CIWEM Chartered Institution of Water and Environmental Management

Urban Drainage Group

IN-PERSON EVENTS | Involving. Informing. Inspiring

CIWEM Urban Drainage Group Annual Conference 2022

8 – 10 November 2022

Hilton Birmingham Metropole

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Optimising DWMP Investment

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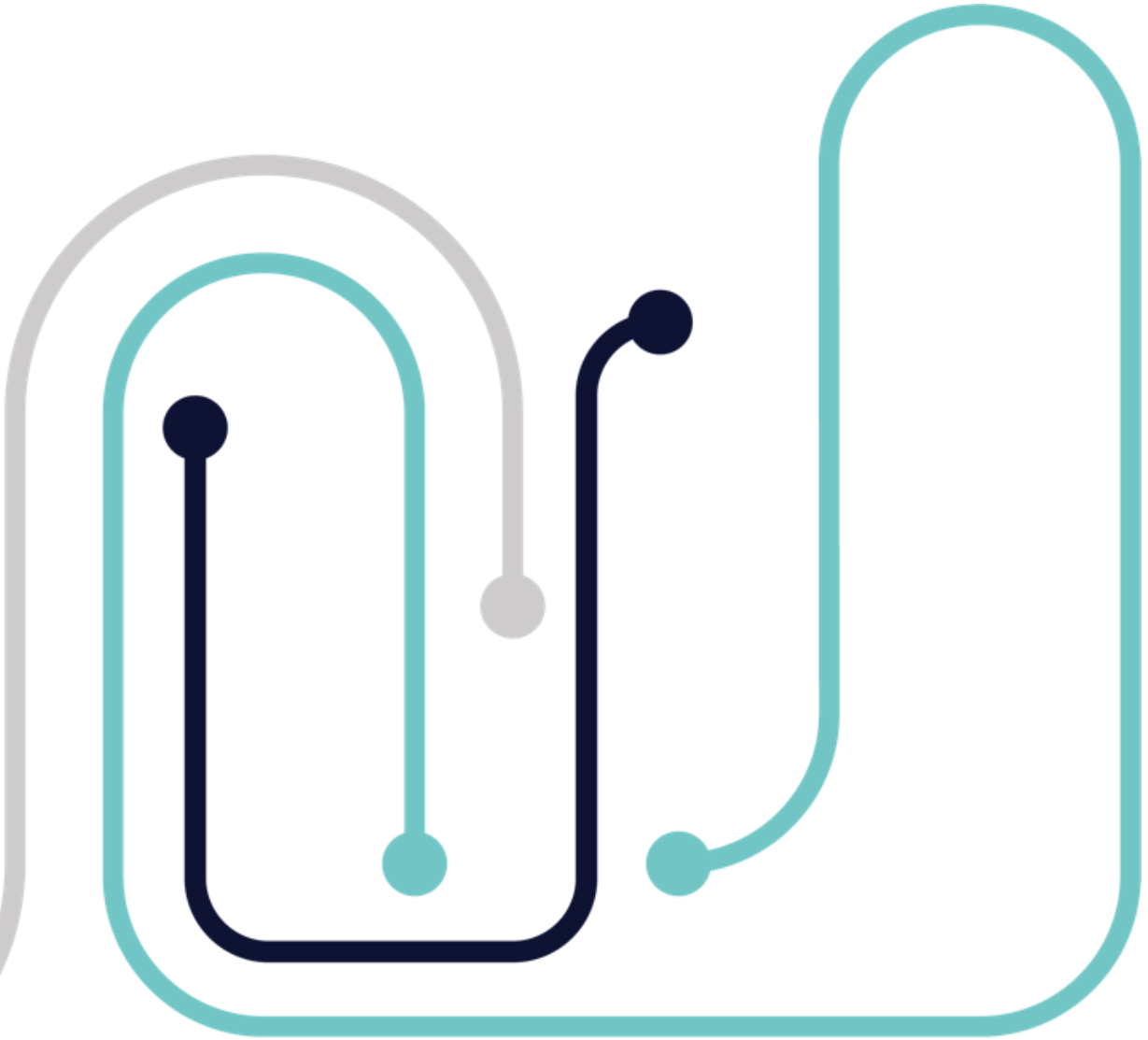
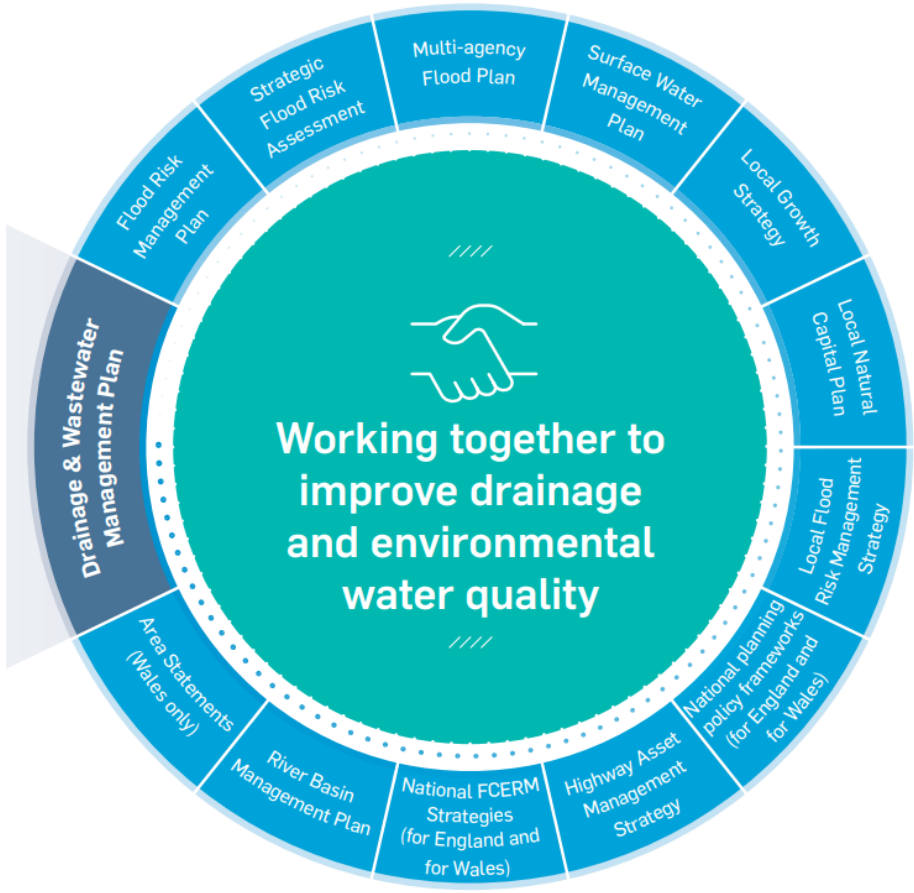


