



Rural-Urban Outlooks: Unlocking Synergies (ROBUST)

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Snapshot: Expressions of Urban – Peri-Urban – Rural Relationships

Innovation Strategy 2020 for Hessen

FrankfurtRheinMain, Germany

1. Brief Description

The Hessian state government wants to further strengthen the competitiveness of Hessen as a business location. To increase the effectiveness of this support, the government – following a recommendation from the EU – has developed a regional innovation strategy.

The Hessian Innovation Strategy 2020¹ guides social and economic development policy, specifically innovation support measures. It was prepared by the Hessian Ministry of Economics, Energy, Transport and Regional Development in close coordination with all other ministries, as well as the economic and social partners.

The strategy starts from global megatrends, identifies key areas of innovation and gives advice on the innovation support system. While the strategy does not directly address rural-urban relations, it clearly provides an important action-oriented framework that will steer future investment. Investments, in turn, will directly contribute to shaping the connections across urban – peri-urban – rural trajectories.

2. Questions and/or Challenges

2.1. Megatrends, challenges and opportunities

The Hessian Innovation Strategy 2020 starts with the global megatrends of our time: scarcity of resources and climate change, demographic change, health and nutrition, communication, connectivity and new work in the information society, intelligent and sustainable transport, mobility and logistics, shortage of skilled workers, education and qualification.² The strategy asks how these trends can provide new opportunities.

The authors assert that the prerequisites for further development of the region are very good, as the high-value-added sectors of the Hessian economy operate in a highly attractive location

¹ Hessische Landesregierung (2013) Hessische Innovationsstrategie 2020, Wiesbaden.

² The higher-level "High-Tech Strategy 2020" for Germany is focusing on five global challenges – climate and energy, health and nutrition, mobility, security and communication.

with excellent development conditions. These include internationally competitive education, research and transport infrastructures. The Hessian Innovation Strategy aims to further improve these conditions and to strengthen regional competitiveness.

2.2. Strategic and operational goals of Hessen's innovation strategy

Hessen's Innovation Strategy has a transparent overarching goal system. It consists of strategic and operational goals that respond to the megatrends in society and the environment to tackle economic, ecological and social challenges. The strategic objectives describe the overarching goal system of the Innovation Strategy in the context of Hessian economic policy: facilitating structural change in the economy by modernising, securing and expanding employment; maintaining and increasing prosperity, and maintaining social security systems; strengthening the innovative power of Hessian companies and placing them at the forefront in the competition of European technology and service locations; creating sustainable solutions for societal challenges and the environment; and preserving the natural foundations of life. The Innovation Strategy also promotes innovative SMEs at different stages of their development, and encourages them to network with the research and science community.

3. Main Insights

3.1. Key areas for enhancing economic, ecological and social progress

The innovation support measures of Land Hessen are to *"begin where potential and unique selling points already exist, whether they are still dormant or already activated"*. The ultimate goal is to strengthen strengths, primarily in weaker parts of the region, in order to reduce disparities in the level of potential use.

Strengthening the strengths primarily in "weaker" parts of the region is also due to the requirement that promoting innovation must contribute to harmonising living conditions. The focus on "weaker" parts of the region also results from the expectation that the growth impulses triggered by a promotion are even greater (because the potential available in a region has been less exhausted so far).

The fact that regional disparities in growth and employment have significantly reduced in Hessen in recent years is also likely due to the innovation impulses triggered by regional cluster cooperation and the resulting growth and employment. To make efficient use of these positive effects for the whole of Hessen and to ensure that experience on interdisciplinary topics (such as energy efficiency) is shared, an intensely connected cluster network should be promoted.

The study identifies eight key areas for enhancing economic, ecological and social progress in Hessen:

- Life sciences, bioeconomy and health economics
- Environmental technology, energy technology and resource efficiency
- ICT, automation and systems engineering
- Nanotechnology and materials technology
- Innovative mobility and logistics concepts

- Electromobility
- Finance
- Cultural and creative industries

The location and improved networking of clusters outside of the FrankfurtRheinMain contributes to a more even spatial development (see also the rapid appraisal of the Cluster study). The strategy also suggests that existing creative cores in North Hessen, Central Hessen, FrankfurtRheinMain and South Hessen will be further developed into independent clusters. More dispersed development may reduce commuting and contribute to a more balanced provision of infrastructure.

