

CReDO+

SEN Risk and Resilience Day – 13.03.25

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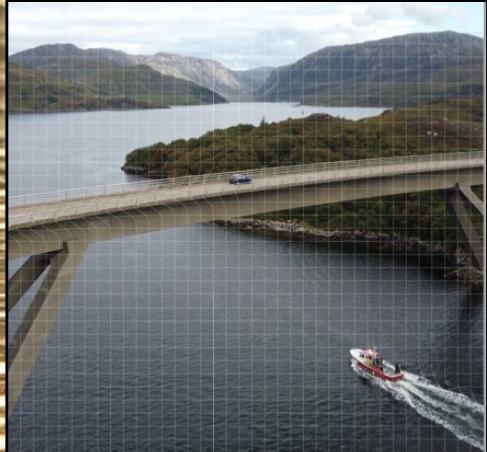
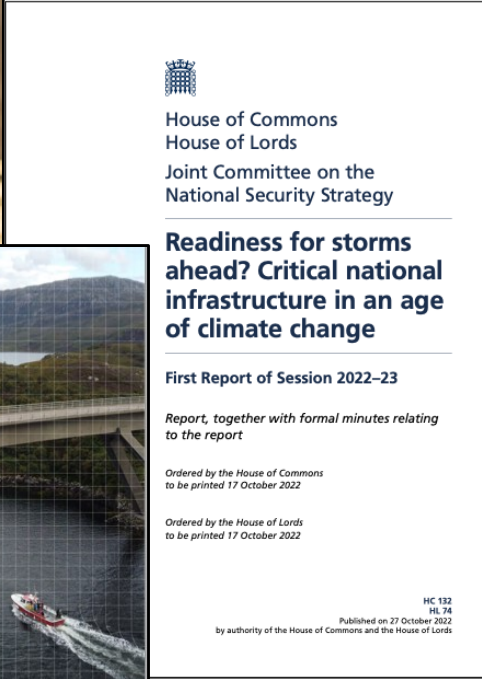
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INFRASTRUCTURE INTERDEPENDENCIES



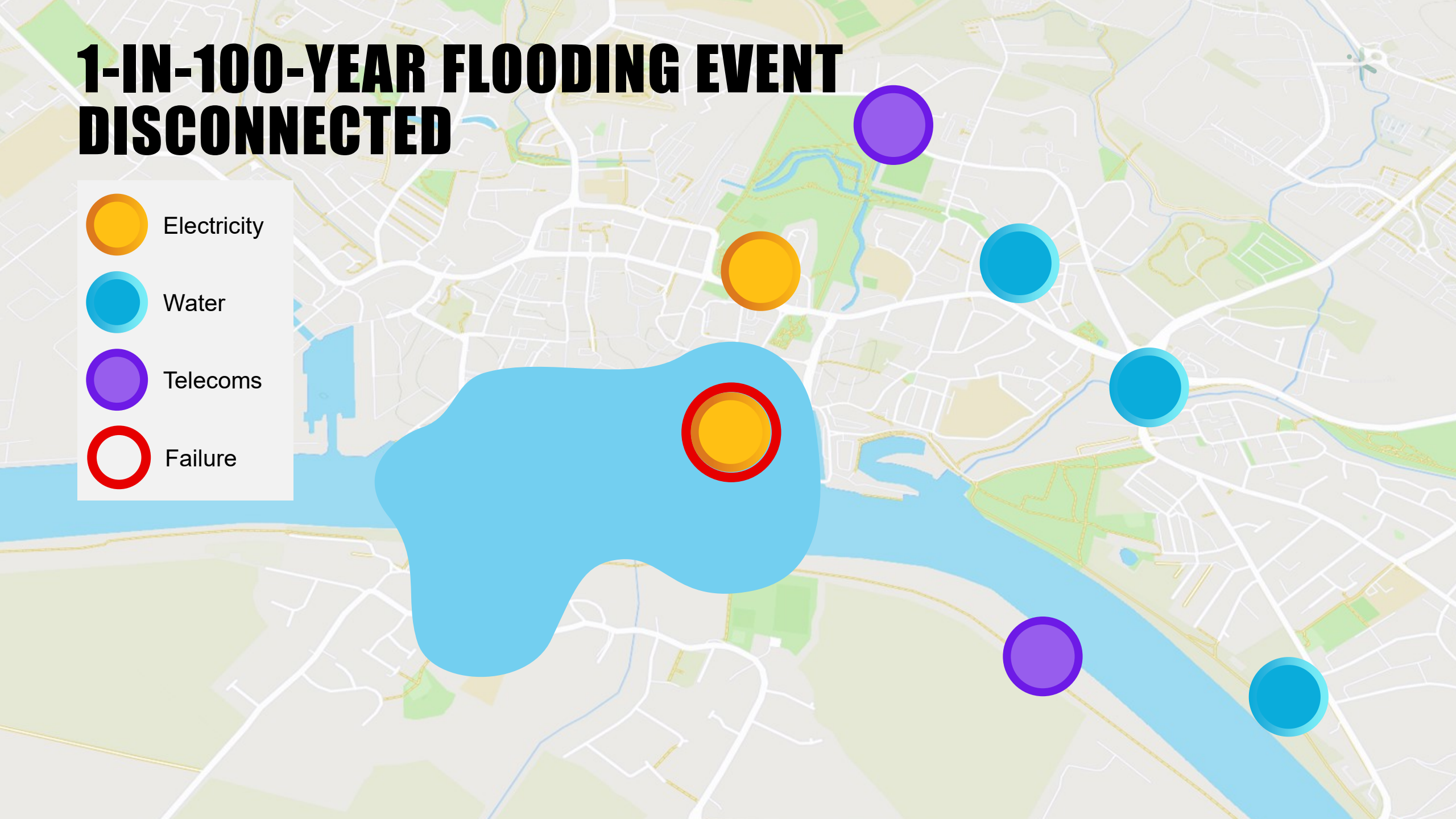
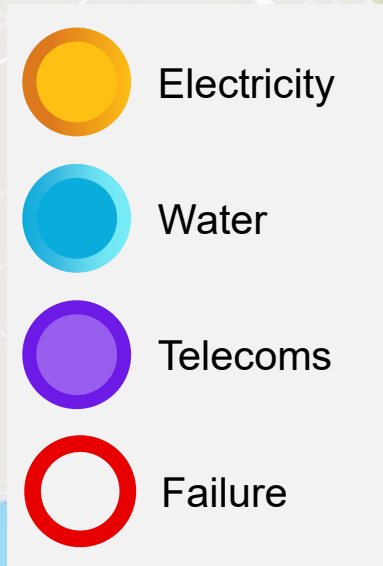
We have a poor understanding of infrastructure interdependencies and cascading climate risk