Purpose

"It's a blueprint for our future"

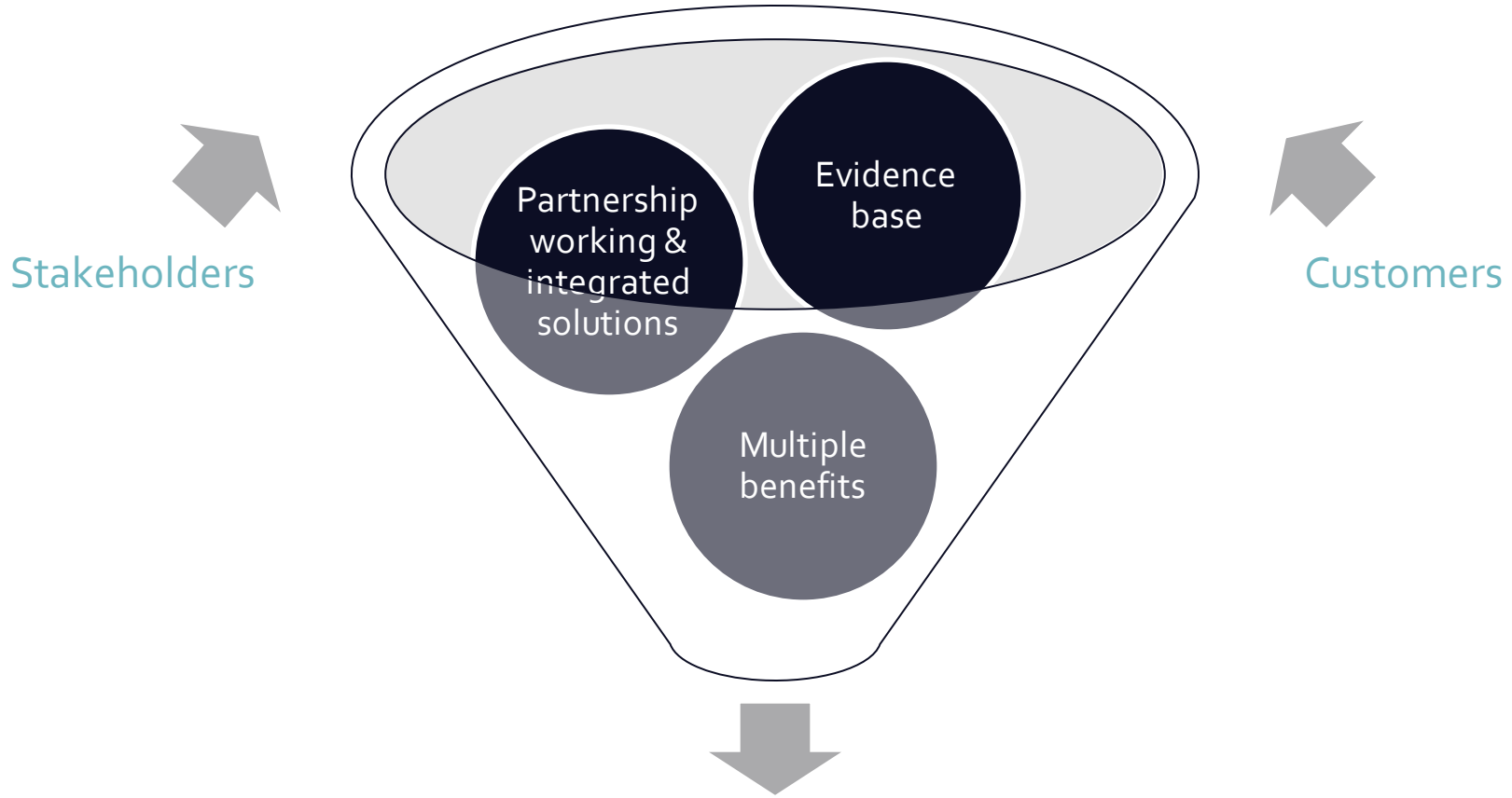
- Long term strategic plan
- Recognising interdependencies between drainage systems
- Specify priorities and costs required to achieve future aspirations



