Using Scenarios in Academic Research to Study the Future

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Studying the Future: 'conventional' forecasting

Reliance on quantitative data and statistical analysis

Model parameters derived from past events are used to predict the future

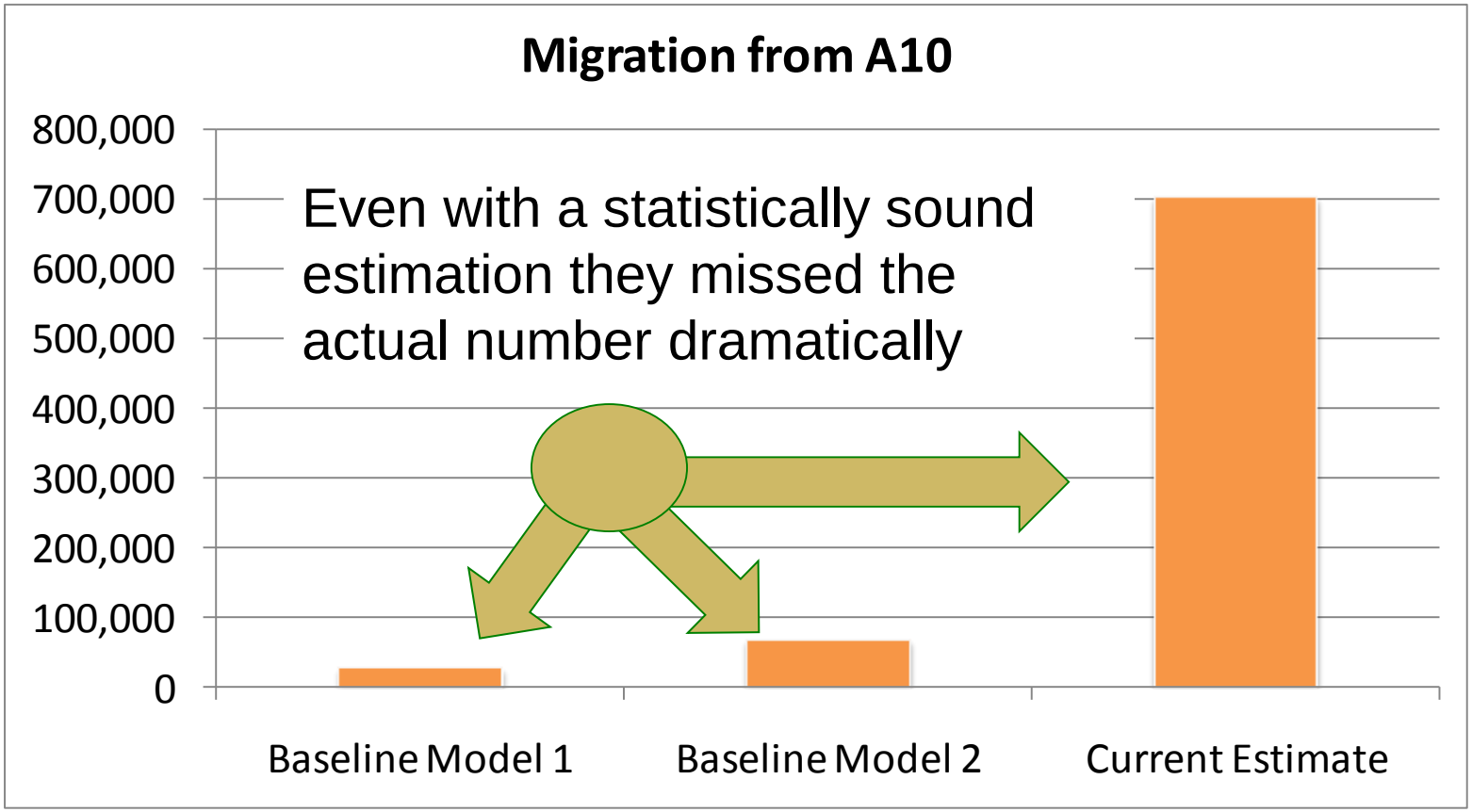
$$
\begin{aligned}
v_q &= -r_s i_q + \frac{\omega_r}{\omega_b}\Psi_d + \frac{p}{\omega_b}\Psi_q, \\
v_d &= -r_s i_d - \frac{\omega_r}{\omega_b}\Psi_q + \frac{p}{\omega_b}\Psi_d, \\
v_o &= -r_s i_o + \frac{p}{\omega_b}\Psi_o, \quad p\theta_r = \omega_r, \\
0 &= r_{aq} i_{aq} + \frac{p}{\omega_b}\Psi_{aq}, \; p\theta_e = \omega_e, \\
v_f &= r_f i_f + \frac{p}{\omega_b}\Psi_f, \qquad \delta = \theta_r - \theta_e, \\
0 &= r_{ad} i_{ad} + \frac{p}{\omega_b}\Psi_{ad}, \; \omega_m = \frac{2}{p}\,\omega_r, \\
T_e &= \frac{3}{2}\,\frac{P}{2}\,\frac{1}{\omega_b}(\Psi_d i_q - \Psi_q i_d), \\
p\omega_r &= \frac{P}{2J}\,(T_a - T_e),
\end{aligned}
$$

