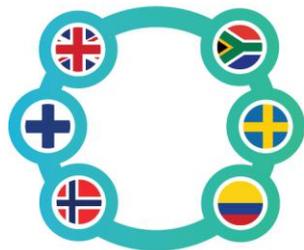


Three Frames for Research and Innovation Policy

Professor Joanna Chataway
Deputy Director
Science Policy Research Unit - SPRU
University of Sussex

[E: j.c.chataway@sussex.ac.uk](mailto:j.c.chataway@sussex.ac.uk) / T: @JoannaChataway



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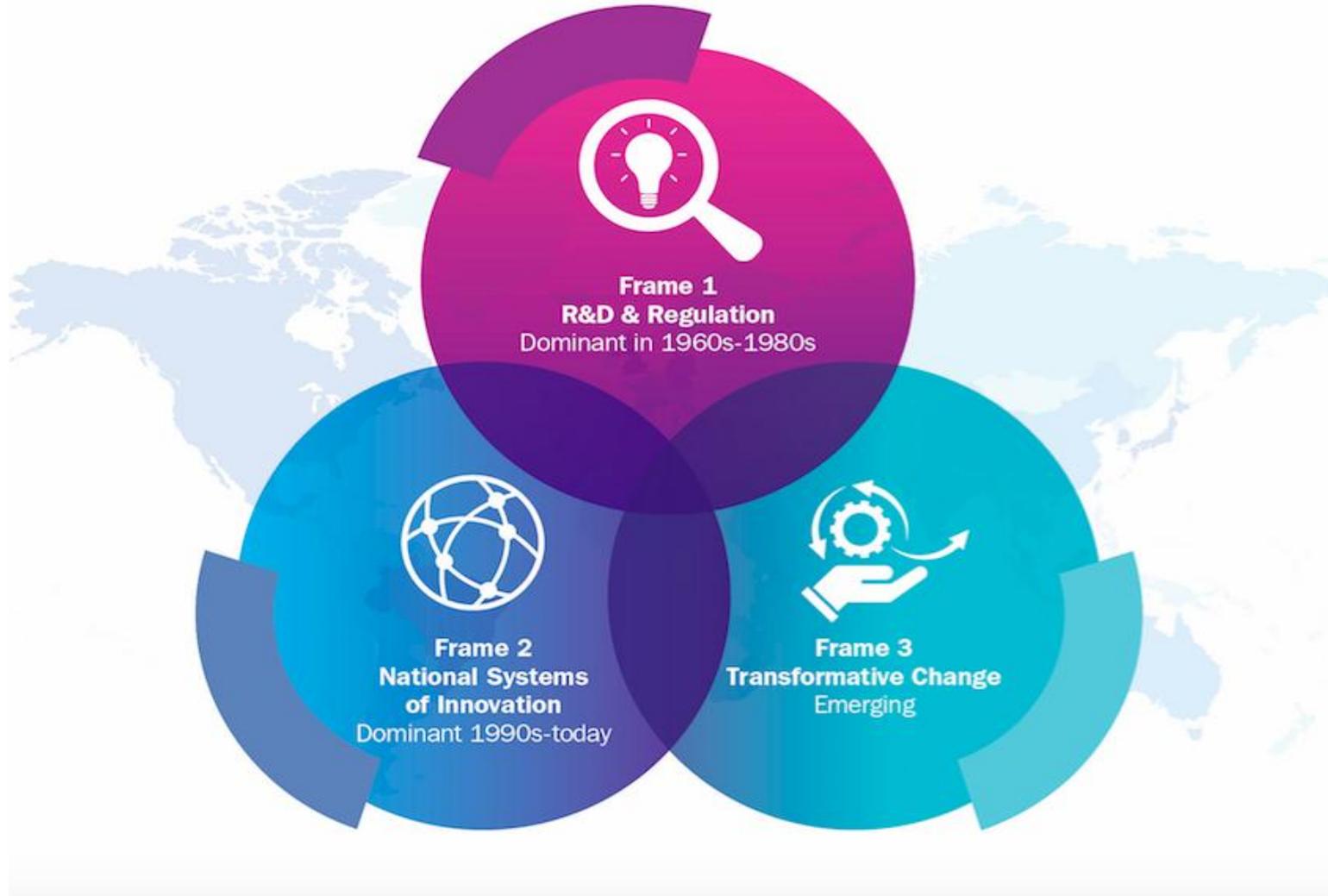
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This talk



