

March 2021

Asset management maturity assessment lexicon

About this document

This document supports, and is published alongside, the asset management maturity assessment dated 3 March 2021.

Asset management maturity assessment lexicon – 3

March 2021

In our draft forward programme 2021–22, we signalled a focus on improving asset resilience by setting up the frameworks needed to assess and improve asset management capability in the sector.

When we discuss asset management we often come across a range of practices and terminology used by wider government policy makers, a specific sector, an organisation and / or at a management software / system level. At best this can be a little confusing to navigate and at worst it can lead to inconsistency and misinterpretation of important information we need to convey. The choice of words and terminology we use, and the extent to which these are understood by others, has a major impact on how well our intentions regarding asset management capability are understood and embedded. Therefore we have worked with the water sector to co-create a lexicon containing shared asset management terminology.

A lexicon is an agreed list of the words / terms used in a particular subject area along with their definitions. In the case of this asset management lexicon, we include a co-created list of the terms and definitions used for asset management in the water sector. We also include related terms such as asset health, asset resilience and asset life.

The purpose of this lexicon is to provide definitions for frequently used terminology in the asset management maturity assessment to promote a common understanding and consistent use of terminology between Ofwat and water companies.

We note that the definitions in this lexicon do not intend to comment on, interpret or supersede definitions included in statutory and licence provisions or in the regulatory accounting guidelines. It is not intended to be a manual on asset management best practice or a guide on how to implement aspects of asset management.

Where terms are defined in the International Organisation for Standardisation (ISO), the Institute of Asset Management (IAM) Anatomy or Global Forum on Maintenance and Asset Management (GFMAM), we have used these definitions in the lexicon. Where we have used these definitions, we have indicated this using the key below.

Key for lexicon terms

	Source of definition
● Red	ISO 55000
● Purple	ISO 55000 (plus water specific examples)
● Blue	ISO 31000
● Dark Blue	ISO 73
● Pink	IAM Anatomy



Stakeholder engagement

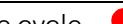
This asset management lexicon has been developed following consultation with stakeholders, primarily water (and wastewater) companies. Stakeholders have had the opportunity to review and comment on the draft lexicon dated 4 December 2020, and on the updated lexicon dated 10 February 2021, as well as to provide feedback via a virtual workshop held on 21 January 2021.

This lexicon should be viewed as a living document which is kept under review and updated periodically so that it remains relevant.

Lexicon version	Date
1.0	3 March 2021

A – Z of asset management terms and definitions

Term	Definition
A	
Adaptive planning	A flexible planning approach that adjusts and develops in response to changing inputs, external drivers and other circumstances.
AMP	Price limit periods in the water sector are sometimes known as Asset Management Plan (AMP) periods. The current period (2020-25) is commonly known as AMP 7 because it is the seventh price review period since privatisation of the water industry in 1989. AMP periods are five years in duration and begin on 1 April in the years ending in 0 or 5.
Asset	<p>Item, thing or entity that has potential or actual value to an organisation.</p> <p>Water examples include, but are not limited to, an integral piece of equipment such as an individual water main or a pump. Wastewater examples include, but are not limited to, an integral piece of equipment such as a specific aeration tank within the activated sludge process of a wastewater treatment works.</p> <p>Assets include natural assets such as constructed wetlands, maturation ponds, SUDs, grass plots and reed beds.</p> <p>Notes:</p> <ol style="list-style-type: none"> 1. The value can be tangible or intangible, financial or non-financial, and includes consideration of risks and liabilities. It can be positive or negative at different stages of the asset life. 2. Physical assets usually refer to equipment, inventory and properties owned by the organisation. Physical assets are the opposite of intangible assets, which are non-physical assets such as leases, brands, digital assets, use rights, licences, intellectual property rights, reputation or agreements.
Asset condition	The measure of the state of a particular asset at fixed point in time.
Asset failure	The failure of an asset to function as required. For tangible assets it can include physical failure (e.g. burst, collapse), capacity failure (e.g. lack of treatment or transfer capacity), or process failure impacting effluent / water quality. It can also include intangible asset failure, for example corrupt software code. It includes partial and total inability to function as designed. Asset failure can, but does not always, lead to service failure.
Asset health	Asset health is an indicator of a company's ability to continue to perform its functions for the benefit of customers, the environment and wider society now and in the future. Poor asset health is when assets are allowed to deteriorate to a point where the risk of failures (which will impact on customers, the environment and wider society) exceeds the company's risk

