



Mobilizing the innovation environment for challenge-driven change

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**The Nordic Region – an attractive place for advanced
businesses?**

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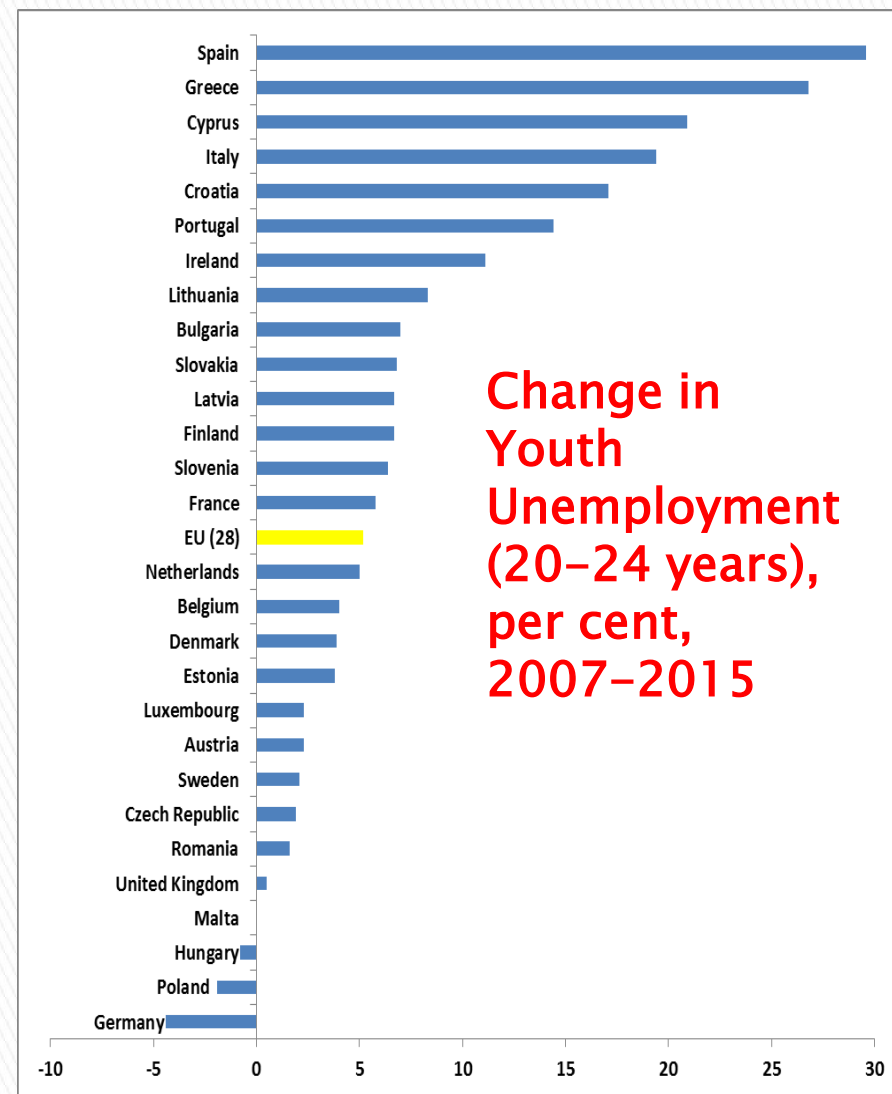
Challenges for Europe



- ▶ **The stagnation challenge:** Slow growth, unemployment
- ▶ **The environmental challenge:** The need to transform the economy to sustainability, and to do it quickly
- ▶ **A new policy stance addressing economic and environmental challenges required**
- ▶ **With innovation policy as a central element – mobilizing the innovation environment is essential for succeeding in challenge-driven change**

The end of the road for the Lisbon-Barcelona agenda ?

