

NAVIGATING SOCIAL ACCEPTANCE FOR LARGE TECHNOLOGY INFRASTRUCTURES – HOW TO ESTABLISH THE SCIENCE-SOCIETY DIALOGUE?

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OUTLINE

- Large (energy) technology infrastructures and public acceptance – what issues are we navigating?
- Factors of social acceptance at socio-political and community levels – a framework
 - Public perception and acceptance: Different technology pathways
- Science (communication), society and participation
- Finally, some food for thought...



CENTER FOR INNOVATION SYSTEMS AND POLICY

FOUR RESEARCH FIELDS

Digitalisation & Disruptive
Technologies

Rationales, Governance &
Instruments of RTI Policy

Decarbonisation, Societal
Challenges & crises

Innovation Systems & Digitalisation

- Industrial transformation
- Start-ups and scale-ups
- Societal responsibility and industrial strategies

Innovation Policy & Transformation

- Mission-oriented (innovation) policy
- Formative evaluation and policy learning
- Participation and capacity-building

Innovation Dynamics & Modelling

- ISP Data Infrastructure & Analytics
- Network-based positioning indicators
- Modelling toolbox

Societal Futures

- Strategic Foresight
- Emerging technologies and ethics



STARTING POINT AND BACKGROUND

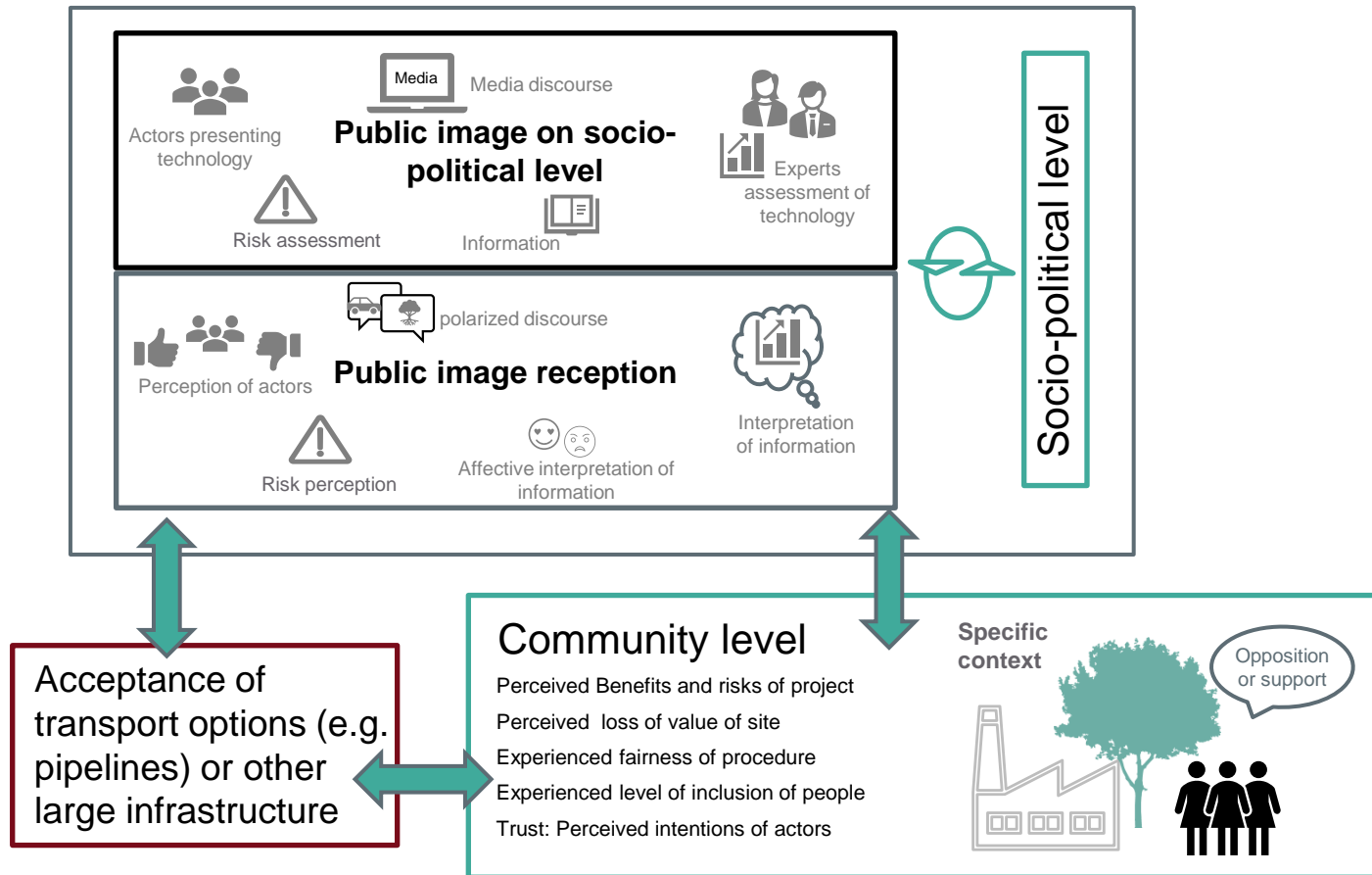
Starting Point:

