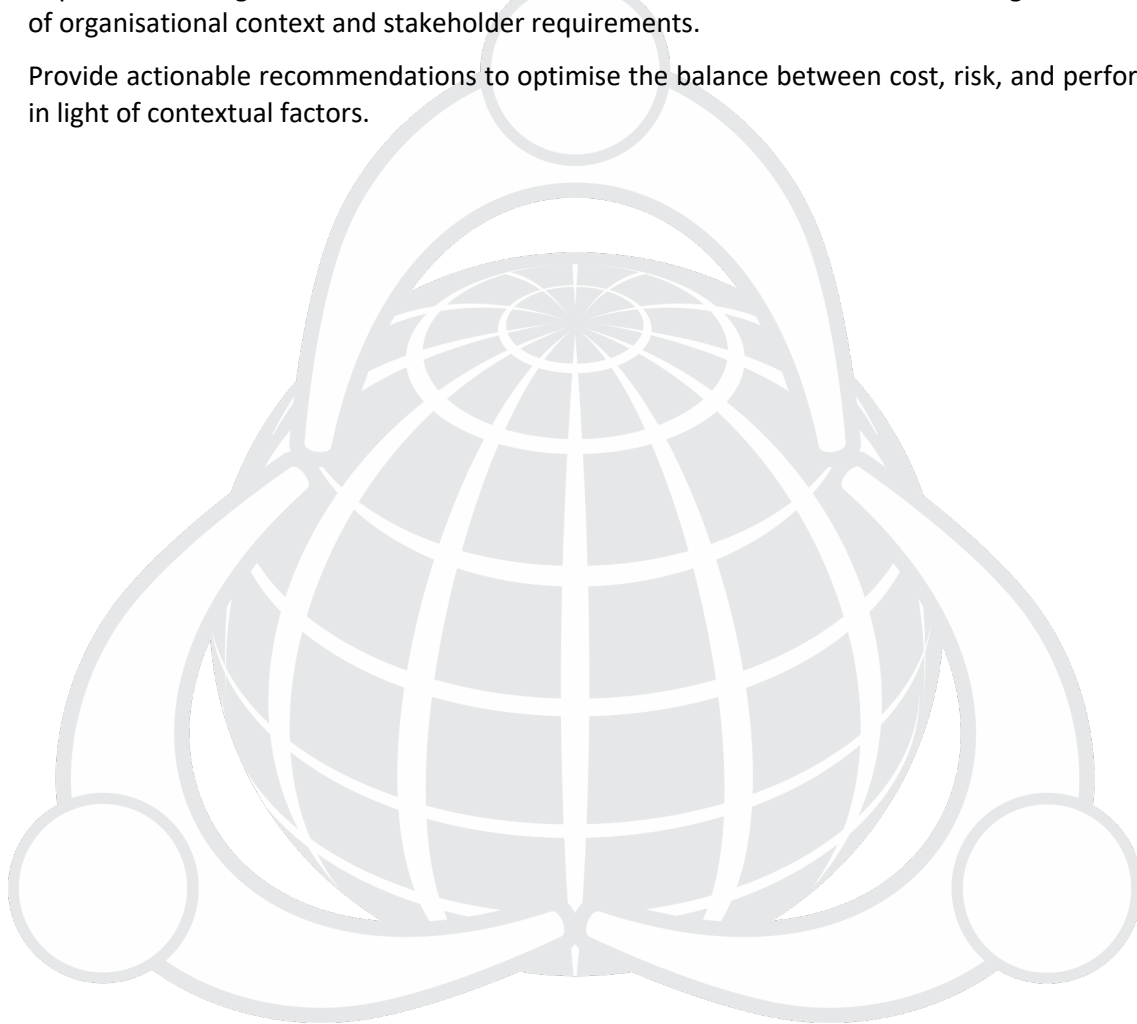
- Prepare and deliver documentation or presentations to communicate the rationale behind the system's scope and decisions to relevant stakeholders.
- Apply techniques to engage stakeholders in meaningful discussions about context and its implications.

Monitoring and Evaluation of Contextual Impact

- Set up processes to monitor external and internal factors continuously and evaluate their impacts on the asset management system.
- Apply analytical methods to assess whether the current system scope and stakeholder alignment remain effective.

Use of Contextual Understanding for Value Realisation

- Implement strategies to maximise the value derived from assets based on a thorough understanding of organisational context and stakeholder requirements.
- Provide actionable recommendations to optimise the balance between cost, risk, and performance in light of contextual factors.



5.2 Section 5.0 - Leadership

Developing Asset Management Policies

- Draft an asset management policy that aligns with organisational objectives and demonstrates a commitment to continual improvement.

Assigning Roles and Responsibilities

- Implement a framework for assigning, documenting, and communicating roles, responsibilities, and authorities within the organisation to meet asset management objectives.

Aligning Strategic Plans

- Apply leadership principles to ensure the strategic asset management plan (SAMP) aligns with the organisation's strategic direction and objectives.

Integrating Asset Management System Requirements

- Incorporate the requirements of the asset management system into business processes, ensuring they support organisational goals.

Establishing Decision-Making Frameworks

- Use leadership tools to establish criteria for decision-making that reflect the organisation's objectives and ensure value creation from assets.

Promoting Continual Improvement Initiatives

- Design and implement initiatives that promote continual improvement of the asset management system, supported by leadership actions.

Communicating Policy and Objectives

- Apply effective communication techniques to convey the importance of the asset management policy and objectives to stakeholders and employees.

