‘TOOLKIT’ MAPS

To form part of the material for a training workshop that facilitates the creation of collaborative projects on the risk related to co-occurring hazards.

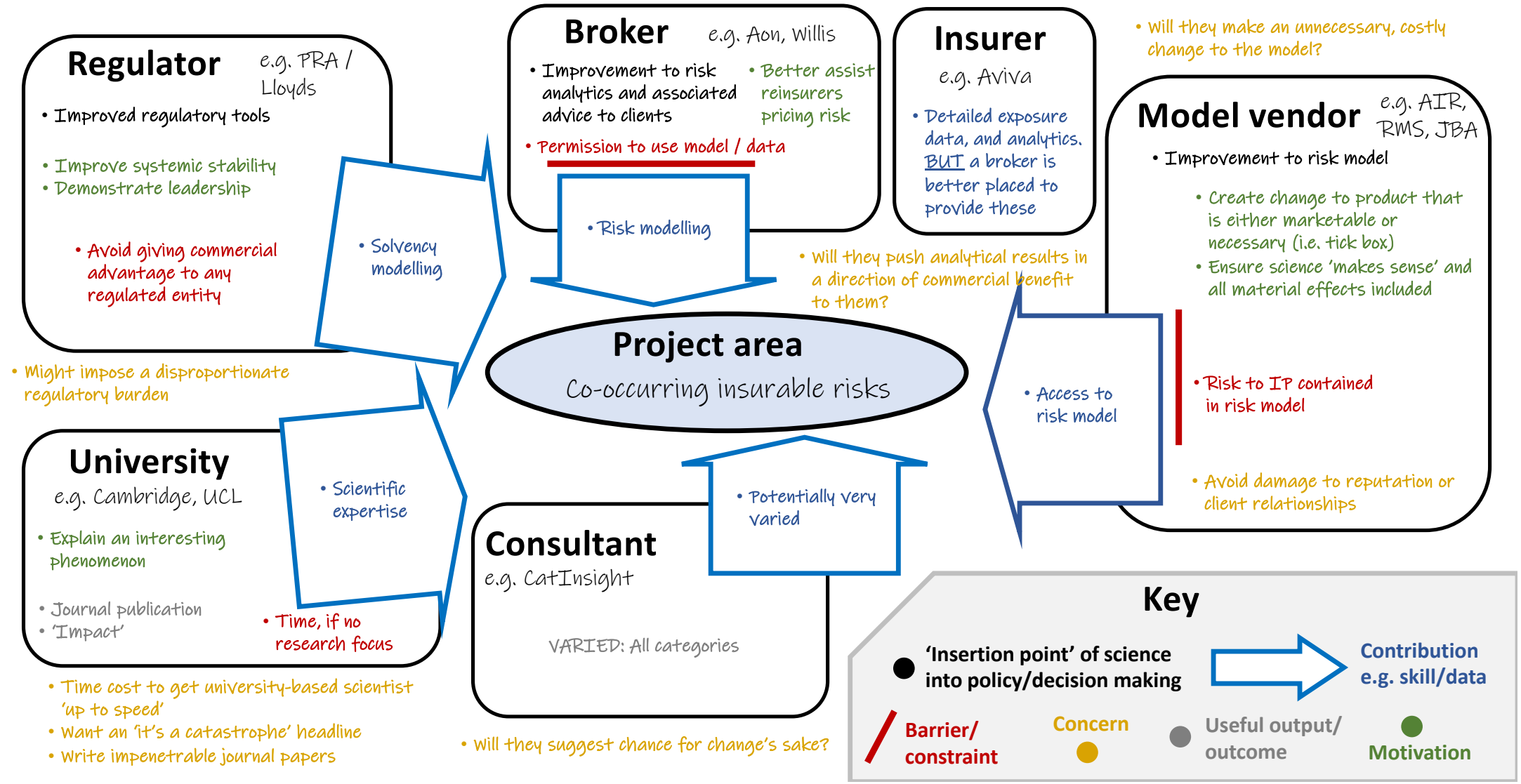
Worked example, CASE STUDY#1, MAPS

These maps are illustrative, derived from experience in the TOGETHER project. Providing a concrete case study with specific detail is intended to aid participants in thinking of similar detail in their projects.

- To be shown to participants in Powerpoint presentation, and to be provided to them as a worked example.