- The two well established frames of research and innovation policy
- Why a third frame is necessary
- Transformative innovation policy
- The Transformative Innovation Policy Consortium

Three Frames of Research and Innovation Policy



R&D & Regulation: Frame 1

- **Dominant in 1960s-1980s and continuing influence**
- Market Failures
- R&D produces economic growth, driven by productivity growth & public welfare
- R&D leads to competitive advantage & national prestige
- Markets lead to externalities & need regulation
- Emphasis on uncertainty & long term gains



R&D & Regulation: Frame 1

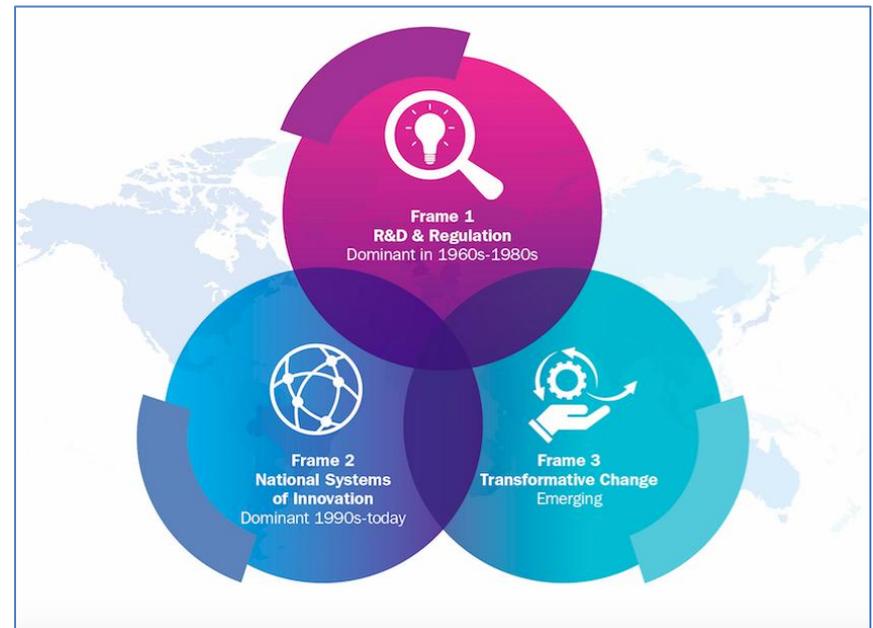
The Focus & Actors

Focus:

- Knowledge production, R&D, breakthroughs, high-tech, novelty

Innovation Actors:

- Government & Market actors with a tendency to prioritise large firms
- Experts, scientists, inventors, engineers



R&D & Regulation: Policy Activities

- R&D stimulation (subsidies, tax credits, mission oriented programs)
- Intellectual Property Rights
- Improve knowledge base
- Education Policy on Science & Engineering
- Public Understanding of Science Communication
- Technology foresight

R&D & Regulation: Innovation Model



National Systems of Innovation: Frame 2

- **Dominant 1990s-today**
- Systems Failures
- R&D & learning (by producing, using and interacting) produces economic growth, public welfare & competitive advantage therefore national prestige
- National, Regional & Sectoral Systems of Innovation
- Entrepreneurship/role of business
- Learning as core concept



