**The IAM Competences Framework**

**Part 1**

**Version 3.0: June 2014**

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# INTRODUCTION

## 1.1 Evolution of the Framework

When the Institute of Asset Management (IAM) published its Competency Requirements Framework in June 2006, it was a world first. The Framework described what people involved in the management of physical assets should be able to do and the knowledge and understanding needed to underpin this.

A second version of the Framework was published in November 2008. Following user feedback and consultations, the first version was restructured to make it less prescriptive and better aligned with BSI: PAS 55: 2008 and other leading competence frameworks. Part 1 set out a set of generic competence requirements. Part 2 contained guidance on how to use the Framework to support recruitment, selection, training and development and tailor it to meet specific organisational needs.

This document contains the third version of the Framework, as updated in June 2014. The 2008 Framework has been revised and updated to reflect specific feedback from users and align it with the latest IAM and international thinking and developments, as follows:

* Various amendments and additions have been made. The biggest change is the division of Unit 3.3 *Create and Acquire Assets* into two Units, 3.3 *Produce business case for creating and acquiring assets* (which has to do with planning) and Unit 4.1 *Create and Acquire Assets* (which has to do with implementation). Otherwise, some Elements have been added and the underpinning knowledge and understanding requirements have been enhanced.
* The requirements set out in the Framework are still generic, applicable to people in asset management roles in any organisation or sector. Its format is consistent with that of other leading competence frameworks and its contents support the principles and requirements of BSI PAS 55: 2008 and those of the ISO 5500x standards which were published in January 2014.
* The 2012 Framework is mapped to the 39 subjects in the Global Forum for Maintenance and Asset Management (GFMAM) *Asset Management Landscape* (2nd Edition, March 2014) and the IAM’s *Asset Management – An Anatomy* (2011).

The Framework has been a great success. Numerous companies, government organisations, trainers and educators around the world have used it to structure roles and responsibilities, recruit and select staff and contractors, build asset management teams, manage performance and design courses.

The 2012 Framework was used in the design of the professional qualifications launched by the IAM in June 2012, the IAM Certificate and the IAM Diploma.

## 1.2 Purposes of the Framework

Asset management requires a multidisciplinary approach. The ISO 5500x Standards, the AM Anatomy and the GFMAM Landscape confirm this. It spans a wide range of disciplines including engineering, finance, operations, information systems, management, contract and supplier management, human resources and organisational development. The precise mix of competences that people and organisations need depends on their objectives, the context and circumstances they are operating in.

By publishing the Framework, the IAM is seeking to help organisations plan and develop the competences they need to meet current and future needs, help individuals plan their training and professional development, and create a firm base for designing training and qualifications which have value in a global market. The Framework will also support the promotion of best practice assessment management as the IAM understands it.

## 1.3 Guidance and Feedback

Part 2 of the Framework, *Guidance on Using the 2012 Competence Requirements Framework*, contains advice on how to use the Framework. To comment on any aspect of the 2012 Framework, please use the Feedback section of the IAM website, www.theiam.org

# STRUCTURE OF THE 2012 FRAMEWORK

The 2012 Framework defines the following key purpose for people working in asset management:

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| **Key purpose:** |
| To optimise the delivery and performance of physical assets |

This key purpose has to be achieved in 7 key roles:

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| **Key Roles** | |
| 1 | Policy development |
| 2 | Strategy development |
| 3 | Asset management planning |
| 4 | Implement asset management plans |
| 5 | Asset management capability development |
| 6 | Risk management and performance improvement |
| 7 | Asset knowledge management |

Each role is broken down into a small number of competence Units, such as ‘Develop the asset management policy’. There are 27 Units in total.

Each unit is then subdivided into a small set of elements of competence such as ‘Assess policy options using appropriate decision criteria” and “Investigate root causes of asset or system failures or incidents”. This is the level at which assessment should take place.

The 2012 Framework sets out generic competence requirements for people working in asset management. Different selections of the Units and Elements of competence may be appropriate to senior experienced staff in managerial roles, to specialists with asset specific or technical responsibilities or to new entrants to asset management teams.

Underpinning the framework is an indicative list of the knowledge and understanding that might be needed to meet the competence requirements. Part of the task of specifying Performance Criteria is to define these requirements and how they should be met in more detail.

Figure 1 shows the 28 Units of Competence in the 2012 Framework and their distribution across the 7 Key Roles.

Figure 1. The Competences Framework: Key Purpose, Roles and Units.