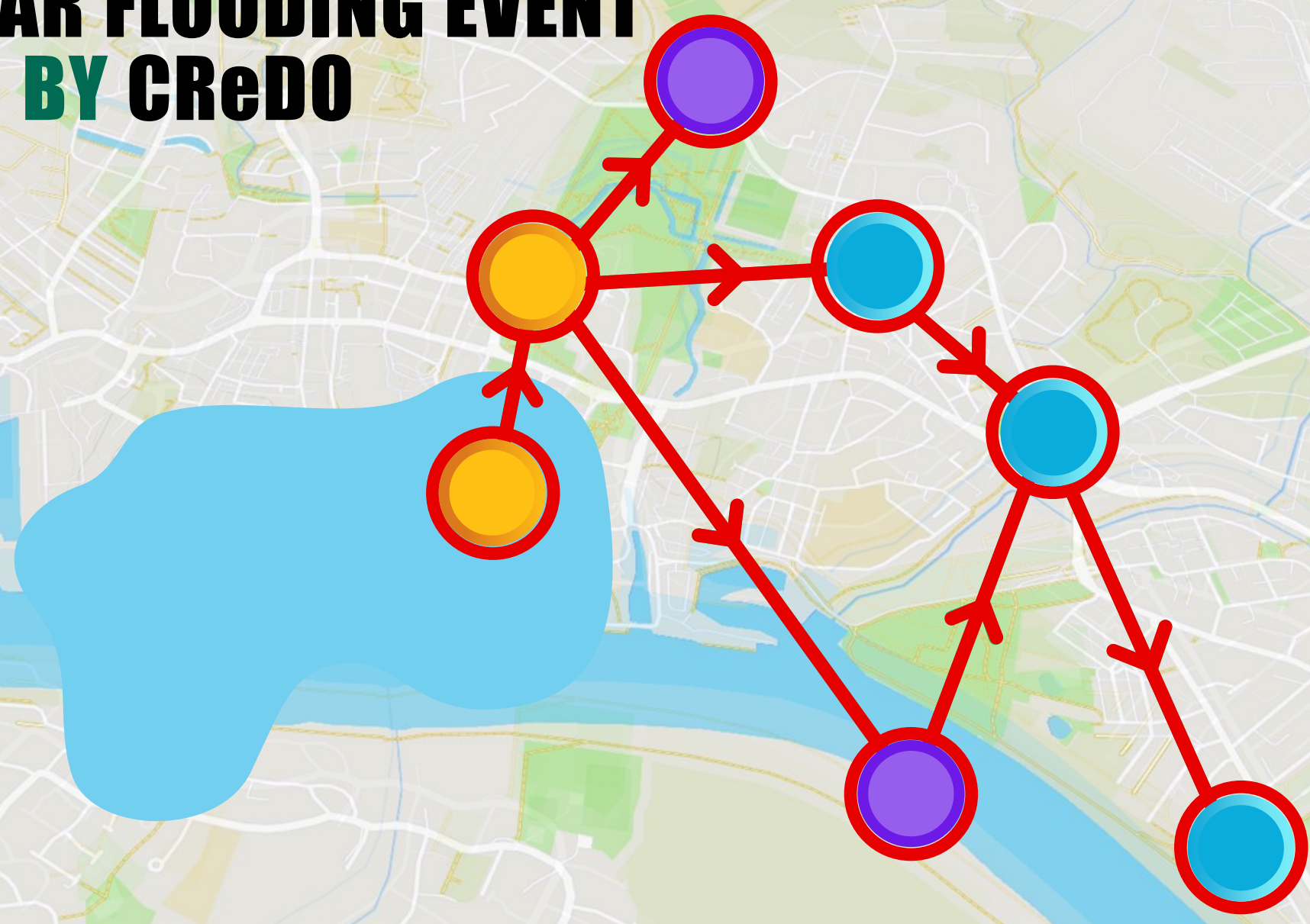
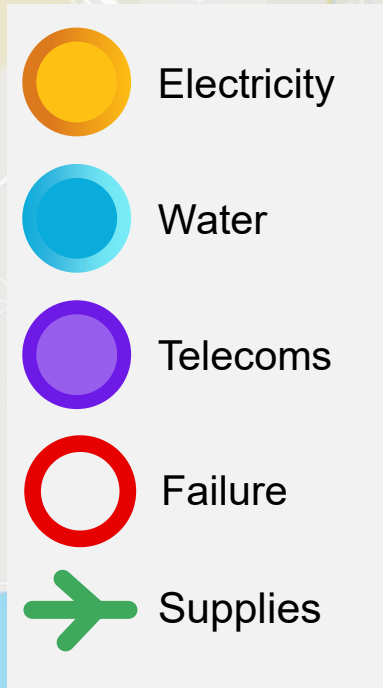
Understanding climate risks to UK infrastructure
Evaluation of the third round of the Adaptation Reporting Power - July 2022










