

Nano Futures in the Making: On the Modalities of Social-Scientific Scenario Building

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Nano & Society



Making Futures Present

On the Co-production of Nano and Society
in the Austrian Context

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Framings

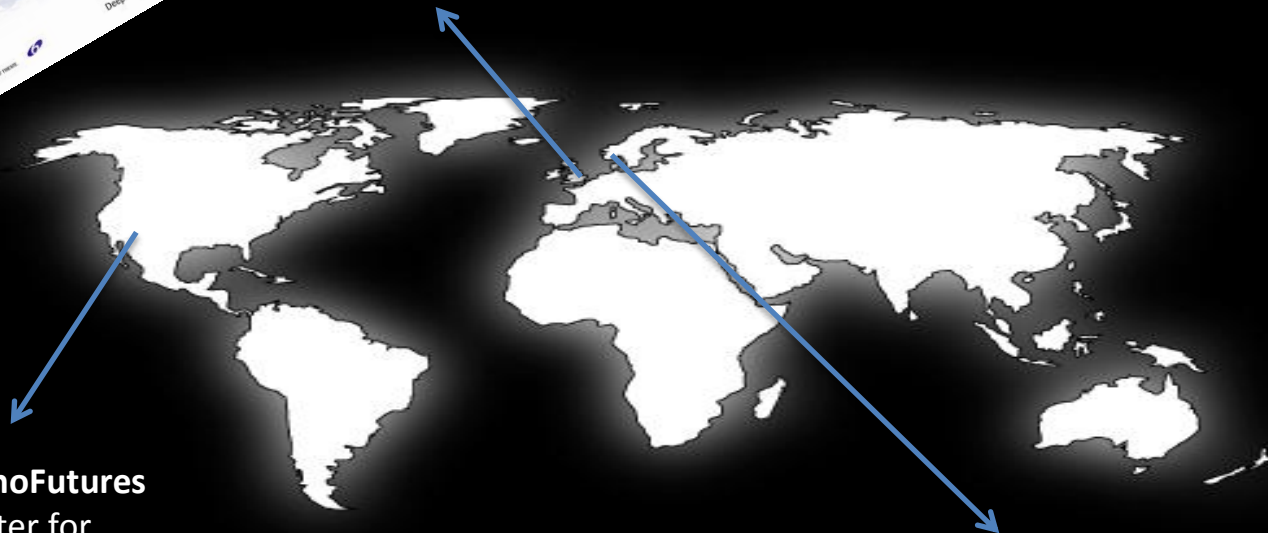
- A state of anticipation
- Nano and the assessment regime
- Social scientists and humanities scholars as constructors of technoscientific futures

Research Questions

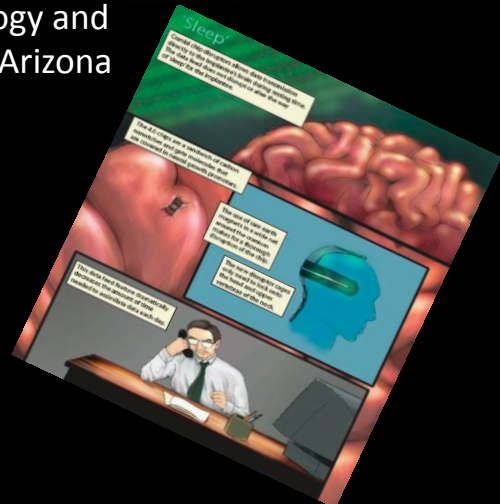
- What are the cultural, material, and intellectual resources that play into the creation of technoscientific futures?
- What are the theoretical assumptions and imaginaries that accompany this process and might it be possible to ascertain the geographies and politics of social scientific future making?



Project Name: **DEEPEN** (Deepening Ethical Engagement and Participation with Emerging Nanotechnologies)
Coordination: Institute for Hazard and Risk Research, Durham University, United Kingdom



Project Name: **NanoFutures**
Coordination: Center for Nanotechnology and Society, ASU, Arizona



Project Name: **TECHN01FE**
Coordination: Center of the Studies of Sciences and the Humanities, University of Bergen, Norway



Theoretical Background

- SSK and Laboratory Studies
- ANT
- John Law (2004) *After Method: Mess in Social Science Research*
- Livingstone (2003) *Putting Science in its Place*
- Akrich (1992) *The De-Description of Technical Objects*
- Jasanoff (2004) *The Idiom of Co-Production*
(2009) *Containing the Atom*
- Felt und Fochler (2009) *Coming to Terms With Biomedical Technologies in Different Technopolitical Cultures*

The Deep Hinterland

Imaginations of Method

Matters of Funding

- NSF Center grant funding versus European Framework funding

Institutional and National Background

- Funding agencies as carriers of political and economic
- Monetary resources translate into tangible structures
- National traditions of public inquiry
- Different sociotechnical imaginaries

Individual Resources

- Technologies shape how a project develops
- "Imagination" not "intermediaries"

Collaboration

- Collaboration has become a common practice
- Crucial question: Can these collaborations be harnessed as a resource?