Promoting the further development of SMEs and improving their resource use in clusters contributes to a more even division of labour. SMEs should be enabled to optimally use their resources in clusters and benefit from the division of labour and networking, and small cooperation networks should be supported with start-up funding. The support provided to small cooperation networks further enhances this effect.

All these basic orientations of the Hessen Innovation Strategy 2020 can potentially benefit the relations between urban, peri-urban and rural regions. North Hessen, in particular, can by and large be characterised as rural with a predominance of SMEs that make up a large proportion of incomes and employment.

3.2. Indications of the application of the new concept of 'New Localities'

The way the Innovation Strategy 2020 for Hessen was elaborated explains a lot about the importance of the broad area of 'new localities' and the importance of cross-sectoral approaches. Both the definition of the key areas and the constitution of the fields of action are the result of a partnership-based strategy-finding process. The strategy is embedded in an interdisciplinary combination of politics, business, science, education and society. In its preparation and implementation, the state government cooperated and continues to cooperate closely with all relevant stakeholders.

In developing and implementing the innovation strategy, government offices worked closely with their partners from business, science and administration, as well as society, in the form of a quadruple-helix network. An example of this is the "house-of-concept", which leads to an interdisciplinary network of business, science and political partners. However, cooperation with cluster networks also plays an important role in promoting innovation.

This cross-sectoral multi-actor partnership is maintained as a success factor (see also Section 3.3). The timeliness of the strategy is ensured through regular evaluation and updates. In keeping with the open character of the strategy, the key areas can be modified and adapted depending on conditions and trends.

- > What role do the relations between urban, peri-urban and rural areas play, and which elements of the Innovation Strategy are potentially relevant in this respect?

While it is argued that *"innovation is not limited to technological innovations"*, and that a *"strengthening of the strengths"* also includes the *"still dormant potential of the Hessian economy"*, and the *"weaker parts of the region"*, generally there are few indications of a corresponding prioritisation in the use of public funds.

The Strategy envisions comprehensive high-speed broadband networks and internet access as a technical, economic and social infrastructure. Land Hessen acts as a facilitator, coordinator and supporter in this development. The focus is on areas where market-driven expansion is not taking place, predominantly in rural areas. Triggered by corresponding activities, investments in Hessen's broadband sector amount to around 730€ million.

- > How is the Innovation Strategy being implemented?

The Strategy also sketches out the main pillars of an innovation promotion system. Innovation support consists of several "fields of action" with related funding instruments. Fields of action comprise: education, basic research and research infrastructure, knowledge and technology transfer, cluster networks, business innovation, innovation and technology marketing, and the "Houses of" concept (a public-private partnership platform for gathering and networking research, teaching, practice and politics under one roof).

The funding instruments used in the above fields of action are characterized by their needs orientation, their marketability, their synergetic interaction and their future-orientation. Key measures include: the promotion of knowledge-based start-ups; support of application and competence centres; support of research and technology networks; technology transfer and incubator centres; collaborative R&D projects; and innovation consulting.

3.3. Insights related to the broad area of 'Smart Development'

The focus of the Innovation Strategy provides some idea of the importance of 'Smart Development'. Overall, the strategy is meant to support *"the synergistic interplay of all links in the innovation chain from basic research to the market"*. Overall, however, the focus is very clearly on finance and high-tech, and generally those sectors that are typically connected with metropolitan and urban areas.

Agriculture and bio-based industries do not appear at all in the Innovation Strategy, and the synergistic interplay across the urban – peri-urban – rural trajectory is not seen as a potential. Even the key area "environmental technology, energy technology and resource efficiency" and the discussion of a more efficient use of raw materials and energy, are not explicitly related with rural areas. Bioenergy and renewable non-food products are not mentioned, which clearly indicates that the Hessian Innovation Strategy is not sufficiently addressing sustainable

development. This is surprising, as the main focus of the environmental industry in Hessen lies in the segments Renewable Energies (46% of companies), Waste/Recycling (40%) and Water/Wastewater (39%).

Generally, economic aspects appear much more important than ecological and social aspects. Future updates of the strategy should pay much more attention to sustainable development and decoupling economic development from resource and energy consumption, which is possible through intelligent, innovative developments. The so-called “bio-based economy” could play a major role in this reorientation.