1-IN-100-YEAR FLOODING EVENT DISCONNECTED

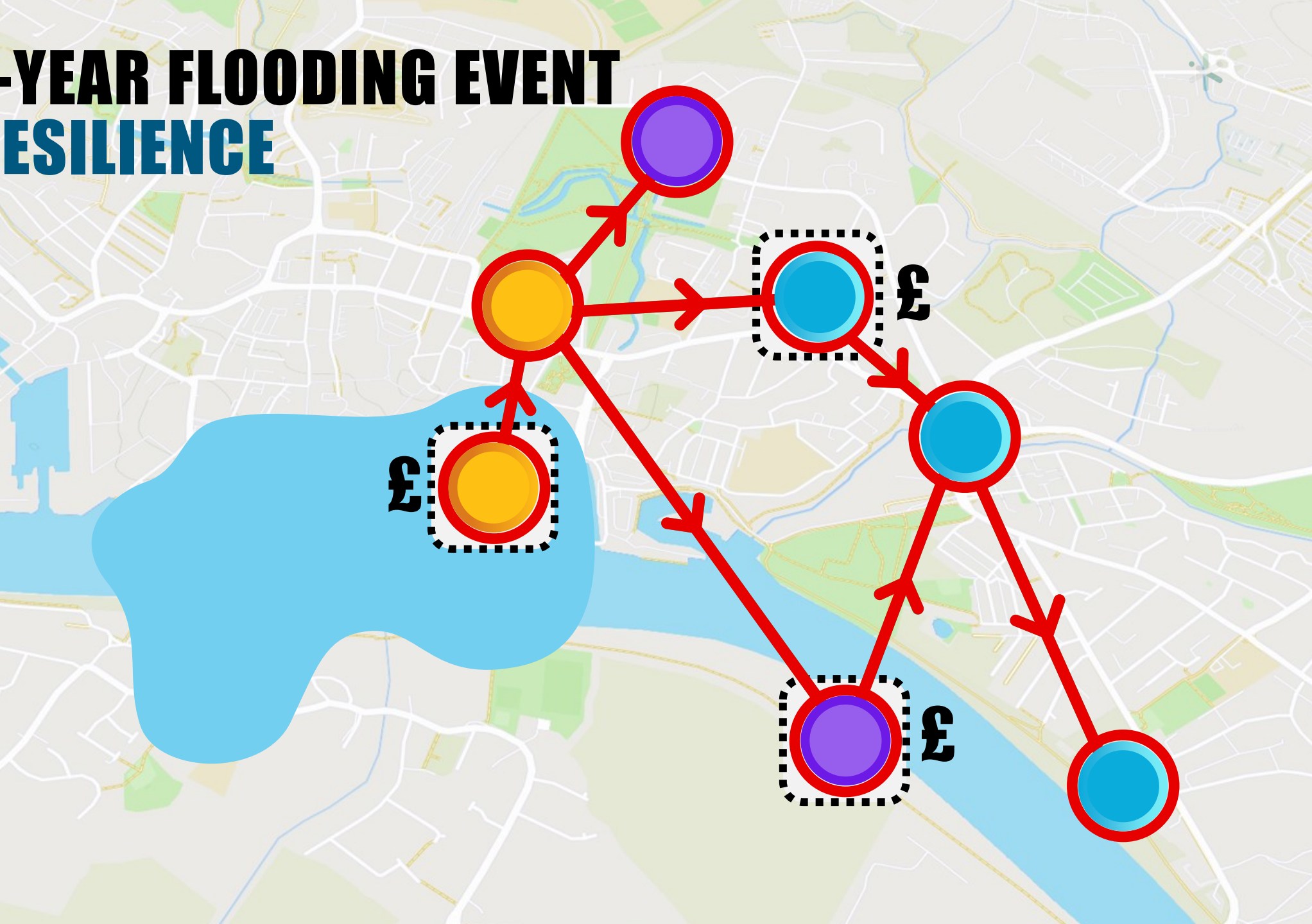


1-IN-100-YEAR FLOODING EVENT CONNECTED BY CREDO










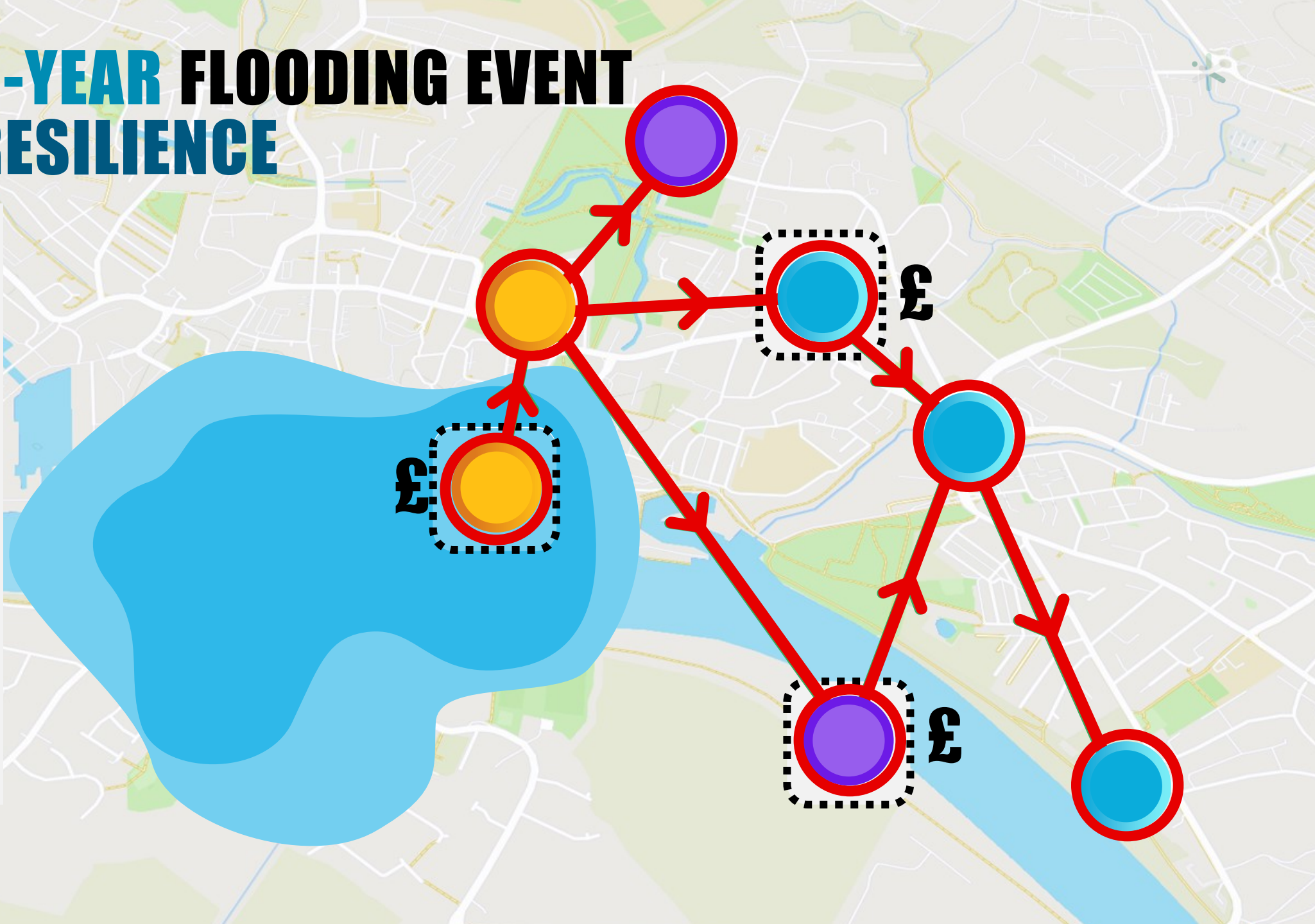
1-IN-100-YEAR FLOODING EVENT SILOED RESILIENCE

-  Electricity
-  Water
-  Telecoms
-  Failure
-  Supplies
-  Flood mitigation
-  Investment



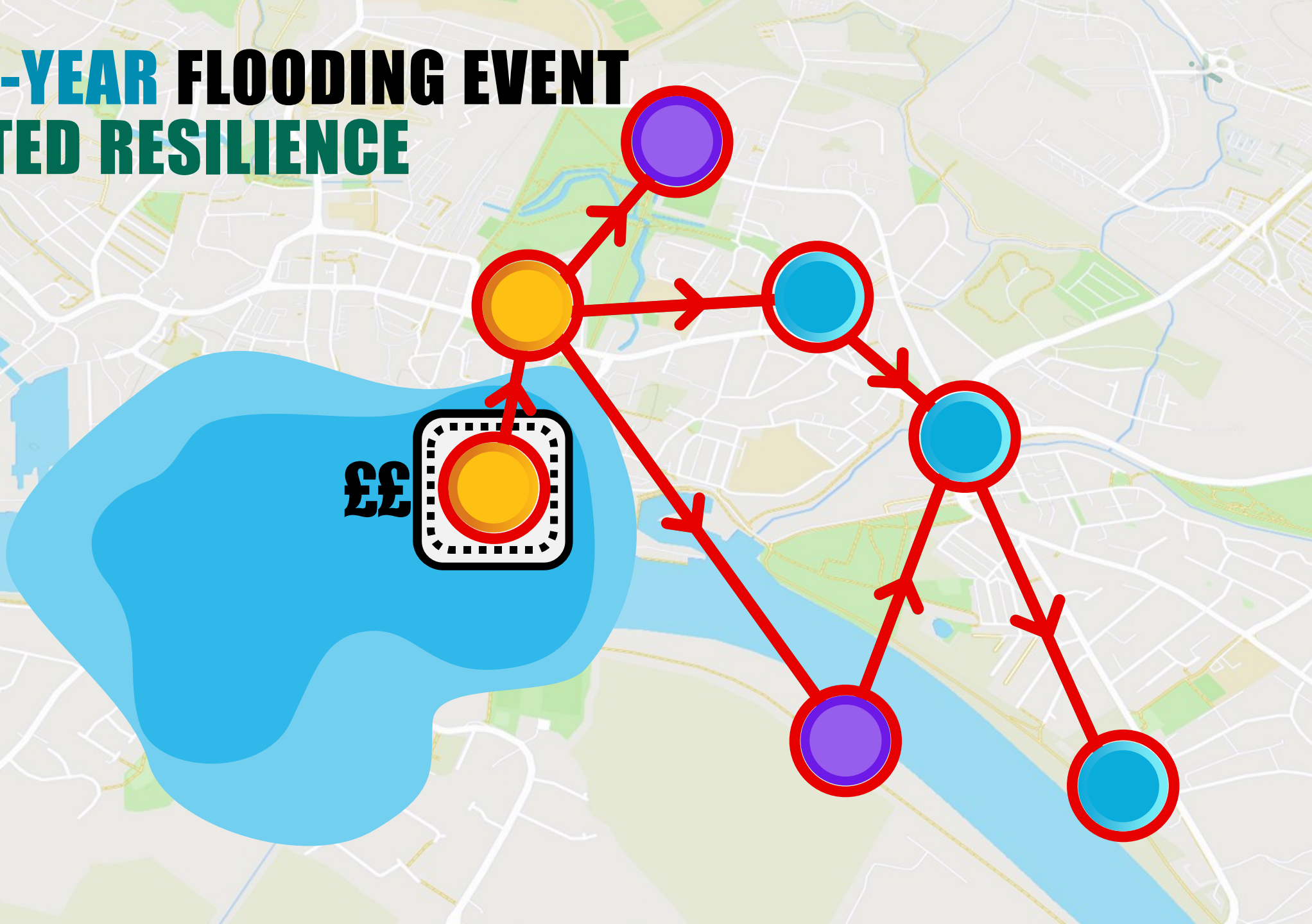
1-IN-200-YEAR FLOODING EVENT SILOED RESILIENCE

-  Electricity
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1-IN-200-YEAR FLOODING EVENT CONNECTED RESILIENCE

-  Electricity
-  Water
-  Telecoms
-  Failure
-  Supplies
-  Flood mitigation
-  Investment
-  Better flood mitigation



CReDo – CLIMATE RESILIENCE DEMONSTRATOR ✨

A climate change adaptation digital twin

Data sharing bringing together data across energy, water, and telecoms networks

- Anglian Water's water and sewerage assets,
- BT and Openreach's communication assets and
- UK Power Networks' electricity distribution assets.