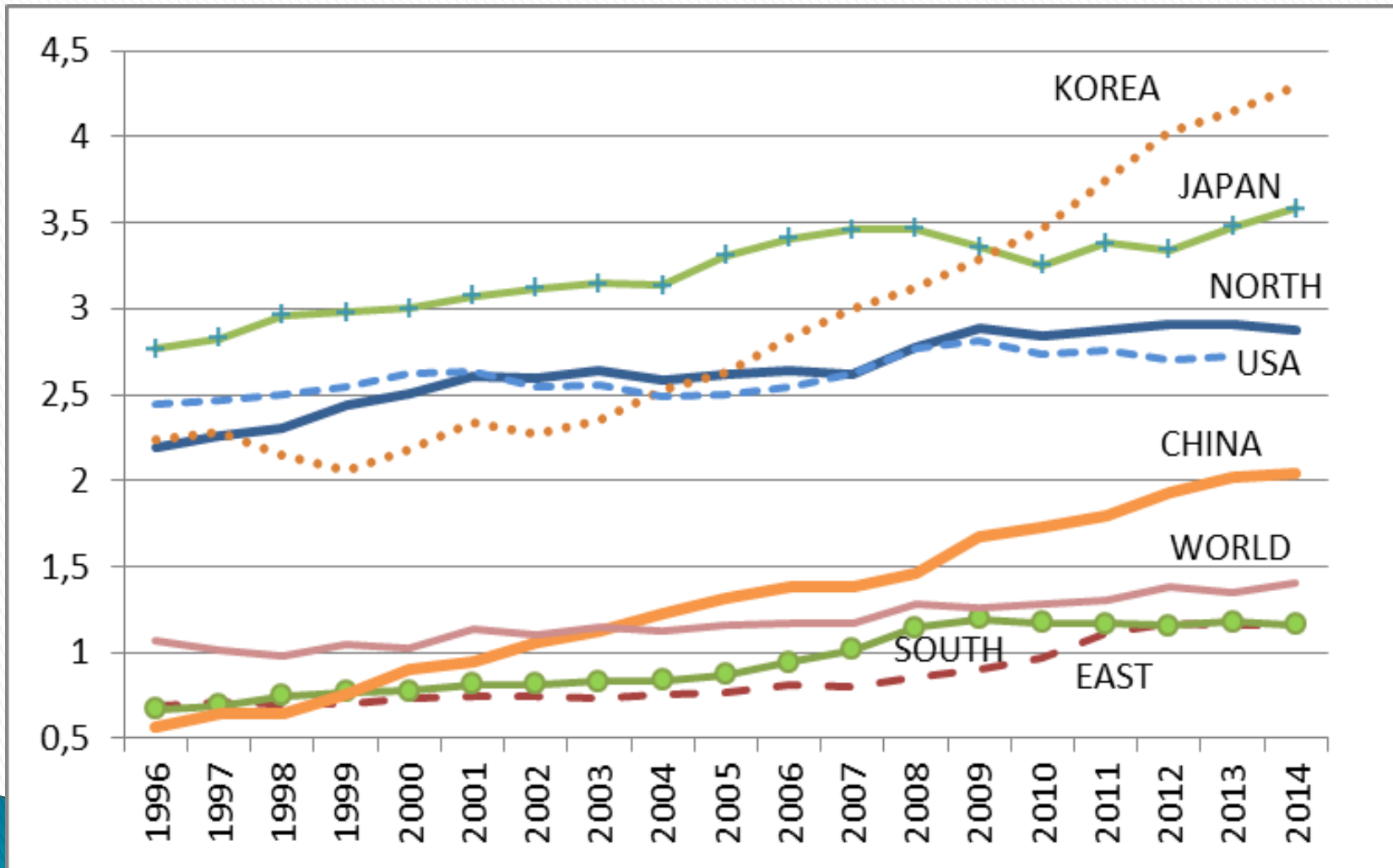
- Lisbon-Barcelona (2000 -): Make Europe the **most dynamic knowledge-based economy** worldwide & **catch up** with the US
- Through **increasing R&D investments to 3% of GDP**
- Result: **no catch up** with the US, **stagnation** (also in Northern Europe), **unemployment**, parts of Europe **falling behind**



