

Challenges and Expectations for Today´s Innovation Support

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Berlin, June 10, 2015

TAFTIE 2015 Annual Conference

Complex Innovation:

New Challenges, Requirements and Approaches for Research and Innovation Support
Programmes

Challenge

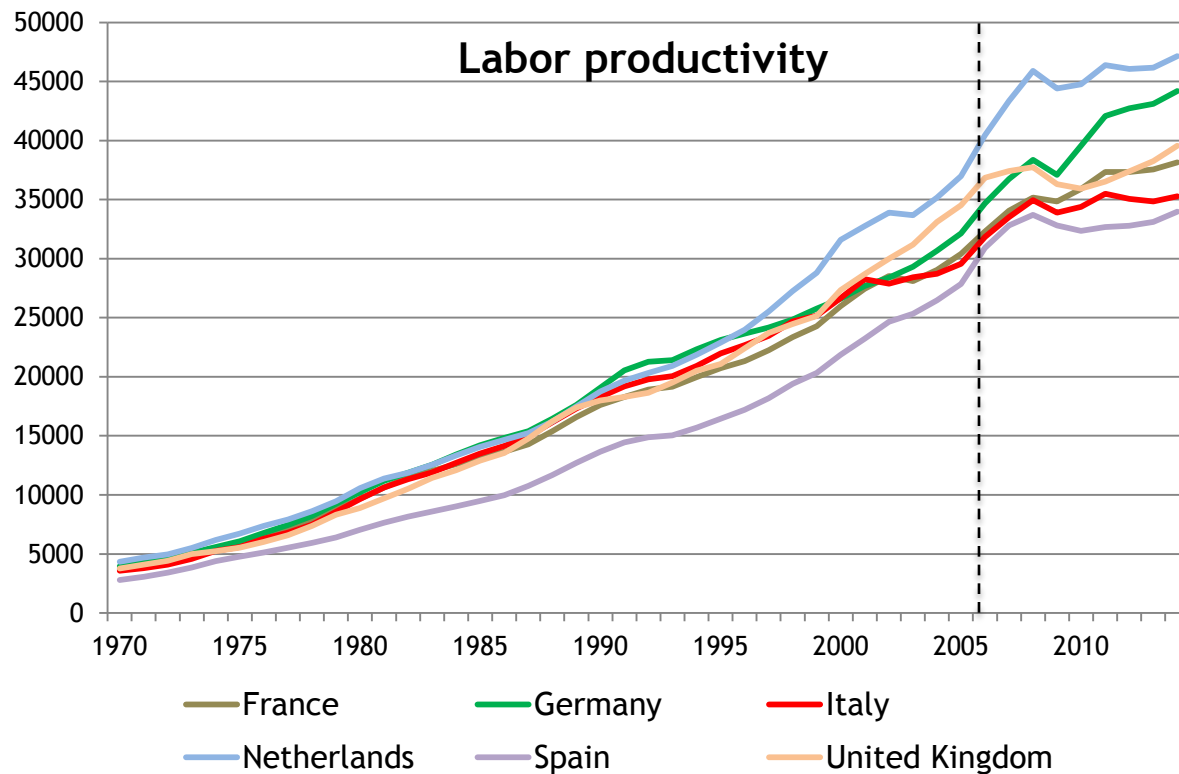
Industrial dynamics and innovation: a slowdown

What is industrial dynamics?

Productivity and Innovation dynamics:
the European and the German case

- Innovation driven development of industries
- Industrial dynamics is not an uniform process
- From risk to uncertainty: Innovation and investment decisions
- New directions in innovative activities

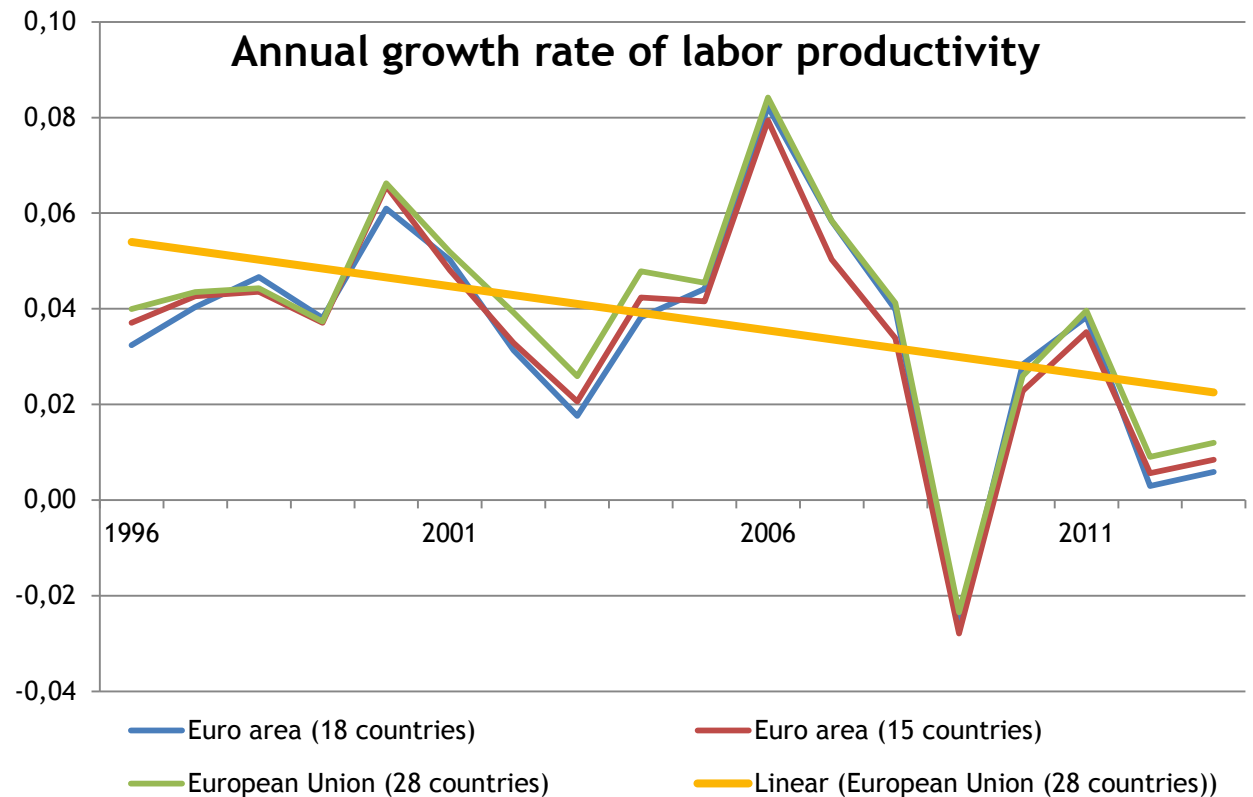
- Slowing down of labor productivity growth
- Especially after 2008
- Financial crisis ↔ technological exploitation?



