



UNLEASHED

Asset investment decisions that maximise value and deliver purpose

John Green

Anglian Water

IFS Unleashed, 16th October 2024





John Green AMP



Anglian Water

Largest water and water recycling company in England and Wales by geographic area

Strategic Value Manager

Best value for stakeholders through:

- Asset Investment Processes
- Investment Decision Making Frameworks

Experience:

- Led AW to ISO55001 certification
- 19 years in asset management



Institute of Asset Management

International professional body for whole life management of physical assets

- Chair Patrons
- Council Member
- Former chair, NxtGen



This session

How Anglian Water considers **value in the broadest possible sense** in our investment **decisions**, to ultimately **deliver our purpose**.

- Intro to AW and Business Context
- What would you do?
- Value & Six Capitals
- Value Framework
- Eyes open decision making
- Prioritisation & optimisation tools
- Summary & Learning

Anglian Water

Our purpose is to bring environmental and social prosperity to the region we serve

The **largest** water and water recycling company in England by geographic area



Serving almost
7 million
customers across the
East of England and Hartlepool

c**150** WTW's

The driest region in the UK with

2/3

of the national average
rainfall each year



One of the UK's
fastest-growing regions,
projected to grow by

175,000

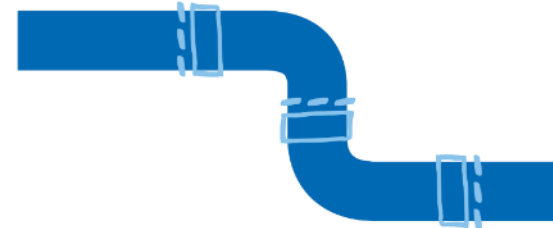
homes by 2025

c**1250** WRC's

Operating

38,185km

of water mains - laid
end-to-end further than a
trip to Sydney and back



Employing more than

5,000

people

c**77km** Sewers

love every drop
anglianwater

Business Context

We operate in an uncertain environment...



Climate change



Pandemic



Financial Constraints



Customer Expectations



Regulatory Demands



Population Growth



Cyber Security




Changing Markets

We need make our money go as far as possible...


Benefitting customers, regulators, shareholders and partners

Purpose at the heart of everything we do

In 2019 we changed our Articles of Association to become a public interest company



**Our purpose
is to bring
environmental
and social
prosperity to the
region we serve**



Directors' Duties

A director must act in the way he or she considers, in good faith, would be most likely to promote the purpose of the company. In doing so, a Director shall have regard (amongst other matters) to:

- i. the likely **consequences of any decision in the long term**;
- ii. the interests of the company's employees;
- iii. the need to foster the company's business relationships with suppliers, customers and others;
- iv. the **impact of the company's operations on the community and the environment**;
- v. the desirability of the company maintaining a reputation for high standards of business conduct; and
- vi. the need to act fairly as between members of the company.

We want to deliver **greatest added value** in **multiple areas** and **evidence** that we're **making decisions in line with our purpose**

Strategic ambitions defined in 25-year Strategic Direction Statement



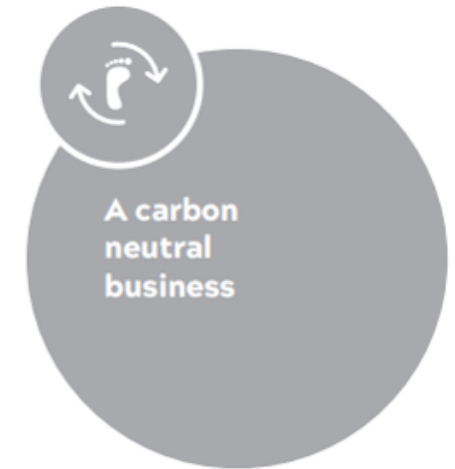
Work with others to achieve significant improvements in ecological quality of catchments



Enabling sustainable economic and housing growth



Resilient to the risk of drought and flood



A carbon neutral business

Performance commitments defined in 5-year Business Plan

Biodiversity	Leakage	Water supply interruptions	Operational emissions
Pollution incidents	Per capita consumption	Compliance risk index	Lower carbon concrete assets
Discharge permit compliance	Business demand	Customer contacts re: water quality	
River water quality (phosphorus)	Bathing water quality	Internal/external sewer flooding	
	Customer experience	Storm overflows	
	Developer experience	Mains repairs	
	Business retailer experience	Unplanned outages	
		Sewer collapses	

Anglian Water

Our 5-year business plan

By 2030, excluding inflation, average bills will cost **£1.57** per day, a rise of **21p** per day **and we will...**



Have delivered a £9bn plan

focused on the things that customers have repeatedly told us matter most – world-class, safe, clean drinking water, protecting the environment and helping the most vulnerable customers.

Achieve a 70% reduction



in the amount of carbon we produce when delivering our projects, against our 2010 baseline.

Support all customers at risk of water poverty

(customers spending more than 5% of their household income on water bills)



Plan for two new reservoirs



to build further drought resilience and environmental protection.

Reduce pollutions and spills by increasing our waste water network by 112

Olympic-sized swimming pools.

Invest £476m

to accommodate housing growth, with 700,000 more people expected to live here in the next 20 years.



Renew 695km

of vulnerable pipes to futureproof our water mains and sewers against climate impacts.

Double our investment

in the environment to £4bn to enable nature recovery.