**Unit 7.3** Make appropriate AM data available for decision-making

**Role 7:**

Asset knowledge management

**Unit 7.2** Specify, select and integrate AM information systems

**Unit 7.1** Define asset information standards

**Unit 5.4** Shape the AM culture

**Unit 6.5** Learn from mistakes

**Unit 6.2** Assure the quality of AM processes

**Unit 6.1** Appraise and manage risks

**Unit 6.3** Monitor and review progress and performance

**Unit 6.4** Review and audit compliance with legal, regulatory, ethical and social requirements

**Role 6:**

Risk management and performance improvement

**Unit 5.3** Develop and manage organisational change

**Unit 5.2** Develop and deploy suppliers

**Unit 5.1** Develop and deploy AM teams

**Role 5:**

Asset management

capability development

**Unit 3.2** Apply whole life costing principles

**Unit 3.1** Appraise investment options

**Unit 3.3** Produce business case for creation and/or acquisition of assets

**Unit 3.4** Plan for contingencies

**Unit 3.5** Develop and communicate AM plans

**Role 3:**

Asset management planning

**Role 4:**

Implementing asset management plans

**Unit 4.1** Create and acquire assets

**Unit 4.2** Control operations

**Unit 4.3** Maintain assets

**Unit 4.4** Optimise and rationalise assets

**Unit 4.5** Renew or dispose of assets

**Role 2:**

Strategy development

**Unit 2.1** Analyse strategy requirements

**Unit 2.2** Forecast and analyse future user requirements and demands

**Unit 2.3** Develop the AM strategy

**Unit 2.4** Plan the implementation of the AM strategy

**Role 1:**

Policy development

**Unit 1.1** Analyse policy requirements

**Unit 1.2** develop the AM policy

**Key Purpose:**

To optimise the

delivery and

performance

of physical assets

# CONTENTS OF THE 2012 FRAMEWORK

The following tables show the detailed contents of the Framework. Each Role is presented separately and is followed by a two stage breakdown of competence requirements into Units and Elements and a list of the underpinning knowledge and understanding that is considered most relevant to each Role.

*Note that the acronym ‘AM’ is used in place of the phrase Asset Management throughout.*

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| **Role 1** | **POLICY DEVELOPMENT** |
| **Summary** | *These units ensure that AM activities are aligned with and achieve the organisational strategic plan. As defined in ISO 55 002: 2014, an AM policy is a ‘statement that sets out the principles by which the organisation intends to apply asset management to achieve its organisational objectives. The policy should set out the organisation’s commitments and expectations for decisions, activities and behaviour concerning asset management and should be aligned to and demonstrate support for the organisational objectives.’ Policy-making involves deciding on a definitive course or method of action, selected from alternatives, to guide and, often, to determine present and future AM decisions.* |
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| **Unit 1.1** | **Analyse policy requirements** |
| E1.1.1 | Define the corporate goals the AM policy must help achieve |
| E1.1.2 | Define the stakeholder groups and socio-economic issues the AM policy must take into account |
| E1.1.3 | Define the stakeholder requirements the AM policy must address |
| E1.1.4 | Define the opportunities and constraints the AM policy must take into account |
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| **Unit 1.2** | **Develop the AM policy** |
| E1.2.1 | Define the decision criteria for selecting amongst policy options |
| E1.2.2 | Assess policy options using appropriate agreed criteria |
| E1.2.3 | Define the AM policy goals and aspirations |
| E1.2.4 | Define the implications of the AM policy for all stakeholders |
| E1.2.5 | Make effective use of internal and external expertise in the development of AM policy |
| E1.2.6 | Ensure stakeholders are engaged in AM policy development as appropriate |

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| **Generic knowledge and understanding requirements of Role 1** |
| The organisation's strategic plan |
| The organisation's risk management framework |
| Relevant other organisational policies and strategies |
| Legislative and regulatory frameworks |
| How to develop policy options and compare and assess their benefits and impacts |
| Policy decision criteria and development processes |
| Asset management decision-making: capital investment, operations and maintenance, lifecycle cost and value optimisation, resourcing strategy and optimisation, shutdowns and outage strategy and optimisation, ageing assets strategy |
| Relevant developments in the business environment and the changes these cause in stakeholder expectations |
| Processes for stakeholder management and consultation |
| The impact of changing economic and stakeholder expectations on the long term management of assets |

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| **Role 2** | **STRATEGY DEVELOPMENT** |
| **Summary** | *These units are concerned with the provision of strategic asset management direction and leadership and include identifying strategic requirements, demand analysis and forecasting, and strategy development. This role is essential to ensuring that asset management activities are focused on and achieve organisational objectives.* |
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| **Unit 2.1** | **Analyse strategic requirements** |
| E2.1.1 | Define the AM policy aims and objectives the AM strategy must achieve and support |
| E2.1.2 | Define all risks the AM strategy must take into account |
| E2.1.3 | Define the constraints the AM strategy must take into account |
| E2.1.4 | Define the implications of current and forecast asset condition for AM strategy development |
| E2.1.5 | Analyse the current and future customer requirements the AM strategy must take into account |
| E2.1.6 | Define the legal, social, environmental and economic factors and trends the AM strategy must take into account |
| E2.1.7 | Define the stakeholder groups the AM strategy must take into account |
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| **Unit 2.2** | **Forecast and analyse future user requirements and demands** |
| E2.2.1 | Use effective tools and techniques to analyse current demands |
| E2.2.2 | Use historical data to support forecasts of demand and costs and required levels of service |
| E2.2.3 | Use effective tools and techniques to forecast costs and demands |
| E2.2.4 | Forecast and assess relevant external products and technological developments and their likely impacts |
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| **Unit 2.3** | **Develop the AM strategy** |
| E2.3.1 | Define the aims and objectives of the AM strategy |
| E2.3.2 | Develop key strategies for the overall system, asset portfolios and/or asset groups that support strategic aims and objectives |
| E2.3.3 | Define the expected outcomes of all AM strategies |
| E2.3.4 | Ensure stakeholders are engaged as appropriate in the strategy development process |
| E2.3.5 | Make effective use of internal and external expertise in strategy development |
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| **Unit 2.4** | **Plan the implementation of the AM strategy** |
| E2.4.1 | Define, prioritise and optimise the AM strategy |
| E2.4.2 | Prepare financial projections using suitable good practice models |
| E2.4.3 | Prepare business plans using suitable good practice models |
| E2.4.4 | Define requirements for market research, systems development and management team-building |
| E2.4.5 | Define how effectiveness of the AM strategy will be measured and monitored |

