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# INNOVATION-BASED REGIONAL STRUCTURAL CHANGE - A NEW REGIONAL POLICY PARADIGM IN GERMANY

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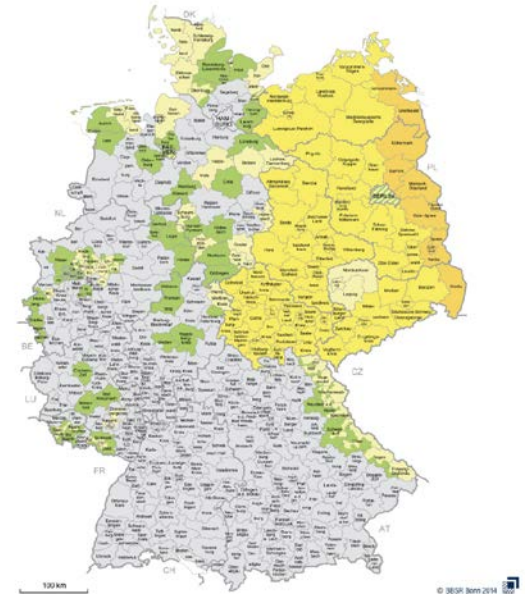
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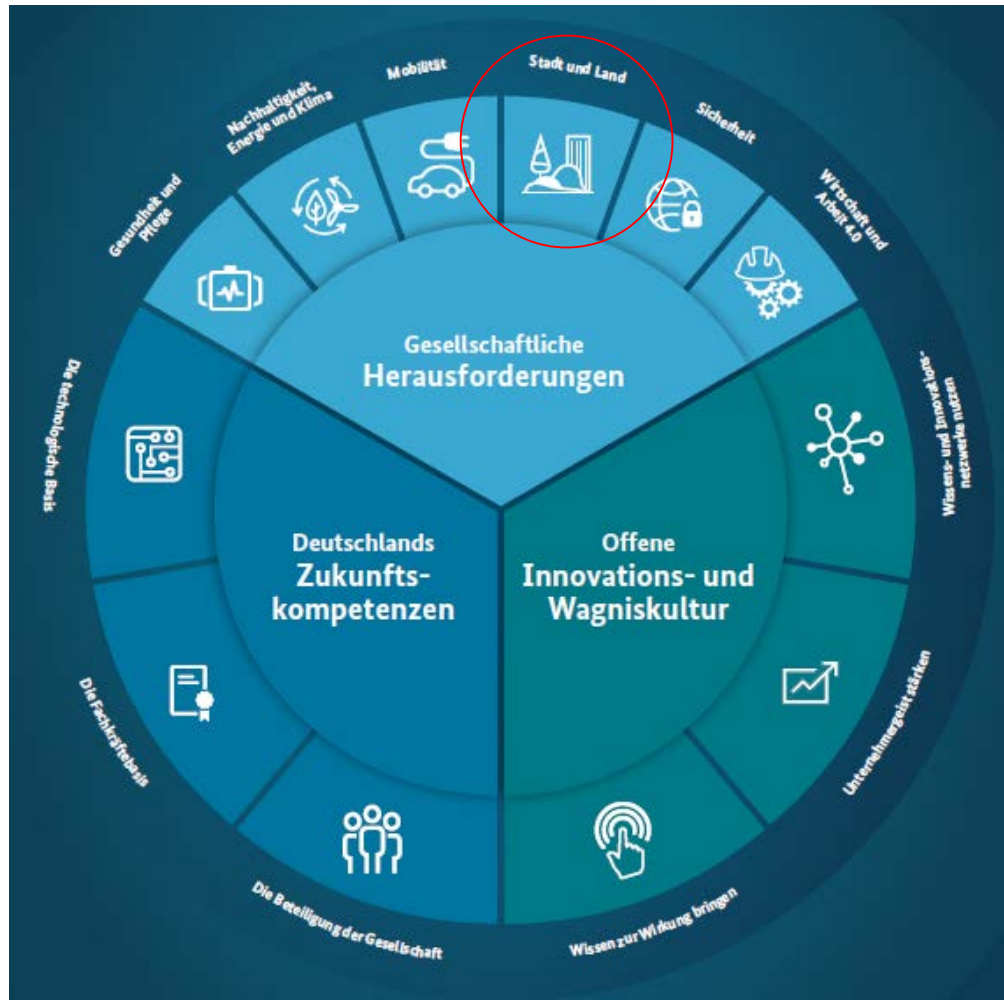
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# Political background

