Overview of Asset Management

Mr Trevor Taylor
Asset Management Specialist
What is Asset Management?

- **Asset Management** - “The coordinated activities of an organization to realize value from assets.”
- **Asset** - “Something that has potential or actual value to an organization.”

ISO 55000 draft definitions
What is Asset Management?

- Asset Management achieves the realization of value from assets.
History of Asset Management

- Top down approach – UK, AUS, NZ
  - Strategic
  - Role Assets play to deliver organizational goals
- Bottom up approach – USA, Canada, EU
  - Post capital investment
  - Performance
  - Reliability
  - Maintenance
  - Renewal
- Absence of academic research
- Lead by industry
History of Asset Management

- The Institute of Asset Management – Learned Society
- 2004 - Published PAS 55:2003 (Specification for the optimized management of physical infrastructure assets)
  The IAM Competencies Framework
- 2009 - PAM – PAS 55 Assessment Methodology
- 2011 – An Anatomy of Asset Management
- 2013? - ISO 55000 Asset Management
  26 Participating countries; 11 Observing countries

www.standardsmalaysia.gov.my
Asset Management in UK Water Industry

- Privatization was the catalyst for Asset Management
- 10 water & sewage companies
- 12 water companies (25% of population)
- Currently in 5th AMP
  - £85bn over 20 years (RM 405bn)
  - AMP5 - £22bn (RM 105bn)

![Asset Management Chart]

**Table: Companies' Performance 2010-11**

<table>
<thead>
<tr>
<th>Water and sewerage companies</th>
<th>Consumer experience</th>
<th>Reliability and availability</th>
<th>Environmental impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anglian</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td>Diwr Gwynedd</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td>Northumbrian (north east)</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td>Northumbrian (Essex and Suffolk)</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td>United Utilities</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td>Southern</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td>Severn Trent</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td>South West</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td>Thames</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td>Wessex</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td>Yorkshire</td>
<td>✓ ✓ ✓ ✓ ✓</td>
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</tr>
</tbody>
</table>

A more detailed assessment can be found in the 'Protecting consumers' interests' section. This includes details of any action we have taken against these companies whose performance we considered was unacceptable for their customers.

**Key**

✓ means we have no concerns about a company's performance.

x means we, or other regulators, have some concerns about a company’s performance.

n/a means that an area relates to sewage services and the company does not provide them.

Source: www.ofwat.gov.uk
Asset Management in UK Water Industry

• Revenue collection must cover
  - Operating expenditure
  - Capital investment programme
  - Reward outperformance

• Lack of competition

• Strong Regulation is key

• Ensure continuing good value

• Good Asset Management practices form the basis of assurance
Asset Management in UK Water Industry

- High level of maturity
- Articulate impact of decisions
- Based on evidence
- Promotes confidence
- Changes perceptions
Asset Management in UK Water Industry
Asset Management in UK Water Industry

• Understand drivers
• Align activities to drivers
• Make informed decisions
• Based on Fact
Asset Management – The Theory

Organization and People Enablers
- Contract & Supplier Management
- Asset Management Leadership
- Organizational Structure & Culture
- Competence & Behaviour

Asset Management Decision-Making
- Whole-life Cost & Value Optimisation
- Operations & Maintenance Decision-Making
- Capital Investment Decision-Making
- Resourcing Strategy & Optimisation
- Shutdowns & Outage Strategy & Optimisation
- Ageing Assets Strategy

Asset Knowledge Enablers
- Asset Information Strategy
- Asset Knowledge Standards
- Asset Information Systems
- Asset Data and Knowledge

Asset Management Strategy and Planning
- Asset Management Policy
- Asset Management Strategy
- Demand Analysis
- Strategic Planning
- Asset Management Plan

Lifecycle Delivery Activities
- Technical Standards & Legislation
- Asset Acquisition & Commissioning
- Systems Engineering
- Configuration Management
- Maintenance Delivery
- Reliability Engineering
- Asset Operations
- Resource Management
- Shutdown & Outage Management
- Fault & Incident Response
- Asset Rationalisation and Disposal

Risk & Review
- Criticality, Risk Assessment and Management
- Contingency Planning & Resilience Analysis
- Sustainable Development
- Weather and Climate Change
- Asset & Systems Change Management
- Assets & Systems Performance & Health Monitoring
- Management Review, Audit & Assurance
- Accounting Practices
- Stakeholder Relations

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Asset Management – The Theory

The Asset Management Subject Groups are shown in the IAM conceptual model for Asset Management below.