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| **Generic knowledge and understanding requirements of Role 2** |
| The organisation's strategic plan |
| Relevant other organisational policies and strategies |
| Legislative and regulatory frameworks |
| How organisational AM strategies support business goals |
| AM strategies and how these are reflected in AM objectives and plans |
| Asset management decision-making: capital investment, operations and maintenance, lifecycle cost and value optimisation, resourcing strategy and optimisation, shutdowns and outage strategy and optimisation, ageing assets strategy |
| The inter-relationship of business and AM processes. |
| Content and applicability of relevant business excellence models |
| The strengths and weakness of relevant business process excellence models |
| Identification of appropriate metrics for analysis and interpretation of information to monitor the business benefits of AM strategies |
| Processes and procedures for developing strategic options and comparing and assessing their benefits and impacts |
| Methods and techniques for competitor analysis |
| Relevant developments in the business environment and their impact on stakeholder expectations |
| Market analysis techniques and econometric modelling |
| Managing working capital |
| Cash flow forecasting |
| Asset condition assessment and degradation modelling |
| Cost forecasting, budget preparation and financial management |
| Relevant accountancy terms and conventions |
| Benefit tracking and the selection and use of appropriate methods |
| Stakeholder management and consultation processes |
| The effect of stakeholder expectations on AM plans |
| The impact of changing economic/stakeholder expectations on day-to-day management of assets |
| The impact of changing economic/stakeholder expectations on the long term management of assets |
| Organisational stakeholders and how their requirements are reflected in the organisation's strategic plan and business goals |
| Environmental management standards and excellence models |
| Sustainability principles and the application of sustainable development excellence models |
| The implications of severe weather and climate change |

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| **Role 3** | **ASSET MANAGEMENT PLANNING** |
| **Summary** | *These units are concerned with the identification, appraisal, optimisation and prioritising of options and the development of effective asset management plans for implementing the AM strategy and delivering the AM objectives.* |
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| **Unit 3.1** | **Appraise investment options** |
| E3.1.1 | Define criteria for identifying and evaluating investment options |
| E3.1.2 | Identify investment options for achieving the AM strategy and AM objectives |
| E3.1.3 | Analyse the costs, risks and benefits of investment options |
| E3.1.4 | Select and justify the most appropriate investment options |
| E3.1.5 | Evaluate detailed investment plans |
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| **Unit 3.2** | **Apply whole life costing principles** |
| E3.2.1 | Identify how costs of AM activities and asset values should be determined |
| E3.2.2 | Identify and evaluate appropriate whole life costing models |
| E3.2.3 | Specify costs for all key stages of the AM lifecycle |
| E3.2.4 | Develop business cases using unit cost data |
| E3.2.5 | Ensure appropriate tools to support effective decision making are available |
| E3.2.6 | Define the process for tracking, analysing and verifying unit cost data |
| E3.2.7 | Update whole life cost calculations when unit costs change |
| E3.2.8 | Identify improvement actions through periodic unit cost reviews |
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| **Unit 3.3** | **Produce business case for creation and/or acquisition of assets** |
| E3.3.1 | Analyse business needs for the creation and/or acquisition of assets based on AM plan requirements |
| E3.3.2 | Specify appropriate performance indicators for whole life assessment of asset creation and/or acquisition. |
| E3.3.3 | Assess the costs, risks and benefits of alternative options for asset creation and/or acquisition |
| E3.3.4 | Prioritise investment projects on the basis of their anticipated total business impact |
| E3.3.5 | Prepare business cases which evaluate the costs, benefits and risks of proposed solutions |
| E3.3.6 | Identify risks in the commissioning process and assess their impact on current operations and AM activities. |
| E3.3.7 | Review and influence procurement policy to achieve optimum asset life-cycle performance. |
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| **Unit 3.4** | **Plan for contingencies** |
| E3.4.1 | Identify asset related risks |
| E3.4.2 | Identify potential disruptions to critical AM activities |
| E3.4.3 | Plan the most appropriate responses to incidents and emergencies |
| E3.4.4 | Ensure suitable resources are available to respond as planned to incidents and emergencies |
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| **Unit 3.5** | **Develop and communicate AM plan(s)** |
| E3.5.1 | Specify the range, volume and quality of AM activities and projects needed to achieve the AM strategy |
| E3.5.2 | Define objectives and performance indicators for all AM activities and projects which align with the AM strategy |
| E3.5.3 | Define, monitor and review the effectiveness of planning and communication processes |
| E3.5.4 | Define and justify asset group strategies and specific asset policies |
| E3.5.5 | Develop an AM plan which describes how asset management activities and projects will be resourced, managed and evaluated |
| E3.5.6 | Define resources and services required to deliver the AM plan(s) |