Term	Definition
	tolerance. The health of companies' assets is a crucial element of achieving resilience in the water and wastewater sector in England and Wales.
Asset life 	Period from asset creation to asset end-of-life.
Asset life cycle 	Stages involved in the management of an asset. Note 1: The naming and number of the stages and the activities under each stage usually vary in different industry sectors and are determined by the organisation.
Asset management 	Coordinated activity of an organisation to realise value from assets. Note 1: Realisation of value will normally involve a balancing of costs, risks, opportunities and performance benefits. Note 2: Activity can also refer to the application of the elements of the asset management system. Note 3: The term "activity" has a broad meaning and can include, for example, the approach, the planning, the plans and their implementation.
Asset management baseline maturity	The starting point for the level of asset management maturity within an organisation. Where asset management maturity is the capability and level of development of key asset management areas. For the purposes of the asset management maturity assessment, this is the organisation's view of its asset management baseline maturity as at April 2021.
Asset management baseline risk	The starting point of a defined risk value relating to an asset or asset type within an organisation.
Asset management capability 	The extent to which an organisation has developed its people, processes, technology, leadership and culture in asset management and the extent to which these are integrated to deliver its asset management objectives.
Asset management information standards 	The specification of a consistent structure and format for collecting and storing asset information and for reporting on the quality and accuracy of asset information.
Asset management information strategy 	The strategic approach to the definition, collection, management, reporting and overall governance of asset information necessary to support the implementation of an organisation's asset management strategy and objectives.
Asset management maturity 	The extent to which the capabilities, performance and ongoing assurance of an organisation's asset management are fit for purpose to meet the current and future needs of its stakeholders, including the ability of an organisation to foresee and respond to changes in its operating context.
Asset management maturity assessment	Judging or deciding on / the judgement or decision on the extent to which the capabilities, performance and ongoing assurance of an organisation's asset management are fit for purpose to meet the current and future needs of its stakeholders, including the ability of an organisation to foresee and respond to changes in its operating context.
Asset management maturity framework	A set of procedures used to analyse and / or guide the approach or techniques an organisation uses towards achieving defined asset management goals and / or objectives. In our case it is the organisation's approach to asset management.

Term	Definition
Asset management plan	<p>Documented information that specifies the activities, resources and timescales required for an individual asset, or a grouping of assets, to achieve the organisation's asset management objectives.</p> <p>Note 1: The grouping of assets may be by asset type, asset class, asset system or asset portfolio.</p> <p>Note 2: An asset management plan is derived from the strategic asset management plan.</p> <p>Note 3: An asset management plan may be contained in, or may be a subsidiary plan of, the strategic asset management plan.</p>
Asset management policy	<p>The high level principles and requirements by which the organisation manages its assets, as formally expressed by top management. The asset management policy is the foundation of an organisation's approach to asset management. It is a key component of the 'line of sight' and provides a framework for translating the organisation's strategic objectives into asset management objectives, and principles which guide the development of the asset management strategy.</p>
Asset management strategy	<p>Long-term optimised approach to management of the assets, derived from, and consistent with the organisational strategic plan and the asset management policy.</p> <p>Notes:</p> <ol style="list-style-type: none"> 1. The asset management strategy converts the objectives of the organisation's strategic plan and the asset management policy into a high-level, long-term action plan for the assets and / or asset system(s), the asset portfolios and / or the asset management system. 2. The high level, long-term action plans for the assets and the asset management objectives are normally the outputs of the asset management strategy. These elements together form the basis for developing more specific and detailed asset management plans.
Asset management system	<p>Management system for asset management whose function is to establish the asset management policy and asset management objectives.</p> <p>Note 1: The asset management system is a subset of asset management.</p>
Asset portfolio	<p>Assets that are within the scope of the asset management system.</p> <p>Note 1: A portfolio is typically established and assigned for managerial control purposes. Portfolios for physical hardware might be defined by category (e.g. plant, equipment, tools, land). Software portfolios might be defined by software publisher, or by platform (e.g. PC, server, mainframe).</p> <p>Note 2: An asset management system can encompass multiple asset portfolios. Where multiple asset portfolios and asset management systems are employed, asset management activities should be coordinated between the portfolios and systems.</p>