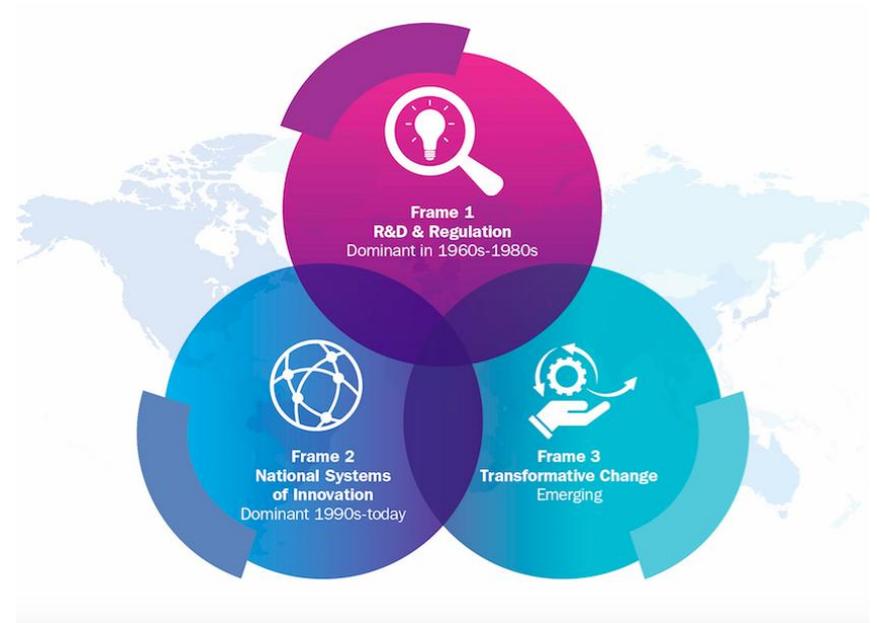
National Systems of Innovation: The Focus & Actors

Focus

- Product & process innovation, knowledge production and diffusion, R&D, incremental and hidden innovation
- Introduction of idea of path-dependency, technical change is cumulative & collective

