North Western Councils Asset Management Forum

It is not necessary to change.
Survival is not mandatory.

W. Edwards Deming

Contact Details

Tom Carpenter
P: +61 (0) 3 5266 1487
M: +61 (0) 412 540 187
E: tom@iq-am.com.au
A: IQ-AM,
15 Kim Marie Mews,
Moriac,
VIC Aust 3240
Institute of Quality Asset Management

IQ-AM is an RTO expressly set up to deliver ‘in-house’ competency based training and qualifications in Asset Management for asset dependant organisations.

IQ-AM developed accredited Units of Competency and Qualifications that provide a vertically and horizontally integrated Asset Management training framework.

Development and delivery of the training programs are overseen by an industry steering committee approved by the Australian Government training regulator (ASQA).

ISO5500# Overview, principles, structure
Background

- There were 19 participating countries with (for example) 75 attendees at the workshop in Prague.
- Australia had 8 representatives on the ISO Working Group.
- As with all other workshops, only about 25 people had attended a previous workshop (Aust has had 8 attendees at 4 of the 5 workshops and 6 at the remaining one).
- Portugal – 2 members?

Timetable

- WE ARE HERE
Timetable

Proposal:
- that the temporary PC251 become a permanent ISO Technical Committee - TC251
- Review of ISO5500# to start end 2015
- Complete 2018/19

Background

While

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<thead>
<tr>
<th>Asset Management</th>
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<tr>
<td>ISO 5500#</td>
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Different:
- Structure/Content
- Function
- Philosophy
Background

Key documents:

• ISO 55000 – Overview and definitions
• ISO 55001 – Requirements
• ISO 55002 – Implementation guidelines
• ISO 17021 Part 1 – General Audit requirements
• ISO 17021 Part 5 – Competence requirements for certification auditing

ISO 55000

This International Standard is applicable to the management of all types of assets by all types and sizes of organizations. Particularly intended to be applied to the management of physical assets, but does not limit application of the principles to other asset types.

ISO 55001

4.3 Determining the scope of the asset management system

The organization shall determine to which of its assets this International Standard applies.

So what are assets?
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Tangible physical assets

- Buildings
- Mobile plant & vehicles
- Passive assets, incl. network infrastructure
- Parks and gardens
- Ships & planes
- Fixed plant
- Resources

Intangible assets

A non-monetary asset without physical substance

- Reputation
- Intellectual property
- Brand name/trademarks
- Goodwill/Customer relationship
- Computer application software
- Data & Knowledge
- NOT People – but...
An all encompassing umbrella?

ISO 5500# Asset Management Standards

Guidelines/technical standards/industry frameworks

IIMM WATER GFMAM AUSTROADS Etc.

AMCouncil IAM

Facilities Management?

External Drivers

• Regulators:
  - Economic
  - Environmental
  - OH&S

• Government:
  - Central agencies – Treasuries
  - Service Agencies

• Insurance/ Risk Management

• Legal (Protection and Attack)
• Customers and Community
• Boards/Governance
  /Top Management
• Investors and Lenders
ISO 55000 - Relationships between key terms (modified)

Managing the Organisation

Asset Management System

Asset Management

Asset Portfolio

Set of inter-related or interacting Elements to establish AM policy, AM objectives and processes to achieve those objectives

Coordinated activity of an organisation to realize value from assets

Assets that are within the scope of the asset management system

Elements of the ISO 55001 AMS

**asset management:** **coordinated activity** of an **organization** to realize value from **assets**

...translates the organization's objectives into asset-related decisions, plans and activities, using a risk based approach.

- Organizational context
- Leadership
- Planning
- Support
- Operation
- Performance evaluation
- Improvement
What is Asset Management?

During an utility industry benchmarking study it was determined that the cost of the Asset Management ‘System’ made up only 3% of industry cost –

however:

the outputs (activities and decisions) generated or impacted on at least 82% of industry’s Total costs.

The Need for Asset Management

Victorian ‘Black Saturday’ Bushfires

Five of the biggest fires on Black Saturday, including the Kilmore East fire that killed 119 people, were allegedly started by electrical lines or fittings.

