

The Pathway to Excellence In Asset Management

IAM Maturity Scale & Guidance

www.theIAM.org

© Institute of Asset Management 2021 All rights reserved

About the IAM

The Institute of Asset Management (the IAM) is a not-for-profit, professional body. We are owned and controlled by our members and committed to remaining independent from commercial and trade associations. We exist to advance the discipline of asset management, not only for people and organization's involved in the acquisition, operation and care of physical assets but also for the benefit of the general public. Our priorities are to promote the generation and application of knowledge, training and good practice and to help individuals become demonstrably competent.

Copyright

All copyright and other intellectual property rights arising in any information contained within this document are, unless otherwise stated, owned by The Institute of Asset Management Ltd or other companies in The Institute of Asset Management Ltd group of companies. No part of this publication may be reproduced in any material form (including photocopying and restoring in any medium or electronic means and whether transiently or incidentally) without the written permission of The Institute of Asset Management Ltd.

This document is published by the IAM for the benefit of our members and the general public. It can be downloaded – free of charge – from our website www.theIAM.org. As part of our ongoing commitment to continuous improvement we would welcome response to this document to technical@theIAM.org.

Disclaimer

The IAM publishes this document for the benefit of its members and the public. This document is for guidance and information only. The IAM and their agents, servants or contractors do not accept any liability for any losses arising under or in connection with this information. This limit on liability applies to all and any claims in contract, tort (including negligence), misrepresentation (excluding fraudulent misrepresentation), breach of statutory duty or otherwise. This limit on liability does not exclude or restrict liability where prohibited by the law nor does it supersede the express terms of any related agreements.

Acknowledgments

This Asset Management Maturity Guide has been produced by the Institute of Asset Management (IAM) through the significant efforts of many individuals and organizations. The Institute would like to thank the following in particular for their contributions.

2022 update V2.0

- **John Woodhouse** – IAM Project Director, Asset Management Excellence
- **David McKeown** – Honorary Vice-President, IAM
- **Richard Edwards** – IAM representative on GFMAM and former IAM President
- **Keith Wishart** – Executive Partner, IBM Energy & Utilities
- **Jim Conlin** – Strategy Manager, Scottish Water and Chairman, IAM Faculty
- **Andrew Sharp** – Asset Management Director, AMCL
- **Lise Tarp-Johanssen** – HOFOR
- **Navil Shetty** – Atkins

2015 V1.0

- **John Woodhouse** – IAM
- **Richard Moore** – Transport for London
- **Alister Jones** – Independent
- **Chris Braham** – Southern Water
- **Peter Geake** – Jacobs
- **Kirk Gillett** – Wipro
- **Jacqueline Harrison** – National Grid
- **Ben Howat** – National Grid
- **Peter Jay** – The Woodhouse Partnership
- **Milind Joshi** – Network Rail
- **Andrew Sharp** – AMCL
- **Navil Shetty** – Atkins

Contents

Acknowledgements	ii
1 INTRODUCTION	1
2 ASSET MANAGEMENT CAPABILITY/MATURITY	2
3 DEFINING ASSET MANAGEMENT MATURITY	3
3.1. GFMAM position statement	3
3.2. Differences between asset management and the management system	3
3.3. Development of the IAM's maturity scale	6
4 THE MATURITY SCALE	7
4.2. Asset management maturity 'bow tie'	8
4.3. Innocence to Competence (0-3)	8
4.4. Competence to Excellence (3-5)	9
4.5. Use of 'Integrating' and 'Optimizing' terms	10
4.6. Continual improvement	10
4.7. Context-dependency at higher maturity levels	11
4.8. Criteria for selecting contexts and 'target zones' for defining Excellence	12
4.9. Contexts represented in this guidance	14
5 ASSESSING YOUR ORGANIZATION'S MATURITY	15
5.1. Typical attributes of different levels of maturity	15
5.2. Gap analysis and planning to achieve the Competent level	16
5.2.1 IAM endorsed assessors	16
5.2.2 Audits and certification against ISO 55001	17
5.3. Assessments & improvement planning at higher maturity levels	17
6 CONCLUSIONS	18
APPENDIX A Characteristics of maturity levels 0-3	19
APPENDIX B Characteristics of maturity levels 4-5	96
APPENDIX C Other maturity scales	125

1 Introduction

This guide is an introduction to the subject of asset management maturity and how it can be defined, scaled and recognized. It contains a generic maturity scale, ranging from Innocence to Excellence, along with definitive attributes and typical symptoms that you might observe in organizations at different stages of their maturity journey.