Term	Definition
	Water examples include infrastructure water assets, non-infrastructure water assets, water resources assets and water network plus assets. Wastewater assets include infrastructure wastewater assets, non-infrastructure wastewater assets, bioresources assets and wastewater network plus assets.
Asset system ●	Set of assets that interact or are interrelated. Water examples include abstraction, raw water storage, raw water transport, water treatment, treated water storage and treated water distribution. Wastewater examples include collection of foul sewage, collection of surface water, sewage treatment and disposal and sludge liquor treatment.
Asset type ●	Grouping of assets having common characteristics that distinguish those assets as a group or class. Asset groups are aggregated by functional group or process. Water examples include, but are not limited to, surface water abstraction assets, ground water abstraction assets, reservoirs, water treatment works (aeration / oxidisation, coagulation / flocculation, clarification, filtration, adsorption, disinfection, conditioning, sludge treatment / disposal), water mains (abstraction mains, raw water mains, trunk water mains, pump to waste arrangements), raw water pumping stations, treated water pumping stations and service reservoirs. Wastewater examples include, but are not limited to, sewers (storm sewers, foul sewers, combined sewers, rising mains, CSOs), sewage treatment works (preliminary treatment, secondary treatment, tertiary treatment) sludge treatment, sewage pumping station and outfalls. Asset classes are aggregated by attribute(s) within an asset group. Water examples include, but are not limited to, mains classified by material (e.g. cast iron mains), by size etc, pumps by type (e.g. centrifugal pumps, axial pumps, submersible pumps, variable speed pumps). Wastewater examples include, but are not limited to, sewers classified by material (e.g. vitrified clay sewers), by size etc, secondary clarifiers within the secondary treatment of wastewater treatment works.
C	
Capitals accounting	Capitals refers to factors that an organisation can take into account when reporting on performance to provide a full picture of the way in which it creates value. For example some organisations use 'six capitals' that are financial, manufactured, intellectual, human, social and relationship, and natural. For example, some companies use 'six capitals' that are financial, manufactured, intellectual, human, social and relationship, and natural.
Carbon accounting	Carbon, or Greenhouse Gas Emissions (GHG) accounting refers to the techniques used to quantify the total carbon equivalents an organisation emits. Carbon accounting is centred on the accounting and reporting of six greenhouse gases covered by the Kyoto Protocol — carbon dioxide (CO ₂), methane (CH ₄), nitrous oxide (N ₂ O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulphur hexafluoride (SF ₆). Carbon accounting can generally be split into two main types: 'physical' carbon accounting, and 'financial' carbon accounting. 'Physical' carbon accounting is focused on measuring physical amounts of greenhouse gas emissions emitted to the atmosphere. A variety of voluntary standards have been developed to guide governmental and organisational reporting