- Declining growth rates of labor productivity
- Potentials exploited?

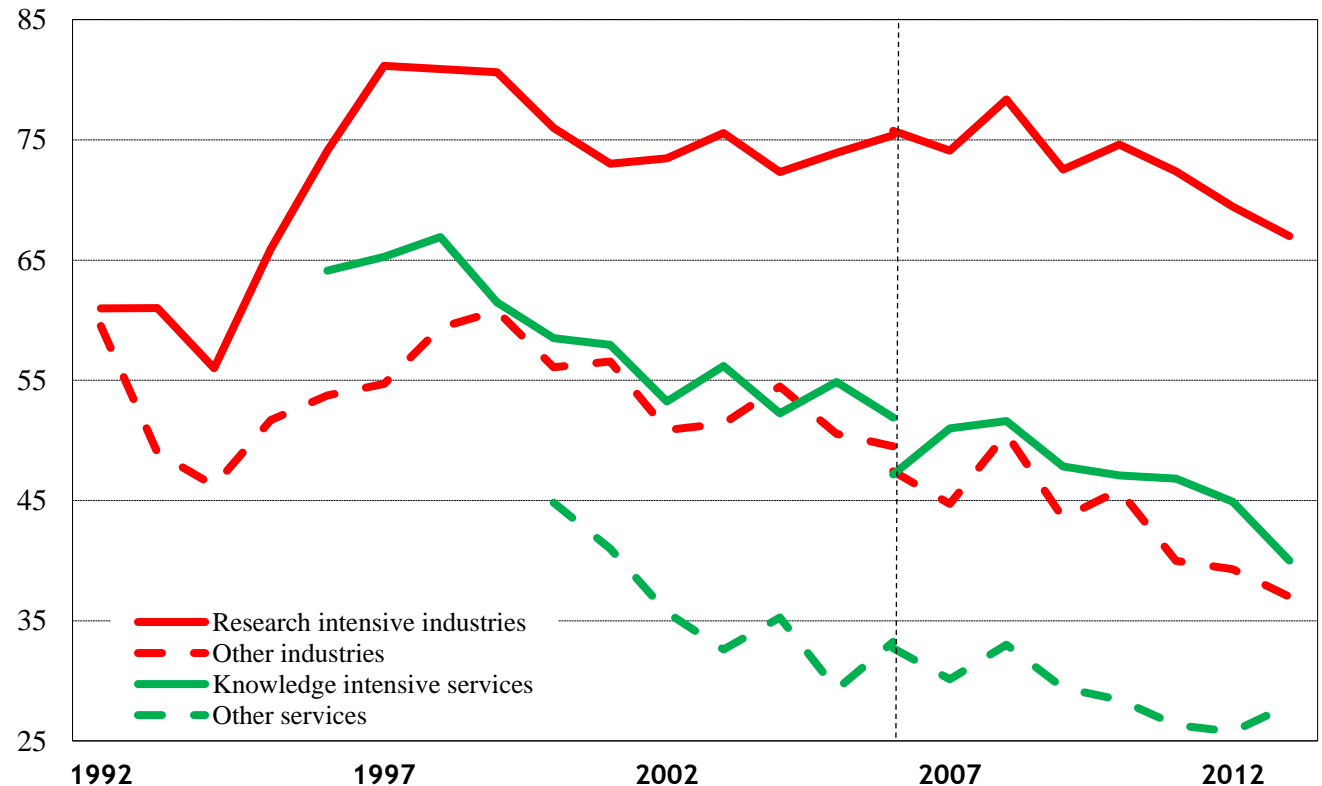


- Declining growth rates of labor productivity
- Different EU areas



Share of innovative firms in all firms in %

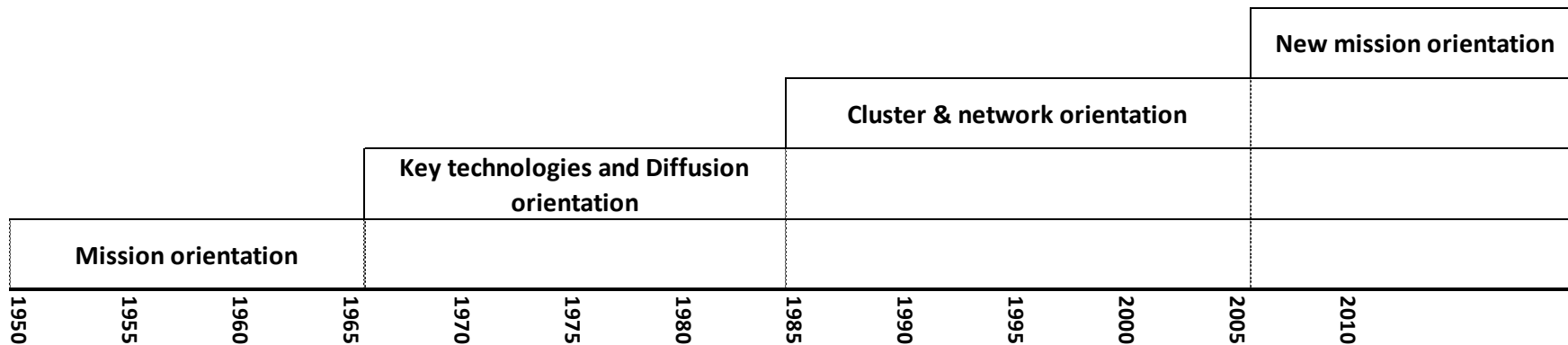
- Declining innovation activities in **Germany**
- Clear decline already before 2008
- and also after 2008
 - prosperous economic development
 - easy credit conditions