Providing Resources

- Allocate and justify resources needed for the establishment, maintenance, and improvement of the asset management system.

Facilitating Cross-Functional Collaboration

- Implement strategies to foster collaboration across departments to enhance the effectiveness of the asset management system.

Monitoring and Supporting Leadership Engagement

- Design a monitoring system to ensure leadership remains actively engaged and provides the necessary support for asset management initiatives.



5.3 Section 6.0 - Planning

Risk and Opportunity Management

- Apply risk assessment techniques to identify, analyse, and evaluate risks related to assets and the asset management system.
- Implement planned actions to address identified risks and opportunities, ensuring alignment with organisational objectives and stakeholder requirements.
- Demonstrate the ability to evaluate the effectiveness of actions taken to address risks and opportunities through evidence-based methods.

Strategic Asset Management Planning (SAMP)

- Develop a Strategic Asset Management Plan (SAMP) that aligns with organisational policies, decision-making frameworks, and objectives.
- Translate organisational objectives into measurable and actionable asset management objectives.
- Integrate financial and non-financial planning into asset management strategies to optimise resource allocation.

Operational Planning

- Execute operational controls for processes, ensuring they meet the criteria established for life cycle management.
- Apply asset life cycle principles to plan and manage the creation, acquisition, utilisation, maintenance, and disposal of assets.
- Evaluate process controls to maintain alignment with the strategic direction and improve asset performance.

Performance Measurement

- Monitor and measure performance of assets and asset management processes against predefined criteria.
- Analyse monitoring results to identify trends, deviations, and opportunities for improvement.
- Prepare and communicate performance reports for stakeholders to demonstrate the effectiveness of the asset management system.

Competence and Awareness

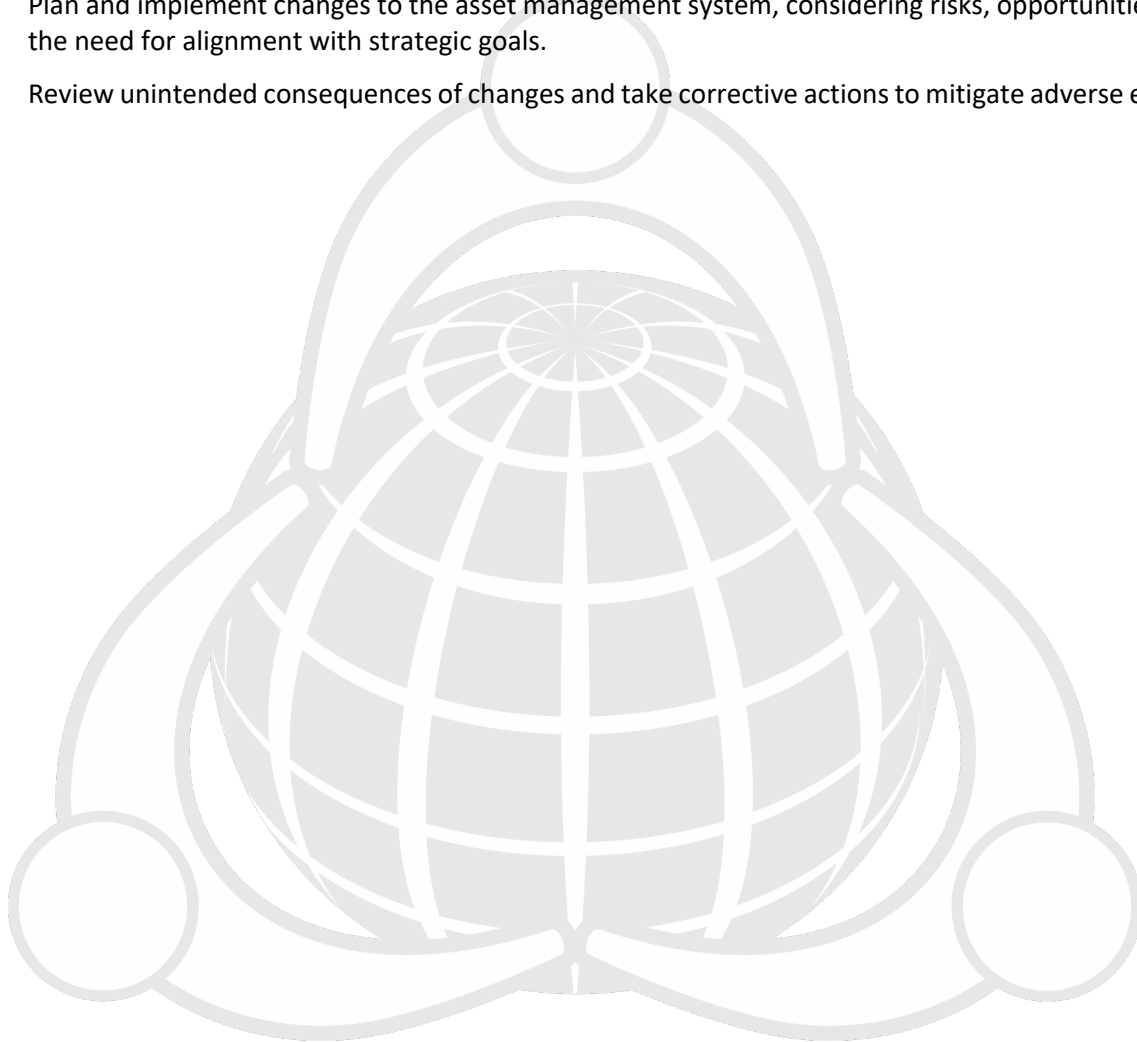
- Assess and ensure the competence of individuals performing tasks affecting asset management performance.
- Apply training programs to address gaps in knowledge and skills and validate the effectiveness of these interventions.
- Promote awareness programs to enhance understanding of responsibilities and contributions toward asset management objectives.

