

Writing on the wall : scenario development in times of discontinuity

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7 TOWARDS DISCONTINUITY-ORIENTED SCENARIO DEVELOPMENT

Societal developments do not solely progress in an evolutionary, linear manner but also in a discontinuous manner. Events in recent years such as the September 11th attacks and the collapse of communism are proposed illustrations of discontinuous developments. One would expect the idea of discontinuity to play a central role in scenario studies. We investigated this assumption by exploring the idea of discontinuity in the context of foresight and Integrated Assessment. Here we present a summary of findings, then an overview of hurdles for discontinuity-oriented scenario development, and we conclude with proposed challenges for future research on discontinuity.

1 Summary of findings

A typology for scenarios

Scenarios are coherent descriptions of alternative hypothetical futures that reflect different perspectives on past, present, and future developments, which can serve as a basis for action. In this thesis we presented our analysis of how the idea of discontinuity is addressed in scenario development. In order to develop an understanding of how the notion of discontinuity is addressed in scenario practice, we first established an overview of contemporary scenario studies. We examined approximately 100 studies carried out in the past 20 years. The development of a typology allowed us to organise the variety of studies into a framework in order to establish an overview of contemporary scenario practice. The 'macro' methodological characteristics of the typology were summarised in the 'scenario cartwheel' (Figure 1).

Broadly speaking, scenario exercises can be classified according to the studies' goal, the manner in which they are conducted, and the output that they deliver. Two basic categories of goals can be distinguished: exploration and pre-policy research. We also distinguished between two manners in which scenarios might be developed. On the one hand, there are intuitive approaches that typically involve elements of participatory work, workshops and interviews, for example. On the other hand, there is the more analytical approach that regards scenario development as a rigorous and systematic exercise. The resulting scenarios vary according to their complexity.

Discontinuity

We proposed the following definition of discontinuity in the context of scenario development on the basis of a literature review: a temporary or permanent, sometimes unexpected, break in a dominant condition in society caused by the interaction of events and long-term processes. We underpin this broad definition with several characteristics

of discontinuity: its intrinsic difference with established trends, dominant patterns or paradigms; its high impact; its irreversibility or partial reversibility; its interconnection with various types of events and long-term processes; its combination of physical and immaterial processes; and discontinuity's dependence on the perspective from which it is regarded. The role of perspective and perception in discontinuity implies that its occurrence might come unexpectedly. Lastly, in addressing different views on the relative speed of change in the consulted sources, we distinguish between abrupt and gradual discontinuity. Abrupt discontinuity is characterised by a relatively instantaneous break with the status quo. Abrupt discontinuity gives society a jolt, even if it is of a temporary and partly reversible nature. Although events play a dominant role in the occurrence of abrupt discontinuity, underlying processes are also influential. Drawing on the concept of transitions, we describe gradual discontinuity as a steady, continuous process of change that leads to the transformation of a society, or a complex sub-system of society, over a period of at least one generation. Events play a role, but slower moving processes dominate gradual discontinuity.

Discontinuity-rich and discontinuity-poor scenarios

The typology was used in a comparative review of 30 studies representing a cross-section of contemporary scenario processes. The review aimed to provide insights in the types of scenario studies that are congenial to the notion of discontinuity. The results from the review are presented in the scenario cartwheel in Figure 1. Our research revealed that discontinuity is not addressed in scenario development as a matter of course. Approximately half of the examined studies omitted the idea of discontinuity. Of those studies that did address the notion, most were exploratory in nature and produced complex scenarios. Two thirds of the discontinuity-rich scenarios were developed in an intuitive manner.

Influential factors in discontinuity-oriented scenario development

The sources of the studies that developed discontinuity-rich scenarios provided little information about how they were developed. In order to establish a more detailed understanding of relevant factors for the exploration of discontinuity we reconstructed the VISIONS scenario study, which we identified in our comparative review as one of the studies that produced discontinuity-rich scenarios. Using the reconstruction we analysed whether the scenario process that produced discontinuity-rich scenarios was discontinuity-oriented. The reconstruction addressed three types of issues: people involved in the study, methods and concepts, and procedural issues.