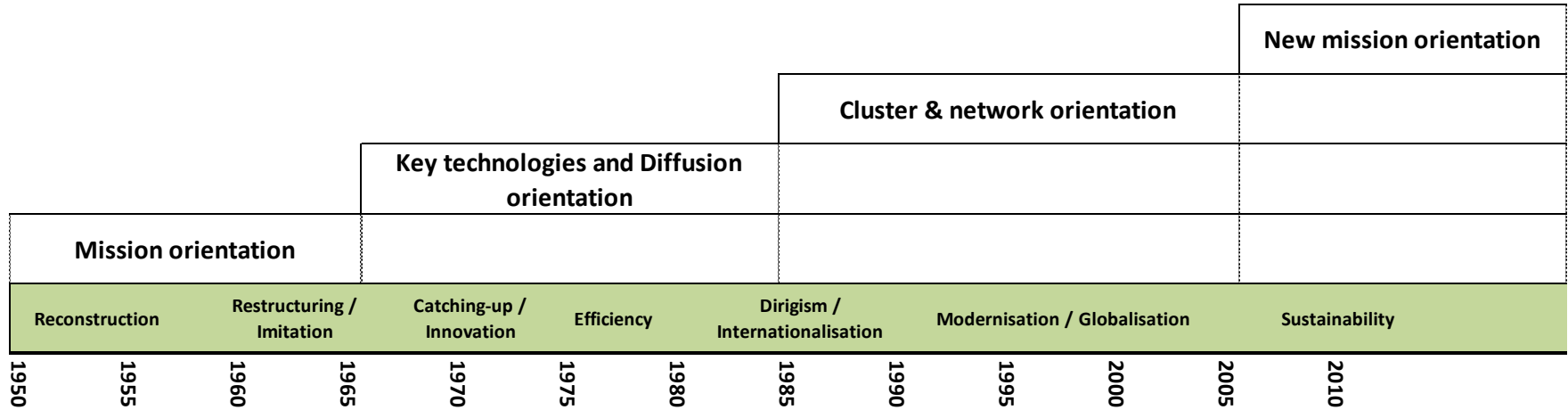


What is / can be the role of policy?