Support our customers to use less water, down to around 124 litres per person per day.



Launch a new Medical Needs Discount,

an industry-first, providing financial aid to those with specific medical needs at zero extra cost to any customer.

Use nature-based solutions to create an area the size of **100 football pitches** of treatment wetlands, along with **52** new sustainable urban drainage systems.

We'll do our bit by reducing our already sector-leading leakage levels by a further 8% to new industry-leading lows.



There are big decisions to be made

Asset Investment Decisions

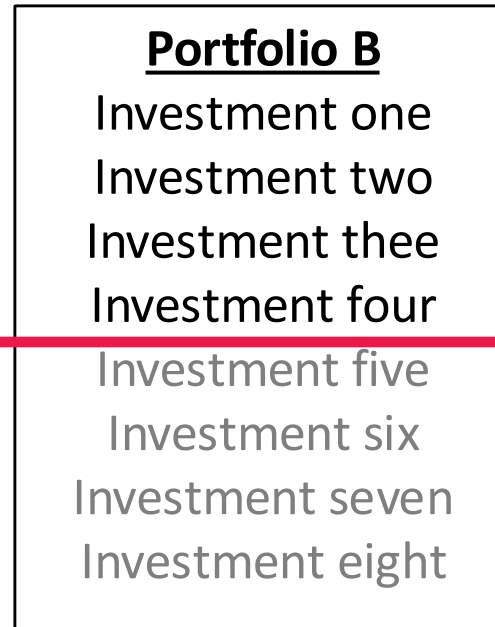
We have lots of decisions to make...

How much do we invest in each **Strategic Objective**?



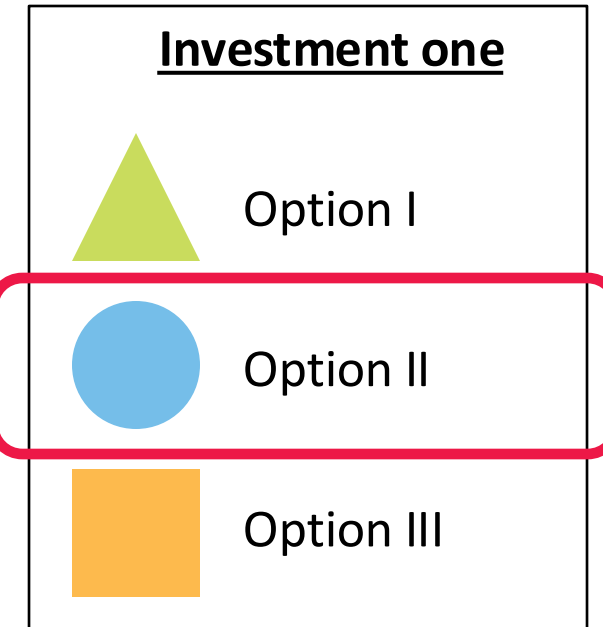
- Executive / Board
- Current performance
- Strategic ambition

Which **investments or projects** do we promote?
And **when**?



- Decision making tools
- Value Framework
- Constraint considerations

What's the best value **solution / mitigation**?



- Decision making tools
- Value Framework
- Risk & Value process

What would you do?

- Three properties flood on average once every two years
- This could lead to a moderate pollution incident within five years
- There's a moderate health and safety incident every year at the site

Option 1

Benefits: Prevents any future flooding, health and safety or pollution incidents

Cost: £1m Capex,
£0 Opex

Carbon: high

Option 2

Benefits: Reduces the risk of flooding, H&S and pollution to a quarter of original levels

Additional benefit: improves employee productivity

Cost: £600k,
£5k a year Opex

Carbon: low

Option 3

Benefits: Solves the flooding and pollution risk and halves the health and safety

Additional disbenefit: will be an eyesore in an area of natural beauty

Cost: £250k,
£25k a year Opex

Carbon: medium

- We'll revisit this later...



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#3718 706

What was the most important factor
in your decision?



