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Seizing the opportunity for long term change

Dr Alexandra Smyth

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SUSTAINABLE SOCIETY

- Engineers are influential agents of change in the drive for a more sustainable society, in the UK and globally.
- More and better engineering solutions are enabling faster decarbonisation and more sustainable use of resources.
- Engineering expertise is consistently being used to inform and improve government policy on sustainability.

INCLUSIVE ECONOMY

- The UK has a world-leading, truly diverse and inclusive engineering workforce.
- Innovation is improving productivity, public health, safety and security across the UK and beyond.
- Policymakers and the public recognise the value of engineering, allowing it to thrive and contribute to a resilient UK economy that works for all.

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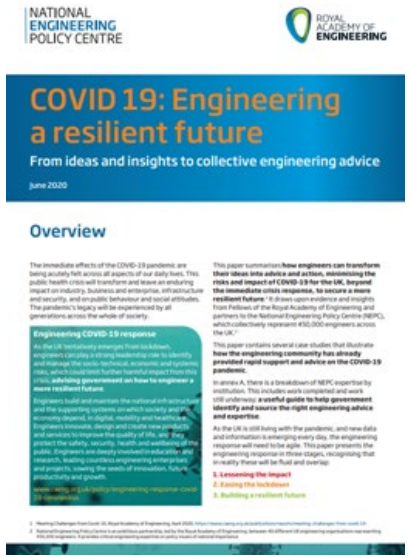
Building evidence: running policy projects and producing policy outputs

Responding to evidence needs: Government consultations, Covid-19 response

Engineering capabilities in government: systems workshops, Policy Fellowships

Connecting engineers and Policy makers: workshops, roundtables and events.

International reach: major bilateral partnerships with China and US, events and missions.



Systems 101 workshop

Bespoke systems workshops

Policy Fellowships programme

Increasing depth of engagement

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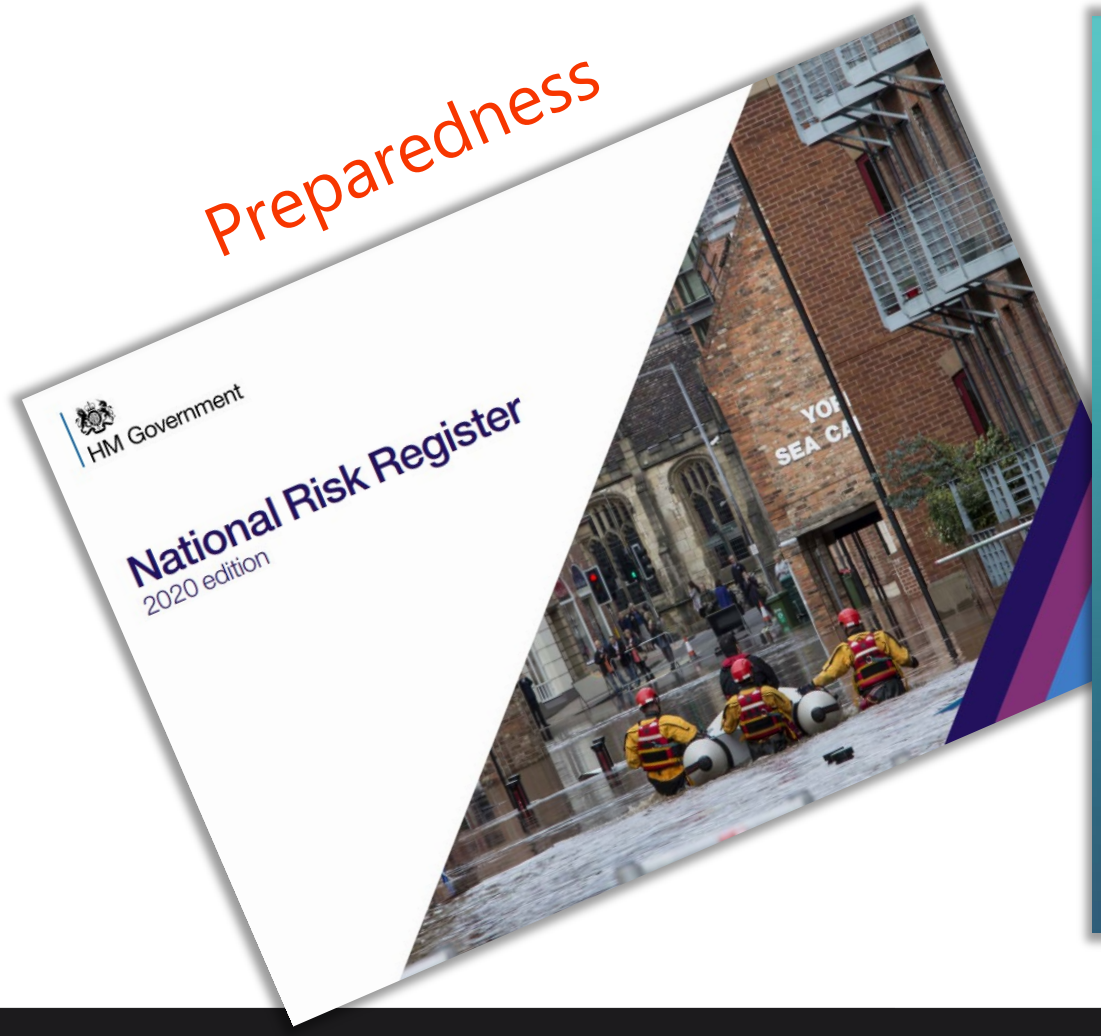
Preparedness