Using Forecasting Models: an example

Dustmann *et al.* (2003), a report commissioned by the Home Office to forecast net immigration to the UK after the enlargement of the EU:

- Forecasted that net immigration to the UK from the AC10 would be 'relatively small , between 5,000 and 13,000 immigrants per year up to 2010'.
- The UK decided to open labour markets to the AC10 countries in 2004.

Flows Estimates to Sept. 2009

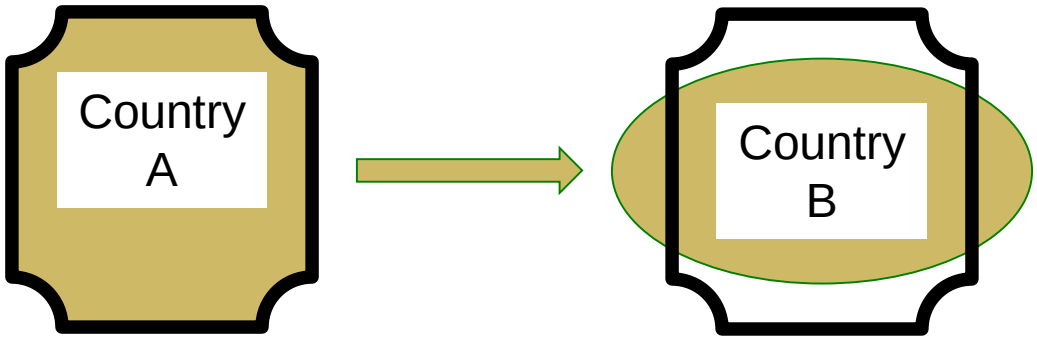


Why do statistical forecasts often deliver poor estimates?

- They assume the same structure across societies
- They assume the same structure across time
- Explanatory variables are forecasted based on questionable assumptions (e.g., linear extrapolation of past trends)
- Complex causality and feedback mechanisms
- Limitations of data and quantification