Plan together, generate efficiencies, maximise outcomes

Higher expectations

Smarter, better, adaptive

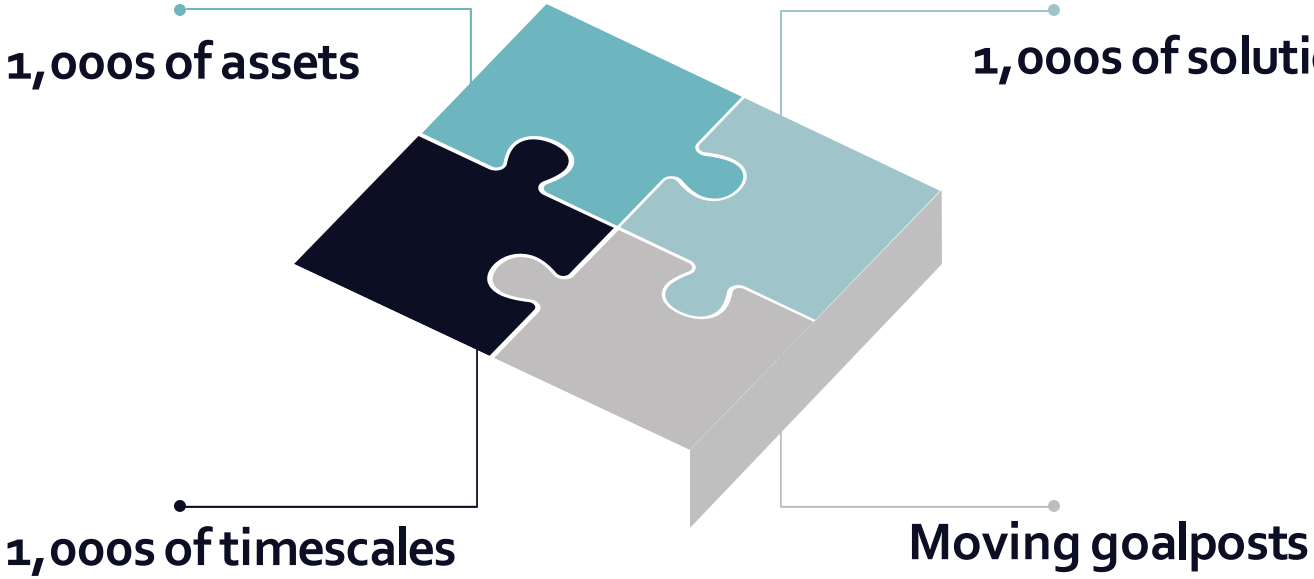


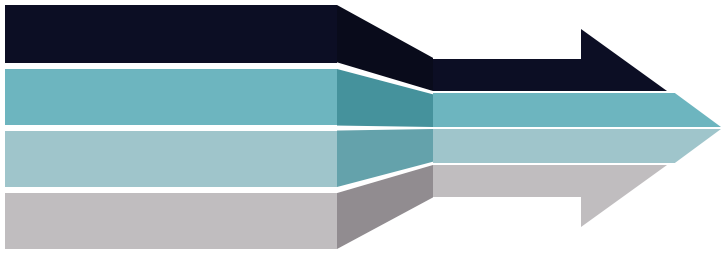
Best Value Plan

Challenges with planning

Selecting an optimal solution from a plethora of possible opportunities

- Communicating results (public vs stakeholder vs internal)





