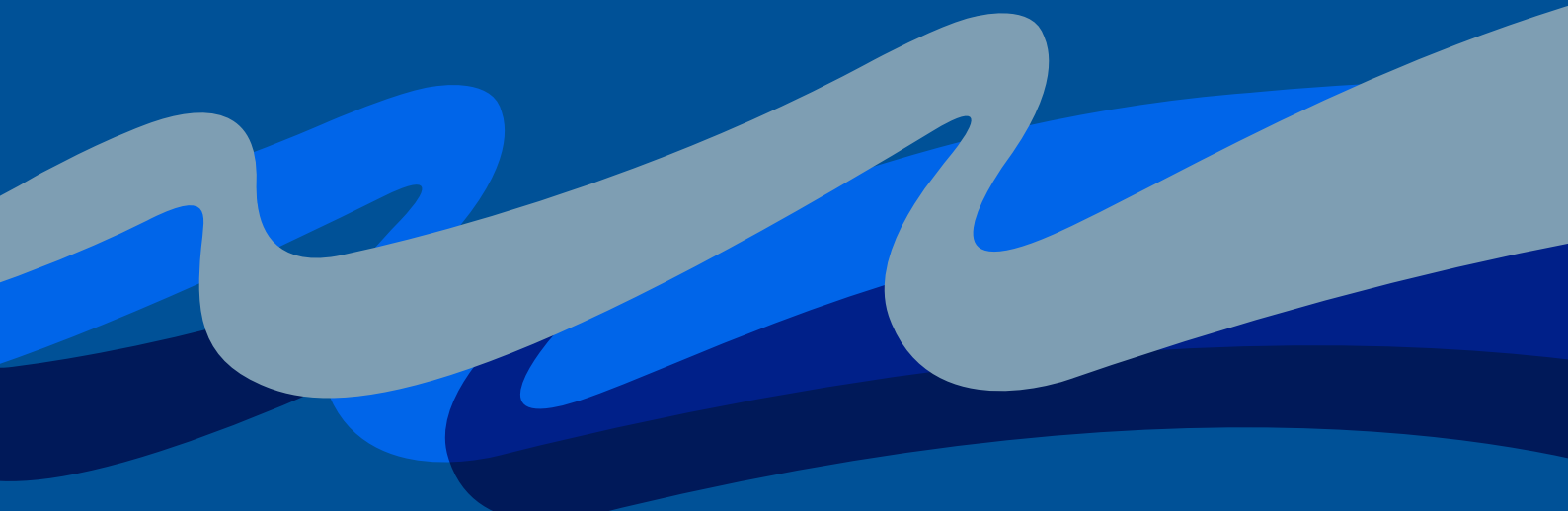




Innovation

South West Water's vision for innovation as a vehicle to improve services for customers, stakeholders and the environment.

September 2017



This document explores the drivers for innovation, the activity currently underway within South West Water and our plans for the future. We consider how to identify and adopt best practice across all aspects of our business and ensure innovation is sustainable.

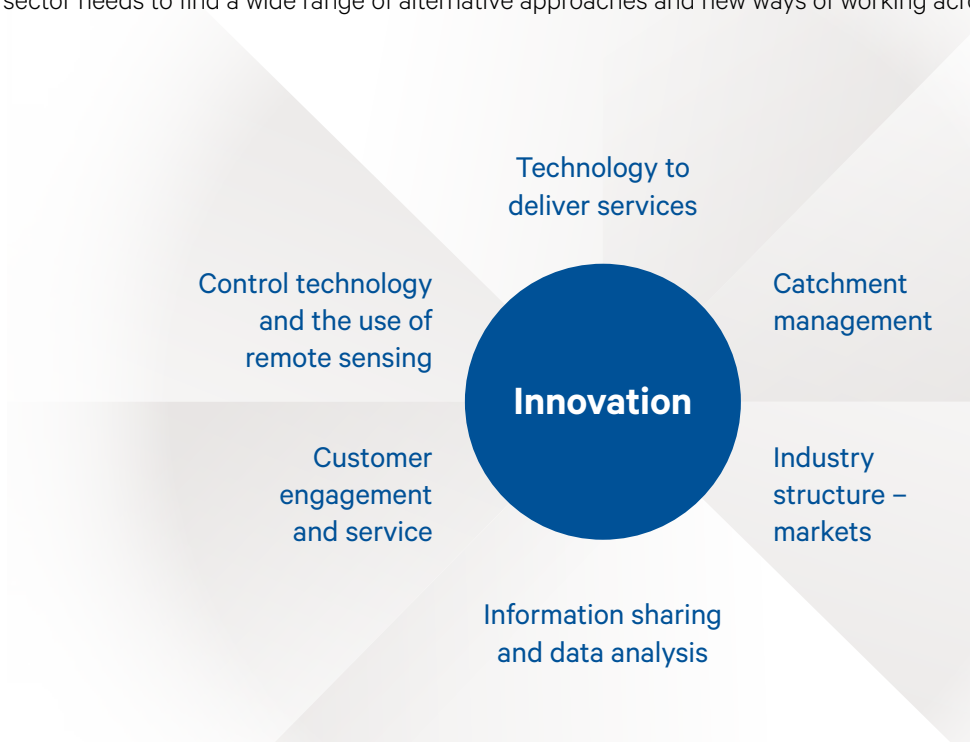
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Innovation – what is it?

Innovation is the ability to turn ideas into solutions that add value to the services an organisation delivers to its customers, stakeholders and the environment within which it operates.

Ofwat has set out an ambitious vision for the water sector with innovation at its core. To secure trust and confidence, the sector needs to find a wide range of alternative approaches and new ways of working across the following areas:



The water sector must be fully committed to driving improvements in performance and service through the introduction of innovative products, technologies or methods of working if it is to meet the increasing challenges of population growth, climate change and rising customer expectations.

Why is it important for customers?

South West Water will continue to adopt new technologies and identify fresh and innovative ways to interact with assets, the environment and customers.

The use of customer data already plays an important role, giving us an insight into how services are delivered and where we need to focus operational activities or demand-side management initiatives.

The region's economy relies upon efficient and effective water and wastewater services. In order to continue supporting economic growth, housebuilding and the region's tourism, agriculture and shellfish industries we must find innovative ways to store, treat and dispose of water and wastewater. This will ensure that we can meet both future challenges and the needs of our customers.

It is clear, however, that many customers do not perceive water scarcity to be an issue in a country that has enjoyed long periods of surplus and suffered from numerous high profile flooding events. This mindset needs to be addressed. We must take the lead in finding innovative ways to engage with our customers in order to manage the demand of a precious resource.

South West Water believes a multi-layered approach to innovation, unconstrained by traditional business structures, must be developed. This will enable novel approaches across a number of areas including technology; customer engagement and participation; regulation and policy.



While the water industry is changing, we realise that the expectations of our customers are also evolving and, in recent times, have risen faster than the sector's ability to service them.

Service innovation is required across the breadth of the customer experience including tariff design, tools for interaction, and more accurate and more frequent billing. We are aware that some leading energy utilities have a more developed customer service delivery model and we will look to adopt best practice, from whichever sector it originates.

Discussions regarding the future tend to focus on technological/digital advances but we must not forget those customers who do not use the internet routinely. We are aware that around 10% of people living in our areas of operations have never used the internet, which rises to 25% for those classed as disabled within the UK as a whole. Therefore, while we rightly have a focus on our digital engagement we must also ensure that some of our most vulnerable customer groups are not left behind.

Service innovation for the water sector must focus on the customer

Service innovation enables the customer to select the appropriate options to enhance their experience, leading to a valued integrated water management service¹.