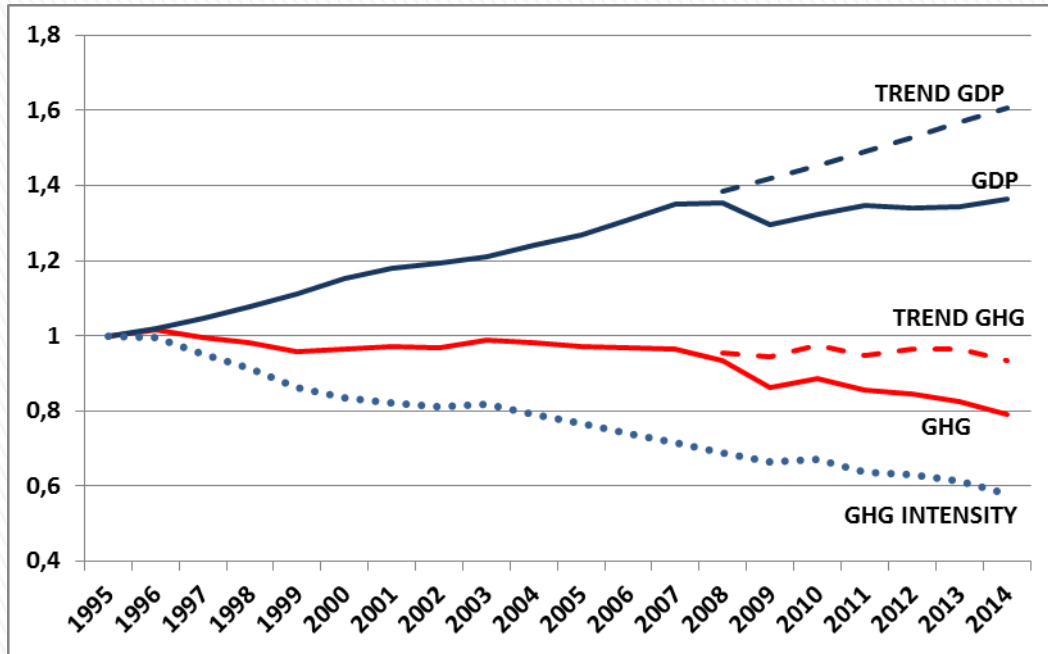
Not delivering!

Europe: Stagnating R&D

(share of GDP, 1996–2014)



The climate challenge: Is Europe on the right track?



To reach 2100 goals, the GHG intensity must decline **twice as fast** as in the past (or **GDP must shrink every year**).

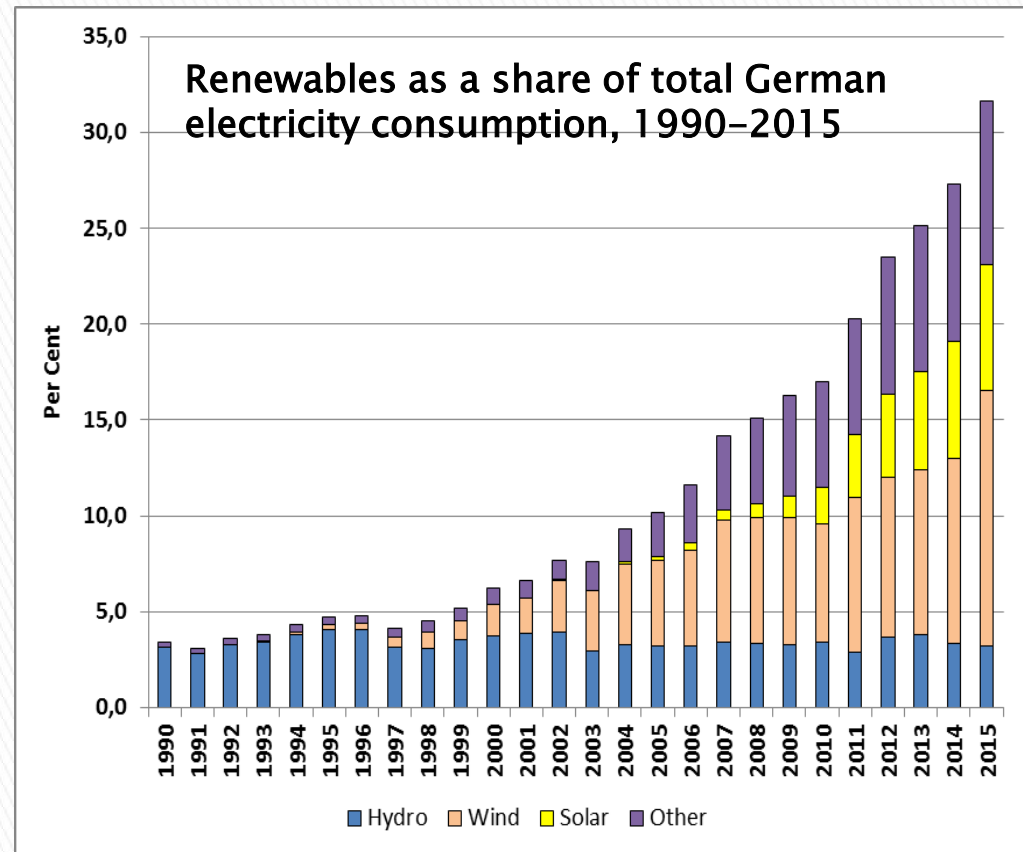
GDP growth , GHG emissions and GHG intensity
EU28, 1995-2014