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| **Generic knowledge and understanding requirements of Role 3** |
| Asset management decision-making: capital investment, operations and maintenance, lifecycle cost and value optimisation, resourcing strategy and optimisation, shutdowns and outage strategy and optimisation, ageing assets strategy |
| Investment appraisal and optimisation techniques |
| Value-for-money criteria and financial evaluation methods |
| Tools, methods and techniques for reviewing options and their impact on integrated system effectiveness |
| The complexity, impacts and priorities of critical and multiple projects |
| Project management principles and the importance of operating to cost, quality and time specifications |
| Relevant internal and external communication processes and procedures |
| Standards and procedures for incident and emergency response and recovery |
| Methods and techniques for cost and performance analysis |
| Management of materials, logistics and supply chains |
| Resource planning |
| Design and use of key performance indicators and balanced scorecard techniques |
| Principles and methods of strategic management and business planning |
| Communicating plans effectively |
| Techniques for monitoring and reviewing implementation and performance against the plan |
| The importance of identifying how future planning can be improved |
| Procurement strategies applicable to the acquisition or creation of assets |
| Design specifications: establishing client requirements |
| Ensuring accuracy and practicability of design specifications and that they are achievable |
| Relevant national and international legal and regulatory frameworks |

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| **Role 4** | **IMPLEMENTING ASSET MANAGEMENT PLANS** |
| **Summary** | *These units are concerned with how the complete asset lifecycle is managed and planning and controlling the delivery of its main components. They cover operation, maintenance, optimisation and rationalisation of assets.* |
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| **Unit 4.1** | **Create and acquire assets** |
| E4.1.1 | Develop design specifications to achieve optimum customer, business and life-cycle requirements. |
| E4.2.1 | Develop specifications for acquisition and installation of assets, including requirements for necessary resources. |
| E4.3.1 | Ensure assets are acquired or created according to specifications and budgetary and timetable constraints. |
| E4.4.1 | Ensure correct installation of assets, in accordance with specifications, |
| E4.5.1 | Undertake commissioning of assets as appropriate and, where required, transfer control of assets to others. |
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| **Unit 4.2** | **Control operations** |
| E4.2.1 | Develop risk-based implementation plans and objectives in line with operations, maintenance and/or refurbishment strategies |
| E4.2.2 | Review and update existing operations strategy |
| E4.2.3 | Develop operations work and resource plans |
| E4.2.4 | Develop and evaluate work management processes |
| E4.2.5 | Manage the delivery of workplans including managing changes and the impact of unplanned work |
| E4.2.6 | Manage change relating to assets and systems |
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| **Unit 4.3** | **Maintain assets** |
| E4.3.1 | Review and update existing maintenance and/or refurbishment strategies |
| E4.3.2 | Develop risk-based maintenance and/or refurbishment workplans |
| E4.3.3 | Specify spares management and inventory requirements |
| E4.3.4 | Plan the distribution of spares and supplies |
| E4.3.5 | Identify and appraise appropriate condition assessment techniques |
| E4.3.6 | Assess asset condition and performance and modify maintenance plans and regimes as required |
| E4.3.7 | Evaluate options for extending the life of assets |
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| **Unit 4.4** | **Optimise and rationalise assets** |
| E4.4.1 | Review asset performance and capacity against current requirements to identify potential for rationalisation |
| E4.4.2 | Evaluate asset rationalisation within a cost–risk optimisation framework |
| E4.4.3 | Ensure rationalisation projects are fully defined and assessed including their impact on other potential projects |
| E4.4.4 | Ensure rationalisation projects are implemented and are subject to detailed post-investment appraisal |
| E4.4.5 | Ensure spares management supports the AM strategy and plan(s) |
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| **Unit 4.5** | **Renew or dispose of assets** |
| E4.5.1 | Select and justify the optimal strategy for renewal or disposal based on AM strategy |
| E4.5.2 | Identify and plan life-extending, decommissioning, disposal and risk control actions |
| E4.5.3 | Manage the implementation of life-extending, decommissioning, disposal and risk control actions |
| E4.5.4 | Evaluate the effectiveness of life-extending, decommissioning, disposal and risk control actions |
| E4.5.5 | Ensure assets are disposed of responsibly and in accordance with environmental and related requirements and relevant legislation and regulations |
| **Generic knowledge and understanding requirements of Role 4** | |
| Asset management decision-making: capital investment, operations and maintenance, lifecycle cost and value optimisation, resourcing strategy and optimisation, shutdowns and outage strategy and optimisation, ageing assets strategy | |
| Project planning and management | |
| Resource management | |
| Management of materials, logistics and supply chains | |
| Procurement strategies | |
| Maintenance principles, techniques and processes | |
| Maintenance regime options | |
| Accident investigation principles and procedures | |
| Decommissioning processes | |
| Calculation and management of residual risk and liabilities | |
| Health and safety legislation, regulations and working practices and procedures - including local, national and international requirements | |
| Performance requirements of physical assets, including manufacturer and installer recommendations | |
| Performance-monitoring methods and procedures such as trends analysis, researching historical data, analysis and review of outputs, investigating abnormal characteristics | |
| Documentation and control procedures, including compliance with company and other policies and procedures | |