In the Kilmore East fire, investigators reported that a line broke and fell to the ground, producing sparks that ignited dry vegetation.
The Need for Asset Management

- **The Victorian Bushfire Royal Commission investigated:**
  - Asset Design
  - Maintenance
  - Asset Age
  - Risk analysis and management
  - Resources, skills, management and supervision
  - Training
  - Renewal and Replacement funding
  - Customer willingness to pay

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**Can the organisations demonstrate:**

- that they have used the optimal design for the assets?
- diligent and appropriate maintenance of their assets?
- that they are not operating equipment past its effective operating life?
- an appropriate risk analysis and management regime is in place?
- appropriate numbers, skills, supervision & training of their workforce?
- that the funding provided for the renewal, replacement and upgrading is sufficient or ‘reasonable’?
- customer willingness to pay to meet their funding needs?
The Need for Asset Management

Key generic conclusions:

• All your decisions and actions must be defensible
• Older assets need to be managed differently
• Levels of Service are not just about delivering your primary service
• Decisions made years (decades?) ago will catch up with you
• Latent defects or failures can compound the probability or consequences of an event when it occurs
• Planning, design, maintenance, resourcing, training, risk analysis, cost, Levels of Service and pricing all interact with each other.

Elements of the ISO 55001 AMS
• There are approximately 70 to 150 ‘shall’ statements in the requirements document (55001) (depending on how you count the dot-points).

• The standards focus on requiring performance of asset management and performance of assets in delivering a service or product, not just management system ‘compliance’.

• The standard includes requirements that apply to:
  – ‘the management system’
  – ‘asset management’ and
  – ‘assets’
• Lust to Dust

• Alignment with Corporate Objectives
• Must have AM Policy
• Setting of AM objectives
• Must have ‘Top’ management involvement/sign-off
• Must have an overarching Strategic AM Plan
• Recognition of tension between business planning cycle and asset lives

• Must resource
• Have documented decision rules
• Have documented and specified information needs
• Manage AM activities
  The organization shall plan, implement and control the processes needed to meet requirements, and to implement the actions determined in 6.1 and the asset management plan(s)
• Communicate
• Carry out performance monitoring and evaluation of assets, asset management and the asset management system
Training and Competency

Any organisation shall

- Determine necessary competence needs
  - Ensure people are competent through education, training or experience
  - Action acquisition of competence
  - Document and review

- Ensure ‘awareness’ by persons doing work under the organization’s control, who have the potential to impact the asset management objectives, of:
  - Policy
  - Their contribution to AM
  - The consequences of not fulfilling their obligations

AM Operating Environment

How are key stakeholders going to react to the availability of a credible/uncompromised Asset Management Standard:

- Practitioners
- Top Management
- Regulators
- Insurers
- Legal
- Treasuries/Finance/Finance providers
- Government
- Service Providers
AM Operating Environment

How are you going to leverage the opportunities created by the introduction of the Standards?

- Engagement
- Not just an engineering/maintenance activity
- Recognition of the link of AM to Corporate objectives and the need for Top Management decision making
- Recognition of the link of AM Plans to financial management and reporting
- Integration of AM risk into Corporate risk
- Recognition of the difference between asset life and business planning cycles
- Formal need to address AM needs in any contracting out

What are the key benefits?

We can make sound strategic planning decisions

So we correctly identify and evaluate all potential risks at the planning stage before we go too far down the track
What are the key benefits?

**We have effective & efficient functional design outcomes**

We choose the right equipment to do the job

What are the key benefits?

**We make timely asset renewal/replacement decisions**

We plan for the need to renew/replace assets when they reach the end of their life cycle or understand the likely increased operating and maintenance costs and/or consequences of increased frequency/severity of failures...
What are the key benefits?

We can effectively maintain & operate equipment

We have appropriate programs in place to identify and evaluate unusual performance changes and do something about them before the problems get very much worse.....

What are the key benefits?

We can develop useful preventive maintenance and performance monitoring programs

So we can monitor performance and try and improve it...
What are the key benefits?

We have effective contingency and continuity plans

We understand the how, why, and the likely when, assets can fail and put in place appropriate operational, maintenance and management strategies, including contingency and business continuity plans.

What are the key benefits?

We have appropriate resourcing strategies

We have the right number of appropriately skilled and motivated staff to deliver...
What are the key benefits?

We can meet our obligations

To provide a safer, more efficient and effective working environment with improved technology and sound operating instructions and training...