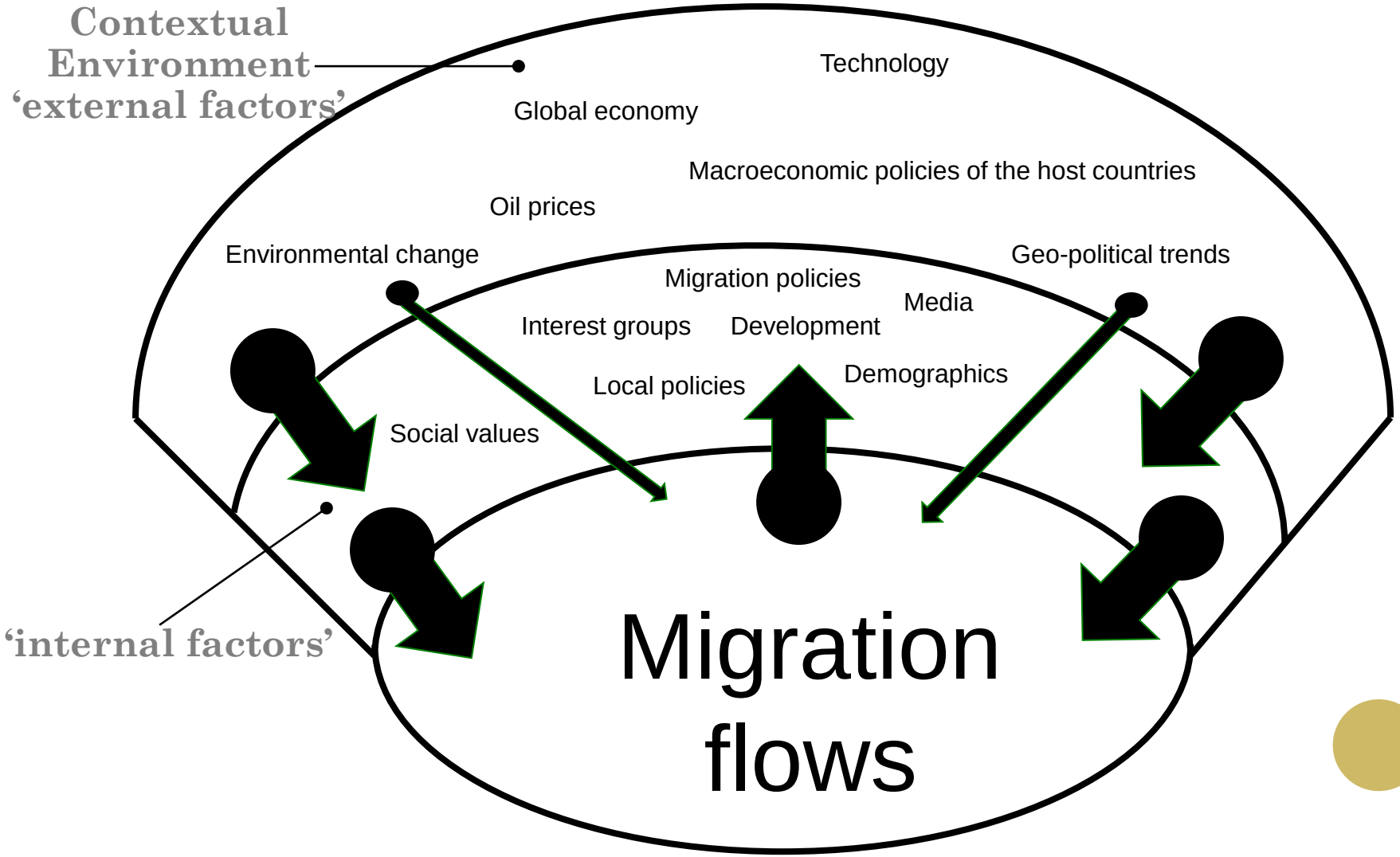
Finding data can be a problem…

- In many cases the data don't exist and the parameters of the model must be estimated **using historical migration data from other countries.**