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| **Role 5** | **ASSET MANAGEMENT CAPABILITY DEVELOPMENT** |
| **Summary** | *These units are appropriate for those who manage or influence processes that support effective delivery of AM strategy, objectives and plans. They cover how competence is developed and managed in the boardroom, the workplace and the supply chain, the management of organisational change and the development of a suitable organisational culture. They address how suppliers of products and services are managed and developed.* |
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| **Unit 5.1** | **Develop and deploy AM people and teams** |
| E5.1.1 | Identify workload volumes required to meet AM strategy, AM objectives and AM plans |
| E5.1.2 | Specify competence requirements for AM work activities |
| E5.1.3 | Ensure asset management staff receive relevant necessary training and development |
| E5.1.4 | Assign appropriately competent people and teams to AM work activities |
| E5.1.5 | Direct and coordinate the activities of AM teams |
| E5.1.6 | Develop and support the AM performance of colleagues |
| E5.1.7 | Challenge resource constraints and justify increases |
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| **Unit 5.2** | **Develop and deploy suppliers** |
| E5.2.1 | Identify the criticality of products and services to the AM strategy, AM objectives and plan(s) |
| E5.2.2 | Define which products and services should be supplied |
| E5.2.3 | Identify and manage suppliers to support the achievement of AM strategy, AM objectives and plan(s) |
| E5.2.4 | Specify requirements for supplied products and services |
| E5.2.5 | Identify and specify appropriate forms of contract, terms and conditions for achieving the AM strategy, AM objectives and plan(s) |
| E5.2.6 | Develop and improve the capabilities of suppliers as required |
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| **Unit 5.3** | **Design and manage organisational change** |
| E5.3.1 | Determine the effectiveness of current organisational structures in supporting AM strategy, AM objectives and plan(s) |
| E5.3.2 | Identify changes needed to individual roles and responsibilities to ensure effective support for the AM strategy, objectives and plan(s) |
| E5.3.3 | Identify changes needed to asset management teams to ensure effective support for the AM strategy, objectives and plan(s) |
| E5.3.4 | Implement changes to organisational structure, teams and individual roles and responsibilities to ensure effective support for the AM strategy, objectives and plan(s) |
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| **Unit 5.4** | **Shape the AM culture** |
| E5.4.1 | Promote the goals and benefits of AM |
| E5.4.2 | Define the organisational culture needed to achieve AM strategy, AM objectives and plan(s) |
| E5.4.3 | Plan and implement changes to organisational culture as required |
| E5.4.4 | Monitor the effectiveness of the organisational culture in supporting the achievement of AM strategy, AM objectives and plan(s) |

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| **Generic knowledge and understanding requirements of Role 5** |
| Continuing professional development processes |
| Resource management methodologies, techniques and tools |
| Project management principles and the importance of operating to cost, quality and time specifications |
| The complexity, impacts and priorities of critical projects and of multiple projects |
| Training needs analysis |
| Resource scheduling tools and techniques |
| Information required to undertake workforce planning |
| Service level agreements and contractual management including performance criteria and shared risk and reward mechanisms |
| Management of materials, logistics and supply chains |
| Financial evaluation methods and value-for-money criteria |
| Organisational procedures and systems |
| Continuous improvement principles and processes |
| Principal models and methods, and their strengths and weaknesses, for managing change effectively |
| Political, bureaucratic and resource barriers to change and techniques for managing them |
| Managing expectations of customers, staff, suppliers and other stakeholders during periods of change |
| The concept and importance of culture as applied to organisations |
| The importance of ethical, moral and other values in underpinning individual behaviour and organisational culture |
| The principles of and methods for managing culture change in organisations |
| Your organisation's vision and strategy and current organisational culture |
| Values, assumptions and behaviours that are consistent, and inconsistent, with your organisation’s vision and strategy |

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| **Role 6** | **RISK MANAGEMENT AND PERFORMANCE IMPROVEMENT** |
| **Summary** | *These units are concerned with ensuring that your organisation acknowledges, understands and manages risk effectively and that performance is reviewed and improved over time. Risks include, but are not limited to, health and safety, security, environment (including climate change), reputation and finance.* |
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| **Unit 6.1** | **Assess and manage risks** |
| E6.1.1 | Define and manage risk management processes and procedures |
| E6.1.2 | Identify and assess risks arising from AM activities |
| E6.1.3 | Specify measures and methods for controlling identified risks |
| E6.1.4 | Identify improvements needed to working practices and procedures |
| E6.1.5 | Monitor the progress and impact of improvement actions |
| E6.1.6 | Integrate AM related risk management with organisational risk management systems |
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| **Unit 6.2** | **Assure the quality of AM processes** |
| E6.2.1 | Assure the quality of AM products or processes |
| E6.2.2 | Identify the reasons for quality assurance problems |
| E6.2.3 | Plan and implement improvements to the quality of AM processes |
| E6.2.4 | Evaluate the effectiveness of process improvements |
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| **Unit 6.3** | **Monitor and review progress and performance** |
| E6.3.1 | Assess asset condition and performance against AM strategy and objectives |
| E6.3.2 | Assess the performance of AM activities against AM strategy and objectives |
| E6.3.3 | Identify and implement corrective actions |
| E6.3.4 | Analyse the progress, impact and effectiveness of corrective actions |
| E6.3.5 | Identify lessons learned and adjust AM strategy, policies and procedures accordingly |
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| **Unit 6.4** | **Review and audit compliance with legal, regulatory, ethical and social requirements** |
| E6.4.1 | Identify and monitor relevant legal, regulatory, ethical and social requirements |
| E6.4.2 | Develop effective policies and procedures to ensure requirements are met |
| E6.4.3 | Assess how policies and procedures are put into practice and provide support |
| E6.4.4 | Audit compliance with relevant legislation and standards |
| E6.4.5 | Identify and correct any failures to meet requirements |
| E6.4.6 | Identify reasons why requirements are not met and adjust policies and procedures accordingly |
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| **Unit 6.5** | **Learn from incidents** |
| E6.5.1 | Investigate root cause of asset or system failures or incidents |
| E6.5.2 | Influence investigation of incidents |
| E6.5.3 | Make effective use of 'lessons learned' information from incidents |