- Customers
- Legislation
- Investors
- Commercial Environment

Organisational Strategic Plan

Scope of Asset Management

Organisation & People Enablers

Asset Management Strategy & Planning

Asset Management Decision Making

Asset Knowledge Enablers

Risk & Review

Acquire → Operate → Lifecycle Delivery → Maintain → Dispose → Acquire

A → O → L → M → D → A

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IAM: Asset Management – an anatomy
Figure 6 – Structure of PAS 55-1:2008

4.1 General requirements
4.2 Asset management policy
4.3 Asset management strategy, objectives and plans
4.4 Asset management enablers and controls
4.5 Implementation of asset management plan(s)
4.6 Performance assessment and improvement
4.7 Management review

PAS 55:2008 Management system structure
Asset Management – The Theory

• Line of sight
• Single source of truth
• Whole life cycle
• Continuous improvement
• Strong leadership
• Visibility of information
• Whole organisation

Figure 1 – Key principles and attributes of asset management

- holistic
- sustainable
- systematic
- integrated
- optimal
- risk-based

© BSI 2008
Asset Management – The Practice

Asset Management Maturity Assessment

The following radar diagram shows the level of asset management maturity. To become compliant with BSI PAS 55 Asset Management a score of 3 would be required for each category.
How was the PAS55 Assessment Methodology developed?

The Assessment Methodology was developed in conjunction with a group of 29 UK and overseas sponsors from across a range of industry sectors. The sponsors included leading infrastructure asset managers, asset management consultancies and service providers. The PAM was initially available for use only by this group of sponsoring organisations. The methodology has recently been improved by the IAM, using feedback from this group of organisations and incorporating changes in the new BSI PAS 55:2008.

Following "user testing" in its original format, the IAM has now made this updated version of the Assessment Methodology freely available.

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

- Identify strengths & weaknesses
- Determine compliance
- Prioritise
- Develop solutions
- Stop fire fighting
- Identify the “cliff edge”
- Business change not IT solution
Asset Management – The Practice

Asset Register
Central Corporate asset repository
Asset Reference ID's
Reference hierarchy structure
Assets categorised in consistent levels
Pre-defined types assigned to assets
Attribute data held against assets

Asset Register
Asset Descriptions
Asset Types
Asset Structured in a reference hierarchy
Asset Reference ID's
Asset Attributes:
- Performance Grades
- Condition Grades
- Sizes
- Manufacturer
- Model
- Serial Number
Purchase Cost
Date of Installation
Asset Tracking
Operational status
Location
Asset history
Asset Owner
Asset Maintainer
Project References
MEAV
Drawing references

Asset Management Maturity Assessment

Other Systems
e.g. Finance, HR etc
Engineering Standards
Investment Planning System
Project Management System
CAD Repository
O & M Manual
Maintenance Management System

Asset Reference ID's
Asset Attribute Data
Asset Type
Operational Status
Date of Installation
Location
Asset grouping with related assets
Maintenance Costs
Spares used
PM assigned
Resources
Inspection Dates
Work Scheduling

Asset Reference ID's
Asset Types
Asset Manufacturer
Manufacturers detailed operational & maintenance instructions
Parts list
Information from manufacturers product catalogue
Photographs and drawings of assets

Asset Reference ID's
Asset Attribute Data
Asset Type
Operational Status
Date of Installation
Location
Asset grouping with related assets
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Decision Support Tools:
- Unit cost data
- Degradation curves
- Design Matrices
- Scenario Modelling
- Scheme generation

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Without considering the AMS in its entirety it can be difficult to spot when the AMS is not operating effectively.

If any of the components of the Asset Management System are not operating correctly it will impact on the ability to make an informed decision.

Asset Management – The Practice

Policy

Systems

Process

People

Data

Information

Knowledge

Decision

Action

Asset

Knowledge

People

Informed Decisions

Asset Data Information Knowledge Decision Action
Asset Management – The Practice
Asset Management – Summary

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- Stakeholder Relations

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Asset Management - Summary

- Apply appropriate effort
- Achieve line of sight
- Whole life cycle
- No silos
- Single source of truth
- Continuous improvement
- Strong leadership
- Optimise
- Business change
Panel Discussion

• How does Asset Management apply to your organisation?
• Describe AM initiatives undertaken.
• What benefits have been realised?
Overview of Asset Management

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