- Therefore it assumes the **same structure across countries.**

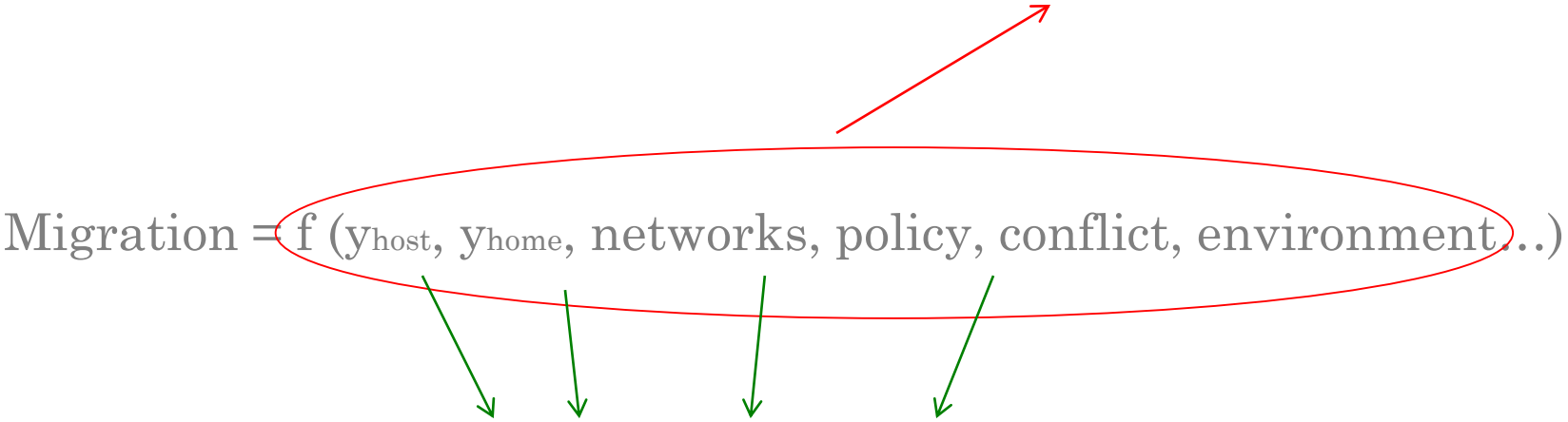
Complex Levels of Impacts and Feedback



IF WE HAVE DATA, WE STILL HAVE UNCERTAINTIES

Two major uncertainties:

Model uncertainties: limitations in our understanding of the mechanisms that drive migration processes.



Contextual uncertainties: our limited knowledge and imagination about future changes in the context in which migration occurs.

Scenarios: what are they?

- Scenarios allow us to
  - Systematically explore possible developments in the future
  - Prepare us for *the likelihood* of change
  - Learn to expect the unexpected (*not* business as usual)
- Through
  - Uncovering assumptions underlying conventional thinking
  - Stimulate 'out-of-the-box' thinking
  - Identify *certainties* and *uncertainties*
- Focus on *uncertainties* to explore alternative futures

Scenarios: what are they NOT?

- A forecast or projection of today into the future
- An alternative specification of the forecasting model
- BUT THEY ARE visualisations of possible futures that we do not necessarily expect to come true.

