

Who is afraid of research and
innovation?
Freedom of research and socially
robust knowledge

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We have been there before...

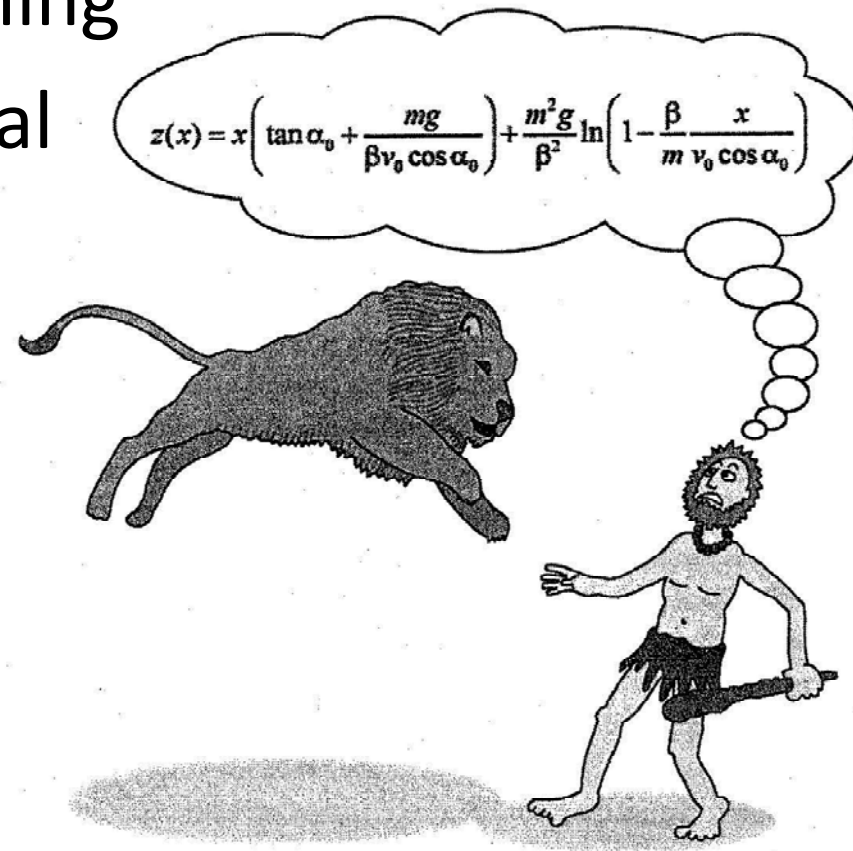
- Loss of trust, decrease of scientific authority, diluted expertise through internet, etc.
- BUT: science is still a highly trusted institution and
- A more highly educated public is expected to be more critical

Changes in the broader context

- The rise of New Public Management and of performance technologies
- Push for more evidence-based-policy (or policy-based evidence?), whose evidence
- > Impact assessment of putative economic impact
- New criteria for worth: people's lives as 'projects' (Boltanski and Chiapello, 2007)
- Changes in collective imaginaries

The presumed irrationality of fear – 1

- evolutionary bias of fear
- leading to social learning
- fear is what your social group is afraid of



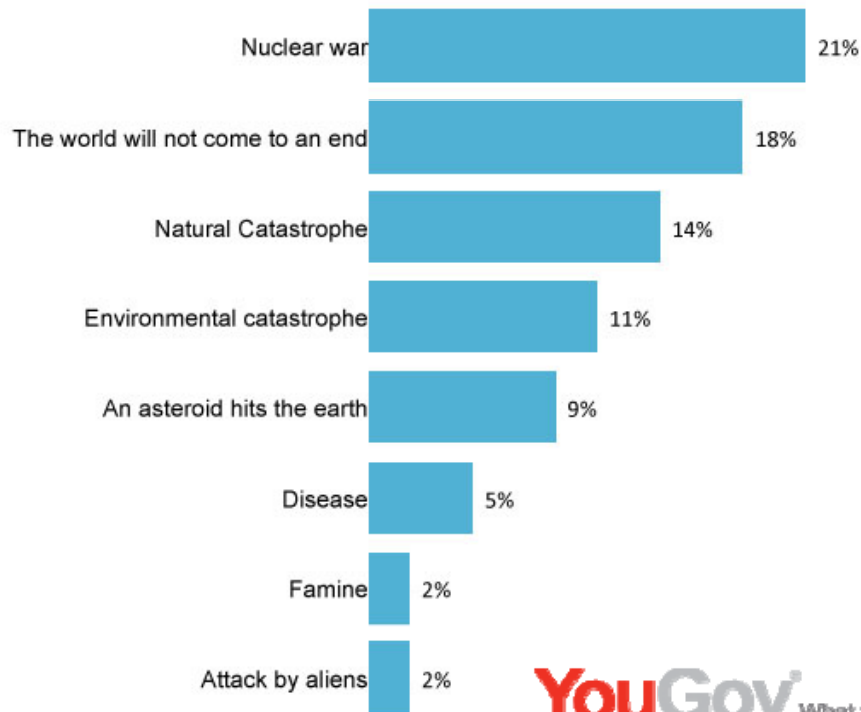
Displacement of fears: some historical examples

