

Anglian Water 14B. ANGLIAN WATER PR19 RESILIENCE ASSESSMENT UPDATE



Anglian Water PR19 Resilience Assessment update

Version 4 | ISSUE
21st August 2018



ARUP

love every drop
anglianwater 

Contents

1. Introduction	p3
2. Towards a definition of resilience	p4
3. Our resilience framework and approach	p6
4. Maturity assessment	p11
5. Conclusions and next steps	p52

1. Introduction

Purpose

This document is an update to the original assessment report completed in December 2017. This report has been produced to act as an independent review of Anglian Water's current and planned activities, and how these relate to the current understanding of resilience – with particular reference to Ofwat's recent guidance on 'resilience in the round'.

The findings are intended to help to inform the company's resilience plans for the benefit of its customers.

The update has been updated at this time in order to support and provide evidence to support Anglian Water's PR19 business plan submission.

Background and approach

The original assessment was undertaken between the end of August and mid-October 2017, and supported by a resilience steering group, comprising key individuals from within Anglian Water, who provided input and feedback throughout the process.

Since our original review, Anglian Water has been working on its implementation strategy to determine what will be in its PR19 Business Plan, based on a range of technical, commercial and customer performance criteria. Our original 2017 report

was developed in order to inform the development of the business plan. This update takes into account additional information provided by Anglian Water in June-August 2018 as PR19 plans were being finalised.

This updated assessment has been based on five key sources of information:

- 1) A meeting with senior representatives from IT, finance, business continuity and wastewater services
- 2) A review of information collated by the business resilience manager relating to each of the sub-themes
- 3) Publicly available reports, such as the Strategic Direction Statement (SDS), the Annual Reports etc.
- 4) Meetings with the executive Director for Growth and Resilience and other senior representatives
- 5) Additional information provided by Anglian Water.

Since the original assessment for Anglian Water, Arup has undertaken resilience maturity assessments for six other water companies. Additional rigour to our benchmarking has also been applied to reflect this knowledge gained.

Structure

The remainder of this report is structured as follows:

- Section 2. introduces resilience concepts, our methodology and an assessment framework.
- Section 3. presents our maturity assessment approach
- Section 4 presents the findings from the assessment; the strengths and opportunities for Anglian Water's resilience performance, now and into the future.
- Section 5. sets out conclusions and recommended next steps.

2. Towards a definition of resilience

2.1 Resilience background

What do we mean by resilience?

Overview

Resilience reflects the overall 'capacity of individuals, communities, institutions, businesses and systems to survive, adapt and thrive no matter what kinds of chronic stresses or acute shocks they experience' (adapted from Rockefeller Foundation, 2013)

In the 21st century, pressures that happen at scale – such as climate change, disease pandemics, economic fluctuations, and terrorism – pose new challenges (Arup, 2013). Risk is increasingly unpredictable due to the complexity and interdependencies between systems and the uncertainty associated with many hazards – notably climate change.

Risk assessments and mitigation continue to play an important role in responding to business challenges. However, in order to create truly resilient organisations in the face of growing uncertainty, this will be need to be supplemented with a broader consideration of resilient systems. Hollnagel (2014) describes a Safety-II approach, providing a focus on success, and how systems function when 'things go right', as well as risk which focuses on when 'things go wrong'.

Cabinet Office Guidance

The Civil Contingencies Act (2004) sets an important framing for resilience in the UK. The Cabinet Office (2011) describes Infrastructure

resilience as "the ability of assets and networks to anticipate, absorb, adapt to and recover from disruption". Resilience is secured through a combination of the principal components shown in Figure 3:

- **Resistance:** Concerns direct physical protection, e.g. the erection of flood defences;
- **Reliability:** The capability of infrastructure to maintain operations under a range of conditions, e.g. electrical cabling is able to operate in extremes of heat and cold;
- **Redundancy:** The adaptability of an asset or network, e.g. the installation of back-up data centres; and
- **Response and Recovery:** An organisation's ability to respond to and recover from disruption.



Figure 1: Infrastructure Resilience Components (Cabinet Office, 2011)

These four components align with the seven characteristics of resilience described by the CRI.

Ofwat guidance

'Resilience is the ability to cope with, and recover from, disruption and anticipate trends and variability in order to maintain services for people and protect the natural environment now and in the future.'

Ofwat's definition of resilience

Ofwat has published guidance on resilience in its PR19 consultation document (*Ofwat, Delivering Water 2020: Consulting on our methodology for the 2019 price review*). This includes the concept of 'Resilience in the Round' shown in Figure 3 (right), which recommends that customers should be the focus of the business and 3 themes of resilience should be considered:

- **Corporate resilience:** the ability of an organisation's governance, accountability and assurance processes to help avoid, cope with, and recover from, disruption; and to anticipate trends and variability in its business operations.
- **Financial resilience:** an organisation's ability to avoid, cope with, and recover from, disruption to its finances.
- **Operational resilience:** the ability of an organisation's infrastructure, and the skills to run that infrastructure, to avoid, cope with, and recover from, disruption in its ability to provide critical services to customers.

In addition, Ofwat published a report *Resilience in the Round* (Ofwat, 2017). Ofwat's report advises 'Resilience in the Round' should be at the core of how companies approach the resilience challenge, but they should create their own approach to resilience planning.

Ofwat has provided an illustration of what resilience might look like which includes subjects such as systems thinking, an environmental foundation, customers at the heart of resilience, smart approaches to resilience, and monitoring and measuring resilience. It is worth noting that Anglian Water appear as examples of resilience that other companies should follow including the 'Keep it Clear' campaign, and the 'Slug it Out' initiative.

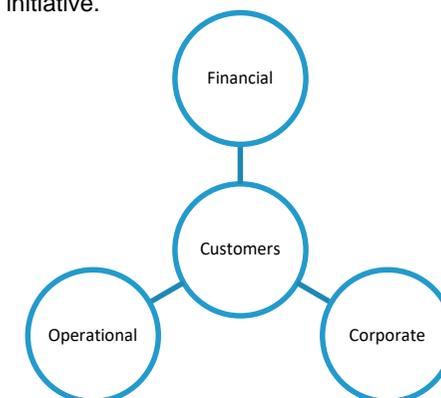


Figure 2: Resilience in the Round from Ofwat, Delivering Water 2020

2. Towards a definition of resilience

2.2 Shocks and stresses

The Ofwat guidance is directing water companies to be resilient to short-term shocks and long-term stresses. Table 1 sets out a range of shocks and stresses that we have identified that may be relevant to Anglian Water. This list has not been updated since the original assessment report. However, we understand that Anglian has used this list to consider how these align with previously identified risks and to consider the mitigations in place.

Stresses

In the Strategic Direction Statement 2020-2045, Anglian Water has identified the challenges to its business from long term stresses. These are population change, environmental protection and the impacts of climate change which will be acutely felt in its area, including sea level rise and increased water stress. Further horizon scanning and scenario development has also identified stresses for Anglian.

Shocks

Anglian Water identify and manage shorter-term shocks, through the Strategic Business Risk Map (the AWS Corporate Risk Register). Anglian Water takes an all risks approach, mapping risks from the National Risk Register, to understand the potential impact on its business.

The business risks identified are wide-ranging and include potential cyber attacks, legal risks, toxic gas leaks.

Uncertainty

As much as an organisation can review and assess both short and long-term risks, it is widely accepted that within today's dynamic environment, these shocks and stresses are increasing in frequency and diversity, requiring successful businesses to adapt their operations beyond risk management of likely and understood shocks.

The Ofwat guidance recognises that resilience as well as risk management is needed to overcome short-term disruptive shocks and chronic long term stresses, especially when these are uncertain and unknown. Therefore, the characteristics of the organisation, as well as the mitigation plans it has in place, are important in developing resilience.

Table 1: The shocks and stresses identified for Anglian Water

Shocks		Stresses	
Disruptive events, which impact the ability to provide a high quality service. In the water industry, acute shocks include sudden events such as floods, fires or cyber attacks.		Chronic conditions which weaken the function of the organisation or system long-term. Examples highlighted in particular by Ofwat include population growth and climate change. Stresses are also often felt as shocks when they reach a tipping point.	
Terrorist attack	Failure of climate change mitigation and adaptation	Demographic change	Land use change
Civil unrest	Temperature extremes	Urban creep	Coastal erosion
Extreme vandalism	Infectious diseases	Migration	Environmental change inc. invasive species
Hoax calls	Environmental pollution	Skills shortages	Inequality and increasing income disparity
Cyber attacks	Fire events	Unemployment and underemployment	Growth vs recession
Power outages	Nuclear incident	Lifestyle change	Financial crisis
Asset failure	Flooding	Rising chronic and lifestyle diseases	Unmanageable inflation
Telecommunication failure	Severe energy price change	Shortage of skilled labour	Bad debt
Data fraud/ theft	State collapse or crisis	Rising urbanisation	Resource scarcity (inc. fuel)
Dam failure	Industrial disputes	Leakage	Increased cost of borrowing
Power cuts	Supply chain failure	Ageing infrastructure	Structural change
False positive alarms	Abstraction licences change	Digital revolution	Macro industry change
Water supply contamination	Failure of regional, national or global governance and planning	Climate change (inc. drought and sea level rise)	Changing regulation, policy and international governance
		State provision of services	Legal structures

3. Our resilience framework and approach

A resilient water company for customers and the environment

A scoping study provided the underpinning theory for our approach to a resilience framework, which considers what a well-functioning system will look like, comprising corporate, financial and operational resilience.

This framework is designed to enable Anglian Water to think about short-term management of risks, alongside longer-term trends and lower likelihood risks. The framework is designed to help Anglian Water to become a truly resilient water company for the benefit of its customers and the environment.

Minor amendments have been made to the framework since the initial assessment, enabling a more robust assessment, particularly in comparing maturity across companies.

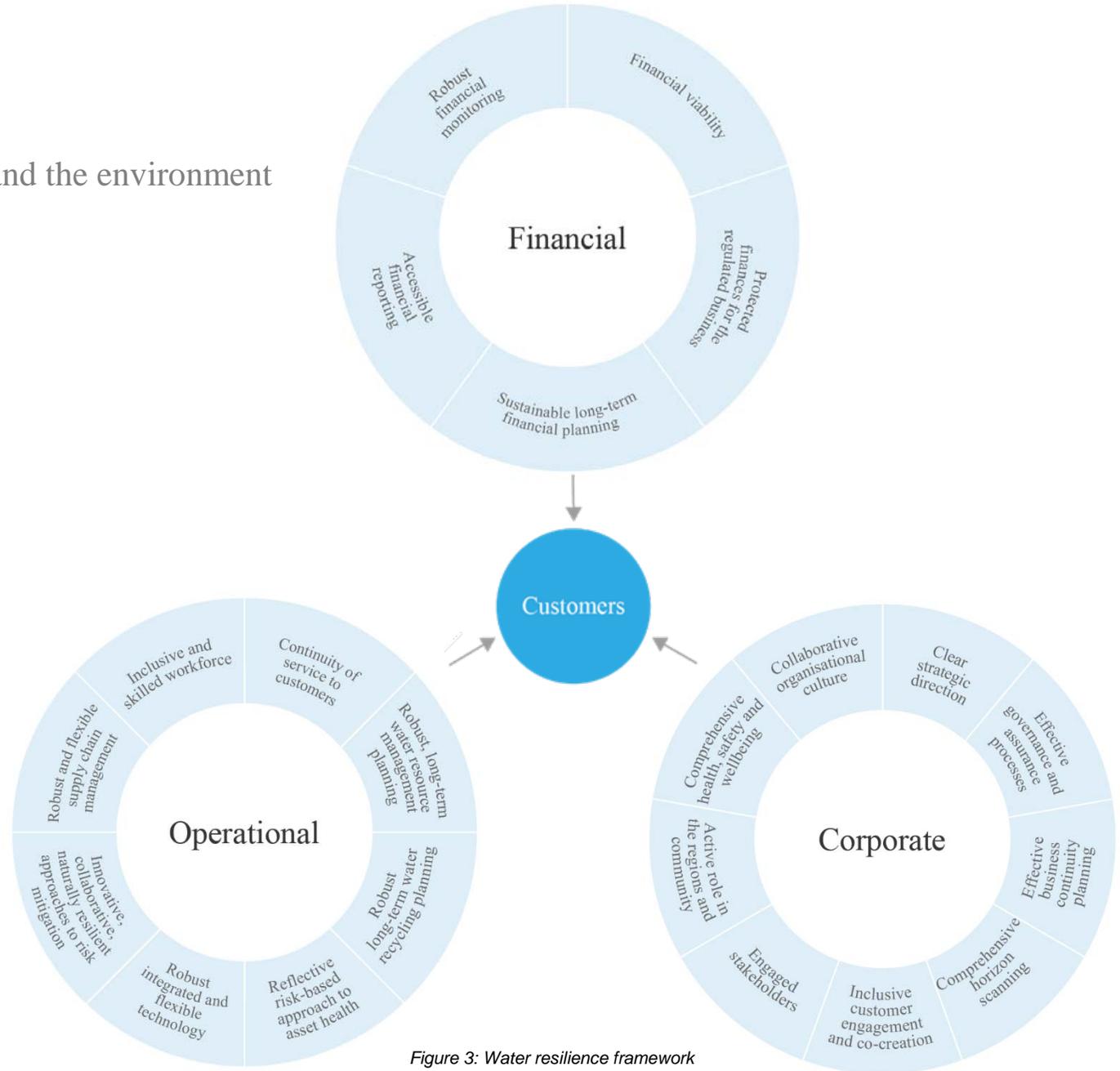


Figure 3: Water resilience framework

Resilience framework: Financial

An organisation's ability to avoid, cope with, and recover from, disruption to its finances

Table 2: The financial resilience sub-themes within the resilience framework

Sub-theme	Description
Financial viability	<p>The Directors review the long-term viability of the company as an extension of their business planning process, and by their actions retain a strong investment grade rating for the company (ideally Standard & Poor (S&P) equivalent \geq 'BBB+' Stable Outlook). To do this the company:</p> <ul style="list-style-type: none"> • has financial systems to accurately project planned Opex, Maintenance and Capex expenditure in each AMP • has access to sufficient additional liquidity (cash or access to cash) in the event of unforeseen events or failures • publicly reports in accounts look-forward rolling financial viability statements for at least five years based on long-term scanning spanning at least two AMPs, regularly stress testing the company to meaningful shocks (e.g. impact of change in inflation, major waste water event, terrorism/ cybersecurity incident, failure to accurately predict Opex costs and future Capex costs, etc.), including the Ofwat July 2018 stress tests • to accommodate stress tests and scenario analysis (e.g. the Ofwat July 2018 stress tests) has determined appropriate gearing levels and appropriate use of instruments such as inflation-linked debt • has appropriate insurance policies and cover.
Protected finances for the regulated business	<p>The company has appropriate measures for ring fencing finances for regulated activities to protect the interests of customers. Where the company has non-regulated activities, these are managed appropriately so they do not risk the financing of regulated activities. The company maintains flexibility to finance regulated company activities in the event of shocks to the group finances, evidenced by results from stress tests, spare cash reserves, liquidity, etc.</p>
Sustainable long-term financial planning	<p>The company is looking forward 25+ years, with investment and expenditure plans linked to the strategic direction of the company. These are regularly reviewed and tested. Base operating and maintenance expenditure together with any additional enhancement or replacement expenditure to meet customer and regulatory requirements have been identified on a year-by-year basis in the short to medium term and AMP-by-AMP basis for the longer term. The company has an excellent understanding of the current and future predicted condition and performance of all its assets. Horizon scanning for future trends informs new investment.</p>
Accessible financial reporting	<p>Financial reporting is appropriately tailored for the needs of investors, other stakeholders, and interested water customers. The company publicly reports its financial and annual performance (via the annual reports and APRs) using customer focused language. Customer billing information provides sufficient information to enable customers to understand major areas of expenditure and impacts, such as leakage reduction. Corporate, financing and tax structures are transparent and easy to understand.</p>
Robust financial monitoring	<p>The company has appropriate measures to monitor and confirm the company's long-term viability, which goes beyond AMP cycles to track trends in maintenance programmes, climate change and demographic changes, etc. These measures are supplemented by regular sensitivity tests and scenario testing. Such information is recorded and reported routinely at Board level, with clear criteria for when material divergences from expected plans need to be discussed and actioned.</p>

Resilience framework: Corporate

The ability of an organisation’s governance, accountability and assurance processes to help avoid, cope with, and recover from, disruption; and to anticipate trends and variability in its business operations.

Table 3: The corporate resilience sub-themes within the resilience framework

Sub-theme	Description
Clear strategic direction	The company has a clear aim and strategy which is well communicated and is recognised by all, both internally and externally. All plans and decisions are based on how they will work towards this strategy.
Effective governance and assurance processes	The company has reliable and well disseminated processes, roles, governance and reporting covering all aspects of the business. There is a clear process for assurance, approval and board sign-off.
Effective business continuity planning	The company has a risk-based approach to resilience planning linked to the National Risk Register and the likely impact on service to customers. A set of response plans are in place to prepare for, respond to and recover from potential impacts. Plans are regularly trained and exercised, with everyone in the company knowing their roles and responsibilities. All critical assets have emergency plans and all critical teams will be able to recover to minimise impact on service. Approaches will follow best practice, e.g. ISO 22301 and the Business Continuity Institute Good Practice Guideline 2018.
Comprehensive horizon scanning	Plans, strategies and actions are all based on the outcome of comprehensive and robust horizon scanning which takes into account future shocks and stresses that may impact areas of the business. Horizon scanning is regularly reviewed.
Inclusive customer engagement and co-creation	The company has a clear two-way dialogue with customers to ensure that customers are included and to improve transparency, cooperation and collaboration on current performance and future direction for the business. Customer policy and practices are established to meet the needs of customers in vulnerable circumstances. The company aims to establish trust, confidence and legitimacy.
Engaged stakeholders	The company plans, manages and undertakes regular and clear communications with stakeholder groups and organisations. Collaboration is determined through multi-agency participation with tangible outputs that improve the resilience to customers and the business.
Active role in the regions and community	The company undertakes activities which have wider benefits to the communities that are served allowing them to grow and develop through enabling sustainable growth, both at a regional and local level demonstrating corporate citizenship in the process. The company is establishing goals to meet the carbon challenge contributing to their global and local impacts.
Comprehensive health, safety and wellbeing	The company has reliable and robust plans for health, safety and well-being which will make significant and measurable improvements to the lives of the workforce. There is a strong health and safety culture, where behaviours are over and above what is required.
Collaborative and adaptive organisational culture	A notable organisational culture that puts collaboration and change at the heart of all they do. This is apparent in the values, policies, plans and working practices of all employees who understand the fundamental roles they play in the service value chain.; working together across boundaries in the service of the customer and community. Empowered and engaged staff, with the capability, capacity and mandate to learn and adapt to events and change, is evident in the short, medium and long-term management of the operation; not simply one-off innovations and in response to major ‘events’. The organisational approach to collaboration aligns with ISO044.