Read

- Home
- Topics
- Start
- About

The following fictional scenes are extrapolations from current nanoscale research; they have been created for their technical plausibility by scientists currently working in nanoscale research. We hope these scenes will stimulate you to reflect upon the meaning, potentials and problems surrounding nanotechnology. The goal is to cultivate our collective ability to govern the implications of our technological agency.

Engorged Traces

What are your thoughts on synthetically grown tissues and organs?

Using these printing technology, this system is able to build tissues with a vascular structure enabling the building of new organs.

What are your thoughts on using crystal chips to enhance cognition?

This crystal chip features a data feed that puts information into the brain while the user is resting.

Automated Severe Surveillance

What are your thoughts on tracking individuals using their genetic material?

Ultra fast sequencing technology is used to analyze the DNA in harvested waste water, thus screening large populations.

What are your thoughts on diagnosing disease before you are ill?

Doc: in the future is a device that tracks an individual's protein levels to monitor changes that imply early stage illness or disease before symptoms emerge.

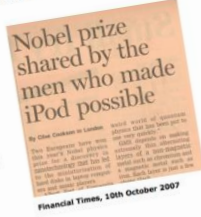
What are your thoughts on a barbed prison?



NANOTECHNOLOGY NOW: Applications and products

There are currently 580 products in the Project on Emerging Nanotechnology's Nanotechnology Consumer Products Inventory (up from 212 in early 2006), in addition to industrial use of nanotech.

“Current and potential areas of application include transport, manufacturing, biomedicine, sensors, environmental management, food technology, information and communications technology, materials, textiles, sports equipment, cosmetics, skin care and defence, though this list is by no means exhaustive. (Lloyds Insurance report, 2007)”



Some sunscreens use titanium dioxide nanoparticles to give a clear—rather than white—sun-blocking lotion.

NANOTECHNOLOGY NOW: Uncertainties and regulation

— MATERIALS —
—ive glass or

Alert over march of the 'grey goo' frankenfoods



Nanomaterials' surprising properties mean that their behaviour can be difficult to predict.

A recent report by insurance company Lloyd's notes that nanotechnology holds great promise, but that its impacts on human health and the environment are currently uncertain.



“...we need to know what nano-particles are hazardous to humans, and what concentrations are required to cause harm. Can nano-particles cause chronic health effects similar to asbestosis? The short answer is that we simply do not know.”

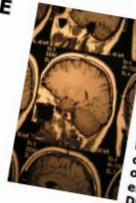
HAZARDS TO THE ENVIRONMENT?

Nanoparticles in the wider environment could pose a large number of species acting at level and impacting on the structure and function of the ecosystem as a whole. DEFRA (2007)



HAZARDS TO HUMANS?

The Government identifies as a research priority the need to understand the hazards which nanoparticles may pose to consumer, medical, occupational and environmental exposure. DEFRA (2007)



“Regulation of nanotechnology currently uses existing mechanisms with specific regulation under development. Stakeholders in nanotechnology have a wide range of opinions from seeing no need for additional regulation to believing that specific regulation is essential to mitigating the potential risks.”



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The Deep Hinterland

Matters of Funding

Institutional and
National Background

Individual Resources

Collaboration

Imaginations of Method

The Politics of
Public Engagement

Technologies
of Imagination

Theoretical Considerations

From Nano in General
to Specific Nano-Enabled
Applications

The Future as a
Resource to
Debate the Present

Focus on a Critical
Public Understanding of Science

- Function as a "hook"
- Serve as a boundary object
- Be provocative
- Provide multiple perspectives

Challenging the Risk Paradigm

Conclusions

- The fabrication of future narratives is a highly complex negotiation including a plethora of human and non-human actors, assumptions, interests, agencies, and performances.
- Such a perspective can inform the quality of social science research:
 - a.) Become more conscious regarding the politics of our own methodologies
 - b.) Learn from gained experiences
 - c.) Acknowledgment of "situatedness" might allow to produce different kinds of knowledge