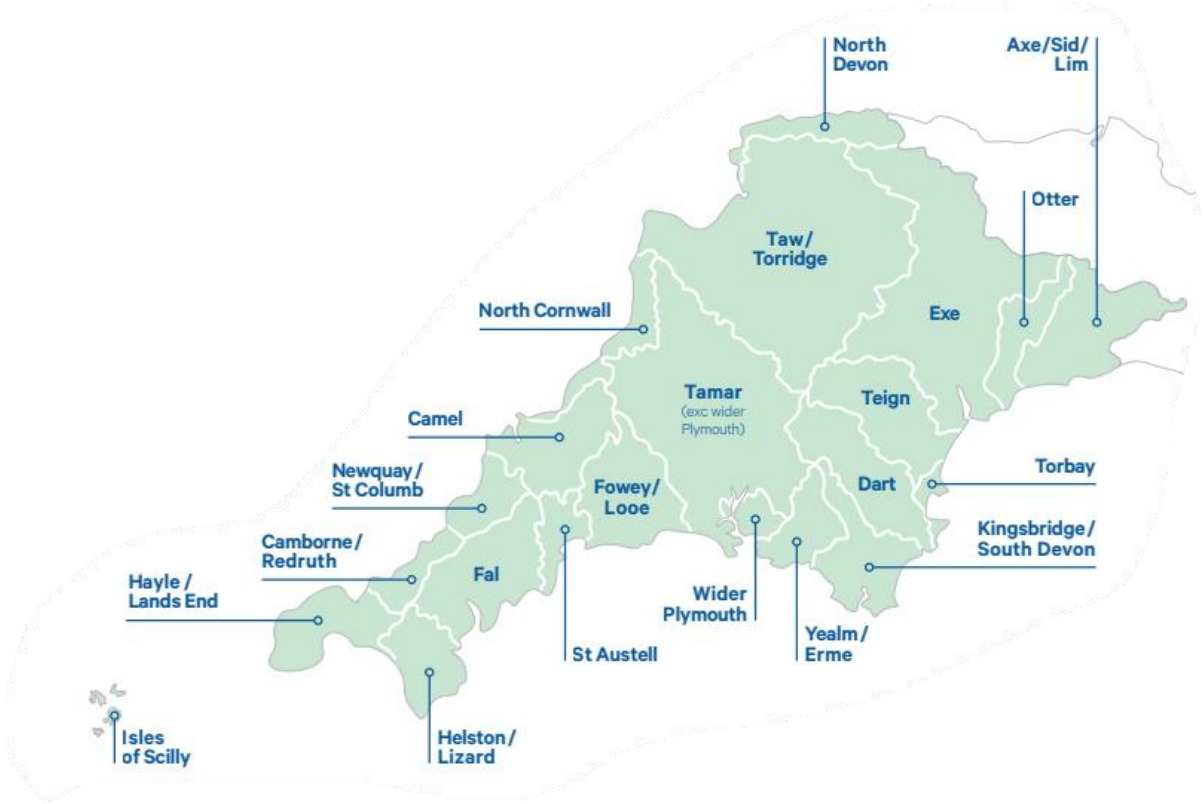
- Alignment with existing business processes

South West Water

Optimising down to an asset level

- 1 Level 1 Company Plan
- 22 Level 2 Strategic Planning Areas
- 653 Level 3 WwTW Catchments
- ~1,200 SPS
- ~1,400 Overflows

