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**A differentiated approach
to mission-oriented
innovation policy:**
Contextualizing societal challenges in
a problem-solution space

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Outline

- Mission-oriented innovation policy (MIP):
Why a differentiated approach?
- Our aim
- Mission context: Towards a differentiation of problem and solution structures
- A problem-solution space
- A process-oriented view on MIP: Three policy pathways
- Conclusions



Mission-oriented innovation policy (MIP)

Societal challenge-led missions to provide reference for R&I:
SDGs, Grand Challenges, various national / regional priorities

Differs from technology-led approaches, structural innovation policies, or policies for economic competitiveness / growth

A new R&I policy type (Edler & Boon 2018; Kuhlmann & Rip 2018; Mazzucato 2018; Schot & Steinmueller 2016; Weber & Rohracher 2012, among others)

- Centered around complex ('wicked') societal problems
- Long-term goals with systemic and transformative character
- New governance modes: Inclusive and cooperative, variety of stakeholders, sectors, policy fields shape policy agenda
- Role of policy: Provide directionality (e.g. by formulating concrete and measurable missions), facilitate coordination and co-creation



Why a differentiated approach?

Societal challenges have different underlying problem and solution structures

- Starting point: wicked (ghetto) vs. tame (moon) problems (Rittel & Weber 1973, Nelson 2011)
 - Disagreement, diverging problem framings and interests (high normativity; e.g. climate change)
 - Multiple types of solutions (technological, social, institutional) are possible or even necessary
 - Challenges often not fully understood; defining missions based on 'tamed' problems comes with trade-offs
- Risk of 'one-size-fits-all' policy approaches



Our aim

- Contribute to more analytical clarity about different types of societal challenges and the context of missions
- by conceptually disentangling the underlying societal problem and solution structures
- to inform policy makers on how to identify, define and implement better challenge-led missions



How wicked is a societal challenge?

Several dimensions of wickedness

(Head 2008, Hoppe 2011, Alford and Head 2017, Daviter 2017)

- (i) Degree of contestation:** diverging claims and framings of an issue; related to normativity and social pluralism
- (ii) Degree of complexity:** multi-scalar and multi-dimensional nature and responsibilities of action; related to inter-organizational cooperation and multilevel governance
- (iii) Degree of uncertainty:** limited knowledge on causes, consequences, and risks of (non-) action; related to lacking or fragmented knowledge



Mission context: Is the problem well understood?

<i>Contestation</i> (conflicting problem framings)	High	Low
<i>Complexity</i> (lack of clarity about responsibilities)	High	Low
<i>Uncertainty</i> (lack of or fragmented knowledge)	High	Low
Problem statement	Divergence	Convergence

Converging problem statements: The basis for broadly legitimized and effective missions



Mission context: How well understood are potential solutions?

<i>Contestation</i> (different opinions on best solution)	High	Low
<i>Complexity</i> (lacking of the required systemic approaches)	High	Low
<i>Uncertainty</i> (lack of knowledge on feasibility/impact)	High	Low
Views on innovative solution	Divergence	Convergence

Converging views on innovative solutions necessary for broad societal uptake and accomplishment of a mission!



A problem-solution space to contextualize missions

	Diverging problem	Converging problem
Diverging views on solutions		
Converging views on solutions		



A problem-solution space to contextualize missions

	Diverging problem	Converging problem
Diverging views on solutions	<p>Broadly framed challenges</p> <ul style="list-style-type: none">• no consensus on problem nature or clear solution• No commonly accepted definition• Low willingness to cooperate <p><i>Examples: sustainable agriculture / food security, ageing population</i></p>	<p>Dominant problem definition</p> <ul style="list-style-type: none">• Advanced problem learning• Clear and shared vision developed• Solutions uncertain, ideas vague or disputed <p><i>Examples: Dementia and cancer, polluting industries</i></p>
Converging views on solutions	<p>Promising solutions</p> <ul style="list-style-type: none">• Concrete expectations (new technologies, institutional or social innovations)• New business models, often involving strong claims• Problem ill-defined, lacks legitimacy and faces reluctance <p><i>Examples: eHealth, vegetarian diet</i></p>	<p>Legitimized problems and solutions</p> <ul style="list-style-type: none">• Feasible solutions for an accepted problem• Diffusion and societal embedding limited <p><i>Examples: electric vehicles</i></p>