Resilience framework: Operational

The ability of an organisation's infrastructure, and the skills to run that infrastructure, to avoid, cope with and recover from, disruption in its performance

Table 4: The operational resilience sub-themes within the resilience framework

Sub-theme	Description
Continuity of service to customers	Company operations focus on providing a continuity of service to customers and avoiding critical service failures, such as supply interruptions and internal sewer flooding. It takes into account the different needs of customers, particularly those who are vulnerable. Service interruptions only occur in the most unforeseeable situations. Asset condition and criticality is understood and all critical aspects of the network have redundancy built in. Mechanisms to regularly review and update all plans are in place.
Robust long-term water resource management planning	Water resource management planning and drought planning has been undertaken for the long-term and integrated into business planning to ensure that the company can meet their supply obligations and facilitate sustainable growth. Plans are produced collaboratively with the EA and regional planning groups to ensure best value for customers with respect to cross-company, regional and national supply options. The approach looks at a full range of hazards based on a robust evidence base. Water resource management planning looks 80 years into the future and develops adaptive pathways for delivering in the long-term.
Flexible, long-term water recycling planning	The company has undertaken drainage and water recycling planning for the long-term enabling sustainable growth in the region without impacting existing customers. Wastewater plans are developed with stakeholders and integrated into their business plans. Plans are published and shared. They focus on critical service failures such as internal sewer flooding and pollution incidents. Best practice from the 21 st Century Drainage programme is followed.
Reflective risk-based approach to asset health	The company has undertaken a comprehensive assessment of asset health and asset risk, including long-term low-likelihood risks, having detailed and accurate information on the state of all assets, the way they are configured and the way they are operated. Focus is on criticality, protecting customers and the natural environment from exposure to known risks, and reducing vulnerability to future uncertainties. There is a region wide asset strategy which is adaptive, regularly reviewed and considers changing requirements in the long-term (25 years). They follow best practice for asset management, e.g. ISO 55000.
Innovative, collaborative, naturally-resilient approaches to risk mitigation	There is a robust approach to considering a wide range of options to risk mitigation. Approaches are collaborative, innovative and embrace technological change and the role of the natural environment. A system-wide approach is taken. Collaboration is integrated into business plans, working with customers, other companies, and wider stakeholders to deliver solutions. Approaches considered include encouraging customers behavioural change through smart customer engagement, and use of smart technologies to improve asset performance, customer information, leakage management and water efficiency, natural solutions, such as catchment management to improve raw water quality, and blue-green infrastructure to manage storm water and reduce flooding and pollution incidents. Catchment solutions are considered across the whole catchment, integrating water and wastewater needs.
Robust and flexible supply chain management	The company considers the impact of energy, resource and skills supply chains on their operations and ensure diverse and competitive supply chains that deliver the best outcomes for their customers. Supply chain needs are considered in the long-term, based on horizon scanning. Collaborative relationships are developed with the supply chain, to avoid boom and bust cycles. The company also considers the flexibility of their supply chains, particularly during shock events. Internal processes are in place to keep this under review, sharing knowledge and developing solutions with others. The supply chain is considered as a network. The company also considers how they can effectively utilise options beyond their boundaries to mitigate their risks, e.g. use of water trading and bio resource trading markets.
Inclusive and skilled workforce	The company has identified the capabilities and skills required to deliver outcomes for customers in the long-term, based on robust horizon scanning. Robust people plans have been developed to fill any current or emerging gaps to support these business needs, identifying recruitment, training and development, knowledge management, succession planning and increasing diversity. The company works across the water industry and utility sector to address these skills gaps. The company is seen as the first choice for highly skilled individuals, and valued employees recognise it as a great place to work. The company encourages diversity through a range of programmes, such as employee network groups and leadership role models.
Robust, integrated and flexible technology	Technology is used intelligently to deliver real operational and strategic gains. Data-driven decisions are the norm, using both real-time data to adapt and respond, as well as using data for robust long-term decisions. Systems are integrated, including operational technology and information technology systems. Interoperability and integration with systems in other sectors has been considered. Cyber security is paramount, with redundancy built into systems, and processes in place to continually review and improve this. People are at the centre of how technology is designed and implemented, both customers and staff.

3. Our resilience framework and approach

Resilience assessment

The approach to maturity assessment is based on a desk top review of additional evidence submitted by Anglian Water between June and August 2018. It should be noted, however, that this is not necessarily a full picture of resilience at Anglian Water.

The results are presented using scores from 1 to 5 against each sub-theme, as defined in Table 3.

Deliberately we have not attempted to prioritise any of the three resilience groups (financial, corporate and operational resilience) above

others, nor weight the individual sub-components of the groups. This helps to recognise the interdependencies across the components, i.e. failing on one of the sub-components can mean a whole company is not resilient.

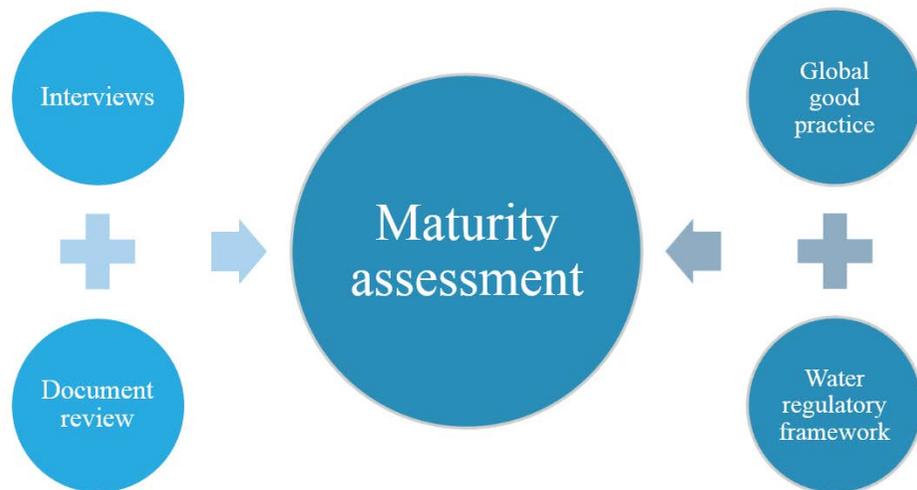
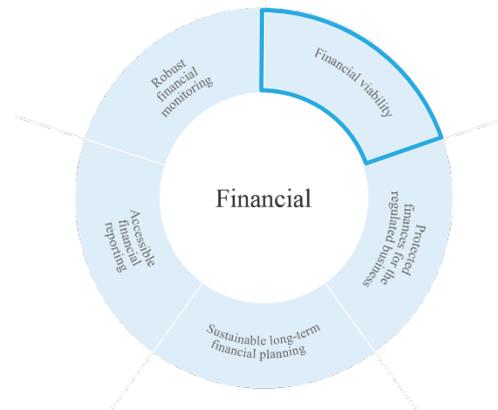


Figure 4: Maturity assessment approach

Table 5: Definition of the maturity assessment scoring scale

Level 5: Leading	The company has a best practice approach to this goal with cutting edge actions and responses currently in progress. There is significant horizon scanning for future changes and clear methods to including these within plans and strategies. Regular reviews and updates are part of business as usual.
Level 4: Response actioned	The company has created a response and actions to meet this goal which is being applied in practice across the company. The company is focused on proactive actions to prevent issues before they arise.
Level 3: Response developed	The company set a clear goal around this and has developed a response. This response has yet to be widely actioned, though some pilots may have been undertaken.
Level 2: Aware	The company is aware of the need for this goal but has not yet been formally adopted into process, plans, strategies and operational activities. There has been very limited response to these gaps. In general the company reacts only to issues that arise as they arise
Level 1: Unaware	The company has not determined this as a goal. There are significant gaps in understanding, processes, plans, strategies and operational activities to achieve this goal.



4. Maturity assessment

Financial viability

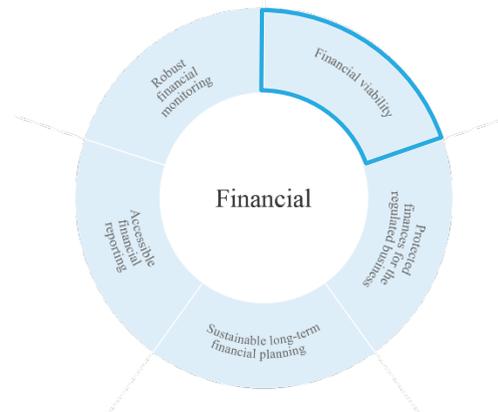
Description of what leading looks like	1 Unaware	2 Aware	3 Response developed	4 Response actioned	5 Leading
<p>The Directors review the long-term viability of the company as an extension of their business planning process, and by their actions retain a strong investment grade rating for the company (ideally Standard & Poor (S&P) equivalent \geq 'BBB+' Stable Outlook). To do this the company:</p> <ol style="list-style-type: none"> has financial systems to accurately project planned Opex, Maintenance and Capex expenditure in each AMP has access to sufficient additional liquidity (cash or access to cash) in the event of unforeseen events or failures publicly reports in accounts look-forward rolling financial viability statements for at least five years based on long-term scanning spanning at least two AMPs, regularly stress testing the company to meaningful shocks (e.g. impact of change in inflation, major waste water event, terrorism/ cybersecurity incident, failure to accurately predict Opex costs and future Capex costs, etc.), including the Ofwat July 2018 stress tests to accommodate stress tests and scenario analysis (e.g. the Ofwat July 2018 stress tests) has determined appropriate gearing levels and appropriate use of instruments such as inflation-linked debt has appropriate insurance policies and cover 					
	Current and Ongoing Activities				
	Planned for AMP7 and beyond				

Maturity Assessment

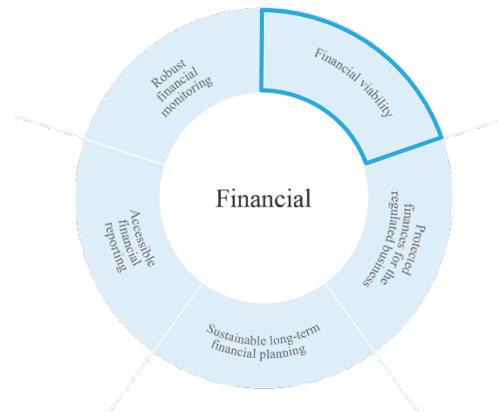
Current and Ongoing Activities	<p>Based on evidence seen as part of this assessment, the business regards long-term viability of the company as key. This is supported by the owners of Anglian Water who are institutional investors (such as pension companies) and infrastructure funds whose investment focus is long-term stable returns. The company also has mature systems, which were established approximately 15 years ago, to understand risks and value in decision making. Ofwat is concerned by high levels of gearing in water companies, and as part of PR19 requires companies with gearing levels above 70% to propose "outperformance sharing mechanisms that allow customers to share in the returns equity investors achieve from high gearing". This announcement and other earlier Ofwat announcements prompted Moody's, the credit rating agency, in late May 2018 to place four highly geared water companies on negative outlook. Anglian Water has the second highest gearing ratio of the combined water and wastewater companies, at 78.5% in 2017/18. Moody's has changed Anglian Water's credit rating from 'Baa1' Stable (S&P equivalent 'BBB+') to 'Baa1' Negative Outlook indicating it could fall to Baa2 (S&P equivalent 'BBB') if Anglian Water "has insufficient financial flexibility to accommodate the expected reduction in allowed returns at PR19, including additional sharing mechanisms."</p>
--------------------------------	--

3. Approach and maturity assessment

Financial viability



Maturity Assessment	
Current and Ongoing Activities	<p>Each of the criteria is assessed in more detail:</p> <ol style="list-style-type: none"> The company has financial systems to project planned Opex, Maintenance and Capex expenditure for the next 25 years, explained in the Sustainable long-term financial planning section. It has low-, medium- and high-cost expenditure models for AMP8, AMP9, AMP10 and AMP11 that include enhanced capital expenditure and Botex for different investment needs (again see Sustainable long-term financial planning section for more information). Like a number of other water companies, Anglian Water has a Whole Business Securitisation (WBS) structure which imposes criteria to always have at least 12 months of working capital. At the end of March 2018 the company had liquidity of £1,277m (comprising £287m of cash and £990m of undrawn committed finance). In 2016/17 Anglian Water increased its long term viability analysis to five years, and again publically reported a five-year rolling Long Term Viability Statement (LTVS) in 2017/18 – meeting Ofwat’s stipulated five year minimum LTVS. To prepare the LTVS the company has run a number of stress tests to confirm the company would remain viable. Its Annual Report highlights that stress tests are run for: <ul style="list-style-type: none"> key operational risks - water sector reform and changes in legislation, defined benefit pension changes, regional growth, long term supply of water, varying demand, pollution incidents, failure to deliver all the AMP6 plans, different ODI outcomes in AMP7, Brexit, customer relations, health and safety, staff talent and succession, cyber security and maintaining water quality. For all risks potential mitigation measures are considered; and financial risks, e.g. potential impact of credit rating agency downgrades, fines, cost of debt increases and lower than expected inflation outcomes. <p>Against each of the risks Anglian Water ascribes an equivalent financial (£m) impact. Historically, none of three major shocks that have affected the company in the last 20 years have costed the company more than £30m individually, (e.g. an AMP3 event in Marham, cryptosporidium being identified in Pitsford Water Treatment Works in AMP4, and a third dry winter (drought conditions) in AMP5). Therefore, Anglian Water has run an AMP7 stress test analysis of an additional £60m capex shock that cannot be mitigated using insurance it holds – i.e. if two of the major events in the last 20 years happen again in AMP7. The company is able to accommodate this with a combination of increasing its gearing rate and reducing profits available for dividend distribution.</p> <p>Additionally, in July 2018 Ofwat confirmed that as part of water companies’ financial viability and resilience tests they want companies to run various stress tests, including a challenging, downside combined scenario of a year-on-year 10% underperformance on Totex and retail expenditure, a year-on-year ODI penalty of a Rate of Return on Equity (RoRE) decrease of 1.5%, and a financial penalty of 1% of revenue in one year. AWL also ran their own combined scenario of two major events happening in AMP7 (total cost of £60m), CPI inflation being 1% lower than anticipated, and two years of 1% RoRE reductions.</p> <p>Thus, in total six stress tests (10% Totex overspend, ODI penalty of 3% of RoRE in a year, CPI inflation 1% lower than anticipated, bad debtors 5% higher, financing costs 2% higher for all new debt, and a penalty of 3% of appointed revenues in one year) and two scenarios (Ofwat combined scenario and AWL combined scenario of two major incidents costing £60m with inflation 1% lower in each year and an ODI penalty of 1% RORE year 2 and 3) were run.</p> <p>The stress test of an ODI penalty of 3% RoRE and the Ofwat combined scenario created issues that cannot be met by adjusting gearing or reducing dividends</p>



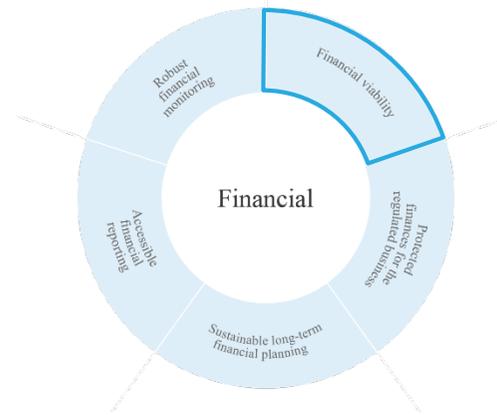
4. Maturity assessment

Financial viability

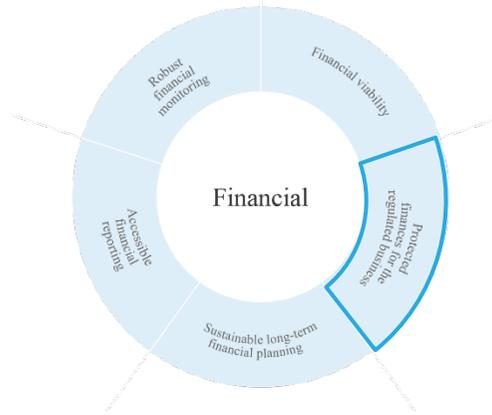
Maturity Assessment	
Current and Ongoing Activities	<p>alone. If these two cases could not be met through insurance, other levers include:</p> <ul style="list-style-type: none"> • Making a call on shareholders to inject money to reduce debt (which then reduces interest payments). Like most other water companies, Anglian Water is a private company so it is arguably easier to approach shareholders for further injections. In AMP5 shareholders injected a small amount of equity to avoid a potential lock up of WBS dividend payments, and in AMP6 shareholders agreed to forego dividends of £165m to reinvest in water resilience. Further, in response to Ofwat concerns over high gearing rates Anglian Water has recently announced its intention not to make dividend payments for the next seven years unless the company exceeds its ODI metrics. This means its gearing will reduce from c.78.5% to c.77% by the end of AMP7; For a short period adjusting investment in other parts of the business, for instance reducing the proactive maintenance Opex spend in a year by £10m can increase the interest cover ratio by 0.15 which would be sufficient to avoid a covenant breach in the year of the 3% RoRE reduction; and • looking for wider options to reduce debt repayments, e.g. restructuring debt, entering into derivative contracts or switching to more index-linked debt (which decreases nominal interest payments in earlier years). <p>To reduce exposure Anglian Water is also making progress cutting its defined pension scheme deficit, which has fallen from £80m in 2016/17 to £47m in 2017/18.</p> <p>As a strength, Anglian Water’s performance against some of the Outcome Delivery Incentives (ODIs) it sets has historically been good. For instance, Anglian Water is one of three companies that agreed an in-AMP6 ODI test, and has been awarded an additional £2.5m (2012 prices). As a further plus, the company has stated that although it reports a five-year LTVS it could formally report longer, acknowledging the further into the future one looks the higher the uncertainty.</p> <ol style="list-style-type: none"> 6. Mention has already been made of Anglian Water’s plans to reduce its gearing. Anglian Water carefully monitors future repayment dates for debt, and has a policy of ensuring no more than 50% of debt matures in any five year period, and 20% in any two year period. Its 2017/18 Annual Performance Report states that index-linked debt is c.58% of all debt, higher than the 2016-17 water and wastewater company (WaSC) industry average of c.46%. 7. To further reduce risks the company has a comprehensive insurance cover, including insurance for (a) all risks property damage/ business interruption, (b) employer’s liability, (c) public/ products, pollution, financial loss, professional loss and legionella liability, (d) pollution and remediation environmental liabilities, (e) terrorism, (f) water resilience liability (e.g. accidental contamination or malicious tampering with water supplies), (g) commercial crime, (h) motor vehicles, (i) personal accident/ travel liabilities, (j) directors and officers liability, and (k) pension trustee issues. <p>Overall a score of (4) is given as:</p> <ul style="list-style-type: none"> • Whilst the company is one of the more highly geared water companies (and therefore has less headroom to increase its debt), with its gearing at 78.5% it is still able to borrow an extra £500m before reaching a WBS lock-up on its gearing levels (85%); • It is performing well against its ODI targets, indicating that the company well prepared to respond effectively to shocks and stresses. For example, in