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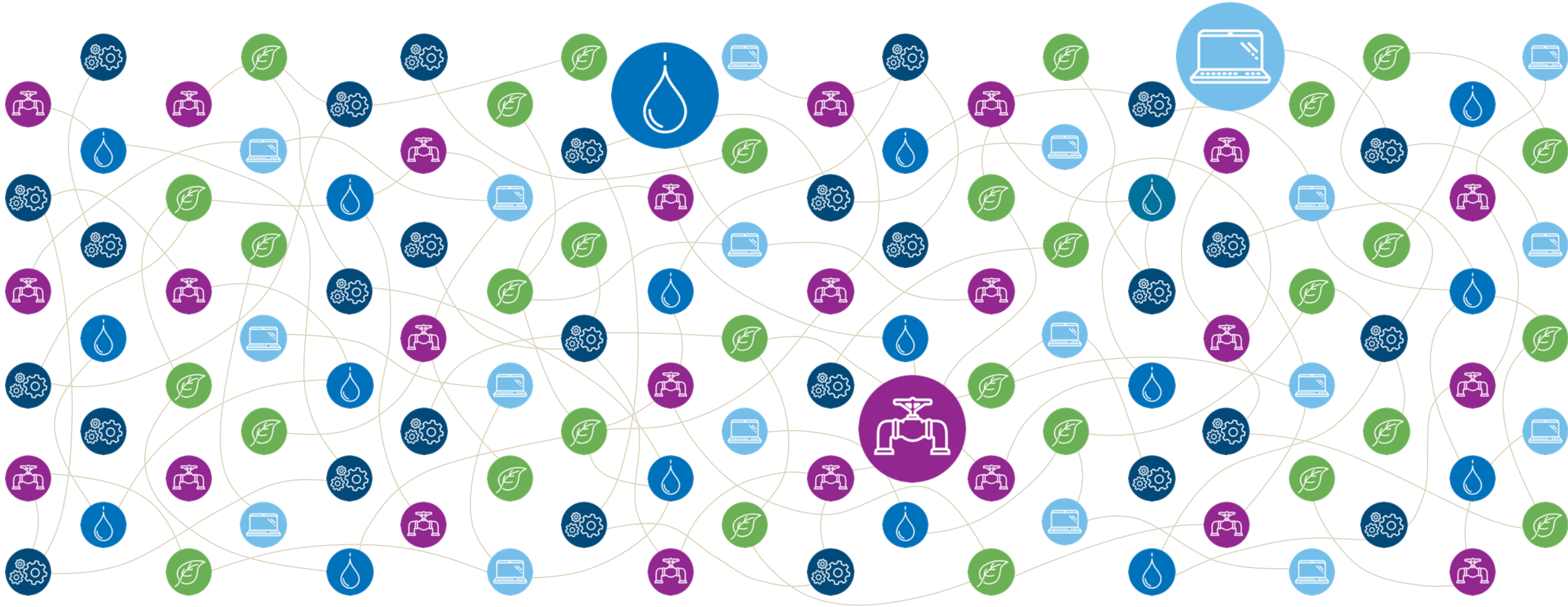
How did you find that?



Join at
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#3718 706



What about thousands of projects and options?



How do we choose the right projects and options, at the right time to maximise value?

We want to maximise value...

But what IS value?

Whatever is important to an organisations' stakeholders.

- It will usually include **money** and the **services** provided by the organisation.
- It can also include **less tangible** aspects.

“The relationship between the **benefits** and the **resources** required to achieve them”

Institute of Value Management

Income
Improved service
Safety
Environmental
Social

Capex
Opex
Materials
People / Human Resources
Carbon

Value through a Six Capitals Lens...



Natural

Natural

The **impacts we have on the natural environment** and resources, including carbon emissions.



Social

Social

The **impacts we have on our stakeholders** including customers and communities.



Manufactured

Manufactured

Our **direct products**, the ability of our infrastructure to provide **resilient services**



Financial

Financial

Capex and Opex impacts. The **financial health and resilience** of the organisation including sustainable finance.



People

People

The **safety, happiness and wellbeing** of our people and partners

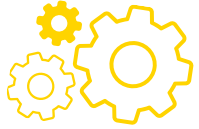


Intellectual

Intellectual

The **way we work**, innovation, productivity, intellectual property and information

In Practice...



Key components that help us to make **informed decisions** and **measure benefit...**

Value Framework

Ability to **measure** different risks, benefits and disbenefits in a common language (£)

Eyes open decision making

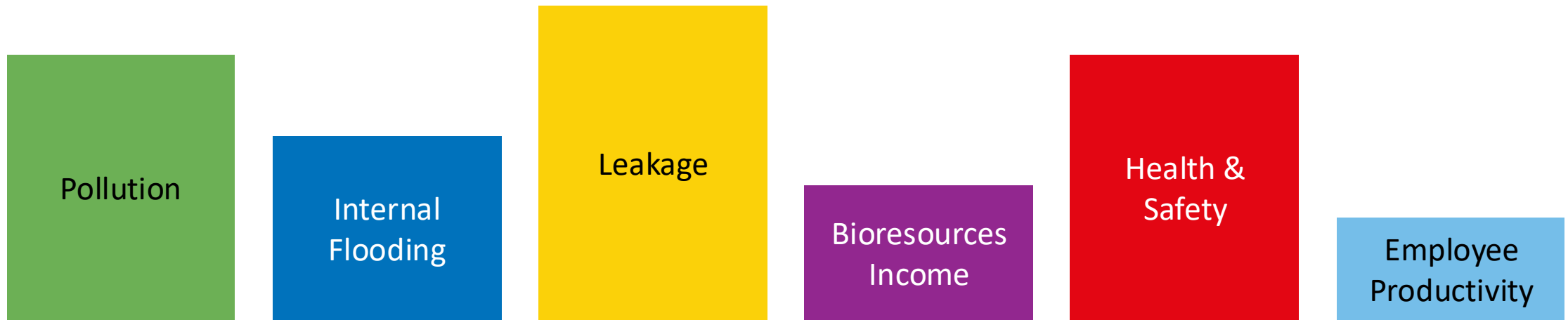
that considers broader value (i.e. six capitals) alongside existing/traditional constraints (i.e. cost)

Prioritisation & Optimisation tools

Promotion of **best value investment portfolios** considering numerous constraints

Value Framework...