MAP 1

ORGANISATIONAL LANDSCAPE: UK co-occurring natural hazard insurance risks



MAP 2

PROJECT LANDSCAPE: UK flood-wind correlation

• Time! – All parties

Regulator PRA

• 'General Insurance Stress Test' – Modify this 'tool' to include correlation.

• Understand evolving risk
• Assess solvency against this

• Avoid perceived or real preference for one broker or model vendor

• Co-written, to raise market awareness

• Data of regulated firm

• Solvency modelling in R
• Scoping and defining project

Broker Aon

• Blog & press releases

• Critical discussion with other parties

• Change in risk modelling practice (i.e. include correlation between peril-regions)

• A focus for wider client conversations about co-occurring risks

• Ramification of work on clients ./ the market

• Risk modelling
• Statistical modelling to combine peril-regions

Project

UK flood-wind correlation
(is it potentially material?)

(Re)Insurer:

Not required for project

Model vendor AIR

• Adapt model scope to include correlation, by modifying how modelled years are connected between perils

• An industry publication to disseminate (e.g. LinkedIn)
• Solvency implications calculated

• Reputational benefit
• Fuller understanding of risk

• Full commercial model

• How well uncertainties accounted for

• Event set
• Industry exposure database
• Guide project
• Feedback

University Loughborough

• Reputational damage if science overstated or oversimplified

• Curiosity – opportunity for research
• Potential basis for future, funded project
• Utility – being of 'real world' use

• Journal publication
• Evidence use of their science

• Meteorology
• SEAS5 R^2
• Impartial position
• Literature R^2

Consultant CatInsight

• 80% curiosity, 20% commercial reputation (i.e. lead to jobs/contracts in similar applied topics)
• Learn from specialist in journal publication

• Journal publication
• LinkedIn/blog posts

• Meteorology
• SEAS5 R^2
• Interesting initial result

Key

● 'Insertion point' of science into policy/decision making

⇨ Contribution e.g. skill/data

/ Barrier/ constraint

● Concern

● Useful output/ outcome

● Motivation

MAP 3

PROJECT PLANNER: UK flood-wind correlation (is it potentially material?)

It is not proportionate or feasible to fully and self-consistently create and run a new catastrophe model, and then to assess the implications of it (e.g. impact on 100 yr AEP loss estimates, and then solvency). However, separate flooding and extreme wind models exist (AIR), as does software to combine results with a given correlation (Aon), and expertise to assess solvency (PRA). The challenge is to link climate evidence to solvency with sufficient accuracy to allow certain, focussed inferences.

Climate

START

- SEAS5
- Literature studies of flood-wind correlations

Hazard

- JH: Literature review **(TASK 1)**
- JH&RD: pilot to extend evidence of existence of r to higher RPs **(TASK 3)**
  - RP still only reliable ~50 yrs
  - SEAS5 cannot go to commercial partners

- SEAS5 fields, argued to be proxies for hazard

Risk/impact

- Aon: Calculate and combine losses from flooding and wind stochastic event sets using r from task 1, perhaps refined in task 3 **(TASK 2)**
  - How exactly to best combine?
  - AIR data only to Aon/PRA

- Stochastic events from AIR loss models
- Additional meta-data

Implications

ACTIONS

- PRA: Solvency modelling **(TASK 4)**
  - What is a typical firm? And, justifiable sensitivities to test
  - No firm's data to leave PRA

- Simulated seasonal losses of flood, wind with coherent time-stamps

FINISH

Assume motivations & insertion points are already known)

Key

- Concern
- Barrier/ constraint
- Useful output/ outcome
- Contribution e.g. skill/data

OUTPUTS or outcomes

- Journal paper [JH&RD]
- Analytical experience that might have client facing application [Aon]
- Bank Underground blog article [PRA/AIR/Aon/JH/RD]
- 1st-order idea of materiality of correlation known [ALL]

