

Barriers to built asset adaptation in private sector

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Structure

1. UK adaptation landscape
2. The research context of the UKCIP framework
3. Obstacles observed in assessing impacts
4. Decision-making and organisational learning
5. Reflections from public sector adaptation
6. Conclusions and departures

Extreme weather impacts on business

- The summer of 2003 heat wave across Europe saw an estimated 2,000 excess deaths in the UK.
- July 2007 floods in the UK saw 180,000 claims
Equivalent of 4 years worth of normal claims
Cost: £3billion
- The Cumbria floods of 2009 cost £175 million (ABI)
- Steady rise in the costs of business claims for weather damage
- In 2008, 29% of businesses reported disruption as a result of extreme weather (CMI Survey, 2009)
- Insurance sector + Govt renegotiation of flood cover



“The longer the delay by business in responding to inevitable climate change, the more likely we are to see governments respond and act more aggressively with prescriptive regulation on adaptation”. (Frith and Colley 2006)

The UK Adaptation Scenario

- Insulation from Mitigation
- The UK Climate Impacts Programme 1997-2011
- Events, institutional review, organisational adjustment

- Legislative Entanglement
 - Climate Change Act 2008
 - > ASC, Reporting Powers, CCRA
 - Civil Contingencies Act 2004
 - Flood and Water Management Act 2010
 - Localism Act 2010

- National regime transition
 - State resource withdrawal
 - Loss of Adaptation indicator
 - Redistribution of (ir)responsibility

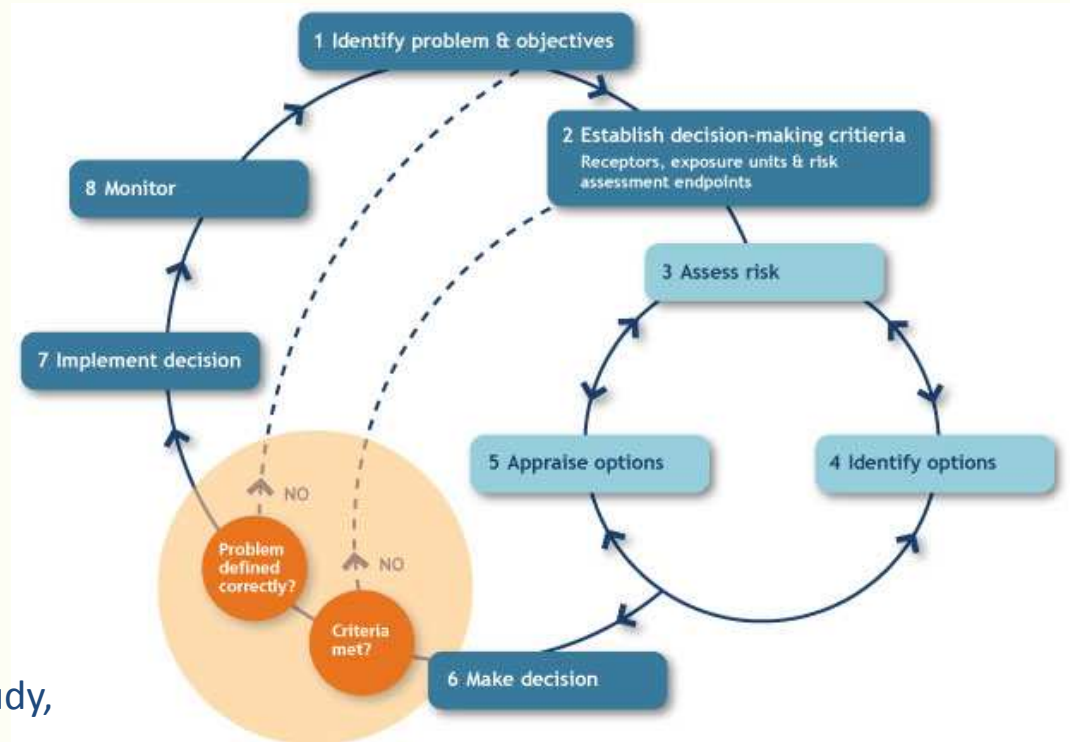
Introducing the UKCIP framework

UKCIP framework

- For climate adaptation decision making in the presence of uncertainty (2003)
- State of the art (at its time)
- Recognized by UNFCCC
- Widely used by UK business and infrastructure