The material in this guide is the cumulative product of several IAM studies of the subject over the last 15 years, ranging from the maturity scale developed for BSI PAS 55 in 2004 to the SAM+ (Self Assessment Methodology) used for ISO 55001 gap analysis and assessing against the 39 subject areas of the Asset Management Landscape.¹ In the last few years, the Asset Management Excellence project has been researching the attributes of higher levels of maturity and how these might be recognized. In all cases these initiatives have involved multi-industry collaboration projects with extensive consultation and peer review across the IAM's diverse membership.

Nevertheless, this guidance is inevitably an evolving story. The subject of asset management and, even more so, the characteristics of adequacy or 'best' practice are continually changing through process innovations, new technology and learning. There are also widely different operational environments, constraints, cultures and opportunities in asset management, so what should be recognized as 'competent' or 'excellent' needs to consider the context of the organization and how this changes. Such context-dependencies are discussed in this guide, and we expect many further insights, experiences and refinements to emerge over the coming years.

1. Available from <https://gfmm.org/publications>

2 Asset management capability/maturity

Organizations are increasingly recognising asset management as a discipline that has relevance and significant potential for improving performance. The subject has developed from selective areas of maintenance of physical equipment/infrastructure (and financial services handling of financial assets) to the holistic set of practices and capabilities needed to maximize value obtained from any types of asset over their whole life cycles. This reflects the practical experience of organizations that address their problems of conflicting objectives, increasing stakeholder demands, reactive, short-termism habits and departmental 'silo' behaviours.

There is, as a result, a converging recognition of what 'good' asset management looks like. And this proves to be remarkably consistent across different industries and for different asset types and environments. The IAM has been proactive in documenting this consensus, developing the *Big Picture* infographic and video² and *Asset Management – an Anatomy*³ guidance. Indeed, the development of the BSI PAS 55 specification, and its evolution into the ISO 55000 family of standards, reflect the emerging international agreement about what is needed to ensure competent, integrated and sustainable asset life cycle management.

This development of consensus and standards also creates a need for a consistent scale of capabilities and maturity, against which organizations can identify their strengths and improvement opportunities. Such a scale is helpful for diagnosing and prioritizing the development of new capabilities, for benchmarking (even between those managing dissimilar asset portfolios in different environments) and for demonstrating progress, competency or excellence to stakeholders such as staff, regulators, investors and customers. It also helps to establish the processes and habits of continual improvement, by providing an objective basis of evidence across the many dimensions and attributes of asset management.

This development of consensus and standards also creates a need for a consistent scale of capabilities and maturity, against which organizations can identify their strengths and improvement opportunities. Such a scale is helpful for diagnosing and prioritizing the development of new capabilities, for benchmarking (even between those managing dissimilar asset portfolios in different environments) and for demonstrating progress, competency or excellence to stakeholders such as staff, regulators, investors and customers. It also helps to establish the processes and habits of continual improvement, by providing an objective basis of evidence across the many dimensions and attributes of asset management.

There are, of course, many capability/maturity models already developed⁴ and used for different aspects of business or organizational activity. In most cases these provide a scale of adequacy or sophistication for specific capabilities, processes or methods. However asset management is a particularly difficult topic to organize into such discrete boxes to be defined as, for example, 'adequate', 'mature', 'competent' or 'world class'. The capabilities and maturities in asset management rely, at least as much, in the coordination, integrations, optimizations and alignments of multiple activities – and in the combined effects and cultural dimensions. Furthermore, an attribute that is recognized as normal and sufficient in one industrial circumstance might be regarded as inadequate or immature in another. Risk management processes and rigor, for example, would have very different manifestations in the management of office buildings or domestic housing compared to those of an airline or nuclear installation. Asset management has an important principle of 'proportionality' or fitness-for-purpose, so any objective definitions of capability and maturity must recognize context and what is appropriate, possible or worthwhile in different environments.

2. See <https://theiam.org/knowledge-library/the-big-picture/>

3. See <https://theiam.org/knowledge-library/asset-management-an-anatomy>

4. See Appendix for examples considered in the development of this guide

3 Defining asset management maturity

3.1 GFMAM position statement

The Global Forum on Maintenance and Asset Management (GFMAM) has recently published a position statement on asset management maturity, *Asset Management Maturity, A Position Statement, Second Edition*. This publication is intended for organizations who wish to develop guidance on asset management maturity and how to assess it. It states:

'Asset Management Maturity is subtle and complex, particularly at higher levels of maturity. It is expected that each GFMAM member society will develop their own detailed guidance on Asset Management Maturity that: is consistent with this Position Statement, aligns with their body of knowledge and meets the specific needs of their members and stakeholders.'

The IAM's Pathway to Excellence in Asset Management is fully aligned with the principles set out in the GFMAM position statement.

