

September 2021

Asset management maturity assessment – insights and recommendations

About this document

This document sets out the cross-cutting sector insights we have gained from assessing companies' asset management maturity through a co-created self-assessment. We have identified a number of recommendations for the sector and considerations for us at Ofwat that will help to improve the sector's asset management maturity.

This document has three sections and one appendix:

- **Section one** introduces the assessment, sets out the purpose as well as a short summary of the approach.
- **Section two** covers the key cross-cutting themes identified in the analysis of companies' responses, with examples of good practice highlighted and recommendations for improvement.
- **Section three** provides an overview of the key recommendations for the sector and some more detail on next steps.
- **Appendix one** outlines the approach to development and analysis of the asset management maturity assessment and summarises sector feedback.

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Executive summary

Climate change, extreme weather conditions, flooding and other pressures will continue to impact the water sector's supplies and other critical operations. To make sure the sector's assets are resilient, companies need to plan with both the short and long-term in mind. The sector needs to make decisions through the lens of assets, now and in the future to best serve customers, the environment and society.

Securing resilient water and wastewater services is a key aspect of our strategic goals to transform companies' performance and make sure they can meet the long-term challenges the sector faces. We expect companies to understand the long-term risks to customers and the environment from asset failure and to demonstrate they are effectively managing them. The effective management of assets is vital in delivering sector-wide operational resilience. To gain insight in this area **we worked with companies to co-create an asset management maturity assessment (AMMA)**. This helped us, and the companies, to better understand how mature the processes, teams, technologies and cultures are within companies for monitoring and managing asset health and operational resilience. The AMMA developed here has built on previous asset management frameworks.¹ This cross-sector picture of asset management maturity complements our broader activity to promote operational resilience.

The co-created AMMA focuses on companies' asset management decision-making and the links between long and short-term objectives. This collaborative approach has **generated unique insights and provided cross-sector visibility of key asset management issues, challenges and good practice** across a broad range of areas. The AMMA has created opportunities for companies to identify areas where they can improve, learn from each other, share knowledge and raise the profile of asset management across a range of stakeholders. We would like to thank the sector for its extensive collaboration on the AMMA. Although some of the areas for improvement may be challenging for the sector to address, we think they are key to improving sector-wide asset health and operational resilience. We will continue to work with the sector going forward.

The aims of the AMMA were:

- to develop a shared understanding of the sector's current maturity in asset management practices and where improvement is planned;
- to help us to understand how companies manage the risk of asset failure in the short and long term;
- to help us identify sector strengths and weaknesses and consider any implications for our regulatory regime and broader work;

¹This includes the asset management assessment challenge for capital maintenance (AMA) that Ofwat used in PR09, the ISO 55000/1/2 standard series for asset management, the ISO 55000/1/2 self-assessment methodology and the Institute of Asset Management 'Anatomy'.

- to highlight good practice approaches and where further improvement may be needed, based on the evidence provided; and
- to encourage collaboration and explore how companies can progress improvements across the sector.

The AMMA covered five broad areas:

- strategy and planning;
- asset information;
- decision-making;
- risk and review; and
- organisation and people.

Companies submitted a self-assessment with accompanying evidence in response to the AMMA questions and scoring criteria. We evaluated responses from sixteen water companies.² Since our evaluation was based on self-reported capability, our results may not be fully comparable to the exact quality of asset management in each company and they do not provide any insight into the current state of their assets. The AMMA provides a window into current **asset management and decision-making approaches** used in the sector.

Insights

Across all areas of the AMMA, we saw a range of maturities in company asset management capability. Where companies had a lower level of maturity, most demonstrated that they have begun to develop relevant processes, capabilities and tools with credible plans in place to develop their maturity further. Through the AMMA, we identified a number of strengths and areas of improvement for the sector.

The areas where companies demonstrated **more mature capability** tended to be more heavily prescribed areas, influenced by regulation and compliance. These included:

- **Improving asset management capability** – Through the AMMA we saw evidence of ongoing improvement programmes across most companies. This ranged from organisational wide transformation programmes, to focused initiatives on specific aspects of asset management.
- **Contingency planning and emergency response** – Companies demonstrated contingency and emergency plans designed to maintain the provision of drinking water and sewerage services. Their responses showed clear incident management response structures and plans alongside evidence of recent and annual response exercises. The more mature companies showed how they are collaborative and adaptive in their contingency and emergency planning.

² Bristol Water chose not to respond.

- **Established strategic planning frameworks** (such as water resource management plans) – The established strategic planning frameworks were areas where companies were able to demonstrate more mature approaches to long-term resilience planning and consideration of future uncertainties.
- **Audit, compliance and need for continuous improvement** – Most companies demonstrated evidence of an auditing regime, including some companies who are externally audited in line with ISO 55000³ requirements.
- **Reporting of performance commitments and outcome delivery incentives (ODIs)** – The price control outcomes regime of performance commitments and outcome delivery incentives were integrated and embedded in how companies run their businesses. These were largely the focus of internal and external reporting and companies showed a line of sight from operational teams to the board and through most areas of planning and data gathering. The more mature companies in this area reported on, and considered, measures wider than performance commitments and included reporting of asset health trends or leading⁴ asset health indicators.

The areas that companies found harder to evidence are **highlighted for improvement**. These are summarised below.

Board oversight and engagement on risk – For most companies, reporting to and engaging with board on asset health seems to be limited to performance commitments and outcome delivery incentives. While most companies were able to provide evidence of engaging with their boards on corporate risk management and risk governance, only a minority of companies engaged with their boards specifically on asset health and operational resilience risks and mitigations.

Linkages between short, medium and long-term asset management planning and monitoring of asset health trends – A majority of companies were able to evidence that they were developing processes to link their short, medium and long-term objectives within their asset management plans. However, no companies were able to demonstrate that they consistently do this in their current approach to asset management, beyond statutory strategic planning frameworks. All companies' approaches required further development. Few companies were able to demonstrate that they looked at longer term asset health trends outside of the established performance commitment framework.

Uncertainty – Most companies were unable to demonstrate how sensitivity analysis is used to understand the potential impacts of data uncertainty. Evidence largely focused on using confidence grades to highlight how accurate the data is. While some companies did evidence qualitative considerations of the impact that individual future trends will have on their

³ The ISO 55000 series provides terminology, requirements and guidance for effective asset management and comprises three standards. ISO 55001 consists of overview, principles and terminology. ISO 55001 details the requirements for the establishment, implementation, maintenance and improvement of an asset management system. ISO 55002 provides guidelines on the application of an asset management system in accordance with the requirements of ISO 55001.

⁴ Leading measures are used to predict trends and lagging measures are used to measure past performance.

business and assets, few considered the quantitative impact, especially outside of established planning frameworks.

Data and information strategy – In some cases, companies were not able to clearly articulate, as part of their asset information strategy and asset information standards, how they use asset information in decision-making. Many companies had plans to improve data quality and collection methods as they recognised that high quality data and information is a critical factor in effective decision-making. Most companies demonstrated they use quality assurance processes, but the coverage and robustness of these processes was highly variable across the sector.

Skills and capability – Few companies provided evidence of a systematic focus on specific skills related to asset management, asset health and/or operational resilience. This was reflected in lower maturity scores across the sector. In addition, many companies struggled to evidence that future skills and competency requirements in this area had been accounted for in planning.