- 6 Key Scenarios



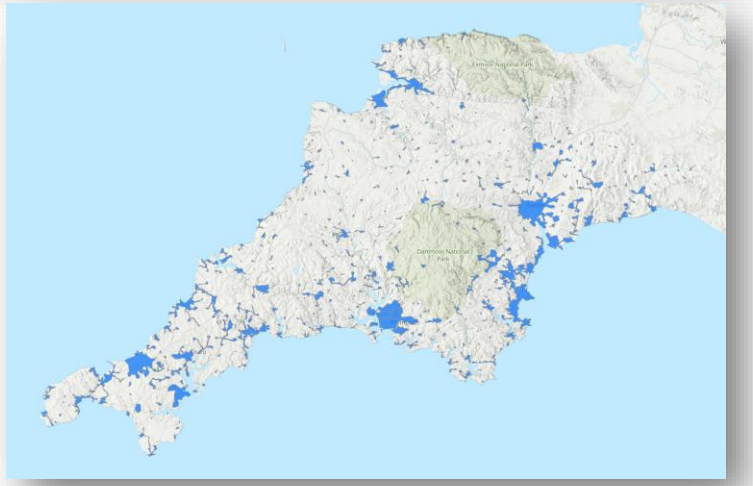
Data inputs

Hydraulic modelling, GIS data and costing assumptions

- Catchment files
  - Confirmed list of WwTW catchments
  - GIS catchment polygons & centroids
- Future Flood Risk modelling outputs
  - No. properties at risk
  - SWS model scenarios
    - 10%, 20%, 30%, 40%, 50% removed
- Storm Overflow modelling outputs
  - RIOT results
  - SWS/Storage model scenarios to hit 10, 20, 40 spills
    - 25%, 50%, 75% + Infiltration and/or storage (m3)
- Extrapolated results
  - Agreed assumptions for FFR and SO risk
  - Estimated costs

