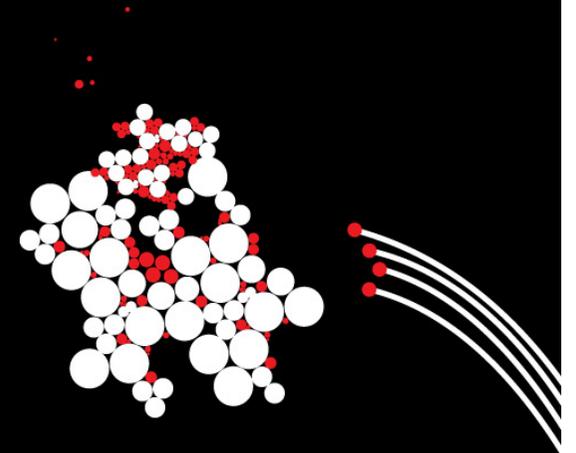
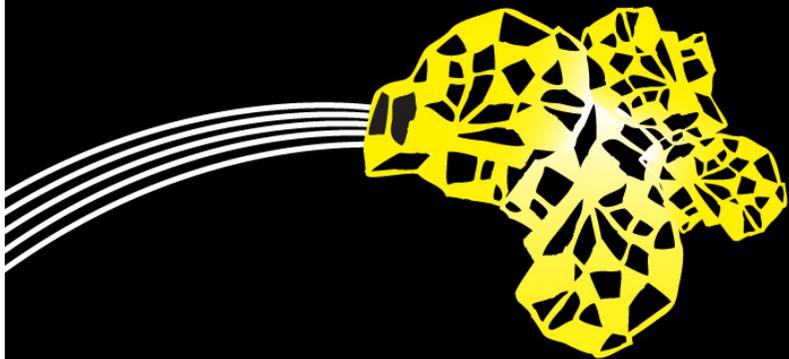


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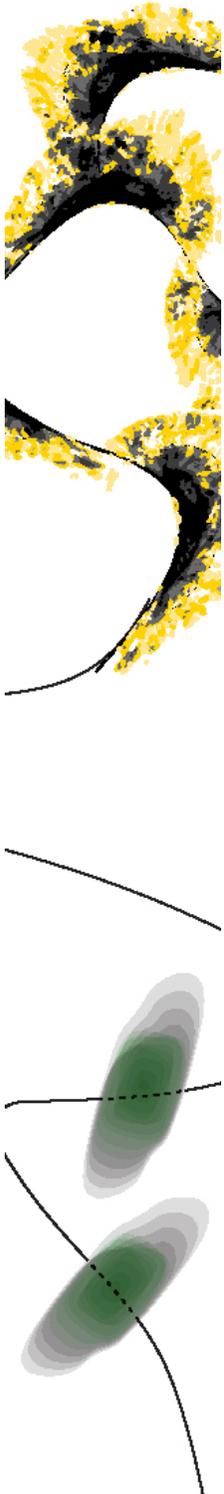


Transformative innovation policy addressing Grand Challenges



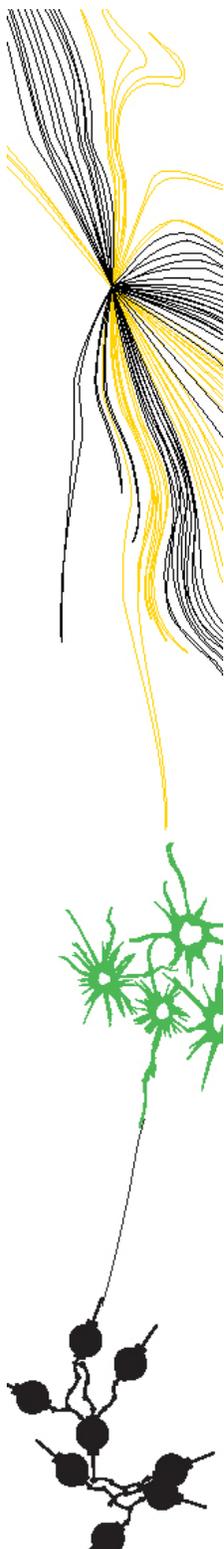
Prof. Stefan Kuhlmann
SI Conference, Brussels, Oct 2017