Wider value and benefits realisation – Most companies provided limited evidence that their value frameworks used for decision-making included wider social and environmental aspects (for example, biodiversity and human wellbeing). However, most companies stated that they are planning to improve their approach in this area. On benefits realisation, most companies did not show that they can systematically assess whether their delivered interventions provide the performance change expected in their planning.

Recommendations

The AMMA has concluded with an overarching recommendation for the sector, along with six targeted recommendations that flow from the areas for improvement outlined above (see Table 1 below), which we expect companies to consider and act on. These provide points for companies and the sector to reflect on in order to improve asset management maturity. The full list of suggested improvements can be found in section three.

Table 1: Recommendations for companies

Overarching recommendation
We expect all companies to reflect on the AMMA’s findings and identify appropriate steps to improve their asset management capabilities. Where we have outlined common areas for improvement in this report we expect companies to work together to improve asset management maturity across the sector.
Recommendation #1
Companies should improve their approaches to risk management by ensuring boards have clear oversight and understanding of current and future asset health risks and of the plans to mitigate these.
Recommendation #2
Companies should improve their approaches to long-term planning, ensuring alignment between short, medium and long-term objectives in their strategies and plans.

Recommendation #3
Companies should systematically identify and consider uncertainty in all areas of asset management, from strategic asset planning to data quality management.
Recommendation #4
Companies should develop a strategic approach to data and information management that takes into account the ability to share data.
Recommendation #5
Companies should make sure that employee competencies and skills are appropriately considered to plan and manage their assets efficiently now and in the future.
Recommendation #6
Companies should systematically consider wider aspects of social and environmental value in decision-making and monitor whether delivered interventions provide the benefits expected in their planning.

We are considering whether any of these recommendations need to be reinforced through our regulatory framework and have included some specific areas for us to consider further in Table 2. We are also considering additional steps we could take to engage with individual companies and the sector as a whole to monitor ongoing progress and ensure that findings from this assessment lead to improvements.

As a first step, we will engage with companies on their individual strengths and areas for improvement. We will organise a follow up workshop in early 2022 to provide a forum for companies to share updates on progress against the recommendations set out in this report. Additionally, we would like companies to proactively engage with us on the approaches they are taking to make improvements and ways in which we can support these efforts. We are pleased to hear the AMMA has prompted the creation of a water only companies’ working group to discuss approaches to improve asset management maturity in a resource-efficient way.

In the New Year we will set out further details on the way we intend to take forward this work.

Table 2: Considerations for Ofwat

Consideration #1
Consider how to reinforce the expectation that company boards should reflect on asset health and resilience.
Consideration #2
Consider whether we should do more to monitor companies' asset health and operational resilience and, as part of this, require reporting and publication of information. This could include information on asset management maturity.
Consideration #3
Consider how companies should evidence their approaches to long-term asset planning as part of our wider work, including through the next price review, to support and incentivise long-term planning and delivery.

We intend to continue collaborating with the sector to act on the findings in this report and make sure that, together, we make the improvements needed.

1. Purpose

Securing resilient water and wastewater services is a key aspect of our strategic goals to transform companies' performance and make sure they can meet the long-term challenges the sector faces. The health of companies' assets is a crucial element of achieving resilience in the water and wastewater sector in England and Wales. Poor asset health can adversely impact on the service to customers and the environment.

Resilience is one of our primary duties and central to all of our other primary duties. It is a priority in the strategic policy statements of both UK and Welsh Governments, as well as being central to how water companies fulfil their statutory obligations. It is a shared goal to maintain services for customers and protect the natural environment now and in the future. This is crucial to maintaining the trust of customers and legitimacy of the water sector.

Resilience was one of the four key themes of PR19. Following our initial assessment of plans we asked companies to develop specific resilience action plans to demonstrate that tangible measures were in place to implement and improve their resilience frameworks.

In our strategy '[Time to act, together](#)', we committed to strengthen the industry's approach to achieving long-term operational resilience in its assets. Water and wastewater strategic planning frameworks give us some insight into planning for future resilience challenges. However, they do not cover all aspects needed to deliver long-term resilience, including asset health and the role of asset management planning. We are keen to develop a greater understanding of how companies are approaching these asset-related aspects of resilience.

As such, in our [forward programme 2021-22](#), we signalled a focus on improving the sector's approach to asset resilience including through an asset management maturity assessment and highlighting areas of good practice. This included gaining a better understanding of how companies predict the impact and manage risks to services arising from challenges such as climate change and population growth.

Assessing companies' asset management maturity or capability helps us to understand the extent to which companies can effectively manage the risk of asset failure in the short and long term. Sharing good practice between companies will advance the sector's approach to delivering improved asset health and operational resilience and enable continuous improvement in this area. Understanding the areas of strength and areas in need of improvement will help us to consider any changes we may need to make to our regulatory regime and implications for different areas of our broader work.

We designed the assessment management maturity assessment (AMMA) collaboratively with the water sector and maintained this collaborative approach throughout our evaluation process. Representatives from companies were crucial to creating the format and content of

the AMMA. One-to-one discussions with individual companies were important for the evaluation process and workshops were used to discuss findings and consider next steps.

This work has given us valuable insight into companies' asset management practices and capabilities. We understand that asset management capability is not a static picture and that companies should be, and are, continuously improving in this area. We note that many companies are in the middle of projects and programmes to transform their approaches to asset management. The findings from the AMMA have resulted in a number of recommendations for the sector and considerations for us at Ofwat. We intend to continue working with the sector to act on the findings of this report and make sure that improvements are made where needed.

2. Insights

This section of the report provides an overview of the sector-wide insights gathered through the AMMA. It covers common, cross cutting strengths and areas for improvement based on the information provided by companies in their self-assessments. In addition, we provide an overview of asset management maturity at a sector level. Where possible we have highlighted good practice examples and initiatives, particularly in common areas for improvement. These examples are not intended to be comprehensive or address all of the issues outlined, but are included here (and were discussed at the sector workshop in June 2021) to help facilitate information sharing and collaboration between companies and improve asset management maturity across the sector.

2.1 Overview

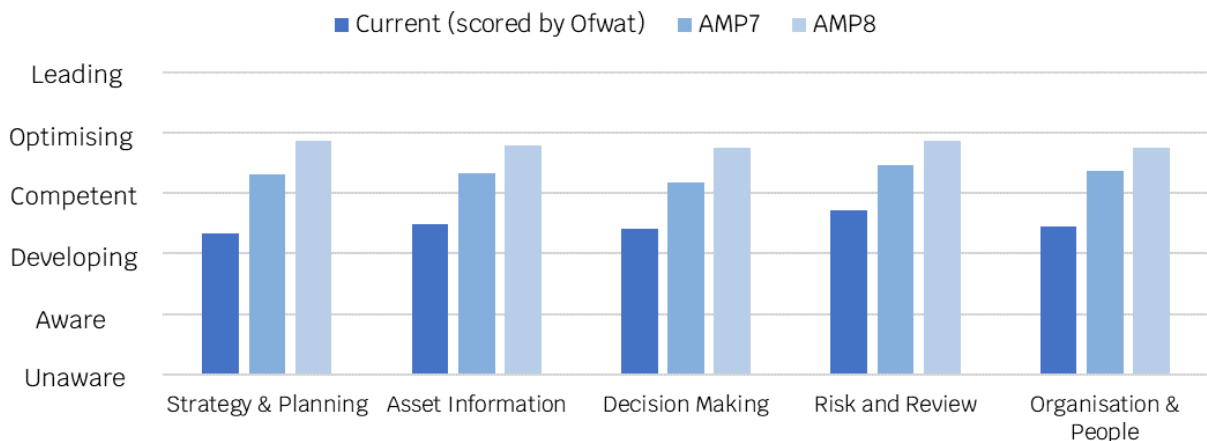
This report focuses on the cross-sector insights gained from the AMMA. We assessed the evidence companies provided against the criteria outlined in the guidelines co-created with the sector. In Figure 1 below we have summarised the average asset management maturity of the sector over time based on our moderated scores and companies' future projections of where they think they will be (further detail on our approach is discussed in Appendix 1).