Innovation Actors

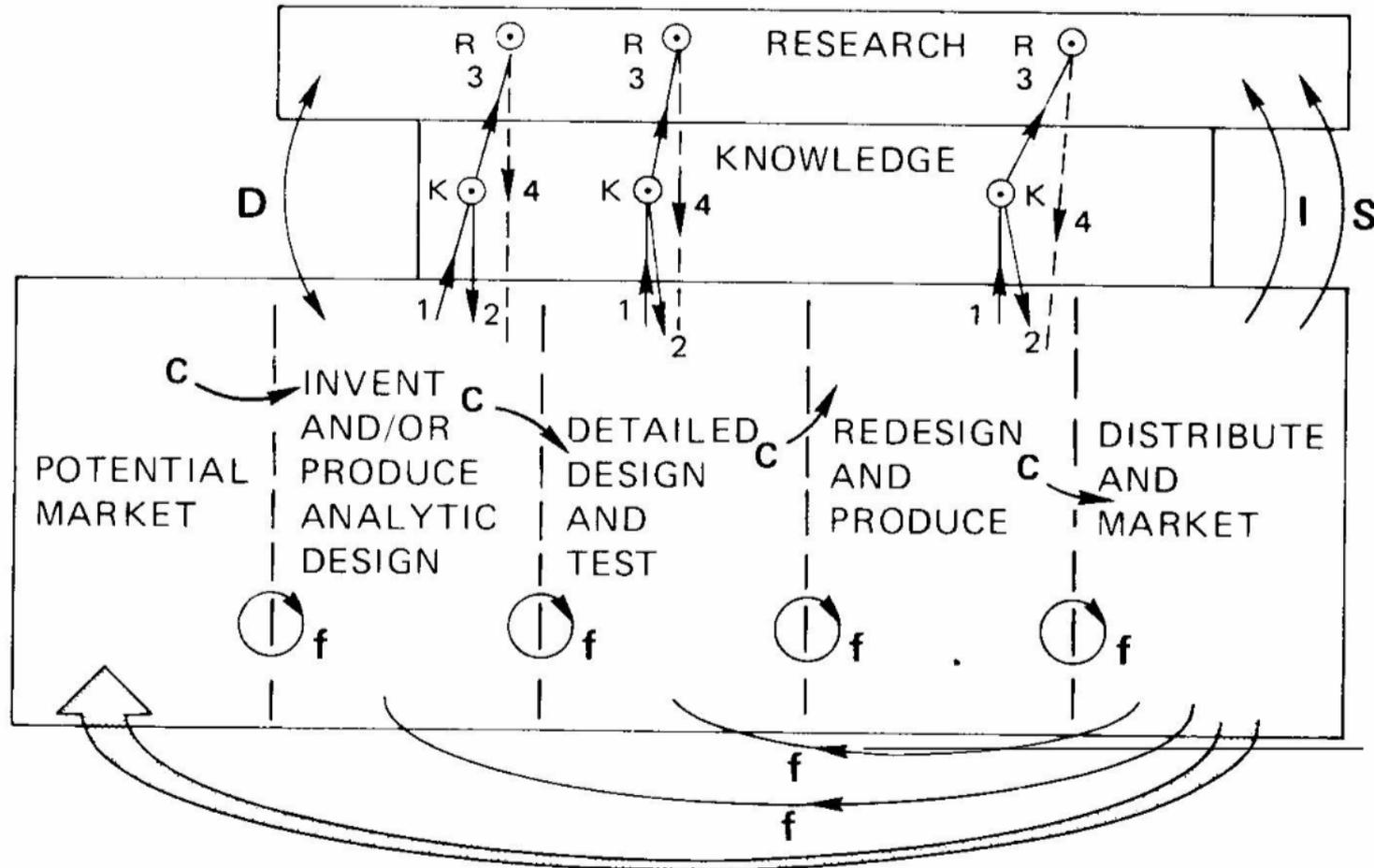
- Market actors, SMEs, entrepreneurs, universities, governments, users, networks, intermediaries, public-private partnerships and foundations



National Systems of Innovation: Policy Activities

- R&D, IPR, Education Policy, Foresight, Regulation
- Spaces for interaction on various levels, for example technology platforms
- Use of demand stimuli, e.g. procurement
- Facilitating connections between actors and creating Regional & National Systems of Innovation
- Ability to absorb knowledge, e.g. capability building, skills development
- Programs to stimulate entrepreneurship, incubators