Response

Prevention

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Building a network

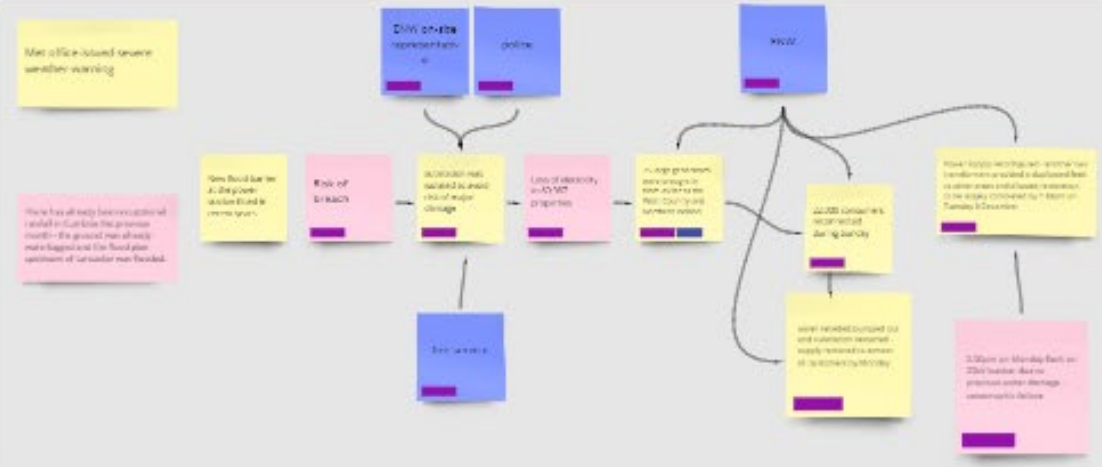
Collecting data and evidence

Eyjafjallajökull volcanic eruption in 2010

UK response to Fukushima nuclear accident in 2011

Lancaster flooding leading to loss of electricity in 2015

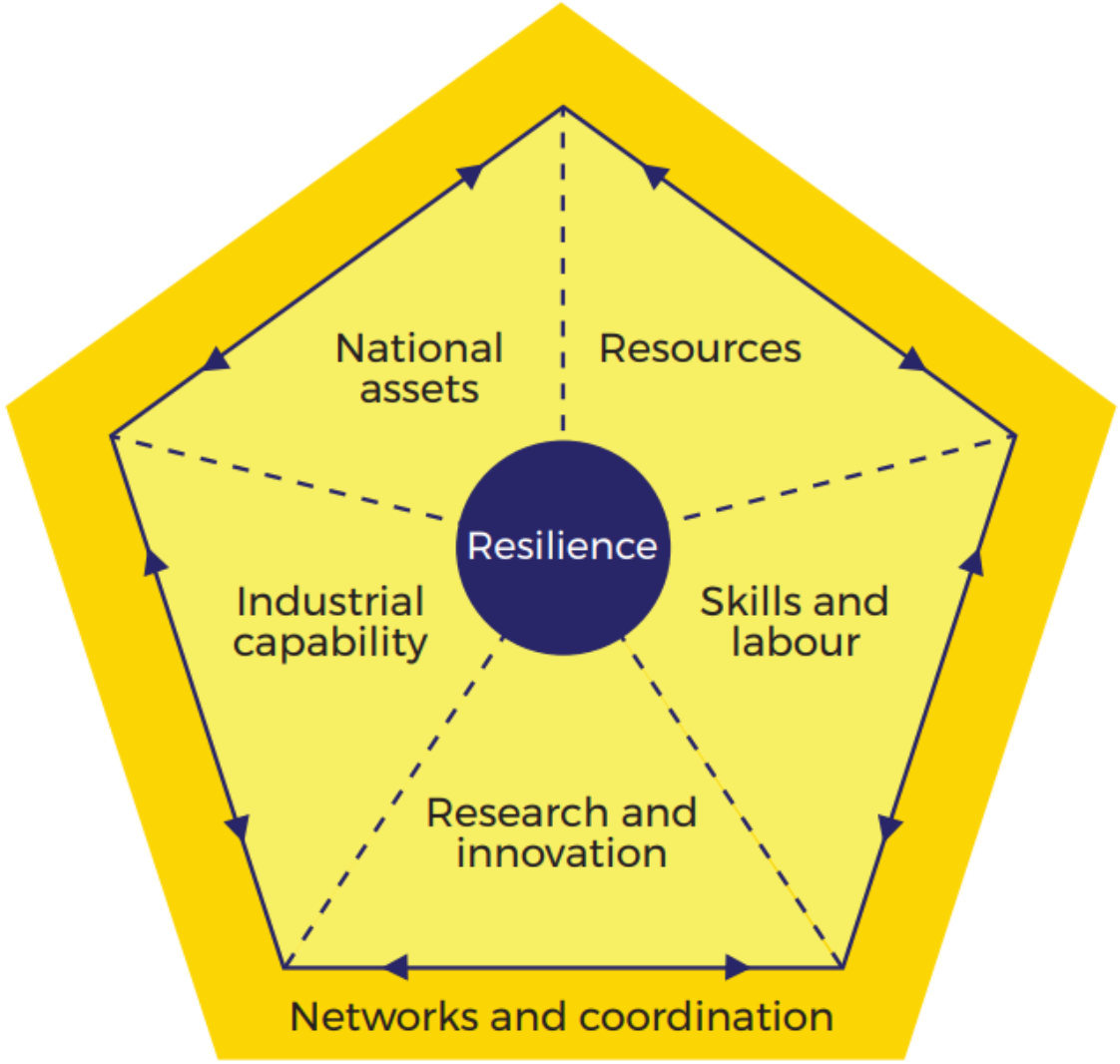
WannaCry ransomware incident affecting NHS in 2017