While there was variation in maturity across the different areas and questions we assessed and between companies, on average, companies demonstrated that they are currently at a 'developing'⁵ level of maturity. This means that, on average, they have begun to develop processes, capabilities and tools across the five areas we focused on through the AMMA with credible and resourced plans in place. However, these plans may not yet be fully realised or embedded within the company. At a more granular level we have identified several, sector-wide, cross cutting strengths and areas for improvement. These areas are explored further below.

Companies also provided proposed improvement plans for 2020-25. Longer-term improvement plans for 2025-30 and beyond appeared to be less developed with smaller increases in maturity planned. These improvement plans will provide a useful reference point for any future asset management assessments, such as any potential follow up AMMA.

⁵ see Appendix 1 for a description of this term and for further details of the maturity criteria.

Figure 1: Projected improvements to asset management over time



2.2 Areas of strength

We discuss several sector-wide areas of strength in the section below, highlighting examples of good practice.

2.2.1 Improving asset management capability

Through the AMMA we saw evidence of ongoing improvement programmes across most companies. These ranged from organisational wide transformation programmes, to focused initiatives on specific aspects of asset management.

Findings

Many companies discussed ongoing improvement programmes as part of their AMMA submissions. These ranged from organisational wide transformation programmes to focused initiatives on specific aspects of asset management. When considered together, this suggests a resolve and commitment by companies to improve asset management as a sector. This is a positive finding that will support companies in improving value to customers, stakeholders and the environment both now and in the longer term.

Several companies discussed plans to create, review, update and improve key building blocks of asset management ranging from developing and updating strategic asset management plans (SAMPs) through to embedding and delivering key IT related enablers. In addition, there appeared to be significant ongoing activity to improve the methods of data collection to increase data quality, including adopting mobile data capture apps and remote data collection.

Most companies provided evidence of having an asset management policy in place, which is maintained and has been signed off by their executive or board. In several instances this policy could be traced through to plans, activities and objectives.

Some companies demonstrated a clear breakdown of roles and responsibilities for asset health and operational resilience, from operational to board level. In some cases this was accompanied by role profiles and processes for assessing individual performance.

Good practice example

Dŵr Cymru showed us strong ownership at the top and **communicated the asset management policy across the business** with all staff obliged to read and sign that they have read and understood it. Dŵr Cymru provided useful visual representations of their asset management system alongside a clear strategic asset management plan (or SAMP).

2.2.2 Contingency planning and emergency response⁶

Companies demonstrated contingency and emergency plans designed to maintain the provision of drinking water and sewerage services. Their responses demonstrated clear incident management response structures and plans, as well as evidence of recent and annual exercises. The more mature companies showed how they are collaborative and adaptive in their contingency planning and emergency response.

Findings

Evidence provided by companies as part of the assessment suggested that there has been significant activity since Ofwat published the '[Out in the Cold](#)' review in 2018, which looked at the freeze/thaw event in early 2018. Companies were able to articulate their approaches to developing and maintaining contingency and emergency plans to make sure the provision of drinking water and sewerage services. They set out clear incident management response structures and plans, and detailed both their recent and annual exercise programmes. Most companies showed processes for capturing lessons learnt and tracking actions. Most companies also provided details of their incident management training and their engagement with Local Resilience Forums (LRF), Category 1 and 2 responders and other water companies. The more mature companies were able to demonstrate a collaborative and adaptive approach to their contingency and emergency planning. For example, working with

⁶ Q2.8

LRFs and using the Joint Emergency Service Interoperability Principles to develop contingency plans or refreshing their plans to take account of social distancing during Covid-19 and using real-time information and monitoring systems to identify and manage the issues.

However, we consider that there is still more companies can do in taking a more proactive approach to incidents and recovery from asset failures. Sensor technologies, automation and machine learning create opportunities for smarter systems that could provide early warnings or predict likely high impact events. Companies should continue to innovate and plan in this area so that they can establish adaptive plans, with clearly identified trigger points. This enables timely decision-making and interventions to: effectively mitigate the impacts of shocks and stresses; maintain service to customers; and protect the environment.

2.2.3 Established strategic planning frameworks⁷

Companies demonstrated more mature approaches to long-term resilience planning and consideration of future uncertainties through established strategic planning frameworks.

Findings

Many companies cited strategic planning frameworks, in particular water resource management plans (WRMPs), as examples of where they were applying good practice to long-term resilience planning. This included the consideration of uncertainty of future trends in planning, the consideration of multiple scenarios and the development of adaptive plans. In the company workshop, companies recognised that these principles, and related good practice, could and should be adopted for resilience planning more broadly. Although at a company level these approaches are relatively mature, further work is needed to develop effective integrated regional planning in this area. We recognise that regional plans are being developed by companies and other stakeholders, and we continue to contribute to this process. At a company level further work is required to integrate established long-term strategic planning frameworks into company business plans and to make sure business plans are adaptable and implemented effectively. We remain concerned that in some cases interventions identified through strategic planning frameworks, such as WRMPs, are not being delivered in full and the plans are effectively being 'reset' in each round of planning.

⁷ Q1.2, Q1.6 and Q1.7

2.2.4 Audit, compliance and need for continuous improvement⁸

Most companies demonstrated evidence of an auditing regime, including some companies who are externally audited in line with ISO 55000⁹ requirements.

Findings

Most companies were able to demonstrate evidence of internal and/or external auditing regimes of their asset management system or processes. Some companies were externally audited in line with ISO 55000/1/2 requirements.

Most company responses recognised the need to audit, review and continually improve their asset management system. The way in which these activities were carried out varied. More mature companies, with strongly embedded asset management systems, were usually able to provide evidence of a wide range of activities from external reviews to internal audits and checks. In less mature companies activities were usually less extensive and focussed on risk and audit committee and board activities.

More mature companies documented findings and non-conformances from their internal and external audits and tracked their improvement activities to completion. Some companies utilised corporate systems to manage actions, track progress and analyse root cause of non-conformances. In addition, a few companies integrated their asset management system with their wider integrated management system (IMS) including the auditing and continuous improvement activities.

Good practice example

Yorkshire Water has combined their Asset Management, Quality Management, Environmental Management and H&S management into a **single Integrated Management System (IMS)**. The IMS is managed as part of the company's integrated audit approach. This involves recording all findings on a single platform where actions can be raised and trend analysis to support continual improvement can be undertaken. This represents good practice in the management of audit and continual improvement activities.