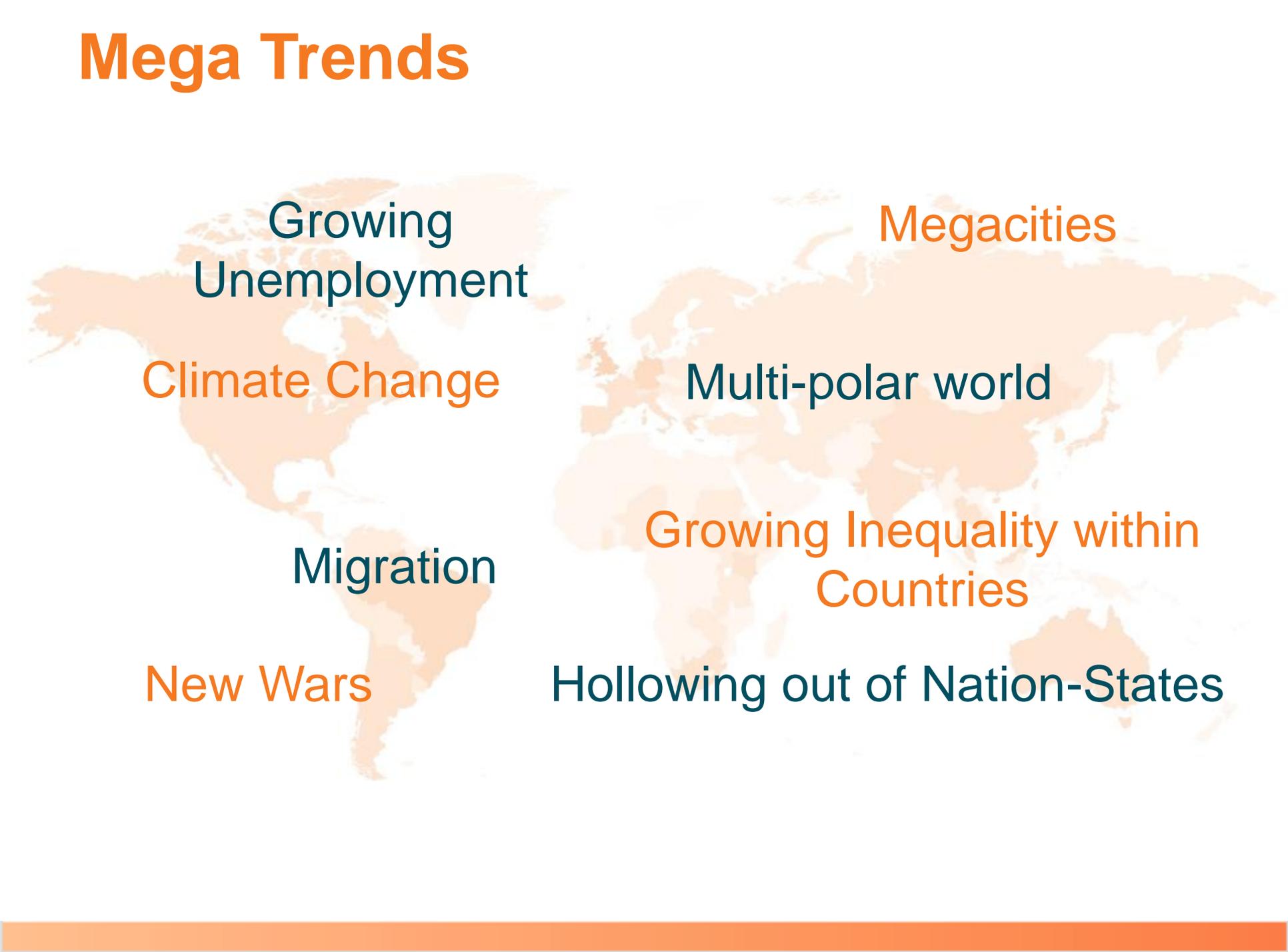
National Systems of Innovation: Innovation model



Kline and Rosenberg (1986)

F

Mega Trends



Growing
Unemployment

Climate Change

Migration

New Wars

Megacities

Multi-polar world

Growing Inequality within
Countries

Hollowing out of Nation-States

Creative Destruction or Destructive Creation?



Grand challenges

1 NO POVERTY



2 ZERO HUNGER



3 GOOD HEALTH AND WELL-BEING



4 QUALITY EDUCATION



5 GENDER EQUALITY



6 CLEAN WATER AND SANITATION



7 AFFORDABLE AND CLEAN ENERGY



8 DECENT WORK AND ECONOMIC GROWTH



9 INDUSTRY, INNOVATION AND INFRASTRUCTURE



10 REDUCED INEQUALITIES



11 SUSTAINABLE CITIES AND COMMUNITIES



THE GLOBAL GOALS
For Sustainable Development

12 RESPONSIBLE CONSUMPTION AND PRODUCTION



13 CLIMATE ACTION



14 LIFE BELOW WATER



15 LIFE ON LAND



16 PEACE AND JUSTICE STRONG INSTITUTIONS



17 PARTNERSHIPS FOR THE GOALS



A World in Transition demands:
Riding the waves of the
megatrends, addressing grand
challenges, modifying the
innovation engine, working
towards transitions in socio-
technical systems...