¹ Ward et al; BJECC, 6(3): 216-226,2016; Article no. BJECC.2016.021

Understanding the issues Population growth

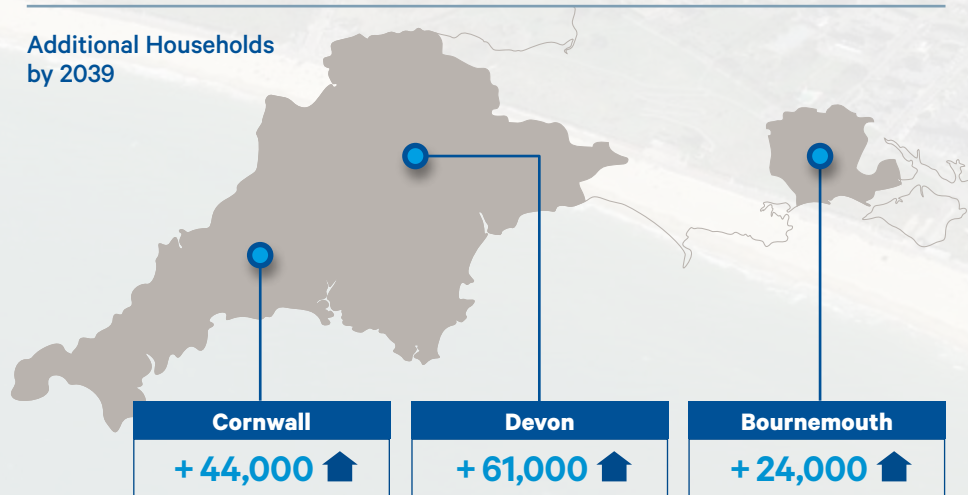
The population of the country continues to grow. Government projections show an increase of 9.7 million over the next 25 years, reaching 74.3 million in mid 2039.



Customers in the South West have not experienced a water use restriction ('hosepipe ban') for over 20 years and customers in Bournemouth have never had to experience any such restrictions. While historically we have been able to ensure a surplus of water we must not be complacent. As a water company we must plan a long way into the future, not least as additional capacity is expensive and requires a considerable lead-in time.

To increase the resilience of our systems we are working closely with the Met Office to model future drought severity scenarios. These will be used to analyse resources over the medium and long term, allowing for the projected increase in households across our areas of operation. South West Water is committed to supporting the construction of badly needed housing across our areas of operation. A substantial number of new households are projected in Devon, Cornwall and Bournemouth by 2039.

Additional Households by 2039



While new assets can be constructed to increase capacity this is not a sustainable long-term solution. We must do more to reduce the amount of treated water lost through our network and reduce demand by helping customers to understand the true value of water as natural capital.



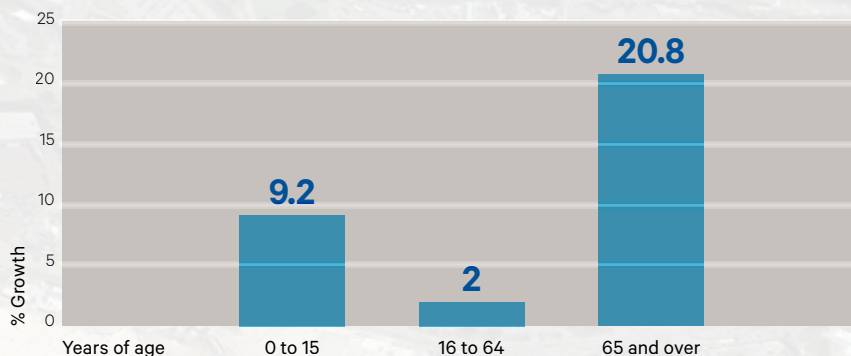
Understanding the issues **Changing demographic**

The population demographic is changing, with an estimated 1 in 12 of the population being over 80 by mid 2039².

We aim to increase customer satisfaction levels with our frontline services by improving our asset performance, investing in our people and focusing on resolving all customer contacts first time.

Investments planned within our drinking and wastewater business units will help to improve overall satisfaction. We continue to explore and maximise value from our customer, asset and operational data to provide customers with services more closely aligned to their specific needs. We will continue to engage with those customers and take on board their feedback on how and when they want to receive information from us and by which means, be it through traditional or digital channels. While delivering digital innovation, we must also remember that the South West has the highest proportion of people at state pension age or above, and that this proportion is set to increase in the near future.

Percentage population change in the South West by age groups, mid-2014 to mid-2024³



The diagram above illustrates projected population growth in the South West split across age groups. The change in demographic means that a greater proportion of our customer base is likely to be vulnerable, whether through reduced incomes, mobility, sensory impairment or other causes. We already have in place a successful strategy for assisting the most vulnerable in our region but will need to continue building on these strong foundations to meet customers' changing needs.

² Office for National Statistics National Population Projections: 2014-based Statistical Bulletin

³ <https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationprojections/bulletins/subnationalpopulationprojectionsforengland/2014basedprojections>

Understanding the issues Increasing costs

Looking to the future we know that the costs we face will be increasing as global demand accelerates, notably for chemical and energy supplies.

South West Water creates renewable energy from hydroelectric plants, solar arrays and wind turbines on a number of its sites. Over the year 2016-17, 8.7% of the electricity we used was from renewable sources⁴ preventing around 10,000 tonnes of carbon dioxide entering the atmosphere.

Our intention is to continue to work with developers and suppliers of new technology in this field to meet our aspiration to source around 25% of our power requirements from renewables by 2025.

Water is one of the few industries that collects a raw material, stores it, processes it, supplies it to customers, takes it away again and returns it to the environment. This means thousands of processes are in operation everyday across our 600+ sites throughout the South West and Bournemouth areas.

To enable us to provide the services our customers rely on we are, in turn, reliant on a robust supply chain and resilient supplies of energy. Looking to the future we know many of the costs we face will increase as global demand accelerates, notably for chemical and energy supplies.

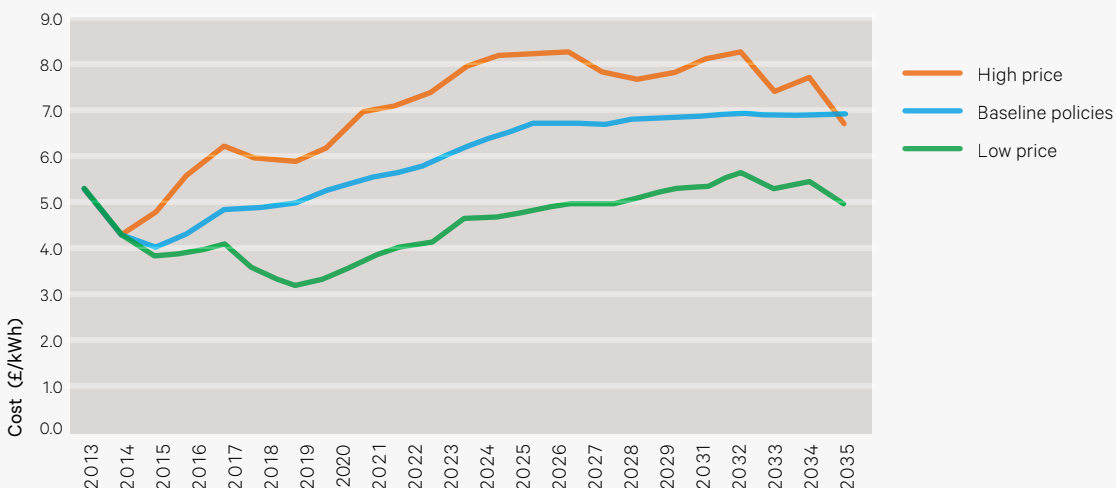
It is likely, at least over the short term, that the materials and services we use as a business will increase in price more quickly than our customers' wages. Therefore to keep our bills affordable we need to look across all parts of our business for innovative ways to reduce our consumption, including investing in new technology that delivers lower costs in the long term.