A Value Framework enables us to express different risks, benefits and disbenefits in a **common language (£)**



This allows us to compare the benefits of different investments or options leading to more informed, **better value decisions**

Value Framework

Value Framework

Natural	Social	Manufactured	Financial	People	Intellectual
Pollution Category 1-4	Water Supply Supply Deficit Interruptions to Supply Low Pressure	Water Efficiency Potable Water Leakage Raw Water Leakage Consumption Reduction	Income Income Protection Renewable Generation Bioresources Non-Domestic Income Domestic Income	Health, Safety and Wellbeing Physical Safety (Staff and Public) Employee Wellbeing	New/Different Ways of Working Employee Productivity Intellectual Property Utilisation
Permit Failures & Discharges WRC Quality Compliance WRC Volumetric Compliance WTW Discharge Compliance	Water Quality Notices Health & Regulatory Impact Aesthetic Impact DWI Prosecution	First Time Connections Developer Request Water Developer Request Water Recycling Section 101a Request	OPEX Increase Additional Activity Indicators		
Water Resources Over-Abstraction Aquifer Protection	Flooding Internal External Public Areas Dam Failure	Business Enablers Information Services			
Environmental Quality Bathing Waters River Water Quality Biodiversity Net Gain Air Quality	Customer (BAU and Construction) PR (Only for one off cases) Visual Noise Odour Traffic Disruption Amenity Access Customer Experience	Security Operational Security Cyber Security			
Carbon & Emissions Capital Carbon Operational Carbon Process Emissions					



Natural



Social



Manufactured



Financial



People



Intellectual

- **Service level** - Things customers, regulators, environment or employees would notice, not asset level.
- **Developed with experts & data** - >110 people across business and using industry and academic research
- **Inclusion of societal values** - factors in customer preferences through market research

Value Framework



Answer Questionnaires

VF Test ▸ Option 2

Baseline Questionnaire Residual Questionnaire

VF Test

🔊 Flooding - Internal

Questionnaire Internal - Baseline - PR24

All Time Oct 2024 To No End Date

Oct 2024 To No End Date

1. How many properties are affected?
2. How many Critical Civic Centres are affected?
3. What is the likelihood of the event?



Answer Questionnaires

VF Test ▸ Option 2

Baseline Questionnaire Residual Questionnaire

VF Test

🔊 Flooding - Internal

Questionnaire Internal - Outcome - PR24

All Time Apr 2025 To No End Date

Apr 2025 To No End Date

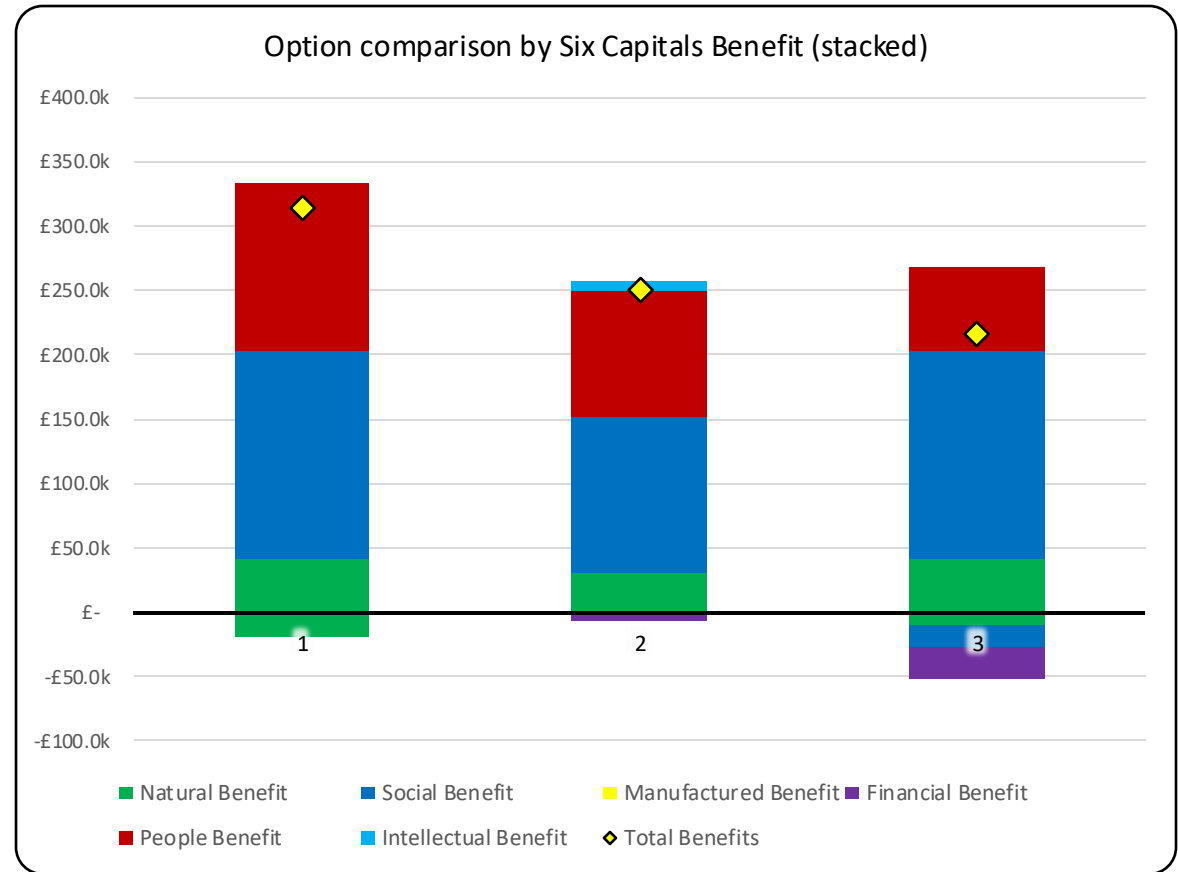
1. How many properties are affected?
2. How many Critical Civic Centres are affected?
3. What is the likelihood of the event?