Documentation and Information Management

- Maintain documented information as evidence of planning, execution, and evaluation of asset management activities.
- Implement information management processes to ensure data integrity, accessibility, and alignment across organisational functions.

Change Management

- Plan and implement changes to the asset management system, considering risks, opportunities, and the need for alignment with strategic goals.
- Review unintended consequences of changes and take corrective actions to mitigate adverse effects.



5.4 Section 7.0 - Support

Competence Assessment

- Apply methods to assess the competence of personnel performing roles impacting asset performance, ensuring alignment with organisational objectives.

Training Implementation

- Design and execute training plans to address identified gaps in skills or knowledge relevant to asset management.

Effective Communication

- Implement communication strategies to disseminate information about the asset management policy and objectives to stakeholders and team members.

Document Control Application

- Utilise document management systems to ensure the creation, update, and control of documented information for the asset management system.

Data and Information Management

- Apply principles of data integration and quality improvement to enhance the reliability and usability of asset information.

Knowledge Retention Strategies

- Develop processes for capturing and retaining critical knowledge to support asset management decision-making.

Evaluation of Awareness

- Assess and apply measures to enhance the awareness of employees about their roles in achieving asset management objectives.

Risk Communication

- Implement methods to effectively communicate risks and opportunities associated with asset management to stakeholders.

5.5 Section 8.0 - Operation

Operational Planning and Control

- Apply defined criteria to establish and implement processes for managing the life cycle of assets, ensuring alignment with the organisation's strategic objectives.
- Demonstrate the ability to control and monitor changes in operations and effectively mitigate any unintended consequences.

Life Cycle Management

- Utilise established procedures to plan and execute activities for asset creation, acquisition, utilisation, maintenance, improvement, renewal, and disposal.
- Implement and adapt risk-based approaches to operational decisions involving asset life cycle stages.

Integration of Risk and Opportunity

- Apply structured methods to monitor and treat risks and opportunities, ensuring that decisions align with value realisation and performance objectives.
- Conduct risk evaluations and integrate the findings into ongoing operational planning.

Externally Provided Processes and Services

- Implement control measures to ensure externally provided processes, technologies, products, or services align with organisational requirements and contribute to achieving operational objectives.
- Apply knowledge-sharing strategies between the organisation and external providers to support operational consistency.

Documented Information

- Use organisational documentation systems to ensure all operational processes are adequately recorded and controlled.
- Update, maintain, and retrieve relevant operational documents as evidence of conformance and performance.

Control of Changes

- Apply protocols to manage planned changes, evaluating potential risks and implementing mitigation strategies to maintain operational integrity.
- Use evaluation methods to assess the effectiveness of change management initiatives in meeting asset management objectives.

Performance Evaluation in Operations

- Use performance indicators and measurement tools to evaluate operational activities, identifying areas for improvement and ensuring alignment with strategic asset management goals.

- Apply monitoring frameworks to assess the effectiveness of operational plans and their execution.

Governance in Operations

- Implement governance frameworks to oversee the alignment of operational activities with the Strategic Asset Management Plan (SAMP) and asset management objectives.
- Ensure compliance with operational policies and integration of risk and opportunity analyses into governance processes.



5.6 Section 9.0 - Performance

Execute Monitoring and Measurement Plans

- Apply monitoring techniques to assess asset management performance against established criteria.
- Use tools and methodologies to measure stakeholder satisfaction and alignment with asset management objectives.

Analyse and Evaluate Performance Data

- Interpret results from monitoring and measurement activities to evaluate the effectiveness of the asset management system.
- Implement systematic approaches to compare actual outcomes with intended objectives.

Conduct Internal Audits

- Plan and execute internal audits to ensure compliance with organisational and ISO 55001 requirements.
- Apply audit methods to identify areas for improvement in asset management practices.

Prepare and Deliver Performance Reports

- Compile and present data-driven insights on asset performance and system effectiveness to stakeholders.
- Use structured formats and reporting tools to communicate audit findings and performance trends.

Evaluate Risk and Opportunity Management

- Apply evaluation techniques to assess how well risks and opportunities are managed within the asset management system.
- Implement corrective actions based on identified gaps in risk mitigation strategies.

Facilitate Management Reviews

- Organise and lead discussions during management review meetings to assess the suitability, adequacy, and effectiveness of the asset management system.
- Use performance trends and audit outcomes to propose actionable recommendations.

Implement Corrective and Predictive Actions

- Apply decision-making frameworks to resolve nonconformities and prevent recurrence.
- Develop and integrate predictive action plans based on performance data and trend analysis.

Ensure Documentation Compliance

- Maintain and update documented information as evidence of monitoring, audits, and reviews.

- Apply organisational policies to control access, retention, and updates to documentation.



5.7 Section 10.0 - Improvement

Implementing Continual Improvement

- Apply methods to enhance the suitability, adequacy, and effectiveness of the asset management system.
- Execute improvement actions to increase value delivery to the organisation.

Managing Nonconformities

- Identify and document nonconformities or incidents within asset management.
- Implement corrective actions to eliminate causes of nonconformities and prevent recurrence.
- Apply changes to the asset management system based on nonconformity analysis.

