



Teams	Mission
Federico	Energy systems/hybrid district heating
Celia	AI driven alternatives to pesticides
Paula	Overuse of antibiotics
Nicolas	
Camille	
Petra	Climate change driven increase of diseases
Camilla	
Paolo	
Yuduo	Garbage recycling in Africa
Cheng	
Yang	
Yesica	Mental health in academia
Md Al Amin	
Medha	
Saibo	Governing AI
Shuri	



- Your mission can be characterized by *how the perceived problem and the identified solutions are widely accepted*
- **Wicked** problems are societal problems that are complex, unpredictable, and have poorly defined boundaries, they lack clarity in both aims and solutions (different from a tame problems: you know how to make a cake for 6 persons you can calculate what do you need to make it for 60 people – this is a tame problem that can be solved by choosing and applying the correct algorithm)
- Proposed solutions **diverge** between stakeholders because they are multi-dimensional and have no clear outcomes (e.g. rebound effects) and it is difficult to agree on any priority

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Problem side

Contestation – refers to the degree of normativity related to an issue – diverging claims, values and framings, inherent conflicts of interest resulting from social pluralism and stakeholder divergence
Complexity – multi-scalar and multi-dimensional nature of the problem
Uncertainty – lack of knowledge, limited availability of evidence related to risks & costs of actions, non-actions

Solution side

Contestation – feasibility, opportunities and threats of innovation which are supported
Complexity – new technologies/innovations need to be combined and aligned with organizations, social practices, etc..
Uncertainty – lack of knowledge on feasibility of solutions or there are multiple choices – no clear superiority

Higher degree of contestation, complexity and uncertainty of..

..the problem- the higher its wickedness and the more difficult might it be for policy to address the mission

..the solution – the more diverging the views on solution's value

	Diverging views on the problem	Converging views on the problem
Diverging views on solutions	Disorientation – a weak narrative	Difficulties to agree on solutions
Converging views on solutions	Difficulties to agree on problems	Alignment – a strong narrative

The importance of narratives or *Grand Récit*



- « *First came the change in narrative* »
- Narratives include a major societal problem and the solutions – this is shared in society and reaches some level of consensus
- The power of the narrative has obvious implications on:
 - Social norms which govern consumers decisions, social practices, life style
 - Innovators & firms strategies
 - Investors choices (VC, State)
 - Government economic and techpolicies (tax, regulation, subsidies)
- But the narrative can be more or less (un)easy to construct

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Sustainable agriculture able to feed the world



- Disorientation
- Problems divergence – what is the problem?
 - how to keep a productivist model to feed the world and get a sustainable trajectory of productivity growth?
 - how to get rid off the productivist model (sustainability) while securing food access for all?
- Solutions divergence
 - belief in large-scale agriculture, based on scientific progress and high tech knowledge to deliver high amounts and high quality within environmental constraints (case in the NL)
 - belief in small scale organic farming practices, local systems, with low inputs of pesticides and fertilizer.
- Eliminate pesticides – a better definition of a mission (more precise and specific)

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Smoking bans



- **Alignment**
- Problem accepted by society – six million annual death worldwide – the problem was contested and unclear for a long time – role of the tobacco industry to slow down social awareness but today: « *the debate is over and the science is clear* »
- Solution accepted by society – the range of solutions increased : tax, control advertisement, initiatives to ban smoking in specific places (public, school, etc..) – in spite of many innovations from the industry (better filters, cleaner tobacco, e-cigarettes) – smoking ban have become increasingly accepted as central part of solution-range –
- At some points policy is no longer needed – large scale behavioral tipping happened and smoking ban becomes unnecessary – every one has internalized the new social norm
- But alignment doesn't mean the problem is solved (issue of the industry looking for substitutes – need for some “end game scenario”)

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Wind energy (the Netherlands)



- **Alignment**
- Problem accepted by society
 - declining fossil fuel reserves,
 - foreign dependencies,
 - emerging awareness on climate change
- Solutions accepted
 - first period: significant uncertainties on feasibility – development of onshore wind turbines (engineering optimism!) – but contestation by local opposition and by NGOs
 - as the problem of climate change dramatically increased, solution convergence towards offshore wind energy platforms