- **Regional structural funding** (ERDF, complementary national measures) so far mainly directed towards **regions in the eastern federal states**
- Coalition agreement and new Hightech-Strategy 2025 (both published 2018): **Enlargement of structural funding** to all "structurally weak" regions in Germany from 2020 onwards
- **Two approaches:** (1) Reorientation of the funding mechanism "Improvement of the regional economic structure, (2) Implementation of a new framework concept "Innovation and structural change" (new societal challenge "Town and Countryside" in Hightech-Strategy 2025)



# New Hightech-Strategy 2025



- Framework concept "Innovation and structural change"
- Rural areas in the age of globalization
- Initiative "Solar construction /energy efficient cities"
- Resource-efficient urban quarters
- Innovation platform "Future city"

# Structural weakness and change

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## Structural weakness

- Relative attribute, depending on benchmark, level and range of (national) development level

## Regional (structural) change

- Shift in the industry structure of a region (or nation), resulting in the change of spatial structure
- Processes changing potentials, competencies and skills as well as interrelations and infrastructures within a region
- Policy concept: regaining, maintaining or upgrading location advantages with the aim of economic efficiency, innovation, employment, income and social cohesion

## Sectoral change

- Shift of the sectoral structure of a region caused by different growth of single industries

## Measuring structural change

- Change in shares of industries/sectors, GDP growth, (un-)employment, R&D and innovation expenditures
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# Why "innovation" in supporting structurally weak regions?

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## Cons

- Waste of public money
- Innovation = technology → resources, knowledge-base, networks, research potential do not exist; innovation promotion is ineffective and does not make sense

## Pros

- Every region has chances for development
  - New ideas, business models and products (in a broader understanding of innovation) can be developed in every region
  - Capacity building, upgrading of competences, specialisation are especially important in so far structurally weak regions to improve their situation
  - Policy objective: Structurally weak regions must play a more active role in the national innovation system (loss of development potentials)
  - Additionality effects of innovation funding (e.g. behavioral additionality) can also be observed in structurally weak regions
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# Theory: Causes of regional structural change

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- **Location- and space economy theories**
    - **Space differentiating factors:** agglomeration factors, transportation costs, production factor land
  - **Spatial mobility theories**
    - facilitation of mobility, obstacles to mobility, ability for regional interaction
  - **Regional polarization theories**
    - centrifugal spread effects, centripetal backwash effects
  - **New economic geography**
    - **Influencing factors on structural change:** regional human capital stock, economies of scale, external effects of knowledge and learning (spillover effects), productivity of the research sector, knowledge diffusion, regional capacity for interaction, specialisation, path dependence, path creation
- regional policy**

# Theory: Innovation

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## ▪ **Characteristics of innovation processes**

- cumulativity, interactivity, complexity, uncertainty, dependence from scientific output and progress, from knowledge and learning
- different levels of innovation (incremental – radical)
- different forms of innovation (product, process, social, user, collaborative, sometimes IT-based)
- different relevance of proximity, different forms of proximity (spatial, cultural, organizational...)