4. Maturity assessment

Financial viability



Maturity Assessment	
Current and Ongoing Activities	<p>March 2018 it was praised by the Water Minister for its pre-planning for Storm Emma that resulted in very few incidents;</p> <ul style="list-style-type: none"> Its March 2018 announcement about lowering 2018 and future dividend payments to reinvest for future investment is welcomed as a way to reducing gearing. Being a private company owned by a few global asset management companies and investment funds, announcing reductions in dividends for a number of years is arguably easier than for listed companies. <p>Internally the company also runs stress tests for 10+ years, and under the scenarios modelled the company remains viable. Thus, Anglian Water may also want to consider reporting longer LTVSs as some other water companies are now.</p>
Planned for AMP7 and beyond	<p>In AMP 7 and beyond if Anglian Water carries on reducing its gearing and being proactive it will retain a score of 4 (Response Actioned).</p>



3. Approach and maturity assessment

Protected finances for the regulated business

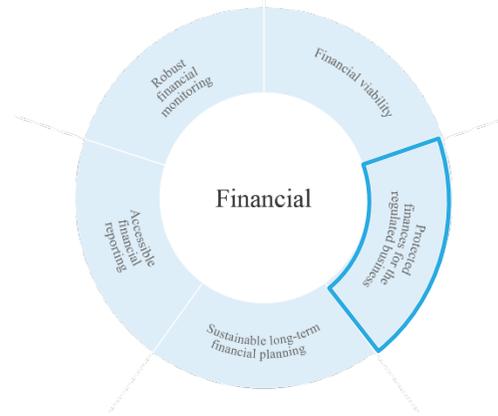
Description of what leading looks like	1 Unaware	2 Aware	3 Response developed	4 Response actioned	5 Leading
The company is an exemplar in ring-fencing finances for regulated activities to protect the interests of customers. Where the company has non-regulated activities these are managed appropriately so they do not risk the regulated activities. Therefore, in the event that the company suffers a series of shocks to its finances, there will be enough flexibility to keep the core of the regulated company operating, evidenced by results from stress tests, spare cash reserves, liquidity, etc.					
	Current and Ongoing Activities				
	Planned for AMP7 and beyond				

Maturity Assessment

Current and Ongoing Activities	<p>Anglian Water’s regulated turnover in 2017/18 was £1,249m, which represents c.93% of the total Anglian Water Group Ltd.’s turnover (£1,338m). The remaining 7% comes from the non-regulated Anglian Venture Holdings Ltd., which is described on the Anglian Water Venture Holdings website as <i>“the investment and management vehicle responsible for the Anglian Water Group’s commercial businesses across the UK and Ireland, with over £100m invested to date. These businesses have a combined turnover in excess of £500 million and offer customers a wealth of expertise in the water industry and infrastructure related sectors.....”</i> It has a staffing complement of around 450 employees. Anglian Venture Holdings Ltd.’s three main subsidiaries are:</p> <ul style="list-style-type: none"> • Anglian Water Business (National) Ltd, which is the licensed retail business arm of the Group and is the dominant subsidiary. It operates with a profit margin after tax of c.3%. Anglian Water Business (National) Ltd. is branded as Wave Utilities which is a 50:50 Joint Venture between Anglian Water and Northumbrian Water (https://www.wave-utilities.co.uk/). To reduce the risk of business clients defaulting on the payments they owe Wave Utilities, Wave Utilities requires its clients to pay their bills in advance unless they can provide a strong company guarantee or parent company guarantee. Additionally, Wave Utilities has in place insurance, which further mitigates risks to regulated wholesale business companies (whether that be Anglian Water Ltd, Northumbrian Water or any other water company) of Wave Utilities failing to pay money owed to the wholesale business water company; • Celtic Anglian Water Ltd. is an Irish company that operates wastewater and water assets on behalf of private companies. In March 2017 it had turnover of €34.6m and net assets of c.€3.3m; and • Alpheus Environmental Ltd is a UK company which, like Celtic Anglian Water, operates other UK companies’ water and wastewater infrastructure. In March 2017 it had turnover of £10m and net assets of £1.8m. <p>The risk of Anglian Water Group Ltd.’s 7% of non-regulated turnover scores a 4 (Response Actioned). This is for three main reasons: (a) the Anglian Water Group owns 50% of Wave Utilities, meaning it has greater oversight of the company compared to wholesale business water companies selling their water to</p>
--------------------------------	---

4. Maturity assessment

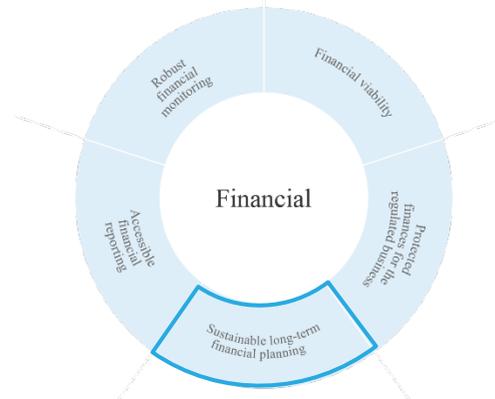
Protected finances for the regulated business



Maturity Assessment	
Current and Ongoing Activities	standalone water business companies, (b) there is insurance to mitigate the risk of Wave Utilities going bankrupt, and (c) all the non-regulated business activities are comparatively asset light, employee heavy, meaning it would be easier to reduce costs and minimise expenses in the event of a downturn in Wave Utilities' performance.
Planned for AMP7 and beyond	Given no significant change to in structures is planned, we expect Anglian Water to continue to score 4 (response actioned) in the future.

4. Maturity assessment

Sustainable long-term financial planning



Description of what leading looks like	1 Unaware	2 Aware	3 Response developed	4 Response actioned	5 Leading
The company is looking forward 25+ years, with expenditure plans linked to the strategic direction of the Board. These are regularly reviewed. Base operating and maintenance expenditure together with any additional enhancement expenditure to meet customer and regulatory requirements have been identified on a year-by-year or AMP by AMP basis. The company has an excellent understanding of the current and future predicted condition and performance of all its assets. Horizon scanning for future trends informs new investment.					
	<div style="text-align: center;"> </div>				
	<div style="text-align: center;"> </div>				

Maturity Assessment

From workshops and interviews conducted as part of this assessment the company is continuing to improve its understanding of work to enable smarter investment. For example, its Strategic Direction Statement (SDS) (2020-2045) has an aim of 'investing for tomorrow' which includes proactive maintenance strategies, alliancing strategies and innovation, based on future challenges identified.

To meet the SDS the company has identified the additional works that will need to be undertaken to meet the SDS, estimated the costs of these activities on an AMP by AMP basis and prepared low, medium and high scenarios over the next 25 years. The following table splits out the main components of this plan.

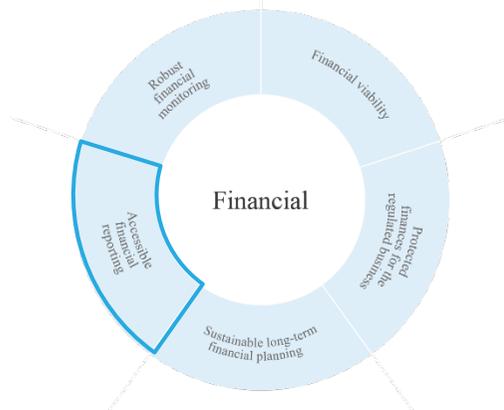
	Operational	Maintenance	Customer enhancements	Supply Demand	Quality	
Water	✓	<ul style="list-style-type: none"> Base maintenance Smart infrastructure Asset deterioration Leakage actions Smart meter replacements 	<ul style="list-style-type: none"> Standby generators Leakage actions Fire risks Low pressure actions Smart metering Interruptions 	<ul style="list-style-type: none"> New strategic reservoir Single supply resilience Small scale single supply Capacity for third dry winter Sustainability reductions Growth 	<ul style="list-style-type: none"> Metaldehyde Nitrate Nickel/ other Catchment management 	<ul style="list-style-type: none"> Water resources SEMD Lead
Wastewater	✓	<ul style="list-style-type: none"> Base maintenance Smart infrastructure Asset deterioration Private sewers Private pump stations 	<ul style="list-style-type: none"> Coastal enhancements Domestic flooding Odour management Partnership funding Pollution control 	<ul style="list-style-type: none"> Growth projects 	<ul style="list-style-type: none"> Urban Waste Water Treatment Directive Ground Water Directive Water Framework Directive Coastal Waters First Time Sewerage 	<ul style="list-style-type: none"> Chemical treatment Combined Sewer Overflow strategy Sludge No deterioration planning Flow compliance



4. Maturity assessment

Sustainable long-term financial planning

Maturity Assessment	
Current and Ongoing Activities	<p>Long-term planning also feeds through to Anglian Water’s draft Water Resources Management Plan 2019, which is also used to determine future expenditure requirements.</p> <p>As set out in reflective risk-based approach to asset health, Anglian Water has a good understanding of asset condition and criticality. It uses the Copperleaf system to assess the location, age and asset condition of most assets, either using inspections or where inspections have not taken place using computer algorithms to estimate their asset condition.</p> <p>The company’s expenditure on replacing/ refurbishing assets is less than 1.2% of the Gross Modern Equivalent Asset Value (GMEAV), which would be the replacement cost if the average age of assets is c.80 years. However, this is for two reasons:</p> <ul style="list-style-type: none"> operationally the company does not see a current need to increase the replacement rates given the condition of its assets; its asset management innovation in ways to extend the economic life of assets (e.g. by pumping water at lower pressures) or to repair/ replace assets much more cheaply (e.g. only replacing parts of pipes, not the full length of pipes; running new pipework within existing pipes or structural relining – all of which avoid trenching costs). Its asset optimisation approaches mean it was the first company in the UK to achieve an ISO55000 (International Standards for Asset Management) quality mark. <p>Expenditure plans are all contained in a single system, including for the long-term. Anglian Water therefore scores 4, putting the company in the upper quartile of water companies for its approaches.</p>
Planned for AMP7 and beyond	<p>During AMP7 the company will be using its Copperleaf system to understand the condition of its remaining assets (i.e. more of its adopted private sewers). Cognisant of climate change, and other long-term stresses, as set out in its SDS and dWRMP, we expect the company to continue to invest new and existing assets with this long-term mindset.</p> <p>We expect Anglian Water to continue to achieve a score of 4 (Response Actioned) with prospects to become a 5 (Leading) as it moves to having costed plans to be being resilient for 1 in 500-year droughts.</p>



4. Maturity assessment

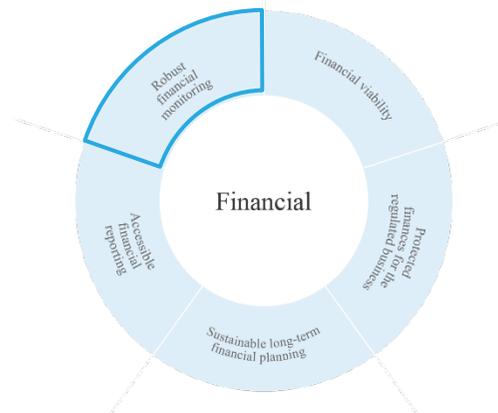
Accessible financial reporting

Description of what leading looks like	1 Unaware	2 Aware	3 Response developed	4 Response actioned	5 Leading
Financial reports need to be tailored for two types of audiences – the investor and the interested water customer. For the interested water customer in order to be transparent and inclusive the company publicly reports its financial and annual performance (via the annual reports and APRs) using customer focused language. In bills it also shows easy to understand visuals showing where customers water bills go, and how it minimises leakages, outages and sewerage leakages. Financing, company and tax structures are easy to understand.					
	Current and Ongoing Activities				
	Planned for AMP7 and beyond				

Maturity Assessment

Current and Ongoing Activities	<p>Based on evidence seen as part of this assessment, Anglian Water’s Annual Reports and Annual Performance Reports are presented in a clear and understandable format. Additionally, public reporting on ODIs is provided in non-technical language on Anglian Water’s website, and updated regularly. In Ofwat’s November 2017 review of Anglian Water, Ofwat reported that “<i>there is clear evidence that the company’s reporting is transparent and accessible to customers and other stakeholders</i>” For investors additional information is provided, for every example every six months Anglian Water produces a report that captures all relevant financial information.</p> <p>In order to improve transparency, on 5th June 2018 Anglian Water closed its dormant Cayman Islands company and has repaid an intercompany loan of £1.6bn, thereby making it easier for customers to see the exact dividend payments that are being made to its shareholders.</p> <p>Anglian Water employs external parties undertake data assurance, and in November 2017 Ofwat suggests that “<i>the publication of an easily accessible statement or report from external reviewer</i>” would provide further reassurance. Anglian Water has incorporated this suggestion into its latest 2017/18 Annual Performance Report, including a letter from Deloitte who analysed the many of the financial metrics included in the Annual Performance Report and a summary from Halcrow who provided assurance of the technical sections of the Annual Performance Report.</p> <p>A score of 4 (response actioned) is awarded. To move to leading in the sector Anglian needs to carry on presenting clear Annual Reports, Annual Performance Reports and communications with customers, and work with customers to demonstrate that this information is presented in the clearest format for them, co-creating any improvements.</p>
--------------------------------	--

Planned for AMP7 and beyond	<p>This assessment understands that Anglian Water will continue to report publically in the format they currently use, and is improving its understanding and engagement with the public as outlined in the draft Customer Engagement Strategy Booklet. We therefore expect Anglian Water will continue to score level 4.</p>
-----------------------------	--



4. Maturity assessment

Robust financial monitoring

Description of what leading looks like	1 Unaware	2 Aware	3 Response developed	4 Response actioned	5 Leading
In order to provide continual checks and balances that the company is continuing to support its long term viability, the company undertakes regular monitoring to track trends in opex, leakages, refurbishment of assets, investment, climate impact, demographics, etc. This is supplemented by regular sensitivity tests and scenario testing. Such information is then recorded and reported routinely at Board level, with material divergences from expenditure plans discussed and actioned.					
	Current and Ongoing Activities				
	Planned for AMP7 and beyond				

Maturity Assessment

Current and Ongoing Activities

Anglian Water has many systems for robust financial monitoring including:

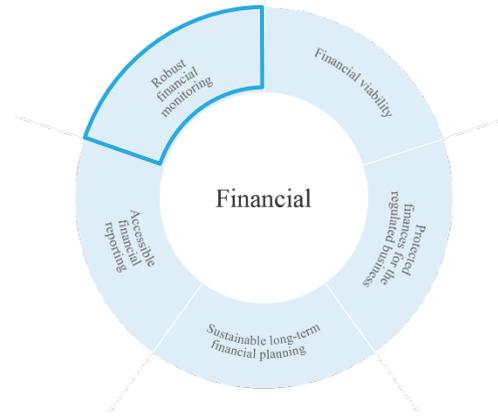
- Every month a detailed report including performance against the financial plan and against the ODI indicators is discussed in depth in a Management Board meeting. This board meeting includes senior members of the finance and water regulation team. Differences, particularly underperformance against the plan, are marked with a Green, Amber (issue, but should resolve itself or already being resolved) and Red Flag system. To provide all the necessary information involves around 30 employees responding to about 130 control questions. As the Board meets so regularly even comparatively small differences (e.g. £1m) are picked up;
- A high-level dashboard version of this Management Board report is then discussed at the Main Board meeting;
- The monthly performance reports are also shared with the Strategic Priorities Board which flexes investments in response to changing needs and trends;
- Every six months the company reports its performance to its bond investors via Investor Reports that provide an additional level of scrutiny;
- Every six months to fit into the timetable for reporting to its bondholders stress testing is performed against pre-determined metrics, and any operational risks that are identified that are more extreme than some of the standard sensitivities (e.g. a 10% totex overrun) are highlighted. However, in between the six monthly formal submission matters are closely monitored;
- As with all large water companies the credit rating agencies provide an external view of the finances of the company. The company regularly liaises with them;
- As with all other water companies the financial results and the LTVS in the Annual Report are audited. Additionally assurance of the Annual Performance Report is carried out.

As part of the annual comparison of water companies financial resilience Ofwat decided in November 2017 to retain Anglian Water's assurance status as 'targeted'. In coming to their decision, Ofwat raised minor concerns with Anglian Water's Financial Monitoring Framework, noting a number of small errors in reporting financial derivatives and presenting information about dividends. These have been addressed.

Therefore, overall, like the majority of other water companies, Anglian Water achieves a score of 4 (Response Actioned).

4. Maturity assessment

Robust financial monitoring



Maturity Assessment

Planned for
AMP7 and
beyond

We understand Anglian Water is enhancing its financial systems to develop integrated reporting of capital and operational costs. The company is also considering consolidating their governance and assurance process into one area.

Whilst these changes are to be commended, we expect that Anglian Water will continue to score 4 (Response Developed).