- Jean Delumeau: Les peurs au moyen age
- Barbara Tuchman, A Distant Mirror: The Calamitous 14th Century
- Keith Thomas, Religion and the Decline of Magic: Studies in Popular Beliefs in Sixteenth and Seventeenth-Century England

What the World Thinks

We asked if human life were to end, what was the likely cause. Nuclear war was the most feared at 21% followed by a natural catastrophe at 14% or environmental catastrophe at 11%. When we asked the same questions back in May 2011 only 15% of responders cited nuclear war.

If human life were to end what do you think would be the cause?



The presumed irrationality of fear - 2

- Top global threats today: climate change and financial instability (Pew Research Global Attitudes Project, March-May 2013)
- Survey of children in Netherlands: War, illness, death – spiders, snakes and darkness (Muris et al, 1997)
- MMPI: increase in emotional distress, restlessness, dissatisfaction, instability compared to 1940ies
- Internal-External Locus of Control Scale: decrease in sense of control; shift from internal to external values

Who is afraid of research and innovation?

- Science is largely accepted (except creationism)
- Protests mainly directed against technology, intertwined with social movements
- The economic and symbolic power of technology looms large
- Nuclear, biotechnology, GMOs, nanotechnology, fracking...

Techno-political imaginaries and regimes

- Ideas about national identity: articulated and rehearsed (G. Hecht, 1998, *The Radiance of France. Nuclear Power and National Identity after WW2*)
- Technologies as material realities and practices, based on technological choice
- U. Felt. *The case of Austria: imaginaries of the absent*
- GMOs in Europe as part of techno-political regimes
- Resistance against big agro-business: the rationality of modern luddites

Fear of research and innovation – or what is behind seeming resistance?

- A diffuse anxiety about the future
- Changes in the concept of future: more fragile and volatile
- Deficits in democratic participation
- Disregard of alternative options (e.g. results from citizens deliberations)

- Look for link to research and innovation

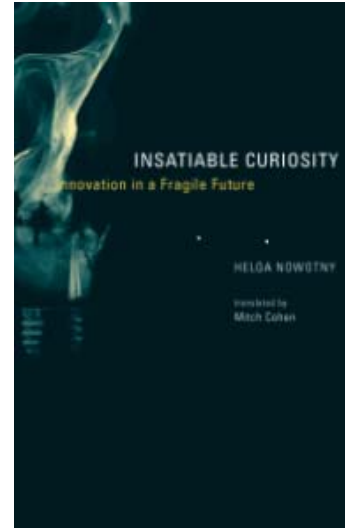
The Innovation Agenda and disruptive technology

- Clayton Christensen coins the word ,disruptive innovation'
- Research is seen as driver for ,disruption'
- J. Schumpeter (1911): ,innovation a two-sided sword'; innovation as ,creative destruction'
- BUT: biggest obstacle to innovation are vested interests and complacency, not fear of innovation

The changing role of science and research

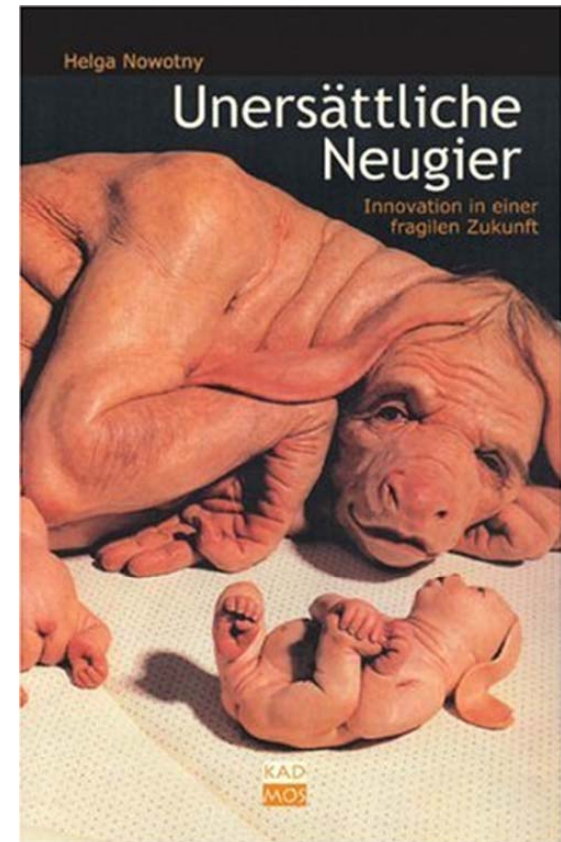
- Changing ethos of science: from disinterestedness to involvement with market
- R&D investment: research as driving force for economic growth
- Patents and performance indicators, start-up firms
- Human Genome Project: F. Collins vs. Craig Venter
- Reinforcement through media: hype and promises not kept