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| **Generic knowledge and understanding requirements of Role 6** |
| Risk assessment processes and methods covering health and safety, security, asset availability, reputation, environmental and finance |
| Interrelationship of corporate, strategic and asset-specific risk management |
| Types of risk and the factors which drive different types of risk |
| Key stages in the risk management process |
| Identification of risks relating to current and planned activities, the nature of the risks, the probability of occurrence, and consequences arising |
| Risk management processes appropriate to the assets being managed |
| Impact of improvement actions on current operations and assessment of related risk |
| Quantification of probabilities and consequences and prioritisation of risks for appropriate analysis and control |
| The importance of communicating information on identified risks to relevant people across the organisation and other stakeholders as appropriate; and how to achieve effective communication |
| How to establish effective systems for monitoring risk management processes |
| Legislative and regulatory frameworks |
| Health, safety and environmental procedures and issues |
| Quality assurance principles and quality management systems |
| Patents, copyright and intellectual property issues |
| Stakeholder management and consultation processes |
| The effect of stakeholder expectations on asset management plans |
| The impact of changing economic or stakeholder expectations on the day-to-day and long term management of assets |
| Organisational stakeholders and how their requirements are reflected in the AM strategy |
| The importance of an ethical and value based approach to governance and how such an approach is put into practice |
| Current and emerging social attitudes to management and leadership practice and the importance of being sensitive to these |
| Current and emerging social concerns and expectations relevant to your sector |
| How other organisations deal with current and emerging social and environmental concerns and expectations |

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| **Role 7** | **ASSET KNOWLEDGE MANAGEMENT** |
| **Summary** | *These units are concerned with defining the asset information needed, how it is gathered and analysed, how it is then interpreted and managed and how the knowledge generated is applied.* |
|  |  |
| **Unit 7.1** | **Define asset information requirements** |
| E7.1.1 | Define asset information strategy |
| E7.1.2 | Specify asset definition standards to provide a common definition of asset attributes |
| E7.1.3 | Define asset condition standards and measures and specify how these should be used in condition assessment |
| E7.1.4 | Specify standard definitions of asset defects and failures |
| E7.1.5 | Specify asset performance management standards |
| E7.1.6 | Specify standards which contain common definitions for capturing the utilisation of assets |
| E7.1.7 | Specify functionality and service life requirements for all types of key asset |
| E7.1.8 | Verify that asset knowledge standards are consistent with AM strategy and plan(s) |
|  |  |
| **Unit 7.2** | **Specify, select and integrate AM information systems** |
| E7.2.1 | Specify and validate functional and technical requirements of Information Systems needed to support and integrate AM processes. |
| E7.2.2 | Identify human factor implications of functional, technical and business requirements |
| E7.2.3 | Define and plan the integration of information systems and tools |
| E7.2.4 | Demonstrate appropriate use of information systems in supporting the delivery of AM strategy and plan(s) |
| E7.2.5 | Ensure AM information systems produce relevant usable data in a cost effective manner |
| E7.2.6 | Monitor the implementation of information systems and tools |
|  |  |
| **Unit 7.3** | **Make appropriate AM information available for decision making** |
| E7.3.1 | Develop criteria and effective and relevant and processes for AM data collection |
| E7.3.2 | Plan and manage the collection, maintenance and updating, storage and dissemination of AM information |
| E7.3.3 | Process and analyse AM data to provide effective business information as required |
| E7.3.4 | Prepare reports as required and recognise anomalies in reported data |
| E7.3.5 | Provide AM data and information needed to transfer assets to operational use |

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| **Generic knowledge and understanding requirements of Role 7** |
| Asset information strategic requirements |
| Relevant industry standards and regulatory reporting requirements |
| The attributes and limitations of information systems and tools available to support AM processes: for example, asset registers, work and resource management, condition and performance monitoring and decision support tools |
| Basic concepts and relationships of an asset register, including the role of spatial, performance, condition and historical data |
| How the asset management strategy has been used to determine what asset knowledge is needed and what the linkages are |
| The processes required to manage collection of documentary information and its maintenance and updating, storage and dissemination |
| Tools and techniques for data collection and reporting |
| Methods of data analysis |
| Information requirements: what information is needed, by whom, why, how and when |
| Training needs analysis |
| Analysis and monitoring techniques, processes and performance indicators needed to provide management reports on operations and maintenance |
| The integration of asset and technical information |