Transformative Change: Frame 3

- Still emerging
- Social & environmental 'needs' failure (e.g. inequality & climate change)
- Explicit recognition that R&D & innovation do not automatically lead to human welfare
- Need to distinguish between 'good' & 'bad' innovation
- Regulation is necessary but not sufficient for addressing societal challenges
- Need for Transformative Change/Sustainability Transitions
- Users are key to understanding innovation outcomes

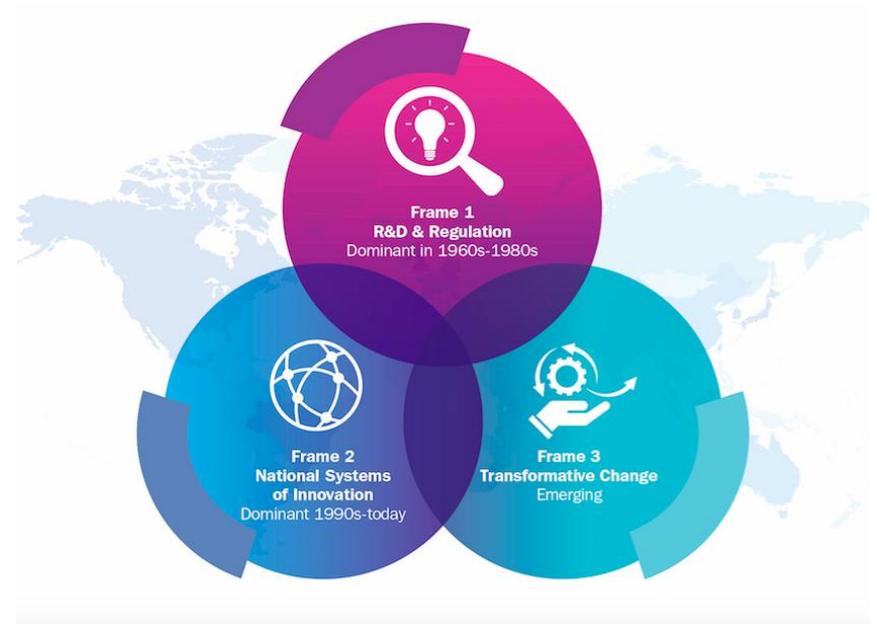
Transformative Change: The Focus & Actors

Focus

- Socio-technical systems
- Inclusion, broad social participation, informal economy, grassroots innovation (for functional reasons, and for political reasons)

Innovation Actors

- All actors can be innovative, including users, consumers, civil society, marginalised populations