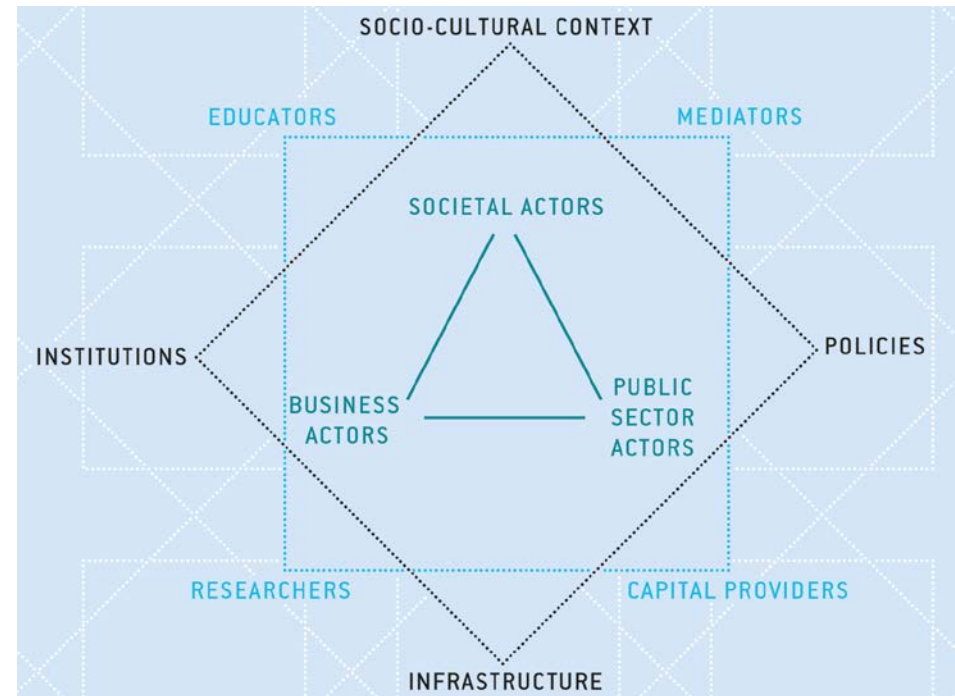
## ▪ **Innovation systems**

- national, sectoral, technological, regional
- niches, regimes, landscapes → technological transitions



# Innovation systems and innovation policy

- **Equipment of a region with actors and organizations**
- **Innovation-oriented socio-cultural context**
- **Innovation-supporting infrastructure**
- **Innovative capacity of actors and organisations**
- **Enablers from science, business, civil society and government**
- **Intra- and interregional interaction ability**
- **Flexibility of interactions over time**



Source: Fraunhofer ISI

# Innovation policy

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- Appropriate **spatial framework for action**
- **Innovation / Innovation level** at the regional level
- **Regional innovation policy** ("from below")
- **Regionalized innovation policy** ("from above")
- **Place-based policy** ("one size does not fit all")
- **Overarching structural policy framework** (GRW, ERDF, ESF)