# MAPPING THE FRAMEWORK TO THE GFMAM LANDSCAPE

The following Table shows how the Units of Competence in the Competences Framework map to the 39 subjects identified in the GFMAM Asset Management Landscape (2nd Edition, March 2014). This mapping therefore provides a check that the competence requirements and indicative underpinning knowledge gives adequate coverage to the 39 subjects. If you are designing training or assessments this mapping will help you to make decisions on weighting and emphasis and identify useful source material from the IAM Anatomy and other documents which can be used to develop and test knowledge and understanding.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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|  | **GFMAM Landscape Subject Groups:** | **STRATEGY AND PLANNING** | | | | | **ASSET MANAGEMENT DECISION-MAKING** | | | | | **LIFECYCLE DELIVERY** | | | | | | | | | | | **ASSET INFORMATION** | | | | **ORGANISATION AND PEOPLE** | | | | | **RISK AND REVIEW** | | | | | | | | |
| COMPTENCE FRAMEWORK ROLES | GFMAM Landscape: 39 Subjects  Competence Framework Units | Asset Management Policy | Asset Management Strategy and Objectives | Demand Analysis | Strategic Planning | Asset Management Plan | Capital Investment Decision-Making | Operations and Maintenance Decision-Making | Lifecycle Value Realisation | Resourcing Strategy | Shutdowns and Outage Strategy | Technical Standards and Legislation | Asset Creation and Acquisition | Systems Engineering | Configuration Management | Maintenance Delivery | Reliability Engineering | Asset Operations | Resource Management | Shutdown and Outage Management | Fault and Incident Response | Asset Decommissioning and Disposal | Asset Information Strategy | Asset Knowledge Standards | Asset Information Systems | Data and Information Management | Procurement and Supply Chain Management | Asset Management Leadership | Organisational Structure | Organisational Culture | Competence Management | Risk Assessment and Management | Contingency Planning and Resilience Analysis | Sustainable Development | Management of Change | Assets Performance and Health Monitoring | Asset Management System Monitoring | Management Review, Audit and Assurance | Asset Costing and Valuation | Stakeholder Engagement |
| R1 Policy development | Analyse policy requirements | 🗸 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 🗸 |
| Develop the AM policy | 🗸 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 🗸 |
| R2 Strategy development | Analyse strategic requirements |  | 🗸 | 🗸 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 🗸 |  | 🗸 |  |  |  |  |  | 🗸 |
| Forecast and analyse future user requirements and demands |  |  | 🗸 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Develop the AM strategy |  | 🗸 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 🗸 |
| Plan the implementation of the AM strategy |  | 🗸 |  | 🗸 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| R3 Asset management planning | Appraise investment options |  |  |  | 🗸 |  | 🗸 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Apply whole life costing principles |  |  |  |  |  | 🗸 |  | 🗸 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 🗸 |  |
| Produce business case for creation and/or acquisition of assets |  |  |  |  |  | 🗸 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 🗸 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Plan for contingencies |  |  |  |  | 🗸 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 🗸 |  |  |  |  |  |  |  |
| Develop and communicate AM plan(s) |  |  |  | 🗸 | 🗸 | 🗸 | 🗸 | 🗸 | 🗸 | 🗸 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

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| **IAM 39 AM Subjects:** | | **STRATEGY AND PLANNING** | | | | | | **ASSET MANAGEMENT DECISION-MAKING** | | | | | **LIFECYCLE DELIVERY** | | | | | | | | | | | **ASSET INFORMATION** | | | | **ORGANISATION AND PEOPLE** | | | | | **RISK AND REVIEW** | | | | | | | | |
| COMPTENCE FRAMEWORK ROLES | GFMAM Landscape: 39 Subjects  Competence Framework Units | Asset Management Policy | | Asset Management Strategy and Objectives | Demand Analysis | Strategic Planning | Asset Management Plan | Capital Investment Decision-Making | | Operations and Maintenance Decision-Making | Lifecycle Value Optimisation | Resourcing Strategy | Shutdowns & Outage Strategy | Technical Standards and Legislation | Asset Creation and Acquisition | Systems Engineering | Configuration Management | Maintenance Delivery | Reliability Engineering | Asset Operations | Resource Management | Shutdown and Outage Management | Fault and Incident Response | Asset Decommissioning and Disposal | Asset Information Strategy | Asset Knowledge Standards | Asset Information Systems | Data and Information Management | Procurement and Supply Chain Management | Asset Management Leadership | Organisational Structure | Organisational Culture | Competence Management | Risk Assessment and Management | Contingency Planning and Resilience Analysis | Sustainable Development | Management of Change | Assets Performance and Health Monitoring | Asset Management System Monitoring | Management Review, Audit and Assurance | Asset Costing and Valuation | Stakeholder Engagement |
| R4 Implement asset management plans | Create and acquire assets |  | |  |  |  |  |  | |  |  |  |  | 🗸 | 🗸 | 🗸 | 🗸 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Control operations |  | |  |  |  |  |  | | 🗸 |  |  |  |  |  |  |  |  |  | 🗸 | 🗸 | 🗸 | 🗸 |  |  |  |  |  |  |  |  |  |  |  |  |  | 🗸 |  |  |  |  |  |
| Maintain assets |  | |  |  |  |  |  | | 🗸 |  |  |  | 🗸 |  |  |  | 🗸 | 🗸 |  | 🗸 | 🗸 | 🗸 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Optimise and rationalise assets |  | |  |  |  |  |  | |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 🗸 |  |  |  |  |  |  |  |  |  |  |  |  |  | 🗸 |  |  |  |  |
| Renew or dispose of assets |  | |  |  |  |  |  | |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 🗸 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| R5 Asset management capability development | Develop and deploy AM people and teams |  | |  |  |  |  |  | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 🗸 |  |  | 🗸 |  |  |  |  |  |  |  |  |  |
| Develop and deploy suppliers |  | |  |  |  |  |  | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 🗸 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Design and manage organisational change |  | |  |  |  |  |  | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 🗸 |  |  |  |  |  |  |  |  |  |  |  |
| Shape the AM culture |  | |  |  |  |  |  | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 🗸 |  |  |  |  |  |  |  |  |  |  |
| R6 Risk management and performance improvement | Assess and manage risks |  | |  |  |  |  |  | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 🗸 |  | 🗸 | 🗸 |  |  |  |  |  |
| Assure the quality of AM processes |  | |  |  |  |  |  | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Monitor and review progress and performance |  | |  |  |  |  |  | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 🗸 |  |  |  |  |
| Review and audit compliance with legal, regulatory, ethical and social requirements |  | |  |  |  |  |  | |  |  |  |  | 🗸 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 🗸 |  |  |
| Learn from incidents |  | |  |  |  |  |  | |  |  |  |  |  |  |  |  |  |  |  |  |  | 🗸 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 🗸 |  |  |
| R7 Asset knowledge management | Define asset information requirements |  | |  |  |  |  |  | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 🗸 | 🗸 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Specify, select and integrate AM information systems |  | |  |  |  |  |  | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 🗸 |  |  |  |  |  |  |  |  |  |  | 🗸 |  |  |  |  |
| Make appropriate AM information available for decision making |  | |  |  |  |  |  | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 🗸 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