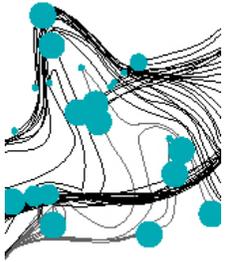
Grand Societal Challenges (EU Horizon 2020)

- **Health**, demographic change and ageing
 - **Food security**, sustainable marine and maritime and inland fisheries and **Bioeconomy**
 - Secure, clean and efficient energy
 - Smart, green and integrated transport
 - **Climate** action, **environment** and raw materials
 - Europe in a changing world: **reflective societies**
 - **Secure societies** - protecting Europe and its citizens.
- Strong claims
 - High expectations
 - Complex issues
 - Need for social innovation
 - Locally & globally



Governing Grand Challenges?

- Grand Challenges (GC) as priorities for R&D and innovation stimulation? Yes, but ...
- ... GC not comparable to Manhattan Project or Apollo Project = unambiguous missions.
- Rather, GC pertain to **heterogeneous and “new” actors**, locally and internationally, to be mobilised, guided and **integrated**.
- GC require also **social** innovation, in a broad sense.
- GC: **open-ended missions**, concerning the socio-economic system as a whole, involving heterogeneous actors, even inducing (or requiring) **system transformation**.
- Addressing GC creates a **challenge for science, technology, and innovation policies – the “other GC”**
(Kuhlmann & Rip 2014; 2017).

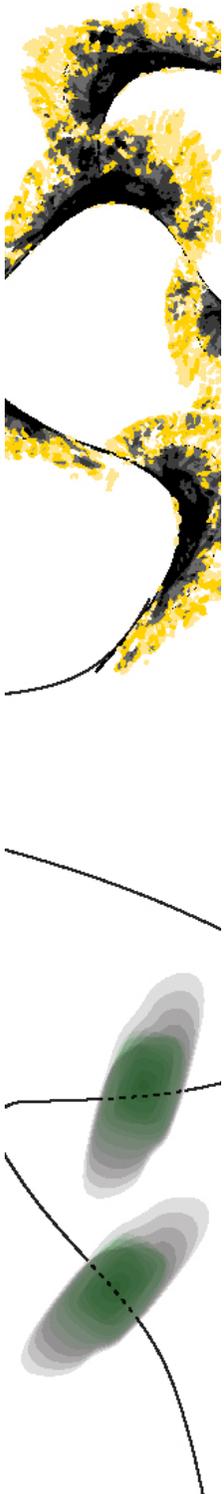


Revised Lund Declaration on GC (2015)



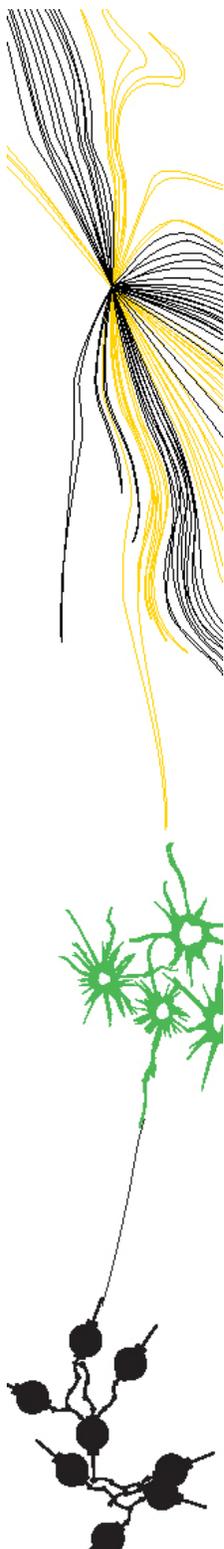
- Suggested requirements on KRIS and key actors in Europe:
 - A “**clear political commitment** to step-up efforts to align strategies, instruments, resource sand actors at national and European level”.
 - “an **excellent science base**, world-class research infrastructures and a new generation of researchers with the right set of skills, notably creativity, entrepreneurship and innovation”.
 - “to connect with **partners around the world**, in advanced, emerging and developing countries”.
 - “to address the grand societal challenges in partnership and to attract the world’s **best researchers** and innovators and **private sector investment**”.
 - “Greater impacts on the challenges have to be achieved through (...) a stronger focus on **open innovation** and the role of **end-users**”.
- However well intentioned, quite traditional ways: about priorities and funding, continuing with existing institutions, roles and division of labour.