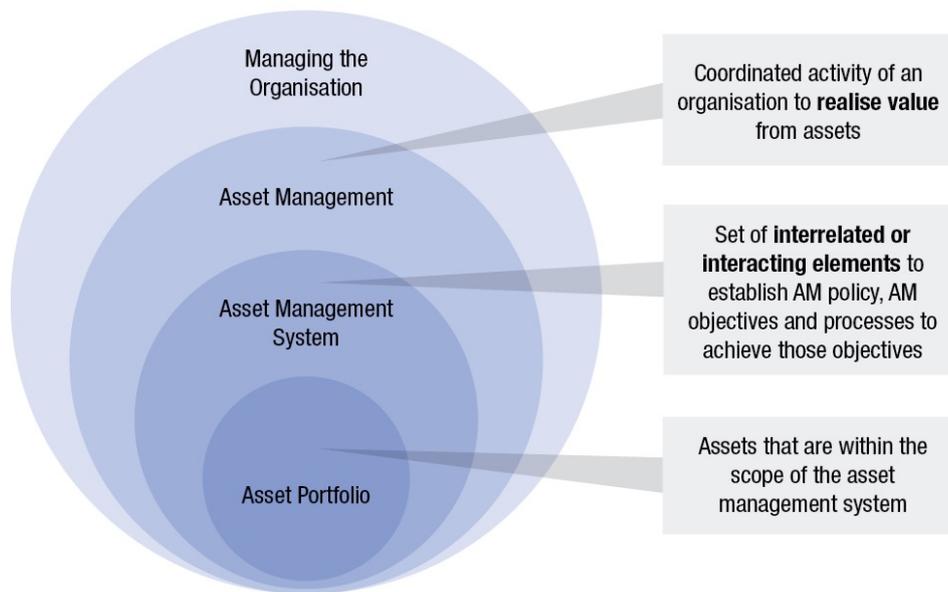
3.2 Differences between asset management and the management system

One of the issues that is often confused when talking about asset management maturity is whether we are talking about the maturity of an organization's **Asset Management System**, or the maturity of its **overall asset management capabilities and performance**. In order to explore this, it is important to understand the distinction between the Asset Management System and the discipline of asset management.

The two frameworks which provide organizations with help and support in understanding and implementing good practice against these views of asset management are **ISO 55001**, which defines requirements of a suitable *Management System*, and the GFMAM's '**Asset Management Landscape**' of 39 Subjects that cover the organization's overall *asset management capabilities and performance*.

ISO 55001 defines the requirements for a "management system for Asset Management". This is the combination of specific interacting elements that provide direction, alignment, coordination, control and continual improvement in the effective management of assets. In other words, it is a set of components whose combined effect will deliver performance and assurance of 'competent' asset management practices. This does not cover all aspects of the discipline of asset management, however. It only considers the 'must do' items, without addressing the 'should do' or 'could do' elements. Nor does it address the appropriateness or degree of refinement in methods employed, or the potential for exceeding the minimum requirements. The management system must therefore be considered as a subset of the whole subject of asset management, as illustrated in Figure 1 (from ISO 55000's introductory Overview and Principles).





ISO 55000 states in 2.4.3, describing the diagram above, that:

'An Asset Management system is used to direct, coordinate and control Asset Management activities. It provides improved risk control and assures the achievement of Asset Management objectives on a consistent basis. However, not all Asset Management activities can be formalised through an Asset Management system; for example, aspects such as leadership, culture, motivation, etc are not managed through the Asset Management system, but they can have a significant influence on the achievement of Asset Management objectives.'

Additionally, ISO 55002 states in 4.4 that:
'It should be noted however, that compliance with all the requirements of ISO 55001 represents achieving the minimum standard for an effective Asset Management system and should not be seen as the final goal.'

The IAM has been working with the Global Forum on Maintenance and Asset Management (GFMAM) to develop a description of the wider discipline of asset management with international consensus. This has resulted in a defined "Asset Management Landscape", comprising 39 subject areas as shown on page 5.

Asset Management Strategy and Planning	
1	Asset Management Policy
2	Asset Management Strategy & Objectives
3	Demand Analysis
4	Strategic Planning
5	Asset Management Planning
Asset Management Decision-making	
6	Capital Investment Decision-making
7	Operations & Maintenance Decision-making
8	Life Cycle Value Realisation
9	Resourcing Strategy
10	Shutdowns & Outage Strategy
Life Cycle Delivery Activities	
11	Technical Standards & Legislation
12	Asset Creation & Acquisition
13	Systems Engineering
14	Configuration Management
15	Maintenance Delivery
16	Reliability Engineering
17	Asset Operations
18	Resource Management
19	Shutdown & Outage Management
20	Fault & Incident Response
21	Asset Decommissioning and Disposal

Asset Knowledge Enablers	
22	Asset Information Strategy
23	Asset Information Management
24	Asset Information Systems
25	Data & Information
Organization & People Enablers	
26	Procurement & Supply Chain Management
27	Asset Management Leadership
28	Organizational Structure
29	Organizational Culture
30	Competence Management
Risk, Review & Continual Improvement	
31	Risk Assessment and Management
32	Contingency Planning & Resilience Analysis
33	Sustainable Development
34	Management of Change
35	Assets Performance & Health Monitoring
36	Asset Management System Monitoring
37	Management Review, Audit & Assurance
38	Asset Costing & Valuation
39	Stakeholder Engagement

The IAM has also published an explanatory document “*Asset Management – an Anatomy*”⁵ to provide explanation of the overall discipline and the scopes covered within the 39 subjects.

