
AUSTRIAN INSTITUTE
OF TECHNOLOGY

What I'm going to talk about today…

- Visions, Technologies and Futures
- Visions of QT and a workshop in Karlsruhe, Jan 2025
- Boring Futures, challenges for impact assessment and risk assessment for QC

What are Visions?

- **Visions**
  - Preferable or desirable futures
  - „How does the technology make the world a **better** place and how does this world look/feel like?“
  - Visions hold **values** as they share ideas about how the world might be better or what the technology should prevent.

Technofutures

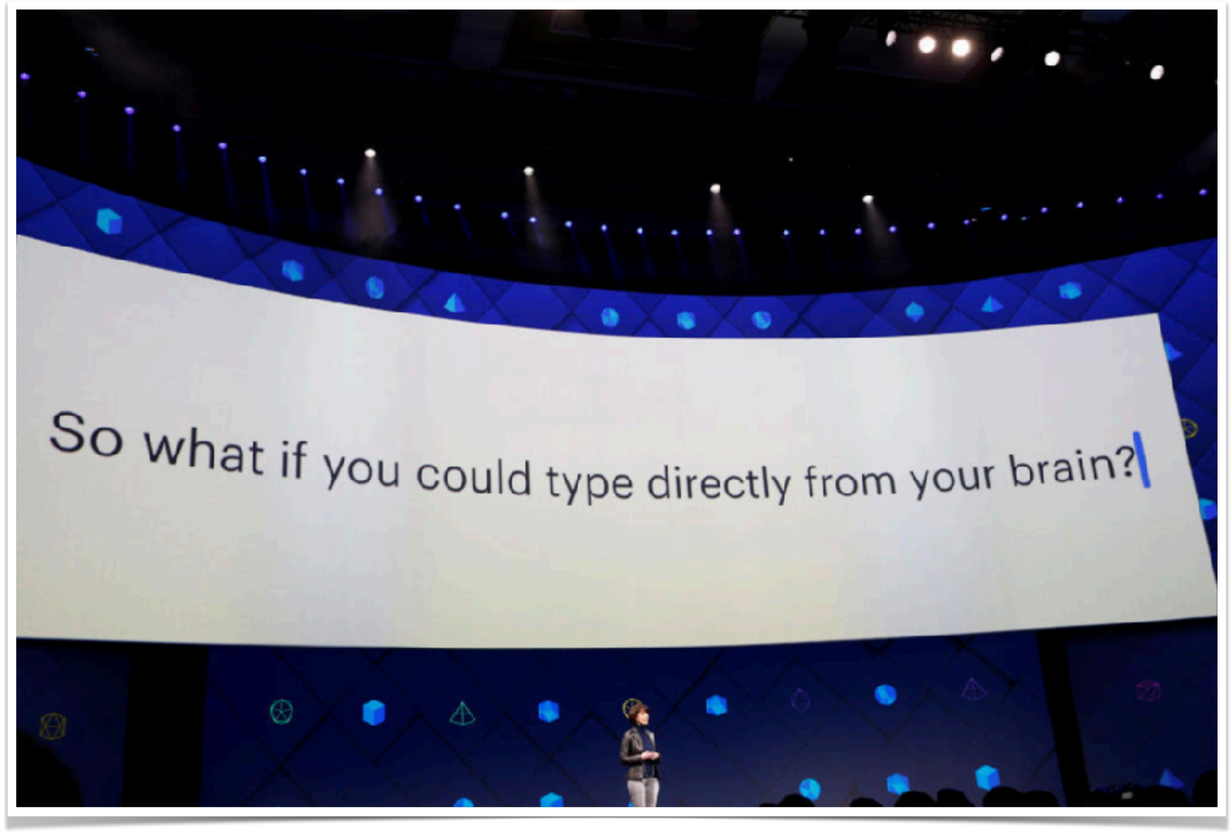
„If“ (alleged function)

„Then“ (alleged impact)

- Visions are (strategically) **used to…**
  - … communicate **hopes** and **fears**
  - … **allign actions** of a group of actors
  - … create **alliances**
  - … create attention through **hypes**

Example from Neurotechnology

- Facebook's Brain-Computer-Interface (2017)
  - **If** a device can read your thoughts
  - **Then** you can communicate directly with each other, without using thumbs, a smartphone or imprecise language
- **Values**
  - Faster communication
  - Higher „bandwidth"
  - Rising efficiency
- **Not reflected**
  - Privacy and Data security?
  - Feasibility?