With weather data to understand

- Infrastructure interdependencies
- Asset failure, risk modelling, and system impact
- What can we do to prepare or respond?

HOW DO WE INCREASE SYSTEM RESILIENCE AND ADAPT?



PROGRAMME ROADMAP



Phase 1 – Ideation

Phase 2 – Demonstrator

Phase 3 – Scale
CReDO – Climate Resilience Decision Optimiser

NATIONAL DIGITAL TWIN PROGRAMME
CReDo
Climate Resilience Demonstrator

led by
CReDo **CATAPULT**
Connected Places

cdbb
UKRI Science and Technology Facilities Council
THE UNIVERSITY of EDINBURGH
WARWICK THE UNIVERSITY OF WARWICK
Newcastle University

NATIONAL INFRASTRUCTURE COMMISSION



Core Industry Partners

UK Power Networks
Delivering your electricity

love every drop anlianwater

BT Group

Transport

Other

Integrated Infrastructure Milestone

Programme support
Influence markets | Cross sector growth | Business and Ownership model | Commercial strategy

CReDO Product launch

Energy – Ofgem Strategic Innovation Fund – CReDo+

Discovery £150k Alpha £500k Beta – Scale up £10m

MVP ★ User Trials | Customer acquisition

Water – Ofwat Water Breakthrough Challenge

Catalyst £1m Bid Transform – Scale up ~£7m

Ofgem

Telecoms – CR&D Fund?

“Alpha” Ofgem “Beta” Expand

Transport – CR&D Fund? Expand

Use case mapping Demonstrator

Telco Fund Workshop

New use case (e.g. disaster response, insurance, supply chain)

New sector (e.g. maritime, aviation, emergency services)

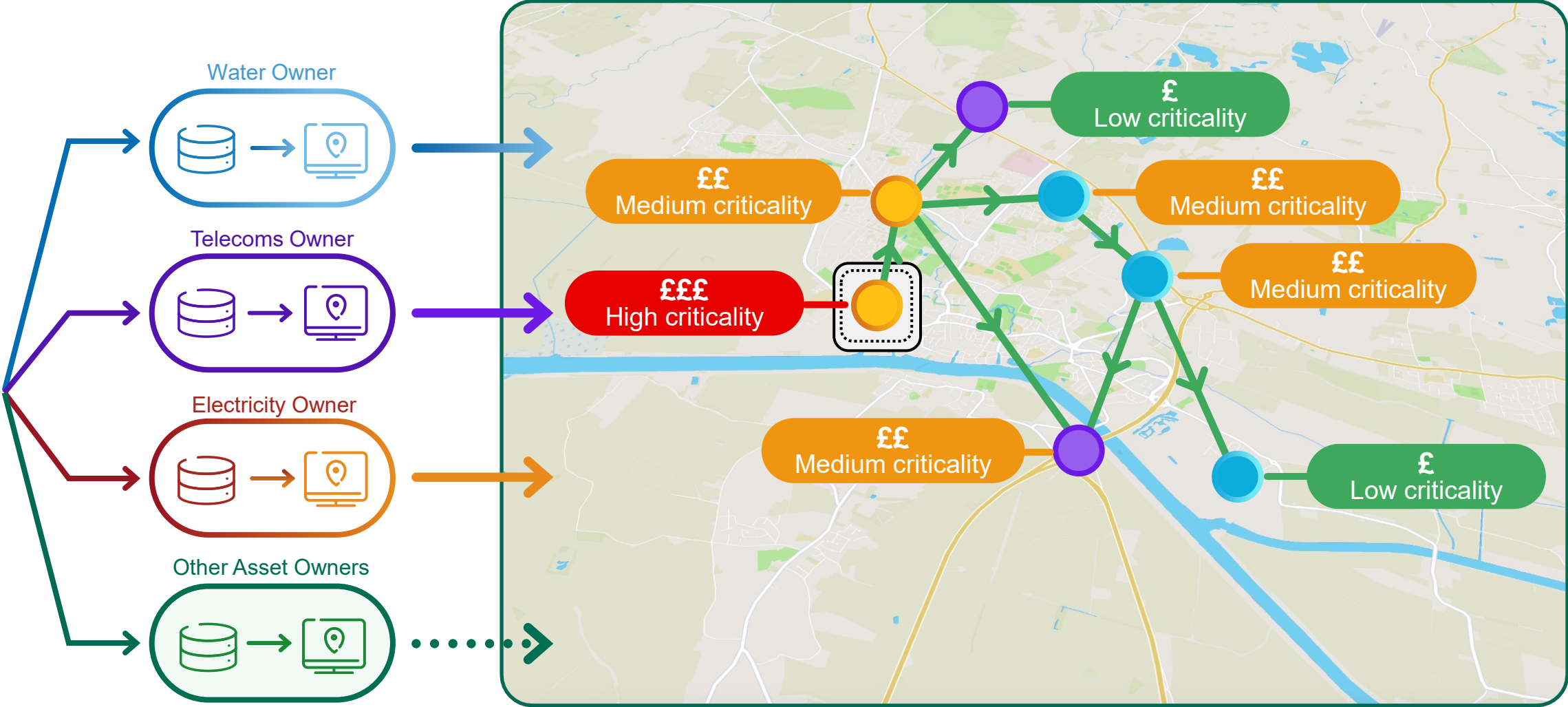
'17 '20 '21 '22 '23 '24 '25 '26 '27 '28 '29