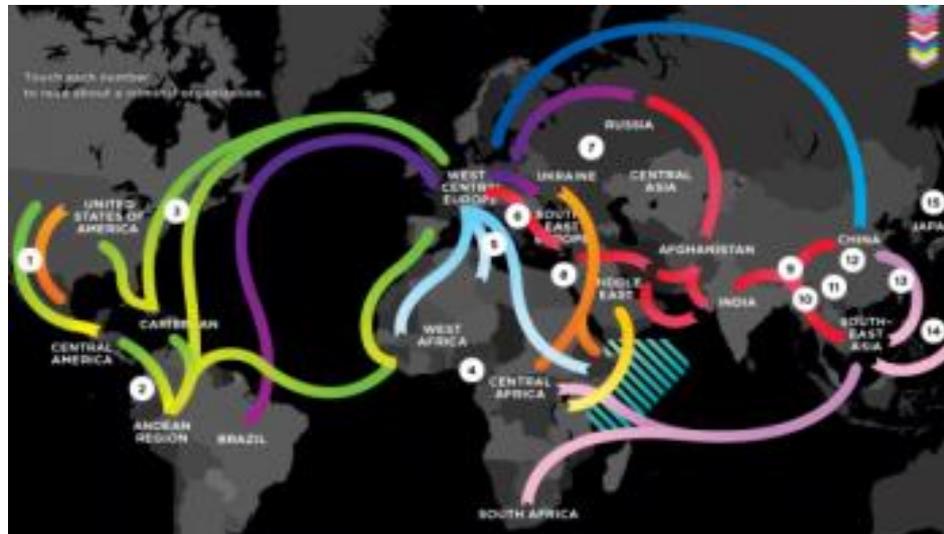
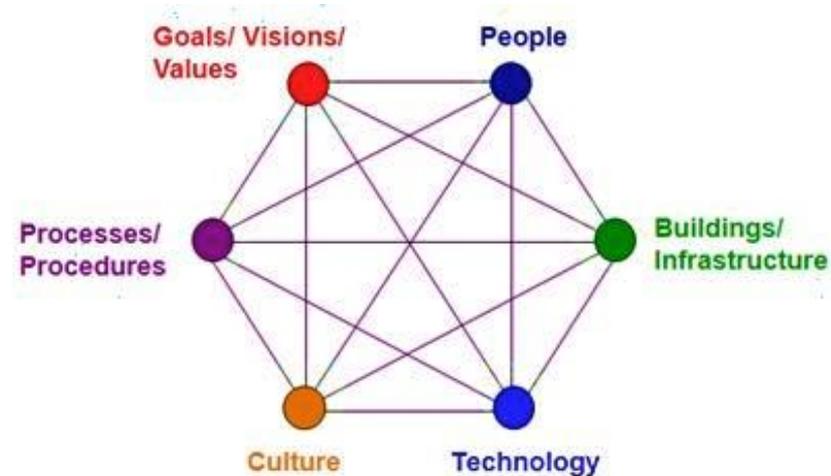


Transformative Change: Policy Activities

- Building transition arenas: supporting diversity & opening up for alternatives, pathways to sustainability
- Technology creation, through regulation and/or procurement
- Building on social innovation, inclusive innovation, frugal innovation, pro-poor innovation
- Using an experimental approach & scaling-up (use or creation of intermediaries)
- Enhancing anticipation, adaptability, reflexivity capabilities
- Ex-ante and behavioural modelling & Responsible Research & Innovation
- Bridge Science/Engineering & Social Sciences & Humanities in Education system
- New institutions for coordination between various policies, integrating of STI into other policies (energy, housing, agriculture, healthcare, transport, and city policies); seeking policy mixes

Transforming innovation: Innovation Model

Multiple and overlapping models emerging:





- Aim is to explore the future of STI policy, its foundation, formulation and governance, responding to World in Transition.
- Focus is on how to deliver on transformative STI policy, so on implementation, experimentation, new policy practices, evaluation, training, and mutual learning (Frame 3)
- Includes relationship with R&D & National System of Innovation STI policies (Frames 1 & 2)

Transformative Innovation Policy Consortium (est. Sept 2016)