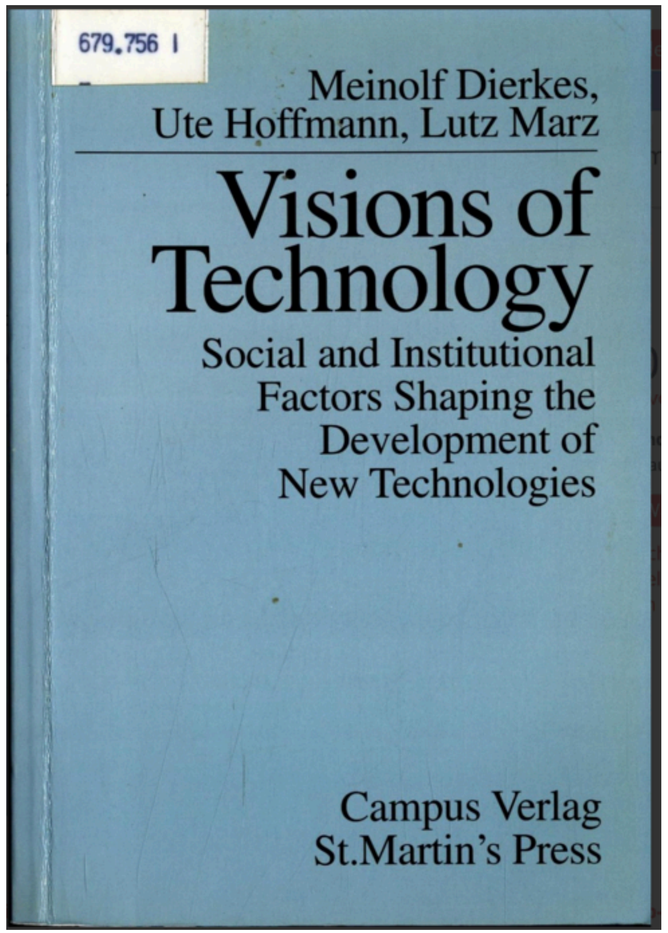


Regina Dugan's presentation of Building 8 (2017)

Visions as Leitbild

*„On the abstract plane, a technological ‚Leitbild' is a **general ideal**, a vision of a **desirable future** instant to be [linked to] the means of technology, a family of technologies, or a technological system. Describing a ‚Leitbild', though, conjures up generally comprehensible and concrete, **albeit technically imprecise**, images to scientists and even laymen (Rogers, 1990, p. 7)"*

(cited in Dierkes et al., 1996, p. 16)



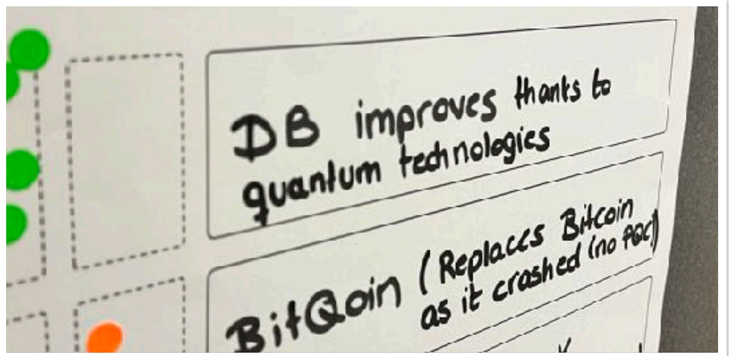
Rogers, Richard A. Visions dancing in engineers' heads. AT&T's quest to fulfill the Leitbild of a universal telephone service / Richard A. Rogers. - Berlin : WZB, 1990. - 53 Seiten , 2,2 MB. - Serie: WZB Discussion Paper. FS2/90-102.

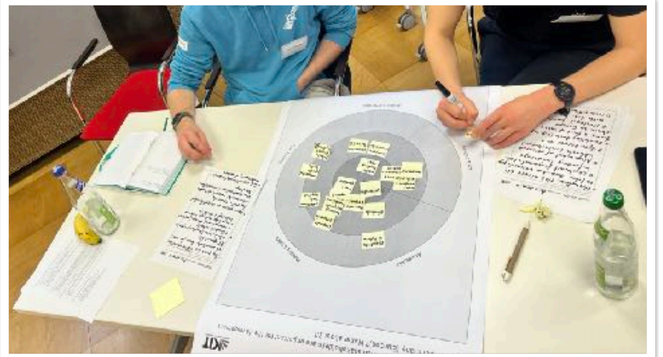
Dierkes, M., Hoffmann, U., & Marz, L. (1996). Visions of Technology – Social and Institutional Factors Shaping the Development of New Technologies (1st ed.). Campus Verlag.