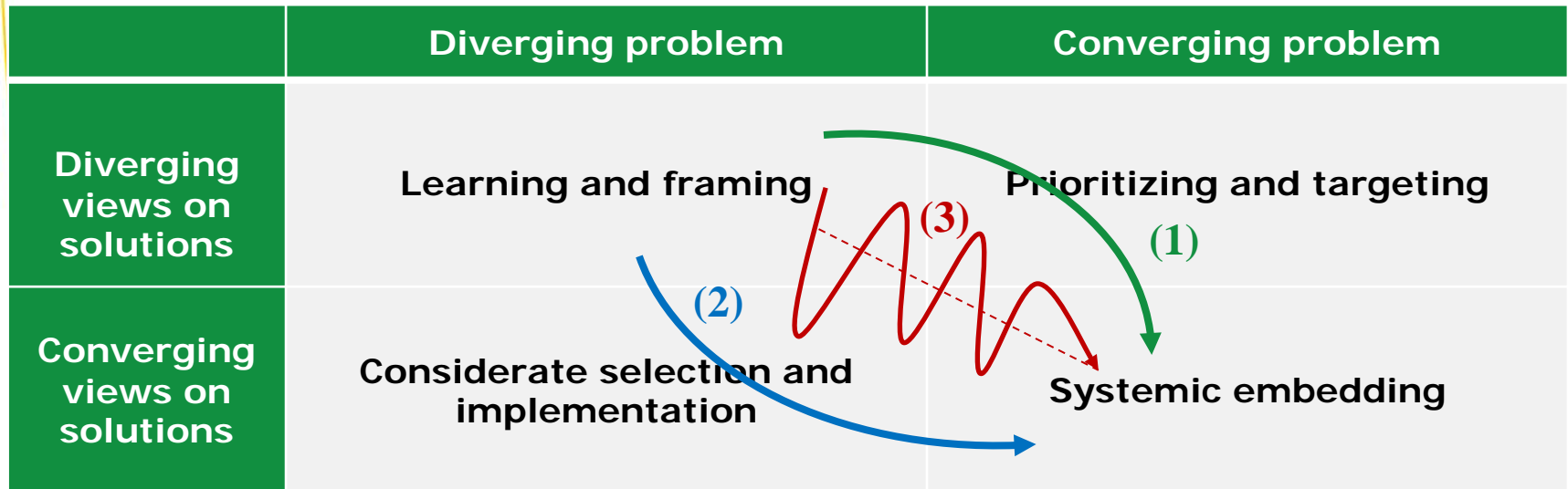
Governance strategies for different problem-solution constellations

	Diverging problem	Converging problem
Diverging views on solutions	Learning and framing	Prioritizing and targeting
Converging views on solutions	Considerate selection and implementation	Systemic embedding

Rationale for MIP: *Providing directionality and supporting convergence* to arrive at broadly legitimized problem-solution constellations that are of high societal importance



Supporting convergence: A process-oriented view on MIP



Three stylized pathways

Problem-led : Targeted transformation - open and participatory learning practices followed by distributed search around clear goals

Solution-led : Bottom-up search for solutions without societal problem framing; dominant solution 'meets' problem at a later stage

Hybrid : experimenting in both directions - learning about the challenge in the course of finding solutions; high risk of ill-structured mission approach



Conclusions

Mission-oriented policy needs to be critical with respect to

- diverging societal problem framings
- diversity of solutions (technological, institutional or social innovation) and socio-technical and socio-institutional barriers

Normativity, complexity and uncertainty of a societal challenge needs to be better understood ('tamed') to develop a common reference for challenge-led missions

Process-oriented view: Several policy pathways possible for MIP to support movements from vague problem orientations to *converging problem-solution structures*

Further research on governance strategies and policy instruments for problem-solution constellations, and implications for innovation system thinking



Thank you!

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