- **Balance versus growth orientation** ("Strengthening the strong")
- **Strategic Intelligence, Absorption Capacity, Network Capability**



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# Regional structural policy

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- **Regional policy:** socio-economic promotion of single regions
- **Regional structural policy:** socio-economic promotion of the whole structure of regions
- **Mobility policy:** Reduction of trade barriers, promotion of spatial integration through reduction of transport and transaction costs

## Instruments:

- Infrastructure development (industrial sites / parks, traffic infrastructure), cost reduction in firms through subsidies (improvement of production conditions to generate economies of scale), qualification of labour

## Difference between regional and innovation policy

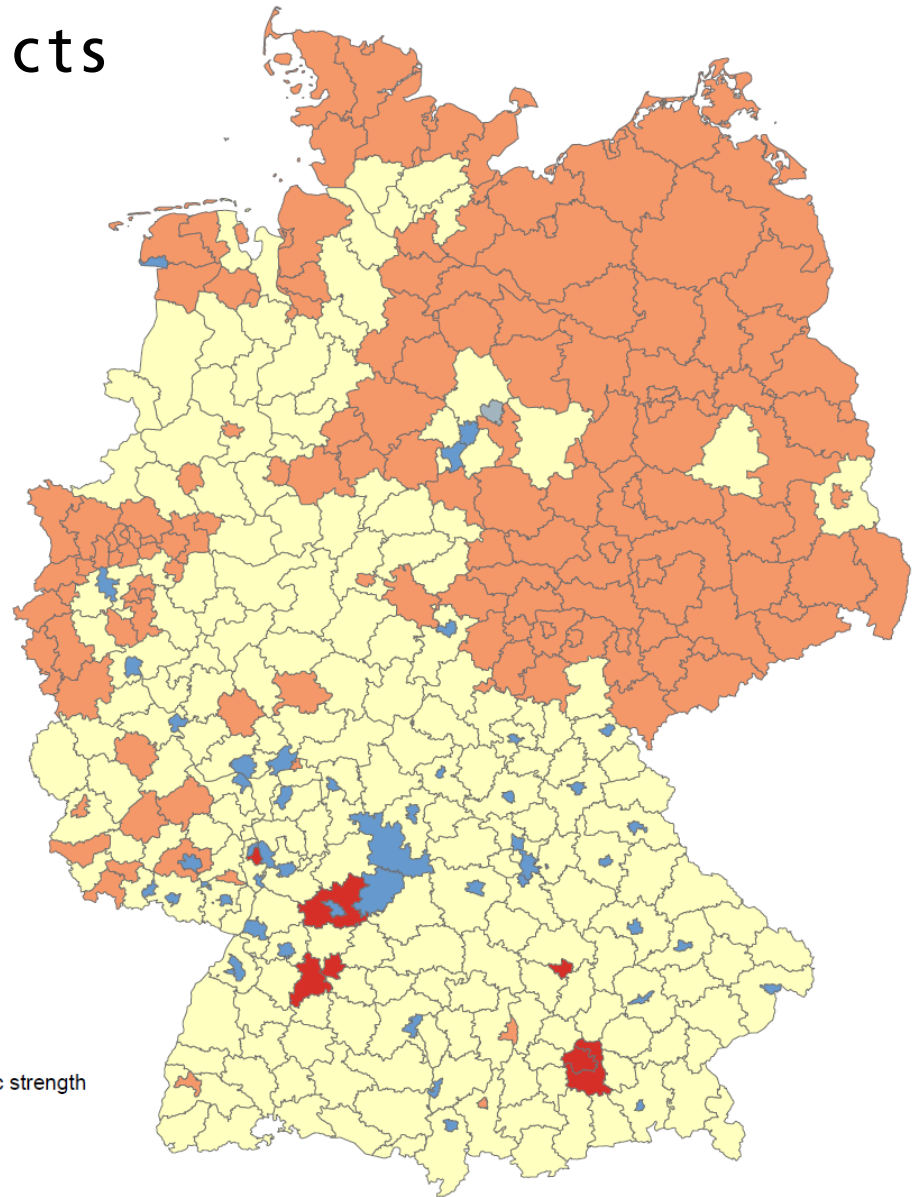
- Regional structural policy is per se **balance-oriented**
- Regional/regionalized innovation policy pursues **non-balance-oriented** growth policy objectives