4. Maturity assessment

Clear strategic direction

Maturity Summary	1 Unaware	2 Aware	3 Response developed	4 Response actioned	5 Leading
The company has a clear aim and strategy which is well communicated and is recognised by all, both internally and externally. All plans and decisions are based on how they will work towards this strategy.	Current and Ongoing Activities				
	Planned for AMP7 and beyond				

Maturity Assessment

Current and Ongoing Activities	<p>Anglian Water has taken its ‘Love Every Drop’ campaign and translated this into a core business strategy, defining its corporate identity with this widely understood concept. This strategy is supported by 12 specific goals to improve the business, and underpins numerous initiatives such as ‘Keep It Clear’ and ‘Drop 20’ which are an important part of the presence the company has in the communities it serves. The 12 goals are reviewed and updated regularly to reflect internal progress as well as any change in external circumstances.</p> <p>Anglian Water has a Strategic Direction Statement (SDS) that describes the direction of the business over a 25-year period, and identifies four long-term ambitions to help guide the company’s planning; focused on resilience to risks of drought and flooding, enabling sustainable economic and housing growth, carbon neutrality by 2050 and improving ecological quality. The 12 business goals from the Love Every Drop strategy are included and referenced in the SDS, which supersedes a number of previous strategies and demonstrates a clear strategy and integrated thinking. The updated SDS has been published and communicated internally and externally. It underpins other strategies including: CXTP, Asset & Operations, People etc. The SDS also adopts a resilience framework to consider resilience in the round (including operational, financial and corporate resilience). Anglian Water is one of the few companies to have updated its SDS in advance of PR19, and this demonstrates a clear commitment to long-term planning.</p> <p>The PR14 customer outcomes have been refreshed in the recently published SDS, which provides a long-term strategy to 2045. The SDS sets out strategies to deliver each outcome and identifies challenges that will affect it. The outcomes are also linked to the UN Sustainable Development Goals.</p> <p>Building on longer-term objectives in its SDS, Anglian Water have set out their priorities for AMP7, which are customer, leakage, and efficiency ^C. These priorities, as well as the vision and principles developed for the SDS, will feed into the AMP7 operating model.</p> <p>The updated SDS provides clarity regarding the company's strategic direction, removing some of the previous ambiguity that resulted from having a number of strategy documents. We consider that Anglian Water currently has a developed and implemented a response to its strategic direction.</p>
Planned for AMP7 and beyond	<p>As noted above, the updated SDS provides clarity regarding the company's strategic direction. We expect that this will be implemented in AMP7 to demonstrate its potential to be a leading approach.</p>



4. Maturity assessment

Effective governance and assurance processes

Maturity Summary	1 Unaware	2 Aware	3 Response developed	4 Response actioned	5 Leading
The company has reliable and well disseminated processes, roles, governance and reporting covering all aspects of the business. There is a clear process for assurance, approval and board sign-off.	Current and Ongoing Activities				
	Planned for AMP7 and beyond				

Maturity Assessment

Current and Ongoing Activities	<p>This assessment understands that Anglian Water has a clear process for governance and assurance. This includes a Scheme of Delegation, to ensure correct process and reporting, and includes regulation, finance, strategy and management, and policies and the 2014 Corporate Governance Code details business roles, reporting, transparency, governance.</p> <p>Targets for the business (both financial and non-financial) are set annually and aligned to the five-year strategic delivery plan. The business produces a ‘performance book’ which is updated on a monthly basis and shows actual performance to date, forecasted performance for the year and a comparison to both the target and the prior year. The most significant metrics are summarised on a page at the start, and a dashboard is shared with the AWS board, with the full report presented to the management board. The focus for these reviews is early identification of trends or issues so that timely corrective action can be taken.</p> <p>Anglian Water has several key business standards for management systems, and they share the same structure and use common system clauses to ensure consistency and compatibility. An independent auditor (LRQA) are employed to assess these core set of requirements across the business’ functions and activities. Anglian Water’s Integrated Management System (IMS) unifies its management system processes into a complete framework, unifying the objectives of the organisation and optimising use of resources as well as enabling better governance and assurance across the business. Anglian Water has an Audit Committee, whose principal role is to examine any matters relating to the financial affairs of the company and provide effective oversight and governance of the company’s internal control and risk management processes.</p> <p>Anglian Water are certified and independently audited to ISO9001. In addition, Anglian Water’s Customer Engagement Forum has the ability to requisition its own reviews or audits of Anglian Water’s data, procedures, policies or processes. Anglian Water also have a sustainability and resilience sub-group of the customer challenge group, which acts as an independent advisory group. The chair of this group is Craig Bennett, Chief Executive of Friends of the Earth. Anglian Water are also sponsoring a project run by Sustainability First on developing capacity and understanding of what public interest looks like in utilities across energy and water (‘New-Pin’).</p> <p>Anglian Water’s policies and standards for water supply hygiene (POSWSH) are clearly defined alongside responsibilities for supporting them. POSWSH standards are approved by the Policy Advisory Group (PAG), and reviewed on an annual basis, and the procedures are reviewed every two years. Progress against the review process is monitored at a monthly POSWSH update meeting.</p>
--------------------------------	--



4. Maturity assessment

Effective governance and assurance processes

Maturity Assessment	
Current and Ongoing Activities	<p>Assurance is provided by external challenge of governance by third parties, including non-executive Board directors. The Board membership has a majority of independent non-executive directors (INEDs), and some of the committees are specifically comprised of solely INEDs, in order to ensure that management is not incentivised to take a short-term view. As part of Anglian Water’s securitisation arrangements, no dividends can be paid unless at least two INEDs are satisfied that the viability of the business is assured. The company also has a policy in place to ensure that the roles of the Chairman and Chief Executive Officer are kept separate, with responsibilities clearly divided and documented. There are six different Alliance boards. There is clear process to deal with risk like a Market Reform Group exists to deal with opening of retail market and management of legal risks (bribery, data protection, env. protection) undertaken through appropriate policies, awareness and training. The company has an established annual business planning cycle which is signed off by the Board. No changes are planned. In Ofwat’s Company Monitoring Framework 2017 Anglian ‘exceeded expectations’ for charges engagement partly due to detailed information in Board Assurance Statements and received a ‘meets expectations’ for board leadership, transparency and governance for meeting Ofwat’s principles but with reporting being highlighted as a weak area. It also found the Board has also provided a suitably signed off Risk and Compliance Statement and suitable process to meet these obligations.</p> <p>The Strategic Priorities Board (SPB) provides internal regulation within Anglian Water. Its purpose includes monitoring and review of business performance, delivery of ODIs and performance commitments and delivery of obligations. The SPB is separate from the operational business and overseen by the Chief Executive. It sets longer term strategic priorities based on longer term risks, rather than reacting to short term pressures. The SPB has delegated powers to allocate investment or change plans.</p> <p>Environmental and drinking water compliance is assured through a senior review group (WQECG – Water Quality & Environmental Compliance Group) which includes the CEO as well as Directors of Water and Water Recycling, Heads of Water Quality and Environmental Quality, the Head of Asset Planning and senior members of Legal and Media teams. Weekly meetings of the WQECG include a review of significant drinking water, environmental and media issues from the previous week to understand and assess the impact on customers and the company’s reputation with regulators, as well as briefings on quality compliance, strategic quality risks and lessons learned.</p> <p>Assurance of covenants linked to raising of debt is carried out through members of the board and senior management taking responsibility for owning covenants in each business area, and reporting compliance on a monthly basis, with any potential issues raised at a monthly Financing, Treasury and Energy Policy Group (FTEPG). This process is managed by the Group Treasury, who also hold annual reviews with each of the covenant owners.</p> <p>Anglian Water has clearly demonstrated its response to governance and assurance is actioned and embedded. An executive director with specific responsibility for resilience, challenge from the CCG specifically on resilience and a Strategic Priorities Board to consider longer-term challenges all point to a leading approach within the industry.</p>
Planned for AMP7 and beyond	<p>Anglian Water plans to submit its PR19 Business Plan on before 3 September 2018. The plan will have full Board Assurance.</p> <p>We expect Anglian Water’s to continue to learn and evolve its approach to governance and assurance planned for AMP7 and beyond to retain this leading position.</p>

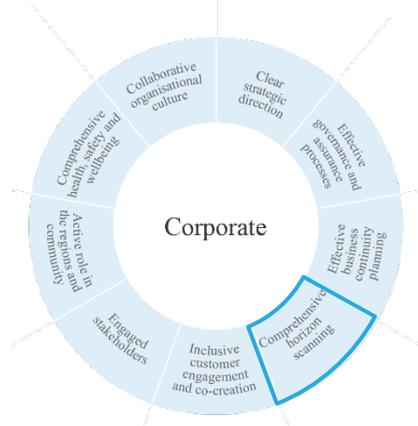


4. Maturity assessment

Effective business continuity planning

Maturity Summary	1 Unaware	2 Aware	3 Response developed	4 Response actioned	5 Leading
<p>The company has a risk-based approach to resilience planning linked to the National Risk Register and the likely impact on service to customers. A set of response plans are in place to prepare for, respond to and recover from potential impacts. Plans are regularly trained and exercised, with everyone in the company knowing their roles and responsibilities. All critical assets have emergency plans and all critical teams will be able to recover to minimise impact on service. Approaches will follow best practice, e.g. ISO 22301 and the Business Continuity Institute Good Practice Guideline 2018.</p>	Current and Ongoing Activities				
	Planned for AMP7 and beyond				

Maturity Assessment	
Current and Ongoing Activities	<p>Currently, Anglian Water has a Business Continuity Management System certificated by a third party (Lloyds Register Quality Assurance) for compliance with International Standard BS ISO 22301:2012, and are the only water company in the UK with this standard. The company has mapped its critical activities as part of its business impact analysis and process recovery plan programmes. When testing these plans during exercise programmes, critical teams are included to validate their plans and ensure that the business co-ordinates an effective response and makes the best use of resources during an incident. The business has robust precautions in place for cyber security threats.</p> <p>We also understand that megatrends and risks are considered at board level, in the audit committee, and an external audit is undertaken annually. A risk register has also been created across the business which considers health & safety risks, National Risk Register, regulatory & policy risks, business delivery risks, financial risks, business compliance risks, legal compliance risks against the risk score and trend against outcomes, and use a JCAD system to manage risk with a 20 year time horizon. Anglian Water also take an active role in Government- and Cabinet Office events around security, emergency planning and business continuity activities.</p> <p>On cyber security, Anglian Water review technical designs to ensure there are no single points of failure, which ensures its technical solutions are resilience and can maintain continuity, as well as providing assurance that the processes in place are providing good levels of protection. Anglian Water has a Security Operations Centre which provides 24/7 analysis of threats and attacks. Robust management of cyber security controls such as patching or anti-virus reduces the likelihood of outages, which reducing the risks of business continuity issues.</p> <p>Compared to other examples of water company approaches to business continuity planning, Anglian is demonstrating leading practice including obtaining third party assurance through ISO certification.</p>
Planned for AMP7 and beyond	<p>In AMP7 and beyond, Anglian will maintain its industry leading position if it continues to improve alongside national and international best practice and set the standards for the UK water industry.</p>



4. Maturity assessment

Comprehensive horizon scanning

Maturity Summary	1 Unaware	2 Aware	3 Response developed	4 Response actioned	5 Leading
Plans, strategies and actions are all based on the outcome of comprehensive and robust horizon scanning which takes into account future shocks and stresses that may impact areas of the business. Horizon scanning is regularly reviewed.	Current and Ongoing Activities		Planned for AMP7 and beyond		

Maturity Assessment	
Current and Ongoing Activities	<p>This assessment understands that risks are currently managed with a 20 year horizon and the Management Board considers megatrends. Climate change adaptation planning and National Risk Register and ‘all hazards’ assessments are cross referenced with business unit and strategic risk registers to ensure there are no gaps in coverage. Horizon scanning has provided input into a range of long-term plans; evidence was originally collected to inform the 2007 Strategic Direction Statement (SDS). In 2012, in support of PR14, Outsights was appointed to develop long-term scenarios and in 2016, Oliver Wyman was appointed to develop a revised set of scenarios, working with the Board. Anglian Water has also sought third party expert input on horizon scanning from PWC. Long-term challenges were reviewed as part of the 2017 SDS refresh. Horizon scanning has also been undertaken in relation to specific topics. For example, In 2011 and 2015, climate change adaptation report were published.</p> <p>However, there remains an opportunity for Anglian Water to improve understanding across the business and between teams; sharing the outputs from these horizon scanning activities to inform an even greater number of plans, strategies and actions.</p> <p>Anglian Water has developed its approach towards horizon scanning to some degree, and used this to inform key plans and strategies. There is further scope to engage across the organisation on horizon scanning – both to get input and to communicate findings and thinking to ensure all of its business areas are taking future trends and scenarios into consideration when planning and making decisions, and so a score of 3 is given.</p>
Planned for AMP7 and beyond	<p>With Regulation changing to Regulation and Strategic Direction Anglian Water is strengthening its capability in the area by the joining of regulation, corporate affairs and asset management. It has also committed to review and update our scenario planning on a 4-5 year cycle, and it is likely this will be done on a more regularly on a topic specific approach.</p> <p>Anglian Water has committed to ongoing review and update of its scenario planning and horizon scanning activity, and so scores a “response actioned” level 4 into the future.</p>



4. Maturity assessment

Inclusive customer engagement and co-creation

Maturity Summary	1 Unaware	2 Aware	3 Response developed	4 Response actioned	5 Leading
The company has a clear two-way dialogue with customers to ensure that customers are included and to improve transparency, cooperation and collaboration on current performance and future direction for the business. Customer policy and practices are established to meet the needs of customers in vulnerable circumstances. The company aims to establish trust, confidence and legitimacy.	Current and Ongoing Activities				
	Planned for AMP7 and beyond				

Maturity Assessment

Current and Ongoing Activities	<p>Based on evidence seen as part of this assessment, Anglian Water has an inclusive customer engagement strategy, underpinned by the recent ‘Anglian Water Engagement Strategy Booklet 2017’ which was co-created with domestic and commercial customers. This document demonstrates a good understanding of perspectives of different customers, how they should be engaged and what Anglian Water’s gaps are in current engagement: for example that resilience can bring benefits in the short-term as well as the long-term, and incorporates financial and corporate elements as well as the more direct operational. Anglian Water has undertaken customer segmentation, developed a resilience co-creation report, set up an online community which opens up a two way dialogue with customers and has a new question every week to direct customers to the most useful topics to discuss, undertake regular talks and presentations and community groups around its supply area. For example, Anglian Water has carried out customer perception surveys via its online community, Love Every Drop, to understand their experiences of sewage network rehabilitation. This activity enabled the company to understand and minimise frustrations in relation to rehabilitation works thereby increasing customer buy-in to company plans and practices and providing evidence of customer priorities and concerns to be considered in future projects. Customer engagement focuses on ideas in the next AMPs so looks five to 10 years in the future. Anglian Water has engaged with 500,000 customers at PR19, compared to 50,000 at PR14. This engagement has allowed a better understanding of the best engagement methods (including value exchange and including short term benefits for the short term).</p> <p>Anglian Water has launched a collaborative learning programme via a series of guides including on community regeneration and innovation. These focus on working closely with communities to drive systemic change and co-create a shared vision. There are also Community Ambassadors who run talks to seek the views of organisations that have an interest e.g. customers, communities, housing developers, retailers, manufacturers and government. Anglian Water has developed a leading collaborative approach with JCP Ltd which allows co-creation involving partners, the business and customers</p> <p>A regular synthesis of customer views is compiled by an independent consultant from the results of the customer engagement that Anglian Water carries out – this has been updated every month during PR19 business planning, and will continue to be updated at less frequent intervals going forwards.</p> <p>Anglian Water has carried out work with two suppliers – Community Research and Accent – to start to define its new response to customers that may find themselves in vulnerable circumstances. Through this, Anglian Water has identified that it has more to do in this space, and a step change is planned in AMP7 to move from 30,000 to 300,000 customers on the Priority Services Register.</p>
--------------------------------	--



4. Maturity assessment

Inclusive customer engagement and co-creation

Maturity Assessment	
Current and Ongoing Activities	<p>With a mandate to make recommendations to enhance customer influence within the decision making processes of the company, Anglian Water’s Customer Board also meets bi-annually. The Board is responsible for reviewing and challenging strategies from a customer perspective, providing feedback on developing customer experience plans and channels, and ensure these are representative of Anglian Water’s customer base.</p> <p>In day-to-day contact and communication, Anglian Water can point to metrics that demonstrate good practice. For example, in the Ofwat Service Incentive Mechanism (SIM) with a 2017/18 score of 88 (one of three companies nationally to score this) compared with an industry average of 84.</p> <p>There is also work being undertaken to prepare customers for extreme events through joint media campaigns. The “Keep Your Pipes Cosy” campaign was commended by Ofwat as part of the 2018 freeze-thaw review, Out in the Cold. Anglian Water was praised for its approach to communication with customers and stakeholders, through a range of media.</p> <p>Anglian Water has a clearly developed response towards customer engagement, and two-way dialogue allows co-creation of solutions and ensures the company are investing in the right areas according to customers’ needs. Its inclusive approach is epitomised by the co-creation of its customer engagement strategy and extensive engagement for PR19, which helps to demonstrate a leading approach.</p>
Planned for AMP7 and beyond	<p>The Engagement Strategy Booklet 2017 states that the business aims to shift to be more customer led. Following the success of the PR19 online community Anglian Water has made a decision to make this a permanent feature of its customer engagement strategy, demonstrating an ongoing commitment to a two-way dialogue with customers.</p> <p>Anglian Water has committed to a step change in its approach to customers in vulnerable circumstances in AMP7, highlighted through a ten-fold increase in</p> <p>Anglian Water will need to continue to evolve and innovate to retain its leading approach to customer engagement into AMP7.</p> <p>The fact that Anglian Water will be engaging with customers on all aspects of the business, and embedding its good practice from PR19 business planning engagement into ongoing customer engagement activity, means we expect them to further demonstrate inclusive customer engagement and co-creation in AMP7 and beyond, building trust and resilience.</p>



4. Maturity assessment

Engaged stakeholders

Maturity Summary	1 Unaware	2 Aware	3 Response developed	4 Response actioned	5 Leading
The company plans, manages and undertakes regular and clear communications with stakeholder groups and organisations. Collaboration is determined through multi-agency participation with tangible outputs that improve the resilience to customers and the business.					
	Current and Ongoing Activities				
	Planned for AMP7 and beyond				