Component of response	Networks and coordination capabilities	Reliant on... Tags R&D, skills & labour, national asset, industrial capability, resources	Actions taken post-crisis
Flooding led to loss of electricity to 61,000 properties in the city. ENW led the response to restore power, including bringing in 75 large diesel generators to restore supply	Rapid mobilisation Intersection public/private Local coordination		

Critical Capabilities approach

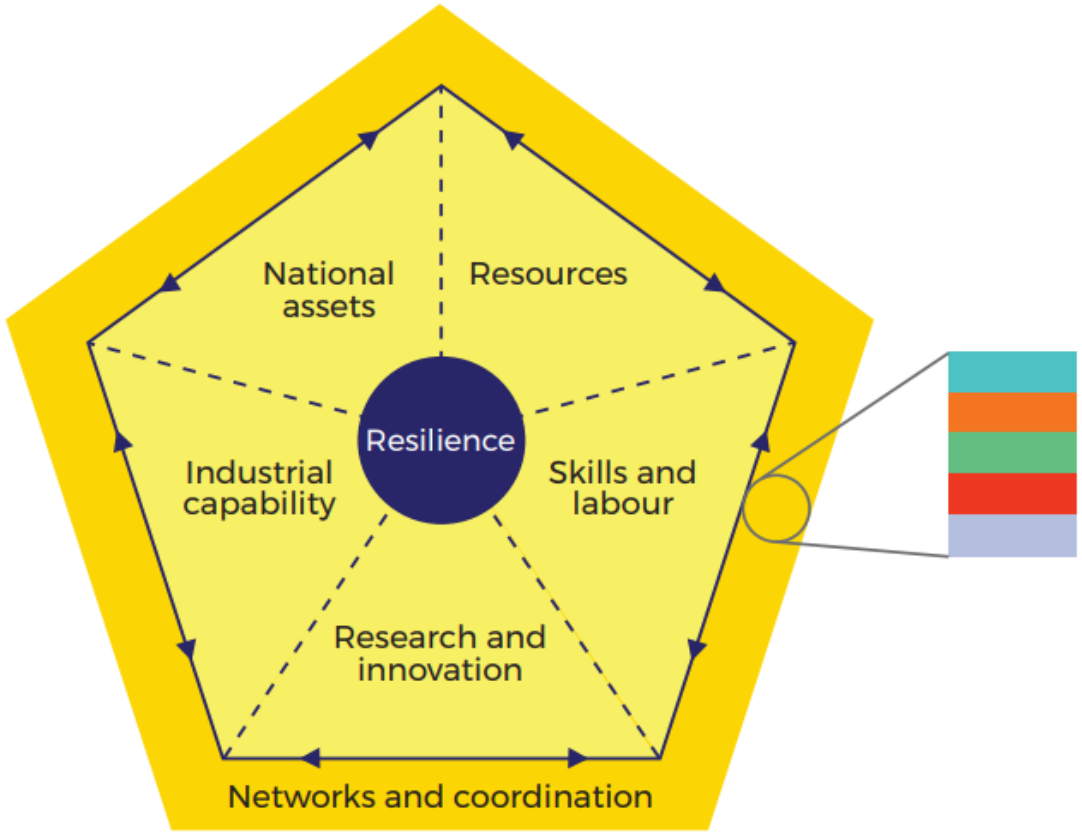
Critical Capabilities are divided into six intrinsically interdependent groups that are brought together in an emergency to understand the issue and accelerate the solutions.