CReDO: CLIMATE RESILIENCE DECISION OPTIMISER

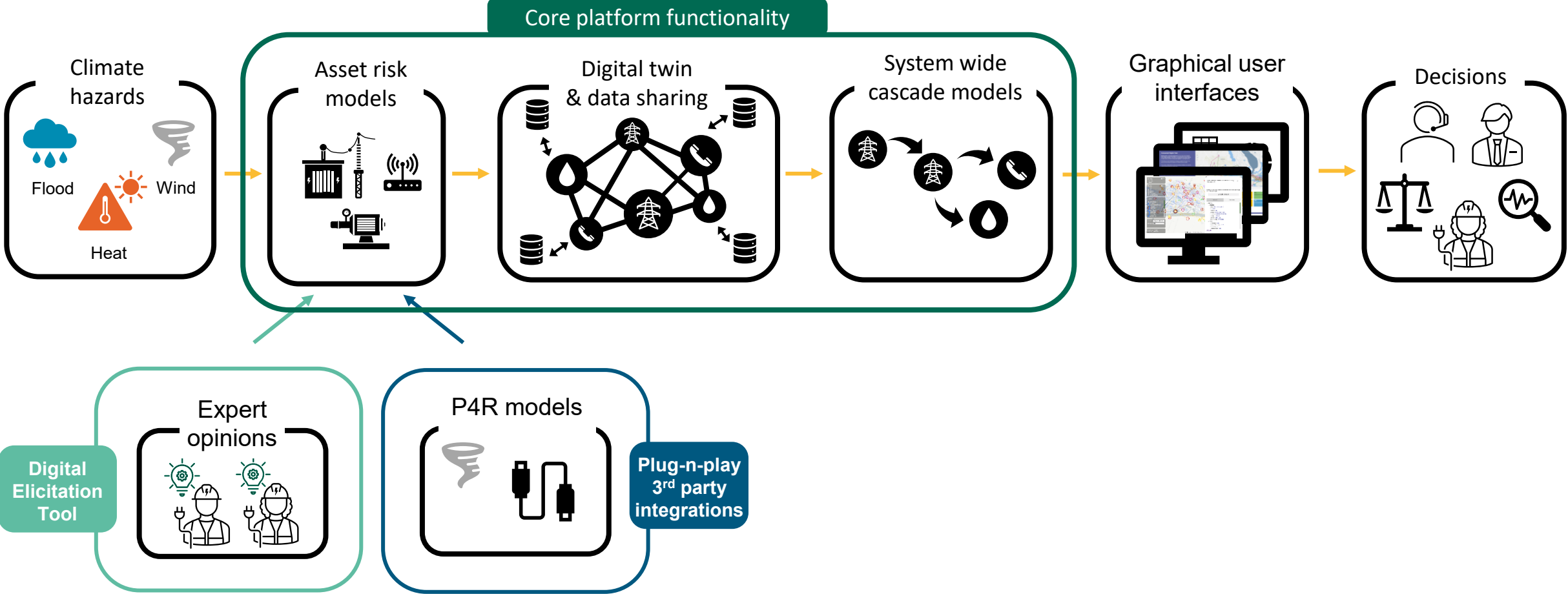


Funded
Use Cases

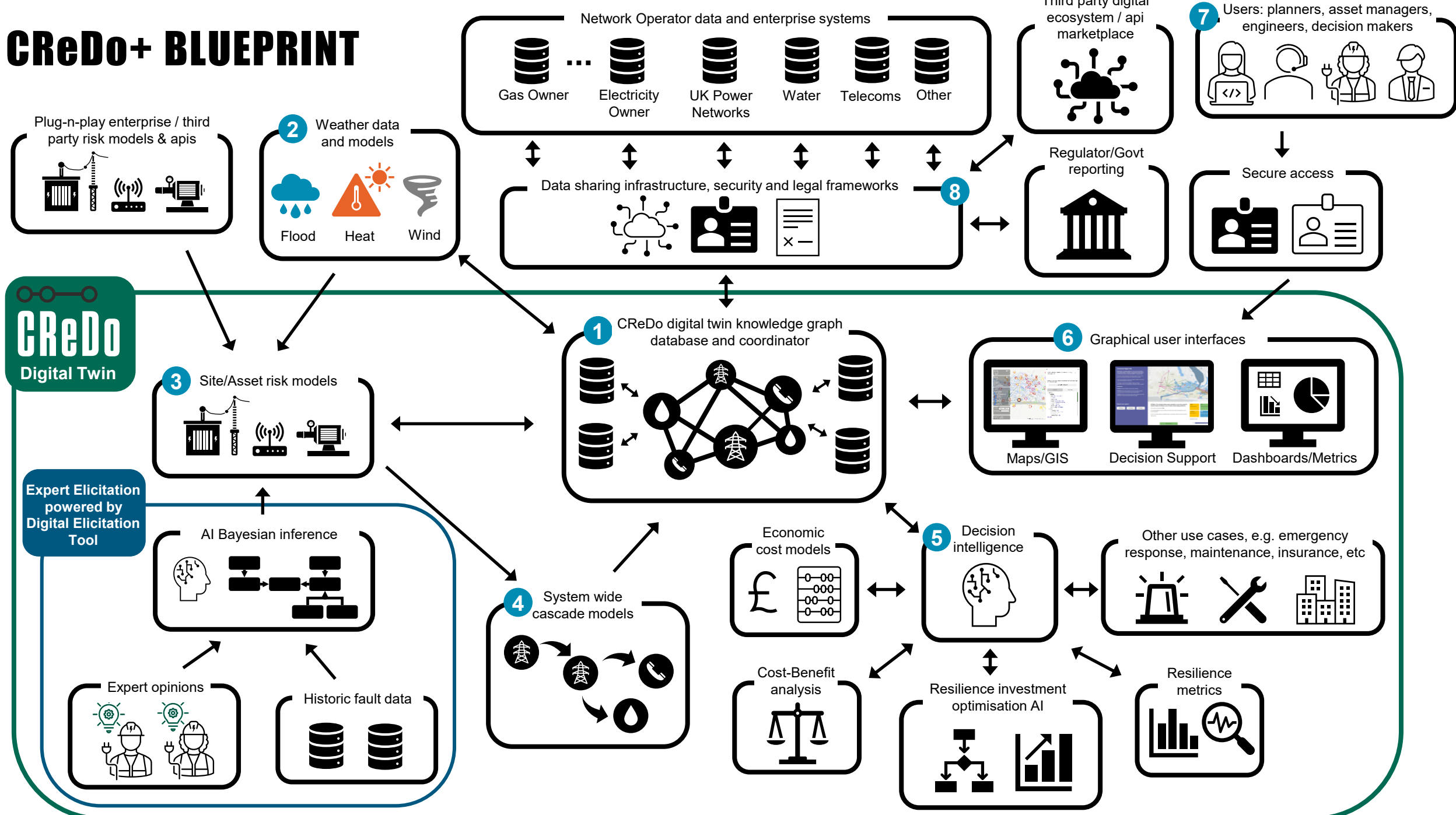
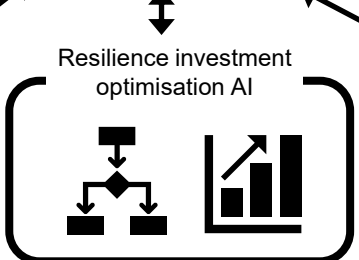
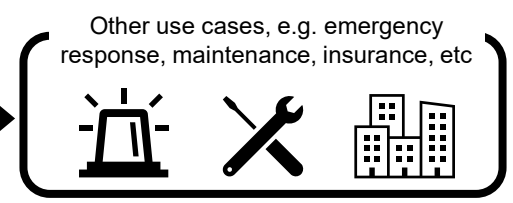
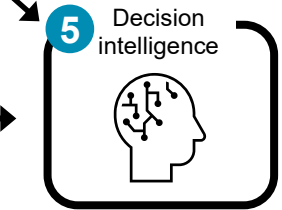
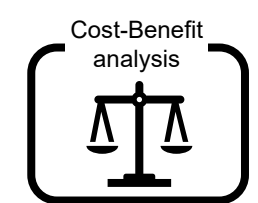
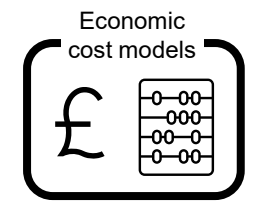
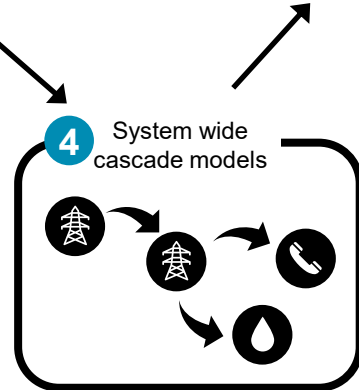
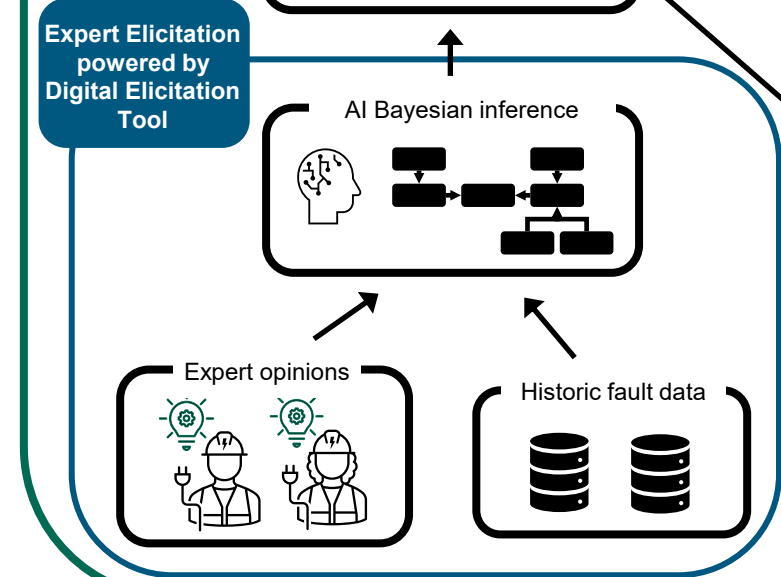