- Based on a contribution to the Science and Technology Studies (STS) by addressing the underrepresented topic of social acceptance of a technology (CC(U)S) with growing importance in climate strategies
- Extensive literature on local community support or opposition to renewable energy projects focuses mainly on technologies like wind turbines, PV, and biomass; but less attention on CC(U)S technology and its social acceptance
- Highlight interplay of emotional dynamics, trust mechanisms, and transformation for sustainable energy goals
- Extensive experience in stakeholder engagement, science-to-policy dialogue formats as well as Transformative Research

COMPARISON OF DIFFERENT TECHNOLOGY PATHWAYS – SOME FINDINGS FROM AUSTRIA

- Strong empirical findings on water, wind power and PV:
 - High public acceptance of (new) water and wind power plants in Austria (perceived as relatively clean and safe RET), rather strong political and social consensus (Horvath & Gutschik 2009)
 - Water power plants – strong expansion since 1950ies in Austria; historically the main pillar of RET in Austria besides biomass (concerns: ecological considerations regarding re-naturation of rivers)
 - Wind turbines – (market) diffusion since 1990ies; especially since establishing framework conditions by Ökostromgesetz 2002 (strong dependency on regulatory and financial aspects/subsidies) (e.g. Biermayr et al 2020) (concerns NIMBY problem, often dependent on a complex set of individual and collective preferences rooted in institutional and socio-political arrangements (see Scherhauser et al 2017)
 - PV installations often linked to discussions on smart grids (see Seidl et al 2019, Broman et al 2014, Devine-Wright & Batel 2017)
- Fracking/shale gas production: links both to local and global impacts
 - Discussion on energy security, regulatory issues and environmental impacts (e.g. Jones et al 2021, Bauer 2021, Van de Graaf et al. 2018, Lang 2014); EIA (Environmental Impact Assessment) became mandatory by law after public and political protests in 2012 and ended shale gas exploration in Austria)

COMPLEXITY AND MULTIPLE LAYERS OF SOCIAL ACCEPTANCE



State of the Art (based on study on CCS)

Factors on socio-political level

- Concerns about safety
- Distrust in provider, scientists and politicians
- Perceived level of risks and benefits for society

Factors on community level

- Emotional dynamics
- Place attachment
- Trust
- Perception of risks and benefits for the community/one self)

Factors influencing acceptance of transport (pipelines)

- Public depends on CO2 source, transport option and storage location
- Risk perception of transport on socio-political level and community level

Sources: Nielssen et. al 2022, Rombouts 2022; Karytsas et al. 2023; Kunda, 1990; Taber and Lodge, 2006; D'Souza and Yiridoe, 2014; Termel et al. 2012, Midden and Huijts, 2009; Witte 2021; Dütschke et al. 2016; Gough et al. 2014