⁸ Q1.3, Q4.3 and Q4.5

⁹ The ISO 55000 series provides terminology, requirements and guidance for effective asset management and comprises three standards. ISO 55001 consists of overview, principles and terminology. ISO 55001 details the requirements for the establishment, implementation, maintenance and improvement of an asset management system. ISO 55002 provides guidelines on the application of an asset management system in accordance with the requirements of ISO 55001.

2.2.5 Reporting of performance commitments and outcome delivery incentives¹⁰

The price review outcomes regime of performance commitments and outcome delivery incentives were integrated and embedded in how companies run their businesses. These were largely the focus of internal and external reporting and companies showed a line of sight from operational teams to the board and through to planning and data gathering.

Findings

Reporting progress on plans to stakeholders was, overall, a strong area for companies. Almost all companies showed well established plans for internal and external reporting that went beyond mandated requirements. Companies were able to demonstrate that they review and update their reporting methods to better engage with different stakeholders.

Monitoring the effectiveness of asset management plans, however, was generally limited to monitoring performance using the performance commitment framework.

For most companies, their internal and external reporting focused on the performance commitments and outcome delivery incentives within the sector's price review regime. There appeared to be widespread awareness throughout companies, including at board level, of delivery against these performance commitments through monthly reports, newsletters, dashboards and leadership briefings.

Internally, the more mature companies in this area reported on measures wider than performance commitments and included reporting of asset health trends or leading asset health indicators.¹¹

Leading metrics were beginning to be developed and used for reporting across the sector, although these were mostly modelled and expressed as a prefix to existing service metrics (such as 'risk of <service failure>'), including the PR19 resilience measures.

¹⁰ Q5.4

¹¹ Leading measures are used to predict trends and lagging measures are used to measure past performance.

Good practice example

South West Water has introduced a **standardised approach to forecasting ODI performance** within their online performance scorecard and reporting tool, using a forecasting model called SARIMA (Seasonally Adjusted Auto-Regressive Integrated Moving Average), which combines two forecasting algorithms. This allows South West Water to run an automated forecast each month based on the latest performance data and without the need for detailed deterioration/performance modelling updates.

2.3 Areas for improvement

As well as cross-sector strengths, we also identified several areas of improvement where we found gaps across the sector in the evidence provided. Some of these areas are already recognised by the sector and improvements are being developed; but for others, further work is needed by the sector. For each area, we set expectations and provide examples of good practice.

2.3.1 Board oversight and engagement on risks¹²

For most companies, reporting to and engaging with board on asset health seems to be limited to performance commitments and outcome delivery incentives. While most companies were able to provide evidence of engaging with their boards on corporate risk management and risk governance, only a minority of companies engaged with their boards specifically on asset health and operational resilience risks and mitigations.

Findings

Only a minority of companies stated that they engaged with their boards specifically on asset health and operational resilience. A number of companies told us that their boards and executive teams undertake ‘deep dives’ on various risk related topics including asset health, operational resilience and cyber security. A small number of companies reported information to the board on asset health trends. In most cases, reporting to board on asset health and asset management was limited to performance commitments and outcome delivery incentives, with limited scrutiny of any wider current or future risks to asset health or operational resilience.

¹² Q3.1, Q3.2, Q3.3, Q3.7, Q4.2, Q4.3, Q5.1, Q5.3, Q5.4

At the sector workshop in June 2021, companies commented that asset health and performance are often interlinked with other information reported to board and so are not covered as standalone topics. For example, performance commitment and health and safety reporting may include elements of asset health. Based on the information provided in the AMMA, boards do not appear to be asking for more detailed regular reporting on asset health and performance. Given the importance of asset health in delivering companies' operational resilience, we think this should be considered as a more explicit topic for board engagement.

From the AMMA responses and discussions in the June sector workshop, we found that some companies and their boards did not appear to understand whether their overall system of asset health was steady, improving, or declining potentially because there was limited consolidated reporting on internal measures of asset health beyond performance commitments. Half of companies were using internal leading or lagging asset health measures (in addition to performance commitments) but these tended not to be presented to board. Only a small number of companies outlined more comprehensive coverage of asset health measures that were included in some reported elements to board. Based on the information provided, only a limited number of companies demonstrated they track trends in asset health at a strategic level within their organisations.

Risk management processes within companies offer the potential for an effective way to raise asset health risks with the board and risk/audit committees. In general, more mature companies were able to provide evidence of systematic risk management processes at different levels (for example: operational, tactical and strategic/corporate) within their organisations. However, we found that a majority of the corporate risk registers did not appear to comprehensively represent significant asset health risks and a third of the company risk structures did not include escalation pathways to the board.

The more mature companies had a clear line of sight from operations to the board, clear escalation processes with risk thresholds and consistent review of risk assessment. Typically, this included forums and provisions for assessment, prioritisation and escalation of risks at different levels of the organisation. Many companies were able to provide a summary of this in the form of a flow chart, showing provisions, processes, and forums for the management of risks from board to department (and in some cases operational) levels. As a part of this, most companies also recognised the importance of clear roles and responsibilities for risk management at different levels.

Connected to this, most companies demonstrated processes in place to connect risk management and decision-making, but their approaches and evidence of this varied. More mature companies have clearly distinguished paths and governance levels for feeding of risks into tactical and strategic decision-making processes. In some cases, less mature companies relied more heavily on judgement and activities of individuals to make an effective connection with decision-making processes. Companies identified that defining risk tolerance levels and applying them to investment decision-making was important. However, about a third of companies did not have clearly documented or consistent approaches to do

this and it was unclear how the board were involved in setting overall risk appetite for asset health. Further, most companies were developing their capability in this area.

Expectations

Company boards need to have visibility of current asset health risks and of longer-term asset health trends so that they can make optimal decisions that allow them to meet their statutory duties. Company boards must understand the asset health and operational resilience risks the company faces and play an active role in determining the appetite for strategic or significant risks, taking into account their statutory obligations and the views of customers and stakeholders.

We expect companies to be regularly reporting on asset health risks and trends to their board. Reflecting the importance of asset health in fulfilling their statutory obligations, companies should go beyond reporting solely on price review performance commitments and outcome delivery incentives. The process to monitor asset health risks and trends will vary between companies but may include monthly board reports of asset health measures, dashboards and deep dives. In addition, we expect companies to have robust risk management and governance processes with clear risk escalation pathways, from operations to board, allowing significant asset health risks to be raised on corporate risk registers and to be actively managed at board level.

Good practice examples

United Utilities uses strategic deterioration models to give a longer-term view of the expected residual service life of an asset to the next major intervention, using Base Asset Health indicators **in addition to performance commitment / outcome delivery incentive performance**. Severn Trent Water also uses their asset health measurement of Overall Equipment Effectiveness (OEE) to provide insight at a strategic level within the organisation. Both approaches provide a line of sight up to the company boards on asset health.

Anglian Water, Thames Water, SES Water, South East Water and South West Water stated that board or executive user groups are used to conduct **'deep dives'** into selected risk topics including asset health and resilience key issues.

SES Water nominated an independent non-executive director (iNED) to be a **'first amongst equals'** on issues associated with asset operation, investment and resilience. Additional time is spent with this iNED to make sure they are comfortable with the messages and information being taken to the full board.