The VISIONS reconstruction did not result in the identification of a single success factor for the exploration of discontinuity. Instead, it revealed that an interplay of inspiring, impairing, and double-edged factors resulted in discontinuity-rich output. Examples of

these factors include group variety, team synergy, knowledge and expertise, open structure, and discontinuity guardianship. The reconstruction allowed us to formulate the following research hypothesis: discontinuity-oriented scenario development involves fostering the interplay of influential factors whereby inspiring ones are mobilised and impairing ones are quashed. The degree to which output was discontinuity-rich was the measure for our hypothesis and therefore the interplay of influencing factors was considered more relevant than the workings of individual inspiring factors.

Prototype for discontinuity-oriented scenario development

In order to test the hypothesis, we developed a prototype for a discontinuity-oriented experiment, named DISCO 1.0. The prototype was based on four factors selected from the VISIONS reconstruction: group variety, open structure, discontinuity guardianship, and underdeveloped methods and concepts. The experiment allowed us to observe a discontinuity-oriented exploratory process in a natural setting. Observations of the process indicated that the experiment's design provided a framework for discontinuity-oriented thinking in which the influence of impairing factors is reduced. The design is summarised in Textbox 1.

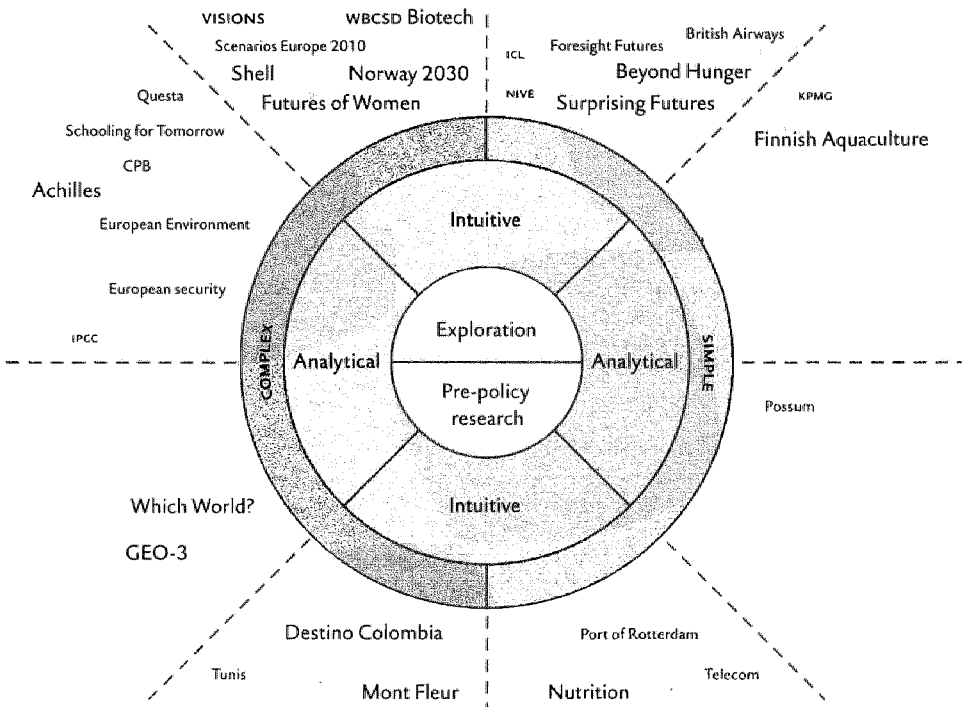


Figure 1 *The scenario cartwheel. Studies that include discontinuity are highlighted.*

There is not one single success factor for discontinuity-oriented scenario development. Like the VISIONS reconstruction, the DISCO 1.0. experiment demonstrated that several interacting factors contributed to the development of discontinuity-rich output. The experiment showed that it was possible to design a systematic and reproducible discontinuity-oriented process. We therefore conclude that the hypothesis withstood the first intellectual challenge.

