

Establishing an ISO 55000-compliant Asset Management System

Dr R A (Bob) Platfoot, Principal
r.platfoot@covaris.com.au

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Background

ISO 55000:2014 Asset Management and its two companion standards define the requirements of an Asset Management System (AMS) which is the integrated set of policies, strategies, standards and procedures which define how an organisation will undertake management of its physical assets.

The AMS is supported by the Integrated Management System of the organisation covering quality, safety, environment, risk management and other corporate standards. It is also supported by the Information Systems of the organisation, particularly asset information held in some form of an Enterprise Asset Management System (EAMS) which could be a subset of an integrated Enterprise Resource Planning (ERP) system.

The human resources management aspect of asset management is covered by the requisite organisational design which clarifies who is responsible for delivering asset management functions plus competency development of individuals to ensure they can deliver their role with appropriate organisational support.

Implementation Strategy

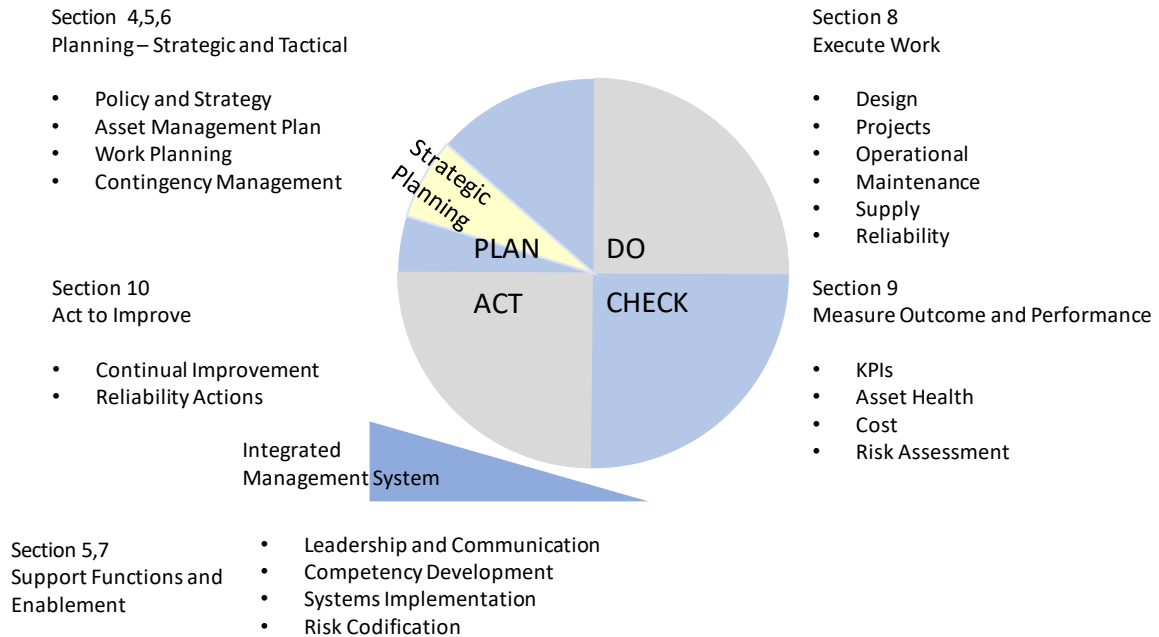
The implementation strategy for ISO 55000 compliance is a three-step process:

1. Asset management performance review and benchmark followed by an improvement plan.
2. Two stream project which addresses:
 - a. Establishing the Strategic Asset Management Plan and Asset Management Plan; and
 - b. Undertaking capability improvement projects which provide immediate value and assist individuals within the teams to understand key asset management principles.
3. Quality assessment of the organisation, typically by an accredited certifying authority which assesses:
 - a. Specification of organisational processes, typically in controlled documents;
 - b. Continual improvement processes incorporating sound auditing and measurement principles; and
 - c. Leadership and communication of the asset management system to internal stakeholders such that the system is truly implemented.

Typically, this is a 2-year process but can extend into 3 years if the organisation is complex, subject to significant external pressures or there is a lot of work to be undertaken to bring processes into competency.

Quality Management Approach

The elements of the AMS are mapped below to a the Shewhart cycle utilised in ISO 9001. The section numbering on the diagram corresponds to ISO 55001.



