

RUHR-UNIVERSITÄT BOCHUM

THE SHIFT TOWARDS KNOWLEDGE ECONOMIES

THE NEW ROLE OF UNIVERSITIES FOR REGIONAL INNOVATIONS

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Economic structural change and the emergence of 'knowledge regions'

- As a region which has been characterised by heavy industries, the Ruhr area has had problems in developing new innovative economic sectors in recent years
- Although the past still affects the region and the collective mentalities, the development in the Ruhr area has in recent years shown a clear trend towards a service economy
- The new focus of the production and innovation system has become apparent against the background of the end of coal mining in 2018, a decrease in employment in the industrial sector and the expansion of university and research infrastructure, with increasing numbers of students
- However, services are not the only sources of growth as they are often strongly connected with industrial production. With this, innovative and skill-intensive fields are able to set a course

Structural Policy as an answer to economic change

- Structural changes appear neither surprising nor fully unplanned. Thus instruments of structural policy are used in order to (try to) influence the change
- It is common sense that one of the main problems of the Ruhr area had been the exclusive promotion of heavy industries in the past (so called 'Monozentriertheit'). New approaches therefore concentrate on the development and promotion of diverse sectors which are ascribed great future potential
 - One example are the clusters ('Leitmärkte') of the wmr. It is notable that the identified 'future fields' are mainly skill-intensive sectors



Quelle: eigene Darstellung nach wmr (Hg.) 2017:
Wirtschaftsbericht Ruhr 2016

Regional importance of the health economy

- 321,581 employees in the health economy in the Ruhr area (Source: Wirtschaftsbericht Ruhr 2016)
 - No other 'cluster' (Leitmarkt) employs more people
 - Highest growth rate (+3,4%, along with 'digital communication')
 - Amount of enterprises stable, sales increasing (+4,3%)
- Growth especially in cross-sectoral fields within this cluster (+400 employees in medical technology; +11,3%)
- Health economy therefore a good example for the importance of open innovation (cf. Beck/Heinze 2017)



Gesundheit

Chances and risks of Cluster Policies

- Clusters, future fields etc. are necessary to communicate and enhance the strengths of a region. There is, however, a risk that the proclamation of clusters becomes an end in itself:
 - Cluster approaches are only successful if they include new action strategies. Thus it is not enough to only re-label old and well-known strategies, sectors or instruments
 - Successful clusters need to be based on existing and distinct potentials of regions
 - Clusters or future fields tend to be similar across different regions: the more common economic future fields are, the harder their successful establishment and promotion
- Also in the Ruhr area, approaches which try to identify growth sectors and existing competences are made in order to promote them with instruments of economic regional policies
- Hence the focus is especially on research- and skill-intensive fields

The role of universities and research institutions in the economic structural change

- Also due to these new approaches to regional policy universities and research institutes are no longer only seen as places for developing young talents and producing new knowledge, they are now seen as major players in the establishment of regional innovation systems (RIS)
- The crucial shift is that universities and research institutions are not only expected to carry out their core business (teaching and research), but also generate an additional economic value. Thus cooperation and networking with local or regional companies and spin-offs gain in importance
- Aim: transferring academic knowledge into a regional economic benefit, thus improving the competitive position and location quality

Research infrastructure in the Ruhr Area: Good ‘hardware’ ...

- Gradual expansion of universities and research institutes since the 1960s
- High quantitative concentration of research infrastructure today:
 - 5 universities, 15 universities of applied sciences, 1 art academy
 - Approx. 60 non-university research institutions (among others, 4 institutes of the ‚Fraunhofer-Gesellschaft‘, 4 institutes of the ‚Leibniz-Gemeinschaft‘ and 3 institutes of the ‚Max-Planck-Gesellschaft‘)
 - 268,000 students (increase above NRW-average)
 - More than 30,000 employees at universities
- Positives: education and research, direct employment effects, sociocultural spill-over effects
→ “Hardware” able to compete

