

Destination unknown

EU research missions must be able to change course as their questions evolve, says Stefan Kuhlmann.

Policymakers are increasingly drawn to the idea of transformative innovation policy. This takes the form of setting overarching strategic initiatives that include and enable deep changes to social, technological and economic systems. Part of this includes the turn in research agendas towards tackling grand societal challenges and meeting the UN Sustainable Development Goals.

Recently, this transformative turn has led to an interest in a mission-based approach to research policy at both national and EU levels. With [Horizon Europe's missions](#), the EU stands poised to make big, long-term, top-down commitments in science and technology, as part of a transformative approach to innovation.

The traditional image of a mission is a moonshot—set a target and go for it. But for most potential research missions, in areas such as climate change or public health, the questions cannot be defined in advance.

This means that being highly prescriptive at an early stage about what research should be done and what it should achieve risks failure. There's a strong case for a more tentative approach to policymaking.

Designers of mission-oriented policy should learn from past experience with the uncertainties and risks of emerging science and technology. Adopting a definite position and laying down clear rules from the outset can backfire, as was seen with genetically modified organisms.

Since the 1990s, policy on GMOs has been a subject of fierce dispute between consumers, producers, biotech companies, regulators, non-governmental organisations and scientists. Controversies have led to protests, litigation, international trade disputes, restrictive regulations in a number of countries, and ultimately to economic losses and shrinking public trust in science.

GMOs are a prime example of how it is often impossible to prescribe a certain desired outcome for emerging science and technology. The processes, actors and institutions involved are just too complex.

Lacking easy solutions, policymakers have moved towards a more explorative, contingent approach, searching for the right opportunities, breakthroughs and alignments and alliances of actors.

Over the past couple of decades this has evolved into an approach known as [tentative governance](#). This sees governance as a process, not an event, accepting uncertainty and responding to feedback, possibly becoming more definitive as time progresses and uncertainty decreases.

Instead of setting down fixed targets, tentative governance aims to create spaces for probing and learning. It is designed and practiced as a dynamic, open-ended process. It is prudent,

using trial and error and other learning processes, and preliminary rather than assertive and persistent. It seeks to retain flexibility and pursue incremental change.

Two decades' worth of policy initiatives in nanotechnology and genomics show the different ways to do tentative governance. All seek to cope with public concerns and potential risks before either is fully formed.

Examples include the Genomics Network supported by the UK Economic and Social Research Council; the Centre for Society and Genomics, [NanoNed](#) and [NanoNext](#) programmes funded by the Dutch government; the United States National Science Foundation's Center for Nanotechnology in Society; and the European Commission's 2008 [code of conduct](#) for responsible nanoscience and nanotechnology research. Even billion-euro research projects, such as the European Future and Emerging Technologies Flagships, now aim to achieve their goals through open and evolving consortia.

In all these initiatives, the approach to governance and regulation doesn't specify a particular route or destination. Rather, it aims to set a framework and nudge in a certain direction. The ultimate destination depends on the process. This attitude stems from the recognition that conditions are too complex to control, or a desire to explore the options.

There's a tension between the benefits of a tentative approach and the need to make policy and resource commitments—could tentative governance really amount to kicking the can down the road? There's also a tension between politicians' desire to be seen to be doing something—making decisive, ambitious announcements—and policymakers' greater awareness of complexity.

So we should not overestimate the role of tentative governance, but rather understand its potential and place among policymakers' tools. Clearly, both the inherent contingency of emerging science and technology and the likely nature of the EU's research missions requires rather tentative approaches to governance, though often in combination with more definitive approaches. The exact mixture will be a balancing act.

[Read the special issue of the journal *Research Policy* on tentative governance](#)

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