Quantum Technological Vision according to ChatGPT

Vision Workshop on QT @ ITAS

- Research project by ITAS
  - Facilitated and planed by me, Adrian & Zeki
- **15 Participants**
  - Academia, Industry, Civil Society, Public Authorities, Art & Culture
- 2 days workshop
  - 1st day: Envisioning
    - **Where do we want go?**
  - 2nd day: Reflection and backcasting
    - **How do we get there?**





Common Vision

We are in 2045(+). Quantum technologies work! New technologies, like Quantum Computing and Sensing, are an additional available backend. As an invisible but important infrastructure, it has changed industries and optimized different sectors, leading to among others an efficiency increase in various fields. As an enabling technology, it is also followed by new applications...

Further, these technological advancements have also led to environmental, cultural and social changes. Not only on the national but also on the global scale.

The pioneers of the field, i.e. the companies and countries that supported the development and research early on, are now harvesting the fruits of their efforts.

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- Heterogenous group of stakeholders – no strategic biases
- Least common nominator and rather unspecific (e.g., social changes), but also: nothing about quantum mechanics (conversation change, see Ignacio's talk)
- What's important is „invisible but important infrastructure"

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„Sounds like a boring future to me“

What makes a Boring Future?

- „QTs appear today as an **extension of previous technologies** that could significantly **enhance or accelerate**. It is a problem to find whether QTs can bring something **truly new, original, to the current technological landscape**.“ (Luca Possati, 2024, p. 7)

- Attempt of a definition
  - Boring Futures are narratives of the present world + a new technology that are **not disruptive** but continue / ensure the way we are living and what we are doing today; they are not adding, subtracting or change something in the the actual world (at least not in an obvious way)
  - They are can be about **infrastructure technologies**, which become only apparent when they are not functioning anymore
  - In these futures, the technologies and their results **remain invisible to the enduser** (e.g. GMO’ed cucumbers).
  - **No direct impacts to assess** (everything stays the same, just more efficient), potential challenge for impact assessment (?). HOWEVER, the risk of Boring Futures lies in their boringness…

Example: Quantum Computing

- Vision: **If** we get QC to run, **then** everything will be more efficient

- QC is QT at the fringe from lab to market – Business Model becomes important to assess
  - Business Model: Building Platforms (QC accessed through **Cloud Computing** and paid based on user time)
  - Benefit: Everybody can use it (theoretically) without building the necessary machines
  - Risk: „The real risk is (…) the development of QTs as a **power in the hands of a few groups of people** that manage them esoterically, exclusively, imposing their rules on everyone else.“ (Possati, 2024, p. 11)
  - Geopolitical: Quantum Supremacy (USA vs. China and Europe in between), Quantum Divide (global south v north)

- QC as a **platform business** (not social media)
  - Rising **Digitalization** also means **privatizing sensible infrastructure**; shifting power to tech developers

Boring Futures might need new framing for Imp. Assessment

- Platform Capitalism (Srnicek, 2016)
  - Digital companies organize societies by controlling infrastructures
- Enshitifcation (Doctorow, 2022)
  - A platform turns to sh*t through a predictable, profit-driven cycle.
  - Early: User-first -> Mid: Business-first -> Later: Self-first
- Broligarchy or Tech-Facism
  - Organization of sensitive infrastructures transferred to private companies (neoliberalism)
  - These companies are politically influenceable
    - Example: Musk's Starlink and the Ukraine war

Mark Zuckerberg, Lauren Sánchez, Jeff Bezos, Sundar Pichai, Elon Musk

https://pluralistic.net/2022/11/28/enshittification/#relentless-payola

Remaining questions…

- How can we avert the risk of a power shift?
- Can we ensure an optimization of sensitive infrastructures without political influence by tech giants?
- Might a European sovereignty in QT be the answer?

- And general: It needs critical technology foresight / technology assessment as a continuous tool for responsible QT development.

Is QT really boring?!??

„The **current challenge** seems to be finding something that QTs do **which is not yet already done** (apart from doing things faster or more securely).“ (Possati, 2024, p. 7)

- Of course we can ask…
  - … are Futures of QT really boring or is QT boring?
  - … are we at a stage where we can just imagine QT as boring because we are not far enough and can not imagine what is to come?
  - … or are (currently) just a few people able to develop non-boring QT futures?

Thank you

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Wenzel Mehnert

- Hintergrund:
  - Kultur & Medienforschung mit Fokus auf Science-Fiction
  - Zukunftsforschung
- Imaginationsforschung
  - Vorstellungen von emergierenden Technologien
    (z.B. Neurotechnologie, K.I., Climate Engineering, uvm.)

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