Applying Predictive Actions

- Utilise predictive methods to determine intervention points for maintenance, renewal, or disposal of assets.
- Correlate asset condition to performance, opportunity, risk, and cost for decision-making.

Optimising Corrective and Preventive Actions

- Apply tools to analyse potential nonconformities and opportunities for improvement.
- Plan and integrate corrective or preventive actions into asset management processes effectively.

Evaluating Effectiveness

- Use criteria to assess the impact and success of implemented corrective or predictive actions.
- Monitor the results and incorporate findings into continual improvement cycles.

Engaging Stakeholders

- Develop and apply reporting mechanisms to communicate improvement actions and their long-term effects to stakeholders.

Aligning Improvements with Organisational Goals

- Integrate improvement processes with the organisation's strategic and operational objectives.

Adapting to Changes

Apply structured processes for managing and adapting to changes affecting asset management performance.

6 Competency against AM Landscape V3 (2024) requirements

6.1 Context and Stakeholders

Organisational Purpose and Context (1.1)

- Analyse Organisational Objectives: Apply organisational purpose and strategic goals to define the scope and boundaries of the Asset Management system.
- Assess Internal and External Influences: Utilise tools like PESTLE analysis to evaluate the impact of cultural, social, financial, and regulatory factors on organisational goals.
- Develop Contextual Frameworks: Construct frameworks to align organisational vision, mission, and compliance requirements with asset management practices.

Stakeholder Management (1.2)

- Identify Stakeholder Needs: Create stakeholder analysis matrices to categorise stakeholders by influence and interest.
- Design Engagement Plans: Implement communication strategies to ensure alignment with stakeholder expectations and organisational objectives.
- Evaluate Stakeholder Outcomes: Measure and improve the effectiveness of stakeholder engagement strategies using feedback mechanisms.

Asset Costing and Valuation (1.3)

- Implement Life Cycle Costing (LCC): Apply methodologies to assess Total Expenditure (TOTEX) of assets, integrating CAPEX and OPEX.
- Align Financial and Asset Data: Develop systems to harmonise accounting standards with asset management valuation approaches.
- Optimise Valuation Methods: Use valuation frameworks to support decision-making related to asset investments and lifecycle optimisation.

6.2 Governance

Asset Management Policy (2.1)

- Formulate Aligned Policies: Apply organisational objectives and stakeholder needs to draft asset management policies that align with strategic goals.
- Implement Policy Frameworks: Develop and communicate policy frameworks to ensure consistent understanding and adherence across the organisation.
- Evaluate Policy Effectiveness: Conduct periodic reviews and updates of the asset management policy to incorporate changes in organisational objectives or regulations.

Asset Management System (2.2)

- Develop System Documentation: Create and maintain manuals and governance structures for an integrated Asset Management System that aligns with ISO 55001.

- **Implement System Components:** Apply best practices to establish interrelated processes, data systems, and governance for efficient asset management.
- **Monitor System Performance:** Use tools like maturity assessments and audits to evaluate and improve the effectiveness of the Asset Management System.

Asset Management Assurance and Audit (2.3)

- **Conduct Internal Audits:** Apply audit methodologies to evaluate compliance with asset management policies and processes.
- **Develop Assurance Frameworks:** Create structured assurance programs to assess and improve the alignment of asset management activities with organisational objectives.
- **Resolve Audit Findings:** Implement corrective actions based on audit results to enhance the reliability and performance of the Asset Management System.

Technical Standards and Legislation (2.4)

- **Apply Regulatory Requirements:** Implement compliance measures to align asset management activities with applicable standards and legal requirements.
- **Maintain Standards Registers:** Develop and manage documentation of relevant technical standards and legislative requirements for asset-related activities.
- **Integrate Standards into Practices:** Use technical and legislative requirements to inform asset lifecycle decisions and governance processes.

Management of Change (2.5)

- **Plan Change Processes:** Design and execute change management processes to ensure smooth transitions in asset-related systems and resources.
- **Assess Change Impacts:** Analyse the potential risks and benefits of proposed changes to assets, systems, or processes.
- **Communicate Changes Effectively:** Use structured communication plans to engage stakeholders during the implementation of changes.

Risk Management (2.6)

- **Develop Risk Frameworks:** Create policies and procedures to identify, assess, and mitigate risks associated with asset management.
- **Apply Risk Assessments:** Conduct risk analyses to prioritise risks based on likelihood and impact, using frameworks like ISO 31000.
- **Optimise Residual Risks:** Implement strategies to manage residual risks within acceptable tolerance levels while balancing costs and performance.

6.3 Asset Management Planning

Asset Management Strategy and Objectives (3.1)

- Translate Organisational Goals: Apply organisational strategic objectives to develop asset management objectives within the Strategic Asset Management Plan (SAMP).
- Develop Strategy Documents: Create SAMP documentation that aligns asset management objectives with stakeholder requirements and regulatory standards.
- Optimise Lifecycle Strategies: Use decision-making frameworks to determine the most effective strategies for lifecycle management of assets.

Demand Analysis (3.2)

- Forecast Asset Needs: Use historical data and scenario planning to predict future demand for assets and services.
- Evaluate Demand Scenarios: Apply demand analysis techniques to assess the impact of economic, social, and environmental factors on asset planning.
- Integrate Demand and Capability: Align asset capabilities with demand forecasts to support organisational and stakeholder requirements.