Once the Asset Management Strategy is established in accordance with Asset Management Policy guidelines as well as requirements established by external and internal stakeholders, planning is required to ensure that the Asset Management Objectives included within the Strategy are achieved within allowable budgets which constrains the resources who might be called upon as well as the systems and tools used to support the work.

Quality management ensures that planning processes are defensible and thorough, allowing senior executives and the Board to have confidence in the proposed forward investment in assets. This is a measure of prudence insofar that the requested budget targets the right work. The second requirement achieved by quality control of processes is that life cycle operations such as project delivery and maintenance work flow are efficient since they are consistently delivered with measurable performance.

Continual improvement is delivered as a scheduled process with a register or plan of approved tasks. Accountability ensures that the completion of these tasks is tracked and reported to a satisfactory outcome. Input into continual improvement comes from process measurement, asset performance and reviews such as external or internal reviews.

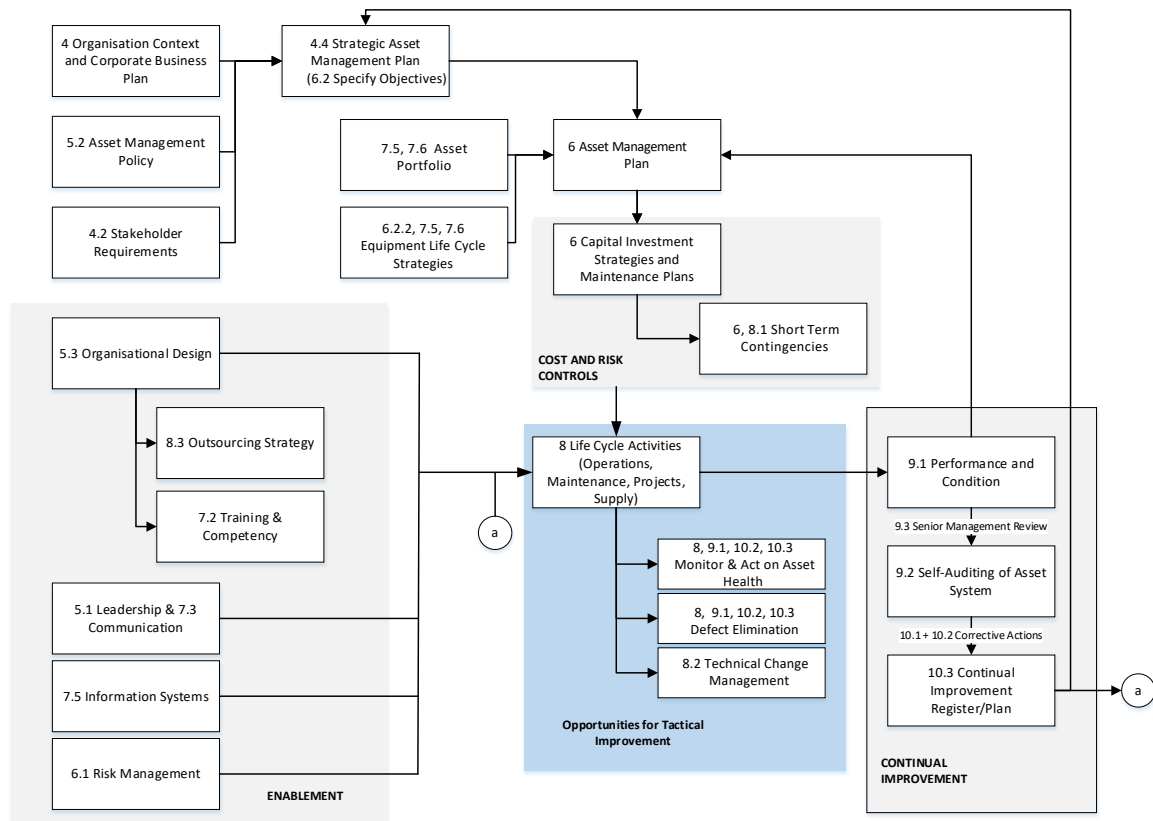
Asset Management Assessment

An asset management review will test the following:

- How the organisation prioritises that it is doing the right work to ensure that its asset portfolio can deliver value to both external and internal stakeholders within the constraints set by its operating context;

- How the organisation balances cost, risk and performance to select, plan and sequence specific work on the assets or to create new assets;
- The enablement of competent people to deliver work using effective and efficient processes and systems; and
- Evidence that the organisation is continually improving based on measurement and self-assessment.