Term	Definition
	<p>and action in the area of GHG emissions, most notably the GHG protocol guidance publications and ISO 14064. ‘Financial’ carbon accounting is focused on according carbon a financial market value to allow the creation and trading of carbon credits to further drive a reduction in GHG emissions.</p> <p>As a result, carbon accounting plays a key role in helping governments, organisations, and individuals, to understand how their actions lead to the emissions of GHGs, and how they can take action to reduce their emissions of GHGs.</p>
Consequence of Failure	<p>The impact of service failure or asset failure on the organisation, its stakeholders, customers, the environment and wider society. The impacts can include, but are not limited to, financial, service, reputational, health and safety, legal, social, psychological, political and environmental impacts.</p> <p>Note 1: In some cases, the consequences of failure can be monetised to allow comparison.</p>
Corrective action 	<p>Action to eliminate the cause of a nonconformity and to prevent recurrence.</p> <p>Note 1: In the case of other undesirable outcomes, action is necessary to minimise or eliminate the causes and to reduce the impact or prevent recurrence. Such actions fall outside the concept of corrective action in the sense of this definition.</p>
Critical asset 	<p>An asset having potential to significantly impact on the achievement of the organisation’s objectives.</p> <p>Note 1: Assets can be safety-critical, environment-critical or performance-critical and can relate to legal, regulatory or statutory requirements.</p> <p>Note 2: Critical assets can refer to those assets necessary to provide services to critical customers.</p> <p>Note 3: Asset systems can be distinguished as being critical in a similar manner to individual assets.</p>
D	
Data	Data is characteristics, facts or information collected through observations and / or measurement. Data can be qualitative or quantitative. Data, when examined, is often used to find out things or make decisions.
E	
Ecosystems services	The outputs, conditions, and / or processes of natural systems that can be harnessed to directly or indirectly benefit humans or enhance social welfare.
F	

Term	Definition
FMECA	A step-by-step approach for identifying potential failures of an asset, or process, and analysing the consequences of the failures.
H	
Hazard	A source or a situation with the potential for harm or an adverse effect on, for example, people's health or livelihoods, an organisation's property or finances, or the environment.
I	
Incident	Unplanned event or occurrence resulting in damage or other loss. Note 1: This can also result in increased risk and can include loss of performance or loss of service.
Intervention	An action or actions directed to an existing or developing problem, issue, or difficult situation, to improve it or to prevent it from getting worse.
L	
Lagging indicator	An indicator that is based on past performance data. Lagging indicators may be used as a backward looking predictor of future performance. Examples of lagging indicators include supply interruptions, unplanned outage and leakage.
Leading indicator	A forward looking indicator that is specifically a predictor of future performance. Examples of leading indicators include the resilience common performance commitments at PR19.
Level of service	Parameters, or combination of parameters, which reflect social, political, environmental and economic outcomes that the organisation delivers. Note 1: The parameters can include safety, customer satisfaction, quality, quantity, capacity, reliability, responsiveness, environmental acceptability, cost and availability.
Likelihood of Failure	Probability of a failure event happening. Probability is the extent to which something is likely to happen (in this case a failure event).
Line of sight	The alignment, or clear connectivity, between an organisation's strategic plans and asset management activities delivered by staff. Line of sight translates an organisation's objectives into asset management policy, strategy and objectives which cascade down into more detailed asset management plans and activities. It also requires that senior management decisions,

Term	Definition
	strategies and plans take account of bottom up, fact-based realities ie asset capabilities, performance, opportunities and constraints.
Long Term	Longer than 10 years
M	
Maintenance	Functional checks, servicing, repairing or replacing of necessary devices, equipment, machinery, building infrastructure, and supporting utilities.
Measure	A standard unit or scale of units used to express the size, amount, or degree of something. This can include direct measures of asset health such as asset health metrics and performance.
Medium term	Between 1 and 10 years.
Monitoring ●	<p>Determining the status of a system, a process or an activity.</p> <p>Note 1: To determine the status, there may be a need to check, supervise or critically observe.</p> <p>Note 2: For the purposes of asset management, monitoring may also refer to determining the status of an asset. This is typically referred to as 'condition monitoring' or 'performance monitoring.'</p>
N	
Natural capital	Natural capital refers to the elements of nature that produce value or benefits to people (directly and indirectly), such as the stock of forests, rivers, land, minerals and oceans, as well as the natural processes and functions that underpin their operation.
Nature-based solutions	<p>Nature-based solutions (NBS) are solutions that are inspired and supported by nature, solving problems in a cost-effective way while simultaneously providing environmental, social and economic benefits, as well as helping to build resilience. NBS often replicate natural ecosystems and deliver some of the ecosystems services they would provide.</p> <p>NBS provide a strong platform for new and innovative governance, delivery and funding partnerships and arrangements. This includes leveraging multiple private and public funding streams, such that costs are shared more widely by those who benefit, not just by water company customers.</p>
Near miss	An unplanned event or incident that has the potential to cause, but does not actually result in human injury, environmental or equipment damage, or an interruption to normal operation. A near miss provides an opportunity to improve business processes and reduce the risk of a more serious event or incident occurring in the future.
Nonconformity ●	Non-fulfilment of a requirement.