Sustainable Development (3.3)

- Incorporate Sustainability Goals: Apply sustainability principles to develop asset management plans that align with environmental, social, and governance (ESG) objectives.
- Optimise Resource Use: Use life cycle cost analysis to minimise environmental and social impacts while achieving organisational goals.
- Promote Stakeholder Engagement: Integrate cultural, social, and environmental considerations into asset planning through collaboration with stakeholders.

Planning (3.4)

- Create Detailed Plans: Develop comprehensive asset management plans specifying lifecycle activities, resource requirements, and timelines.
- Align Plans with Strategies: Apply strategic objectives to ensure alignment between asset management plans and the SAMP.
- Evaluate Planning Outcomes: Use performance measures to assess the effectiveness of asset management plans in meeting objectives.

Decision-Making (3.5)

- Apply Decision Frameworks: Use multi-criteria decision-making techniques to prioritise asset investments and interventions.
- Balance Risk, Cost, and Performance: Implement tools to evaluate trade-offs and make informed lifecycle decisions.

- **Develop Business Cases:** Create robust business cases to justify asset investments aligned with strategic objectives.

Life Cycle Value Realisation (3.6)

- **Optimise Life Cycle Activities:** Apply evaluation methods to maximise value across the entire lifecycle of assets.
- **Develop Value Frameworks:** Use financial and non-financial criteria to define and assess asset value realisation strategies.
- **Monitor Value Outcomes:** Implement benefit-tracking mechanisms to ensure asset lifecycle activities deliver intended outcomes.

Resourcing Strategy and Management (3.7)

- **Plan Resource Allocation:** Apply resource management techniques to ensure the availability of people, tools, and materials for lifecycle activities.
- **Integrate Supply Chain Management:** Develop strategies to align procurement and supplier management with asset lifecycle needs.
- **Optimise Cost and Resource Use:** Use cost analysis and forecasting to ensure efficient resource utilisation.

Shutdown and Outage Strategy and Planning (3.8)

- **Plan and Schedule STOs:** Develop shutdown, turnaround, and outage (STO) plans that minimise disruption and align with business continuity goals.
- **Manage STO Risks:** Use risk analysis to anticipate and mitigate issues during STO events.
- **Evaluate STO Effectiveness:** Conduct post-event reviews to identify lessons learned and improve future planning.

Contingency Planning and Resilience Analysis (3.9)

- **Develop Contingency Plans:** Create plans to respond to and recover from asset-related hazards or disruptions.
- **Assess Resilience Levels:** Use resilience analysis to identify vulnerabilities in asset systems and organisational processes.
- **Integrate Resilience Strategies:** Apply strategies to enhance asset and organisational resilience while meeting service requirements.

6.4 Leadership and People

Asset Management Leadership (4.1)

- **Demonstrate Transformational Leadership:** Apply leadership principles to inspire teams, fostering innovation and alignment with asset management objectives.
- **Communicate Strategic Vision:** Develop and deliver messages that align the organisation's asset management goals with its mission and objectives.

- Foster Collaborative Environments: Facilitate teamwork across multidisciplinary groups to achieve asset management excellence.

Organisational Arrangements (4.2)

- Design Effective Structures: Develop organisational structures that clearly define roles, responsibilities, and reporting lines to enhance asset management effectiveness.
- Align Roles to Objectives: Apply role and responsibility matrices (e.g., RACI charts) to ensure clarity in achieving asset management goals.
- Promote Information Flow: Implement communication strategies to support the seamless exchange of information across organisational levels.

Organisational Culture (4.3)

- Foster a Stewardship Culture: Promote behaviours and values that align with the organisation's asset management objectives.
- Encourage Collaborative Practices: Apply strategies to reduce silos and encourage interdepartmental cooperation for unified asset management practices.
- Implement Performance Management: Use performance metrics to reinforce desired behaviours and drive continuous improvement.

Competence Management (4.4)

- Develop Competence Frameworks: Create and apply frameworks to define required skills, knowledge, and behaviours for asset management roles.
- Implement Training Programs: Design and execute training initiatives to enhance the competencies of individuals and teams in asset management.
- Evaluate Competency Levels: Apply assessment tools to monitor and improve the effectiveness of competency development programs.

Organisational Change Management (4.5)

- Plan Change Initiatives: Develop structured plans to manage transitions in asset management processes and systems.
- Engage Stakeholders: Apply stakeholder management techniques to ensure support and buy-in during change initiatives.
- Monitor Change Impact: Use feedback and metrics to evaluate the success and impact of change management efforts.

Knowledge Management (4.6)

- Capture Organisational Knowledge: Develop processes to document and share best practices and lessons learned in asset management.
- Leverage Knowledge for Decisions: Apply organisational knowledge to support informed decision-making and continuous improvement.

- Foster a Learning Culture: Promote an environment where employees actively seek and share knowledge to enhance organisational performance.

6.5 Data and Information

Asset Management Data & Information Strategy (5.1)

- Develop Data Strategies: Apply strategic frameworks to align asset management data needs with organisational objectives.
- Implement Data Governance: Use governance structures to ensure data integrity, security, and alignment with organisational policies.
- Integrate Data into Decision-Making: Apply data analysis techniques to support informed decision-making and resource allocation.

Asset Management Data & Information Standards (5.2)

- Apply Data Standards: Implement industry and organisational data standards to ensure consistency and quality.
- Establish Compliance Frameworks: Develop frameworks to ensure asset management data meets relevant standards and regulatory requirements.
- Adapt Standards to Organisational Needs: Customise data standards to align with the unique requirements of the organisation and its asset portfolio.