What would you do? - Revisited

Eyes open decision making

Let's try again using **Anglian Water's Value Framework**

Options Summary	1	2	3
Description	Option One	Option Two	Option Three
Value Index	3.18	2.77	3.22
WLC £k	£ 1,000.0k	£ 705.0k	£ 775.0k
Residual Position	£ 18.7k	£ 78.5k	£ 92.5k
Tot Benefits (excl Opex incr)	£ 314.6k	£ 254.8k	£ 240.8k
Capex	£ 1,000.0k	£ 600.0k	£ 250.0k
Opex Change	£ -	£ 5.0k	£ 25.0k

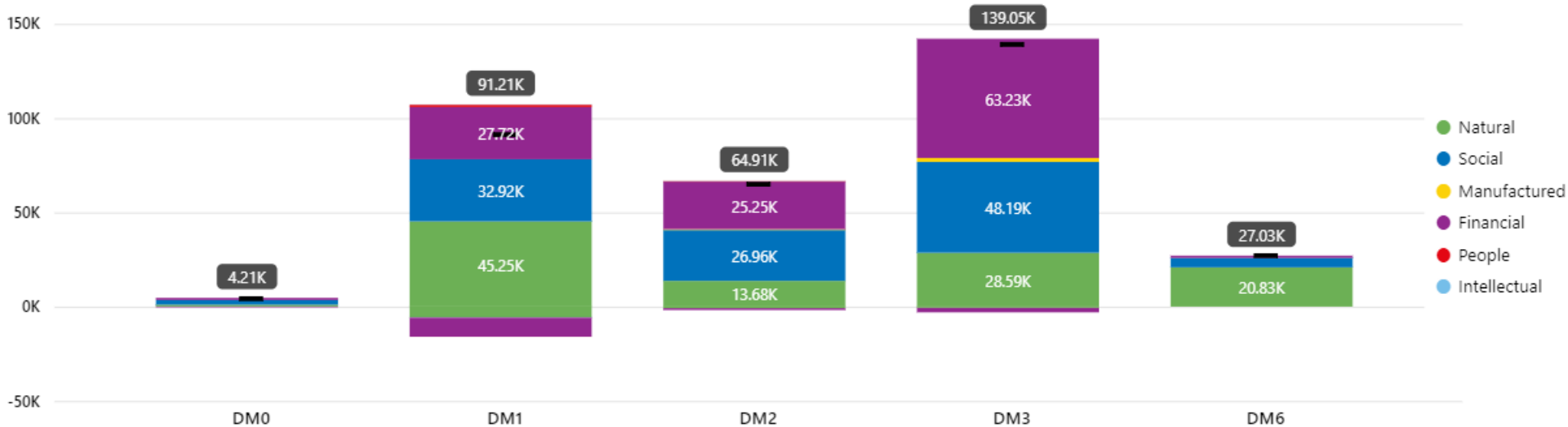


Metrics and visuals enable us to make an **informed decision**,
based on value and balancing competing constraints

Measuring and tracking benefits

Eyes open decision making

The **benefits position** investments to be captured and **tracked** through their lifecycle...
At an individual investment and **portfolio level**.



Current Approved DM	Benefits Milestone	Standalone Schemes Covered	Ring Fenced Budget Represented
DM0, DM1, DM2, DM3, DM4, DM5, DM6	DM0, DM1, DM2, DM3, DM6	130 / 136 schemes shown with benefits for any selected DMs (95.59%)	359.5M (22.28%) Total RFB = 1.61bn

Contributing Schemes

TRN	Scheme Name	SAP Ref	C55 Ref	Portfolio Board	Portfolio	Total Net Value (£k)
A70001	Peterborough, Potters Way Sewer Rehab	SEW-11520	I023658	WRI	WRS 06.04 SCS - Sewer Rehabilitation	19,801.03
A70009	South Fenland WRZ to North Fenland - WRMP19 (NFN4)	WAT-07340	I015255	WRMP	WSS 02.01 WRMP & Drought	34,197.62
A70012	Newmarket WRZ to Bury St Edmunds WRZ - WRMP19 (BHV5)	WAT-07336	I015218	WRMP	WSS 02.01 WRMP & Drought	42,451.18

Enabling us to report on whether **our investment programme is delivering its intended benefits** and ultimately offering value for money to our stakeholders



What about Constraints and Targets for thousands of projects?



Prioritisation & Optimisation



How do we choose the right projects and options, at the right time to maximise value?