The review assesses the elements set out in the framework below. Each of the AMS sections is numbered in accordance with ISO 55001 clauses to confirm areas of AMS competency. and A quality focus considers the organisational context and how these requirements are being met including addressing stakeholder requirements, the controlled approach to planning, well-defined and measured life cycle process, and a strong continual improvement capability.

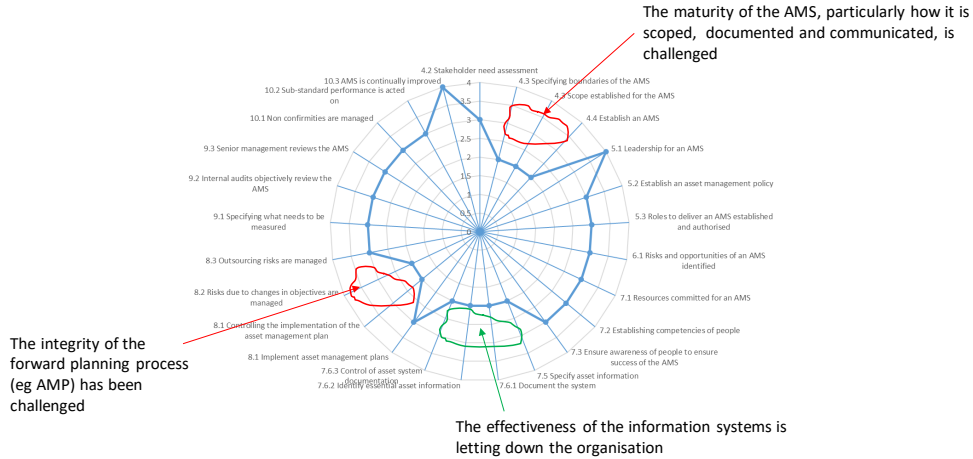


The review will identify improvement opportunities as well as recognise strengths in a mature organisation, particularly concerning accountability to external stakeholders for both the continuity of the services it delivers and assurance its assets remain safe and fit to operate both now and into the future.

A review typically has five key elements:

- Review of controlled documents relevant to asset management;
- Analysis of asset performance (e.g. analytics);
- Interviews of internal teams with questions drawn from the AMS elements shown above;
- Performance assessment; and
- Recommendations for improvement integrated into a cohesive plan.

An example of ranking performance in an asset management review is shown below: reporting the results against each of the ISO 55001 elements identified by indexes marked against each criterion which is reported. Competency is level 3 and expert practice ranked at 4 or 5. What the reviewer is interested in is the systemic grouping of less than competent performance which highlights strategic gaps in the organisation's asset management.



In this example, improving the information systems is an enabling function which will then support quality management of the overall approach to asset management and the planning function associated with the Asset Management Plan (AMP).

Asset Management Improvement Initiatives

The methods to improve asset management leading to sustainable organisational change are considered below in terms of their nature, deliverables and requirements for success. In this case, success is defined as sustained change in the stakeholders associated with any initiative relying on these methods.

Method	Included	Deliverable	Requirements for Success
Implementation of asset management system control documents, eg the SAMP	<p>Close review of the corporate objectives of the organisation and stakeholder needs.</p> <p>Specification of processes that will enable the organisation to achieve its asset management objectives.</p>	<p>Alignment of ISO 55001 and other leading practice requirements to a tailored statement of the organisation's asset management approach</p> <p>Determination of the organisational structure appropriate to deliver the asset management system.</p> <p>Identification of strategic gaps in the organisation's current approach to asset management.</p>	<p>Executive commitment to a comprehensive asset management system as a corporate strategy.</p> <p>Asset management system developer and owner appointed and empowered.</p> <p>Team acceptance of the need for the system to be implemented.</p> <p>Value placed on a documented, performance-measured and auditable process.</p>
Justification and establishment of a	Determination of a significant gap	Business case for the need for	Executive recognition and sponsorship of