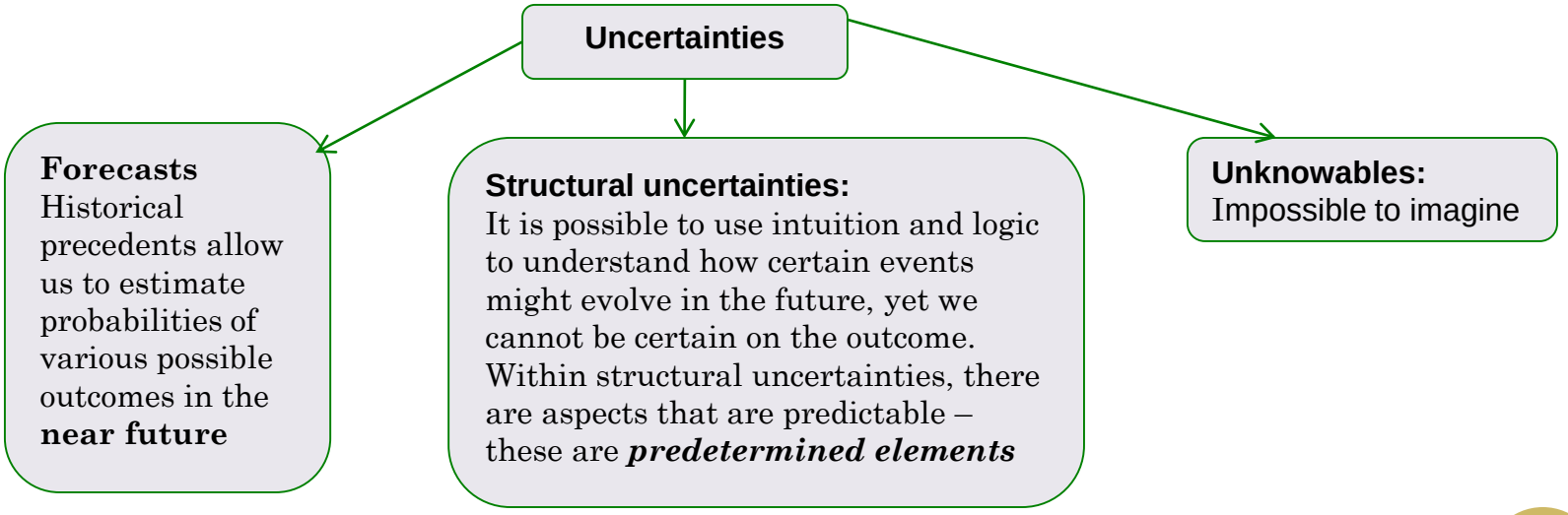
Scenario characteristics

- Stories created using multiple perspectives on:
  - What has happened in the past
  - What we know today
  - What could possibly develop in the future
- The stories must be:
  - Plausible
  - Coherent
  - Challenge our assumptions and expectations
- Scenarios neither represent a perfect world, nor an apocalyptic world – they are a mix of positive and negative events and outcomes that ***do not simply reproduce the status quo***