Research context

- UK banking organisation
- 3400 built assets valued at £370 billion
- Mixed method: Participatory study, questionnaire(2006-7)
- Implemented UKCIP framework
- Used UKCP02 projections with facilities management professionals
- Semi-structured interviews
- Observations validated via wider FM community questionnaire (N=480)



Participatory study

↓
Observations

↑
Questionnaire



Assessment process



Adaptation process

Implementing the UKCIP framework

Stage 1

Adapt to present and future flood and overheating events

→ Strategic decision for individual property maintenance with a 5-10 year implementation span

Stage 2

Receptors : customer-facing built assets

References: flood maps, maintenance complaint database, UKCP02

Risk Measures: low, moderate, high

Stage 3

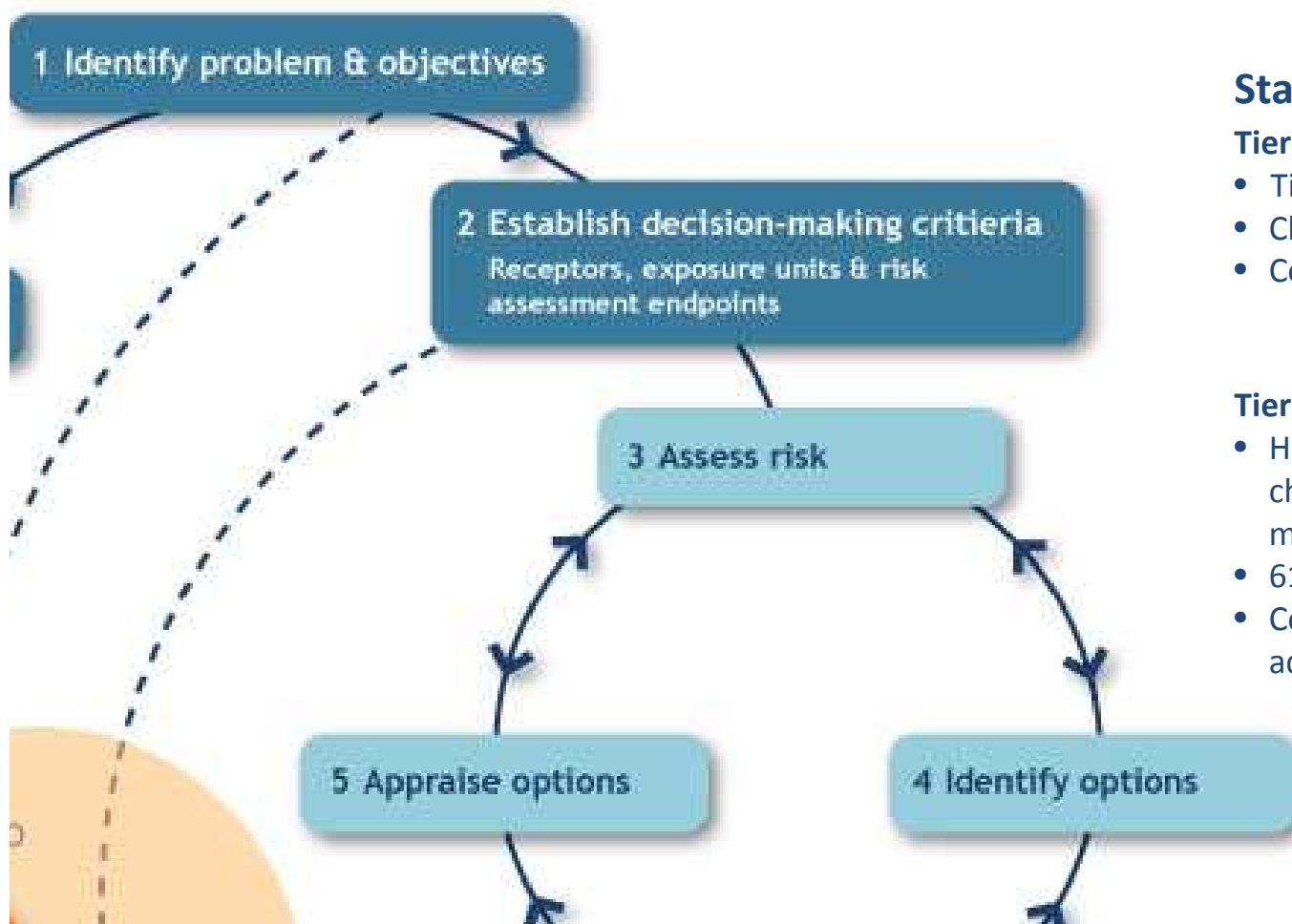
Tier 1 Preliminary Risk Assessment

- Time frame and scenario-selection
- Climate variable selection
- Confidence level in UKCP02