We also need to continue to grow and attract the cheapest rates of finance, in order that the lowest possible cost of borrowing is reflected in our charges. To achieve that, we need to ensure we are as efficient as possible, making the most of our resources and having a positive impact on the local economy.

We want to ensure that all our customers who can afford to pay their bill do so and we will continue to support those customers genuinely in need through our affordability initiatives and social tariffs.

⁴ Calculation excludes heat recovery

Projected electricity prices to 2035





Understanding the issues Climate change

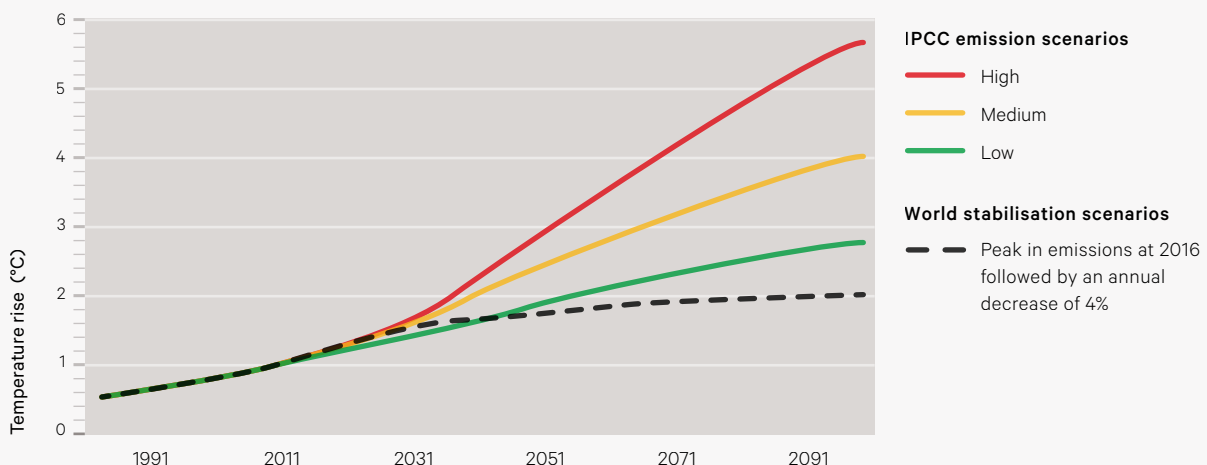
Our vision is to provide responsive, innovative and cost-effective services that meet our customers' needs and priorities.

The complex interaction of atmosphere, land, water and biology on Earth has resulted in the climate varying naturally over time. There is now, however, a substantial body of evidence that supports the view that we are in an unprecedented period of climatic change, driven primarily by the rapid increase in greenhouse gas emissions since the Industrial Revolution. The resulting rise in temperature will have a number of consequences for our region and South West Water. We are likely to see:

- Reduced rainfall and river flows in summer, reducing available resources
- Increased demand for water during hotter summers
- Increased rainfall in winter, impacting on sewers and treatment works
- More frequent, severe weather events, increasing the risk of flash flooding
- Increasing sea levels, increasing the risk of coastal flooding.

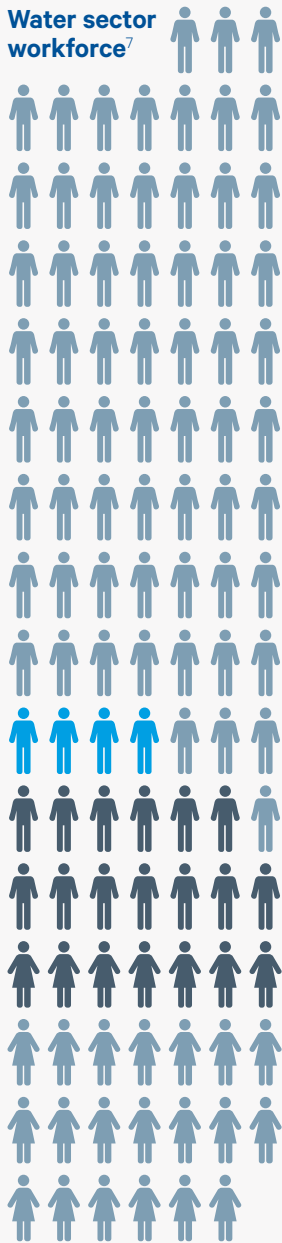
Increases in summer temperatures of 3-4°C by the 2080s may result in more tourists choosing to visit the region. Coupled with a c.20% reduction in summer rainfall, this means that we will need to find more innovative ways to reduce demand on limited resources. The South West is also likely to experience higher rainfall over the winter months, potentially as much as 20% more than current levels. There will be increased demands on our sewerage network and we will need to plan and invest wisely to ensure we can meet the needs of future generations. Warming will also result in the sea levels around the UK rising, with levels around the South West peninsula increasing by up to 60 centimetres. This will impact on low-lying settlements and infrastructure, including increased flood risk at some of our coastal assets.

Global mean temperatures



Understanding the issues **People and skills**

It is predicted that across the utilities sector **221,000 vacancies will need to be filled during the next decade.**



Total employment
53,500

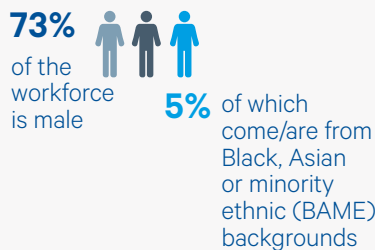
The energy and utilities sector provides essential services to 65 million consumers across the UK and is central to the economy of the four home nations. Collectively, this sector is the largest single contributor to the National Infrastructure Delivery Plan⁵, and plays a key role in ensuring the UK closes the productivity gap in relation to our international competitors.

While the skills challenge in our sector is not unique and exists to some degree across the wider UK employment market, energy and utilities companies are experiencing high demand for new and diverse skills to keep pace with the rate of change and innovation in the sector.

The 2015 Employer Skills Survey reported that 36% of hard-to-fill vacancies in the UK energy and utilities sector were driven by a lack of proficient skills – well above the 23% national average and notably higher than any other sector. This is compounded by the skills replacement challenge and is an increasing trend, therefore raising serious concerns regarding the labour market’s ability to supply the skilled workforce required to deliver services in the future.

The water industry must work to attract those with key Science Technology Engineering and Maths (STEM) expertise and take advantage of transferable skills from other industry sectors. The need for STEM-linked specialists extends beyond engineers to encompass IT specialists across the sector (including, as a priority, cyber security and ‘big data’ professionals) and pure scientists (physicists, biologists and chemists), especially in water and waste⁶ processing.

There is also a noticeable lack of diversity within the UK utilities workforce with lower than national average representation of key gender and ethnicity groups. This challenge must be overcome. The sector must become more inclusive and remove barriers which prevent talent being attracted from the widest possible pool.



⁵ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/520086/2904569_nidp_deliveryplan.pdf

⁶ Energy and utilities workforce renewal and skills strategy

⁷ Office for National Statistics



Delivering on our commitments

CASE STUDIES - INNOVATION IN PRACTICE

1.
UPSTREAM THINKING AND MARKET MECHANISMS

2.
MAYFLOWER WATER TREATMENT WORKS

3.
INTELLIGENT NETWORKS

4.
LIDAR LEAK DETECTION

5.
DOWNSTREAM THINKING

6.
BEHAVIOURAL ECONOMICS

7.
SHARING IN SUCCESS

8.
EDUCATION UNIVERSITY TECHNICAL COLLEGE

9.
WORKFORCE/ SKILLS/ APPRENTICES

10.
SWEEP PARTNERSHIP WORKING

11.
EUROPEAN TECHNOLOGY APPROVAL GROUP

12.
IOPS



1.

UPSTREAM THINKING AND MARKET MECHANISMS



The cleaner water is when it arrives at a treatment works, the less intensive and costly the treatment that is required to make it drinkable.