Science and democracy: Taming scientific curiosity



Unersättliche Neugier: Innovation in einer fragilen Zukunft, Kulturverlag Kadmos, 2005
Patricia Piccinini, The Young Family, 2002

- Risk discourse
- Innovation discourse
- Value discourse
- are we ready for a new discourse – the discourse of care ?



Freedom of research: science and values

- A flawed distinction: society = values vs. science = facts
- Science is based on the value of free scientific inquiry
- Two-tier thinking (Y. Elkana): 'body' of scientific knowledge and 'images' of science (beauty, elegance, principle of sufficient reason, etc.)
- Can societal values and values held by scientific community be reconciled?
- Excellence and societal relevance are not incompatible

Freedom of Research: Nature and the Social Order

- (Ab)uses of Nature to justify social order: property rights, slavery, gender inequality, aggression, the market....
- Search for ‚natural laws‘ as the immutable principles for social order
- BUT: images and concepts of ‚natures‘ are plural, culturally and historically mediated

Reconciling nature and technology

- Today: Nature can no longer survive without cultural intervention (M. Strathern, 1992)
- Climate change: limits of usefulness of idea that we are separated from nature; aspects of a single system
- Roots of distinction: goodness and truth in timeless above vs. everything is time-bound, evolving system, no fixed limits (Smolin, 2013)

How to overcome the distinction nature – artifact?

- Overcoming the fear of intervention and manipulation

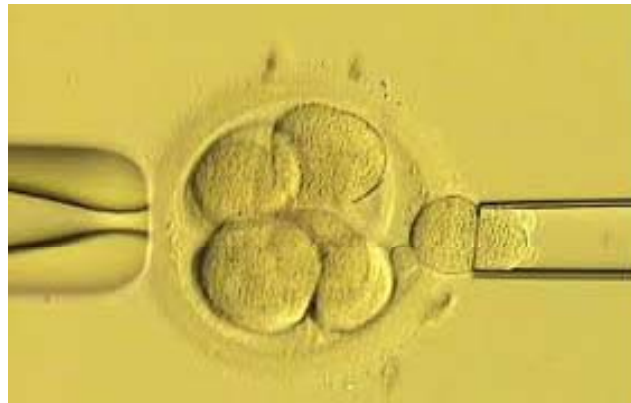


How to overcome the distinction nature – artifact?

- Imitating nature: biomimetic; self-healing (of animals)
- Emphasis on continuities; not only discontinuities
- The Shock of the Old (David Edgerton)
- Establishing compatibilities: Assisted Reproductive Technologies (e.g. three parents vs. adoption)
- Cultivating collective imaginaries



A successful example coupling biology and technology (Sarah Franklin, 2013)



Artificial/assisted Reproductive Technologies

- The visual logic of IVF
- Embryo watching: images of micromanipulation, aesthetically appealing and in real time
- Remaking nature as a technique; biology as technology
- Compatible with the logic of unassisted nature

Towards socially robust knowledge

„Contrairement à ce que managers, ingénieurs, politiciens et experts du risque voudrait nous faire croire, c'est la contestation massive des populations, des experts dissidents et des victimes qui conduit les départements ministériels, les industriels, les comités de sécurité et les cours de justice à modifier leur attitudes“. (D. Pestre, A Contre-Science, 2013)

Science and democracy: towards socially robust knowledge

- Science and democracy: creating spaces for negotiating a productive tension
- Towards shared collective imaginaries: the visual logic of involvement
- Overcoming the divide natural – artificial
- Making scientific knowledge socially more robust through continued engagement with society
- No reason to fear ‘fear of’