Recent decline in European GHG emissions caused solely by the crisis

A radical transformation of the economy & a new policy stance required

But it can be done! And quick! Germany's "Energiewende"

- ▶ **Bottom-up** initiative
- ▶ Supporting deployment (demand)
- ▶ Several technologies supported (avoiding premature lock-in)
- ▶ Surprisingly rapid transformation, 250 000 jobs created
- ▶ Very positive global repercussions
- ▶ Other examples: Wind-energy in Denmark



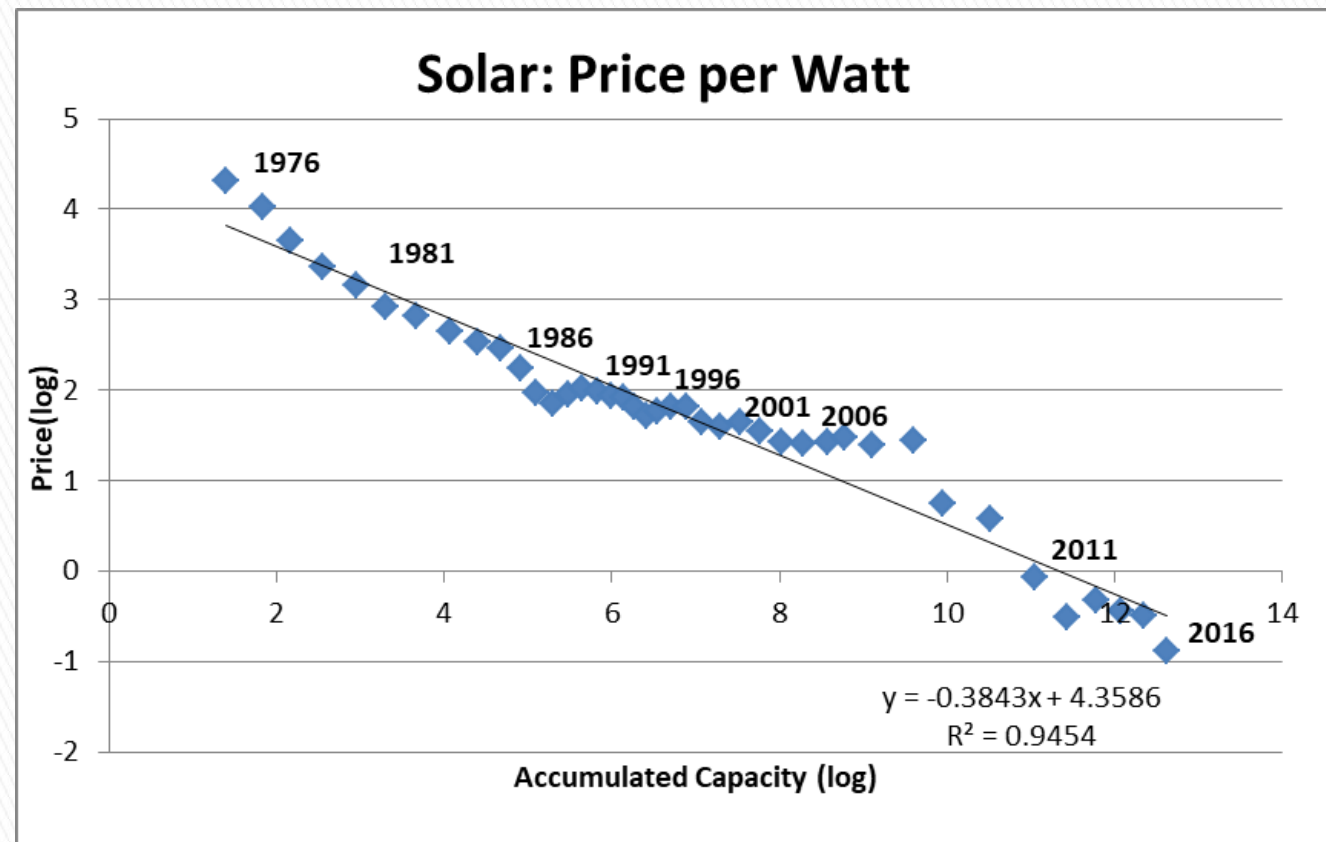
Germany's "Energiewende" – supporting transformation, diffusion and innovation