Maturity Assessment

Current and Ongoing Activities	<p>Anglian Water has an active stakeholder network, which is maintained across multiple areas of interest including technical, political, operational and environmental. Lobbying and engagement work includes updating stakeholders regularly both face-to-face and through topic-specific bulletins. Anglian Water has established a leading communication and engagement strategy 'Love Every Drop'. This strategy led to Anglian Water to be awarded 'Responsible Business of the Year 2017' by the Business in the Community Responsible Business Awards. Anglian Water has produced a business resilience leaflet for the Local Resilience Forum, and has emergency planners so stakeholders know what Anglian Water's response to an event will be to enable easier emergency planning. When dealing with extreme events stakeholders, like Local Authorities and partners, are engaged for multi-agency plans and joint campaigns through a number of exercises and events. This was observed by Ofwat in the 2018 Freeze-thaw event.</p> <p>Anglian Water has also carried out projects in partnership with others, including on flood defences and Water Resources East.</p> <p>Anglian Water is a member of CBI and the regional Chambers of Commerce, as well as a number of issue- and industry-specific groups such as CIPR, IoW, UKWIR etc. The business takes an active role in Government- and Cabinet Office organised events on risk and resilience issues, and maintains regular dialogue with regional elected officials, both in response to specific issues and more generally on issues of corporate significance. Effectiveness of Anglian Water's multiple internal communications channels for the dissemination of information is periodically reviewed.</p> <p>The business is part of a Multi Agency Support Group (MASG) to help share and collaborate both during business as usual, for example by maintaining a site on 'Resilience Direct' for sharing information, as well as during large scale events – for which exercises are regularly planned, based on the National Risk Register and with the involvement of all agencies and all category responders. The company is also part of the Water Sector Risk Group, sharing approaches to risk management and seeking best practice, including by involving experts from the private sector. Anglian Water is also part of several Water UK groups for sharing best practice, collaborating to review and influence changes in legislation and working with regulators and agencies to improve sectoral resilience. The company has a unique partnership with Allia and Opportunity Peterborough through the Water Innovation Network (WIN), which provides local SMEs with an opportunity to collaborate with Anglian Water and showcase innovative products and services. The network is free to join and has over 900 members.</p> <p>Anglian Water's stakeholder management and engagement has helped deliver some clear results for the company and the region, and demonstrates an actioned response to building resilience in this category.</p>
--------------------------------	--

4. Maturity assessment

Engaged stakeholders



Maturity Assessment	
Planned for AMP7 and beyond	<p>The 2017 Strategic Direction Statement commits Anglian Water to continue to deepen and extend its collaboration with partners across the region.</p> <p>We have seen evidence that Anglian Water is looking to undertake further communication and partnership working on catchment management initiatives, and fluvial, pluvial and coastal flooding schemes in future AMPs, including through established business to business initiatives such as Water Resources East, and the LEP (Local Enterprise Partnership). Through the AMP6 and PR19 process Anglian Water has established open channels with customers including twitter, and online communities. It is expected that these will continue as channels in AMP7 and beyond.</p> <p>There are no significant changes planned for Anglian Water’s stakeholder engagement strategies in AMP7 and beyond, so we expect its score will remain as a Level 4.</p>



4. Maturity assessment

Active role in the regions and community

Maturity Summary	1 Unaware	2 Aware	3 Response developed	4 Response actioned	5 Leading
The company undertakes activities which have wider benefits to the communities that are served allowing them to grow and develop through enabling sustainable growth, both at a regional and local level demonstrating corporate citizenship in the process. The company is establishing goals to meet the carbon challenge contributing to their global and local impacts.			Current and Ongoing Activities		
			Planned for AMP7 and beyond		

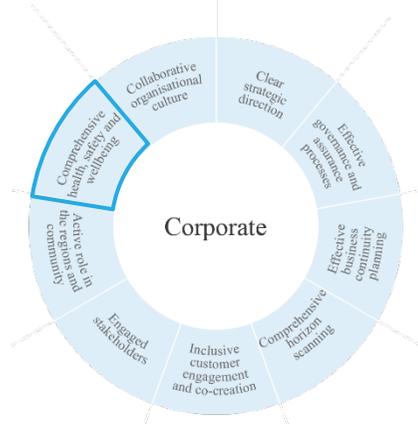
Maturity Assessment	
Current and Ongoing Activities	<p>Currently, Anglian Water has a number of initiatives which demonstrate a desire to have a positive role in the community. These include the Anglian Water Community Education Team, three Education Centres, a community outreach programme and the employee volunteering scheme 'Love to Help'. The Community Education programme encourages behavioural change by developing students' knowledge about the key issues facing local areas including growth, climate change, and the need for sustainable water management – and through this it also raises aspirations and provides an awareness of career pathways, developing local talent pools and encouraging social mobility. There is also a Community Ambassador Programme which enables customers to feed into the PR19 strategy, focusing on key issues in the region. Anglian Water partners with local groups such as the Women's' Institute and Adult Social Care Great Yarmouth.</p> <p>There are some examples of Anglian Water taking a leading role in a community. For example, its work on community regeneration in Wisbech; Anglian Water has worked with partners to introduce new Further Education courses and develop a vision for a new garden town, with over 10,000 new homes. In order to share their experience with others, Anglian Water has produced a guide for other public, private and third sector organisations, aiming to demonstrate the potential to achieve mutual goals through strong leadership, innovation and collaboration, with both business partners and communities. Anglian Water will take the learning from some individual parts of this programme to apply in other geographies (e.g. Hartlepool college).</p> <p>Anglian Water has set targets to 2030 for reduction in capital carbon emissions, and for 2020 for reduction in operational emissions. It is on track to meet these targets. In addition, it has set an ambitious target, in line with the aims of the Paris Agreement, to become a carbon neutral business by 2050. Anglian Water aims to lead by example on this front; for example it was founding member of the Prince of Wales's Corporate Leaders' Group (CLG) for Climate Change, and was Business in the Community's Responsible Business of the year for 2016/17.</p> <p>Currently, Anglian Water has developed and has some actioned responses to maintaining an active role in the regions and community, in particular focusing on education and engaging with young people. There is an opportunity to set out a more comprehensive plan to learn from experience in Wisbech and elsewhere. The company's carbon reduction ambition is leading and there is further work to do to deliver against this ambition. The company scores a Level 3 in this section based on the evidence we have seen.</p>



4. Maturity assessment

Active role in the regions and community

Maturity Assessment	
Planned for AMP7 and beyond	<p>In AMP7 and beyond, the long term strategy Strategic Direction Statement (2020-2045) has the outcome ‘Caring for communities’ including goals for contributing to the community by facilitating population and regional economic growth, as well as being a good neighbour. It has also set the leading ambition to become carbon neutral by 2050, demonstrating a response that will be actioned in the future. Anglian Water seems to have a good understanding of how to engage with its communities and the need to take a leading and active role at times. However, there could be more detail on the pathway Anglian will follow to achieve the goals identified in the SDS: How will specific activities contribute to regional growth? What community needs will be addressed, how will these needs be identified?</p> <p>Anglian Water’s incorporation of caring for communities and zero carbon commitment in its long term strategic direction statement indicates that its response will be further developed and actioned in AMP7 and beyond.</p>



4. Maturity assessment

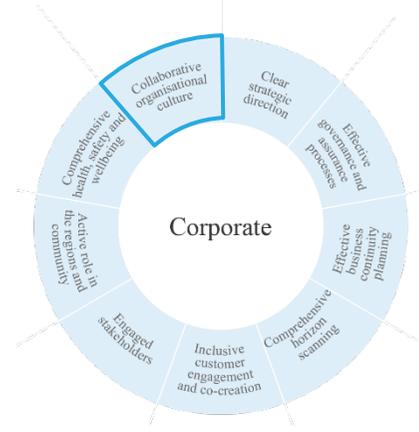
Comprehensive health, safety and wellbeing

Maturity Summary	1 Unaware	2 Aware	3 Response developed	4 Response actioned	5 Leading
The company has reliable and robust plans for health, safety and well-being which will make significant and measurable improvements to the lives of the workforce. There is a strong health and safety culture, where behaviours are over and above what is required.	Current and Ongoing Activities				
	Planned for AMP7 and beyond				

Maturity Assessment

Current and Ongoing Activities	<p>Currently, there is a company-wide occupational health and safety management system which is compliant with the International health and safety assessment specification OHSAS18001:2007. There are various wellbeing initiatives including 'Personal Resilience in the Workplace', information pack to help first line managers to support the health and wellbeing of their team, and 'Living in an Injury Free Environment' (LIFE) which has pillars on Healthier, Happier, Safer Environment, as well as employee 'Health MOTs', debt advice and online access to advice. Anglian Water provides healthcare cover for all, but maintains flexibility by allowing employees the option to reduce their cover and select other wellbeing benefits should they feel these can enhance their wellbeing. Anglian Water has been recognised by external awards; both as a business and through individual members of staff, with the company being awarded 'Responsible Business of the year' award for its Employee Assistance Programme, and one employee receiving an 'Employee Wellbeing Visionary' award from the Reward and Employee Benefit Association.</p> <p>Anglian Water has a well developed and actioned response towards Health, Safety and Wellbeing, and this has been recognised by a number of external awards. To demonstrate leading practice, we would expect to see clear processes for developing and reviewing indicators and associated controls for specific health, safety and wellbeing issues relevant to its business.</p>
--------------------------------	---

Planned for AMP7 and beyond	<p>For AMP7 and beyond, it appears that the business is going in the right direction through various wellbeing events and campaigns are planned up to 2020, detailed in 2020 Plan for Wellbeing. e.g. hygiene. It is currently unclear how progress and success of these wellbeing events will be measured. Anglian Water regularly undertake surveys which are independent to the business, the most recent was completed in June 2017. Action plans from this 'Love to Listen' survey are being developed and signed off in November 2017.</p> <p>There are no significant changes to Health, Safety and Wellbeing processes in AMP7 and beyond, therefore the scoring is not expected to change in the future based on evidence seen to date.</p>
-----------------------------	---



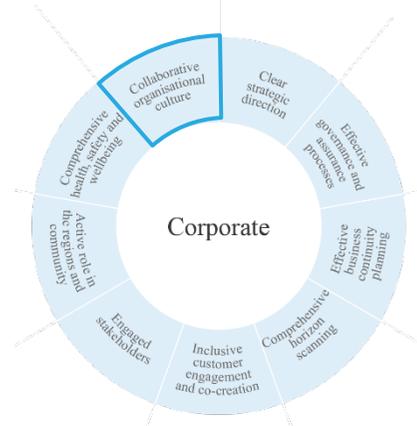
4. Maturity assessment

Collaborative organisational culture

Maturity Summary	1 Unaware	2 Aware	3 Response developed	4 Response actioned	5 Leading
A notable organisational culture that puts collaboration and change at the heart of all they do. This is apparent in the values, policies, plans and working practices of all employees who understand the fundamental roles they play in the service value chain.; working together across boundaries in the service of the customer and community. Empowered and engaged staff, with the capability, capacity and mandate to learn and adapt to events and change, is evident in the short, medium and long-term management of the operation; not simply one-off innovations and in response to major 'events'. The organisational approach to collaboration aligns with ISO044.			<div style="background-color: white; border: 1px solid black; padding: 5px; display: inline-block;">Current and Ongoing Activities</div>		
			<div style="background-color: white; border: 1px solid black; padding: 5px; display: inline-block;">Planned for AMP7 and beyond</div>		

Maturity Assessment

<p>Current and Ongoing Activities</p>	<p>Anglian Water’s ‘Love Every Drop’ vision and strategy promotes a number ‘principles’ and strategic pillars; where collaboration, innovation and transformation agility are explicitly noted. These capabilities also underpin Anglian Water’s People Strategy where a focus on growing a culture that supports agility, flexibility, and ‘time to think’ is prized and enabled by an organisation redesign with greater ‘horizontal’ (versus vertical / hierarchical) working will enable more dynamic working and collaboration. Change starts with an awareness of what needs to be different, a desired future and mindful consideration / managing people through it. The ‘Where are we’ sections in both the organisation and People Strategy documents demonstrate a refreshing awareness of Anglian Water’s current state including capability gaps, the aspirational ‘where next’ and the impacts. For example Anglian Water notes that it has ‘well developed alliances with capital partners and customers but silos exist within the organisation which reduce knowledge sharing’. The process for creating these strategies has been notably collaborative; engaging across staff; partner / supply chain and customers to inform direction. There are also encouraging signs that collaboration and change is happening in pockets. For example, better collaboration between Ops, Delivery Teams and Asset Management has delivered fully prioritised programmes of work which reach decision milestones more quickly and with reduced expenditure.</p> <p>In 2018, an organisational restructure is underway, and the business has built up its transformation and change capability in order to deliver this change. Anglian Water’s “Shop Window” innovation programme is further evidence of organisation’s cultural approach to adaptation and change, embracing new technologies and approaches. It provides a real-world location where collaboration across business, supply chain and all those engaged in the water cycle value chain can unlock synergies between new technologies and different ways of working; accelerating learning.</p> <p>There are a number of examples of a collaborative approach with partners. For example, multi-agency, multi-county collaboration in Emergency Planning enables best practice sharing and lessons learnt. The Water Innovation Network (WIN) is a unique partnership between Anglian Water, Allia and Opportunity Peterborough which provides SMEs within the East Anglia region an opportunity to collaborate with Anglian Water, showcasing their innovative products and services to help Anglian Water meet its objectives; providing a potential market for new businesses.</p>
---------------------------------------	--



4. Maturity assessment

Collaborative organisational culture

Maturity Assessment	
Current and Ongoing Activities	<p>Although Anglian Water has clear evidence of how it successfully galvanises staff and partners during incidents, it is aware more needs to be done to create a collaborative and adaptive culture that addresses long term change systemically (not only in a crisis). Significant investment in Directors, Band 4s and Front Line Managers (FLMs) is focused on creating a connected and common language across leadership. A multi-agency collaboration programme is in place to train staff and test plans relating to resilience and incident management.</p> <p>Staff perceptions of the working environment at Anglian Water is evidenced by the fact the company was ranked in second place on Glassdoor.com’s ‘Best companies to work for’* for 2018.</p> <p>There appears to be various levels of understanding, engagement and communication of what resilience is, and what it means to Anglian Water as a whole as well as different teams and business areas. There seems to be limited communication between teams of their view of resilience and the ways they are working on it, however there does appear to be good understanding at high level, and appetite to improve this throughout the business.</p> <p>Anglian Water is assessed to be at level 3, as through its People Strategy there are clear plans in place to deliver greater agility, flexibility and collaboration throughout the organisation.</p>
Planned for AMP7 and beyond	<p>In AMP7 and beyond, Anglian Water has identified what it defines as ‘The Right Culture’ in The People Strategy. This identifies a number of aims to address what has been identified as current issues with the organisational culture, including more collaborative ways of working, and greater self reliance and equality rather than paternalism. There is also an emphasis on the move to digital focused workforce and organisation, but no mention of the natural environment and very limited reference to customers. The August 2017 draft of the People Strategy reviewed as part of this assessment did not include measures of success, so there is an opportunity to further strengthen delivery plans to achieve the level 4 awarded here.</p> <p>Anglian Water scores a level 4 for future, reflecting evidence of plans to implement its People Strategy, achieving agility, flexibility and collaboration throughout the organisation.</p>



4. Maturity assessment

Continuity of service to customers

Maturity Summary	1 Unaware	2 Aware	3 Response developed	4 Response actioned	5 Leading
<p>Company operations focus on providing a continuity of service to customers and avoiding critical service failures, such as supply interruptions and internal sewer flooding. It takes into account the different needs of customers, particularly those who are vulnerable. Service interruptions only occur in the most unforeseeable situations. Asset condition and criticality is understood and all critical aspects of the network have redundancy built in. Mechanisms to regularly review and update all plans are in place.</p>					
	Current and Ongoing Activities				
	Planned for AMP7 and beyond				

Maturity Assessment

<p>Current and Ongoing Activities</p>	<p>Anglian Water’s certification to ISO 9001, ISO 22301, ISO55001 and PAS55 is a fundamental part of ensuring the quality of its continuity of service to customers. Anglian ensures resilience of services to customers through duality and redundancy of water supply, with a dedicated programme in place to reduce the number of customers that rely on a single source of supply. This programme has achieved a reduction in customers on single sources of supply from 43% to 24.7%, and this will continue to reduce through network improvements, extension and alternative treatment options as well as additional investment for ‘daisy chaining’ particularly vulnerable areas in rural Norfolk.</p> <p>As part of Anglian Water’s Capital Delivery and Commissioning process, and through its @One Alliance, it provides resources for testing new assets for the first time to ensure reliability and performance prior to handover to the end user. The @One Alliance is fully integrated into delivery teams to ensure input is provided from the start of design through to handover. The Capital Delivery also takes responsibility for training Operational colleagues on new assets; and on large or complex capital projects the business often chooses to embed operational staff members into the capital delivery team to ensure maximum understanding of any new processes prior to handover.</p> <p>In terms of ensuring continuity of service to customers, Anglian Water has clear processes in place for this. For planned work and interruptions, the approval process requires a risk assessment to be undertaken and an impact plan forms part of this risk assessment if there is a risk to service or water quality. The impact plan requires step-by-step assessment and quantification of risk with control and mitigation measures, and provision of contingency in some cases. There is a clear approval process required including approval from local supply and network managers and scientist, and final approval by the OMC tactical ops team.</p> <p>A suite of dedicated ‘interruption to supply’ (I2S) programmes was undertaken in AMP6, improving the time taken to restore supply, and undertaking risk assessments and priority improvements to risk reduction measures such as comms links, generator sockets, mobile generators, PRVs, tower bypasses, remote reset capabilities for pumps and other small scale resilience opportunities. Anglian Water’s emergency equipment provision supports its compliance with the Security and Emergency Measures Direction (SEMD) and minimises potential impact on customers, as well as building resilience around preventing supply interruptions. A range of equipment including bowsers, tankers, and bottled water stocks is maintained to provide alternative supplies during events. Internal and third party audits of SEMD requirements inform the company’s Annual Compliance Statement provided to Defra.</p>
---------------------------------------	---



4. Maturity assessment

Continuity of service to customers

Maturity Assessment	
Current and Ongoing Activities	<p>Anglian Water uses a structured suite of ‘Emergency Management Procedures’ (EMPROCs) to ensure it is sufficiently prepared to respond and recover from any level of impact event or incident. The procedures are subject to planned and on-going testing and exercising. Anglian also has comprehensive response and recovery plans for assets and temporary equipment.</p> <p>Anglian Water has produced a business resilience document, including management of warning and information which contains external communication methods, and through planning with the Local Resilience Forum, and responding with incident support managers, has effective plans and responses in place for engaging customers during incidents and emergency events. The business is part of a Water Sector group whose members actively support each other during incidents and events, principally through sharing alternative supplies but also enables sharing of specific expertise etc. Anglian Water has mutual aid arrangements in place as part of this. Anglian Water is also part of a Water UK group (‘Watercare register’) to review and ensure maximum benefit to customer service. The register is used during incidents and events to tailor its response for priority services customers and those with specific needs.</p> <p>Anglian Water has deployed an Integrated Remote Intelligence Service (IRIS) system, a top end telemetry system that brings together real time information from the assets and allows the control room to manage issues from the centre. It also uses business intelligence systems to integrate the real time information with IT information to inform strategic tactical and operational decision making, to enable continuity of service to customers. Anglian Water is extending it to develop real time modelling for wastewater and water networks.</p> <p>During the freeze thaw event in March 2018, Anglian Water minimised the impacts to customers with 99.6% of customers experiencing no impacts. Investment in information systems including IRIS and the Integrated Pressure and Leakage Management System (ILPM) enabled Anglian Water to target resources to address areas of greatest need. Their alliance model enable them to deploy response teams to address problems. Implementation of resilience schemes has reduced the number of customers dependent on a single source of supply and provided more options to minimise customer impacts from the event.</p> <p>Anglian Water has demonstrated that it has a clear programme to continue to deliver continuity of service to customers, as evidenced, for example through the freeze thaw incident in March 2018. Its IRIS system is one of the features that demonstrates leading performance in this area.</p>
Planned for AMP7 and beyond	<p>In AMP7 Anglian Water are planning to have real time analytics of water and waste services from their control room. The control room will be able to communicate to relevant teams when a disruption occurs.</p> <p>We would expect Anglian Water to continue to deliver its approach under this theme. It will need to continue to review performance and learn from others to continue to deliver leading performance in this area.</p>



4. Maturity assessment

Robust long-term water resource management planning

Maturity Summary	1 Unaware	2 Aware	3 Response developed	4 Response actioned	5 Leading
Water resource management planning and drought planning has been undertaken for the long-term and integrated into business planning to ensure that the company can meet their supply obligations and facilitate sustainable growth. Plans are produced collaboratively with the EA and regional planning groups to ensure best value for customers with respect to cross-company, regional and national supply options. The approach looks at a full range of hazards based on a robust evidence base. Water resource management planning looks beyond the statutory 25 years into the future and develops adaptive pathways for delivering in the long-term.					