# Possible policy conflicts

- Conflicts between these two policies are possible, especially when regional innovation policy is targeted towards economically strong regions
- If structural change in regions should be triggered by innovation policy, the conflict is not big, because most of the regions already qualify for regional structural funding

## Types of regions

- Urban region with public R&D
- Wolfsburg, industrial research centre
- Commuter region with medium economic strength
- Structurally weak region
- Economically leading region



Source: own calculations; map made by ESRI ArcGIS

# Empirical evidence from the literature

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- Coenen et al. (2015): **institutional factors outside the region more important than factors within the region**
- Ooms et al. (2015): **specialized regions** benefit from **market-oriented research**, **diversified regions** from **basic research**
- Kauffeld-Monz und Fritsch (2013) / Ooms et al. (2015): Goddard (2012) / Pugh (2016) / Bonaccorsi (2016): **higher education institutions** are important regional actors, universities with a special role in regions with diversified economic structures, **regional integration, suitable regional environment, knowledge transfer institutions** (TTOs)
- Blazek et al. (2013): central role of **regional actors** and **promoters** ("people matter")
- Almeida et al. (2011) / Klein et al. (2016): **intermediary organisations** for the promotion of networking and interaction, **knowledge brokers, promoters, pilots**

# Empirical evidence from the literature

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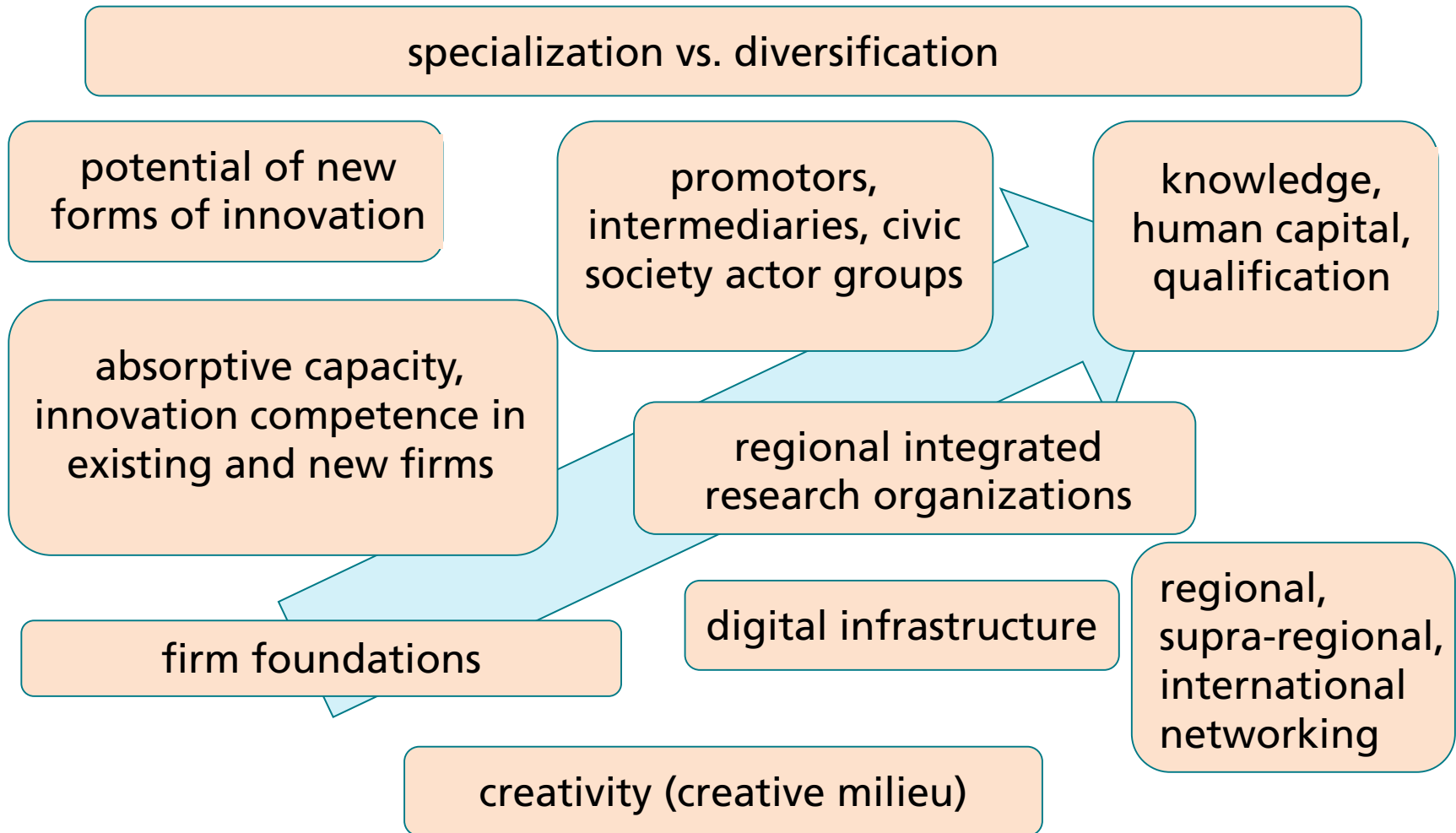
- Martin und Sunley (2006) / Grabher (1993): **path dependence and specialization, lock-ins**
- Hassink (2010) / Fromhold-Eisebith (2012) / Pike et al. (2010): **regional resilience: adaptation (short-term) and adaptability (long-term) by agents, cause-effect relationships and contextual conditions**
- Capello und Lenzi (2015): **knowledge differentiation:** skills / human capital in structurally weaker regions, scientific knowledge in other regions, **R&D funding no instrument for R&D-weak regions**
- Martin und Trippl (2014): **synthetic knowledge** (use / recombination of existing knowledge base) dominates in 'organizationally thin' innovation systems, companies profit from **applied research**
- Broekel (2013): Regions with **low innovation capacities** depend on (publicly funded) **cooperation projects**