The Critical Capabilities approach examines why these should be considered in their broadest sense in preparedness and planning.



Networks and coordination capability

By focussing on networks and coordination, we have been able to explore how all of the underpinning capabilities come together, to identify the challenges and enablers of effective emergency response.

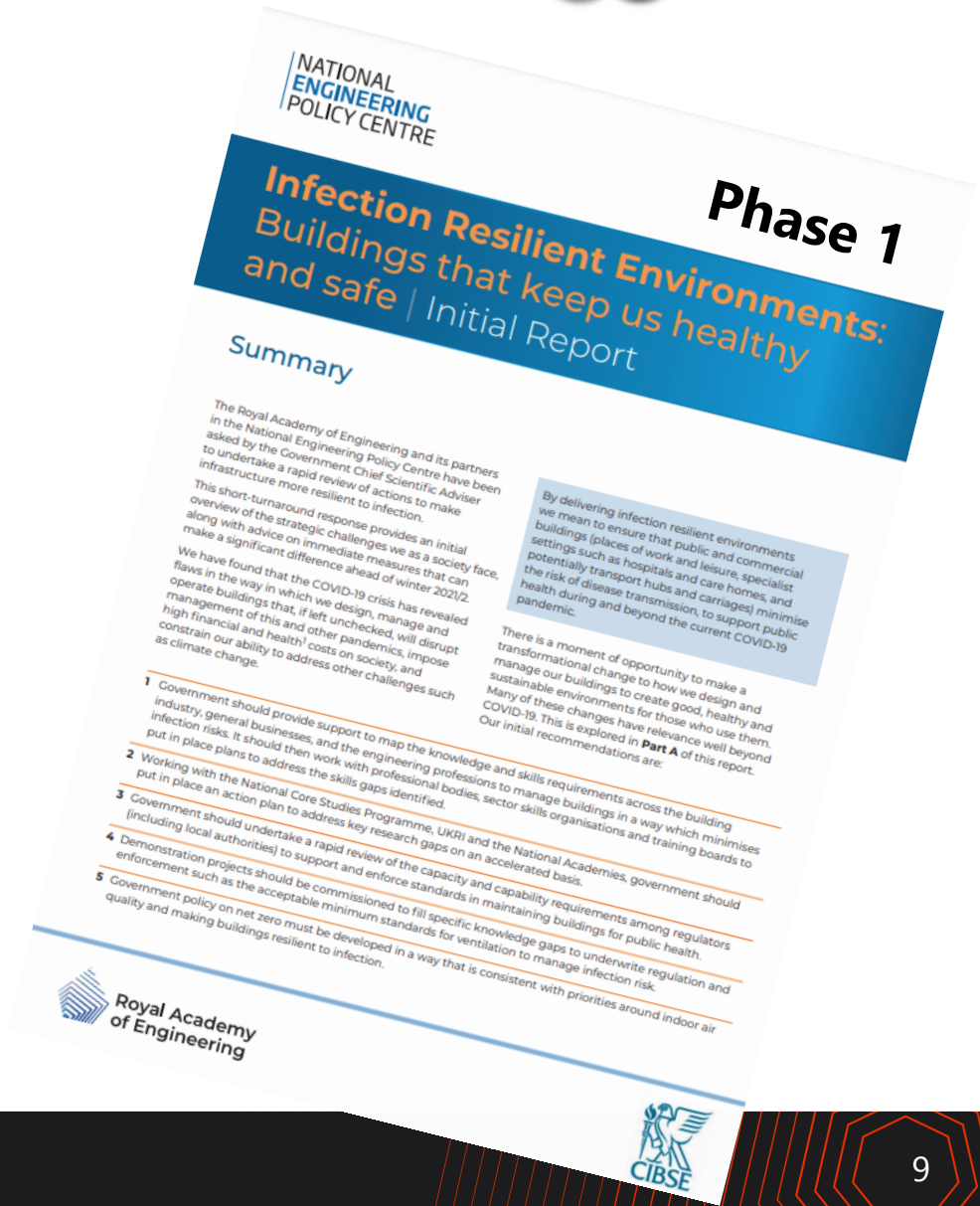


Cross cutting components of networks and coordination

- Agile networks for rapid mobilisation
- Permeating the intersection between the public and private sector
- Expertise and advice into governments
- Local, national or international coordination
- Facilitating communication and engagement

Infection resilient environments

- Found infection control was neglected across many classes of buildings.
- Considered to be a symptom of a general lack of priority given to buildings management, resulting in a reduced capacity and capability to respond rapidly to the public health crisis.
- This weakness was exacerbated by multiple sources of guidance, not all of it clear or consistent, and a research and regulatory landscape playing catch-up.