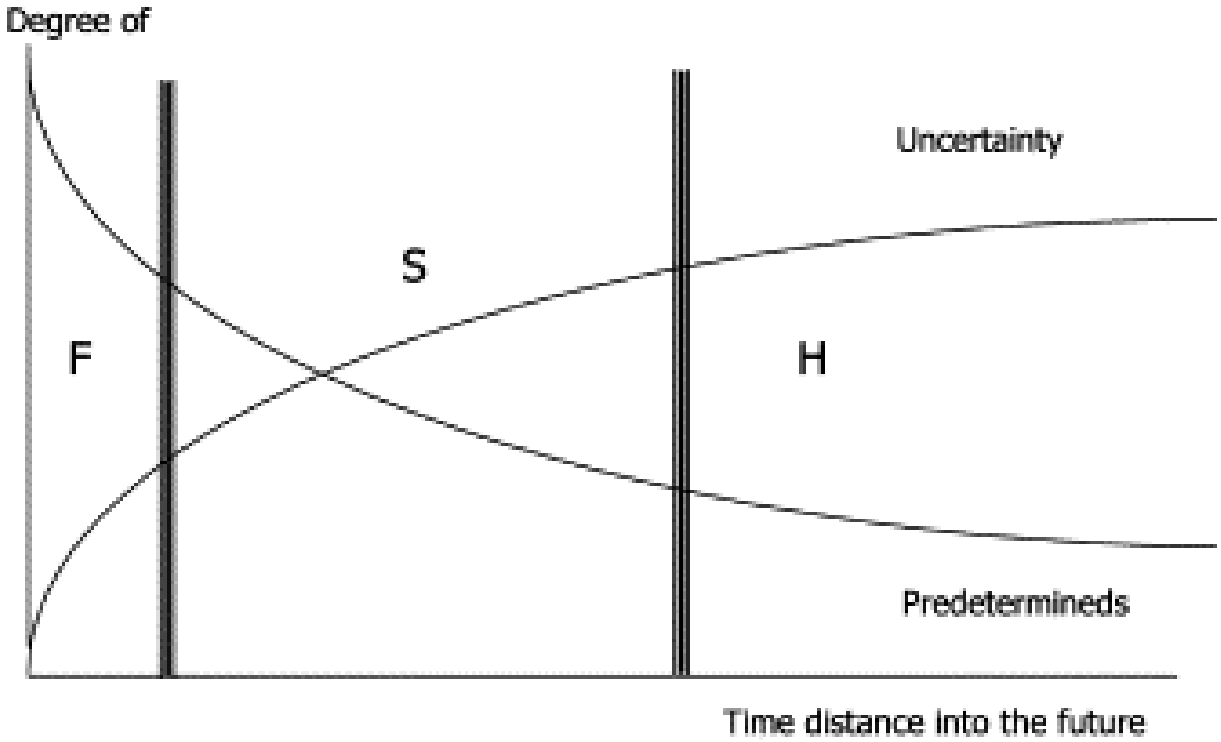
Creating a new framework

Identify uncertainties

- Rather than building a model on the certainties, we identify and focus on the uncertainties and try to account for *unexpected discontinuities*