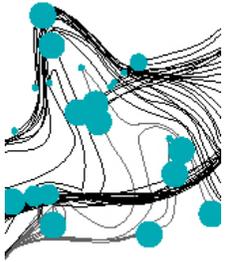
'Nature' of Grand Challenges?

- Strategic initiatives required to address a particular GC will depend on its '**nature**'.
- 'Nature' reflects what relevant actor coalitions consider as '**problem**' and key points of leverage.
- Definition and articulation of a GC are result of evolving social perception, contestation and **negotiation**.
 - GC = inevitable developments, requiring *adaptation* measures
 - GC = influenceable, requiring *mitigation* measures
 - GC = *desirable* development (like better agriculture)
 - GC = *undesirable* development (like clean water shortage)
- **Anticipation** and Scenarios will help to explore, reflect and articulate changes and strategic initiatives.



Our take on the 'other Grand Challenge' I

- **No one-fits-all** policy approach
- Go for **policy mixes** drawing on
 - classical *priority setting* and implementation approaches
 - *demand-side* and procurement policies
 - *System transformation* efforts

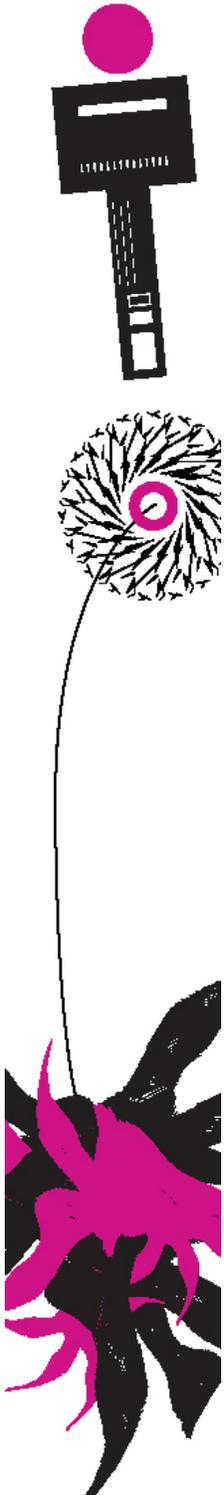


Our take on the ‘other Grand Challenge’ II

■ Focus on **system-oriented strategic interventions**

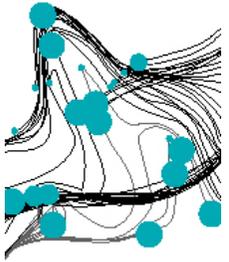
- *Experimental* in design, in search of new framings (e.g. Schot & Steinmueller 2016)
- *New combinations of actors and alliances*
- Facilitate *anticipation*: foresight, articulation of needs and negotiation
- Including *out-of-the-box* approaches
- Pro-active *discontinuation governance* on incumbent socio-technical systems (Stegmaier, Kuhlmann 2014)
- Strong *international* collaboration, including *emerging economies* (e.g. Kuhlmann & Ordóñez 2017)
- “*Concertation*” of actors and efforts





Concertation of new actor constellations

- Understand concertation as *'meta-governance'*, i.e. “organising the conditions of governance” (e.g. Jessop 2002)
- Embed concerted action in *'creative corporatism'* (e.g. Ornston 2012)
 - Involve *key actors*, both *incumbent* (public policy and industry) and *'new'* (e.g. start-up communities, charitable foundations, CSO), open to public interest goals, internationally
 - Identify *coordinating change actor*, trustable, non-partisan, ready to invest: governments (& alliances)
 - Enable *intermediary organisations* and *spaces* for interactions for experimentation, without master plan