Maturity Assessment	
Current and Ongoing Activities	<p>Based on evidence seen as part of this assessment, Anglian Water has some responses developed and some in action to ensure water resource management planning is robust. Anglian is an active member of Water Resources East, working with other water companies, the Environment Agency, Natural England and other stakeholders to develop a strategic water resource plan for the east of England. Anglian Water played a key role on the steering group for the Water UK Water Resources long-term planning framework, the development of which has significantly improved the water industry’s understanding of the severity of recorded droughts and those that might be reasonably expected in the future. The outputs have informed investment decisions to build resilience of upstream water resources during periods of low water availability.</p> <p>Anglian Water has recently published its draft 2019 WRMP for consultation, which outlines the future challenges and provides a principal planning scenario covering the trends where there is greater certainty around the impact, and a further ‘adaptive planning scenario’ which gives an indication of the potential impact that some less certain future scenarios may have, for example sustainability reductions in AMP8 and possible future exports. The document has been informed by extensive customer engagement, and key outputs from the multi-sector Water Resources East (WRE) initiative. However, as noted by Ofwat, there are parts where alignment with WRE is not as strong as it could be. The strategy sets out a number of principles and preferred programme for both demand-side and supply-side solutions, and includes assessment of water trading opportunities to improve regional resilience. It also summarises the results of the latest Anglian Water climate change vulnerability assessment.</p> <p>Anglian Water already engage with regional activity on water resources management by trading (both importing and exporting) approximately 140MI/d of potable water with neighbouring water companies, and Anglian Water continues to evaluate trading opportunities as part of its WRMP and drought planning processes. Some of this trading is designed specifically to improve resilience against drought events and major outages. Anglian Water looks at a planning period of the statutory planning period of 25 years.</p>



4. Maturity assessment

Robust long-term water resource management planning

Maturity Assessment	
Current and Ongoing Activities	<p>Anglian Water has undertaken planning beyond the statutory planning period of 25 years in collaboration with other companies through the Water Resources East partnership. The Water Resources East (WRE) resource management strategy was officially launched to the public on 9th July 2018, and demonstrates a collaborative, long-term approach, considering a range of shocks and stresses. We understand that this work has been central to informing Anglian Water’s own plan. However, there is a further opportunity to communicate this relationship within Anglian Water’s own plan. WRE aims to develop shared vision planning and robust decision making by facilitating collaboration between neighbouring water companies. The group is built on principles of circular and systems-thinking, and intends to pioneer a new approach to managing water resources, and will be investigating innovative solutions with potential for the region, such as desalination, industrial water recycling, transfer networks for water trading, uniting flood control and water supply, natural infrastructure and solutions for effective demand management.</p> <p>Anglian Water has demonstrated a good level of response in its long-term water resource management planning, both in its technical appraisal and in its collaborative approach in the region with WRE and nationally with WaterUK. Its decision making has followed best practice of adopting a twin-track approach and considering adaptive pathways. To demonstrate leading practice, Anglian Water will need to demonstrate more clearly the link to the WRE strategy with its longer-term horizon, and integration of a wider range of shocks and stresses in its scenario testing.</p>
Planned for AMP7 and beyond	<p>In AMP7 and beyond, Anglian has a number of strategic goals relating to water resource management, and, importantly, some plans to achieve those goals. The Strategic Direction Statement 2020–2045 includes the outcome ‘resilient services’ which includes strategies on resilience to drought and ‘supply meets demand’ with a strategy on long-term adaptive planning. There is a goal of 80 litres per person per day and 100% compliant and clean water. The SDS also includes a strategy on demand management and reduced leakage, and the goal of zero leakage and bursts. Within this is a plan to improve monitoring on raw and treatment mains networks, and address leakages on the water supply network and drive down leakage by a further 20mg/l, including through innovative approaches to controlling pressures. Anglian Water is currently reviewing and revising its Drought Plan; expected to be published in 2020. This plan will consider options to reduce demand as well as supply-side options, including trading with other water companies. The 2020 Drought Plan update will refer to increased levels of resilience under future severe droughts.</p> <p>With its leading role in regional and national water resource management planning, we expect this to translate more clearly into its own plans in the future and thus have awarded a level 5, leading, for AMP7 and beyond.</p>

4. Maturity assessment

Flexible, long-term water recycling planning



Maturity Summary	1 Unaware	2 Aware	3 Response developed	4 Response actioned	5 Leading
The company has undertaken drainage and water recycling planning for the long-term enabling sustainable growth in the region without impacting existing customers. Wastewater plans are developed with stakeholders and integrated into their business plans. Plans are published and shared. They focus on critical service failures such as internal sewer flooding and pollution incidents. Best practice from the 21 st Century Drainage programme is followed.	Current and Ongoing Activities				
	Planned for AMP7 and beyond				

Maturity Assessment

Current and Ongoing Activities	<p>Based on evidence seen as part of this assessment, Anglian Water has a clear response actioned to ensure robust long-term wastewater planning. A significant developing response is the Water Recycling Long Term Plan (WRLTP); the first of this type of plan in the industry. Anglian Water’s plan has been prepared and a draft published for public consultation in May 2018. This plan sets out a clear, comprehensive process for assessing the investment needs over the next 25 years using a risk-based approach to determine supply-demand deficit according to local growth plans. The six strategic aims of the WRLTP are integrated into Anglian Water’s SDS. The Long Term Surface Water Management Strategy outlines some goals and proposals for collaborating with partners to implement tree planting and innovative initiatives such as reverse auctions for community projects.</p> <p>By using spatial growth forecasts alongside climate change projections, spending can be prioritised towards sites with the highest deficit and confidence of growth occurring. Infra- and non-infra are aligned and assessed using the same principles, and using key indicators and dynamic asset monitoring to review and update plans and continually improve understanding of system resilience. Alongside this informed investment planning, Anglian Water also ring-fence some funding for emerging investment, where growth sites are not currently included in local plans.</p> <p>Anglian Water have adopted a collaborative planning approach which combines business and delivery planning. Sewer inspection and rehabilitation was the pilot scheme for this approach. The outcomes included benefits across three work streams – PR19, ama and Whitebooks – and will be included in future planning in those areas.</p> <p>Anglian Water has a suite of policies, standards and procedures for water recycling (POSWASTES), which is reviewed at the Water Recycling Interlocking Group, the procedures are currently reviewed every two years and progress of the review process is monitored at the meeting. Associated Work Instructions all have a document sponsor from the water recycling management team and require a minimum quorum for review and approval.</p> <p>Anglian Water has now developed and actioned a robust plan for its long-term water recycling approach. As the plan is delivered, we would expect Anglian Water to quickly demonstrate leading practice in the future, and we expect the company will rapidly become more resilient in this area.</p>
--------------------------------	--



4. Maturity assessment

Flexible, long-term water recycling planning

Maturity Assessment	
Planned for AMP7 and beyond	<p>Anglian Water’s Water Recycling Long Term Plan (WRLTP) is expected to be adopted, shared with partners, and delivered. If Anglian do this, it will demonstrate a leading industry response.</p> <p>In AMP7 and beyond, Anglian Water has a number of strategic goals for long term wastewater planning, and now has a robust and deliverable plan to achieve these goals through a clear, risk-based approach. In developing future plans, Anglian Water has identified a desire to incorporate more integrated thinking, e.g. catchment-wide approaches and initiatives, and to address aging infrastructure obsolescence, considering serviceability and investing for the future of Anglian and its customers.</p> <p>The Strategic Direction Statement 2020–2045 includes outcomes that apply to pollution and flooding such as Resilient services (strategies include resilience to flooding), supply meets demand (sewerage management and water recycling process plans). The statement also pledges to invest in SuDs where feasible to prevent pollution, and has a goal of zero pollution and flooding. The Surface Water Management Strategy takes a longer term view to value and a consideration of wider benefits for investing proactively in reducing unwanted flows to water recycling centres and delivering environmental benefits.</p> <p>Based on these developments, we expect Anglian Water to become a leading example for approaching long term water recycling planning and delivery in the industry.</p>



4. Maturity assessment

Reflective risk-based approach to asset health

Maturity Summary	1 Unaware	2 Aware	3 Response developed	4 Response actioned	5 Leading
The company has undertaken a comprehensive assessment of asset health and asset risk, including long-term low-likelihood risks, having detailed and accurate information on the state of all assets, the way they are configured and the way they are operated. Focus is on criticality, protecting customers and the natural environment from exposure to known risks, and reducing vulnerability to future uncertainties. There is a region wide asset strategy which is adaptive, regularly reviewed and considers changing requirements in the long-term (25 years). They follow best practice for asset management, e.g. ISO 55000.	Current and Ongoing Activities				
	Planned for AMP7 and beyond				

Maturity Assessment	
Current and Ongoing Activities	<p>Based on evidence seen as part of this assessment, Anglian Water has comprehensive responses and long term plans developed to ensure the health of most of its digital and physical assets now and into the future. Anglian Water understands the health of its assets through a risk based approach which includes asset serviceability action plans, an asset level risk portal for monitoring and reporting, and modelling of the impact of asset failure on customer service. This is linked to over 100 service measures which have established private and societal costs. Anglian Water is certified to ISO 55001.</p> <p>Anglian Water has recently developed a Totex based Asset and Operation strategy to consider the full lifetime of assets, and use predictive performance analytics to enable proactive interventions to limit impacts on service. Anglian Water has a data management system with asset information which is used to support decision making. Anglian Water’s approach to asset health is based on the Integrated Remote Intelligence Service (IRIS) system, a top end telemetry system that brings together real time information from the assets and allows the control room to manage issues from the centre. Anglian Water has deployed field devices and asset health checks to monitor the health of their assets. It also uses business intelligence systems to integrate the real time information with IT information to inform strategic tactical and operational decision making. Part of the IRIS system is an Asset Management Framework, which includes a system of risk-based alarms and alert. Deterioration of all assets is modelled. Anglian Water has three asset registers; a geospatial database with the network of assets; a works management system (SAP); and the telemetry asset register. There is ongoing work to bring the telemetry assets into SAP, a process to digitise their assets using GIS with a common naming conventions to integrate with other systems, such as SAP. There is also a plan to migrate to SAP HANA. Anglian Water has adopted C55, a decision analytics tool which enables them to determine where to invest based on customer outcomes.</p> <p>During AMP6, Anglian Water has invested a significant amount into capital maintenance and quality enhancement programmes to drive improvements.</p> <p>This assessment has identified that comprehensive dam break analysis has only been completed for 25% of Anglian Water’s dams. For the remaining 75% there has been some qualitative assessment but Anglian are potentially ‘unaware’ of the risks posed by these.</p>



4. Maturity assessment

Reflective risk-based approach to asset health

Maturity Assessment	
Current and Ongoing Activities	<p>Security of physical assets is implemented and increased where required e.g. intruder alarms, improving security of buildings with toxic materials and manholes. For key water treatment assets that are ‘too critical to fail’ Anglian Water has implemented HAZOP style approach to identify single points of failure, addressing critical situations where no alternative supply exists, and developing mitigation measures for these risks. Anglian Water has a mature drinking water safety planning approach, underpinned by the POSWSH documentation for all quality critical processes, to ensure that it manages water quality from source to tap. Anglian Water is particularly good at response and recovery, evidenced by management plans for asset resilience and the Incident escalation matrix which provides structured, effective response to increasingly significant incidents impacting service delivery or environmental pollution.</p> <p>This assessment has seen Anglian Water’s existing Cyber Security Management Strategy, and identified that Anglian has good processes for managing current and short-term risk, and recognise this is a challenging area due to speed of change and evolution of threats.</p> <p>Anglian Water has a clear suite of ongoing actions to understand and improve asset health, and therefore scores a level 4.</p>
Planned for AMP7 and beyond	<p>For AMP7 and beyond, Anglian Water’s Strategic Direction Statement 2020–2045 has the outcome of ‘resilient services’ with a strategy to improve cyber security and smart infrastructure. This and the existing Cyber Security Management Strategy show Anglian recognise the importance of cyber security and the fast evolving threats. The strategy identifies its aim to consider physical, cyber and personnel security jointly, and demonstrates awareness of longer term risks, including how to provide cyber security to operational assets in IoT, and a strategy that is able to adapt to rapid short term changes in technology. There are also clear next steps identified for the dam break analysis to improve understanding and mitigation of current physical risks. The Digital transformation programme will allow the development of a smart infrastructure and monitoring programme, and there is a project underway to review the current IT systems used for sampling with a view to replacing the existing systems with new ones that are fully integrated into existing corporate systems. This is aspirational and is a multi-AMP strategy.</p> <p>In July 2018, Anglian Water business leaders participated in a workshop to develop the vision and plan for a ‘digital twin’ of the strategic network. A digital twin is a 3D representation of assets with live and historic data. It will address some of the current limitations for IRIS including difficulty with extracting and importing data, reporting and maintenance.</p> <p>These improvements and clear next steps will help Anglian Water improve its resilience in terms of systems for monitoring and maintaining asset health, and the development of digital twins, in particular, is expected to demonstrate an industry leading approach.</p>



4. Maturity assessment

Robust integrated and flexible technology

Maturity Summary	1 Unaware	2 Aware	3 Response developed	4 Response actioned	5 Leading
Technology is used intelligently to deliver real operational and strategic gains. Data-driven decisions are the norm, using both real-time data to adapt and respond, as well as using data for robust long-term decisions. Systems are integrated, including operational technology and information technology systems. Interoperability and integration with systems in other sectors has been considered. Cyber security is paramount, with redundancy built into systems, and processes in place to continually review and improve this. People are at the centre of how technology is designed and implemented, both customers and staff.					
	Current and Ongoing Activities				
	Planned for AMP7 and beyond				

Maturity Assessment

Current and Ongoing Activities	<p>Anglian Water has invested in world leading telemetry systems such as IRIS and ILPM providing operational insight to its Operational Management Centre and in the field. Centralised scheduling and deployment direct to workforce allows risks to be prioritised dynamically. Anglian Water’s extensive telemetry system is itself an indication that previously the company has been a leader in innovating and implementing new technology to meet its changing needs. This assessment has seen no evidence of Anglian Water undertaking routine reflective assessments and iterative updates to make use of the value of the information which this telemetry system offers. Field based staff have access to real time asset performance and risk information. Anglian Water is also investing extensively in smart networks, with the aim of providing a far greater understanding of the operation of its networks and service risks to its customers. Predictive performance analytics enable proactive interventions and risk management. Anglian Water has adopted C55, a decision analytics tool which enables them to determine where to invest based on customer outcomes. Other asset information management tools used by Anglian Water are SAP and GIS.</p> <p>Based on evidence collected as part of this assessment operational technology (OT) and information technology (IT) systems are currently kept separately deliberately to manage the security risk. This is partially due to the difference in the maturity of the security measures in place between the OT and IT systems. IT security has had heavy investment over the past five years and continues to develop at this rate. The OT security maturity is low as the current lack of asset connectivity means the impact of a security break is lower than that of the breach of IT systems. For both IT and OT, the cyber security team provide controls and assurance to maintain the business’ resilience towards cyber attacks and ensure the risk of outages is kept to a minimum. The cyber security team also liaise with the National Cyber Security Centre (NCSC) with regards to significant security events, and participate in the joint industry-government venture CiSP (Cyber Security Information Sharing Partnership). As noted in Reflective risk-based approach to asset health sub-theme assets have Cyber Security Management Strategy which manages risk. Current research on risk assessments for OT is currently being developed.</p> <p>Some of the data sets and systems used have little integration or capacity for interoperability, making decision making based on data is more difficult.</p> <p>There is a programme for improving end user experience which refreshes the user interface, mobility and applications. There have been pilot roll outs of new technology and apps, such as operational apps, tablets in the field, using form rather than website apps, and augmented reality.</p>
--------------------------------	---