Renewable energy: A new Technological Revolution




- Rapidly declining costs
- Unlimited availability
- Broad applicability
- Pervasive effects

Renewables, electrification & ICTs will transform the global economy



Innovation, challenge-driven change & policy

- ▶ Innovation is not primarily about **generation of new ideas**
 - ▶ But about exploiting such ideas **in practice** in order to provide **solutions to problems/challenges** that arise - such as **climate change** - and **enhance economic performance**
 - ▶ A **potent force for change** not only in «high tech» or «science-based» sectors but **in all parts of society** including services, public sector etc.
 - ▶ Therefore **all ministries** (and **government at all levels**) need to **engage with innovation and innovation policy** in order to fulfill their mandate.
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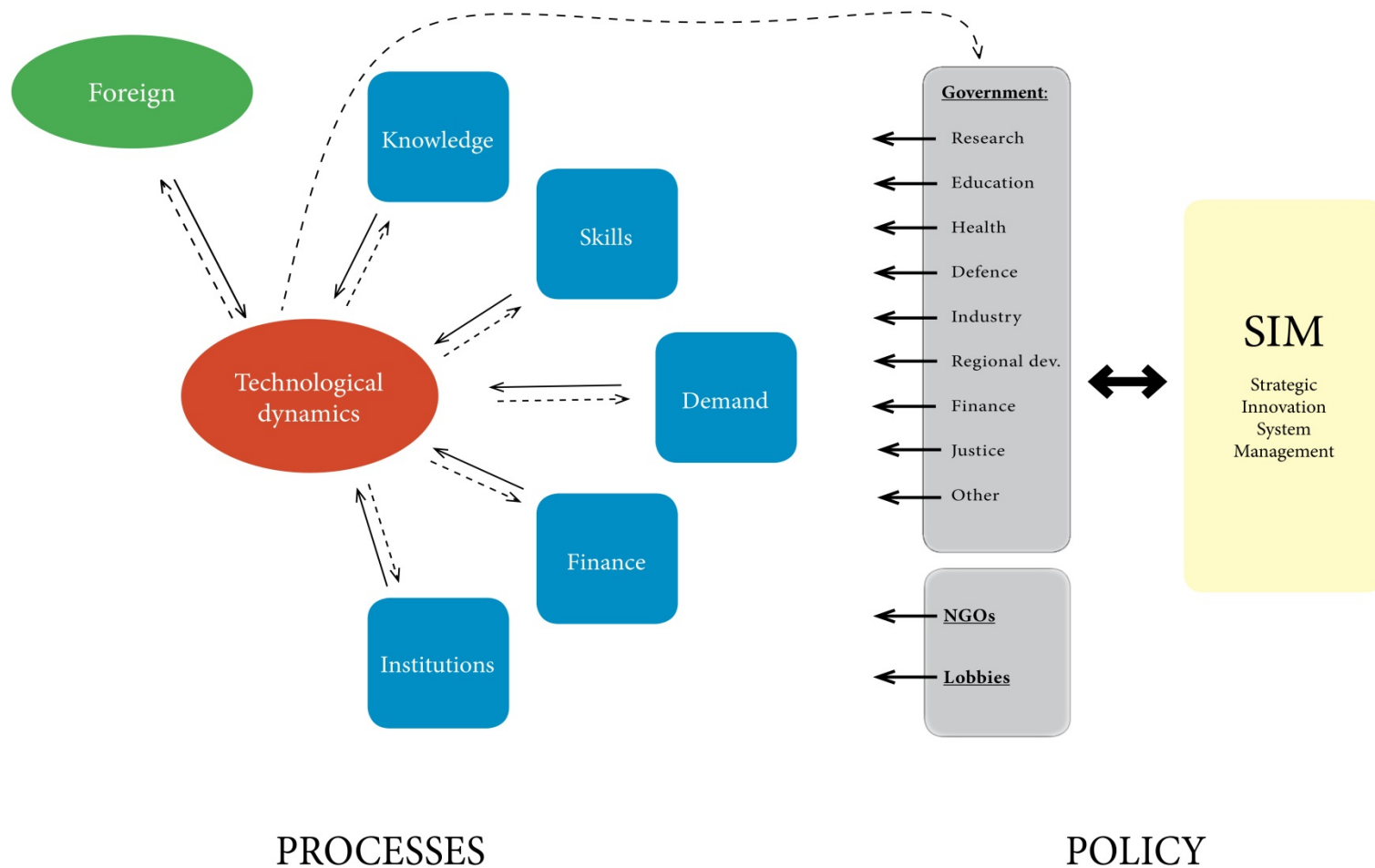
Providing direction to the collective innovation journey