Does discontinuity-oriented scenario development have a future?

In our research we came across various reasons why scenario developers might ignore the notion of discontinuity, such as methodological difficulties, institutional

DESIGN OF DISCO 1.0

Main factors in the design:

- group variety
- open structure
- discontinuity guardianship
- 3 discontinuity-oriented methods

Preparation

- Drafting of position paper for use as basic information for participants and for programming the idea of discontinuity

Staggered brainwriting *

- Group brainwriting exercise: what are key issues for the future of farmed salmon?
- Individual brainwriting exercise: what hidden developments might have a surprising impact on the future of farmed salmon?
- Clustering of ideas

Analogies *

- Presentation on the sinking of the Prestige (example of discontinuity)
- Presentation on the Brent Spar affair (example of discontinuity)
- Plenary: What analogies can you think of?
Which would you like to further investigate?
- Group session: 3 groups elaborate on chosen analogy
- Plenary: presentations of analogies for salmon aquaculture

Perspective-based imaging *

- Presentation: Perspectives in Cultural Theory
- Group session:
 - If 'your' perspective had a 'carte blanche' what would salmon aquaculture look like in 2033?
 - What would the path of development to that future look like?
 - What indications were there in the past 20 years to suggest that such a future might arise?
 - What abrupt or gradual changes might alter the path of development that you envisage?
- Plenary: Presentations of perspective-based images

Reflection on process

* = The methods can be applied simultaneously and independently rather than sequentially.

barriers and a failure to see the idea's relevance. It is reasonable to ask whether we are content to continue to be surprised, given the complications involved in trying to anticipate discontinuity. Discontinuity need not be a negative phenomenon. Moreover, we do not contend that all scenario studies need consider it. The decision to address discontinuity should be dependent on the goal and context of a study. To illustrate, the idea of discontinuity might not be given a high priority for the development of simple scenarios for assessing the short-term impact of a new product introduction in a stable market. The level of uncertainty in the issue might be judged to be so low that a focus on discontinuity would be irrelevant. Is it therefore worth the investment in trying to pre-empt it? Perhaps not! However, if the objective is to conduct an exploratory study of future societal developments then further research is beneficial in view of both the possibility of discontinuity and the relatively sparse research on the idea to date in the context of foresight and integrated assessment.

2 Hurdles for discontinuity-oriented scenario development

Our research demonstrated that many scenarios do not address the concept of discontinuity as a matter of course. Indeed, we found that discontinuity-oriented scenario development is more complicated than we anticipated. If we deconstruct the complications involved in discontinuity-oriented scenario development we learn that they manifest themselves on four interconnected levels: epistemological, analytical, contextual, and procedural.

Epistemological hurdles

On an epistemological level, the idea of discontinuity is difficult to grasp in scenarios because it describes events and processes in an uncertain, unknowable future. It is difficult to accommodate future discontinuity in present-day frames of reference. Instead, there is the tendency to reason from some evolutionary development whereby the future is considered to be a logical consequence of causal patterns in the past and present.

In Chapter 4 we indicated that a possible underlying reason for omitting the idea of discontinuity is that the evolutionary paradigm or the progressive image of the future is dominant in many visions. This paradigm reasons from the idea of incremental progress to the future, whereby excluding the idea of discontinuity. Herman Kahn^[1] draws our attention to the dominant tendency to think in conventional terms:

History is likely to write scenarios that most observers would find implausible not only prospectively but sometimes, even in retrospect. Many sequences of events seem plausible now only because they have actually occurred; a man who knew no history might not believe any. Future events may not be drawn from the restricted list of those we have learned are possible; we should expect to go on being surprised.