‘Potential Surprise Theory’ as a theoretical foundation for scenario planning

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Agenda

1) The need for theory in scenario planning
2) Shackle and 'potential surprise theory'
3) Theoretical support for the use of plausibility: The problem of 'crucial decisions' and 'additivity'
4) Focus on extreme outcomes
5) Imagination and expectation
6) Combining construction and deduction
7) Delphi and scenario planning
8) Summary

The need for theory in scenario planning

- Development as an academic discipline constrained by limited theoretical foundations
- Practicality and theory not disassociated - failure to develop theory affects practicality e.g. lack of empirical testing leads to eclecticism
- Yet, from time-to-time potentially useful theoretical frameworks have been identified, only to go undeveloped and then forgotten…e.g. Potential Surprise Theory
- Correspondence between Shell's Chief Economist M. Jefferson and Shackle – 'essential unity'

Potential surprise: A theory whose time has come

- Mainstream view = no distinction between risk and uncertainty
- Even where an 'objective' probability distribution cannot be created…can be inferred from decision making behaviour
- Basili and Zappia (metro. & CJE): this perspective increasing questioned…there IS a fundamental distinction between risk and uncertainty
- Shackle now at the heart of contemporary debates of how to deal with uncertainty
- Underpinning SP with Shackle moves it to centre ground of debate

Shackle and 'potential surprise theory'

- Shackle wanted to replace probability theory
- Important distinction between seriable/divisible and non-seriable/divisible experiment
- Crucial decision – one which changes the very circumstances in which the decision is made so that no future decision can be made in same circumstances again – e.g. reference class of no use
- Additivity – probabilities must add to unity. To consider a new 'hypothesis' about the future requires diluting current hypotheses

Potential surprise theory: A brief outline

1) Imagine a set of rival strategies and outcomes and for each make a decision as to its plausibility.
2) For each outcome, imagine the impact (e.g. the gains or the losses that might be accrued) should it transpire.
3) For each strategy, identify the most arresting outcome because of plausibility and potential positive impact, and the most arresting because of plausibility and potential negative impact ('focus outcomes')
4) Compare pairs of focus outcomes in light of attitude towards the trade-off between losses and gains.
5) Select the strategy for which this trade-off is maximised (i.e. potential gains are largest in comparison to potential losses).

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Empirical evidence for potential surprise theory

- Tversky and Kahneman's Prospect Theory
  - Based on probabilistic reasoning
  - Nevertheless, views individuals as thinking in terms of prospective gains and losses
  - Explains loss aversion and endowment effect
- T & K could ask individuals to consider different small sums of money for Pros. Theory…much more difficult in relation to 'crucial decisions'
- Linda effect and conjunction fallacy…reflective of plausibility and problem of additivity

The shared ontology of potential surprise theory and scenario planning

- The future as constructed through imagination Reflexivity – strong emphasis on indeterminism ('plurality of sequels')
- Focus on extreme, yet highly plausible outcomes ('Focus outcomes')
- 'Free of antecedent conditions'…and from 'absolute origination' of decision-maker…yet…'constant elements' and prevailing historical conditions
- Individuals still seek to choose 'best' (subjective) option
- Combining construct. and deduct. approaches for an abductive SP

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Combining Delphi and scenario planning

- Based on degrees of *disbelief*…but…
- Earl and Littleboy: people naturally think in terms of *belief*…identifying relevant causal processes (scenarios) they think are plausible
- Create adapted potential surprise scale incorporating both belief and disbelief:
  - 0 Complete disbelief
  - 1-4 Different degrees of disbelief
  - 5 Neutral (causal factors offset by countervailing)
  - 6-9 Different degrees of belief in occurrence
  - 10 Complete belief in occurrence

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Combining Delphi and scenario planning

- That scale is not dissimilar to those used to elicit responses from Delphi participants currently
- Similar scale for impact:
  - 0 Highly negative impact
  - 1-4 Different degrees of negative impact
  - 5 Negative impacts offset by positive
  - 6-9 Different degrees of positive impact
  - 10 Highly positive impact
- Identify future outcomes for which dispersal of views of 'belief' is widest and for which impact is most skewed to one end or other
- These then become IL scenarios

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End