United Utilities' 'myRisk' tool **captures, assesses and escalates operational risks**. It provides a common approach for capture and assessment of risks across a range of

financial and non-financial drivers. The tool is integrated with the company's Risk and Asset Planning (RAP) process, allowing risks to be identified and managed locally or escalated to the appropriate level.

2.3.2 Linkages between short, medium and long-term asset management planning and monitoring of asset health trends¹³

Most companies were able to show that they were developing processes to link their short, medium and long-term objectives within their asset management plans. However, no companies were able to demonstrate that they consistently do this in their current approach to asset management, beyond statutory strategic planning frameworks. All companies' approaches required further development. Few companies were able to demonstrate that they looked at longer term asset health trends outside of the established performance commitment framework.

Findings

Water companies' planning activities predominantly focused on the five-year regulatory cycle. Few companies were able to evidence the links between their strategic direction statements/long-term strategies, their medium-term five-year plans (with the exception of strategic planning frameworks like WRMPs and DWMPs) and their in-period planning. A small number of companies provided asset management strategies that translated organisational objectives into medium-term five-year plans and day to day decision-making. They were therefore able to convey the links between short-term needs and long-term objectives.

At the sector workshop in June 2021, some companies suggested that, as base cost allowances are set using econometric models and companies are not asked to evidence what they are investing in relating to asset health, there is less impetus for them to develop bottom-up asset management strategies or plans. However, we found through the AMMA that the more mature companies have comprehensive bottom-up asset management strategies or plans that consider asset health, outside the strategic planning frameworks.

Only a limited number of companies demonstrated using asset health measures that look at asset health trends over the longer term outside of the established performance commitment framework. Companies have said they are keen to understand their asset health better and there are a number of frameworks currently being developed by companies and industry bodies such as UK Water Industry Research (UKWIR).

¹³ Q1.4, Q1.6

Expectations

In our consultation document, [PR24 and Beyond: Creating tomorrow, together](#), we set out our expectation that companies should be planning for the long-term with the five year price reviews as staging posts within a company's longer term strategy and investment approach. Companies must be able to demonstrate a clear link between their long-term objectives and short-term needs so that these can be translated into plans to deliver optimal services for customers and the environment now and in the future.

We expect companies to consider the trends in asset health and operational resilience with appropriate links and alignment in their planning between short and long-term objectives. This linkage will help achieve coherent long-term objectives for assets, water resources, drinking water, drainage and wastewater and make medium-term business plans and day to day decisions consistent with delivering these objectives. We will consider how companies should evidence their approaches to long-term asset planning as part of our wider work, including through the next price review, to support and incentivise long-term planning and delivery.

To support long-term asset planning and decision-making, we expect companies to collect relevant leading and lagging asset health and operational resilience data. This should be done alongside improving data quality to support future investment business cases.

We also expect companies to take a more holistic, systems-based approach to evaluating the role of asset health in the operational resilience of their systems. This should support decision-making on the appropriate balance of preventative versus corrective maintenance.

Good practice examples

South West Water showed evidence that they are trying to **integrate and plan in a system-based way** using resilience plans, Drainage wastewater management plans (DWMPs), water resources management plans (WRMPs) and Water supply management plans (WSMPs). The company develops an additional WSMP to help integrate their system catchment investment plans. South West Water uses several catchment planning frameworks (WRMPs, WSMPs and DWMPs) which take a systems-based approach to catchment planning. They feed into the needs and solutions database and provide consistent evaluation of direct and indirect consequences.

Severn Trent Water showed us 'strategic design briefs' as an equivalent to an asset management strategy. These design briefs include a set of **performance objectives for assets** now and in the future, which guide their asset management plans. These form a set of operating criteria for asset base performance and operation in the future. It also uses an **asset health dashboard** to give an Overall Equipment Effectiveness (OEE) score for each

subservice area that is used to drive interventions as well as report/understand progress on managing asset health.

United Utilities and Severn Trent Water showed that they understood asset health trends over time using **overall asset health measures** of Base Asset Health and OEE. Both have developed additional asset health measures within overall indices.

2.3.3 Uncertainty¹⁴

Almost all companies provided evidence to show they qualitatively considered uncertainty in a small number of asset health trends as part of their asset policies, strategies and plans. Only two companies were able to demonstrate they considered uncertainty in the data and information on the risk of asset failure across all asset types that they used in decision-making and future planning.

Findings

At a strategic level, some companies provided evidence that they qualitatively consider the impact of key individual future trends through their strategic direction statement¹⁵ or long-term strategies. Long-term strategies varied in detail and quality. Only one company provided evidence that they quantitatively evaluated future scenarios which incorporated a wide range of potential external shocks/stresses.

Outside of established planning frameworks, such as water resources management plans, consideration of the impacts of these future trends tended to be limited to a few common stresses such as the exposure of company assets to flooding. This highlights an important gap in companies' understanding of the potential impact that a range of future trends could have on the health and performance of their assets.

Company responses suggested there was limited incorporation into asset planning of uncertainty around critical external stresses, such as climate change and demographic shifts. Where uncertainty was incorporated into asset planning, the focus was primarily on changing costs and performance for price review submissions rather than representing a broader strategic view of uncertainty. The consideration of uncertainty within asset health risks was limited to deterioration models, with only two companies stating that they are exploring how to incorporate the impacts of climate change into their deterioration models.

¹⁴ Q1.7, Q2.4 and Q2.7

¹⁵ The companies' strategic direction statements were first developed as part of the 2009 price review process to provide a 25 year context for the companies' five-year business plans.

Few companies provided information on how they assessed uncertainty relating to asset information and data in their decision-making. It was primarily done through assessing accuracy and reliability of data using confidence grades and undertaking sensitivity analysis. Elsewhere, sensitivity analysis to understand the potential impact of these uncertainties appears to be limited to cost and performance at price reviews.

Expectations

At a strategic level, we expect companies to have a qualitative and quantitative understanding of short, medium and long-term asset resilience risks arising from a wide range of future trends, such as climate change. Companies should have a sophisticated understanding of the uncertainties and potential impacts of these trends on assets, customers and environment. We expect companies to develop robust responses to these trends and their associated uncertainties through long-term strategies and through alignment with short and medium-term asset management plans. We also expect companies to develop approaches for the consideration of uncertainty in asset planning, including scenario planning and adaptive planning.

We expect companies to consider the reliability and accuracy of their data and where appropriate, undertake sensitivity analysis to determine the potential impacts of any uncertainties. As part of this we would expect companies to be putting processes in place to incorporate the potential impacts of climate change and other key trends into their deterioration models and other medium and long-term asset planning models. We also expect companies to use their assessment of the reliability and accuracy of their data and the materiality of the related risk to drive asset information improvement activities.

Good practice examples

South West Water uses a **qualitative view of future trends** through 'Our Vision 2050' as well as quantitative resilience modelling to assess vulnerabilities to shocks and stresses.

United Utilities undertook **development of strategic scenarios to use across planning activities** including ranges in expected external drivers such as demographic change, climate change, digital technology change, customer service expectations and regulatory change.

SES Water is using information from their **intelligent network to build models** that include demand patterns, dry weather and soil moisture to predict bursts and leakage.

Yorkshire Water and South West Water use a **decision-making framework that includes uncertainty** and confidence against each service impact category.