Term	Definition
	Note 1: Nonconformity can be any deviation from asset management system requirements, or from relevant work standards, practices, procedures, legal requirements, etc.
O	
Operational resilience	The ability of an organisation's infrastructure, and the skills which run that infrastructure, to avoid, cope with and recover from, disruption in its performance.
Optimise	Achieve through a quantitative or qualitative method, as appropriate, the best value between factors such as performance, costs and retained risk within any constraints.
Optioneering	The process of evaluating different options to solve a specific problem.
Outcomes	The overall result, or effect, of an action or series of actions.
P	
Performance ●	<p>Measureable result.</p> <p>Note 1: Performance can relate either to quantitative or qualitative findings.</p> <p>Note 2: Performance can relate to the management of activities, processes, products (including services), systems or organisations.</p> <p>Note 3: For the purposes of asset management, performance can relate to assets in their ability to fulfil requirements or objectives.</p>
Preventive action ●	<p>Action to reduce or mitigate the risk of a potential failure, non-conformity or other undesirable potential situation.</p> <p>Note 1: This definition is specific to asset management activities only.</p> <p>Note 2: There can be more than one cause for a potential nonconformity.</p> <p>Note 3: Preventive action is taken to prevent occurrence and to preserve an asset's function, whereas corrective action is taken to prevent recurrence.</p> <p>Note 4: Preventive action is normally carried out while the asset is functionally available and operable or prior to the initiation of functional failure.</p> <p>Note 5: Preventive action includes the replenishment of consumables where the consumption is a functional requirement.</p>
Process ●	Set of interrelated or interacting activities which transforms inputs into outputs.
Public value	This means companies looking for ways to deliver social value through conducting their core activities differently. Examples include using nature-based solutions rather than hard infrastructure in water and wastewater treatment processes; or

Term	Definition
	<p>deciding to locate training facilities in deprived communities to stimulate local economic development. Features of a company working with a strong public purpose might include the following.</p> <ul style="list-style-type: none"> • Every part of the business and every business decision is seen as an opportunity to add value to society. Over time, there is a sustained culture and mind-set shift that stretches from boardroom to frontline employees. • The company strives to find win-win solutions that are lower or equivalent cost to traditional methods, but that deliver greater public benefits. The company places a stronger focus on the long-term business case; uses partnerships to bring in new sources of funds and expertise; and forms commercial arrangements with landowners, local government, businesses and others. • The company aims to go beyond the standards and norms set by regulators where this is the right thing to do. It is proactive in engaging with regulators and policy makers to highlight and help remove regulatory barriers. <p>A commitment to public purpose goes beyond bolting together existing corporate social responsibility activities or pursuing initiatives without a deep understanding of communities' needs. A commitment to social purpose cannot compensate for shortcomings in the delivery of safe, resilient and affordable water and wastewater services and responsible corporate practices. It is essential that companies do not undertake activities that could significantly distract the board, management and staff from delivering core services to customers.</p>
R	
Residual risk	Residual risk is the amount of risk that remains after controls and / or mitigations have been implemented.
Resilience	<p>Resilience is the ability to cope with, and recover from, disruption and anticipate trends and variability in threats, in order to maintain services for and protect people and the natural environment now and in the future. Resilience applies at different levels, for example asset resilience, system resilience or portfolio resilience.</p> <p>The 4 'R's - resistance, reliability, redundancy and response and recovery are key to resilience. Resistance and reliability are important in asset resilience. For example, resistance flood protection of water treatment works and pumping stations and reliability in maintaining assets in good health, are the first line of defence against hazards that could affect customers' water services. Redundancy and response and recovery are important in system / network resilience. For example, interconnected treatment works that support each other, treated water storage, duplicated mains or tankering prevent asset failures from affecting customers' water services, either at all or by limiting the scale of the impacts or reducing the duration of their consequences.</p>
Resilience action plan	The resilience action plan is the integrating element that brings together the resilience strategy and resilience framework to define tangible plans which deliver resilient services. As a result, the outputs from the framework should inform the action plan. The action plan should be defined by specific actions that address maturity needs in line with the organisation's risk