# Conclusions on innovation policy

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- **Specialization / Related Variety:** Strengthen localization advantages focus on the 'right' specialization
  - Take **external influences to the region** into account, especially in the case of economic structural measures
  - Exploit the **potential of new forms of innovation** (besides technology)
  - **Strengthen transfer of universities through intermediaries**
  - **Develop the business environment for cooperation with universities/non-university research institutes**
  - **Promote innovation and cooperation** instead of pure R&D funding
  - Support **supra-regional networking**
  - Use **start-up support** as a transfer/innovation channel
  - Promote **qualification and creativity** (laboratories, platforms)
  - Develop the **digital infrastructure**
  - **Adapt strategies to regional needs** ("place-based approach")
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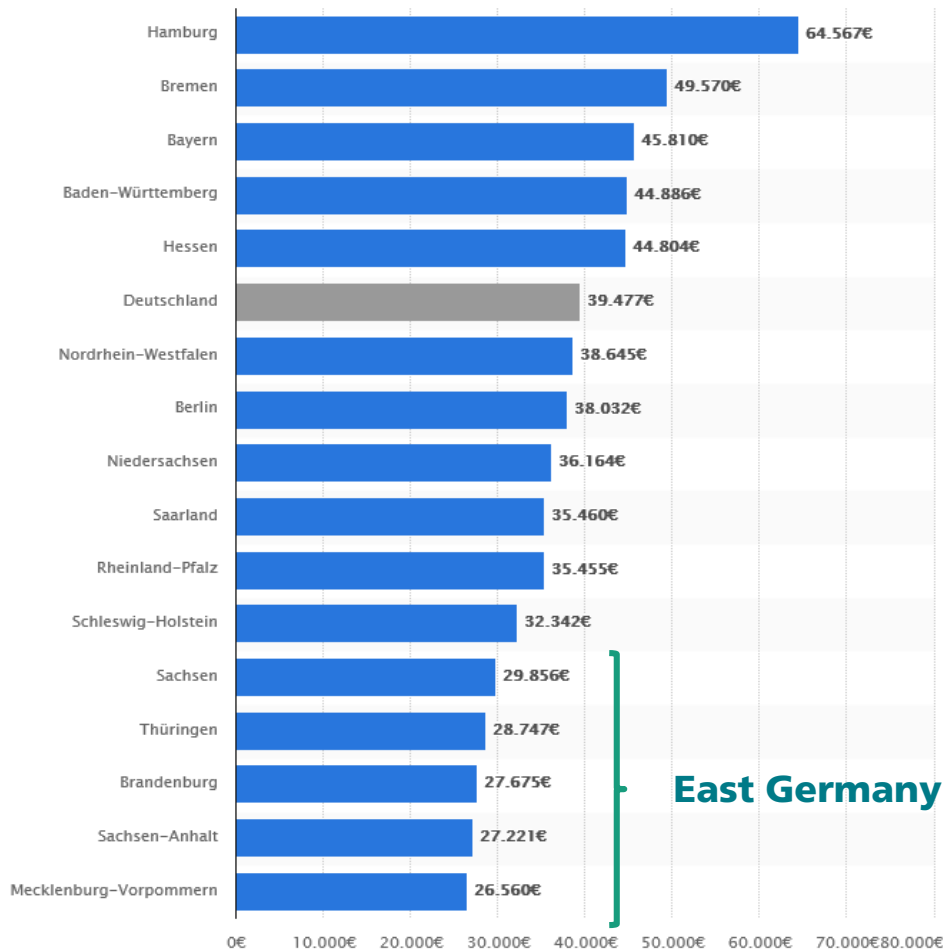
# Starting points for regional innovation policy



Source: own draft



# Per capita income in the German federal states 2017 (in Euro)



- Still the necessity to catch-up
- Focus more on innovation than on infrastructure development
- Disadvantage in firm size (large firms missing); public support of companies still necessary

Source: Statista

# Example: Change through innovation in the region WIR!

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- **Pilot programme** (2018) as start for further funding activities
- So far only **eastern Germany** (partners can come from other places)
- WIR! supports development of regional innovation concepts
- Initiatives will be promoted which **cross disciplinary, sectoral, institutional and administrative boundaries** and also include civic involvement
- Programme explicitly includes **regions beyond the existing innovation centres** as well as actors with no experience of innovation
- **Broad understanding of innovation** (technological, social and non-technological)
- **32 initiatives** selected by a jury to develop regional innovation strategy (concept phase)
- End of 2018 further selection decision for **implementation phase starting in 2019** (around 10 – 15 initiatives)
- Maximum of 5 to 8 million euros will be available in each selected initiative for the first two years

# Regional distribution of WIR! initiatives



Source: BMBF 2018

# Implications

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- In **Eastern Germany**, regional **structural funding should be continued** for all regions, but with closer integration of regional structural policy measures and regional innovation policy measures
- In contrast to Eastern Germany, **Western Germany** does **not require a nationwide funding programme**
- In Western Germany, "clusters" of regions (e.g. coastal areas, Ruhr area) should be the target group for funding
- **Regional interaction** should be supported in all structurally weak regions (innovation interaction), especially in those regions bordering or being close by economically stronger regions
- S3 activities ('Länder') should be closer linked to programmes/measures at the federal level ('Bund')
- Following the paradigm of openness and societal participation, **place-based initiatives "from below"** should be a guiding funding principle
- Locally oriented projects, but **involvement of external knowledge**

# Conclusions

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- Active support of innovation-based regional structural change is a new objective in national innovation policy (Hightech Strategy 2025)
- Up to now, classical structural funding and region-related innovation funding exist side by side
- Integration and coordination of different regional funding programmes
- Responsible ministries (Economic Affairs, Education and Research) follow own interests with different programmes regarding "regional structural funding"
- Smart specialisation strategies could be a good starting point, but are so far not well linked to the new regional focus at the federal (national) level
- Pilot programmes (like WIR!) exist and could act as basis for the enlargement of structural funding to all "structurally weak" regions in Germany from 2020 onwards
- Scientific expertise is necessary in this process

# Thank you for your attention

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