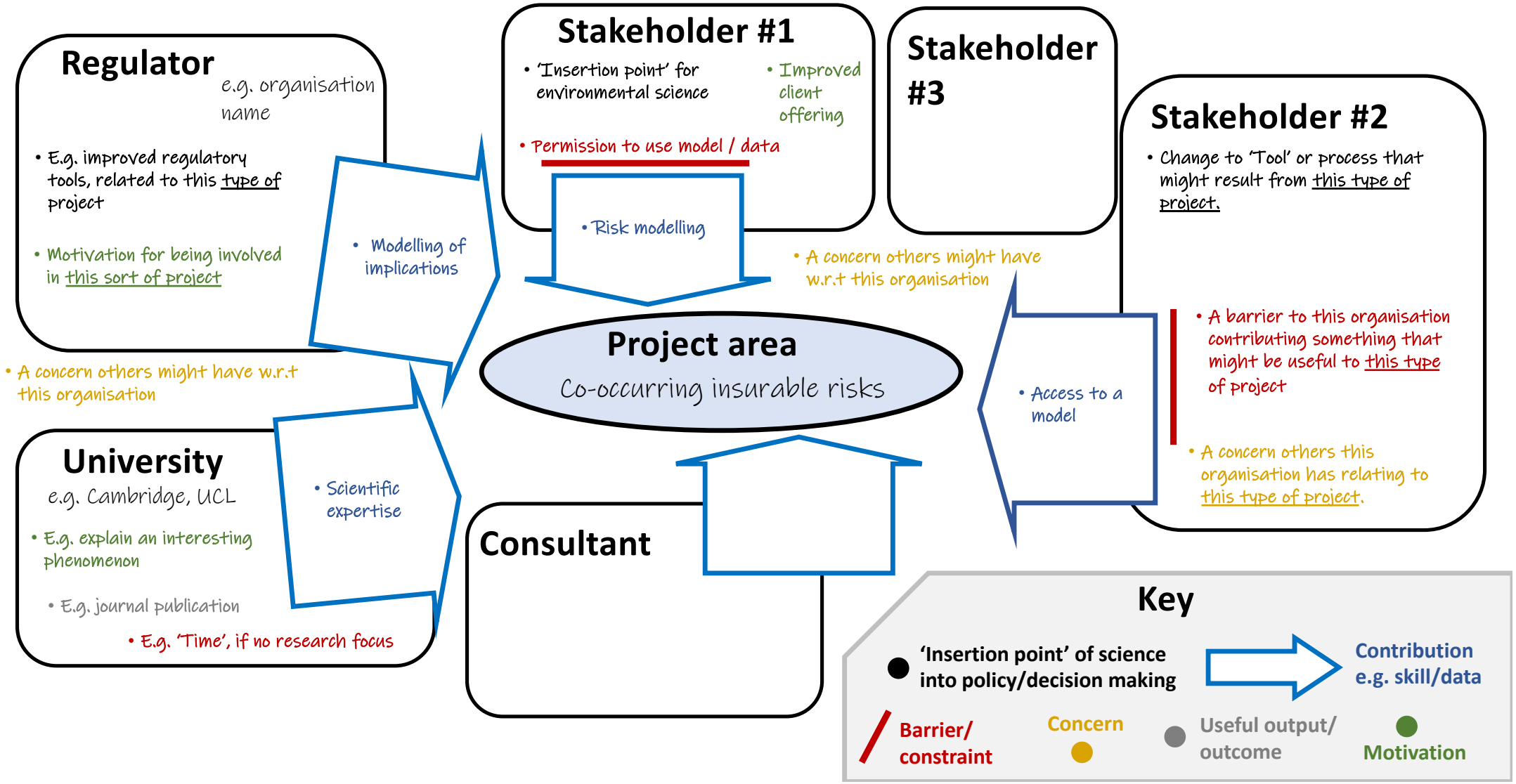
Guidance MAPS

These maps are illustrative, derived from experience in the TOGETHER project. They do not contain specific detail, rather illustrations generalized from the experiences.

- To be kept on screen for participants as they fill out their maps.
- Could be used if permission not obtained from TOGETHER participants for the use of it as CASE STUDY #1