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Infection resilient environments

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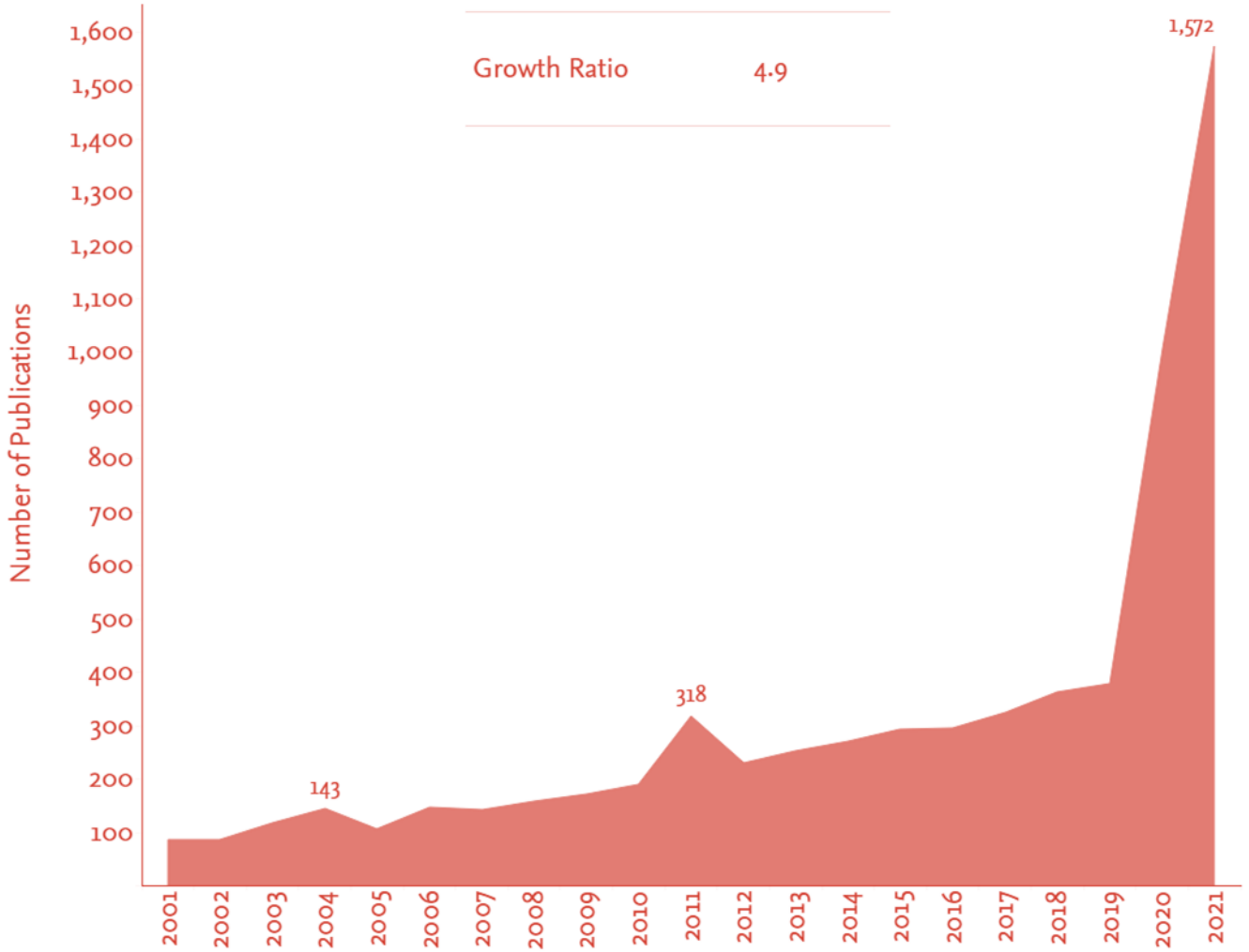