Therefore, we are always looking for ways to reduce the amount of pollutants entering rivers and streams across catchments.

Taking a holistic view of the water management of entire catchment areas, we launched Upstream Thinking in 2007 (following a pilot programme) alongside a number of partner agencies including Westcountry Rivers Trust and Exmoor National Park.

Upstream Thinking focuses on achieving improved raw water quality and water storage in the natural landscape to make the provision of drinking water more sustainable.

In turn, this will help to control the rate of bill increases in the future and, as a linked benefit, it also restores the natural environment and the ecosystems within it.

We have a comprehensive long-term plan and investment strategy for our wastewater service. As a result, we have recently achieved our best ever performance in some areas, however there is still work to be done. Furthermore, we understand the limits of traditional 'hard' engineering in coping with the challenges over the next 25 years.

Service issues, such as flooding, are often caused by a combination of factors, with responsibility spread across disparate agencies – but from a customer's perspective the outcome is no less distressing.

A sustainable long-term solution requires partnership working with other agencies and the community, which we are implementing via our Downstream Thinking initiative.

Downstream Thinking incorporates a variety of elements including the sewer network, pumping stations, sustainable drainage systems (SuDS) and wastewater treatment sites.

Activities within the project include retro-fitting Sustainable Drainage Systems (SuDS), Natural Flood Management (NFM) solutions, targeting sewer misconnections, and tackling sewer misuse. Real-time data gathering at a catchment level is also being explored as a way of predicting where and when network issues may be experienced. To make sure we have the data needed to make informed intervention decisions, we have invested in a network of Ultrasonic Doppler Flow measurement units.

Using the landscape as a natural store for storm water during heavy rainfall we can alleviate sewer flooding whilst creating attractive urban habitats. A wide range of partners are consulted in a Downstream Thinking approach to ensure all potential sources of flood water, from highway drainage to flooding from watercourses, are fully considered.

Engagement with customers and communities is pivotal to our approach. Unlike traditional infrastructure, which is buried in the ground, green infrastructure might change land-use in places like parks, on pavements and even farmland. It is vital to understand how the land in question is used so that solutions can be implemented in a way that communities and landowners agree with and which enhance amenity, recreation and biodiversity.

Our partners





2.

MAYFLOWER WATER TREATMENT WORKS



Photo: PWNT

Mayflower Water Treatment Works – Roborough Plymouth

A substantial proportion of Plymouth's water supply is provided by the Crownhill Water Treatment works. Originally constructed in open fields during the 1950s it has been overtaken in the 21st century by construction, housing development and technology.

To meet the long-term water needs of one of our fastest growing cities, a new works was required. Resilient by design and the first plant of its kind in the UK, the Mayflower works at Roborough is due to open in 2018. The treatment works uses ceramic filtration technology, coupled with resin ion exchange processes designed to produce more water, more efficiently and at a lower cost than traditional technology.

But what does this mean for customers?

- Keeping bills down in the long term – the plant will cost less to maintain, use less raw materials and require fewer staff to operate it.
- Compact process therefore lower construction costs.
- Requires less chemicals than traditional water treatment processes, reducing the environmental impact.
- Ion exchange process captures hard to remove pesticides, colour and taste providing consistent high quality water.
- The ceramic filters provide an absolute barrier to cryptosporidium and harmful viruses.
- Located on a hill away from the city – reduces congestion from company vehicles and is safe from flooding.



3.
INTELLIGENT NETWORKS



By working in partnership with i2O we are able to improve customer service, reduce service interruptions and work more efficiently. The savings we expect to make on PRV maintenance alone will more than justify the investment we are making in a very short period of time.

Bob Taylor,
South West Water
Operations Director

Following a review of UK water industry hydraulic modelling ‘best practice’ and the associated software products currently available, South West Water identified that its future modelling needs would best be served by the InfoWorks WS modelling suite of software. InfoWorks WS offers a substantially more powerful and robust capability than the current solution used for our Distribution Studies modelling.

‘IWLIVE’ is a further enhancement to the modelling capability, designed to extract the greatest operational benefit through substantially superior system knowledge and understanding. This will be achieved by connecting an InfoWorks model to the telemetry system, with an interface available to Operators in our Control Room. It equips Operators with a number of proactive and reactive tools, issuing regularly updated warnings to notify them of problems that may occur in the coming minutes, hours or days. For example, in the case of a ‘low reservoir level’ data feed provided by our SCADA system and integrated with the modelling system, IWLIVE will model the outcomes on the water distribution system and will translate abstract level data into specific customer warnings of low pressure which may not occur for another 24 hours. Equipped with such ‘early warning’ knowledge, mitigating action may be taken (the hydraulic implications of which may themselves be simulated by the system) in order that impacts on customers are minimised or, in many cases, avoided entirely. This offers clear benefits in terms of ODI performance relating to customer supply interruptions and unwanted contacts.

In addition, within South West Water there are approximately 2,500 Pressure Reducing Valves, 99% of which have a fixed outlet pressure. The determining factor for this outlet pressure setting is the adequacy of the pressure supplied to the customer at the ‘critical point’ (usually the highest point on the downstream network). PRV outlet pressure settings have often been set in response to customer feedback – the outlet pressure being increased until the customers are satisfied. This can result in networks operating under higher than desired pressures, increasing the likelihood of leaks or bursts.

We are the first company in the UK to take advantage of this innovative system.

South West Water will fit 55 modulating devices to existing Pressure Reducing Valves enabling network operating pressures to be reduced outside of peak demand periods. This will reduce the propagation rate of new bursts and leaks and increase the overall resilience of our network.

It is South West Water’s aspiration to achieve strong performance in all areas of customer service related to network activity. IWLIVE is seen as a highly cost-effective way of contributing to this objective, not least because once implemented for a given area it will deliver recurring benefits year-on-year with a relatively minimal level of ongoing maintenance cost.



4.

LIDAR LEAK DETECTION



Water is part of our region's natural capital. It is a precious resource and, especially once it's been treated, we all need to use it wisely and not waste it. Finding a cost-effective method of identifying large escapes of treated water has the potential to help save water and make our service more efficient.

Bob Taylor,
South West Water
Operations Director

SWEEP is a five-year programme to deliver environmental, economic and social benefits to the South West of the UK. It aims to do this by supporting businesses, local authorities and landowners with the decisions they need to make in relation to how they make investments, manage or utilise the natural environment (also known as natural capital – those elements of nature producing value for people).

This innovative project sits firmly within one of the key 'impact themes' of the SWEEP programme, boosting the business sector: new markets for natural capital, that supports businesses in developing schemes that provide benefit to both the business and the natural environment.

The aim of this co-funded project is to develop intelligent geospatial approaches to optimise the detection of leaks from submerged aqueducts and water mains. Working in collaboration with our SWEEP partners we will pioneer a new research-led operational approach using drone-based thermal imaging surveys in areas where leak detection has a high success rate. These areas will be determined by geospatial modelling using NERC Tellus LiDAR and other remote sensing data from operational satellite missions.

South West Water currently spends over £7 million per year on detecting and tackling leaks within our network. Whilst many leaks are easily detected, for example, by virtue of their proximity to houses or in towns where we are alerted rapidly, there are also many cases of severe leaks occurring in places where mains pipes are buried under agricultural land or in remote areas where they can go unnoticed for prolonged periods of time.

This project aims to reduce the operational costs of leak detection in these more rural areas by using intelligent spatial data analysis to identify places where detectable leaks could be occurring, and using state-of-the-art proximal sensing, incorporating optical, near infra-red and thermal imaging technology, to identify their location. By doing this, if we are able to demonstrate that we can detect a single mains water leak, the saving is estimated to be, on average, a volumetric benefit of between 0.7 and 1 mega litres in reduction of water lost.