The balance of predictability and uncertainty

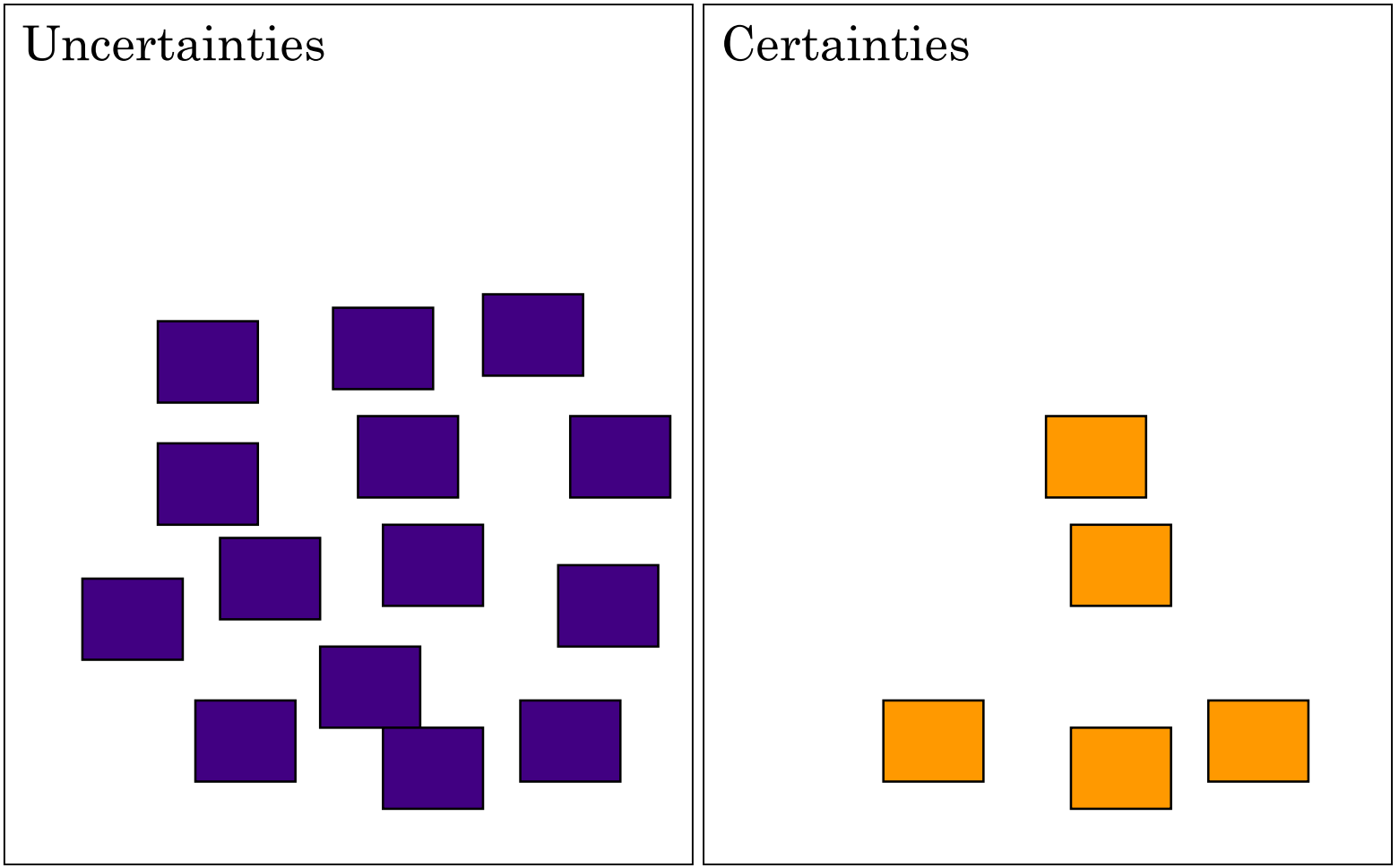


F = Forecasting, S =Scenarios and simulations, H = Hope connected to commitments and strong visions

Source: van der Heijden, 2005

Involving Stakeholders

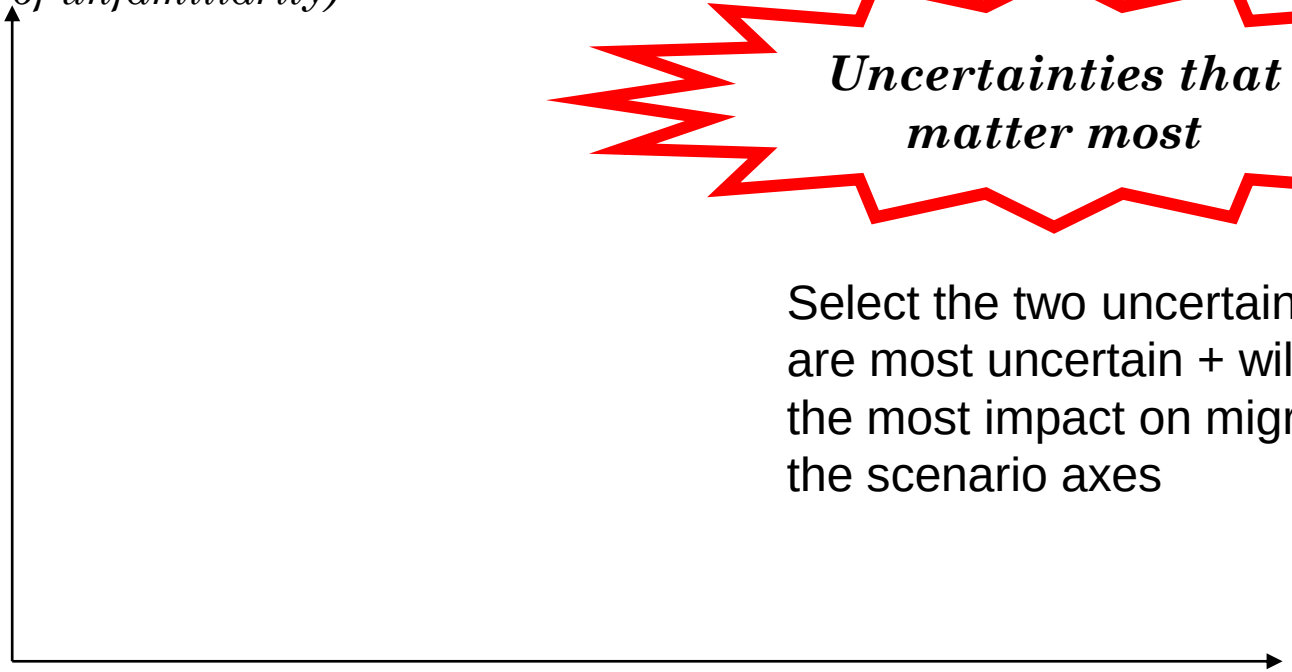
Identify certainties and uncertainties



Slide's author: Rafael Ramirez

EVALUATING THEIR RELATIVE IMPACT AND UNCERTAINTY

Our ignorance on how the issue plays out
(greatest lack of knowledge /level of unfamiliarity)