Policy styles and their „times“

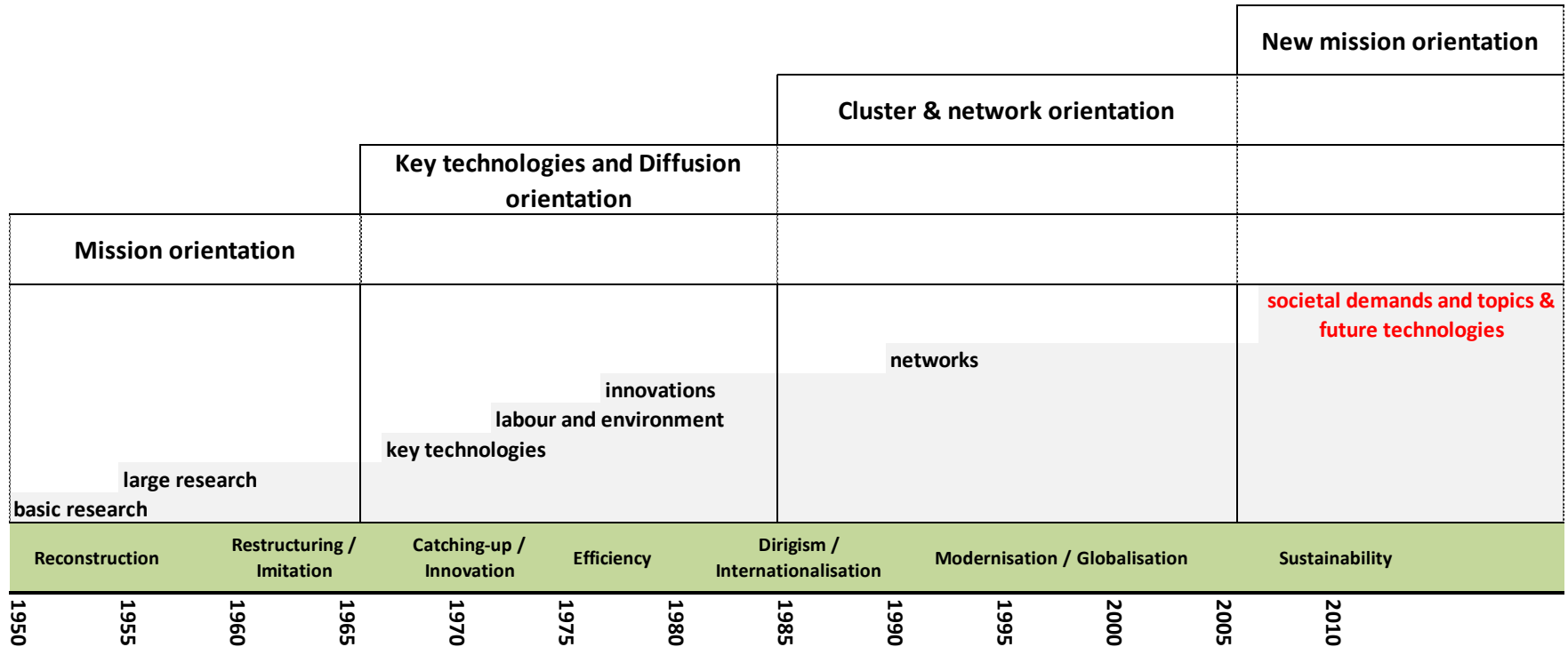
The new mission oriented policy





- Changing styles, targets and means