> What role does smart specialisation play?

As one of its two main components, the Hessian Innovation Strategy defines so-called key areas (*Schlüsselbereiche*) that will be prioritised for future funding. Following the idea of smart specialisation, the selection of the key areas should focus on those competence fields where Hessen can contribute to solving global challenges and European growth can be maximized.

Key areas for the greatest possible sustainable progress according to the strategy include: life science, bioeconomy and health economics, environmental technology, energy technology and resource efficiency, information and communication technology, automation and systems engineering, Nano and material technology, innovative mobility and logistics concepts, electromobility, finance, and cultural and creative industries.

3.4. The role of clusters and cross-sectoral networks

Cross-sectoral partnerships play a significant role in the innovation strategy. Partnership is an important working principle to conceptualise and implement the Hessian Innovation Strategy 2020. Focus, however, is on the key players in the technology field. The Ministry of Economic Affairs and the *Hessen Agentur* (as a non-monetary economic development agency of the state) therefore have a cooperation agreement with the strategic partners in the technology area closed to improve and intensify their cooperation. Partners include the Hessian Chamber of Commerce and Industry, the Association of Hessian Chambers of Crafts, the Association of Hessian Business Associations - VhU, Regionalmanagement Nordhessen GmbH, the Regionalmanagement Mittelhessen e. V., the Regionalverband FrankfurtRheinMain, the Wirtschafts- und Infrastrukturbank Hessen (WIBank).

Regionally anchored clusters are an important element of a successful, innovation-oriented economic and structural policy. They are the basis of entrepreneur-driven networking. The understanding of roles of Land Hessen in the context of cluster formation is that of supporter, impulse and incentive enhancer. Networking must not be artificially generated if it is to be sustainable and effective. The Hessian Cluster Funding therefore only starts if promising developments have already emerged from entrepreneurial insights. Thus, it is not the construction of new clusters that is promoted, but networking and the transfer of knowledge in already

existing regional clusters. Mobility and logistics play a very special role in Hessen. The conurbation FrankfurtRheinMain is one of the most important transport hubs in Europe. Knowledge-intensive industries also play an important role.

- > What is the role of higher education in these clusters?

Especially the practice-oriented research projects carried out by final year students at the universities of applied sciences in cooperation with companies have an outstanding significance for transfer to the region and especially to SMEs. Dual courses of study combining company-based learning with lectures are also important.

Technology transfer facilities bridge the gap between science and industry, providing SMEs with access to the scientific and technological potential of higher education and research institutions. The Technology Transfer Network (TTN-Hessen) was set up to optimise the technology transfer in Hessen and to bundle activities. In TTN-Hessen, the Hessian universities, research institutions and the leading Hessian business associations are united. Five regional advisory centres for technology transfer, and the Research Finder Hessen, a search engine and Internet database, allow economic actors to quickly and easily identify and access relevant R&D.³

The way cluster funding is being conceived, and implemented, can be related to the basic idea of smart specialisation. Overall, smart specialization can only succeed in coordinating the most pressing societal challenges with economic potentials. This requires the unconditional and continuous coordination of entrepreneurial expertise with academic, state and civil society bodies in the development and implementation of the strategy. Most Hessian clusters and networks are characterised by a relatively strong regional focus, with individual networks active nationwide or nationally. Projects can also take place across national borders. For this reason, Hessen seeks to closely integrate its Innovation Strategy with the innovation strategies currently being developed in the neighbouring countries.

3.5. Other insights that could be relevant for further work

This appraisal identifies the contention between supra-regional and global drivers for regional development and policy, and governance processes which are most often organised at regional and national scales as an interesting aspect that deserves further analysis.

The key drivers of regional and supra-regional cooperation include: network start-ups are companies, as well as chambers, employers' associations and business development institutions - but also universities and research institutes as well as other regional or industry-specific players. Today, more than 3,000 companies are profiting from the activities and further development of around 40 clusters and networks in Hessen, including SMEs.⁴

³ <http://www.forschungsfinder-hessen.de>

⁴ Cluster und Netzwerkaktivitäten in Hessen, HA Hessen Agentur GmbH, Geschäftsstelle TTN- Hessen und Arbeitsgemeinschaft der hessischen Industrie- und Handelskammern (Hrsg.), Wiesbaden, 2012.