Asset Management Data & Information Management (5.3)

- Design Data Management Processes: Develop processes for the collection, storage, and retrieval of asset management data.
- Optimise Data Quality: Apply techniques to monitor, validate, and improve the quality of data across the asset lifecycle.
- Integrate Data Systems: Use tools and methods to integrate data from multiple sources into a cohesive information management system.

Asset Management Data & Information Systems (5.4)

- Implement Information Systems: Apply IT solutions to support the storage, analysis, and visualisation of asset management data.
- Enhance System Interoperability: Configure systems to ensure compatibility and seamless data flow across platforms.
- Monitor System Performance: Use performance metrics to evaluate the effectiveness of information systems in meeting organisational objectives.

Configuration Management (5.5)

- Develop Configuration Management Plans: Create plans that define the scope and processes for managing asset-related configuration data.

- **Maintain Configuration Integrity:** Apply processes to ensure accurate and consistent configuration data throughout the asset lifecycle.
- **Analyse Configuration Changes:** Use tools to evaluate the impact of configuration changes on asset performance and management.

6.6 Delivery

Systems Engineering (6.1)

- **Apply Systems Thinking:** Use systems engineering principles to design, integrate, and optimise asset-related systems.
- **Develop Functional Requirements:** Translate organisational objectives into functional requirements for assets and supporting systems.
- **Integrate Asset Systems:** Apply techniques to ensure interoperability and alignment across complex asset systems.

Asset Creation and Acquisition (6.2)

- **Develop Acquisition Strategies:** Apply procurement and acquisition principles to ensure alignment with asset lifecycle objectives.
- **Plan Asset Handover Processes:** Implement structured processes to transition newly created or acquired assets into operation.
- **Optimise Total Cost of Ownership:** Use life cycle costing methodologies to evaluate and optimise acquisition decisions.

Integrated Reliability (6.3)

- **Apply Reliability Engineering Principles:** Use reliability analysis tools to enhance asset performance and reduce downtime.
- **Implement Maintenance Strategies:** Develop and apply reliability-centered maintenance (RCM) practices to optimise asset operations.
- **Monitor Reliability Metrics:** Use key performance indicators (KPIs) to track and improve asset reliability over time.

Asset Operation (6.4)

- **Develop Operational Plans:** Apply operational management techniques to ensure assets deliver required performance and service levels.
- **Optimise Asset Utilisation:** Use data analysis to improve asset usage and operational efficiency.
- **Monitor Operational Performance:** Implement tools to track and evaluate the performance of assets during operations.

Maintenance Delivery (6.5)

- **Plan Maintenance Activities:** Develop maintenance schedules and work plans aligned with asset management objectives.

- Implement Predictive Maintenance: Use condition monitoring and predictive maintenance techniques to prevent asset failures.
- Evaluate Maintenance Effectiveness: Apply performance analysis to assess and improve maintenance activities and strategies.

Incident Management and Response (6.6)

- Develop Incident Response Plans: Create structured plans to address asset-related incidents effectively.
- Coordinate Incident Recovery: Apply techniques to restore asset operations promptly after incidents occur.
- Analyse Incident Data: Use incident data to identify root causes and implement preventive measures.

Asset Repurposing or Disposal (6.7)

- Plan Asset End-of-Life Strategies: Apply decision-making frameworks to determine optimal asset repurposing or disposal methods.
- Implement Sustainable Disposal Practices: Use environmentally responsible practices for asset decommissioning and disposal.
- Monitor Disposal Outcomes: Evaluate the effectiveness of repurposing or disposal activities in achieving sustainability goals.

Supply Chain Management (6.8)

- Develop Procurement Plans: Apply supply chain principles to ensure timely and cost-effective delivery of asset-related goods and services.
- Optimise Inventory Management: Use inventory analysis tools to maintain appropriate stock levels and reduce costs.
- Monitor Supplier Performance: Implement performance monitoring systems to ensure suppliers meet contractual obligations.

6.7 Value Realisation**Outcomes and Impacts (7.1)**

- Identify Value Metrics: Develop criteria and metrics to measure the economic, social, and environmental impacts of asset management activities.
- Align Activities with Stakeholder Value: Apply frameworks to ensure asset management practices deliver value aligned with stakeholder requirements.
- Evaluate Outcome Effectiveness: Use data analysis to assess the effectiveness of asset management in achieving desired outcomes and impacts.