# IMPORTING UNITS FROM THE 2012 COMPETENCES FRAMEWORK

The IAM Professional Development Committee is responsible for making decisions on what constitutes appropriate contextualisation and tailoring of the generic units by third parties.

The process is based on the good practice approach established by the Management Standards Centre which is promoted by the relevant regulatory authorities in the UK.

Enquiries about Third Party use of IAM Units should be directed in the first instance to:

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# STEERING GROUP

The review and revision of the 2008 Framework was managed through the IAM Qualifications Design Group, which acted as the project Steering Group.

The Group members and their employers at the time of the review were:

Chris Lloyd CAS (Chair)

Tim Feest Project Consultant

Paul Blezard EA Technology

Tim Gadd NATS

Doug Marsh OA Risk Ltd

Brian McCarthy Scottish Water

David McLeish AMCL

Matt Skinner Network Rail

Georgia Smart Consult Smart Ltd

Andrew Spencer CE-Electric

Karen Whitehall Scottish Water

John Woodhouse TWPL

This update to the 2012 Framework has been prepared for the IAM by Chris Lloyd and Tim Feest of CAS (www.casolutions.co.uk).

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## 7.1 IAM publications

⦁ *Asset Management – An Anatomy*, Version 2, January 2014, Institute of Asset Management, www.theiam.org.

⦁ *Guidance on Using the 2012 Asset Management Competence Requirements Framework*,

Institute of Asset Management, Bristol, 2012, www.theiam.org.

⦁ *IAM Knowledge Centre*, Institute of Asset Management, available from:

http://theiam.org/wiki/Main\_Page.

## 7.2 International publications

* *The Asset Management Landscape, 2nd Edition, March 2014,* Global Forum on Maintenance and Asset Management, ISBN 978-0-9871799-2-0, www.gfmam.org; also available from the IAM at www.theiam.org.

## 7.3 Standards publications

⦁ *BSI PAS 55-1:2008, Specification for the optimized management of physical assets, British Standards Institute, see: www.bsigroup.co.uk.*

⦁ ISO 55 001 (January 2014): *Asset Management: Overview, Principles and Terminology; ISO 55 002:Asset Management – Management Systems Requirements (January 2014); ISO 55 003: Asset Management Systems – Guidelines for the Application of ISO 55 001 (January 2014),* International Standards Institute, see: http://www.iso.org.

## 7.4 Competence frameworks

⦁ *Asset Management Competency Requirements Framework, 1st Version* (2006), Institute of Asset Management, www.theiam.org.

⦁ *Asset Management Competency Requirements Framework, 2nd Version,* (2008), Institute of Asset Management, www.theiam.org

⦁ *National Occupational Standards for Management and Leadership,* Management Standards Council, London, 2002–2004.

⦁ *OSCEng Engineering Competence Reference Standards,* available from Engineering Construction Industry Training Board, King’s Langley, www.ecitb.org.uk.

⦁ *UK-SPEC, Standard for Professional Engineering Competence,* 3rd Edition (2014), Engineering Council, London, 2014, see also: http://www.engc.org.uk/professional- qualifications/standards/uk-spec.

## 7.5 UK Regulatory Authorities

⦁ *Council for Curriculum, Examinations and Assessment,* the regulatory body for public examinations and publicly funded qualifications in Northern Ireland: www.rewardinglearning.org.uk.

⦁ *Ofqual,* the regulator of qualifications, examinations and assessments in England and vocational qualifications in Northern Ireland. Ofqual, together with its partner regulators in Wales (DCELLS) and Northern Ireland (CCEA), is also responsible for regulation of the Qualifications and Credit Framework (QCF): www.ofqual.gov.uk.

⦁ *Scottish Qualifications Authority,* the regulatory body for public examinations and publicly funded qualifications in Scotland: *www.sqa.org.uk.*

# DISCLAIMER

This document is for information only. The Institute of Asset Management accepts no responsibility for the usage or applicability of the 2012 Asset Management Competence Requirements Framework or for any consequences arising from its use by Third Parties.

# ABOUT THE IAM

The IAM is the professional body for those involved in acquisition, operation and care of physical assets, particularly critical infrastructure - and for professionals worldwide dedicated to furthering our knowledge and understanding of Asset Management.

## Our objectives

⦁ Advance for the public benefit the science and practice of Asset Management

⦁ Promote and recognise high standards of practice and professional competence

⦁ Generate widespread awareness and understanding of the discipline.

## Please contact us

Successful Asset Management requires a combination of skills, techniques and knowledge, and we welcome engagement and collaboration with other expert bodies and interested individuals.

Please visit us at: www.theIAM.org