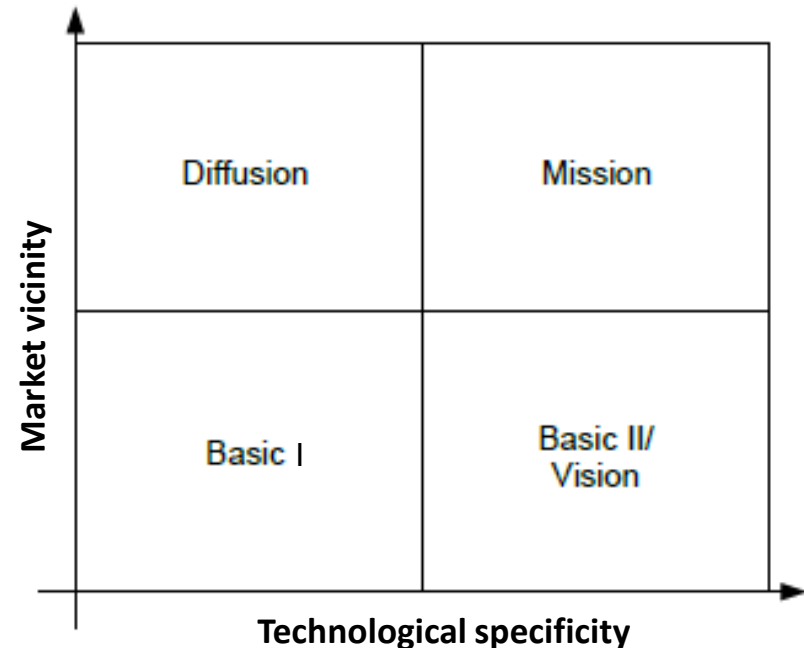
Along Fier/Harhoff (2002)

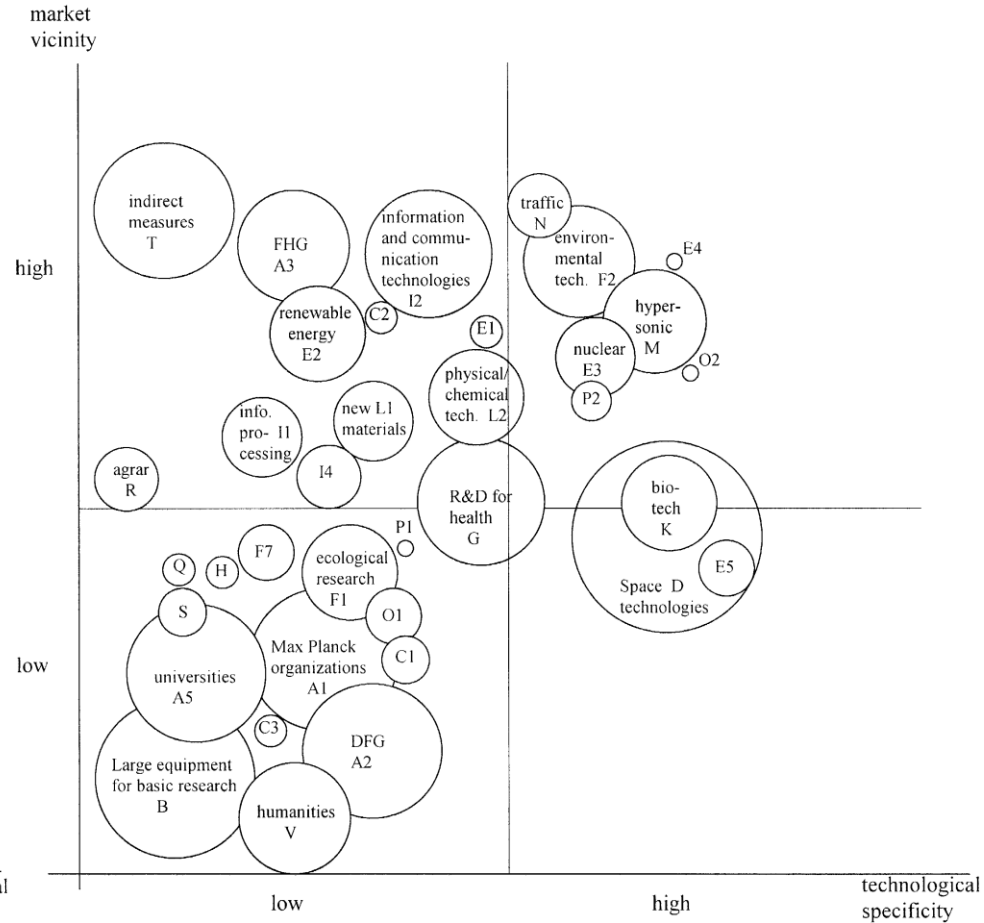
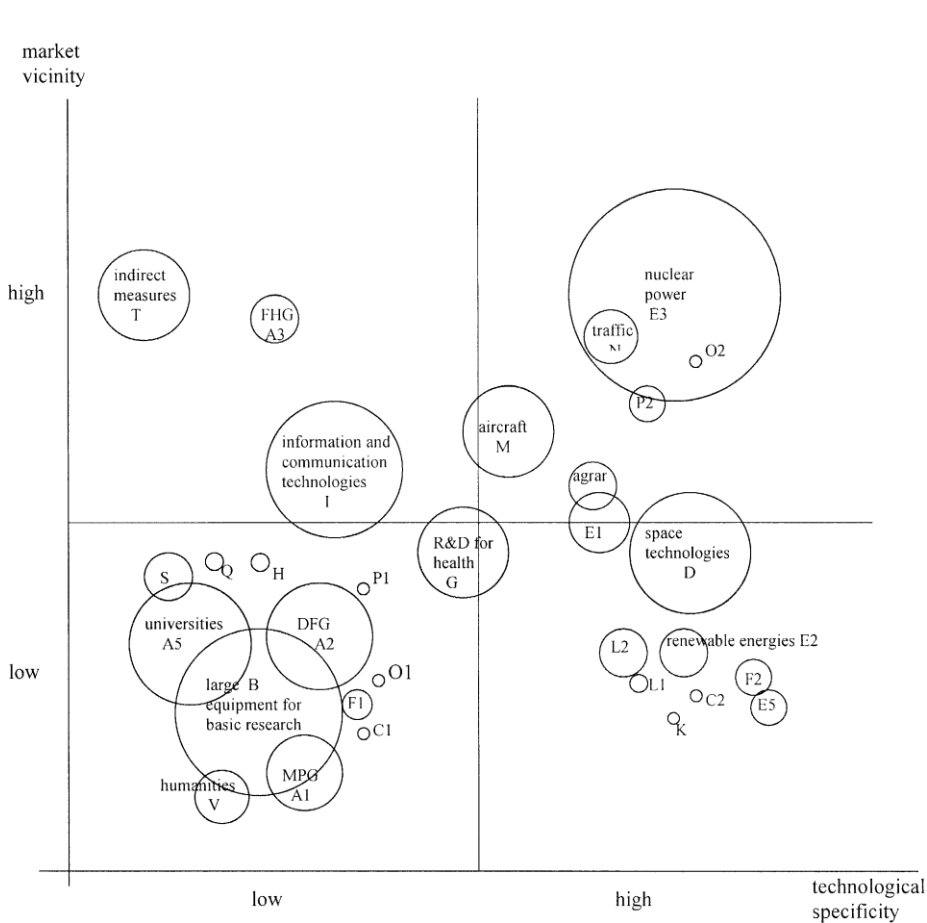