Optimise to Meet Constraints and Targets

Prioritisation & Optimisation

 Financial

 Total Risk

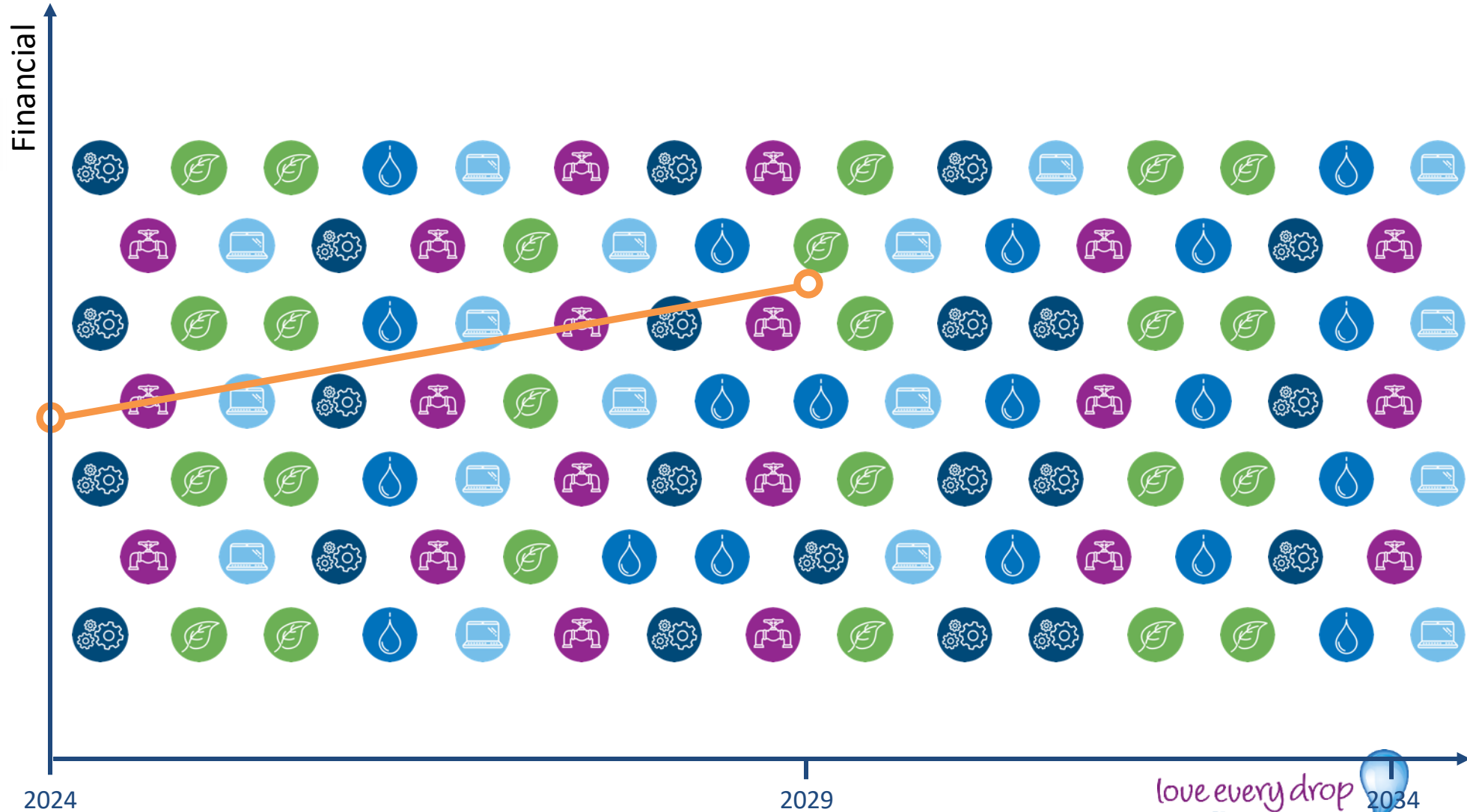
 Resources

 Outage constraints

 Carbon

 Asset replacement targets

 All



2024

2029

love every drop
anglianwater  2034

Optimise to Meet Constraints and Targets

Prioritisation & Optimisation

 Financial