In addition, there are many wider benefits for South West Water and our customers. Further reducing water lost from the distribution network supplements South West Water's active leakage control activities and is significant in preserving water resources, reducing our impact on the environment, reducing abstraction and improving the security of supply to customers.

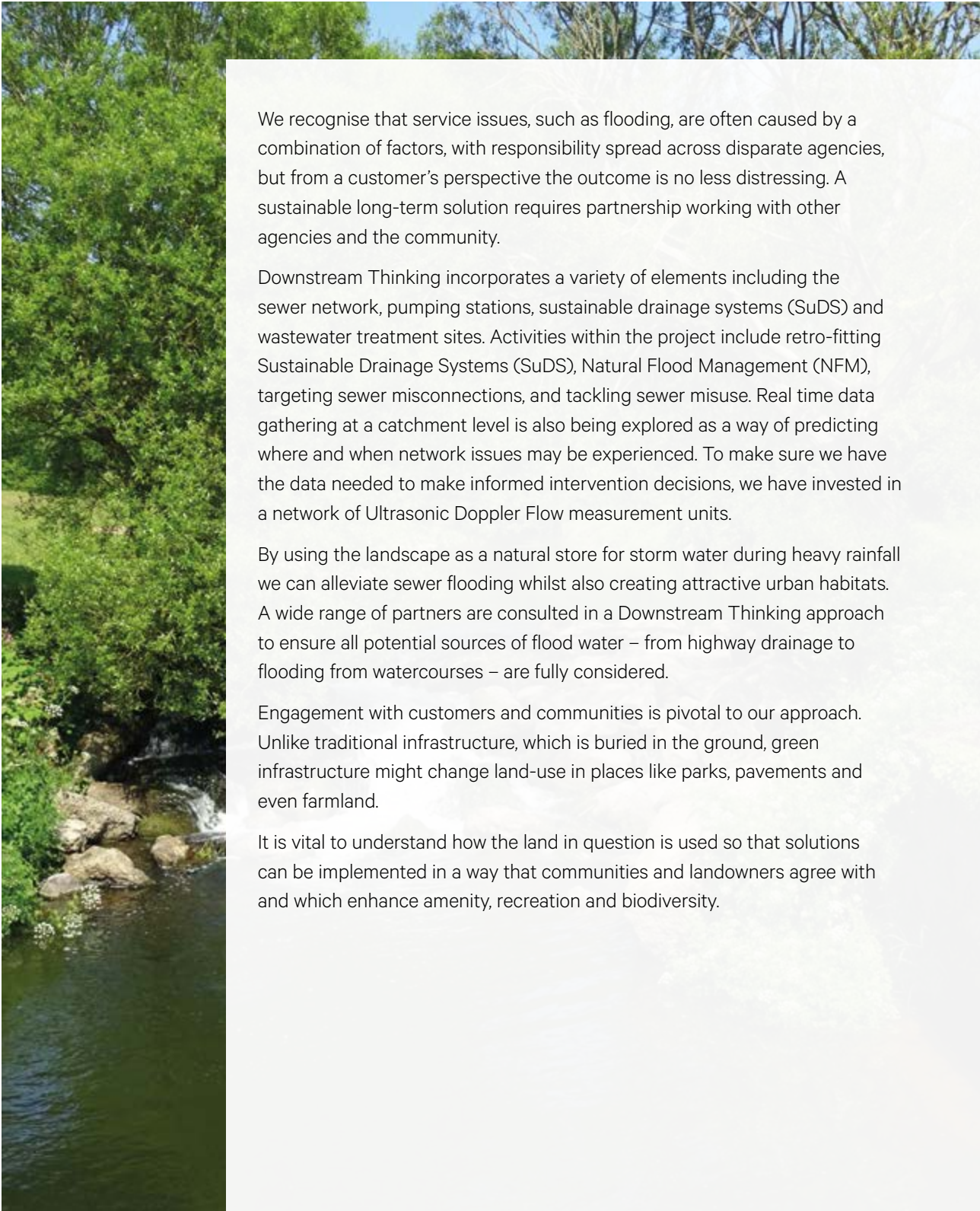
Our partners:



5.

DOWNSTREAM THINKING

Downstream Thinking is South West Water’s catchment-based approach to alleviating sewer flooding and reducing the risk of pollution of watercourses.



We recognise that service issues, such as flooding, are often caused by a combination of factors, with responsibility spread across disparate agencies, but from a customer’s perspective the outcome is no less distressing. A sustainable long-term solution requires partnership working with other agencies and the community.

Downstream Thinking incorporates a variety of elements including the sewer network, pumping stations, sustainable drainage systems (SuDS) and wastewater treatment sites. Activities within the project include retro-fitting Sustainable Drainage Systems (SuDS), Natural Flood Management (NFM), targeting sewer misconnections, and tackling sewer misuse. Real time data gathering at a catchment level is also being explored as a way of predicting where and when network issues may be experienced. To make sure we have the data needed to make informed intervention decisions, we have invested in a network of Ultrasonic Doppler Flow measurement units.

By using the landscape as a natural store for storm water during heavy rainfall we can alleviate sewer flooding whilst also creating attractive urban habitats. A wide range of partners are consulted in a Downstream Thinking approach to ensure all potential sources of flood water – from highway drainage to flooding from watercourses – are fully considered.

Engagement with customers and communities is pivotal to our approach. Unlike traditional infrastructure, which is buried in the ground, green infrastructure might change land-use in places like parks, pavements and even farmland.

It is vital to understand how the land in question is used so that solutions can be implemented in a way that communities and landowners agree with and which enhance amenity, recreation and biodiversity.



6.

BEHAVIOURAL ECONOMICS

Using behavioural economics to help us connect with our customers and motivate them to save water, money and time

Influencing customers to save money and water through behavioural economics

There are many areas where customers could be helped to save water – this may be purely by providing them with the information about how much they consume, or by providing incentives for customers who do actually use less. We have been working with two partner agencies, Green Redeem and Advizzo, to conduct pilots across Devon with our customers.

Green Redeem

Green Redeem is an incentive scheme, through which people can earn points for pledging to undertake activities that will reduce their water usage.

Customers can access the scheme online and via mobile, where they can see the points earned, the money they have saved or compare their consumption to others in their area. The variety of information and the incentives are designed to engage a wide range of customers. The reward points can be redeemed with partner companies, donated to the overall community score or used to enter a prize draw. In effect, water consumption will be reduced through incentives and information provision including volume/cost and comparative data.

Advizzo

Advizzo uses company data to help guide customers towards a more efficient use of water through personalised engagement via a number of routes (e-mail, apps etc.).

The company specialises in using big data and behavioural science, and has reported reductions in usage of between 4 and 7 percent. The system works by taking information, tailoring it to individual customers and then providing it to them in a digestible format, with easy navigation hints and tips for water saving.

Customers can view their usage and, crucially, see how they compare with other people in their area or with similar profiles. This use of descriptive and injunctive norms has been proven to incentivise customers to change behaviours to bring them back to the peer group average.

If the customer decides they would like to reduce their consumption there are tools and tips they can access on the Advizzo platforms.

There is an additional benefit for more vulnerable customers, as the information provided to South West Water can be used to ensure that customers eligible for a special tariff have been placed on it.

7.

SHARING
IN SUCCESS

WaterShare provides improved visibility of our performance and how customers benefit from our success.



WaterShare

We have a strong track record of being efficient and sharing our success with customers, but until recently this was not as visible as it could have been.

In our business plan for 2015-20, we included an innovative scheme called WaterShare which enables us to share our success with customers in a more open and timely way.

If we outperform our business plan there are financial benefits which are shared with customers. If we underperform, customers are protected.

WaterShare provides improved visibility of our performance and how customers benefit from our success. We plan to be even clearer and more transparent in future as we further develop this industry-leading initiative.

Overseeing our WaterShare framework is an independent WaterShare Panel, which meets three times a year and comprises of customer representatives and regulators.