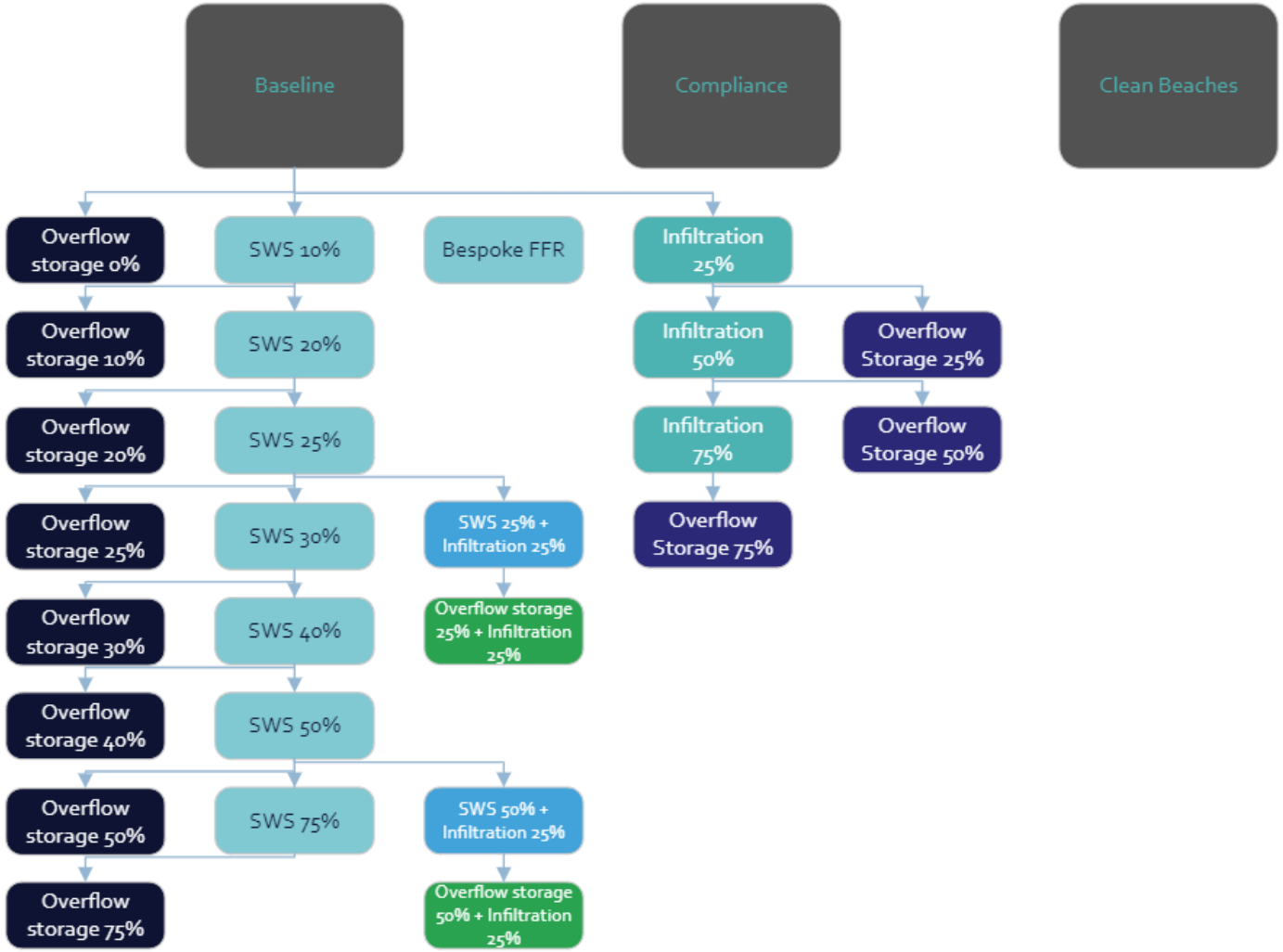
10 Select

Base Spills Per Annum	Storage Req (m3)	25% SWS Spills Nr	Storage Req (m3)	50% SWS Spills Nr	Storage Req (m3)	75% SWS Spills Nr	Storage Req (m3)	25% INF Spills Nr	Storage Req (m3)
363	13039	363	9975	364	6736	363	3688	363	13039
28.7	2800	19	1050	7	0	0	0	29	2800
#N/A	N/A	#N/A	N/A	#N/A	N/A	#N/A	N/A	#N/A	N/A
12.7	21	7	0	2	0	0	0	13	22
16.3	280	10	0	3	0	0	0	16	280
0	0	0	0	0	0	0	0	0	0
12.3	40	6	0	1	0	0	0	11	35
32	115	29	95	29	73	27	48	1	0
#N/A	N/A	#N/A	N/A	#N/A	N/A	#N/A	N/A	#N/A	N/A
8	0	3	0	0	0	0	0	8	0
3	0	1	0	0	0	0	0	4	0
0.3	0	0	0	0	0	0	0	0	0