4. Maturity assessment

Robust integrated and flexible technology

Maturity Assessment	
Current and Ongoing Activities	<p>The totex-based approach that Anglian Water has recently developed for managing its assets and operations takes a forward-looking view of the technological changes that could drive the industry in the future. By taking a systems thinking approach the company is enabling full optimisation of its asset base as well as adopting collaborative planning to build resilience across the business.</p> <p>Anglian Water has two alliances that are focussed on IT. Through this structure they have the ability to take on new technology and innovate through the supply chain. The @one alliance and the IoS alliance create 3D CAD drawings, point clouds and complete drone surveys however the information associated with these is not currently imported into Anglian Water’s master data systems as the datasets are large. Anglian Water recognise the potential benefits from using these datasets to inform maintenance tasks, investment cases and reduce the amount of site visits and surveys.</p> <p>Anglian Water has demonstrated a good understanding of the technology it requires to maximise its business resilience, and has a good level of understanding of the system-level view and what is required to support this. It recognises that there is work to be done to develop its response in a number of areas including in responding to regulatory changes and integration of IT and OT. However, with its leading telemetry systems and approach to cyber security, overall, we consider Anglian Water to be leading in this area compared to industry peers.</p>
Planned for AMP7 and beyond	<p>For AMP7 and beyond there are plans for significant investments and fundamental redesign of systems particularly significant changes for OT security. These plans are to connect a series of currently stand-alone assets into an OT network. There are also plans for and integration of OT and IT Systems, but security maturity levels must be in a similar state before this can be undertaken. There are plans to incorporate Industrial Internet of Things (IIoT) and Internet of Things (IoT) into systems providing an increased capacity for data analytics, automation, and AI based control.</p> <p>In July 2018, Anglian Water business leaders participated in a workshop to develop the vision and plan for a ‘digital twin’ of the strategic network. A digital twin is a 3D representation of assets with live and historic data. It will address some of the current limitations for IRIS including difficulty with extracting and importing data, reporting and maintenance.</p> <p>The substantial changes planned for AMP7 and beyond are likely to significantly improve Anglian Water’s resilience in its integration of technology and readiness for new technological advancements. We expect to see a step-change once these plans are delivered, and it is likely that Anglian Water can retain its leading performance in this area in the future.</p>



4. Maturity assessment

Innovative, collaborative, naturally-resilient approaches to risk mitigation

Maturity Summary	1 Unaware	2 Aware	3 Response developed	4 Response actioned	5 Leading
<p>There is a robust approach to considering a wide range of options to risk mitigation. Approaches are collaborative, innovative and embrace technological change and the role of the natural environment. A system-wide approach is taken. Collaboration is integrated into business plans, working with customers, other companies, and wider stakeholders to deliver solutions. Approaches considered include encouraging customers behavioural change through smart customer engagement, and use of smart technologies to improve asset performance, customer information, leakage management and water efficiency, natural solutions, such as catchment management to improve raw water quality, and blue-green infrastructure to manage storm water and reduce flooding and pollution incidents. Catchment solutions are considered across the whole catchment, integrating water and wastewater needs.</p>	<div style="background-color: white; border: 1px solid black; padding: 5px; display: inline-block; margin-bottom: 10px;">Current and Ongoing Activities</div> <div style="background-color: white; border: 1px solid black; padding: 5px; display: inline-block; margin-top: 10px;">Planned for AMP7 and beyond</div>				

	Maturity Assessment
Current and Ongoing Activities	<p>Anglian Water is working with other organisations including the Environment Agency as a partner in achieving flood resilience and environmental outcomes collaboratively. Anglian Water also has its own pilot catchment management initiatives including ‘slug it out’. This involved working collaboratively with farmers in a voluntary trial to reduce the amount of metaldehyde entering the water system, on a small scale this was an innovative catchment approach to avoid the costly treatment systems required to remove metaldehyde from drinking water. Following the pilot program, Anglian Water has recommended a targeted ban on agricultural (and domestic) use of metaldehyde in high-risk areas in order to tackle the issue at source. Another example of strategic, catchment scale approaches being taken is the creation of the Ingoldisthorpe Wetland, funded by Anglian Water and created in partnership with Norfolk Rivers Trust and the Environment Agency, which acts as a natural treatment plant for over one million litres of water each day as well as providing a home for wildlife, and providing an overall more beneficial solution than the traditional option which would have been to pump the effluent away to another centre at a financial and environmental cost. These initiatives show Anglian Water has the potential to be leading on natural solutions in this area, and the company identifies the importance of and challenges facing the natural environment in many of its publications.</p> <p>Anglian Water has developed a plan for the integration of the six capitals into their ways of working, and is planning to set up a partnership group on natural capital; Natural Capital East. This approach has been approved by the board and implementation will begin imminently.</p> <p>Anglian Water’s response is developed and actioned in some areas of its business, but there are a number of areas where different approaches are still being piloted. Overall Anglian Water’s score for this section remains as ‘response developed’ for current and ongoing activities.</p>



4. Maturity assessment

Innovative, collaborative, naturally-resilient approaches to risk mitigation

Maturity Assessment	
Planned for AMP7 and beyond	<p>In AMP7 and beyond, Anglian Water has identified plans to continue working in partnership with WRE for water resource planning throughout the century, the EA, Regional Flood and Coast Committees, local authorities, and communities (e.g. through the Make Rain Happy campaign) on flood resilience and surface water management. There are plans through the Community Flooding Programme to model and where appropriate implement SuDS solutions to flood risk. Following the ‘slug it out’ campaign, interviews and workshops have identified possible plans to extend this to a bigger strategy to improve water quality through advice, best practice, and financial incentives. There is senior level endorsement of the idea of natural capital and catchment solutions, and a drive from the specialists to embed these solutions more broadly across the organisation in the future. The company is keen to develop and embed the ‘Six Natural Capitals’ approach to decision making at every scale; and sees this as a potential UK first and a key way to ensure its BAU decision making, reporting and collaboration is carried out in the most sustainable way and measured with appropriate indicators, keeping a broad range of issues in mind. There are plans to set up ‘Natural Capital East’ – a potential partnership group along similar lines to Water Resources East. There is a plan to improve intelligence of networks, including balancing flows by increasing the storage capacity of current wastewater network. Improved scenario testing could inform greater understanding of interdependencies of pressures and the integrated elements of Anglian Water’s water and wastewater operations and services, and the natural water environment on which they depend. There are plans in PR19 to increase the amount of investment in partnership funding, building on effective schemes and addressing an increase in requests from partners for this type of collaborative approach. Anglian Water is also developing its data and information strategy which is currently in draft form but shows a commitment to make better use of monitoring and telemetry data, improve information quality and accessibility, and a roadmap for how to achieve these outcomes. There are plans for more intelligent networks and improving the ‘reflective’ element by making monitoring and modelling more integrated, automated and regular. As part of the PR19 planning, there is an aim to increase smart metering coverage, up to 95% over AMP7 and AMP8; this will improve understanding and ability to pinpoint leakage. The Information Charter, and a number of strategies developed to implement it, outline a number of current challenges and aspirations for where Anglian Water want to increase interconnectivity and integration of data, improve business intelligence, shift to a ‘mobile first’ operational culture, and ultimately improve the quality and availability of data and information. The charter and strategies are a plan for the future, and show an understanding and commitment to the importance of information, however they don’t demonstrate how Anglian Water currently identify and introduce new technology.</p> <p>Anglian Water has a number of plans in place to continue to improve its approach in this area in the future, which we expect will progress its response towards becoming fully actioned. To be considered leading in this area of resilience, the company would need to be at a stage of consistently developing and delivering catchment-wide solutions integrating both water supply and water recycling needs.</p>



4. Maturity assessment

Robust and flexible supply chain management

Maturity Summary	1 Unaware	2 Aware	3 Response developed	4 Response actioned	5 Leading
<p>The company considers the impact of energy, resource and skills supply chains on their operations and ensure diverse and competitive supply chains that deliver the best outcomes for their customers. Supply chain needs are considered in the long-term, based on horizon scanning. Collaborative relationships are developed with the supply chain, to avoid boom and bust cycles. The company also considers the flexibility of their supply chains, particularly during shock events. Internal processes are in place to keep this under review, sharing knowledge and developing solutions with others. The supply chain is considered as a network. The company also considers how they can effectively utilise options beyond their boundaries to mitigate their risks, e.g. use of water trading and bio resource trading markets.</p>	Current and Ongoing Activities				
	Planned for AMP7 and beyond				

	Maturity Assessment
Current and Ongoing Activities	<p>Based on evidence seen as part of this assessment, Anglian Water works with partners and suppliers to understand and improve its own resilience through reviews and questionnaires. The supply chain is perceived to be robust for direct operational requirements including key equipment, fuel and chemicals by having dual providers or sources for most materials. Anglian Water has also established programmes to secure duality of potable water supply for 76% of customers and plan to get this close to 100%. There is some lack of integration and understanding between teams working on emergency management, energy, demand and supply chain and how these are interlinked. Anglian Water acknowledges that it deals with complex supply chains so to a certain extent will always have unknown unknowns.</p> <p>Anglian Water has water trading arrangements in place with Affinity Water and Severn Trent Water, providing additional resilience of supply.</p> <p>Anglian Water has improved resilience of its power supply as all power and communications are ‘dualled’ and by generating 112GWh (of the total energy demand of 710GWh/year). There are also commissioning of sludge treatment centres at Pyewipe, Colchester, Basildon and Cliff Quay in Ipswich, and plans to install solar arrays on sites: the first five were commissioned and installed this year and there is a target to increase solar capacity by 30GW this AMP. The opportunity for energy storage combined with maximising renewable energy is under review. Forward hedging of energy purchasing alongside close collaboration with power distribution companies to understand system resilience has also contributed to Anglian Water’s supply chain management and resilience.</p> <p>Anglian Water has alliances with a broad range of capabilities, including long-term arrangements with tier 1 partners and integration of teams, which allows it to allocate work on a ‘best for task’ basis. This includes the only IT and IS alliances in the industry, and longer-term partnership to build trust and share risk and</p>



4. Maturity assessment

Robust and flexible supply chain management

Maturity Assessment	
Current and Ongoing Activities	<p>resilience reward more effectively. This has also built resilience for busy times and peak periods, and the arrangements also enable resilience by allowing work to be transferred between alliances if the scope or complexity changes during the initiation stage. The arrangement of these alliances was tested and proven successful by the recent freeze-thaw event in March 2018.</p> <p>Anglian Water’s demonstration of its supply chain resilience and management shows it has a leading response. In particular, its integrated and collaborative approach to developing alliances for the long-term stands out as an exceptional approach.</p>
Planned for AMP7 and beyond	<p>For AMP7 and beyond, Anglian Water’s Strategic Direction Statement 2020–2045 includes the outcome ‘resilient services’ which includes a strategy on supply chain considering availability of products long term. In the renewable energy supply programme, it is targeting another 30GW solar capacity next AMP. There was a recognition in interviews conducted as part of this assessment that improving the understanding of short term resilience, and integration of understanding and investment relating to long term supply chain resilience across teams within Anglian and partners was an important next step.</p> <p>Having developed new IT alliances in AMP6, we expect Anglian Water to continue to review and update its approach and culture with regards to its supply chain.</p> <p>We expect Anglian Water to be able to maintain its leading approach.</p>



4. Maturity assessment

Inclusive and skilled workforce

Maturity Summary	1 Unaware	2 Aware	3 Response developed	4 Response actioned	5 Leading
<p>The company has identified the capabilities and skills required to deliver outcomes for customers in the long-term, based on robust horizon scanning. Robust people plans have been developed to fill any current or emerging gaps to support these business needs, identifying recruitment, training and development, knowledge management, succession planning and increasing diversity. The company works across the water industry and utility sector to address these skills gaps. The company is seen as the first choice for highly skilled individuals, and valued employees recognise it as a great place to work. The company encourages diversity through a range of programmes, such as employee network groups and leadership role models.</p>					

Maturity Assessment	
<p>Current and Ongoing Activities</p>	<p>Based on evidence seen as part of this assessment, Anglian Water has identified gaps and responses for ensuring its workforce has the right skills, including internal training, scenario exercises for extreme events, and an understanding of what the gaps and issues it faces are. Anglian Water partner with national training organisations for technical skills, and water industry and company specific skills are developed by an in-house training team allowing the company to develop tailored skills training programmes including company specific procedures. Under development is a Employee Strategy which will define the skills and capabilities required. Anglian Water already has a ‘Licence to Operate’ system which clearly defines skill requirements for operational roles, and includes training and assessment for technical competence through a series of Operational Qualifications. Process safety training is delivered to selected employees through third partners to ensure that employees understanding of health and safety is not limited to occupational safety but also encompasses an understanding of how to recognise and prevent process safety events. Continuous professional development (CPD) is offered to all staff as appropriate for individual roles, and funding is provided for membership of one professional body for each employee if required. Anglian Water has programmes to support chartership across a wide range of career paths. LEAN skills development is in place for upskilling the workforce with techniques for driving efficiency and service improvement. The company also has an external accreditation programme for experienced practitioners. Anglian Water carries out a formal review of succession and talent across the organisation, and plans are reviewed twice a year at a minimum, at business unit leadership team and at board level. Risk of flight is noted for succession to Director candidates, and roles critical to Anglian Water’s operations all have succession plans.</p> <p>To support the development of a steady pipeline of future engineers, the company has developed strong connections with universities and arrangements with colleges in the region. Anglian Water with Lane 4 has just developed the ‘Transforming our Leadership’ programme which equips management and leaders with the skills, capabilities and tools to manage the company. Anglian Water has multiple initiatives in place to ensure it can respond effectively to incidents and extreme events, including a Reduced Manpower Matrix, Resilience Guide for staff, and incident support managers deployed in an incident to liaise with customers.</p>



4. Maturity assessment

Inclusive and skilled workforce

Maturity Assessment	
Current and Ongoing Activities	<p>Anglian Water has a good apprentice programme set up to meet its future workforce needs, however it was acknowledged in interviews that this primarily incorporates training in skills needed now, not comprehensively developing skills needed in the future such as programming and data analytics. Alongside the apprentice programme Anglian Water has a graduate scheme, with annual recruitment of high quality graduates to a 2-year development programme which has high rates of retention. The company has an online benefits platform making it easy for employees to understand the total value of their benefits and make personal selections to suit individual needs. Anglian Water are winners of the ‘Best UK company to work for’ as voted by glassdoor.com reviewers (current and ex-employees) in 2017, and the CEO has also won an award for ‘Best UK CEO’. Anglian Water’s bi-annual employee survey ‘Love to Listen’ carried out independently by IBM is benchmarked externally, allowing the company to understand where it sits against other leading UK employers. Anglian Water also has a changing workforce model, with alliance partners talking on more work and responsibility for delivering Anglian Water’s services, there is a question to be addressed about if it will continue to need the same skills in house.</p> <p>In terms of diversity and inclusion, the company has targeted apprenticeship programmes and monitored graduate programmes to support a greater female workforce inclusion within the company and to promote equal opportunities. As set out in the 2017 gender pay gap report, 74% of employees are male. Work has been done also to promote and support BME (Black and Minority Ethnic) and LGBT (Lesbian, Gay, Bisexual and Transgender) groups), with a Diversity and Inclusion working group set up to focus on ensuring that the way the business is operated is fully inclusive irrespective of gender, ethnicity, age or many other factors.</p> <p>Anglian Water has actioned a good approach across parts of the criteria for this category, including recruitment and retention of staff, independent verification of staff satisfaction and a number of awards – however there is work to be done to develop the company’s diversity approach and more robust horizon scanning to incorporate possible future shocks and stresses and consider how the company can prepare its systems and processes for the workforce to ensure resilience in this area. As result, with the People Strategy and diversity and inclusion working group, we have given a score of 3.</p>
Planned for AMP7 and beyond	<p>For AMP7 and beyond, Anglian Water has identified the upcoming skills gap as one third of its workforce retire in the next decade, and in the Strategic Direction Statement 2020-2045, identify the contribution it can make to communities in closing this gap along with other partners such as academic institutions. In the draft People Strategy, there are more detailed gaps and plans to address these in the future. The results from the 'Love to Listen' survey are also being analysed and converted into action plans. There are plans on diversity outlined in the 2017 gender pay gap report.</p> <p>In addition, the following areas were identified as room for improvement during workshops and interviews: addressing the issue of knowledge retirement with an aging workforce, management of company knowledge through the development of a strategy to build a knowledge sharing approach, moving to digital focused workforce and dealing with the rate of changes in technology development and improving collaboration to reduced duplication of effort.</p> <p>If Anglian Water takes action on these areas, we would expect its resilience and score on having an inclusive and skilled workforce to improve accordingly. To become leading, the company would need to demonstrate that it has carried out robust and broad thinking around horizon scanning for workforce issues in the future, and must have implemented a number of actions to ensure the workforce ranks highly in diversity, inclusivity and satisfaction.</p>

5. Conclusions and next steps

Results of the assessment: current score

Figure 5, presented here, outlines the results of the assessment of Anglian Water's current performance. Over the following pages, the strengths and opportunity areas that have been identified within each of the three themes are explored in more detail.

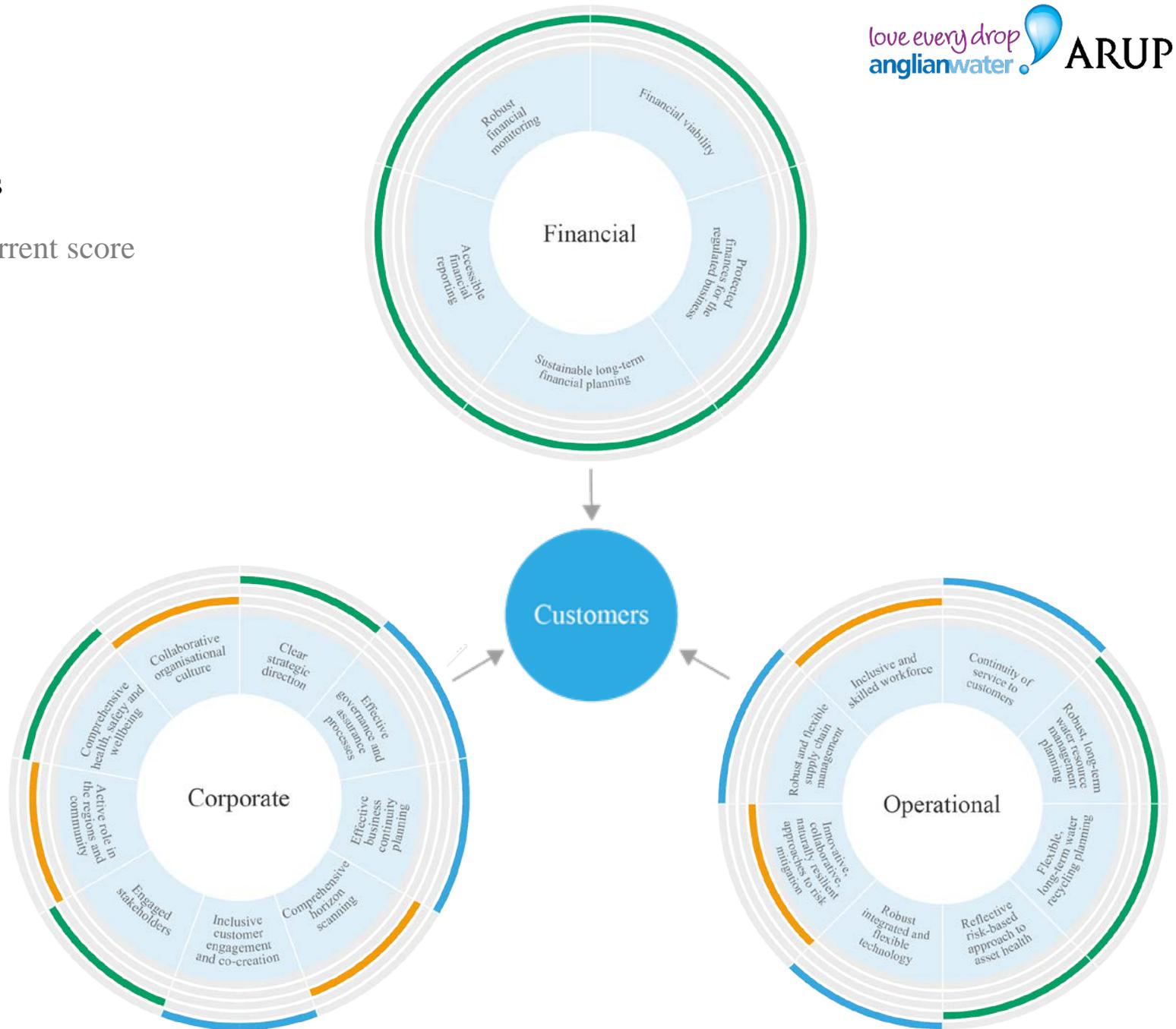


Figure 5: The results of the assessment of current performance illustrated on the Anglian Water resilience framework

5. Conclusions and next steps

Results of the assessment: future score

Figure 5, presented here, outlines the results of the assessment of Anglian Water's AMP7 and beyond performance. Over the following pages, the strengths and opportunity areas that have been identified within each of the three themes are explored in more detail.