The WaterShare Panel scrutinises our performance against the current business plan, and reviews and challenges our recommendations on how any benefits should be shared with customers. Sharing could either be through reinvestment to improve customer service or bill reductions.

In 2015/16, the first year of our five-year regulated business plan, we performed better than expected and earned a

£3.1m benefit which is being passed back to customers as reinvestment in improving services.

The benefit was earned largely because we managed to borrow money for investment at a lower cost than predicted when we submitted our business plan to Ofwat in December 2013. Customers are therefore directly benefiting from our success in being more efficient.

The £3.1m reinvestment is already delivering a better and more responsive service to customers, on top of previously planned investment. The extra improvements include:

- The creation of 22 new jobs in the Exeter call centre to respond to and resolve customer inquiries more quickly and fully
- Extra assistance for vulnerable customers, particularly those in social housing
- Extra measures to encourage customers to save money and water by having a free water meter installed in their property
- Working with communities to reduce sewer blockages in hotspot areas by raising awareness of what not to flush or pour down toilets and sinks, and working with the Environment Agency and Cornwall Wildlife Trust to reduce the risk of pollution.



8.

EDUCATION UNIVERSITY TECHNICAL COLLEGE



We have established a partnership with the South Devon University Technical College (UTC). The UTC is taking an innovative new approach to learning for 14 - 19 year olds which offers specialist programmes alongside traditional subjects, such as English, Maths and Science.

A UTC is different from an average school because it has more support and backing from the local business community and has high profile industry partners involved in the development of the curriculum. Other more traditional academic partners are also involved to make sure that the UTC really can offer the best of both worlds.

We are supporting UTC in developing the next generation of engineers, scientists and environmentalists and are committed to supporting the UTC in delivering a rich programme of work challenges including employability skills, interview practice and an annual cohort of work experience students for Year 10, 12 and 13 students.

Work experience encompasses site visits, project challenges and educational talks. We have also developed a week-long work experience programme focused on:

- Energy and Sustainability in our Environment,
- Science and Water Quality,
- Clean & Waste Water Cycle
- Exmoor Mires Project
- Forecasting Supply and Demand of Water.

The benefits of the educational enrichment activities and work experience for the UTC students are far reaching. It provides an opportunity to enlighten them to the challenges of our environment and encourages problem-solving in areas such as:

- Reducing our carbon footprint
- Sustainable energy and consumption
- Making use of waste products
- Preventing pollution; and
- Supply and demand of water resources.



This new UTC is an exciting development which will improve the job prospects of thousands of young people throughout the region. We're only too pleased to be able to support the UTC in the knowledge that it will give the next generation of scientists, environmentalists and engineers the solid, work-based grounding they will need to succeed.

Dr Stephen Bird,
South West Water Managing Director
and Chair of the UTC Project Steering Group

Ian Crews, UTC Principal says

For many years work experience has been a key part of the development of young people who are desperate for an opportunity to experience the world of work. However the truth of the matter is that the model used is fraught with health and safety and risk issues.

South West Water and South Devon UTC have been working on a new paradigm for work experience, called Industrial Immersion which enables students to have a structured and more interesting week of learning about how a company operates.



University
Technical
Colleges®

9.

WORKFORCE/
SKILLS/
APPRENTICES

Apprenticeships are a fantastic way to earn a living, gain valuable work experience and sought after qualifications.



The training of young people through apprenticeships is a key part of ensuring a sustainable supply of talent for the future.

Since introducing our apprenticeship programme in 2011, 102 apprentices have joined the company. Getting our workforce onboard has been key to the successful introduction of our programme, particularly in areas such as mentoring and coaching.

As our experience and plans have grown, our apprentices and the company have achieved recognition from the wider business community. Around 5% of our workforce is now made up of apprentices and we boast an 80% conversion rate to permanent employment for those in front line roles. Apprenticeships were introduced to help us in our succession plans and they now form a key part of our business planning cycle.

South West Water provides roles in 15 operational and business disciplines.

From April 2017, the way in which apprenticeships are funded will fundamentally change. To mark this step change South West Water will now offer advanced, higher and degree level apprenticeships which can be undertaken by new recruits or existing members of staff.

We are currently working alongside EU Skills and other Government bodies to develop and deliver a series of trailblazer apprenticeships to reflect the changing requirements in apprenticeship training and in our industry.

We are also spearheading the adoption of similar schemes within the rest of Pennon Group as well as stakeholders such as our H5O alliance.



10.

SWEEP PARTNERSHIP WORKING



South West Water has joined the South West Partnership for Environmental & Economic Prosperity (SWEEP), with partners University of Exeter, Plymouth Marine Laboratory and Plymouth University.

SWEEP is built upon an internationally-leading base of excellence from across the environmental sciences, including the fields of ecology, hydrology, flood and coastal risks, marine and freshwater sciences, geographical and spatial analysis including remote sensing, climate change and greenhouse gases, agricultural, aquaculture and fisheries sciences and renewable energy.

Crucially, given the impact focus of the programme, the academic team also includes world-leading experts in natural capital economics, social sciences, health, wellbeing, and policy to ensure translation from research excellence to transformational impact.

The partnership will deliver value for money while building environmental resilience in the South West. South West Water will be working with academics, government and communities to co-develop understanding of natural capital challenges and opportunities.

This work will include exploring new markets opportunities and incentives for change, identifying cost-savings, risk reduction and the generation of value and wellbeing.

In addition to the LIDAR leak detection initiative (see earlier case study), the SWEEP whole-catchment project team will work with South West Water to develop innovative extensions to their existing catchment management initiatives.

Those innovations will take numerous forms; for example, in identifying emerging pollution problems and in the spatial and temporal targeting of catchment interventions. Another aspect of the programme will look at the design, implementation and evaluation of the mechanism used to deliver catchment-based interventions.

In essence, the mechanism helps determine how farmers are selected into the scheme and how much each gets paid for the activities they commit to undertake. There are numerous possible mechanism designs, each presenting farmers with different incentives and each resulting in potentially very different outcomes.



11.

EUROPEAN
TECHNOLOGY
APPROVAL
GROUP

The aim of TAG is to introduce innovative technologies to end users while also helping technology companies to be investment ready.



South West Water is an active member of the Isle Utilities' European Water and Asset Management Technology Approval Group (TAG).

The aim of TAG is to introduce innovative technologies to end users while also helping technology companies to be investment-ready, thereby ensuring external investment is attracted into the sector.

TAG will provide South West Water with information on a range of technologies, from early development to installation-ready, that are able to help minimise both capital and operational spend, as well as improve compliance with legislation, whilst maintaining customer service levels.

TAG addresses a gap in the market. It promotes strategic level innovation, supports the development and commercialisation of new technology, and helps secure external venture capital investment into the sector.

This is a unique model for the sector worldwide.

There is a growing demand for the next generation of innovative solutions in the sector, driven by increasing environmental policy and the requirement to minimise both capital and operational spend.

Innovation has become a necessity for the water and resource companies and their supply chains – to comply with legislation, maintain customer service levels and protect shareholder value.

Despite the demand for step-change solutions, end users may not have the resources to identify, source, develop and implement the technologies they need, particularly as many technologies may not be fully commercialised and thus do not have sufficient profile within the industry.

Many technology companies turn to institutional investors for venture capital funding. However, many institutional investors are wary of the risks associated with investing in technology, and more recently are starting to move away from funding early stage companies.

This creates a significant challenge for technology companies who often find themselves with an exciting product – proven on a small or prototype scale – but unable to secure the funding required for further development. If these companies are unable to secure funding, the industry will lose access to this new technology and the benefits it can offer. Feedback on a technology from the TAG can demonstrate market pull, thus helping to minimise investor risk and ensuring that funding continues to flow into the sector⁷.