2.3.4 Data and asset information¹⁶

Half of companies identified the development of data and information strategies and the continuous improvement of asset information as important, but do not yet have a fully embedded comprehensive approach. Companies plan to improve consistency and advance their asset data collection and analysis in 2020-25.

Findings

In response to the AMMA, some companies have provided data and information strategies that identify asset data requirements for decision-making and reporting, and highlight existing gaps. Companies that were more mature in this area use a series of features to improve their data collection and analysis including: asset information strategies and asset information standards with asset information hierarchies and workflows; asset information quality measures and dashboards; data assurance groups and data steering groups. Many companies showed us that they were in the process of defining their critical and non-critical assets or using that information to inform their data collection processes.

However, there is a need for companies to develop better data and information strategies that systematically identify and target data improvements in these areas. Only a few companies provided evidence of asset information standards. Most companies demonstrated they use quality assurance processes, but the coverage and robustness of these processes was highly variable across the sector.

Most companies were able to provide evidence of reactive or piecemeal actions to review and improve asset information. However, most companies did not provide evidence that their asset information review and continuous improvement activities were proactive and systematic. Generally, companies who demonstrated greater levels of maturity in this area were able to demonstrate they have clear guidelines in place for how asset data should be maintained. Furthermore, some companies provided evidence and examples of horizon-scanning to identify new and innovative approaches to asset information collection.

Some smaller companies have expressed an interest in developing data sharing arrangements to supplement their data sets (for example, for deterioration modelling) but said that current data system formats were hindering data sharing. According to company feedback, consistent data and asset information formats and standards are needed to make sure that useable, quality data is shared. This would also help in sharing data with other stakeholders in relevant sectors such as energy and rail companies. In company discussions, companies felt that the priority is to define the value gained from data sharing, which could be done by focusing on a single area or asset group to define data collection requirements

¹⁶ Q2.1 and Q4.4

and assessing how this improved the decision-making process. They also considered that a forum, potentially through Water UK, to discuss industry wide challenges and good practice would help to improve asset data collection and information management.

Expectations

We expect all companies to use asset information standards and have an asset information strategy in place. This strategy should set out what information is required to support key decisions within asset management; how information is to be collected, analysed and evaluated; how the accuracy, reliability and completeness of asset data is to be proactively reviewed; and where gaps or inaccurate data are identified, how these gaps should be prioritised and filled. Improvements to the quality of the data collected and used to support decision-making should be a central part of this asset information strategy.

We expect the sector to adopt an 'open by default' approach to data and information management that takes into account the ability to share data. Consistent data formats and asset information standards will support greater data sharing and an open data approach. Greater sharing or opening up of good quality data will help cross-sector improvements in asset management, asset health and resilience. Further, increased data sharing on infrastructure assets is needed to drive public value.

In addition, we expect companies to respond to new threats such as those from cyber security by taking appropriate and proportionate measures to manage risks to their network and information systems and to prevent and/or minimise the impact of incidents to those systems.

Good practice example

Wessex Water created cultural change within their organisation by using **line of sight ownership to improve data quality**. It is moving from an audit-based data quality management system to team ownership of data in order to show the value of good quality data in the decision-making process. Setting clear responsibility for data has allowed quality to improve, and also given teams more confidence in using high quality data to support their decision-making processes.

2.3.5 Skills and capability¹⁷

Few companies provided evidence of a systematic focus on specific employee skills related to asset management, asset health and/or operational resilience. This was reflected in lower maturity scores across the sector. Looking ahead to the longer term, the sector predicts that this area will continue to present challenges.

Findings

From their responses to the AMMA, most companies appeared to use skill/competency frameworks. However, fewer companies focused on specific skills and competencies related to asset management, asset health and/or operational resilience, with their frameworks often focusing on behavioural or general engineering skills. In addition, many companies struggled to evidence that future asset health/operational resilience skill and competency requirements had been accounted for in planning.

Few companies demonstrated a fully coherent approach to resource forecasting and tracking and, in many instances, it appeared to be more of an ad-hoc, reactive process rather than an embedded, systematic and proactive one. Many companies demonstrated processes for drawing additional resources from the supply chain within framework agreements that outline expected levels of competency, but only provided limited evidence for how they actively monitored this. The companies felt strongly that asset management was becoming more complex, specialised and sophisticated and that this had an impact on skills gaps, resource availability, outsourcing and cost. This was particularly noted by smaller companies who felt their size put them at a disadvantage. Some other companies (both large and small) felt location also exacerbated this further.

Good practice examples

Anglian Water has led the development of specific **asset management apprenticeships**. Severn Trent Water and Hafren Dyfrdwy have also established asset management and engineering apprenticeships. These apprenticeships aim to develop specific skills profiles.

Northumbrian Water carried out a **competency assessment using the framework** from the Institute of Asset Management and has developed improvement plans based on this.

¹⁷ Q5.2

Severn Trent Water provided a **strategic workforce model** based on wider workforce trends to transform their workforce over the next 5-10 years to reflect business needs and make sure they can deliver optimal service to customers.

United Utilities demonstrated **competency frameworks tailored around specific roles** and teams, including a centrally managed competency framework for operational roles needing up-to-date qualifications to comply with statutory and mandatory requirements.

Expectations

We expect companies to make sure that their employees have the requisite skills and capability so that they can plan and manage their assets efficiently now and in the future. This includes systematically identifying current gaps in competence and resource, succession planning for future skills gaps and considering future competencies that may be required for improvement in asset management and dealing with emerging threats/opportunities.

We expect companies to consider how best to address the challenges related to asset management skills, capability and competency. This may involve the development of a competency assessment framework(s) that focuses on the specific skill needs related to asset health and operational resilience. Such framework(s) could be used to support resource and succession planning, and to systematically identify asset management needs. Elements of the Institute of Asset Management, or alternative competency framework(s), could be used.

In addition, we expect companies to future proof themselves for emerging skills requirements. For example, the future may bring a need for enhanced skills related to digital infrastructure for managing and monitoring asset health and operational resilience.

2.3.6 Wider value and benefits realisation¹⁸

A minority of companies quantitatively assessed the wider value of solutions to customers, employees, society and the environment in decision-making. Few companies systematically tracked and assessed that the benefits delivered by interventions were as anticipated in their planning.

¹⁸ Q1.5, Q3.4, Q3.5, Q3.8

Findings

Companies provided limited evidence of considering the wider social and environmental (for example, biodiversity or human wellbeing) aspects of value in decision-making beyond those impacting companies directly (for example, private costs). There is some variability in the approaches taken across the sector; some companies only include their private costs as the basis for monetising value, while a small minority apply qualitative weights in their value frameworks rather than any form of monetised value. Most of the value frameworks being used include some representation of environmental value, but there are fewer metrics within these that are explicitly associated with social valuation. Although there are some good examples of standalone evaluations being applied on a case-by-case basis, companies are generally in the process of developing and applying wider measures of value to their decision-making frameworks.

On benefits realisation, at an overall programme level, companies track the performance of their expenditure, particularly for those schemes that have a bearing on performance commitments and their associated outcome delivery incentives. However, only a few companies were able to provide sufficient evidence that they have a means of systematically assessing whether their delivered interventions provide the performance change expected in their planning, in the manner anticipated. The ability to do this is a key feature of good asset management planning and necessary to improve understanding of the associated costs and ability of solutions to deliver benefits.