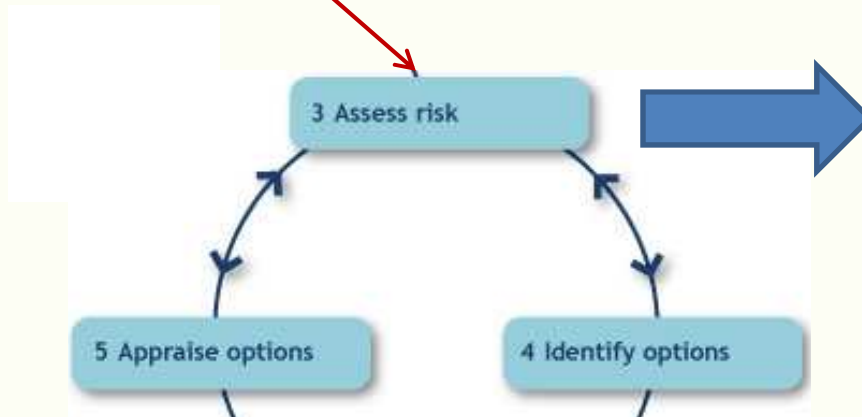
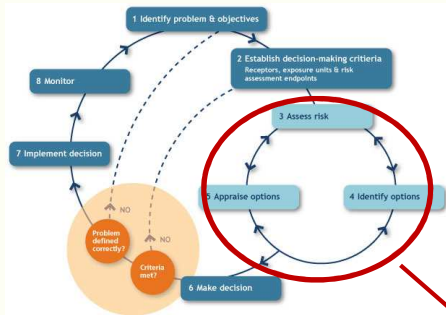
Tier 2 Qual + semi-Quant Assessment.

- Historical damage data + climate change projections + priority = Low moderate or high risk assessed.
- 61 sites traffic lighted
- Cost benefit analysis for bank of adaptation options.

Subsequent stages not implemented due to lack of data, resources and expertise



Obstacles observed assessing impacts



Uncertainty in climate projections and absence of local level data

Unfamiliarity with projection data and difficulty translating projections into operational risk.

Unmatched time-horizons of climate change projections (30 years) and operational concerns (5-7 years)



Semi-quantitative risk assessment



Lacked gravitas for making hard financial and strategic decisions

Result: Organisation adopted a wait-and-see-approach

Inside Decision-Making

Definition

The process of making choices from two or more alternatives

Influences

Political processes, individual exercise of power, and tactical advantage seeking