Concertation through tentative governance



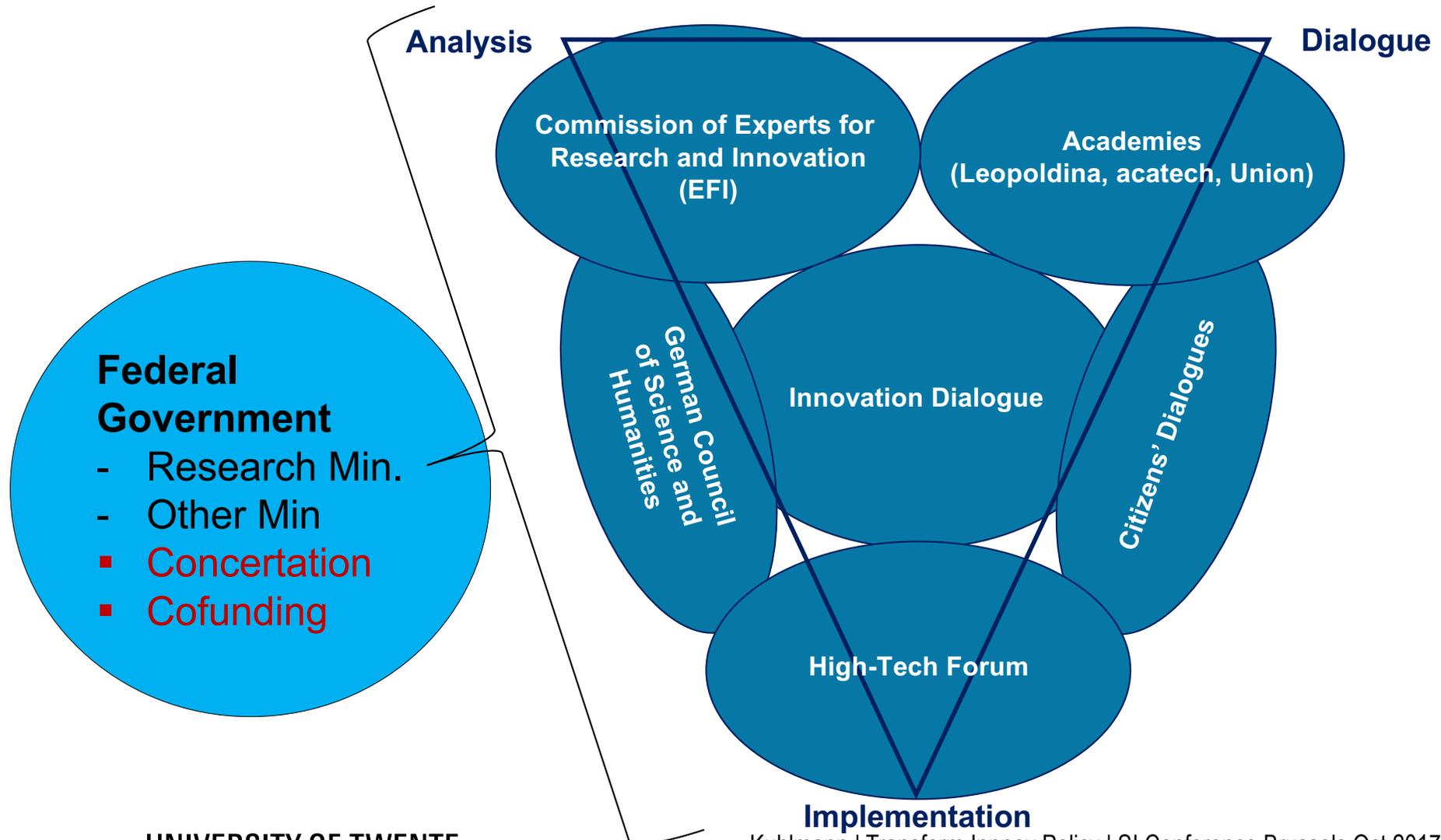
- Major **public-private-societal initiatives** need a *'tentative' concept of governance*
- **Tentative governance** is designed, practiced, exercised or evolves as a particularly dynamic process (Kuhlmann et al. 2017)
 - to manage interdependencies and contingencies in a non-finalizing way
 - rather prudent and preliminary than prescriptive and persistent
- It creates **spaces of openness, experimentation and learning**
 - instead of trying to limit options for actors, institutions and processes