The selection process for TAG technologies is completely needs-driven and must always be able to demonstrate a step-change benefit over competing solutions. This indicates that TAG technologies must comply with stringent evaluation criteria, including:

- Significant cost savings (CAPEX & OPEX);
- Reduced energy consumption and carbon emissions;
- Cost-effective compliance with regulatory and legislative requirements;
- Improved safety for staff and customers; and
- Reduced environmental impact.

⁷ Isle utilities – May 2016



12.

iOPS



iOPS is South West Water's Wholesale Operations Change programme through which many of our innovation and change projects are taken from concept through to delivery and embedded within the business.

The iOPS vision is one of enhanced operational capability designed to deliver services efficiently and effectively and to excel in an ever changing business environment.

To do this the programme;

- Draws upon the expertise of our workforce and supply chain to maximise potential opportunity
- Collaboratively delivers and embeds continuous improvement, adopting best practice; and
- Makes best use of business intelligence systems to influence and understand performance.

The programme improves capability by;

- Realising benefits through improving our performance in managing controllable costs – particularly in the areas of equipment hire and purchasing.
- Better understanding and control of our productivity, work demand, work priorities and levels of risk associated with our decisions.

- Re-engagement of Work Management systems and tools so that they work for us in a controlled way to achieve our outcomes.
- Supporting the workforce to continuously improve the way we do things through enhancing our processes and engagement in this area.
- Establish the correct working relationships and commercial terms with our supply chain delivery partners to innovate and achieve targeted efficiency.

Activity is overseen by the iOPS Programme Office which offers the following benefits;

- Creates a centre of excellence for change management expertise
- Offers diverse skills, experience and operational knowledge
- Provides a service to capture, explore and manage the development of ideas; and
- Manages sustainable change delivery and measurement of benefits.

Planning for the future

Internally we have developed an innovation strategy which will underpin our future plans – ensuring that we do not just harvest novel ideas but have the agile model and infrastructure to develop an idea and realise the maximum benefit from it.

Innovation strategy

We recognise the weaknesses in the traditional model of linear innovation from academia to industry, with consumers assumed to only be concerned with the price they pay. Therefore new ways will be found to overcome the innovation barrier between academic development of an idea and full scale industrial application. We will horizon scan globally both inside and outside our sector to ensure that we are aware of any development which could be used to make us more efficient or effective.

Our innovation delivery model illustrates how we are able to take ideas through a structured process to assess, develop and deliver tangible outputs in a number of key areas. We will ensure that this process is applied in our planning for PR19 and that all investment cases are tested against the model to assure ourselves that proposed solutions will deliver outcomes that are value for money and aligned to our regulator and customers expectations.

We are already starting to lay the foundations by investing in an innovation hub (Hype) which will systemise the management and development of ideas or problems and act as a vehicle for the development of solutions that add value to the services we deliver.



SUPPORTIVE

Providing the environment where innovative culture can flourish



EXPANSIVE

Ideas or best practice from any sector



RESILIENT

Reducing dependence on single suppliers or technologies



VALUED

Clear link between business objectives and customer priorities



INVESTING

Not just financially, but in future skills and our environment



CUSTOMER CENTRIC

Focused on delivery of services that customers and stakeholders value

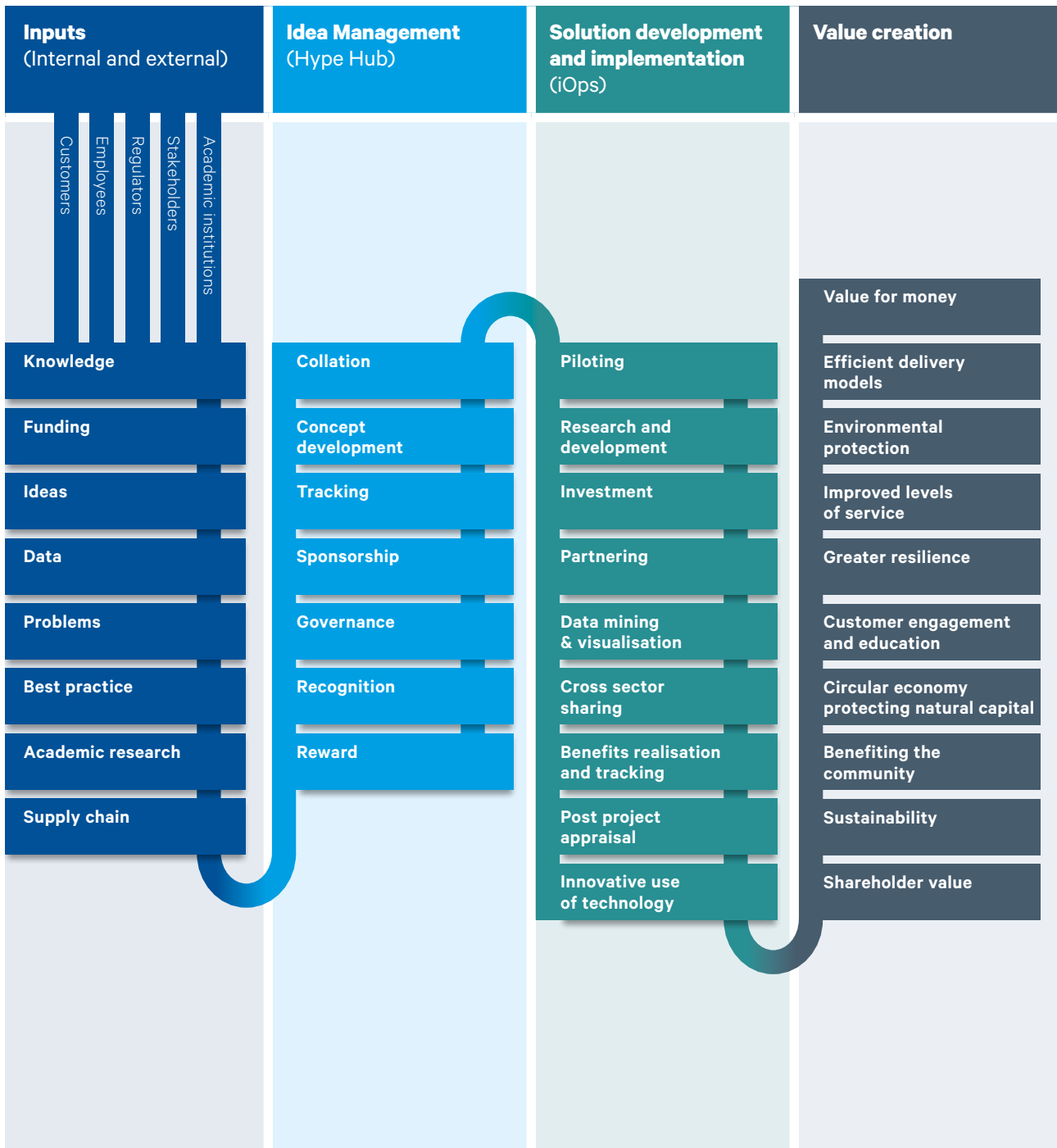


ENGAGING

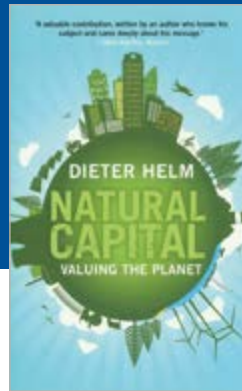
With customers, employees and stakeholders



Innovation model



REFERENCE DOCUMENTS



OFWAT

Natural capital – Dieter Helm publication

KEY MESSAGES

'A valuable contribution, written by an author who knows his subject and who speaks about his message.'