Method	Included	Deliverable	Requirements for Success
Capability Improvement Project	in capability leading to unacceptable risk or costs. Senior management involvement in the specification of the deliverables.	significant effort by a multi-disciplinary team over a period time to introduce improvement into a significant aspect function of the asset management system. Introduce new capability through processes and systems as well as inter-departmental alignment.	significant improvement projects. Team engagement to work over a period in a structured manner to deliver complex outcomes. Commercial value appreciated for the investment in such projects. Coordination of a controlled process which drives to deliver agreed outcomes.
Continual Improvement action – investigation/test & trial	Tasking for an expert team to resolve a complex asset-related issue. Resolution of a long-standing problem which routine maintenance cannot resolve.	Resolution of a complex, ongoing problem through focused expert attention. Implementation of sustainable improvement through re-design and change out.	Controlled and consistent process which identifies, acts on and then closes out improvement opportunities. Capable processes which are time efficient for lean expert terms to adopt. Commercially-focused (or equivalent) oversight to ensure results are delivered.
Continual Improvement action – maintenance strategy	Improvement of the specification of preventive maintenance by competent technical people. Lift the level of regulatory compliance or improve understanding of asset health, both of which drive early interventions.	Reset or even creation of preventive maintenance procedures, condition monitoring and other leading practices. Removal of waste through either unnecessary PM work or preventable failures. Improved understanding of the health of the assets.	Structured process which is consistent and engages with field teams on practical improvement. Technical oversight and follow up measurement to ensure all assets are appropriately covered. Commitment to ongoing review and improvement as a sustained process. Utilisation of the feedback to improve decision making in planning future work.
Asset Management Plan (AMP) entry	Registration of the need for significant expenditure on assets. Risk profile the future work requirements so	Risk-prioritised and reasonably estimated proposal of work to be undertaken either soon (1-2 years) or in the forward forecast (say out to 10 years).	Repeatable asset management process supported by an appropriate information system. Accountable owners to ensure currency of information in the

Method	Included	Deliverable	Requirements for Success
	that budgets are defensible. Optimise the timing of significant work after considering appropriate options.	Options analysis to determine the best investment. Defensible capital budget over the near and medium terms.	AMP and utilisation of that information. People competent in the AMP process utilise the approach on a routine basis.
Internal Education – Asset Management/Continual Improvement	Train personnel to be internal expert advisers who will mentor improvement in how the organisation undertakes asset management.	Training of internal specialists for asset management improvement. Sustain the development of the asset management system. Implement initiatives such as defect elimination.	Senior executive value and are focused on skills development of their specialists. Experienced people are prepared to learn new skills. The teams are interested in establishing consistent processes which represent leading practices.
Internal Education – Life Cycle Process	Train people across multiple teams and roles to conduct work in an efficient manner in accordance with corporate guidance. Adult education principles determining what people can learn in the immediate presentation along with learning through implementation and practice.	Training documentation aligned with corporate standards Mentoring of individuals leading to personal improvement within teams. Work place efficiencies including potential for safety improvement.	Mutual support within teams to ensure alignment of work practices to corporate guidelines Measurement system in place to track performance improvement in teams being trained Leadership committed to driving performance based on published measures

Asset Management Improvement Project

The most enduring and complex process to drive improvement is the Capability Improvement Project (CIP). There are rules for its initiation and then delivery.

1. A CIP must be established with the right team who are given every chance to succeed before they even commence the work.
 - a. A CIP cannot be implemented where there is a lack of process thinking.
 - b. A CIP must be sponsored and driven by a high-ranking officer who is focused on business performance outcomes.

- c. External facilitation and mentoring by a knowledgeable practitioner who understands the organisation in detail is needed to ensure that the CIP will deliver the target 60-70% of its initially agreed objectives.
2. A CIP requires the following:
- a. The team works to a schedule at the end of which, agreed deliverables will be provided to the sponsor by whom the team believe they are held accountable;
 - b. The team has discipline imposed upon them by a business case document which defines deliverables, method and schedule, formal meetings which are minuted, records management system, and a formal set of audits which provide measurement and feedback on progress; and
 - c. The team is empowered to access and bring in external resources who will respond in a reasonable time to support progress in accordance with the schedule.

For more information on this paper, please contact:

Covaris Pty Ltd

PO Box 3456 Bankstown Square NSW Australia 2200

P +61 2 9708 6652 F + 61 2 9708 6654

W www.covaris.com.au

E webcontact@covaris.com.au