Recent examples

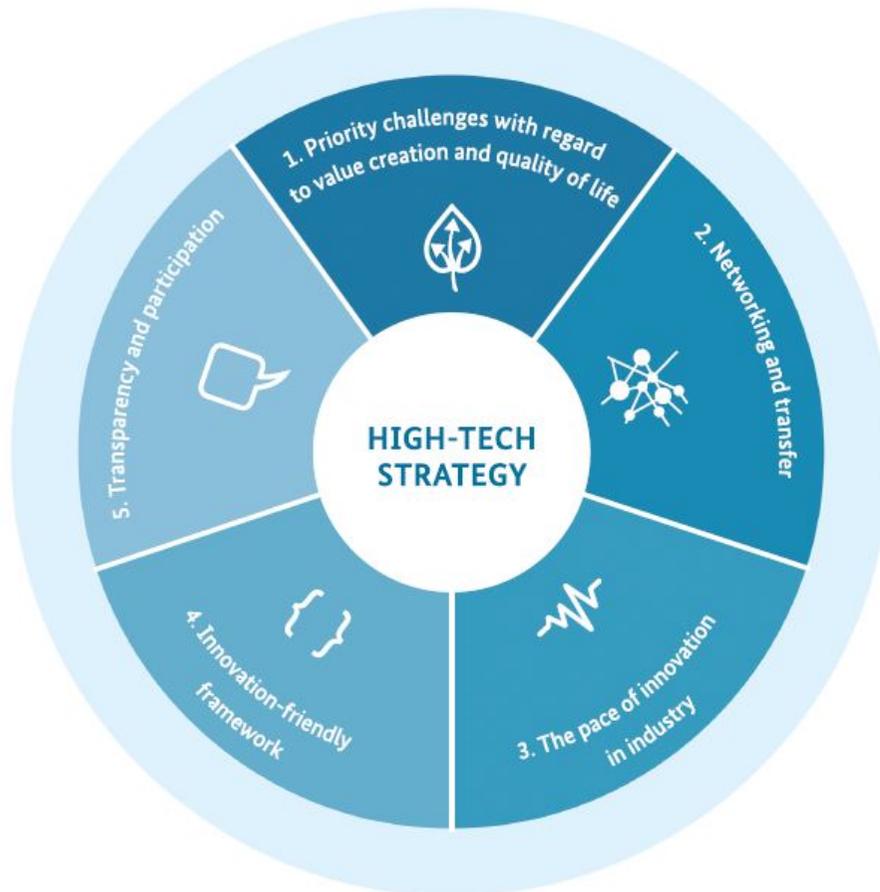
- German High Tech Strategy
- Dutch National Science Agenda
- European Joint Technology Initiatives

Model cases?

Example: German High-Tech Strategy (HTS)



Example: German High-Tech Strategy (HTS)



Five core elements (2014+)