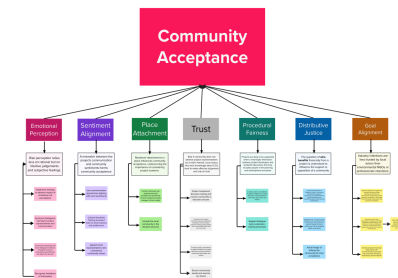
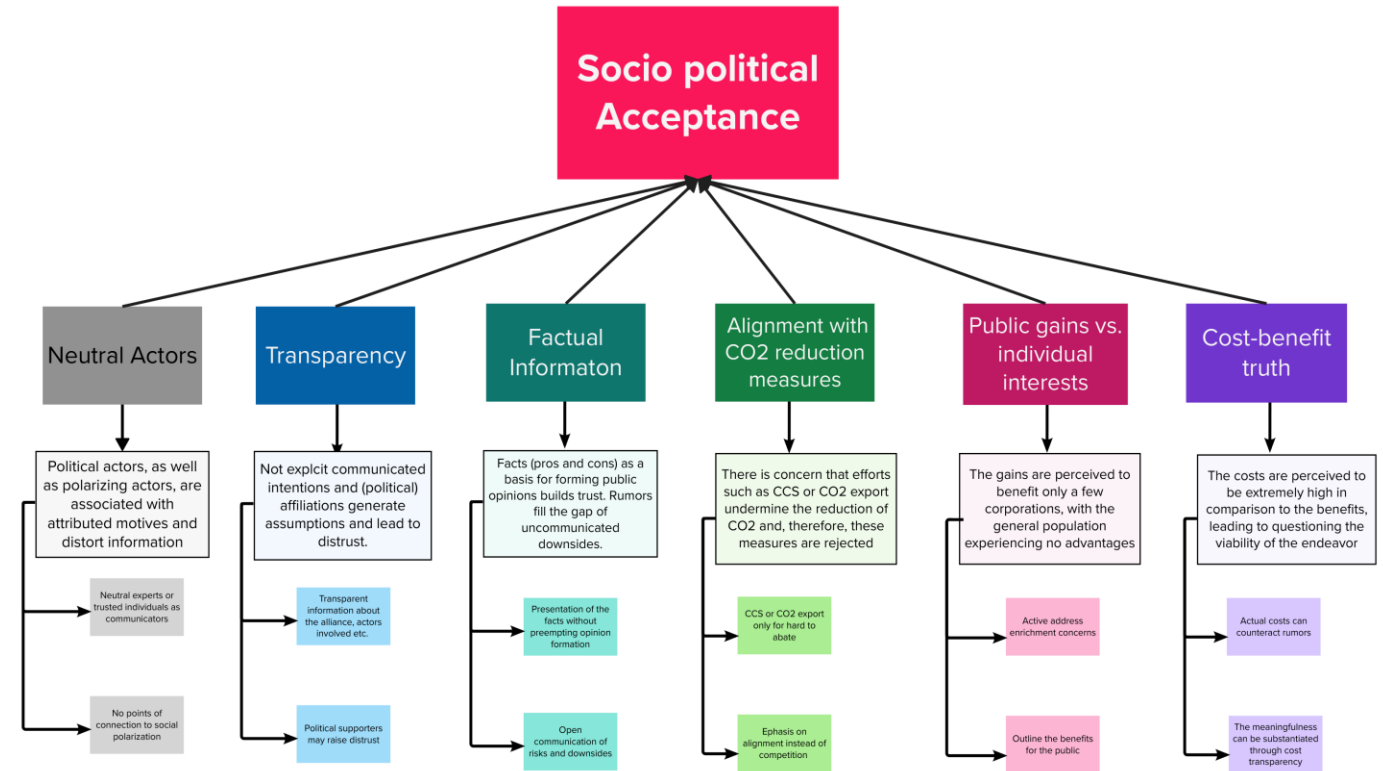
KEY FACTORS FOR SOCIO-POLITICAL AND COMMUNITY ACCEPTANCE

Socio-political

- Transparency
 - Public gains vs. individual interests: Perception
- Neutral actors
- Alignment with CO2 reduction measures