Expectations

In December 2020, we published a discussion paper on public value, '[Public value in the water sector: A supporting set of principles](#)' in which we set out seven principles. One of these was that companies should seek to create further social and environmental value in the course of delivering their core services. The mechanisms used to guide activity and drive decision-making should help the delivery of social and environmental benefits that are measurable, lasting and important to customers and communities.

We expect companies to make effective decisions based on a wider understanding of the social and environmental value of asset health and operational resilience. Avoiding poor asset health and strengthening operational resilience in this way could help improve companies' service performance while maximising the value delivered to customers, society and the environment.

We expect companies to work with each other and with other stakeholders to improve consistency in how they account for environmental and social factors in their decision-making. Representing value on a common basis in value frameworks will improve decision-making, for instance, in relation to nature-based or behavioural interventions. Initiatives such as the nationwide customer valuation research¹⁹ and the value framework from UKWIR's

¹⁹ [PR24 and beyond: Reflecting customer preferences in future price reviews – a discussion paper](#)

‘Future of Asset Planning’ project will support companies to converge on a framework for value in decision-making.

On benefits realisation, we expect companies to monitor whether delivered interventions provide the performance improvement anticipated in their planning. The results of this should be fed into future asset planning. This feedback loop will help:

- to improve understanding of the efficacy of innovative interventions (such as nature-based or behavioural options) in terms of performance and costs effectiveness compared to conventional solutions;
- to understand efficiency of what was delivered against a baseline scope and level of programme variance; and
- to realise and track the long-term benefit of short-term plans.

Good practice examples

Anglian Water, South West Water and Yorkshire Water make use of a wide range of metrics that align asset and service performance across their whole asset base. They have a **systematic and consistent approach to valuation** across all asset groups, incorporating a wide variety of elements (social, environmental, statutory), and using methods to include customer views and preferences in their valuation. Their value frameworks are then deployed within well-established decision support tools and processes.

Anglian Water uses a **benefits realisation framework**, which includes an assessment of the actual benefits delivered against those set out prior to commencing delivery. The benefits are measured using its value framework. A review takes place 6-12 months after investment completion to take a view on whether benefits have been successfully delivered.

Anglian Water showed **engagement with different groups on different topics** and focus areas around both resilience and asset health. This included new ways of driving greater opportunities through digital channels such as gamification and engaging with customers on asset health and resilience throughout the development of the PR19 business plan in different forums and contexts.

3. Recommendations and next steps

Our assessment has identified a range of specific and cross-cutting areas that should help to improve the sector's asset management maturity. As not all companies have demonstrated the same levels of maturity in the same areas, there is a significant opportunity for improvement through collaboration and simply by the sharing of good practice across the sector. This is a key recommendation and we are pleased to hear that the AMMA has prompted the creation of a water only companies' working group to discuss approaches to improve asset management maturity in a resource-efficient way.

We also note that UKWIR is progressing a number of projects that touch on areas of the AMMA. However, there is further scope to share good practice and develop a more open and collaborative culture around asset management. Throughout this document we have highlighted examples with the objective of sharing good practice. Those involved in the AMMA working groups remarked on the value of collectively discussing common problems and learning from each other. There would be benefit in the sector re-convening these working groups to discuss the AMMA findings, share good practice and, in particular, to develop cross-sector approaches to the areas in need of improvement.

The AMMA has concluded with an overarching recommendation for the sector, along with six targeted recommendations that flow from the areas for improvement outlined in this report (see Table 3 below), which we expect companies to consider and act on. The recommendations and recommended actions set out below highlight areas we consider important for companies to address to improve their capability. This is not an exhaustive list of what we expect companies to do. Companies should consider and address the full set of expectations described in section 2.3 above.

We are considering whether any of these recommendations need to be reinforced through our regulatory framework and have included some specific areas for us to consider further in Table 4.

As a first step, we will engage with companies on their individual strengths and areas in need of improvement. We will organise a follow up workshop in early 2022 to provide a forum for companies to share updates on progress against the recommendations set out in this report. Additionally, we would like companies to proactively engage with us on the approaches they are taking to make improvements and ways in which we can support these efforts.

In the New Year we will set out further details on the way we intend to take forward this work.

Table 3: Recommendations and recommended actions for companies

Overarching recommendation
We expect all companies to reflect on the AMMA’s findings and identify appropriate steps to improve their asset management capabilities. Where we have outlined common areas for improvement in this report we expect companies to work together to improve asset management maturity across the sector.
Recommended actions from AMMA
To do this, companies should build on the collaboration established through the AMMA to share good practice, establish asset management working groups or draw insights from other sectors. We expect companies to develop common standards, approaches or frameworks where these could significantly improve performance across the sector.
Recommendation #1
Companies should improve their approaches to risk management by ensuring boards have clear oversight and understanding of current and future asset health risks and of the plans to mitigate these.
Recommended actions from AMMA
Companies should improve Board oversight and engagement around asset health risks by: <ul style="list-style-type: none"> • Regularly reporting on trends and considering, setting and reviewing risk tolerance levels • Implementing clear risk management escalation processes to support Board engagement
Recommendation #2
Companies should improve their approaches to long-term planning, ensuring alignment between short, medium and long-term objectives in their strategies and plans
Recommended actions from AMMA
Companies should improve their approach to long-term planning by: <ul style="list-style-type: none"> • Developing asset management strategies that consider long-term asset health trends, key drivers of change (eg climate change), relevant uncertainties and include long-term asset health outcomes. • Further developing and reporting on a comprehensive suite of leading and lagging asset health measures to monitor asset health risks and trends, as well as the long-term effectiveness of their asset management plans.
Recommendation #3
Companies should systematically identify and consider uncertainty in all areas of asset management, from strategic asset planning to data quality management.
Recommended actions from AMMA
Companies should improve how they manage uncertainty by: <ul style="list-style-type: none"> • Further developing their approaches for the consideration of uncertainty in strategies and plans • Strengthening approaches to data uncertainty including greater use of sensitivity analysis and assessing the reliability and accuracy of asset data and taking that into account when making decisions
Recommendation #4
Companies should develop a strategic approach to data and information management that takes into account the ability to share data.
Recommended actions from AMMA
Companies should improve their approach to data and information management by: <ul style="list-style-type: none"> • Developing consistent data formats and asset information standards to support greater data sharing and make data open by default. • Putting in place coherent data and information strategies that explicitly identify their data needs and gaps, and set out robust plans to address these gaps
Recommendation #5
Companies should make sure that employee competencies and skills are appropriately considered to plan and manage their assets efficiently now and in the future.
Recommended actions from AMMA
Companies should improve how they consider competencies and skills by:

- Developing competency assessment frameworks that focus on specific skills needs related to asset health and operational resilience.
- Using these frameworks to support resource and succession planning, and to systematically identify current and future asset management needs.

Recommendation #6

Companies should systematically consider wider aspects of social and environmental value in decision-making and monitor whether delivered interventions provide the benefits expected in their planning.

Recommended actions from AMMA

Companies should expand their consideration of value in decision-making by:

- Improving the consistency of their value frameworks in how they account for environmental and social factors in their decision-making, moving beyond private costs and using quantified approaches where possible.
- Systematically assessing the performance change that delivered interventions have provided against planning expectations, supported by the wider valuation of benefits mentioned above.