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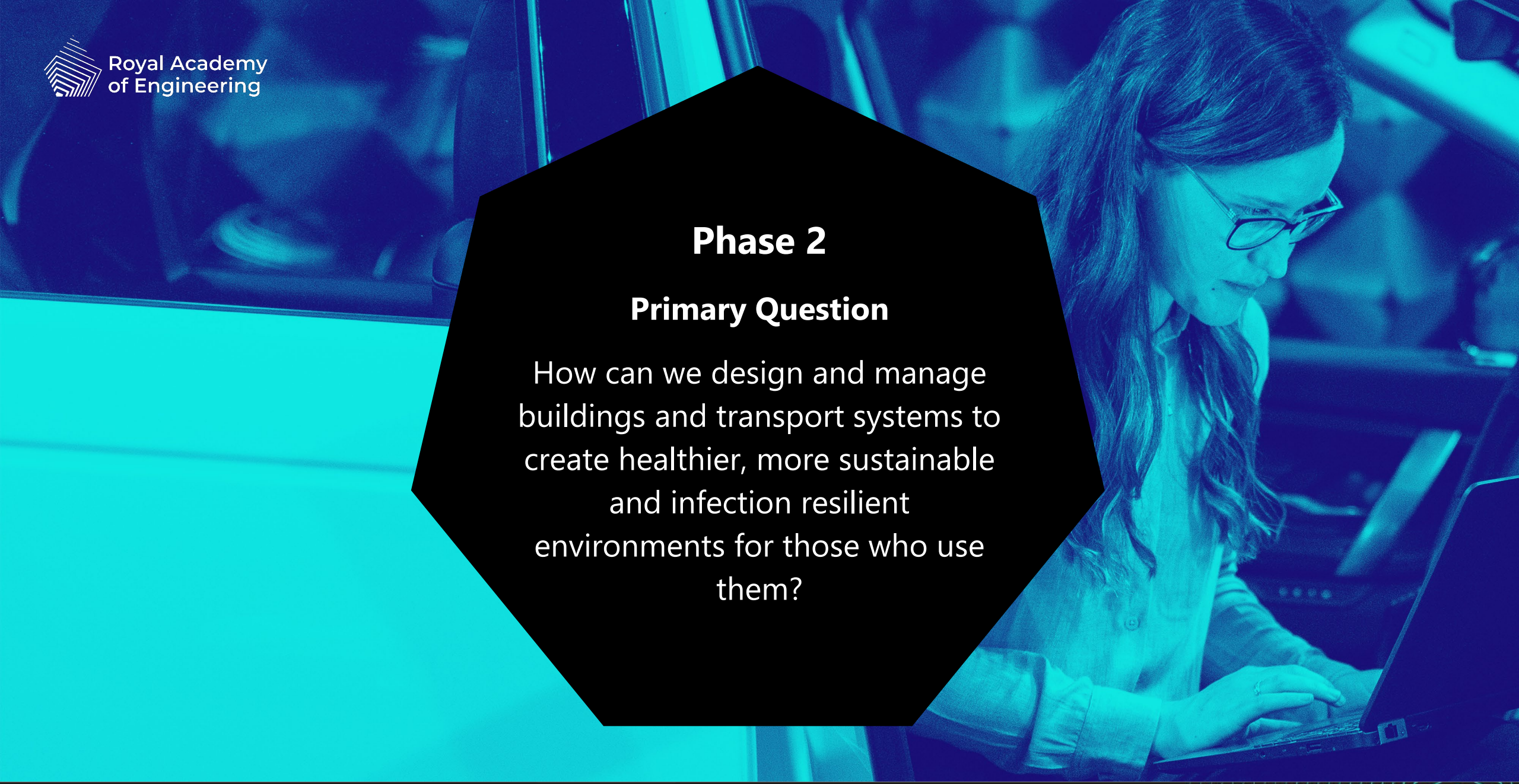

Phase 2

Primary Question

How can we design and manage buildings and transport systems to create healthier, more sustainable and infection resilient environments for those who use them?