Community acceptance

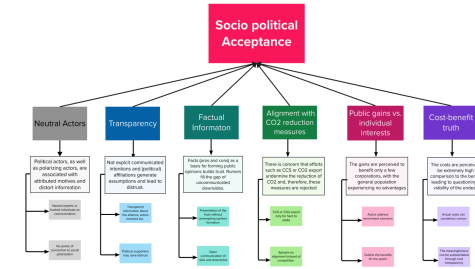
- Emotional perception
 - Sentiment alignment
- Trust
 - Procedural fairness, distributive justice
- Goal alignment



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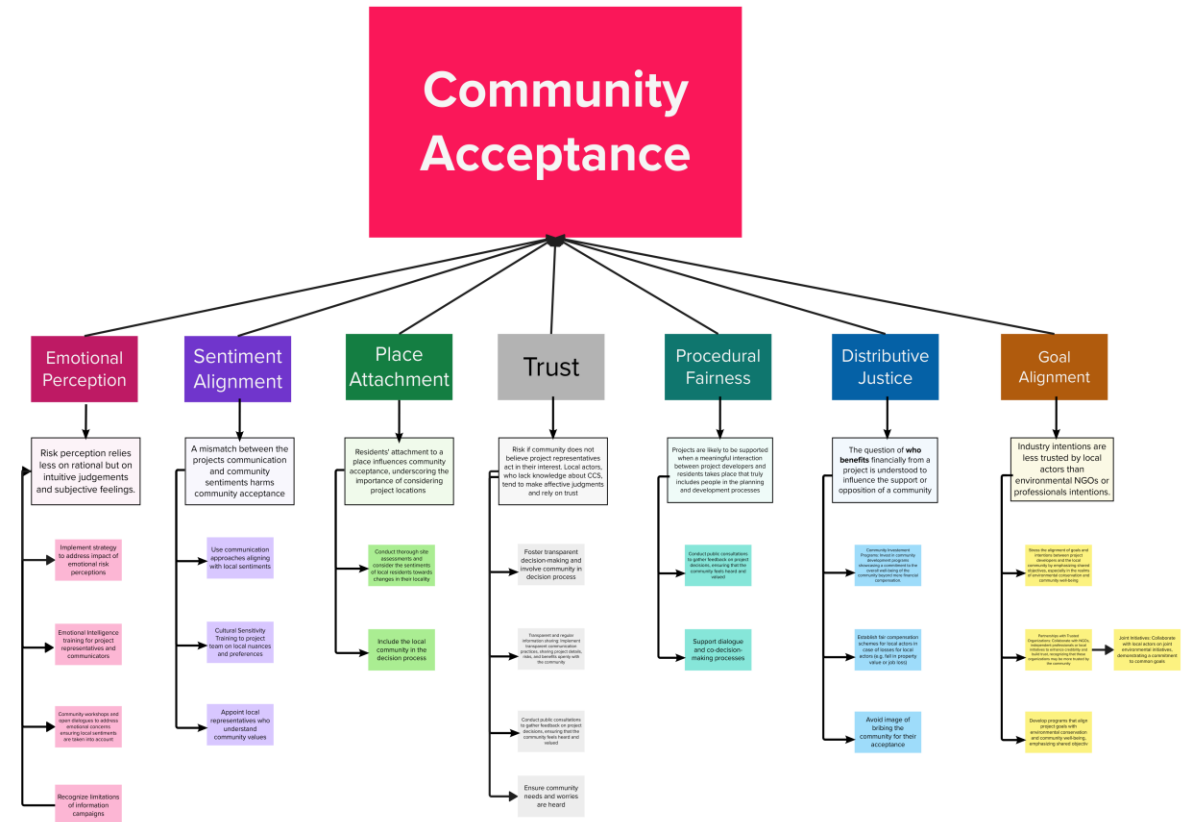
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SCIENCE (COMMUNICATION), SOCIETY AND PARTICIPATION

- Effectively engaging with society?
- Identifying and activating stakeholders requires a structured approach
- No "one-size-fits-all" methodology; different methods required for different stakeholders
- Goal and desired level of participation (e.g. inform, consult, collaborate) must be clear before stakeholders are approached (influences choice of approach)
 - See for example <https://www.wissenschaftskommunikation.de/formate/>





INFORMATION

Being informed, knowing what is going on, decisions that are made, discussed or planned to be made



CONSULTATION

Presenting ideas or plans to citizens to collect their opinions, reactions, concerns.