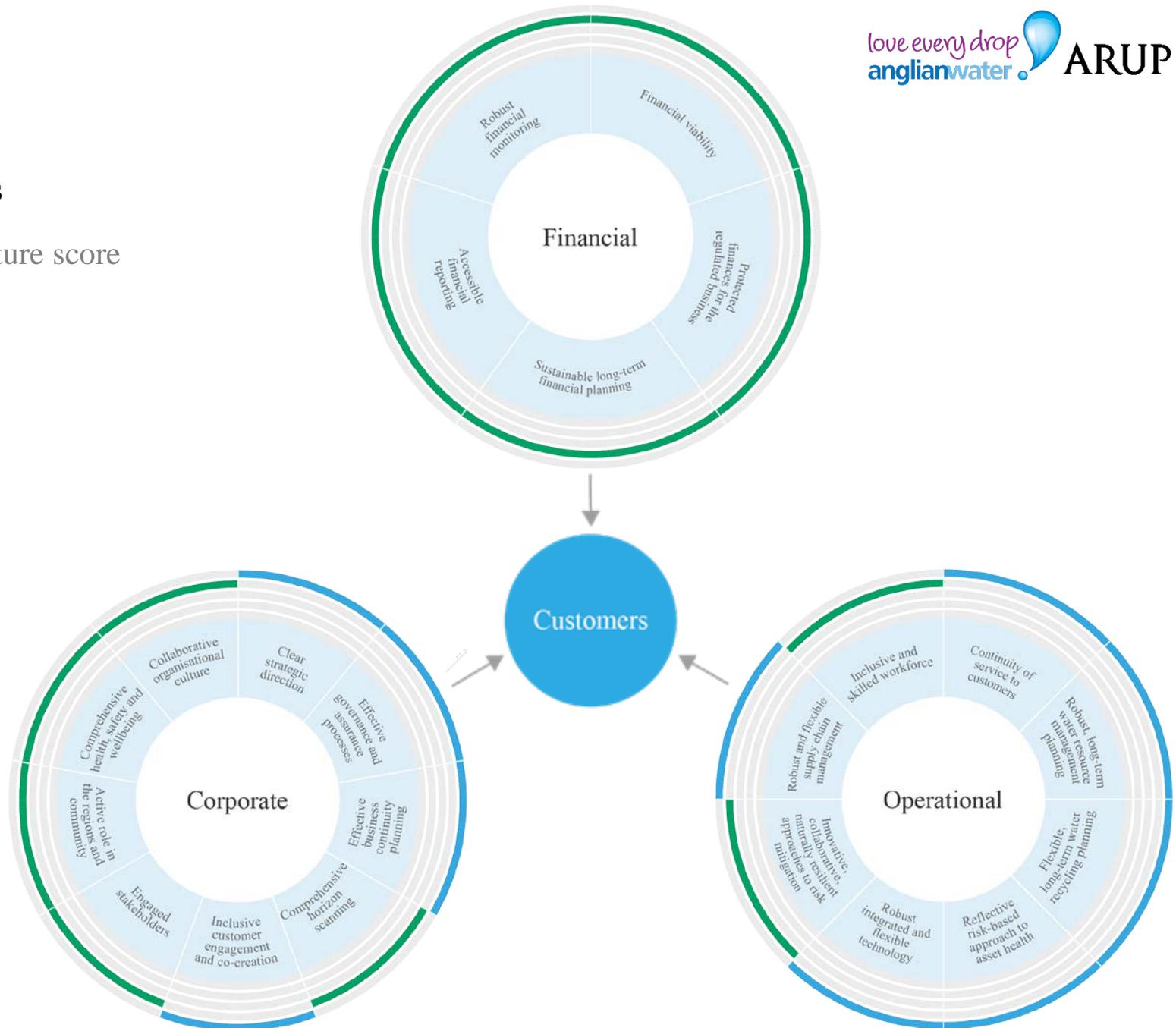


Figure 6: The results of the assessment of future performance illustrated on the Anglian Water resilience framework

5. Conclusions and next steps

Identified strengths and opportunity areas

Financial

Strengths

Plans to reduce gearing in AMP7 to assist responding to major stress events

The reduction in gearing will improve the financial resilience of the company, and respond to Ofwat concerns over highly geared companies.

Noted by Moody's, the credit rating agency, as having 'strong' performance

With a proactive maintenance regime, being joint first on SIM scores for 2017/18, and obtaining ODI outperformance payments is evidence Anglian Water is more ready to respond to unexpected shocks than some other water companies (reducing financial impacts and downsides).

First water company with Cayman Island finance to repatriate funds to the UK

This was announced in June 2018, improving transparency.

Accessible financial reporting

Proactively responding to Ofwat concerns in their November 2017 assessment.

Sustainable long-term financial planning

The company already has high-level expenditure plans for AMP8, AMP9, AMP10 and AMP11. Apart from some of the private sewers it has adopted, it understands the

condition of all its assets, enabling more robust financial planning which mitigates the risk of in-AMP problems arising.

What leading could look like

Operating with higher interest cover ratios

Many of the more highly geared water companies are more curtailed in responding to shocks by interest cover ratio tests (the ratio of profits before interest payments to interest payments) than by gearing limits. Having greater headroom on interest cover ratios would offer the company more options to accommodate major shocks and stresses before having to make calls on shareholders, flex expenditure plans or restructure debt.

Consider reporting longer Long Term Viability Statements

Some companies are now reporting for 10+ years. As Anglian Water prepares more detailed AMP8 cost estimates longer term viability statements may be possible.

Continue to improve sustainable long-term financial planning

Complete the asset survey of the remaining adopted private sewer networks and start to plan how 1 in 500-year droughts could be accommodated. Further, Anglian Water's

resilience thinking does not seem to appear to include a holistic view of costs which incorporates natural capital.

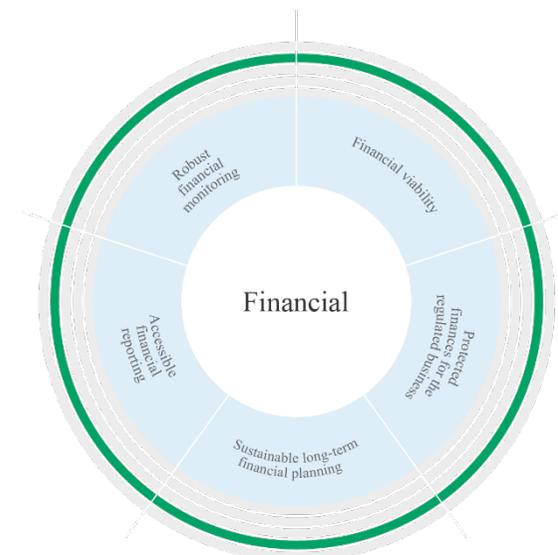


Figure 7: current score – financial resilience

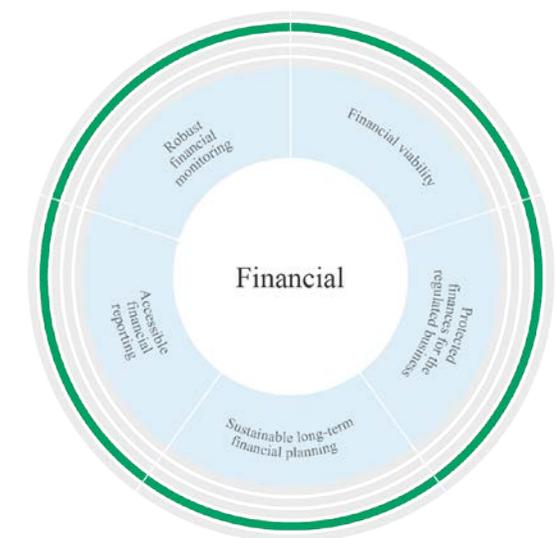


Figure 8: future score – financial resilience

5. Conclusions and next steps

Identified strengths and opportunity areas

Corporate

Strengths

Excellent risk management culture.

Principles of risks and value embedded across the organisation and in decision making. Anglian Water also has good response and recovery plans to deal with extreme events, including collaborating with others and keeping customers informed.

Robust business continuity management.

Planning and management for business continuity appears to be robust and comprehensive. This is aided by a clear governance system and effective scanning of organisational risks.

Governance and assurance for resilience

As one of the few companies with resilience in the job title of an executive director, challenge on resilience from a sustainability and resilience sub-group of the CCG, and a long-term perspective integrated through the Strategic Priorities Board, Anglian Water has demonstrated a leading approach to governance.

Inclusive customer engagement.

Anglian Water's approach to co-creating its customer engagement programme with its customers emphasizes its inclusive customer-led approach.

What leading could look like

Co-ordinating long term planning and short-term actions.

In some areas such as supply chain management, there are good practices in place for consideration of long term risk and resilience, but an understanding that these need to be better incorporated into short term action.

Consolidating perspectives on risk and resilience.

Operational resilience is being considered by many teams, however there are cases where their understanding varies.

Some are taking Cabinet Office guidance, others the Resilience in the Round report. Resilience is a way to consider unknown unknowns and uncertainty, so does beyond risk mitigation. This needs clear communication and a consistent message across the organisation.

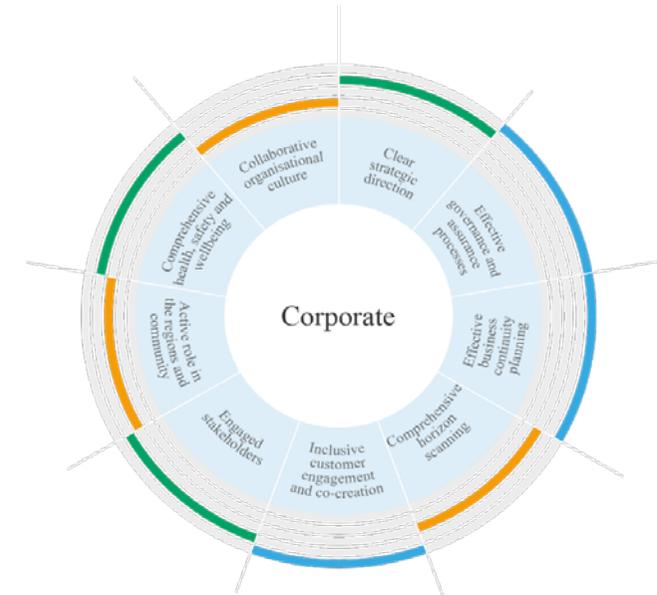


Figure 9: current score – corporate resilience

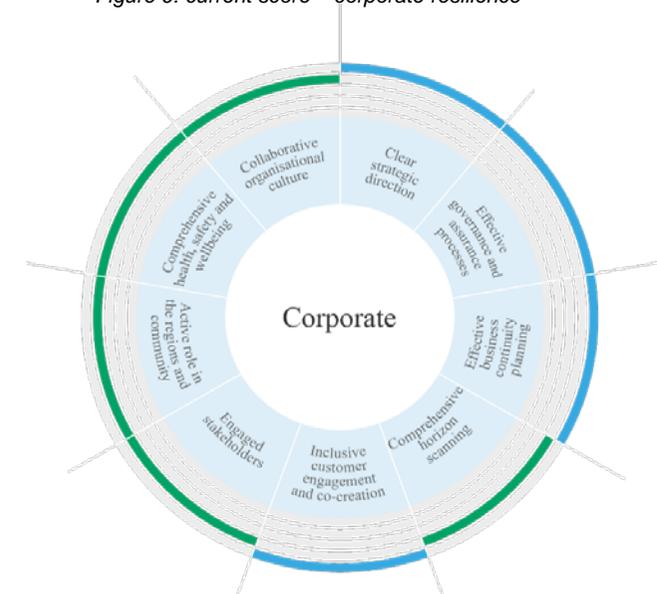


Figure 10: future score – corporate resilience

5. Conclusions and next steps

Identified strengths and opportunity areas

Operational

Strengths

Effective supply chain management.

Look long term at risks to supply chain, good at communicating issues to look at future changes, and working with suppliers. Long-term alliance partnerships help to build trust and share risk and resilience reward.

Harnessing the value of the telemetry network.

Anglian Water has a world-leading telemetry network and is using this data to inform short and longer-term decision-making.

What leading could look like

Resilient water resources.

Anglian Water has duality and redundancy on a significant portion of its water supply network. There is good example of partnership working to address future challenges through Water Resources East (WRE), but a good opportunity for Anglian Water to look further into the future to address future pressures.

Using the evidence base for catchment solutions.

Anglian Water has demonstrated industry leadership on both catchment solution and treatment option of metaldehyde. Now it has an excellent evidence base to inform decision

next AMP, and influencing regulation and industry. As a result, catchment solutions and natural capital are endorsed and understood as offering potential Totex and wider benefits, but are not yet part of business as usual.

Embracing diversity and inclusion.

Evidence suggests that a more inclusive organisation is a more resilient one. In order to strengthen diversity of thought, and learning from different perspectives, Anglian Water still has work to do to become a more diverse and inclusive organisation. With the establishment of the diversity and inclusion working group, this is underway.



Figure 11: current score – operational resilience



Figure 12: future score – operational resilience

5. Conclusions and next steps

Next steps

Based the work undertaken to date, the next stage could see two areas for further work:

1. A more detailed assessment framework and KPIs. The approach to date has seen the development of a qualitative assessment process. This could be supplemented with quantitative measures, to develop a more in depth and robust approach, which might be required for investment decision-making, and more continual monitoring of performance.
2. The development of a 'Resilience Action Plan' which identifies and prioritises initiatives to would build on the strengths and opportunity areas highlighted in this assessment. This could comprise actions for AMP7, as well as longer-term initiatives. The Plan should be integrated, meaning that ideally, initiatives would support multiple benefits across different shocks, stresses and elements of the resilience framework.

Sources

Annual Performance Report 2017/18
Annual Report 2017/18
Anglian Water perspective
Collaborative Planning
Corporate governance: Feedback from Love Every Drop online community
Corporate strategy and narrative development
Customer feedback on Sewerage Rehabilitation- Customer Perceptions;
Decision Making for Sustainability: The 6 Capitals Approach
How Anglian Water responded to the 2018 freeze-thaw event
Getting fit for AMP7
Ingoldisthorpe Wetland case study
Innovation in Anglian Water
Metaldehyde key themes
New Models for Collaborate Working: Guide to Community Regeneration in Wisbech
New Models for Collaborative Working: A Guide to Innovation from our Shop Window
Oliver Wyman - 0180802 Horizon Scanning
New Models for Collaborative Working: Water Resources East - A Guide for Innovative,
Multi-sector, Regional Resource Planning
Responsible business - Annual Integrated Report 2018
Strategic Direction Statement 2020-2045
Strategic Priorities Board Terms of Reference
Water Resources East – A Guide for innovative, multi-sector, regional water resource planning
WRMP Strategic Pipeline – Digital Asset

Important notice and disclaimer

This Report has been prepared by Ove Arup and Partners Ltd ("Arup") specifically for and under the instructions of Anglian Water Services Ltd ("Anglian Water") (the "Client"), in accordance with the scope, terms and condition of our appointment.

This Report is prepared for use and reliance by the Client only. No third party is entitled to rely on this report unless and until they and we sign a reliance letter. We do not in any circumstances accept any duty, responsibility or liability to any third party whatsoever (including retail investors whether by bond issue or otherwise) who has relied on this report in circumstances where they and we have not signed a reliance letter. We accept no responsibility for, and have not authorised, the contents of any report, prospectus, supplementary prospectus, listing particulars, supplementary listing particulars, presentation or other document or communication in respect of the sale, acquisition, offering or transfer of any shares or securities or interest in them, whether on the primary or secondary market or otherwise, which uses, includes or incorporates any report, deliverable or information, or any element thereof, prepared by us under or in connection with this agreement.

While Arup considers that the information and opinions be provided in this report are sound and robust, all parties must rely upon their own skill and judgement when making use of it.

In preparing this report we have relied on information supplied by others. We have relied in particular on the accuracy and completeness of such information and accept no liability for any error or omission in this report to extent the same results from errors or omissions in the information supplied by others.

We emphasise that the forward-looking projections, forecasts, or estimates are based upon interpretations or assessments of available information at the time of writing. The realisation of the prospective financial and other information is dependent upon the continued validity of the assumptions on which it is based. Actual events frequently do not occur as expected, and the differences may be material. For this reason, we accept no responsibility for the realisation of any projection, forecast, opinion or estimate associated with our work.

Findings are time-sensitive and relevant only to current conditions at the time of writing. We will not be under any obligation to update the report to address changes in

facts or circumstances that occur after the date of our report that might materially affect the contents of the report or any of the conclusions set forth therein.

For further information

Ian Gray, Arup Project Director: ian.gray@arup.com

Ann Cousins, Arup Project Manager: ann.cousins@arup.com



ARUP