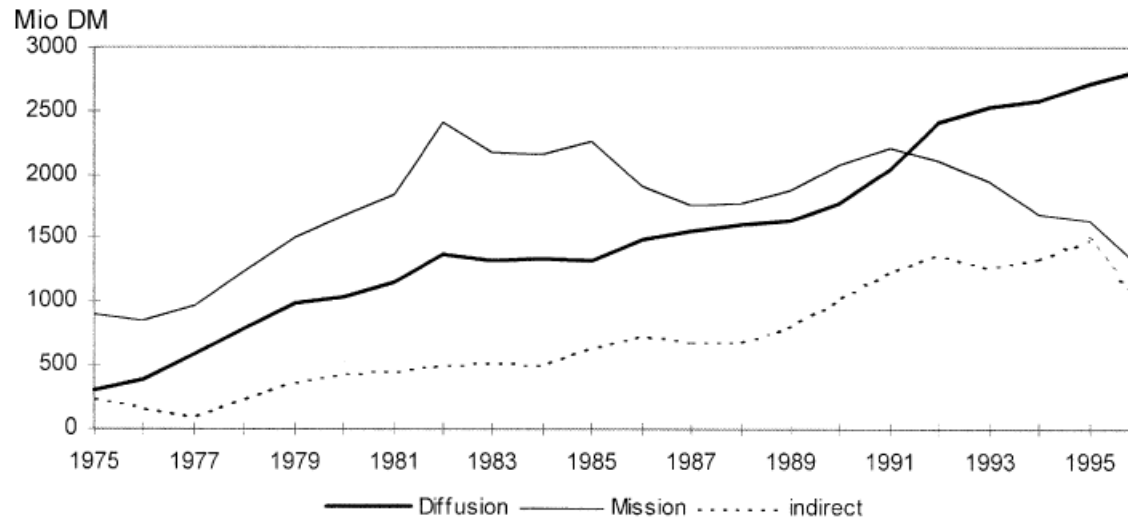
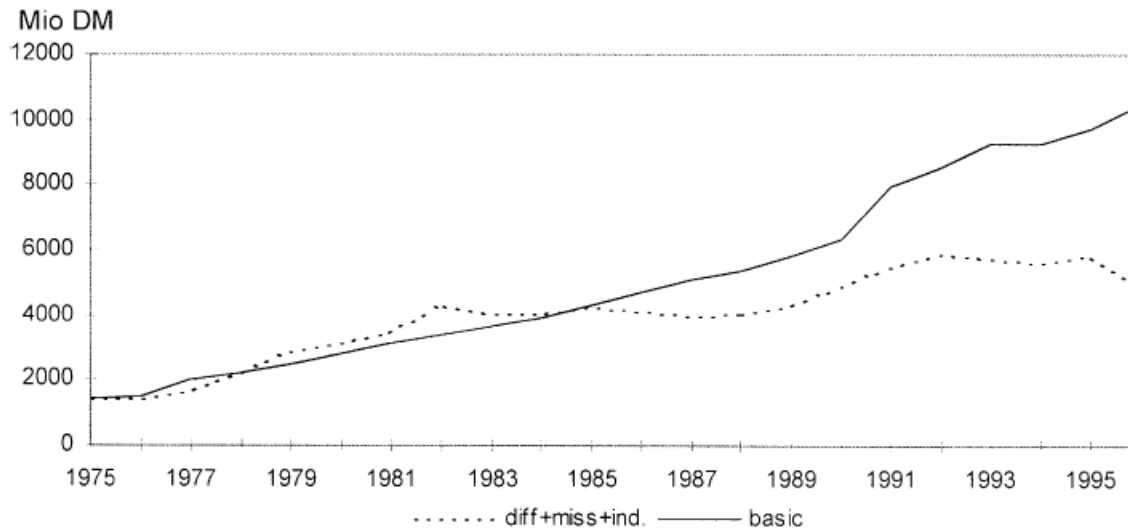
- Changing styles, targets and means