MAP 1

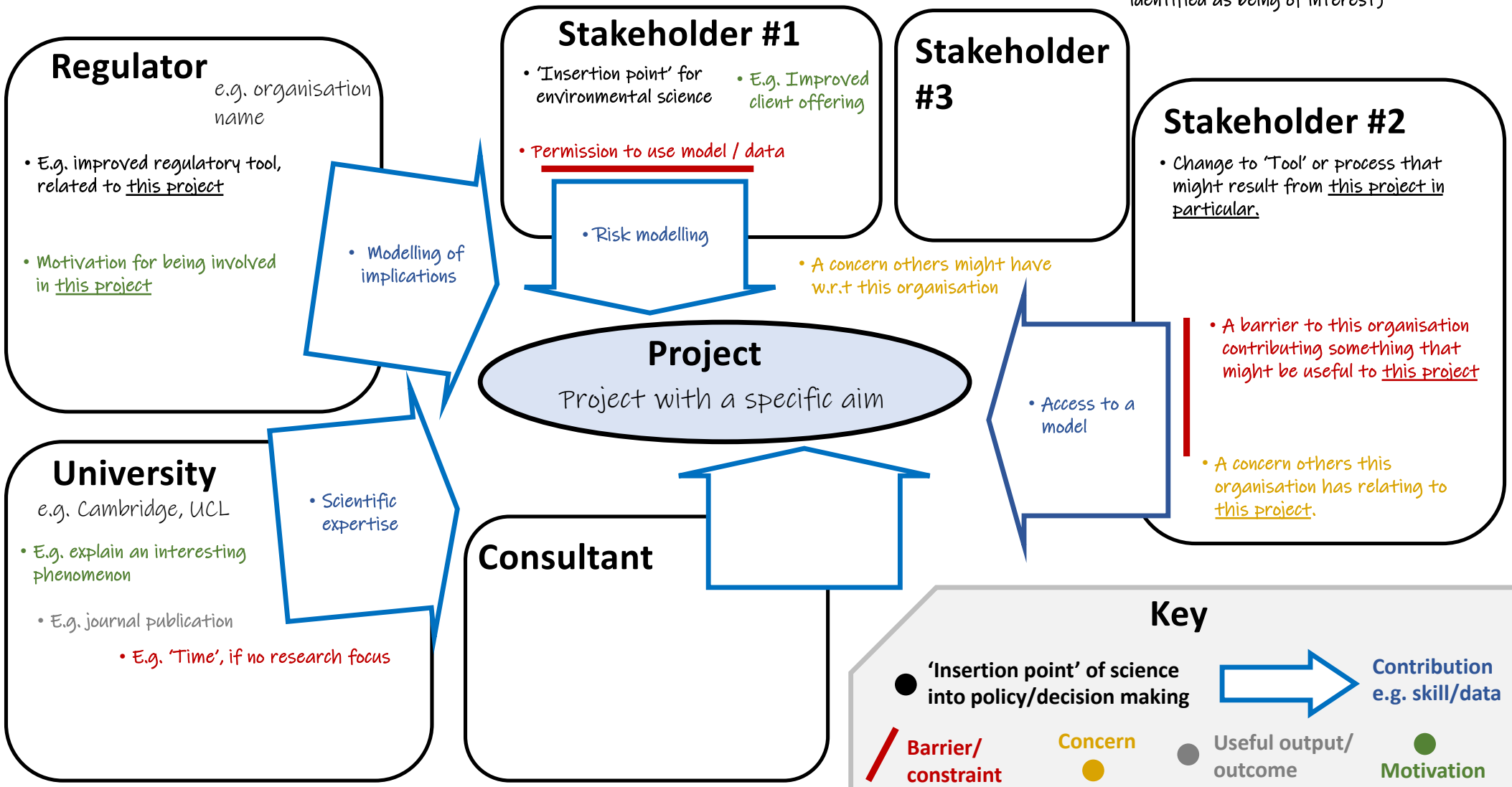
ORGANISATIONAL LANDSCAPE: UK co-occurring natural hazard insurance risks



MAP 2

PROJECT LANDSCAPE: For a specific, targeted project!

(This is considering the day-to-day 'nuts & blots' of a particular project that has been identified as being of interest)



MAP 3 **PROJECT PLANNER:** For a specific, targeted project!

(This is considering the day-to-day 'nuts & blots' of a particular project that has been identified as being of interest)

In 2-3 sentences state the objective of the project, and how an appropriate climate -> implications analysis will be conducted. This will likely use building blocks already available to the stakeholders (e.g. models, datasets). Include barriers, concerns, data/skills contributed, and identify tasks required.

Climate	Hazard	Risk/impact	Implications
START	ACTIONS	ACTIONS (i.e. tasks)	ACTIONS
• Likely, climate science will be used as an input. • Which data? How obtained?		• Specifically, who, what when? • Barriers relating to this task • Concerns relation to these actions	FINISH
		• Model • Skills • Data • Guidance	

Assume motivations & insertion points are already known)

Key

- Concern
- Barrier/ constraint
- Useful output/ outcome
- Contribution e.g. skill/data

OUTPUTS or outcomes

Is there something for everyone? And, is it clear why this is an incentive for them to participate in the project?