The significant contribution to regional and supra-regional cooperation between companies, business-related institutions, research institutes and universities, as well as other educational establishments is based on social, organizational, institutional innovations, specifically the formation of clusters and networks.

> What is the role of policy

The implementation of the Innovation Strategy makes use of the three classic pillars of structural policy: regional policy, SME policy, and innovation policy. The aim is to see these pillars not as isolated fields of action, but to closely interlink their use.

Regional structural policy pays particular attention to supporting the “economic catch up” of less well-developed regions. It focuses on the existing development potential of these regions and attempts to activate them through targeted acceleration of innovation processes. A modern regional policy is therefore to a considerable extent also an innovation policy. The support provided for regional cooperation networks and the formation of clusters by the Hessian Ministry of Economic Affairs plays a major role in this.

> The Innovation Strategy refers to “*sectoral and cross sectoral collaborations and business networks which predominantly operate at wider regional and international scales*”. In further analyses it could be interesting to explore the relevance of these networks for rural territories.

4. Data Sources and Indicators

The Hessian Innovation Strategy 2020 includes a SWOT analysis (i.e. a compilation of strengths, weaknesses, opportunities and risks). The main opportunities identified in this SWOT analysis are the diverse and active cluster and network landscape in Hessen, and the favourable sectoral structure that offers the potential for intelligent specialisation.

Table 1 Other indicators referred to in the Hessian Innovation Strategy 2020

Indicator	Data / Source
R & D expenditure: indicator of the innovation potential of a region (also referred to in the Europe 2020 strategy)	Citation, website link, organization
R & D personnel	Official statistics
Patent applications: Patents prove the transformation of knowledge into products. They reflect the ingenuity of a region and the ability to utilize knowledge profitably.	Data for patent applications tend to lag. Data available from Eurostat are only indicative and should not yet be interpreted.
Proportion of persons with a university degree to all persons in the age group of 30-34 years	Official statistics
Numbers of universities and colleges	Official statistics
Number of students	Official statistics

Number and types of practice-oriented study programmes and dual study courses	Official statistics
Distribution of research funding across different subjects	Official statistics
Importance of particularly research-intensive industrial sectors and knowledge-intensive services (high-tech sectors)	Official statistics
Share of employees in processing, high tech, biotechnology ⁵ , chemical/pharmaceutical, environmental technology, etc.	Official statistics
Importance of cultural and creative industries ⁶	Official statistics

Source: Own compilation based on Hessian Innovation Strategy 2020

5. Critical Appraisal of Data Use

- > Progress in the implementation of the Hessian Innovation Strategy 2020 is monitored with an indicator-based monitoring system. The most important indicators are - according to the main fields of action:
 - the share of persons with tertiary education in the population group of 30- to 35-year-olds, baseline 2011 = 33.8 percent target 2020 = 40 percent
 - share of R & D personnel in the labor force, baseline 2009 = 1.5 percent target 2020 = 2.0 percent
 - R & D expenditure in percent of GDP, baseline 2009 = 3.04 percent target 2020 = 3.5 percent
 - patent applications per 100,000 population baseline 2012 = 38 target 2020 = 45
- > The Hessian Innovation Strategy 2020 is part of a growth and employment strategy. Therefore, the development of the following context indicators is also monitored:
 - per capita GDP in purchasing power parities,
 - employment development,
 - unemployment rate development.

⁵ Hessen Agentur GmbH (ed.) (2009) Biotechnologie in Hessen – Standortstudie 2009: Daten und Fakten zur wirtschaftlichen Bedeutung der Biotechnologie in Hessen, Wiesbaden.

⁶ Arndt, O. et al. (2012) Die Kultur- und Kreativwirtschaft in der gesamtwirtschaftlichen Wertschöpfungskette. Wirkungsketten, Innovationskraft, Potentiale – Endbericht zur Studie im Auftrag des BMWi, Berlin, p. 50ff. and Stöck, S. (2012) Innovation durch Design, Vernetzung und Digitalisierung – 4. Hessischer Kultur- und Kreativwirtschaftsbericht, Wiesbaden, p. 45.

6. Illustration and further information



Figure 1

Clusters in Hesse
(Hessische Landesregierung
(2013, p.119)

7. References

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