Along Fier/Harhoff (2002)

- **Diffusion:** low technological specificity, high market vicinity
- **Mission:** high technological specificity and clear idea of economic application
- **Basic I:** basic research in a narrow sense; no market relevance
- **Basic II:** technologically specific, but far away from economic relevance







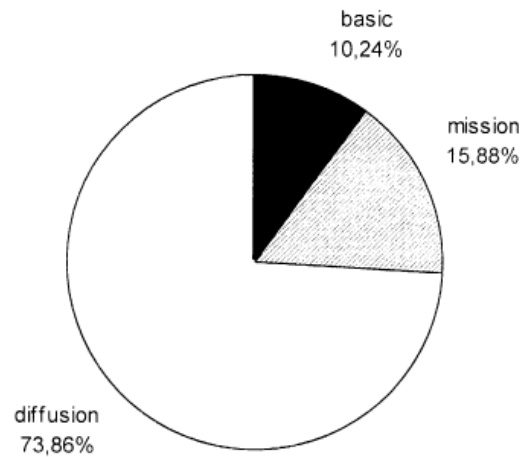
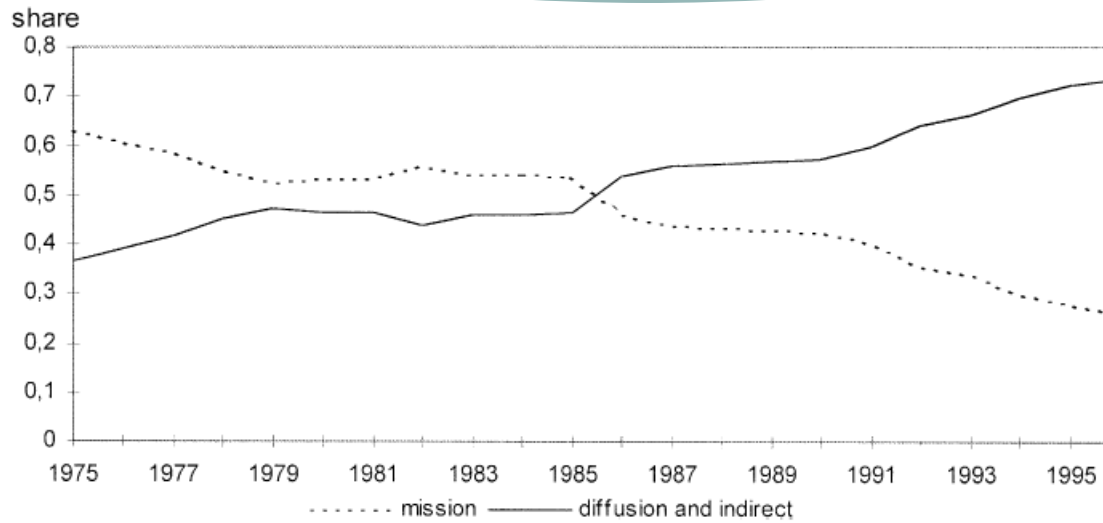
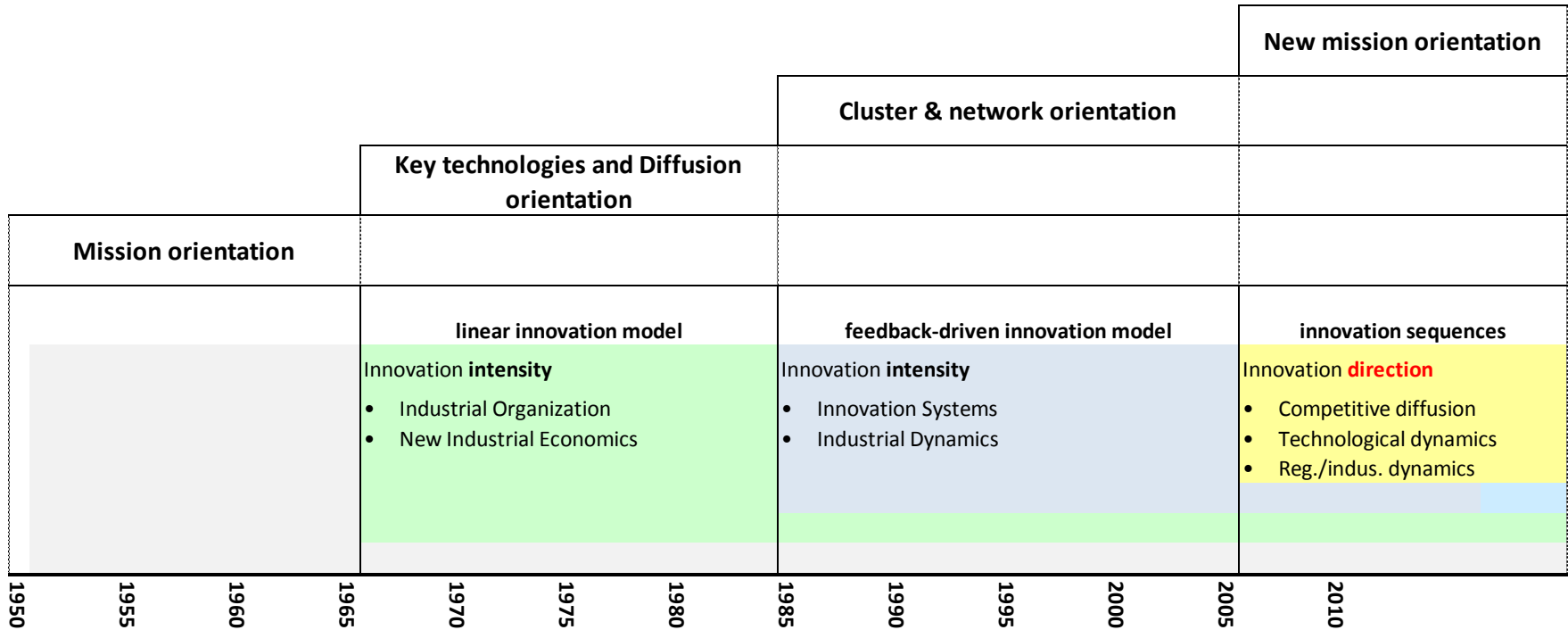
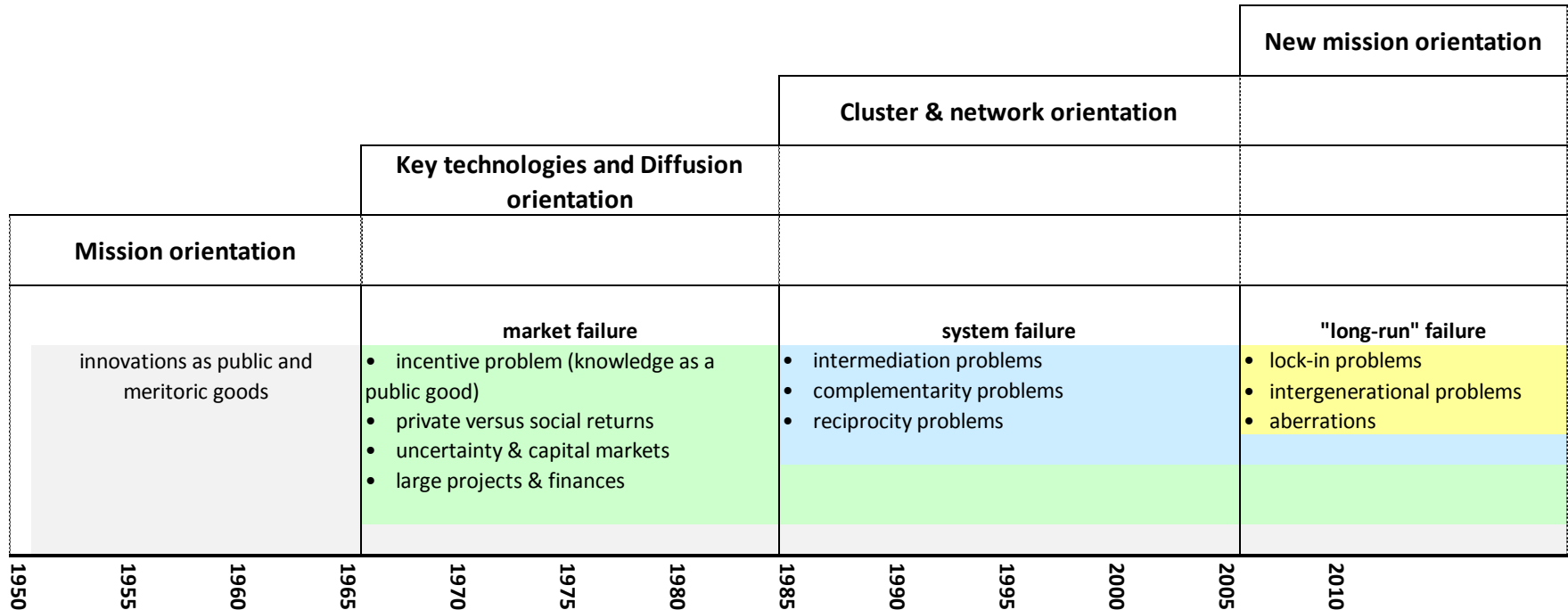