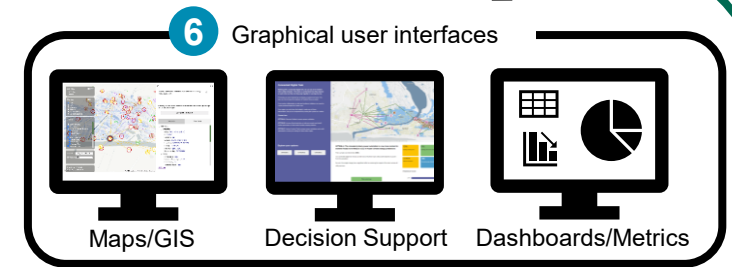
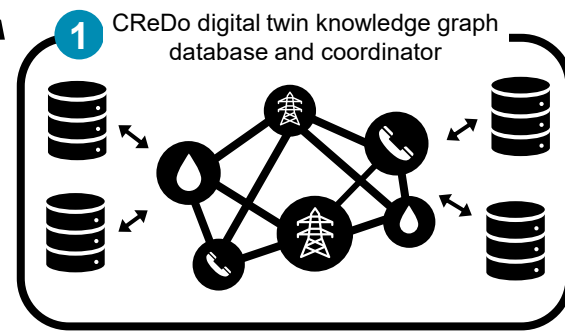
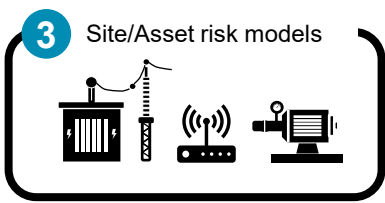
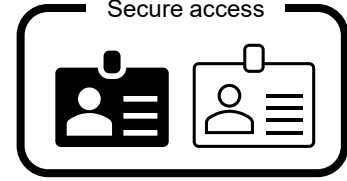
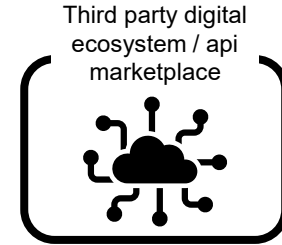
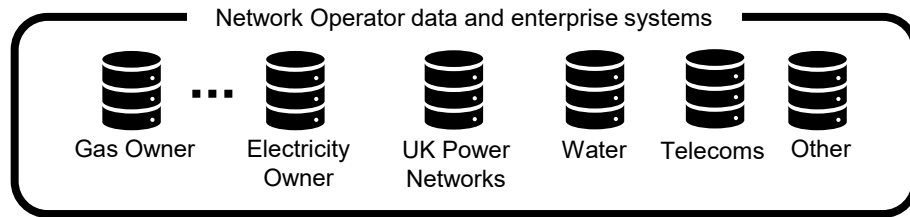
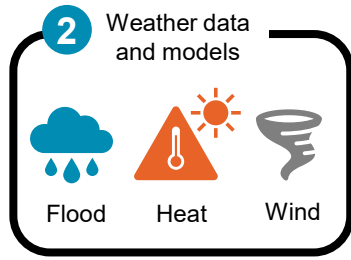
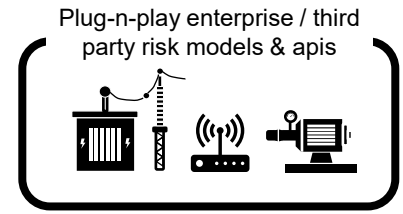
Resilience investment planning for asset manager, planners, and engineers
Resilience reporting for regulators and government