 Total risk

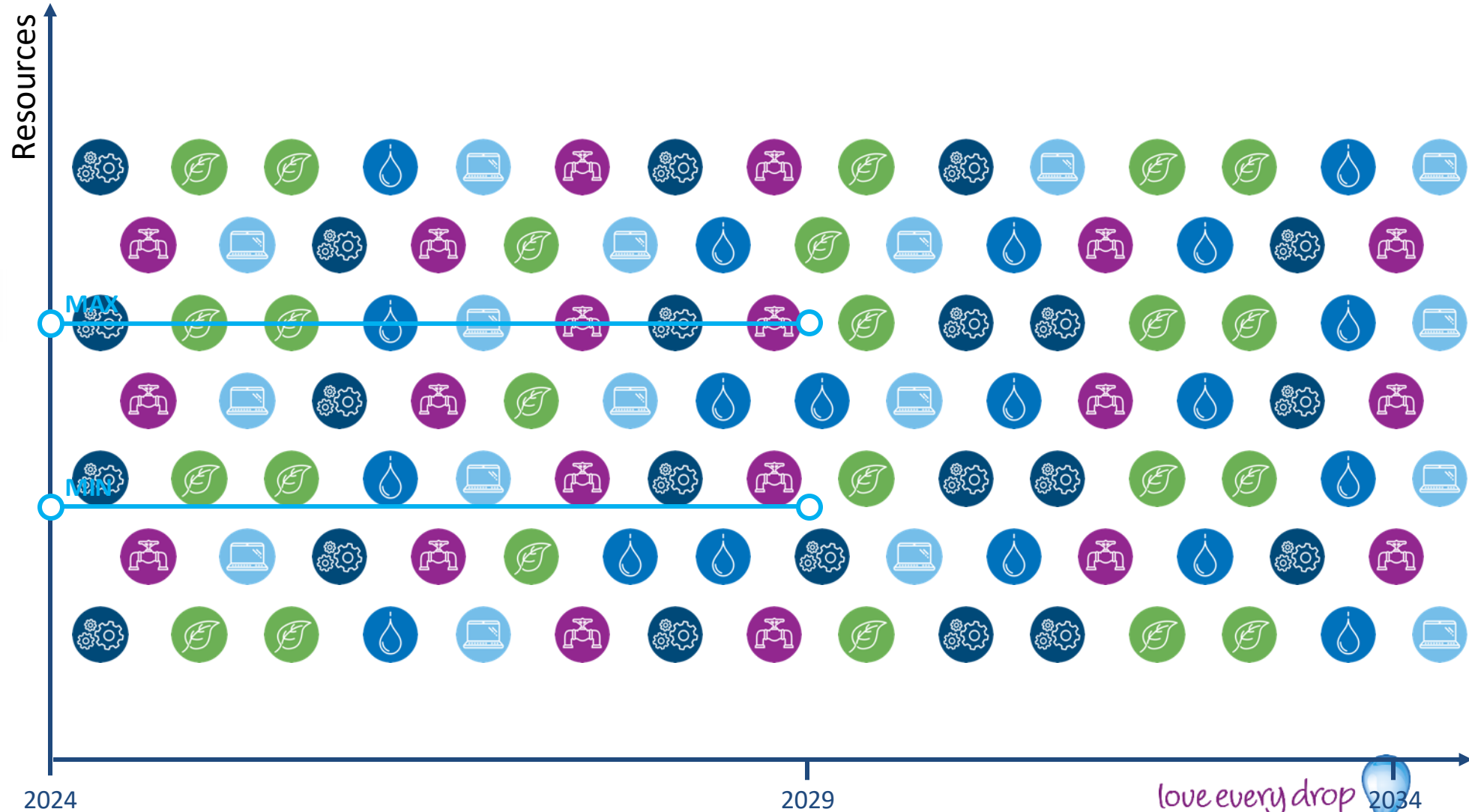
 Resources

 Outage constraints

 Carbon

 Asset replacement targets

 All



Copperleaf bridges the gap between strategic direction-setting and operational decision-making...

Prioritisation & Optimisation

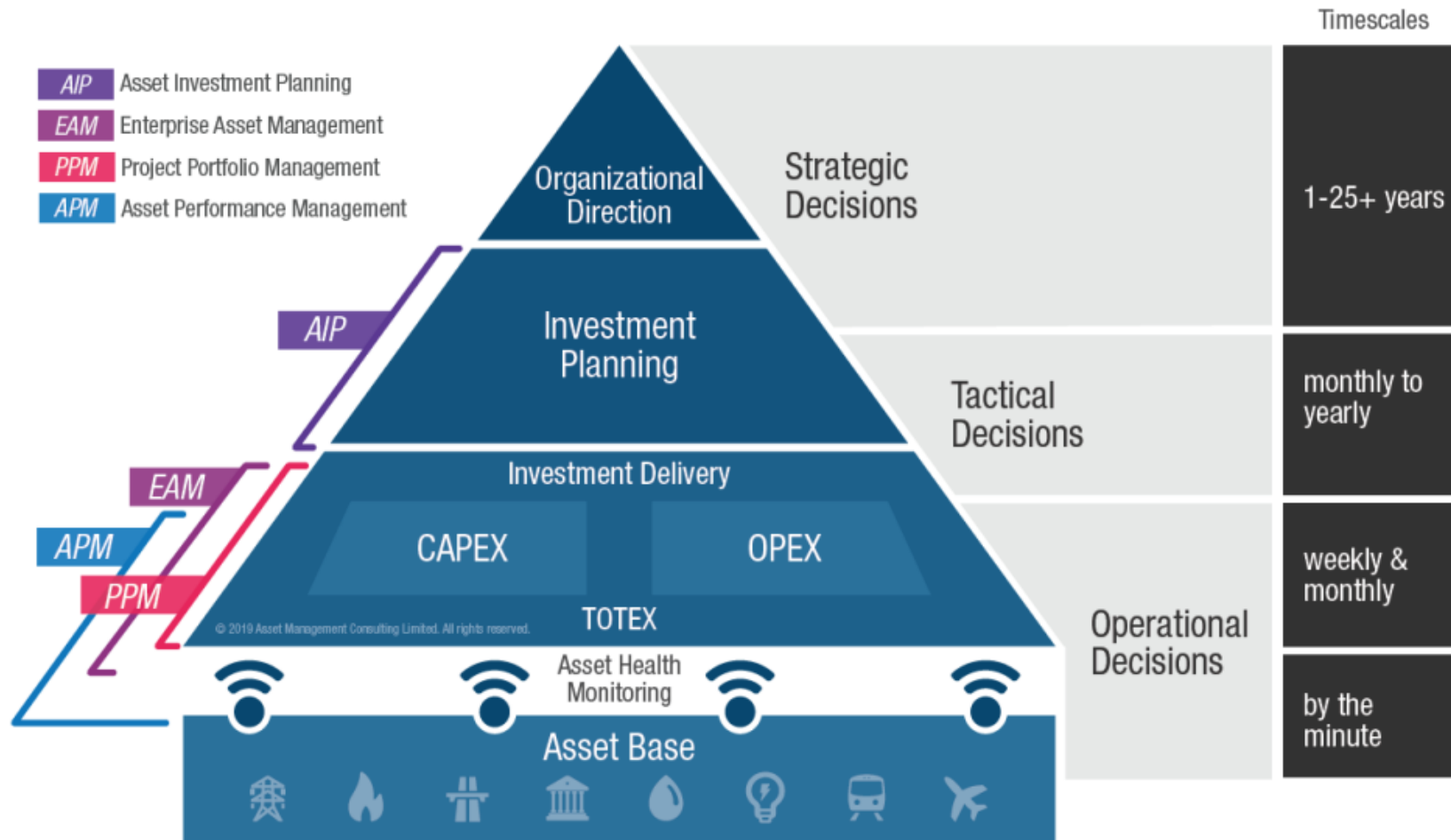
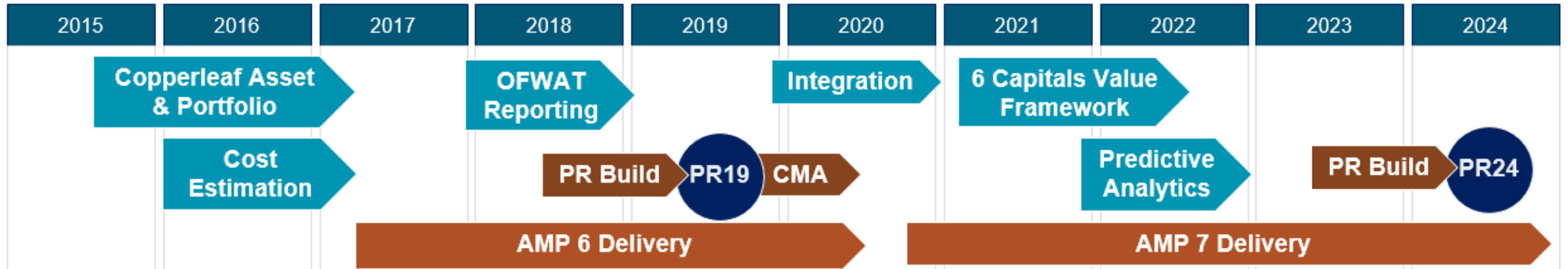