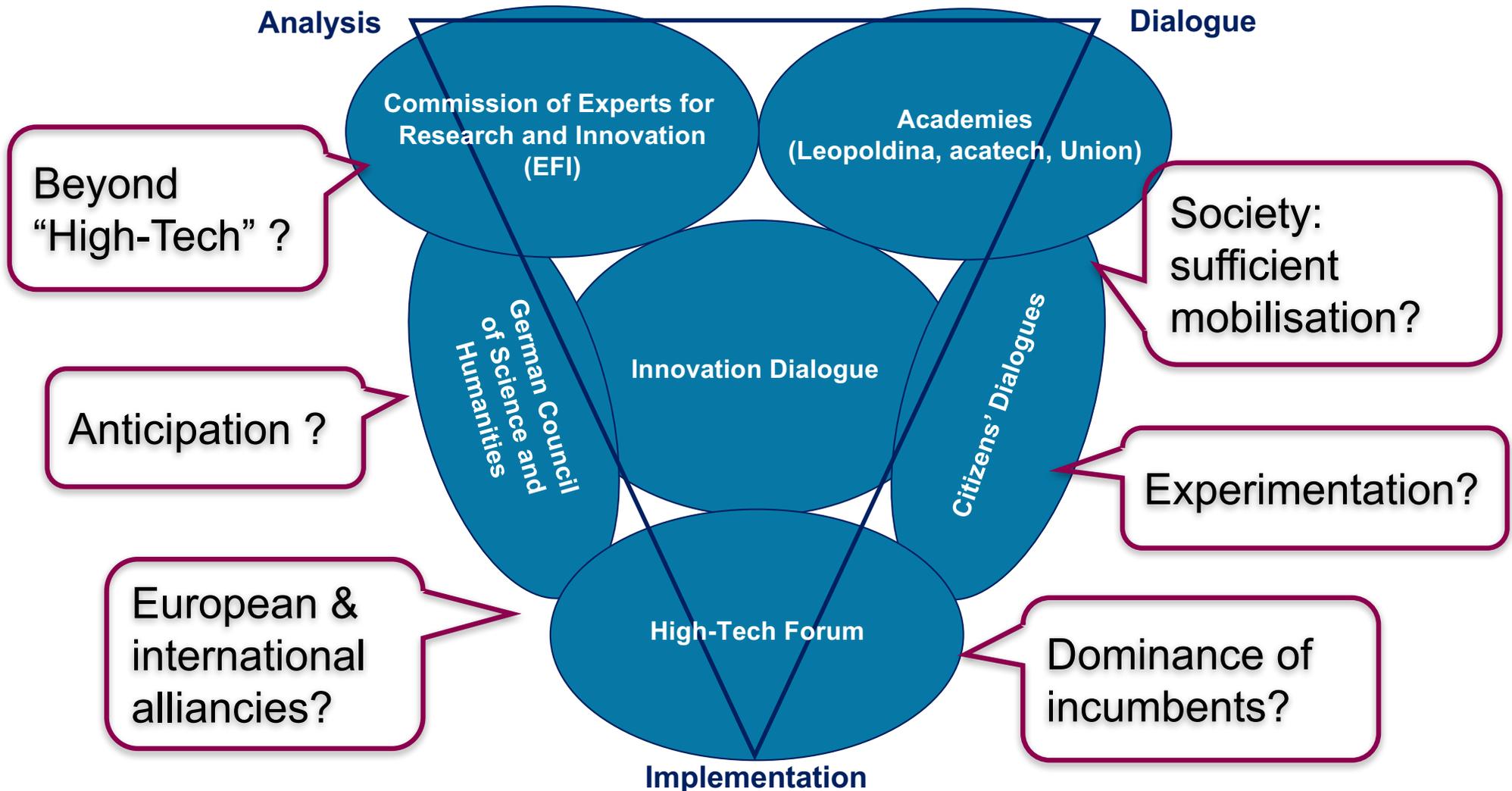
1. Focus on priority challenges
2. Better transfer
3. Higher innovation dynamics in industry
4. More favourable conditions for innovation
5. Stronger dialogue and participation

HTS Core Element 5: Transparency and participation

- Strengthening openness to technology, and creating opportunities for participation
 - E.g. Expanding “Innovation
- Promoting dialogue with citizens
 - E.g. “Dialogues with Citizens” formats
- Expanding science communication
 - E.g. “House of the Future”
- Agenda processes – en route
 - E.g. invite stakeholders to
- Creating transparency, strengthening

- Ambitious
- Vague ...

HTS Concertation Arena



HTS as Change Agent?

- HTS could adopt role of a pro-active broker and **change agent** ‘navigating’ transformation processes.
- **Three roles** for HTS as change agent addressing GC:
 - HTS would create **spaces** where various relevant actors would work together on future directions and societal agenda building
 - Defining and/or managing **concerted action**, perhaps as a contractor for specific jobs, also drawing on public-private consortia
 - occasional **assessments** of how far the work towards Grand Challenges has come, including a better understanding of the nature of the various GC.
- HTS needs **competence in ‘navigation’**: diagnostic and prospective studies (‘Strategic Intelligence’), networking, consulting stakeholders, deliberation, moderation of negotiations, and ability to package and perform.