Term	Definition
	appetite. It should also demonstrate that the framework underpins the organisation's operations and future plans, showing a line of sight between risks, planned mitigations, and the package of outcomes.
Resilience framework	A set of procedures used to analyse and / or guide the approach or techniques an organisation uses towards achieving defined resilience goals and / or objectives. Many resilience frameworks share a common objective: the creation of a diagnosis framework that assesses the resilience of water and / or wastewater systems to set targets and inform responses to improve resilience.
Resilience in the round	This links the corporate, financial and operational elements of resilience together with customers at the heart. Operational resilience is the ability of an organisation's infrastructure, and the skills which run that infrastructure, to avoid, cope with and recover from, disruption in its performance. Corporate resilience is the ability of an organisation's governance, accountability and assurance processes to help avoid, cope with and recover from, disruption of all types; and to anticipate trends and variability in its business operations. Financial resilience is an organisation's ability to avoid, cope with and recover from, disruption to its finances.
Resilience strategy	Provides a clear roadmap consisting of a set of guiding principles that define the actions people within the organisation should prioritise and undertake to achieve desired resilience objectives over a given timeframe.
Risk 	Effect of uncertainty on objectives. Note 1: An effect is a deviation from the expected — positive and / or negative. Note 2: Objectives can relate to different disciplines (such as financial, health and safety, and environmental goals) and can apply at different levels (such as strategic, organisation-wide, project, product and process). Note 3: Risk is often characterised by reference to potential 'events' (as defined in ISO Guide 73:2009, 3.5.1.3) and 'consequences' (as defined in ISO Guide 73:2009, 3.6.1.3), or a combination of these. Note 4: Risk is often expressed in terms of a combination of the consequences of an event (including changes in circumstances) and the associated 'likelihood' (ISO Guide 73:2009, 3.6.1.1) of occurrence. Note 5: Uncertainty is the state, even partial, of deficiency of information related to, understanding or knowledge of, an event, its consequence, or likelihood.
Risk assessment 	The overall process of risk identification, risk analysis and risk evaluation.
Risk management 	The co-ordinated activities to direct and control an organisation with regard to risk.
Risk tolerance 	Organisation's or stakeholder's readiness to bear the risk after risk treatment in order to achieve its objectives. Note 1 to entry: Risk tolerance can be influenced by legal or regulatory requirements.

Term	Definition
S	
Service	A system of functions that are designed and operated to supply a public need. Companies provide water and wastewater services in accordance with their licence, relevant legislation and performance commitments they have made to their customers.
Service failure	A failure of required / expected service to customers and the environment. This can be used in the same way as the consequence to customers / environment.
Serviceability	Requirement that each organisation maintains its assets (such as water and sewerage treatment works, and underground networks of water mains and sewers) to a certain standard so that it can provide reliable services to customers over the long term and protect the environment. When achieved this is called 'stable serviceability'.
Stresses	A chronic (ongoing or cyclical) natural or human-made event or phenomenon that progressively damages assets and their ability to function and provide services.
Shocks	An acute natural or human-made event or phenomenon threatening damage to assets and their ability to function and provide services.
Short Term	Less than one year.
U	
Uncertainty	Uncertainty is the state, even partial, of deficiency of information related to, understanding or knowledge of, an asset or an event, wider influence, its consequence, or likelihood.
V	
Value chain	A system that describes the full range of activities needed to create a product or service that provides value to an organisation's customers.
Value framework	Tool for assessing the value delivered by asset management activities. The concept of value usually refers to the balance between the costs and the benefits of an investment. It is commonly expressed through aspects of performance, cost and risk, which may include quantification of technical, social, economic and environmental factors.

**Ofwat (The Water Services Regulation Authority)
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