Figure retrieved from Asset Investment Planning Solutions – A market study by AMCL+



Copperleaf and Anglian Water have worked together over the last 10 years through 2 AMPs and 2 price reviews



Copperleaf Asset

- Integration with asset repositories (EAM, GIS)
- Infrastructure asset degradation models
- Import of non-infrastructure risk modelling

Understand asset degradation

Cost Estimation

- 1,800 lifecycle cost models
- Modelling of **capital, operational carbon,** embodied water etc.
- Estimate approval workflows and management

Accurately model whole lifecycle cost and carbon

Predictive Analytics (PA)

- Optimal asset lifecycle strategies given multiple intervention options
- Asset level modelling across millions of individual assets.

Develop long-term asset strategies

Copperleaf Portfolio

- Portfolio and investment hierarchy and industry leading Value Framework
- Full Investment workflows and approvals for thousands of investment projects
- Integration with enterprise systems for programme delivery

Optimise value across entire investment portfolio

This approach gives us...

...the ability to plan and deliver **significant investment** that **maximises value** and ultimately **delivers on our purpose** through service and performance improvements



Line of sight between purpose, strategic ambition, budgets, portfolios, investments (projects) and alternatives (options). The **Copperleaf Value Framework provides evidence that we're delivering on purpose**



More value from our investment plan, i.e. more benefit (**£50m over 5 years**) within constraints leading to improved performance.



Carbon reductions by incorporating carbon in our costing and decision making processes and challenging our supply chain. **The company has exceeded its 2020 goals and driven down capital carbon by 61% against 2010 baselines.**



Supply chain benefits – improved ability to deliver plan by alliance partners through greater visibility and certainty, built into performance frameworks



Respond to Scrutiny - quickly respond at a granular level on a plethora of investment criteria sets us apart from our peers and demonstrates the depth of detail in our planning process. **This would be impossible without Copperleaf**

Learning

1. **Remember the end goal** – it's easy to get lost in the details / metrics
2. Make it **practical** for those using it. Keep it **simple**
3. **Buy in is crucial**, at all levels, the approach needs to be credible for your organisation
4. **Involve the 'doers'** in the development as well as experts
5. Start with a **trial** area
6. Fully consider **resource implications**.
7. The **discussion is often more valuable** than the metric! Don't be hung up on perfect measurement
8. **Get started**, it won't be perfect to begin with, learn fast

Final Thought...



Natural

Low carbon, nature based solution



Manufactured

Climate resilient solution



People

Wellbeing improvements for staff



Social

Involved community, schools, volunteers



Financial

Lower operating costs (Opex)



Intellectual

Innovate design – now being repeated



We know we can do it, so let's do it every time!

Thank you

Unleashed recommendations for EAM and AIP customers

Wednesday

16:00 – 16:30

Optimizing Capital
Allocation with
Copperleaf

(Theatre 2)

Thursday

12:00 – 12:30

Preventive,
predictive,
prescriptive:

(Theatre 1)



UNLEASHED