Fig. 6. Shares of co-operative measures 1996.



- Theoretical foundations and viewpoints
- FAZ end of the 1980ies / early 1990ies
 - Weak innovation in the German economy! → A problem of incentives or of competencies?



- Not intensity but direction of innovation as a policy relevant problem
- From explicitly emphasizing the technological solution (mission) toward emphasizing the problem solution (new mission policy)

Expectations

A new direction - how to get it right!

New Mission Orientation: Germany's High Tech Strategy

Schumpeterian Catalytic Policy I: Policy Mix

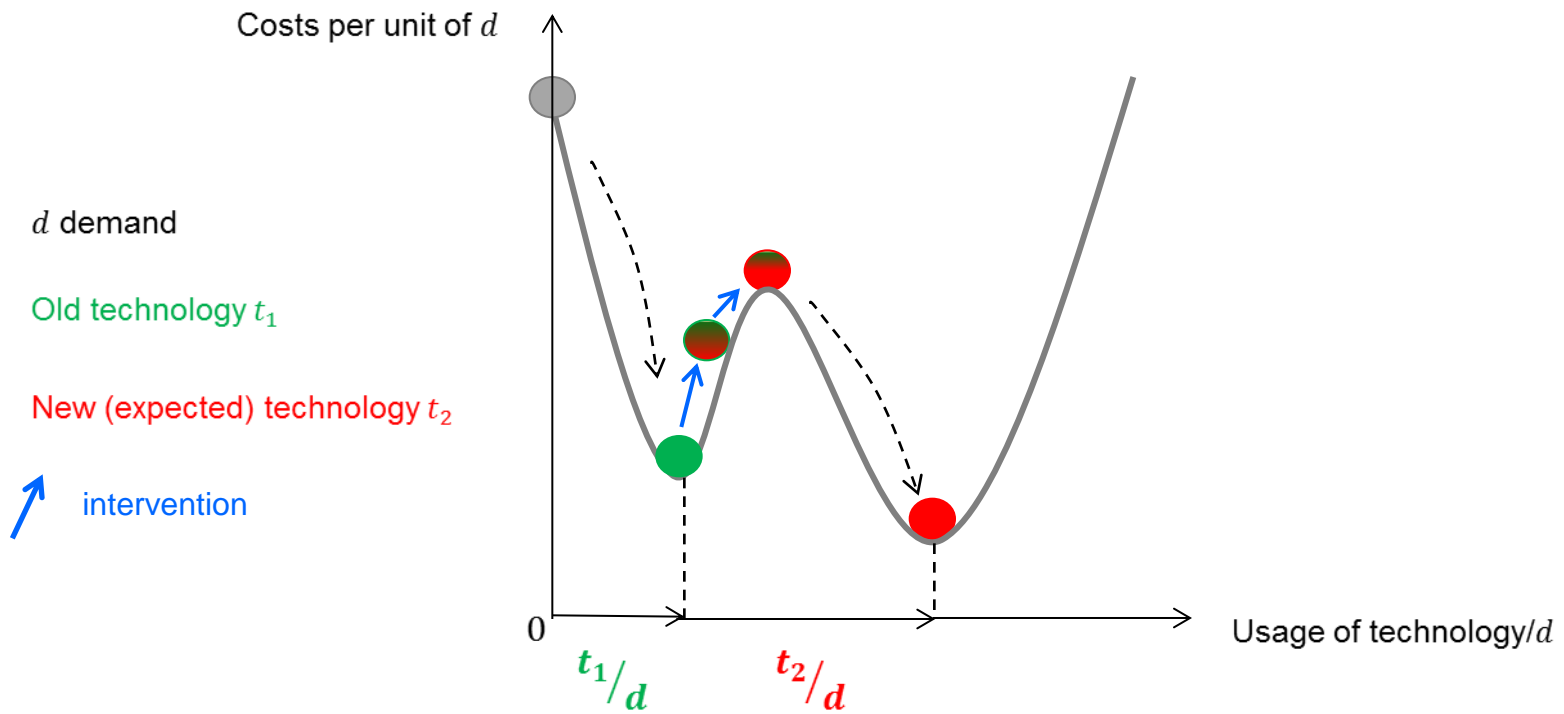
Schumpeterian Catalytic Policy II: Entrepreneurial power

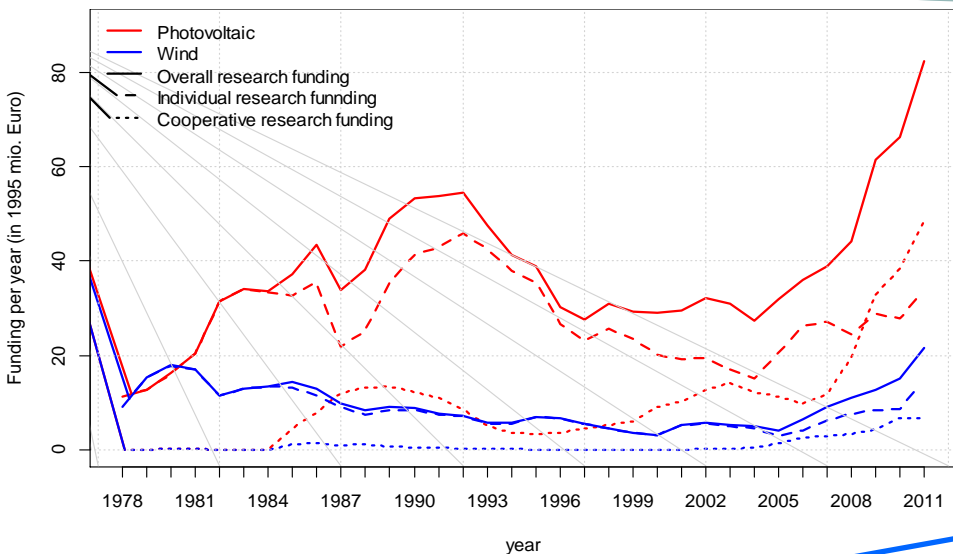
- **High Tech Strategy in Germany**

- prioritising future challenges relative to prosperity and quality of life
- strengthening the dynamism of innovation in industry
- consolidating resources and promoting transfer
- creating favourable conditions for innovation
- strengthening dialogue and participation



- Digital economy and society:
 - *Industrie 4.0 // Internet of Things*
- Sustainable economy and energy
 - *Energiewende*
- Innovative workplace
- Healthy living
- Intelligent mobility
- Civil security





Case: Energy technologies

- Overcoming system lock-in
- Policy mix
- **Transition to a new trajectory**

Technology-push

Demand-pull



Overarching instruments

Electricity Feed-in Law

Renewable Energy Sources Act

PV related instruments

1,000 Roof Program

100,000 Roof Program

Wind related instruments

100/250 MW Wind Program

Cantner/Graf/Hermann/Kalthaus (2015)

- **The initial problem: Incumbents**
 - in favor of dominant design
 - once motivated, power to achieve mass market adoption
 - strong influential power, financial resources, cost reductions (incremental innovation & economies of scale)

stimulate incumbents

Case: Alternative Technical Vehicles

- Policy focus on SME
- Transition to a new trajectory

- **The solution: Entrants**
 - stimulate incumbents' R&D
 - (1) direct: competitive & complementary forces
 - (2) indirect: stimulate demand, enlarge scope of niche markets, master new technologies
 - entry barriers, liability of newness, fail to reach mass market penetration

Cantner/Dieckhoff (2015)

Conclusion

- Slow down of industrial dynamics & innovation activities in Europe
- Indicates exploited technological potentials, uncertainty and/or lock-in of potential innovators
- **New mission policy** → flagging societal needs, inducing major technological changes
- Focus on the **direction of change** instead on its intensity
- **Schumpeterian “Catalytic” policy**
 - enabling transition to a new trajectory
 - policy mixes and entrepreneurial power

THANK YOU!