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Autonomous driving



- Difficulties to agree on problem
- Solutions convergence – high tech involving machine learning and robotics
- But for what kind of problem?
 - make transportation more sustainable
 - productivity increase
 - comfort, security
 - higher capacity of highways will reduce congestion
 - problems of an aging society
 - business model problems of ride sharing
- The solution is still looking for societal problems to link in order to increase its legitimacy – we miss the narrative

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Obesity



- Difficulty to agree on solutions
- The problem is accepted
 - one of the top three social burdens (after smoking and armed violence)
 - shift from seeing obesity as a personal matter to seeing obesity as a major societal issue
- Solutions divergence
 - individualized, science-based treatment based on drugs not sufficient,
 - needs for coordinated and cross-sectional actions beyond the health sector, including agriculture, manufacturing and retailing (for changing product ingredients, pricing, portions), education, media and culture (building knowledge and awareness), transportation and urban planning (for car free and physical activity based mobility) or economic policies (taxations and subsidies)
 - 74 types of interventions were identified in 18 areas but evidence on how well each of them works is scarce

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Climate change

- Difficult to agree on solutions
- Economist and adviser M.Mazuccato says the EU needs a « Kennedy moonshot » or a new Manhattan Programme to deal with the new Grand Challenges
- «We need a Manhattan ecological project» Le Monde
- «Decreasing emission has to be very decentralized, very participatory, and very regulatory. It requires affecting the way people heat and cool their homes, cook, collect firewood, drive cars, consume energy-intensive aluminium, and produce steam for electricity and industrial use. Methane abatement involves how farmers feed their cattle and aerate their rice paddies. Carbon abatement depends on policies that many governments are incapable of implementing...» T.Schelling (1996)
- Do we need **social solutions** or **engineering solutions**?



Higher degree of contestation, complexity and uncertainty of..

..the problem- the higher its wickedness and the more difficult might it be for policy to address the mission

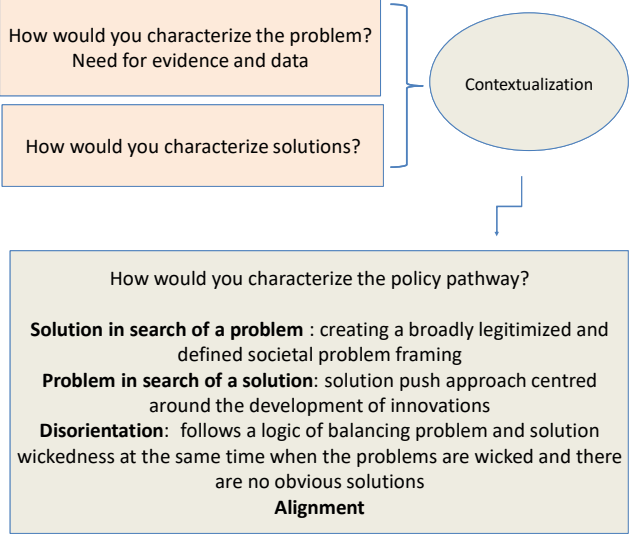
..the solution – the more diverging the views on solution's value

	Diverging views on the problem	Converging views on the problem
Diverging views on solutions	Disorientation Sustainable agriculture	Difficulties to agree on solutions Obesity , climate, decarbonizing aviation
Converging views on solutions	Difficulties to agree on problems Self-driving car	Alignment (innovators, firms, investors, consumers) Smoking ban, wind energy (NL)

	Diverging views on the problem	Converging views on the problem
Diverging views on solutions	<i>Disorientation</i>	Problem in search of a solution
Converging views on solutions	Solution in search of a problem	<i>Alignment</i>

Different pathways for mission policies in the problem solution-space

Assignment 2



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Assignment 2: “mission’s analysis” -



- Is the problem clear for and accepted by the whole society (or not?)
 - Data and evidence on the problem
 - Contextualization
- Are the emerging solutions accepted by most people? Or difficulty to agree on solutions
 - Contextualization - winners and losers, multiple solutions, interactions between solutions conducting to rebound effects, etc..
- Construct the policy pathway
 - Prepare a max of 4 slides (title-problem-solutions-policy pathway)
 - Deadline for submission – Thursday 2nd - midnight
 - Discussion in class – Friday 3rd
 - Materials to support your work posted on moodle – short guidance document and recommended reading 5 (sections 3 to 6)

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Future assignment: ideas!



- Repairing markets: fix externalities (tax, regulation)
- Promoting technological innovations
- Influencing large-scale behavioral tipping
- Orchestrating and funding all these changes
- More...?

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