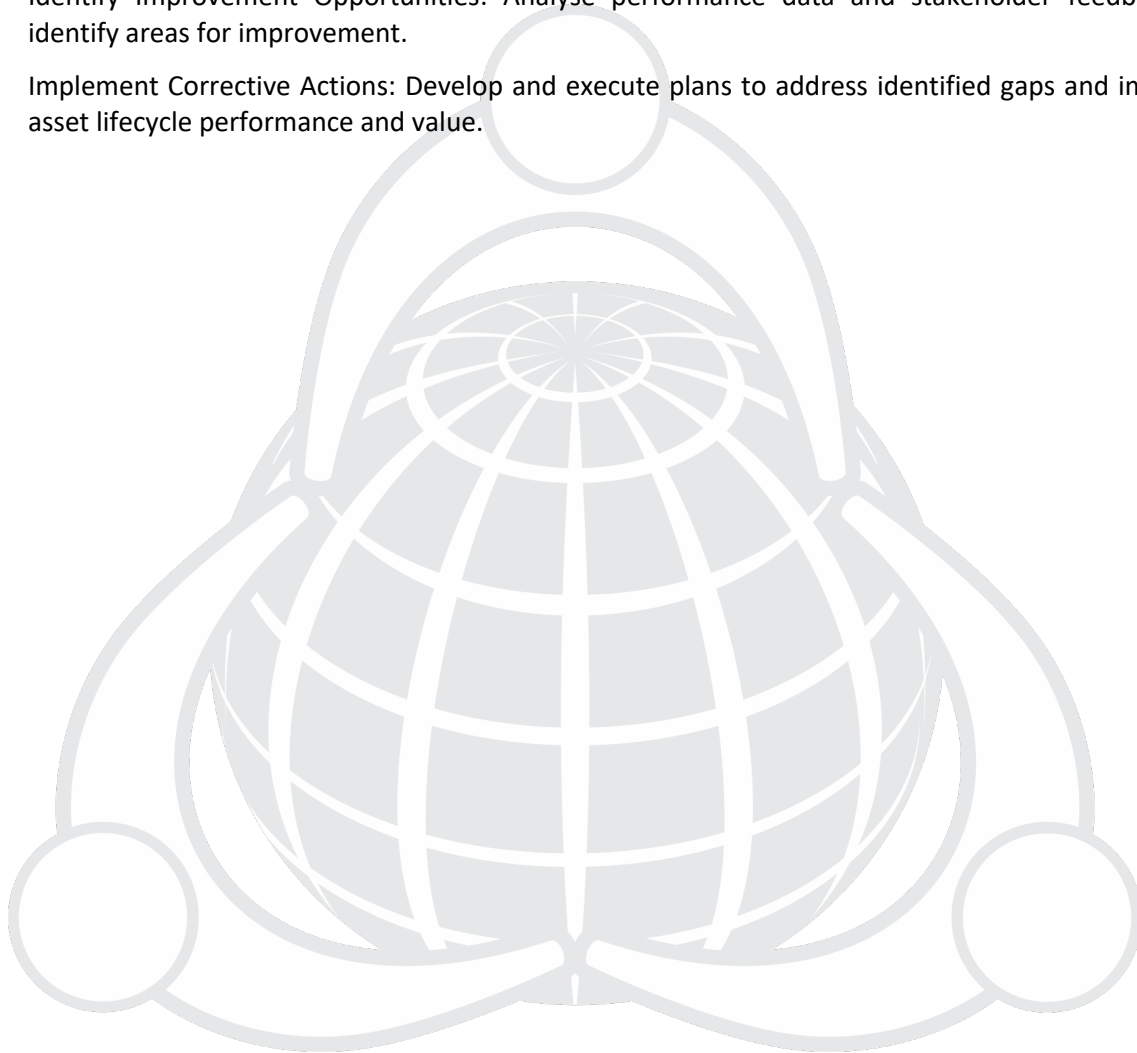
Monitoring (7.2)

- Implement Performance Monitoring Systems: Develop and apply systems to track asset management performance against key indicators.

- **Analyse Performance Data:** Use performance metrics to identify trends, variances, and opportunities for improvement in asset value realisation.
- **Adjust Plans Based on Monitoring Results:** Apply monitoring insights to adapt strategies and ensure continued alignment with organisational objectives.

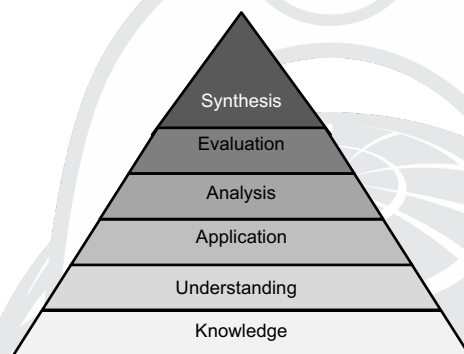
Continuous Improvement (7.3)

- **Apply Improvement Frameworks:** Use tools like Plan-Do-Check-Act (PDCA) to systematically enhance asset management processes and outcomes.
- **Identify Improvement Opportunities:** Analyse performance data and stakeholder feedback to identify areas for improvement.
- **Implement Corrective Actions:** Develop and execute plans to address identified gaps and improve asset lifecycle performance and value.



7 Appendix I: Bloom's Taxonomy of Learning

- A1 Bloom's Taxonomy (in full: *Bloom's Taxonomy of Learning Domains*, or *Bloom's Taxonomy of Educational Objectives*) was first published in 1956 under the leadership of Dr Benjamin Bloom, an American academic and educational expert. 'Bloom's Taxonomy' was originally created with the aim of developing a system of categories of learning behaviour. The intention was to assist in the design and assessment of educational learning. However, Bloom's Taxonomy is now used by corporate trainers and HR professionals, coaches and teachers: the Taxonomy is relevant to all types of learning.
- A2 At the outset, Bloom believed that education should focus on 'mastery' of subjects and the promotion of higher forms of thinking, rather than a utilitarian approach to simply transferring facts. Bloom demonstrated that most teaching tended to be focused on fact-transfer and information recall – the lowest level of training – rather than truly meaningful personal development.
- A3 The Taxonomy has been represented as a set of classification principles:

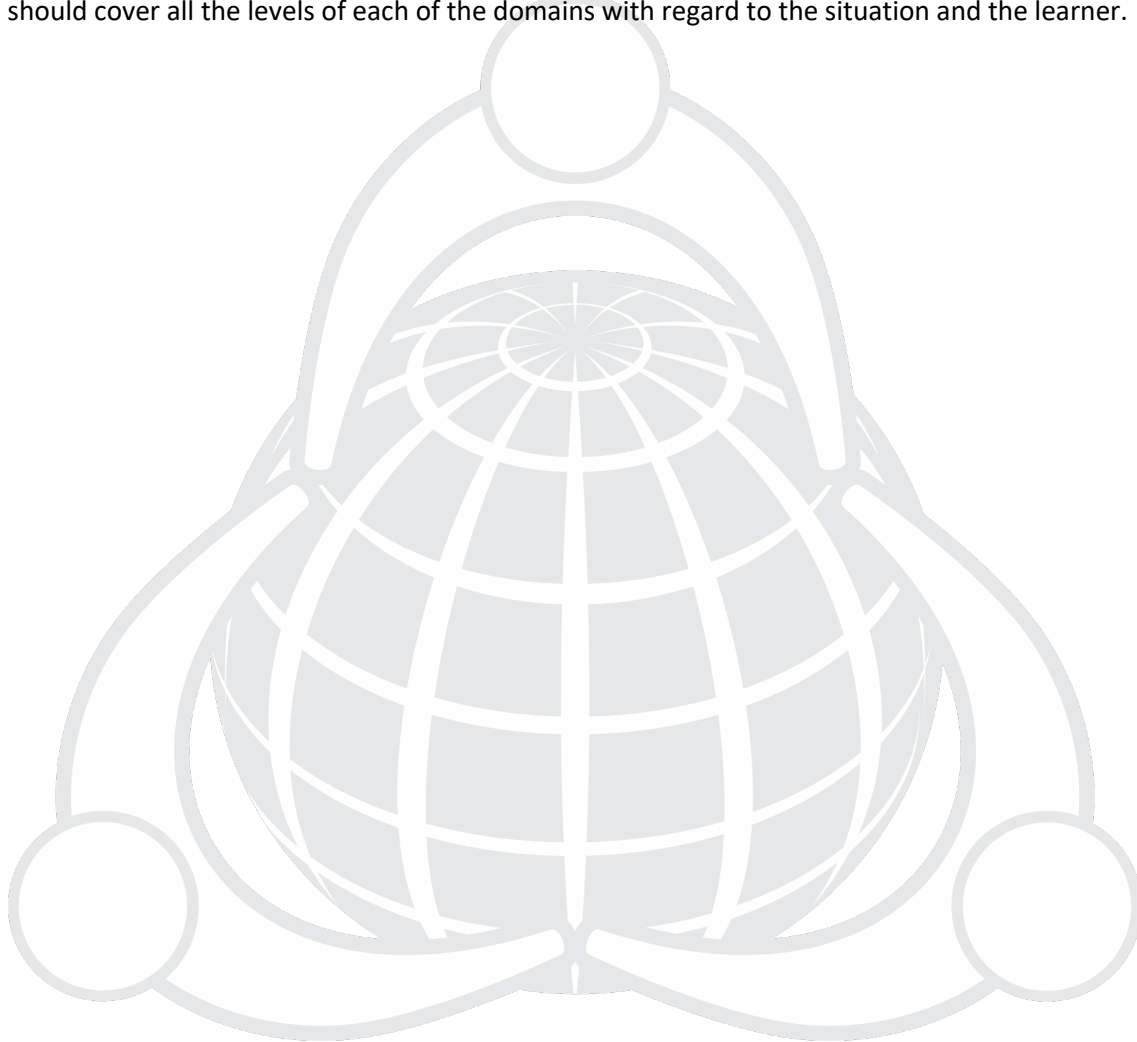


- A4 The Taxonomy is structured into three domains ('categories'): Cognitive, Affective and Psychomotor. Relating this to the above diagram, these domains can be represented thus:

Domains			
	Cognitive	Affective	Psychomotor
Increasing degree of difficulty ⇕ of categories	Synthesise (create/build)		
	Evaluate (assess, judge in relational terms)	Internalise value system (adopt behaviour)	Naturalisation (automate, become expert)
	Analyse (structure/elements)	Organise personal value system	Articulation (combine, integrate related skills)
	Apply (use)	Value (understand and act)	Develop Precision
	Understand	Respond (react)	Manipulation (follow instructions)
	Recall data	Receive (awareness)	Imitation (copy)

Knowledge	Attitude	Skills
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- A5 In each of the three domains Bloom's Taxonomy is based on the premise that the categories are ordered in degree of difficulty. An important premise of Bloom's Taxonomy is that each category (or 'level') must be mastered before progressing to the next. As such the categories within each domain are levels of learning development, and these levels increase in difficulty.
- A6 This matrix structure enables a checklist or template to be constructed for the design of learning programmes, training courses, qualifications, and examinations. It can be argued that effective learning – especially in organisations, where training is to be converted into quantifiable results – should cover all the levels of each of the domains with regard to the situation and the learner.



8 Appendix 2: List of Relevant Standards

STANDARD	
ISO 55000:2024	Overview, principles, and terminology.
ISO 55001:2024	Asset management — Management systems — Requirements;
ISO 55002:2018	Management systems — Guidelines for the Application of 55001.
ISO 55010 :2024	Guidance on the alignment of financial and non-financial information
ISO 55012:2024	Asset management — Guidance on people involvement and competence
ISO 17021-1: 2015	Conformity assessment — Requirements for bodies providing audit and certification of management systems Part 1: Requirements
ISO 17021 – Part 5: 2014	Competence requirements for auditing and certification of asset management systems.
ISO 19001:2018	Guidelines for auditing management systems