



# *Designing and supporting mission oriented research policy*



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# Grand Societal Challenges

- ❖ Governments have recognized that they need to play a decisive role in mitigating GC
  - H2020: Challenge-based approach – bioeconomy, low-carbon, inclusive economy
  - Paris Climate Change Agreement: zero net carbon emission after 2050
  - United Nations: 17 Sustainable Development Goals calling for greener production, increased social justice, fairer distribution of welfare
  - Horizon Europe: promises a mission-oriented approach to mitigate GC

# Grand Societal Challenges

- ❖ Main characteristics of challenges
  - Complex, highly uncertain, unstructured and “wicked” problems, difficult to manage
  - Call for transformation of the innovation system / system transition
- ❖ What is different ?
  - Problems are systemic
  - Problems are global
  - Solutions are local

# Challenge-oriented innovation and policies

- ❖ We observe ongoing transformations in :
  - Types and modes of innovation
  - Locus of solutions
  - Types and roles of public authorities involvedthat raise important issues in terms of innovation policies.
- ❖ Emergent concept of '*Transformative Innovation Policies*':
  - innovation policies that direct systems towards desirable transformation to overcome or mitigate societal challenges*
- ❖ How can challenge-oriented innovation be fostered by 'Transformative Innovation Policies' (TIP)?

# New types and modes of innovation

- ❖ Products and services that meet users, customers, demand
- ❖ Long term process – it takes time to generate impacts
- ❖ Important source of transformation – system transition
- ❖ Experimental
- ❖ Socio-technical – alignment of social, technological and non-technological innovations:
  - user-driven innovation (*co-creation, crowdsourcing*),
  - social innovations (*fair trade, micro-finance*),
  - organizational innovation,
  - new business models (*Airbnb, Uber, Healx*),
  - grassroot innovations, frugal innovation, jugaad...
  - DIY innovations (*fablab, 3D printing*),
  - ‘sharing economy’ (*cars, tools, houses...*) questioning the relation between consumption and property rights

# New types and modes of innovation

- ❖ Generalization of innovations to generate high impacts is a main issue
- ❖ Users are important in the adoption phase (*lead user, first user*) but even more critical in the “generalization” of innovation towards the society
- ❖ Importance of infrastructures (*physical, financial, knowledge*)
- ❖ Intermediaries are important to transform the users’ sphere
- ❖ Network of actors evolve along the innovation journey and we see:
  - New actors and new constellation of actors join the networks
  - New forms of user commitments

# Implications in terms of TIP

- ❖ Focus on users: how to attract users, to engage them in the collective innovative journey, to discuss with users
- ❖ Holistic perspective on innovation, focus on supply and demand factors
- ❖ Accelerate innovation process and impact generation
- ❖ Strategic investments throughout the innovation journey that addresses several sectors, technologies and enables bottom-up learning processes – new types of funding!
- ❖ Stimulate the participation of various actors
- ❖ Public-Private consortia crossing boundaries as experimental spaces
- ❖ Create intermediaries (or change role of existing actors) to speed-up generalization

# Solutions are local

- ❖ Experimenting as an alternative to the dominant regime :
  - living labs, test beds (*urban smart energy campus & rural renewable energy network to spearhead future energy system in Germany*),
  - policy experiments (*pilot projects, policy labs*)
- ❖ Context-specific, local, distributed transformative solutions
- ❖ Development in multi-actor networks from various institutional backgrounds (*market, government, science, civil society*)
- ❖ New types of agency influence the speed and direction of change (*Bill & Melinda Gates foundation*)
- ❖ Importance of niche markets to develop radical innovations (*solar cells, electric vehicle*)
- ❖ Transformative change might require the coordination of developments of different niches (*mobility as a service linked to electric vehicle, biofuels and IT developments*)



# Implications in terms of TIP

- ❖ Engage and empower new agencies to contribute to the desired transition
- ❖ Learn from new user-centric instruments (*living labs, test beds..*) and adapt them to the specific local-context (i.e. specificities of innovation systems, legacies, organizational structures)
- ❖ Support niche markets as sources of radical innovation & as a means towards transformation
- ❖ Create spaces for actors' learning, exploring and experimenting
- ❖ Provide incentives to simultaneously explore and exploit (ambidexterity):
  - Have the right capabilities to do both
  - Separate structurally exploitation and exploration activities – separate policy mixes – new funding agencies

# Public authorities

- ❖ Cities and regional authorities are the main public actors driving transformative changes and shaping market creation (*smart cities, smart specialization – C40 cities*)
- ❖ In disruptive innovations, we see examples with the coupling of :
  - multiple policy initiatives by different actors at different levels of responsibilities (different ministries),
  - top-down and bottom-up initiatives,
  - institutional change (in administrative sector, regulatory framework)
- ❖ Public authorities are not the only actors involved in framing markets
  - New groups of actors promote new research priorities (*BMG foundation*)
  - ‘Responsible’ behavior of firms (*Kimberly-Clark and zero net deforestation*)
  - NGO/associations (*Roundtable on sustainable palm oil create new standards and certification, Forestry Stewardship Council (FSC accreditation)*)

# Implications in terms of TIP

- ❖ Rethink the role of the various public authorities and multi-level coordination
- ❖ New regulations are needed at local, national and international level: shape, adapt regulations, norms to support market creation, quality of products, interoperability of products
- ❖ Implement transformative public procurement initiatives
- ❖ Rethink the links with NGOs, associations, civil society, foundations to set directions of change, to build global standards

# More generally: develop capabilities

- ❖ Capabilities to engage with a wide set of actors
- ❖ Agencies or new “programme managers” with strategic capabilities: acquiring a coherent portfolio of projects
- ❖ Capabilities for experimenting
- ❖ Administrative capabilities (diversity of expertise, cross-sectoral, cross-departmental...)
- ❖ Capabilities for engaging resources (human, financial)
- ❖ Evaluation capabilities based on new approaches (impacts, real-time, participatory) for policy learning
- ❖ Foresight to strengthen organizational capacities, identify strategic priorities

# Open questions

- ❖ Missions are more precise than societal challenges: How to define missions and priorities? What is decided nationally, at higher or lower levels? What is shared with others and in which frame?
- ❖ What types of policy mixes should be implemented to provide incentives for actors to invest in, to support experimentations of new solutions, to change practices, to coordinate experimentations?
- ❖ Which mechanisms and types of public intervention are needed to scale-up, generalize innovations?
- ❖ Multi-level coordination: who among cities, regions, national governments, European governments is doing what? How to coordinate initiatives ?