Example:

National Science Agenda (NL, 2015-16)

- **Web-based open inquiry:** everybody in NL could submit questions to academic research. Individuals, academic institutions, businesses and CSO submitted some 11,000 questions
- **Jury process, assessment and selection of questions:** Five academic juries, appointed by the 'Knowledge Coalition', clustered and assessed questions, coordinated by Royal Netherlands Academy for Arts and Sciences (KNAW)
- **Three conferences:** questions discussed with academia (Science for Science), economy (Science for Competitiveness) and society (Science for Society)
- **Result: National Research Agenda,** major research priority and investment catalogue (1 billion € extra) presented to public and politics
- **Main achievements (so far):** raised attention and public awareness for role of science and innovation for grand societal (and other) issues. Quite inclusive; good 'concertation'; experimentation? New forms of collaboration beyond research?



Innovative Medicines Initiative

Example: Joint Technology Initiative

- Innovative Medicines Initiative (IMI)
- Aiming to “improve health by speeding up the development of, and patient access to, innovative medicines, particularly in areas where there is an unmet medical or social need”
- partnership of EU (H2020) and European pharmaceutical industry (European Federation of Pharmaceutical Industries and Associations)
- Associate or project partners: patients, regulators, procuring organisations
- €3.3 billion budget for the period 2014-2024 (from EU, industry, associate partners)
- Enabled and concerted by European Commission (FPs); how inclusive?

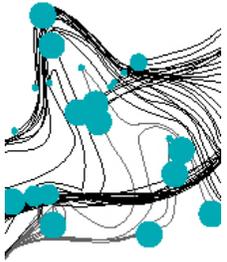


Conclusions I



- Understand GC as **chance** for strategic reflection, large scale experimentation and transformation of knowledge and innovation systems
 - Understand and shape **meta-governance**
 - Create **spaces for social experimentation** (explorative, tentative)
 - Develop active **discontinuation** governance
 - Allow for **transformation** of institutional settings



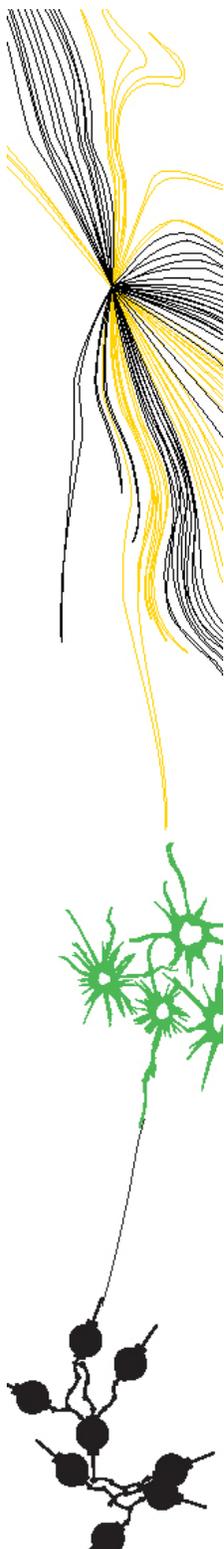


Conclusions II



- Consider “**creative corporatism**” as a mode of meta-governance to address GC and facilitate transformation
 - Facilitate inclusion of ‘**new**’ **actors**
 - Enable **concertators** and **change agents**
 - Warrant strong **support** by government(s) (e.g. Mazzucato 2013)
- Think and act globally: for which GC would a country or alliance become a **global leader**, or a strong contributor?
- **Pressing concern: Change agents need strong support by publics and parliaments!**





Outlook: focus on capable change agents

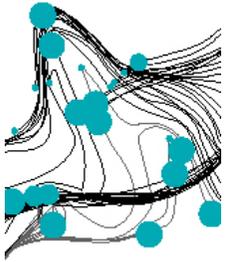
- Transformation related concertation and learning require new **capabilities and capacities**
- Change agents need **capability in ‘navigation’**:
 - Diagnostic and prospective studies (‘Strategic Intelligence’), consulting stakeholders, deliberation, moderation of negotiations, ability to package and perform (‘Responsibility Navigator’, Kuhlmann et al. 2015)
 - For ‘meso-level’ actors (ministries; funding orgs; boards of research orgs, companies, CSOs, charities)
- Capacity building through professional and scholarly efforts such as the Eu-SPRI Forum



Responsibility
Navigator

EU
SPRI

European Forum for
Studies of Policies
for Research and Innovation



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