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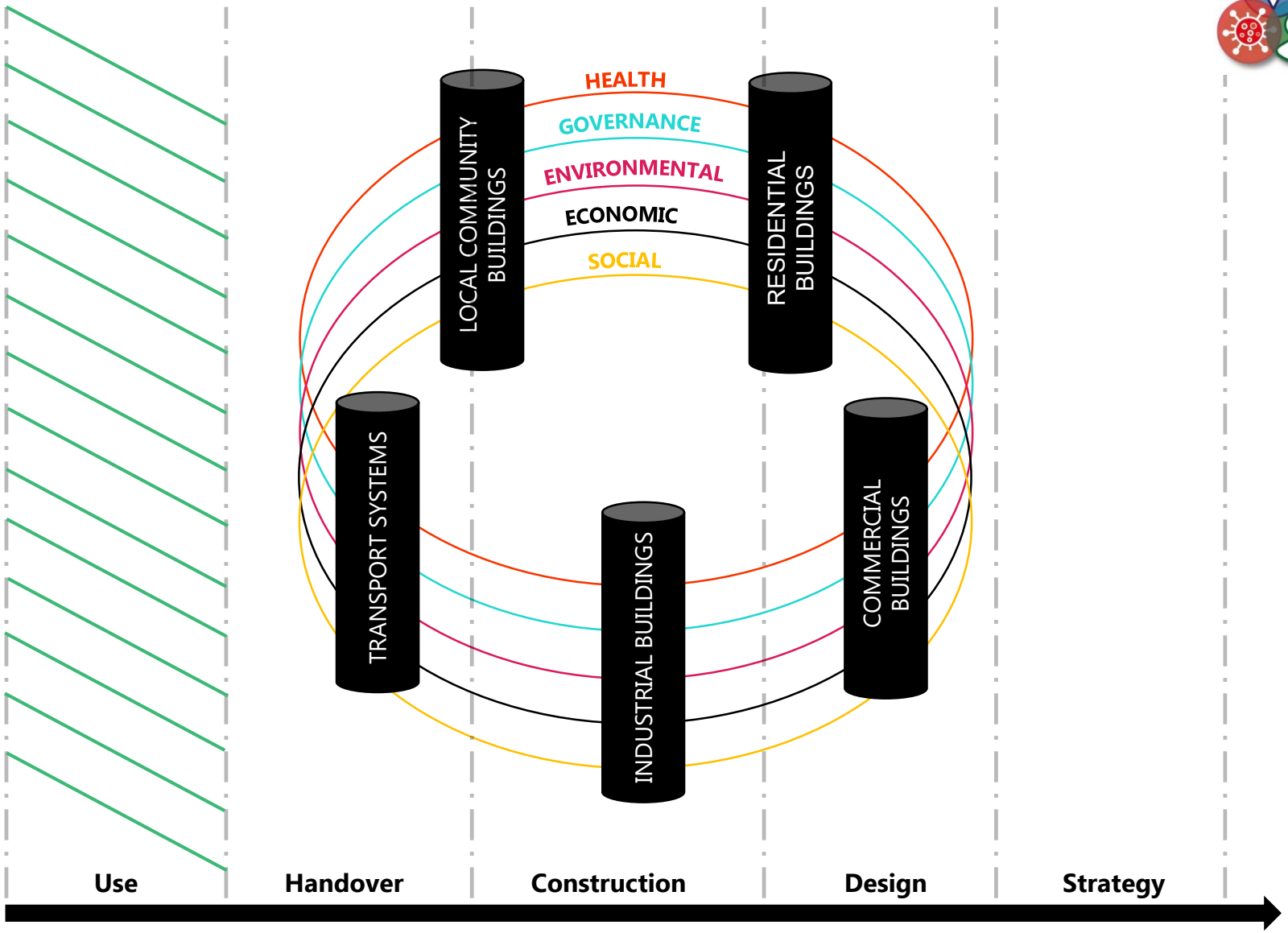
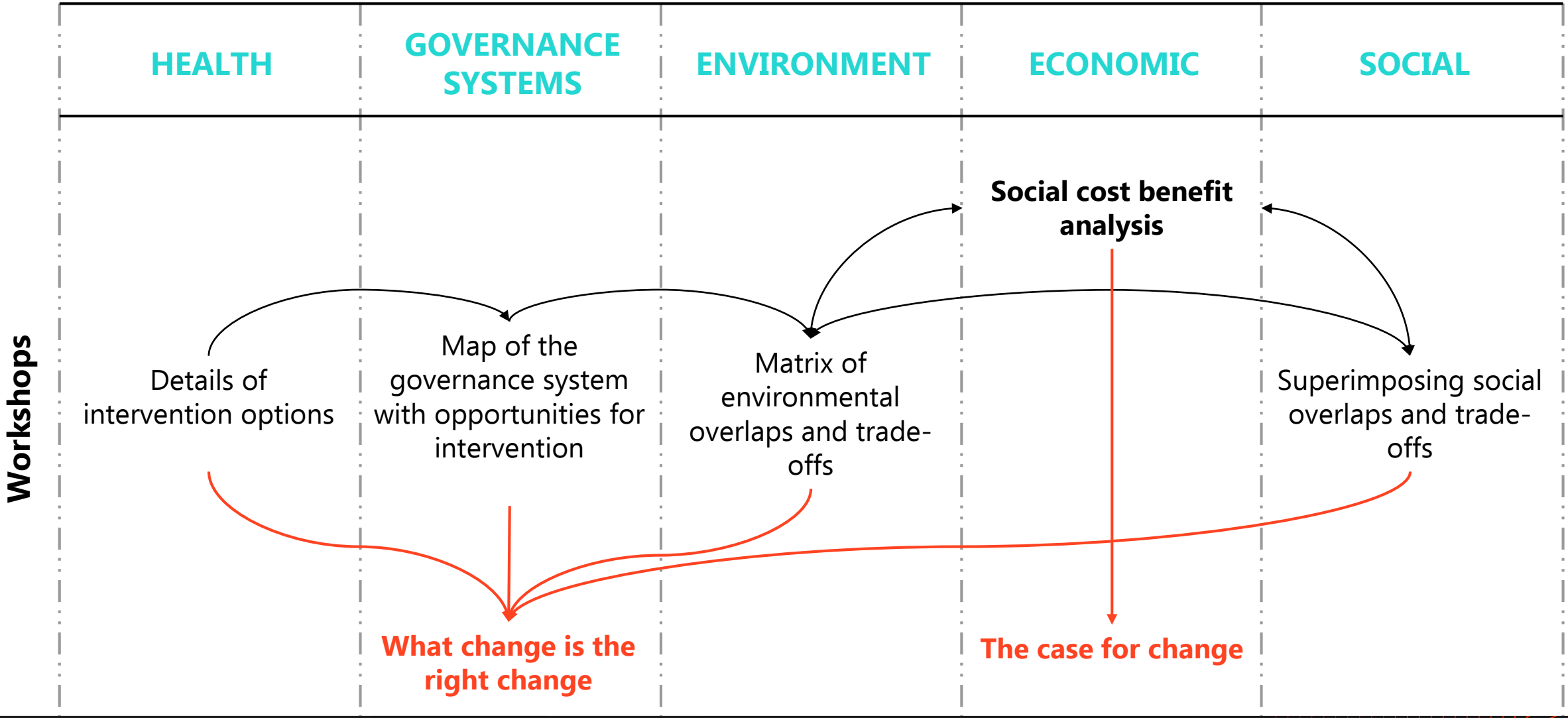
Framework