Table 4: Considerations for Ofwat

Consideration #1
Consider how to reinforce the expectation that company boards should reflect on asset health and resilience.
Consideration #2
Consider whether we should do more to monitor companies' asset health and operational resilience and as part of this require reporting and publication of information. This could include information on asset management maturity.
Consideration #3
Consider how companies should evidence their approaches to long-term asset planning as part of Ofwat's wider work, including through the next price review, to support and incentivise long-term planning and delivery.

A1 Detailed approach

This section describes our approach to developing and evaluating the asset management maturity assessment.

Development of the asset management maturity assessment

We collaborated with companies to develop the AMMA and we want to thank those involved for their extensive effort.

Initially, through working groups, we developed a prototype version of the AMMA and the asset management [lexicon](#) – a collection of definitions of asset management and health terms to build a shared understanding across the sector.

We established the working groups to:

- develop shared definitions of key asset health terms, which have been collated in an asset management lexicon;
- explore how best to capture information that enables a sector view of asset management maturity;
- agree the scope of topics covered in the AMMA;
- clarify the wording of the questions;
- develop the guidelines and guiding criteria for the questions; and
- agree the expectations for the levels of maturity.

We developed the AMMA with support from Arup. The AMMA consisted of five overarching questions and 33 questions divided into five sections aligned to the Institute of Asset Management document 'Asset Management – an anatomy'.^{20, 21}

Table 5: Overview of the AMMA

Section	Objective	Number of Questions
Overarching	Understand the overall strengths, areas of focus and future plans for asset management.	5
Strategy and planning	Understand how organisational objectives are translated into asset management strategy, plans and systems.	7
Asset information	Understand what asset information is collected and how it is analysed to inform decision-making. This includes the quantity	8

²⁰ 'Asset Management – an anatomy', Version 3, January 2015, Institute of Asset Management.

²¹ Lifecycle delivery is not included in the asset management maturity assessment because we take an outcomes (rather than outputs) -focused approach to regulation, and we have therefore focused on investment planning and decision-making.

	and quality of asset information collected and how gaps are identified and addressed.	
Decision-making	Understand how asset decisions are made; balancing performance, risk and cost to maximise the value realised over the lives of assets.	8
Risk and review	Understand how asset health and resilience risks are managed and what feedback and review mechanisms are in place to provide assurance that objectives are being met and how this is used to support the continual improvement of asset management activities.	5
Organisation and people	Understand the organisational structure and the roles and responsibilities involved in implementing the asset management approach. This includes customer and stakeholder engagement and the leadership and governance of decision-making.	5

For each of the 33 questions, companies were asked to assess their maturity against guiding criteria as well as provide evidence for current capability and planned capability to the end of 2020-25 and 2025-30.

Guidance was given for each question with examples of the areas that should be covered in the company response. We outlined guiding criteria for what each maturity level should look like for each question. The guiding criteria were developed in collaboration with companies. The AMMA maturity scale included six levels from 'unaware' to 'leading'. Table 6 below provides general principles for each maturity level.

Table 6: AMMA maturity scale

Maturity scale	Description
Unaware	The organisation does not currently have any relevant processes in place and is unable to demonstrate an understanding of the issue.
Aware	The organisation is aware of the need to have processes in place and has set out a plan or process to consider this aspect across their activities. There is evidence of intent to progress this plan.
Developing	The organisation has begun to develop processes, but they are not fully embedded or realised. The organisation has identified the means of systematically and consistently defining the issue and identified what needs to be monitored. There is evidence of this being progressed with credible and resourced plans in place.
Competent	The organisation has a fully articulated process in place. The organisation can demonstrate it has an embedded understanding of the issue and established processes for monitoring across all activities.
Optimising	The organisation has executed the processes that it has in place consistently over several years. The processes are repeated, measured, evaluated and continuously improved to meet current and projected business goals.
Leading	The organisation can demonstrate innovative and leading practice in this area of asset management. If the company selects this level of maturity, it is expected that they will provide details of the innovation and the benefits it brings customers, the company and the environment. The company can share examples of best practice.

The principal aim of the AMMA was to help us and the companies to better understand how mature their processes, teams, technologies and cultures were for monitoring and managing

asset health and operational resilience. We did not intend for the AMMA to tell us about the current state of company assets, how much companies are investing in their assets (or have invested in the past), or whether companies are holding excessively high levels of risk to their consumers from their assets.

Analysis approach

The analysis of companies' asset management maturity was based on the information provided in the companies' AMMA submission, follow-up meetings and any supporting evidence the companies provided.²² We also held a sector workshop in June 2021 where we discussed emerging key themes and to what extent companies recognised these themes. This led to some co-creation of recommended actions based on the insights from the AMMA.

Sector's response to the asset management maturity assessment

We asked companies for feedback on the AMMA via an online survey and in the follow-up meetings after their AMMA submission. The majority of companies that responded to the AMMA said that it helped their organisation to understand their strengths and areas for improvement in asset health and operational resilience. Companies said the AMMA helped them consolidate, prioritise or further develop their improvement plans and make sure they were aligned with industry priorities. It also helped them to raise the profile of asset management within their organisation.

All but one company thought that the AMMA enabled their organisations to communicate their strengths and areas for improvement in asset health and operational resilience to Ofwat. All companies who participated considered that the collaborative approach to developing the AMMA was positive. Feedback from companies raised the benefit in improving cross-company dialogue including the development of a water only company asset management working group.

In terms of the usability of the AMMA, companies fed back that the structure and format of the qualitative element of the assessment was effective, with the guiding criteria helpful in understanding how to self-assess maturity. Companies also commented that the AMMA was comprehensive, covering all relevant topics relating to asset management capability.

Overall, companies recognised the need to raise asset management and asset health up the agenda. However, some were concerned about how the information gathered through the AMMA would be used.

²² We did not receive an AMMA response from Bristol Water and so they were not included in the assessment.

Company feedback on the AMMA

“Completion of the maturity assessment framework facilitated more detailed discussion between strategic and operational departments, providing the opportunity to reflect on capability across end-to-end asset management cycle. It allowed us to collate evidence of our approach and good practice specifically in relation to asset health and resilience and where improvements could be made.”

“The maturity assessment was useful to confirm that the direction of travel that [the company] is headed in in relation to asset management is in line with the wider industry and that of OFWAT. The feedback when available will be useful in identifying further areas for improvement.”

“This engagement has had benefits in a number of areas, it has allowed us to reflect on our current strengths and weaknesses and highlighted to us the significant improvements that have been delivered over recent years through our focus on applied systems thinking and our asset management approach. The assessment has also given us the opportunity to consolidate information on our asset management maturity into one place, allowing reflection and focus on areas where we could be doing even more to optimise our approach. It has also helped us to ensure that our internal asset management improvement activities continue to be well aligned with wider industry priorities.”

“It has given us clarity on the expectations on competent asset management maturity It has also helped us consolidate and prioritise certain activities.”

“It has helped us on our journey towards ISO550001 accreditation. It has been useful to collate and structure our processes against the sections in the maturity assessment. We also found it useful to centralise all of our improvement plans for AMP8/9 against these sections.”

“This exercise has heightened the role of Asset Management in the Business, with CEO involvement in this process.”

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