Uncertainties that matter most

Select the two uncertainties that are most uncertain + will have the most impact on migration for the scenario axes

***Least** uncertain and*
***Least** impact on migration*

Greatest migration impact

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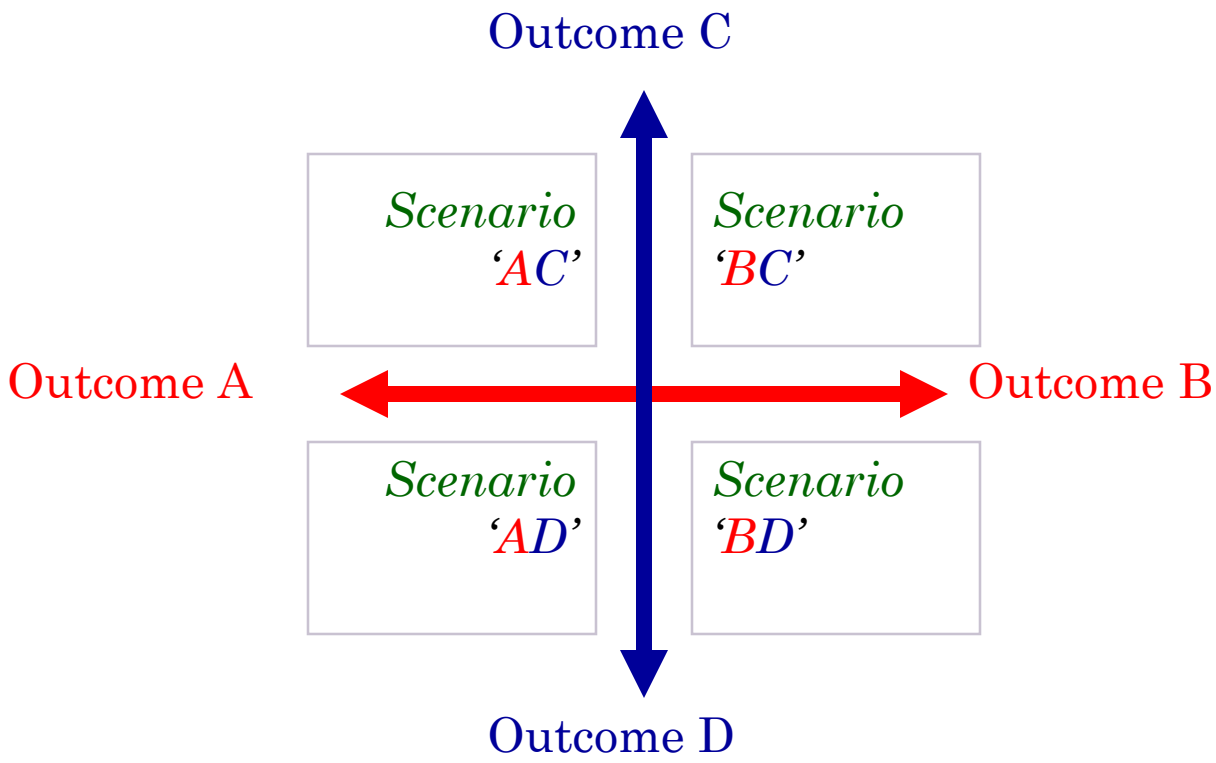
CREATING THE 'SCENARIO MATRIX'



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