- ▶ The “**problem-solving**” nature of innovation makes it particularly **relevant for dealing with challenges** that are high on policy makers’ agendas
- ▶ Many examples throughout history of “**mission-oriented (innovation) policies**” with great results (internet for example)
- ▶ Such policies are as relevant as ever; responding to challenges, such as **global warming**, and opportunities such as **renewable energy, electrification of transport, ICTs, circular economy ...**
- ▶ Lack of opportunity & uncertainty about (future) demand can seriously constrain innovation. **Credible political goals** for society’s development embedded in policy can lead to higher opportunity & reduced uncertainty, thereby **unleashing innovation**.

A holistic perspective: System analysis

- ▶ Innovations are “**new combinations**” of **knowledge, skills & resources**, many of which are sought from the firm’s **environment** (the broader system in which the firm is embedded)
- ▶ Little help in having access to some promising knowledge if other required factors (skills, finance, demand) are lacking: A **holistic perspective** important for policy
- ▶ **System analysis**: Study **processes** (functions, factors) that are essential for **innovation** & identify areas in need of intervention (so-called “**blocking factors**”)

Innovation system dynamics & policy



Source: Fagerberg, J. (2016) Innovation Policy: Rationales, Lessons and Challenges, Journal of Economic Surveys (DOI: 10.1111/joes.12164)

Lessons for innovation policy & governance

- ▶ Development of a common **vision** and strong involvement of the **political leadership** important
- ▶ And **close coordination of policies across a number of different domains**
- ▶ As well as development of **new forms of innovation policy governance (SIM)** involving **key actors** in the innovation system (as in for example in Finland and Sweden)
- ▶ **Continuous upgrading of capabilities in innovation agencies and government** required

Holistic innovation policy – can it work?



Learning from the Finnish experience?

A vision for the future ?

- ▶ A **vision** for the future needs to be based on a thorough analysis of **challenges and opportunities** (such as the ongoing revolution in **renewable energy technology**) on the one hand and the **resources and capabilities of national innovation actors** on the other
- ▶ Such a vision and the analysis underpinning it may provide a better basis for **strategic choices** that policy makers need to make, for example with respect to **goals** for innovation policy, selection of **strategic initiatives** and the **mix of policy instruments**
- ▶ The process of developing such a vision should engage a **broad range of actors** including policy-makers at different levels, public sector organizations, NGOs, businesses and the wider public.

Soft coordination

A new (innovation) policy stance



- ▶ **Innovation policy**: not mainly about R&D, but creating **opportunities** (e.g., demand), supporting **experimentation**, enhancing **learning & capabilities**
- ▶ A **vision (direction)** about transforming the economy towards **sustainability** essential
- ▶ Main policy elements: Support **renewables**, increase **energy efficiency**, electrify **transport**, actively **reduce polluting sectors** (e.g. coal, oil and gas etc.)
- ▶ Need to penetrate **all policy areas (sectors/levels)**
- ▶ Changes in **governance** (coordination across **levels & sectors**) required

**Riding the waves of renewables,
electricification & ICT**