HEALTH
GOVERNANCE SYSTEMS
ENVIRONMENT
ECONOMIC
SOCIAL
Workshops
Details of intervention options
Map of the governance system with opportunities for intervention
Matrix of environmental overlaps and trade-offs
Social cost benefit analysis
Superimposing social overlaps and trade-offs
What change is the right change
The case for change

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To our practices

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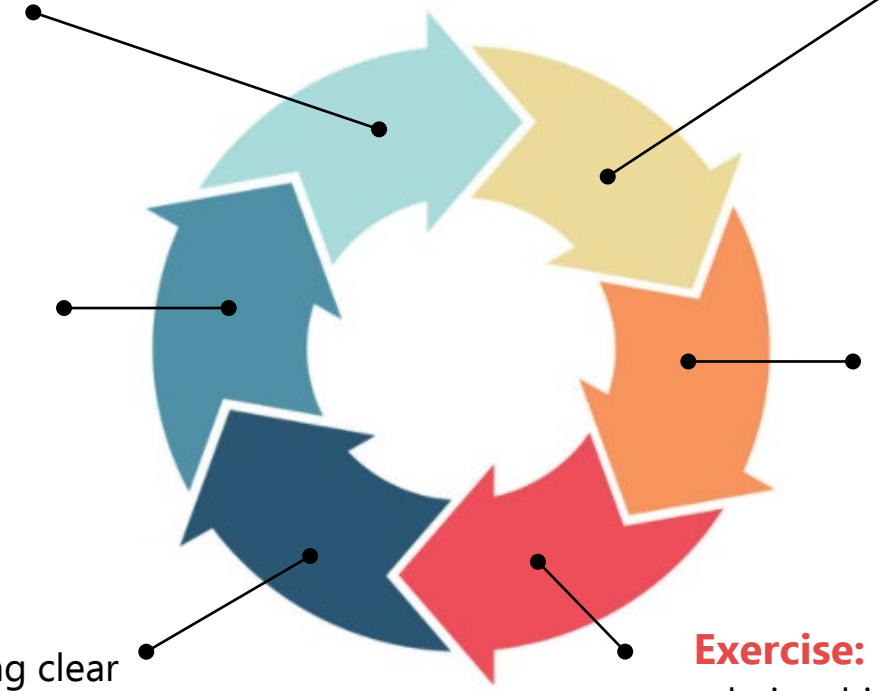
Agility: keeping pace with increasing digital interconnectedness and evolving threats and hazards

Understanding: mapping of national, local, organisational capabilities, what they can provide and identification of gaps



Resilience by design: improving preparedness and response of organisations, processes, infrastructure and facilities

Relationships: building and maintaining a network of networks across local, national and international boundaries

Responsibility: ensuring clear ownership of resilience at every level

Exercise: practicing responses to build relationships, increase awareness of existing capabilities and better prepare for a range of emergency situations

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Thanks