In developing a maturity scale and guidance for asset management, we have therefore addressed **both** the

- Maturity of the **management system** (e.g. conformance with ISO 55001, representing a ‘Competent’ level of maturity)
- Maturity of an organization’s **asset management** (the wider discipline, covering all 39 subjects)

The maturity scale recognizes conformance with ISO 55001 requirements as an indicator of being ‘Competent’ – the midpoint in the scale. So capabilities and maturity that *exceed* this standard can only be assessed and recognized in a wider perspective (such as the whole Asset Management Landscape).

5. See www.theIAM.org/AMA

3.3 Development of the IAM's maturity scale

Origins

The first IAM maturity scale to be published was published shortly after developing the BSI PAS 55 specification for optimal management of physical assets. This 'PAM' (PAS 55 Assessment Methodology) had a 0-4 scale and was produced specifically to support assessments against the requirements of PAS 55, with Level 3 corresponding to conformance and a recognition of 'Competence'. Level 4 was used simply to indicate 'beyond PAS 55'. So, with the development of the ISO 55001 standard in place of PAS 55, the IAM considered the scope for developing a more comprehensive range of recognizable stages in the maturity journey. This involved a review of existing models⁶ and scales of capability/maturity in organizations. Three observations about these scales emerged:

- The scales are typically composed of four to six levels – most commonly five.
- Terminologies differ, although there are themes. 'Optimizing' is generally a feature of higher levels of maturity, with 'Initial' or 'Aware' the lowest levels. The mid states generally describe the establishment of 'Repeatable', 'Defined' and then 'Managed' processes.
- Where the 'Optimizing' level is explained in more detail, it is usually associated with the demonstration of continual improvement and process optimization, but not necessarily the achievement of best practice or innovation.

An Innocence to Excellence Scale

In 2015, the IAM published the current version of the maturity scale. This incorporated the experience of the earlier PAM model, a review of other capability/maturity models, and the need for application to both management systems (such as ISO 55001) and the wider subject of asset management. It also acknowledged the diversity of contexts in which it needs to be applied.

Key features of this scale are

- The scale is expanded to 6 maturity levels (0-5 range) – this aligns with the wider scopes in other maturity scales and provides a '0' state to represent total *Innocence* or absence of capability in a subject area.

6. See Appendix

- Some maturity levels are recognizable 'states' ('Innocent', 'Aware', 'Competent', 'Excellent') that can be regarded as milestones or testable criteria for adequacy and achievement. Between these states there are two 'transition' bands whose recognizable characteristics are the evidence of developments in progress (rather than evidence of completion or adequacy). The transition bands are Level 2 'Developing', and Level 4 'Optimizing'. This is an innovative feature of the IAM maturity scale (compared to others investigated), but we believe it improves the practicality and usefulness of the model.
- Compliance with ISO 55001 is equivalent to achievement of the Level 3 (Competent). Competency in subject areas that are not covered by ISO 55001, but nevertheless could form part of an organization's asset management have also been included. These have been calibrated to correspond to the capability/maturity that would be expected in an organization that is capable of meeting ISO 55001 requirements for its management system elements.
- The maturity levels up to Level 3 (Competent) are defined irrespective of organizational context or the assets being managed. This aligns with the principle that Level 3 represents minimum requirements for *any competent organization managing its assets* (whatever they are) in an *integrated manner, seeking whole life cycle value*.

However, the definitions and observable characteristics beyond this Competent state (i.e. Level 4 Optimizing and Level 5 Excellent) are recognized necessarily to be much more context-dependent and vulnerable to changes over time (as innovation and best practices evolve). This conditional and dynamic state is much more difficult to characterise in a standardize form suited to assessment, recognition and validation. These issues, and the distinctive attributes that are observable, are discussed in this updated (v2.0) guidance. Such subtleties are another area of innovation in the field of maturity scales. The guidance provided for these areas is intended to help organizations to set context-specific goals and 'stretch targets', to represent the degree of ambition that is worthwhile for their particular combination of asset portfolio and operational environment and with knowledge of current leading-edge practices.