CONCERTATION

Inviting representatives of citizens' interests or citizens to collect their views, negotiate and potentially adapt the original plans.



CO-CREATION

Co-creating policies/plans together with citizens at the initial phase of design. Solutions are co-elaborated from the beginning.



CO-DECISION

Making choices and taking 'final' decisions, is done by public authorities and citizens together, in partnership mode.



DELEGATED POWER

Public authorities delegate to citizens the power of creation and/or decision. Citizens are granted authority.



CITIZEN CONTROL

Citizens are in full control of power and decision. They are responsible and organized to manage that power.

THE DIFFERENT LEVELS OF CITIZEN PARTICIPATION

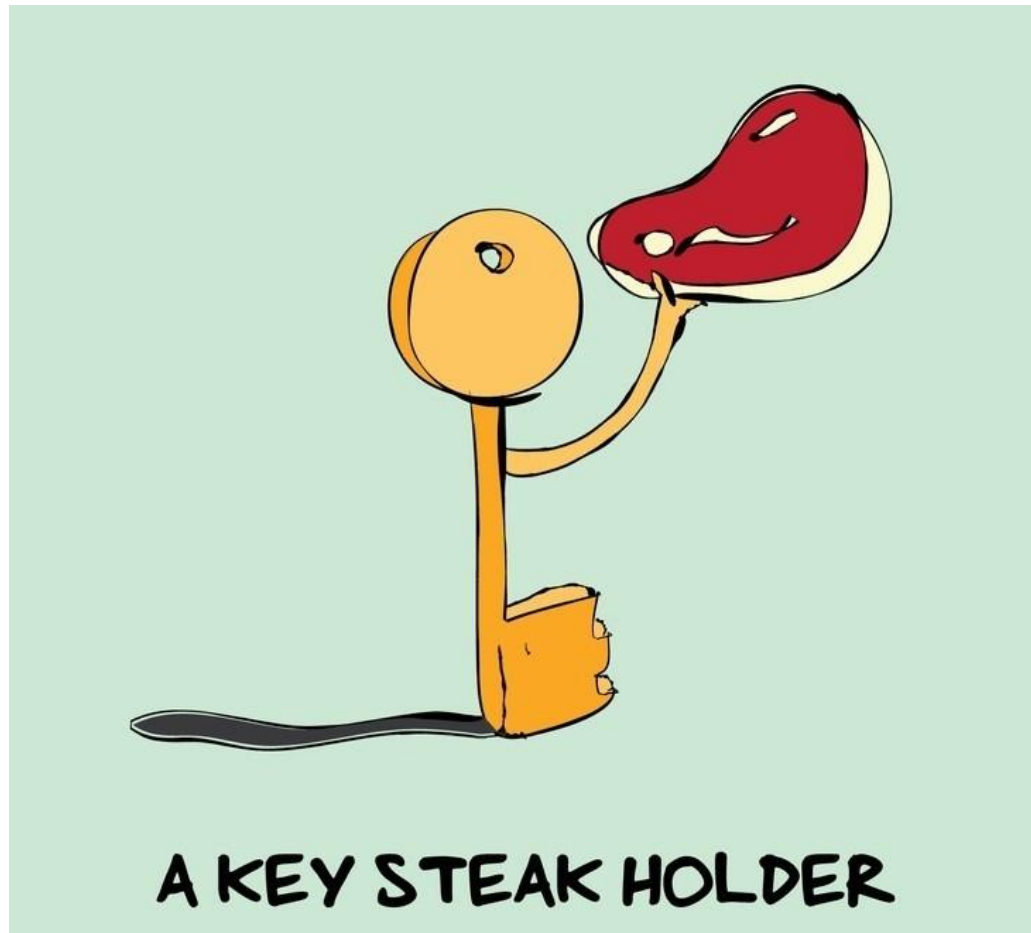
Poster by Christophe Gouache - Strategic Design Scenarios
Adapted version from Arnstein's Ladder of Participation (1969)

LET'S DECIDE!