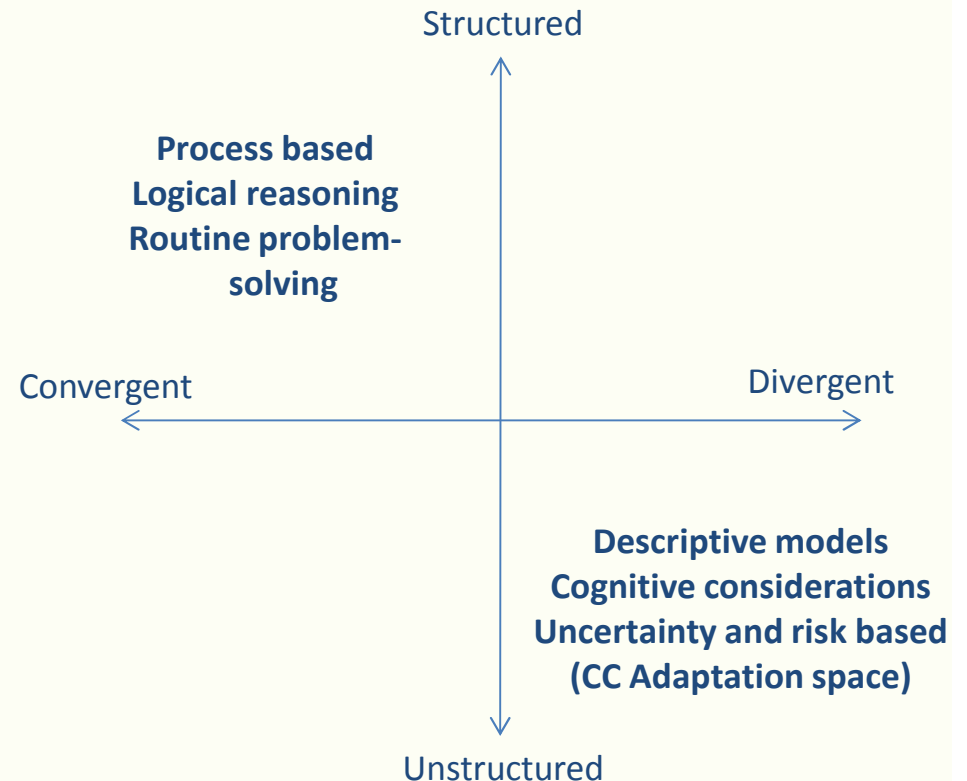
Convergent approach

Targeted thinking to find a single optimum solution to a clearly defined problem, with existing knowledge

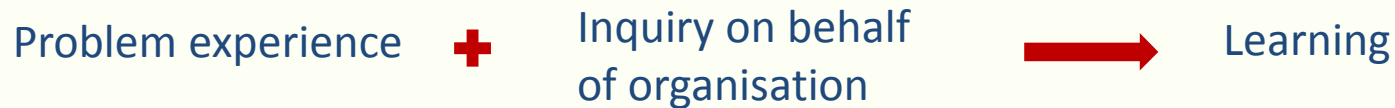
Divergent approach

Creative, open-ended thinking aimed at generating fresh views and novel solutions in an uncertain climate

By presenting a divergent approach in a business-friendly but structured way UKCIP's tool ran into problems.



Applying Organisational Learning



Organisational culture's influence on knowledge creation and distribution

Knowledge acquisition	Determines the knowledge worth keeping
Information distribution	Reconfigures relationships between individuals within organisation
Information interpretation	Creates the context of social interaction determining knowledge used in practical situations.
Organisational memory	Mediates processes by which new knowledge is created and deployed

Single loop learning

Aim is status quo maintenance not transformation



Increasing depth

Double loop learning

Generative and fundamental learning, potential to create new paradigms

So how did the bank learn?

Locating learning in the adaptation process

Adaptation process

The experience of an climate related event
(extreme event)
+ve/-ve
Belief in climate change occurrence



Perception of climate change as a risk to
the business function
+
Identification of impacts



Knowledge and data for assessment and
quantification.
+
Org size (resource –time, money, ext and
int. support)
+
Flexibility of existing strategy and process



FM consider climate change impacts to be
included in future planning – (disaster
recovery).

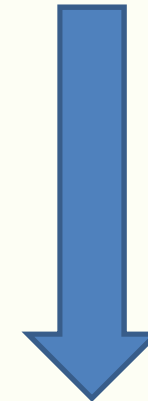
Organisational learning

Learning occurred in response to experience of HQ
overheating and basement flooding

Invested in research collaboration with UoG

Knowledge
acquisition
Information
distribution
Information
interpretation

Limited efforts,
comprehension
and attention
span



Single loop learning

Organisational
memory

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Barriers observed

Dependency on external event stimulus
for recognition of the need for adaptation

Transformed through organisational and
employee perceptions of risk, associated
with views about climate change.

Adaptive Capacity: Presence, skills and
deployability of resources.

Reflections from public adaptation

The Project

- Multi-disciplinary 14 University consortium
 - EPSRC-funded from 2008-11
 - Modelling local event impacts
 - Examining community coping between Decision-makers, SMEs and household
- Findings
 - Tangibility problem
 - Delegation to juniority
 - Weighted epistemic ecology of adaptation
- For resources visit

www.extreme-weather-impacts.net



Conclusions

- Private sector adaptation demands government policy support
- Learning can be assisted through sector-specific intervention
- Communication of projection and options require simplification
- Short term projections would be well-received by managers
- The Tangibility Problem persists despite UKCIP09 downscaled projections. What is useful information for business decision-making?

Further work

- How might organisational learning concepts be applied to mature the climate change adaptation debate in businesses?
- How might sectors be enabled to assess their own specific vulnerabilities and resilience's?
- What about organisational unlearning?

Questions

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