Data rules

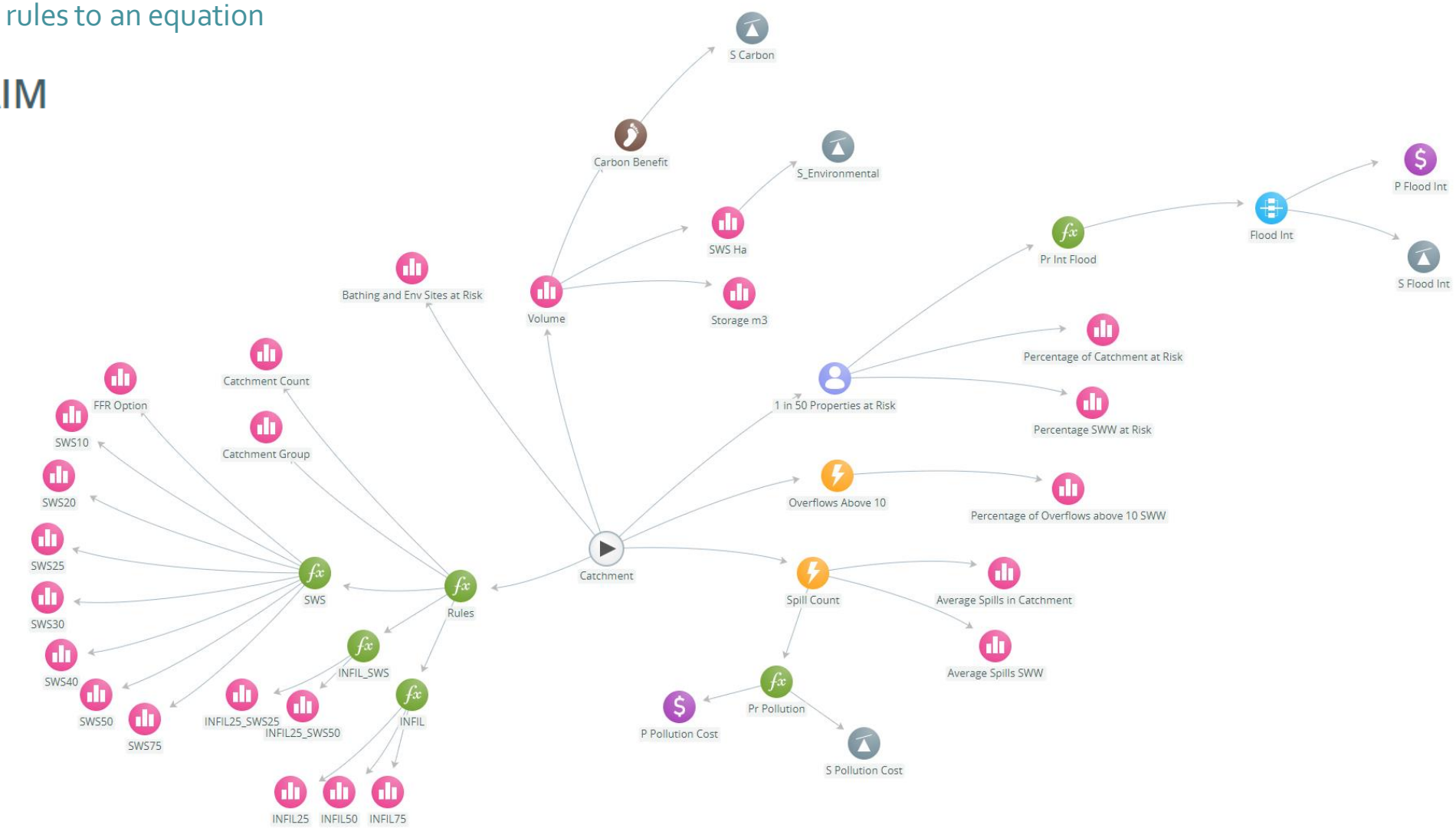
Developing a decision logic tree



Risk mapping

Applying rules to an equation

AIM



Scenarios

Key Scenarios to meet customer expectations and future performance measures

Scenario	Description
S1.50	Targets achieved in all catchments by 2050
S1.40	Targets achieved in all catchments by 2040
S1.60	Targets achieved in all catchments by 2060
S1.F	Targets achieved in all catchments by 2050 but spend is front loaded into earlier AMPs
S1.B	Targets achieved in all catchments by 2050 but spend is back loaded into later AMPs
S2.50	Target changed to an average of 5% and 10 spills by 2050

Considering constraints

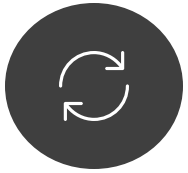
Setting the "what if" questions

Budget
Total amount, pace and scale

Targets
Changing the flood risk and overflow target

Sensitive areas and other "must do's"
Ensuring high priority sites are targeted first

Intervention type
Consider only a certain intervention given a condition



Returning timescales
Complete all interventions in one go or return within a set period