CReDO WORKFLOW



CReDo+ BLUEPRINT



Delivered in partnership with:



CREDO

Programme partners

Acknowledging Phase 1 contributors

Centre for Digital Built Britain

Joint Centre for Excellence In Environmental Intelligence

Department for Business, Energy & Industrial Strategy

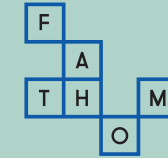
National Digital Twin Programme

Cambridge University

Crocodile Media

Mott MacDonald

ESRI UK



THANK YOU

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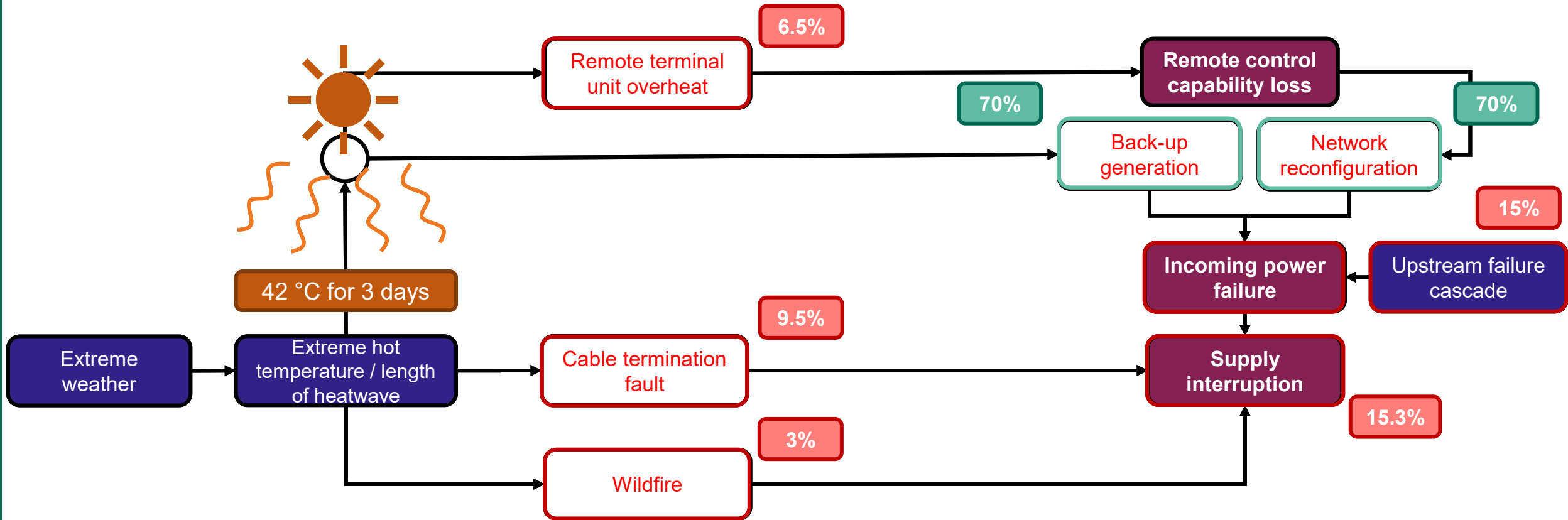
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BAYESIAN ASSET RISK MODELLING



Historic data not always available → use tacit knowledge from subject matter experts encoded into likelihood and risk models



What is the chance that each individual event takes place?



What is the likelihood of a supply interruption?



What is the chance of being impacted by other sites?