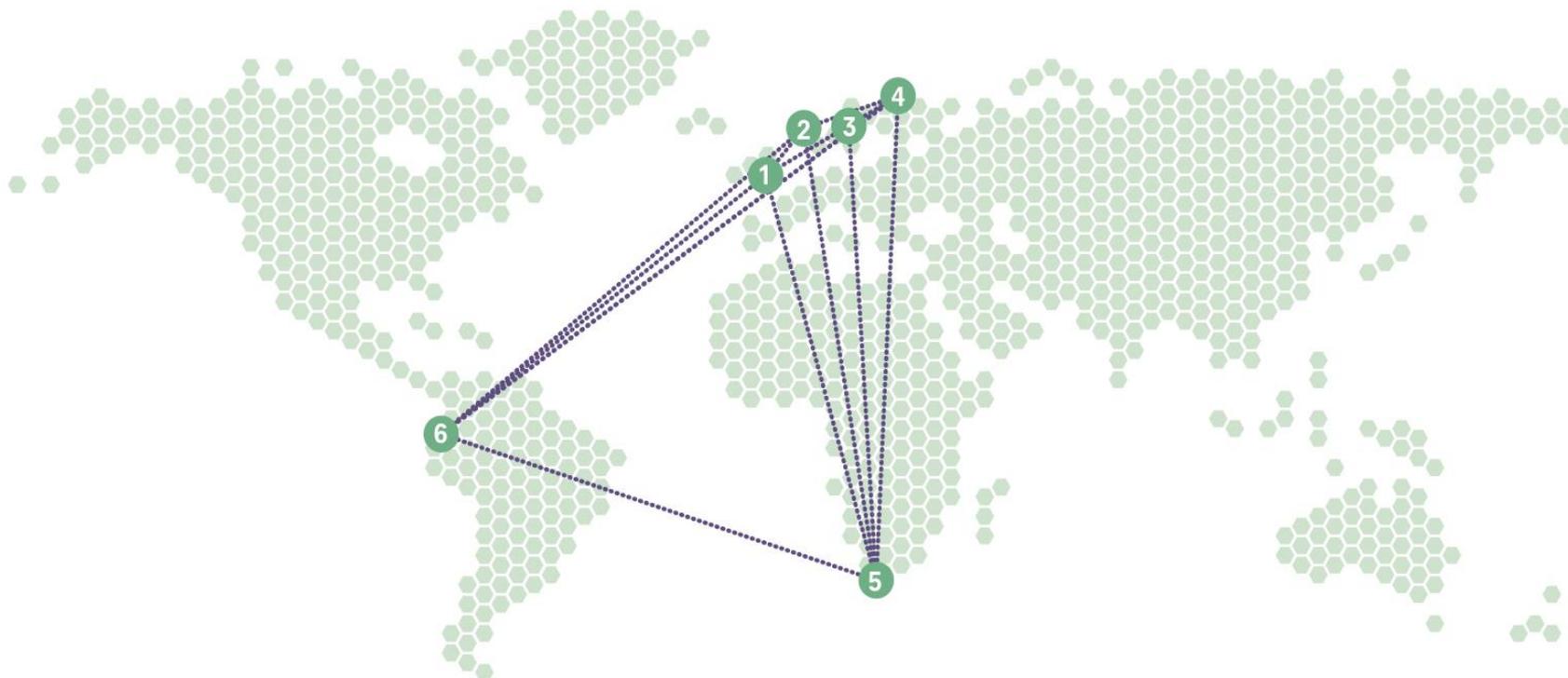
Current Founding Members:

- Research Council of Norway
- The South African National Research Foundation
- Colombian Administrative Department of Science, Technology & Innovation – Colciencias
- Swedish Governmental Agency for Innovation Systems - VINNOVA
- Finnish Funding Agency for Innovation - Tekes
- Science Policy Research Unit, University of Sussex

Signed Expressions of Interest (EOI)

- Chinese Academy for Science and Technology Development - CASTED

TRANSFORMATIVE INNOVATION POLICY CONSORTIUM



1

Science Policy
Research Unit,
University of Sussex



2

Swedish Governmental
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3

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5

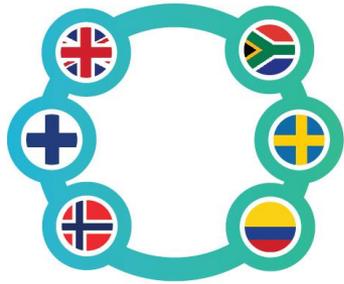
The South African
National Research
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6

Colombian Administrative
Department of Science,
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Thank you.

Working Paper – *‘Framing Innovation Policy for Transformative Change: Innovation Policy 3.0’* (Schot & Steinmueller)

Published at: www.transfomative-innovation-policy.net

and

‘Enacting Transformative Innovation Policy’
<http://www.johanschot.com/publications/developing-enacting-transformative-innovation-policy-comparative-study/>

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