What are the key benefits?

We are fully informed
What are the key benefits?

We can therefore make better decisions where it counts.

- Business objectives
- Strategic planning
- Feasibility studies
- Business cases

Activities/decisions

- Purchase
- Design
- Install
- Construct
- Operate
- Maintain

60% of capital and 85% of total life cycle costs locked in at end of planning/functional design phase

What are the key benefits

In 2005, the Japanese Ministry of Land, Infrastructure and Transportation forecast future funding needs for renewal and replacement of major infrastructure across the country.

The total amount for maintenance and renewal costs as a percentage of the total possible investment increases from about 31% to 65%; while the amount available for new construction as a percentage of the total possible investment decreases from 65% to about 31%.
What are the key benefits?

‘Proper management of physical assets remains as the single largest business improvement opportunity in the 21st Century. Based upon the U.S. Census Bureau, an 1979 maintenance study performed by MIT and recent reliability and maintenance studies, the size of the asset maintenance industry in the USA was $1.2 trillion in 2005, in which $750 billion was the direct cost of poor physical asset maintenance and management. Of the $12.5 trillion GDP for the USA, an additional 20% was lost due to poor or improper physical asset investment while over 60% of businesses rely upon maintaining equipment reactively.’ Dr Howard Penrose, PhD, CMRP

Key elements of a quality framework

1. We have appropriate asset life management processes and practices to manage the asset through all its life stages to deliver value to the organisation and stakeholders
2. We have suitable information systems for managing our data and knowledge
3. We have the required data and knowledge to plan, design, manage, operate, maintain and dispose of our assets
4. Our organisational structure and resources meet our needs for managing our assets, and there are clearly defined and appropriate allocation of responsibilities and accountabilities
5. Our people have the skills, knowledge and attitude required
6. Our commercial arrangements and contracts allow us to meet our objectives and control the management of our assets
7. We have appropriate plans in place at all levels of the organisation to manage our asset base
8. We have sound quality management and continuous improvement
Example AM benchmarking study

Gap analysis improvement strategy

Gap Analysis – Asset Rationalisation and Disposal Process

Improvement Projects

- Develop and implement a complete disposal strategy
- Develop procedure for incorporating disposal in to CAPEX evaluations
- Develop risk based rationalisation, management and disposal plan
- Audit asset base
- Develop procedure for disposal
- Develop standard methodology for rationalisation
- Develop Corporate Policy

Quality Rating

Best Appropriate Practice

Interim Target

Current Rating
Who can be Certified?

ISSUE: Under what circumstances, or contractual arrangements, will Certification be possible?

Owners?

Asset Managers?

Service Providers?

Is the determinant: those who make AND control implementation of life cycle management decisions linked to value generation?
What parts or elements of the ISO 55001 AMS fit under the IBMS framework, & which require Asset Management/AMS specific technical skill.

### Auditor Competency

**ISSUE:** Does the potential ISO Certification Auditor understand my industry, assets and business?

“The audit team and those reviewing the audit report and making the certification decision shall have knowledge and understanding of relevant asset management practices, activities and methodologies, and their application.”

“The audit team and those reviewing the audit report and making the certification decision shall have knowledge and understanding, as appropriate, of:

- approaches to determine asset value to the organisation;
- outsourcing, see ISO 37500 for additional information”
Auditor Competency

ISSUE cont: Does the potential ISO Certification Auditor understand my industry, assets and business?

The audit team and those reviewing the audit report and making the certification decision shall have **knowledge, and understanding**, where applicable, of the client's:

- legal, regulatory and statutory requirements;
- key contractual or other stakeholder requirements;
- asset management activities and their relationship with other organisational activities;
- performance monitoring and measurement.

**NOTE:** specific knowledge of the above requirements is expect to be obtained during stage 1 of the audit.

Audit Plans

What arrangements are in place to quantify and validate the duration, resourcing and hence costs of AMS Audits?

![Figure QMS 1 - Relationship between Complexity and Audit Duration](image1)

![Table EMS 2 - Examples of Linkage between Business Sectors and Complexity Categories of Environmental Aspects](image2)

**IAF MD 5:2013 Duration of QMS and EMS Audits**
What arrangements are in place to quantify and validate the duration, resourcing and hence costs of AMS Audits?

Close-out