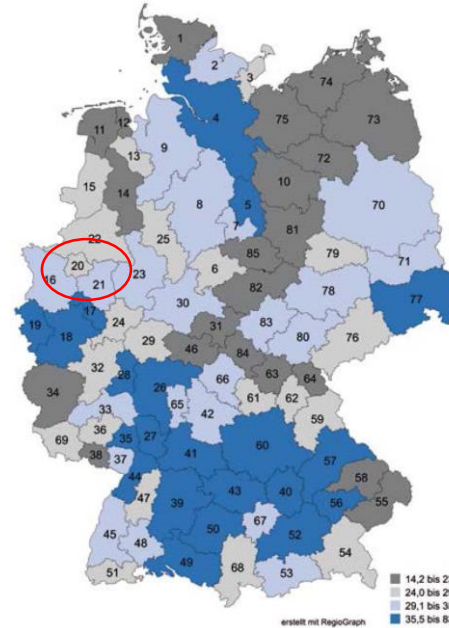
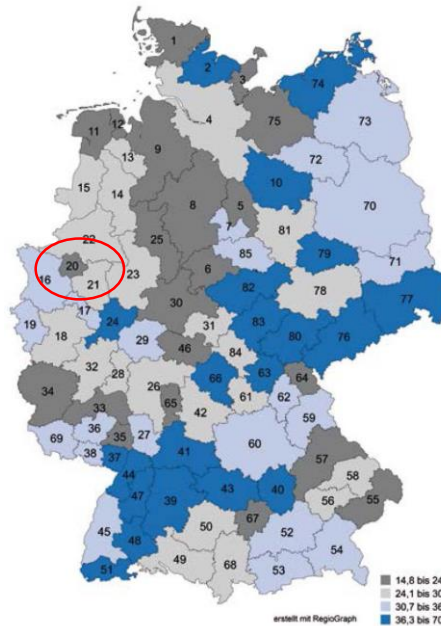
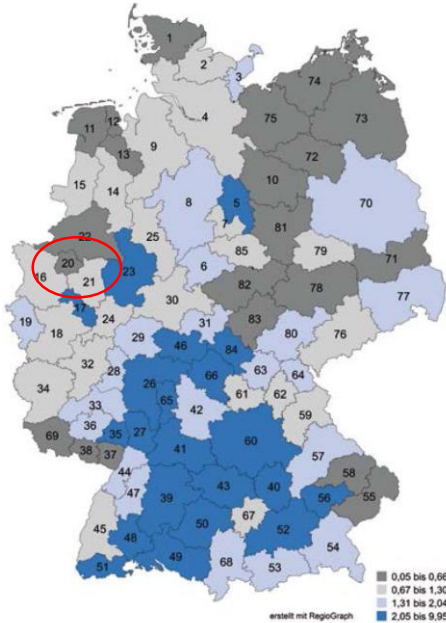


...but suboptimal regional economic effects

R&D-Intensity (in % of GVA)

Start-ups in innovative sectors (business formations per 10.000 active enterprises)

STEM-academics (per 1.000 employees)



Source: IW Köln (Hg.) (2017): Innovationsatlas 2017

Challenges for successful ,knowledge regions‘

- The research infrastructure in the Ruhr area will be essential for a positive economic development in the future
- However, various indicators (business formations, share in highly skilled employees, R&D intensity, unemployment rates etc.) underline that the regional economic effects of the research infrastructure are low by comparison; nevertheless there are some best practices (e.g. IT-Security at the Ruhr-University Bochum)
- Main challenges:
 - Innovation networks can operate independently of location
 - “Brain drain” and business competition (‘winner takes all’ problem)
 - Missing entrepreneurial spirit and low-risk preferences
 - Effective use of synergy effects (e.g. with respect to start-up promotion and consulting)
 - Reservations in the academic milieu (academic freedom vs. economic utilisation)

Conclusion: Focusing regional innovation policy

- Successful fields of innovation (1) are based on existing (research) expertise and know-how, (2) take up economic and societal 'mega-trends' and (3) can often be found in the link between different economic industries and sectors
- One example of that could be the health economy:
 - The most labour-intensive cluster in the Ruhr area + good infrastructure (hospitals, research etc.)
 - Demand for health products and services increases and digital innovations open up new fields of application
 - Health economy offers excellent potential for cross-sectoral innovations, e.g. in connection with crafts and engineering (medical technology) or IT-Security
- Important: less 'wishful thinking' clusters which ignore the existing potentials and problems of regions, willingness to adjust strategies and instruments and more effort in identifying fields for cross-sectoral innovations

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