We have 10 Mio Euro to invest (only 1 project allowed).
For which project do you want to spend this public money?



WHOM ARE WE TALKING ABOUT?



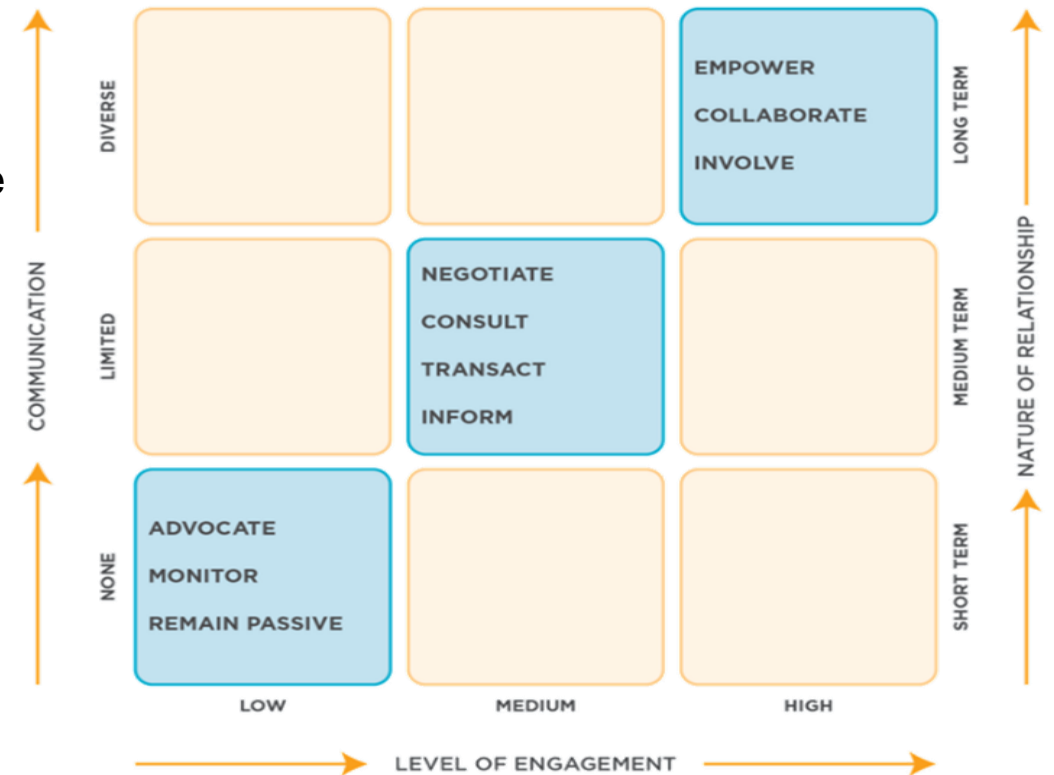
- (1) “Stakeholders are those who have an interest in a particular decision, either as individuals or representatives of a group. This includes people who influence a decision, or can influence it, as well as those affected by it.” *Minu Hemmati, M. (2002). Multi-stakeholder Processes for Governance and Sustainability Beyond Deadlock and Conflict. United Nations Environment and Development – UK Committee*

- (2) “The broadest definition of ‘stakeholder’ brings in anyone who affects or is affected by a company’s operations. The key new perception is that companies need to expand the range of interests considered in any new development from customers, shareholders, management and employees to such people as suppliers, local communities and pressure groups” (The World Business Council on Sustainable Development: www.wbcsd.ch/aboutdfn.htm)

SOME FOOD FOR THOUGHT...

- Social acceptance is highly complex due to multiple factors
 - Risk perception, trust
 - High uncertainty stemming from regulatory bans/limitations
 - Difficulty in assessing acceptance due to ongoing discourse
 - Projections can be influenced by existing polarized discourse
- Navigating public gains vs. individual interests for acceptance (socio-political level, community level, market level)
- Participation ≠ Participation
- Know your target group and stakeholders (long-term perspective)
- No “one-size-fits-all”

LEVELS & APPROACHES TO STAKEHOLDER ENGAGEMENT



THANK YOU FOR YOUR ATTENTION!

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