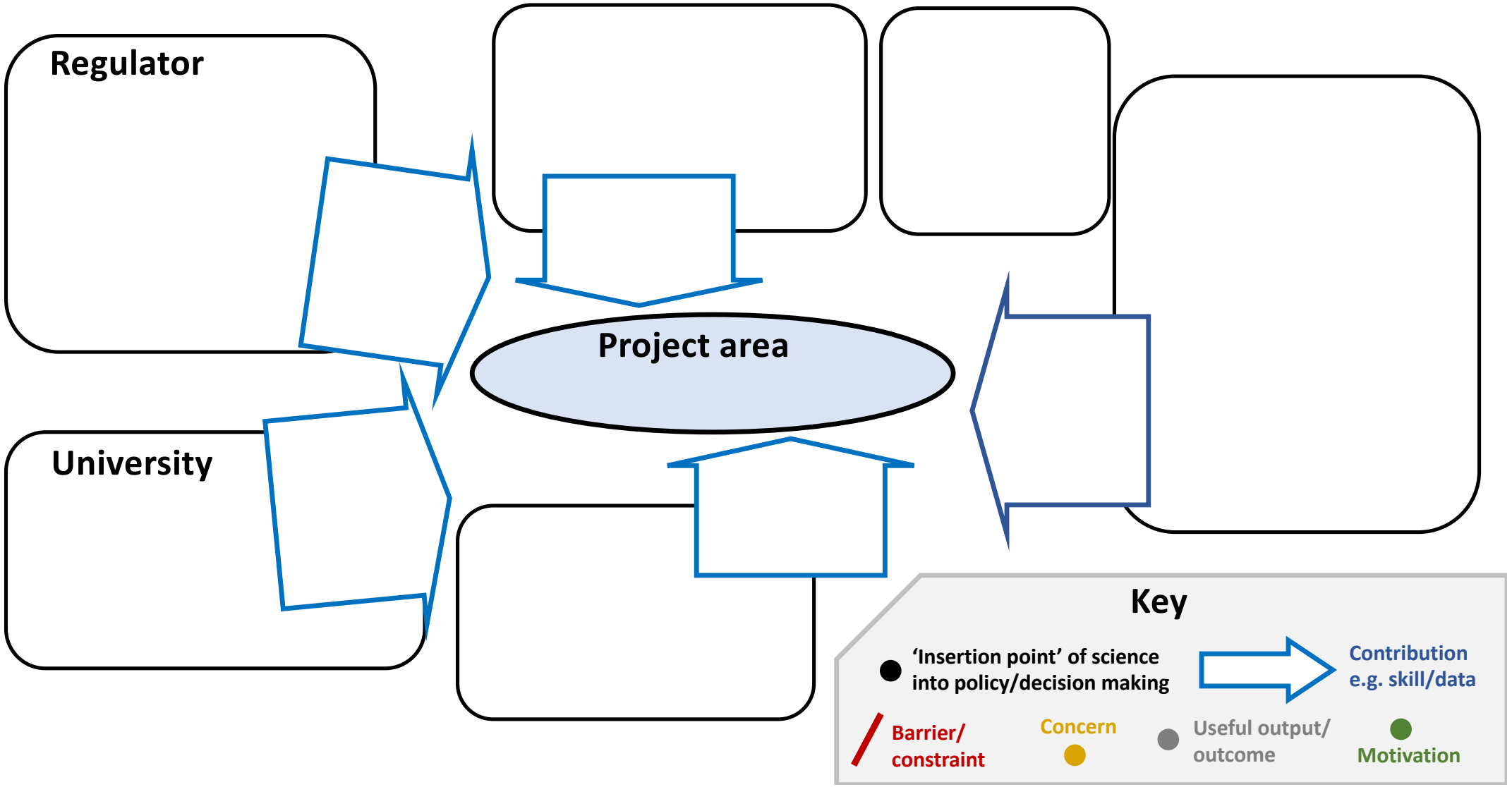
- Relating to hazard [JKH] .... Add initials of stakeholder this relates to
- Relating to risk
- Relating to Implications