Optimised scenario results

Overflow risk

Spill count
+
Average spills across SWW

Optimised scenario results

Flooding Risk

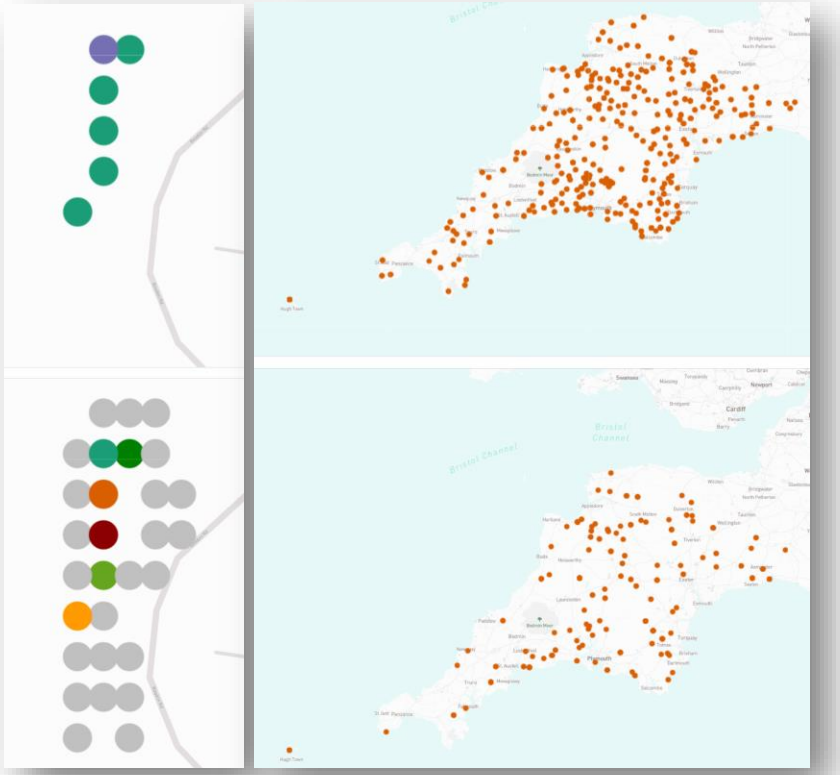
Properties at risk

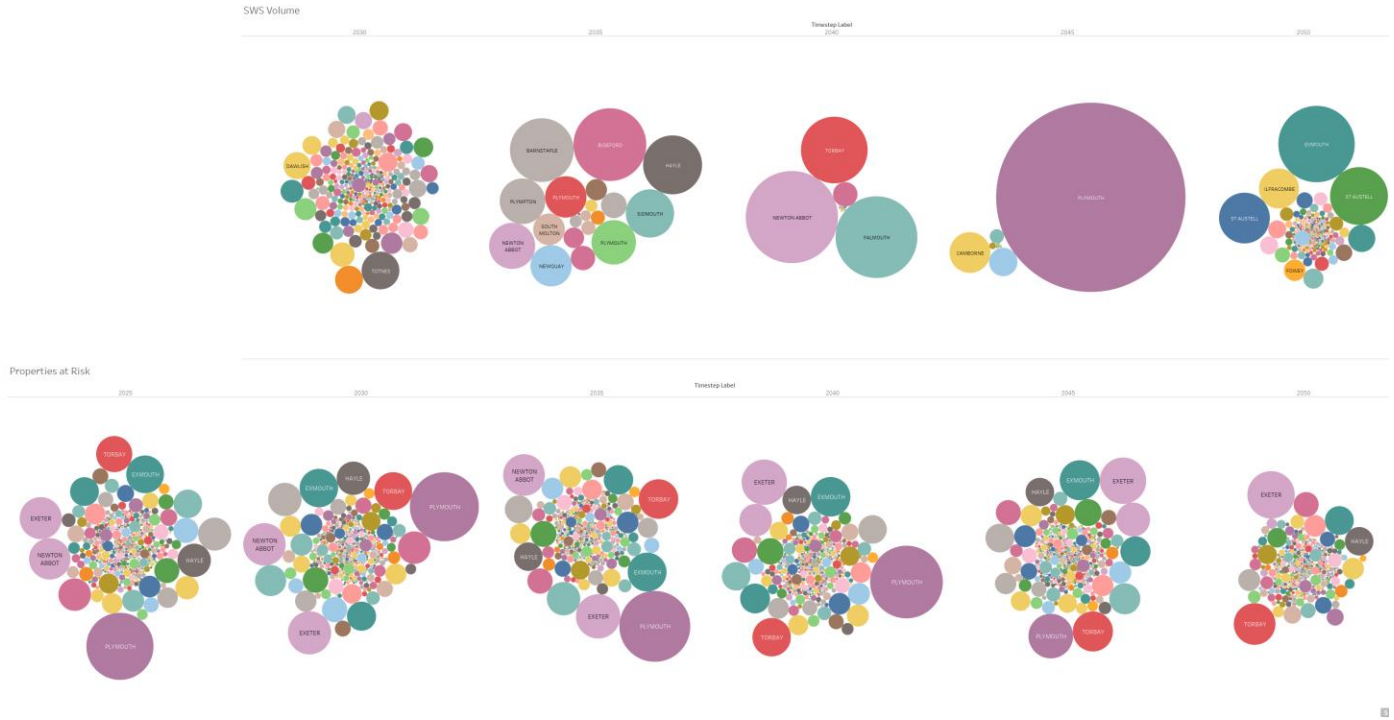
+

Percentage SWW at risk

Communicating the plan

Sharing the results in an effective way

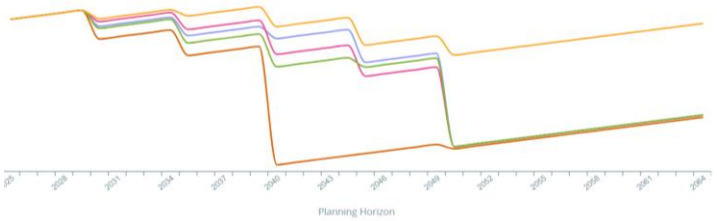




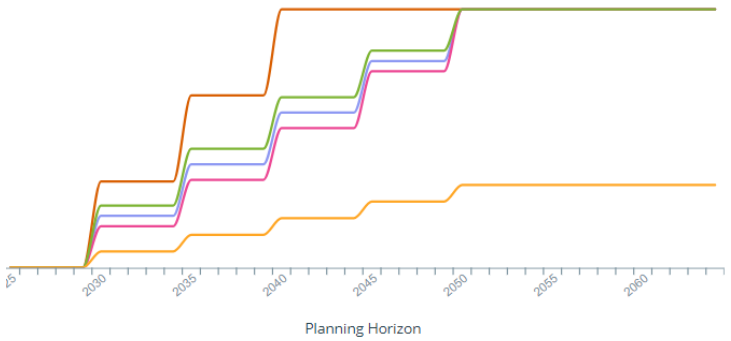
Next steps

Report outputs into business portfolio tools

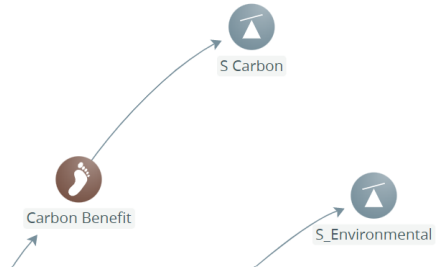
Managing Risk



Understanding Costs



Considering wider benefits



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Q&A Session

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