Dieter Helm is Chairman of the world's first Natural Capital Committee and Professor of Economics at Oxford University. Applying economic theory to the unprecedented destruction to the natural environment he recognises the limitations of advocating a reduction in growth as a remedy. Instead he proposes that we should be guided by the simple rule;

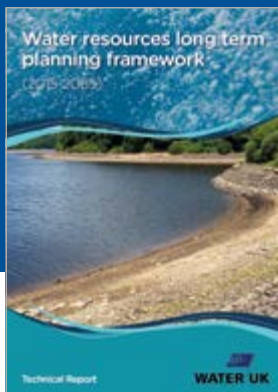
The aggregate level of natural capital should not decline.

The difficulty that we face is that without a price there is little incentive for renewable sources of food and materials to be kept at a sustainable level. As a consequence we are in a period of unprecedented habitat destruction and extinction. He suggests techniques for assessing and valuing natural capital, so those using or polluting the environment would pay more than just the marginal costs – and equally would stand to gain through preservation and enhancement.

One of the examples given of how valuing natural capital can bring about economic benefit is South West Water's Upstream Thinking project on Exmoor. On a national scale the author also highlights the primary objective of the Natural Capital Committee, to be the first generation to leave an improved, rather than depleted, environment to the next..



CLICK ON THE
DOCUMENTS
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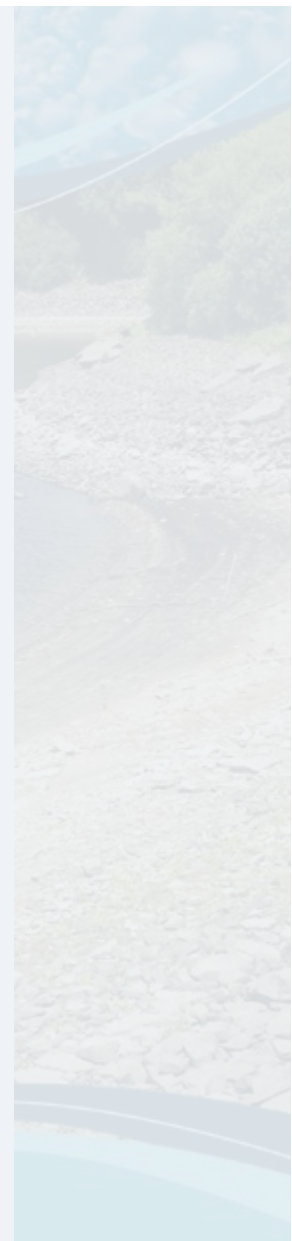
WATER UK

Water resources long term planning framework (2015 – 2065)

Water UK outline a strong case for the UK and Welsh governments to consider adopting consistent national minimum levels of resilience. There is recognition that there are significant issues to address for this to become a reality, including the need to ensure fairness across both regions and generations.

Water UK has concluded that;

- There is a balance to be struck and investment needed to increase resilience is relatively modest compared with the cost of dealing with a drought.
- There is no single solution and an approach that considers supply enhancement, transfers and demand management as a suitable mix of strategic measures.
- There is a case for a national level planning strategy that supports ongoing Water Resource Management Plans (WRMPs) and is able to assess risks and opportunities to ensure investment is proportionate.
- Industry, government and regulators must work together with customers on how best to respond to the risk of severe drought.





OFWAT

Tapped in: From passive customer to active participant



Ofwat’s published presentation places the customer firmly at the heart of Water Company’s operational model. It reminds the industry that it is the behaviour of customers that dictates the scale and pace of service delivery, so they should be viewed as active participants and as such involved in problem solving and innovation activity.

Ofwat recognises the step change in customer engagement at the last price review (PR14) and urges companies to maintain this upward trajectory. The societal and technological changes which enables individuals to be active participants in more and more areas of their lives that matter to them. Customer participation is defined as:

The active involvement of customers in the design, production, delivery, consumption, disposal and enjoyment of water, water services and the water environment in the home, at work and in the community.

Importantly the presentation outlines both why customers may want to be involved and the benefits to companies from this involvement in helping them achieve their outcomes. Ofwat encourages companies to innovate in their engagement, working with customers to imagine and create the future together. Customers stand to gain more control over their service experience and water supply, while companies can benefit from changes in customer behaviour reducing pressure on services and increasing resilience.



OFWAT

Unlocking the value in customer data: a report for water companies in England and Wales

This presentation elucidates Ofwat's vision for the water sector providing sustainable, affordable services that are accessible for all. The rapid embracing of innovative techniques and technology in other industries has not been seen in the water sector. Ofwat have developed a framework of expectations, based around customer data and explicitly stating that companies should be ambitious – not just looking at traditional sources such as billing information. The water sector need to be using good quality data routinely across all areas of their businesses for a number of reasons:

- Being available when and where customers want them – making use of all traditional and digital channels available
- Innovations in products and services, looking to industry leaders in data science
- Recognising customer preferences to improve markets
- Helping customers to modify behaviour, making the sector more resilient in the face of increasing population and climate change
- Increased collaboration to identify any customers in need of support
- Better understanding of customers needs, so services can be tailored and support offered to those who may have difficulty paying their bills

Ofwat expects all water companies to have a data strategy that lays out long term ambitions for the gathering and use of customer data, how success will be measured and crucially how the approach will benefit customers.

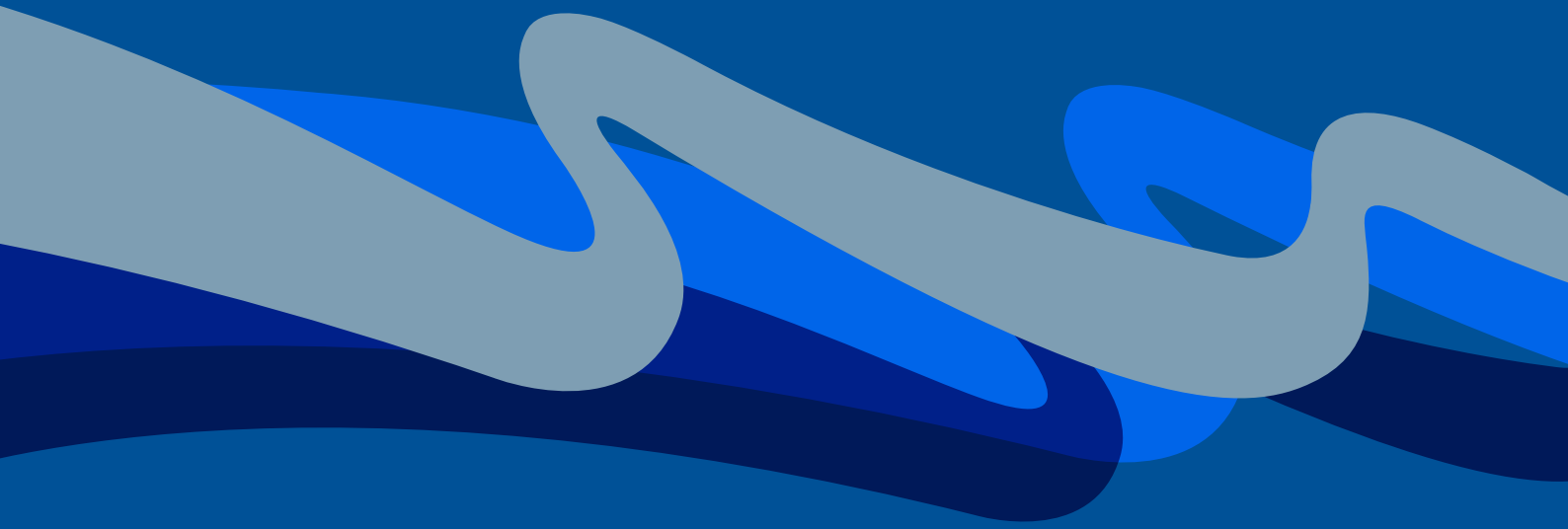


South West Water

is committed to driving efficiency through innovation to deliver services our customers and stakeholders value, at a price they are willing to pay.

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South West
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