Blank MAPS

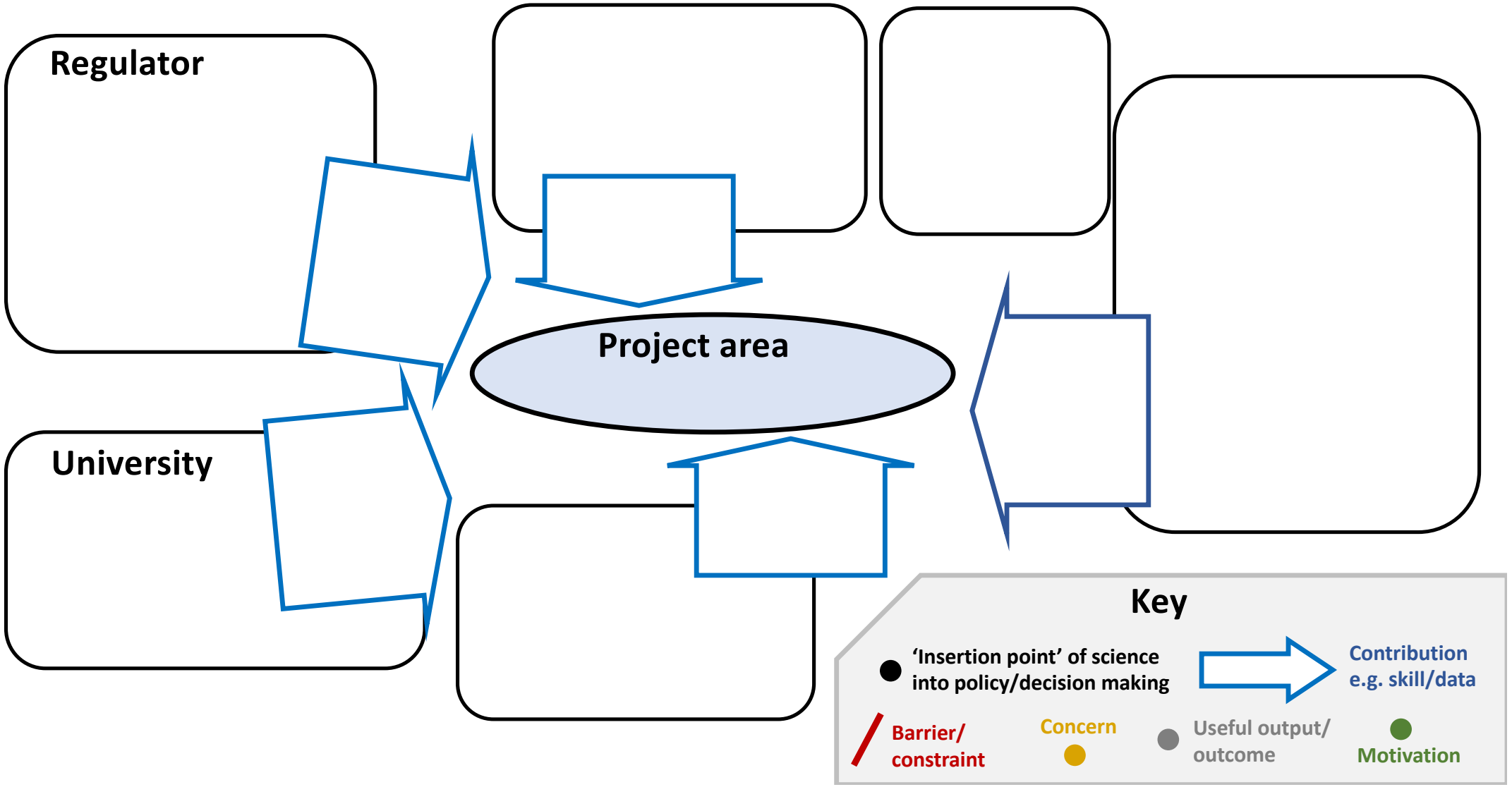
Contain only the structure derived from TOGETHER

- To be printed at A3, and placed on tables
- Or, in COVID mode, could be filled in using Powerpoint, although to keep formatting the Guidance maps may be used in this mode

MAP 1 **ORGANISATIONAL LANDSCAPE:**



MAP 2 **PROJECT LANDSCAPE:**



MAP 3 **PROJECT PLANNER:**