

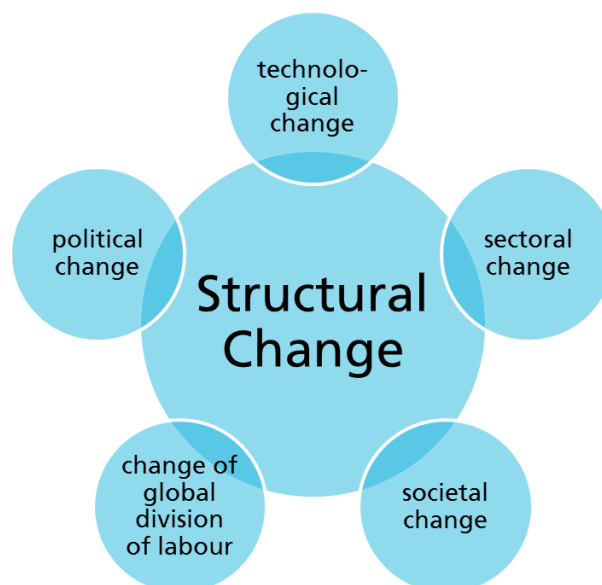
1 Innovation-based regional change – An introduction

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Regional change and the reduction of regional disparities are major challenges at the supra-national, national and regional level. Structural change can be related to sectors, technologies, organisations, countries and regions. In the context of this edited volume, the focus will be on regional change, and especially change regarding innovation.

Innovation-based structural change describes the change in the innovation capacity and innovative competitiveness of regions over time. It is a central aspect of regional change processes with regard to the national and international division of labour as well as competition in the fields of technology and knowledge. It is caused by technological progress and political and social processes that trigger a shift in research and innovation activities and can thus indirectly lead to a shift in in the generation and economic valorisation of new knowledge (cf. Figure 1-1). These developments affect all regions, including those that are not structurally weak in terms of their capital, knowledge and qualifications, but are innovative and have been economically successful so far.

Figure 1-1: Dimensions of innovation-based structural change



Source: Koschatzky et al. (2018)

The concept of innovation includes a broad understanding of changes and new ideas as it encompasses technical and non-technical, organisational, social and other forms of innovation (Warnke et al. 2016). The focus here lies on the availability and adaptability of *actors* (organisations) from the fields of education and research (universities, non-

university research institutions), their *performance* (scientific output, third mission, training), the role of *mediators and enablers* (intermediary organisations), the *research, development* and, above all, the *innovation* activities of economic actors. The extent of *interregional networking and integration*, i.e. the exchange between different innovation systems, also plays a role in this context.

The European picture of income disparities between the richest and poorest regions reveal a range from 1:7 to 1:8 (European Union 2017). In high-income regions, structures change, in order to maintain or increase existing income levels. With a view to the goal of creating equal living conditions across Europe, low-income regions are particularly called upon to adapt and change structures, so that income disparities do not widen but instead narrow.

Studies show a positive correlation between income levels and innovation performance (Hollanders 2007, p. 12). However, innovation also plays an important role in low-income and structurally weak regions, at least as a factor for mobilising innovation potential. Just as the European Commission in its regional structural funding has relied on innovation-promoting measures, especially since the Seventh and increasingly the Eighth Framework Programme, the need to make the strengthening of the regional innovation base the starting point for political action is also increasingly seen at the level of regional policies in single nations.

The aim of promoting structural change with the focus on innovation should therefore be to prevent regions from failing in future when facing the challenges of structural change: as many regions as possible should remain in a position to compensate for their economic and innovative performance with new skills, and to enable regions with innovation potential that has so far been underdeveloped to increase their innovation output. However, since the transition that occurs within the framework of such a shift entails considerable adjustment costs, regions themselves often start to face structural change quite late and reactively.

Measures to promote structural change are country- and region-specific. According to the so-called "place-based approach" (Barca 2009), funding programmes and measures should not be implemented 'off the peg' and without being adapted to regional structures and needs, but instead should be formulated and implemented 'from below' in a dialogue between different organisations from the areas of business, science and politics and with the participation of civil society. In this respect, there are not only very different forms of structural weaknesses and structural changes, but there is also a wide variety of ideas and measures to reduce structural weaknesses and promote structural change at the regional level.

In general, measures to strengthen regional capacity to cope with structural changes are justified in three respects (Koschatzky et al. 2018):

- to maintain the necessary human capital and knowledge base,
- to dissolve and avoid sectoral or technological lock-in effects within the region,
- to strengthen the regional infrastructure, especially regarding specialised research and development organisations.

The target group for funding activities aimed at maintaining the ability to cope with structural change should above all be regions in which

- firstly, there is a high probability that they would fall back regarding technological structure or as far as the international division of labour is concerned due to (over)specialisation in certain economic sectors and,
- secondly, there are currently doubts as to their ability to independently establish new priorities in this situation.

This concerns many regions, not only those with an already developed innovative basis. Measures for innovation-based regional changes should primarily be oriented towards opportunities and potentials that need to be identified and exploited.

In Germany, according to the 2018 coalition agreement (Bundesregierung 2018) and the New Hightech Strategy 2025 (BMBF 2018), structural funding should be extended to all "structurally weak" regions from 2020 onwards. This includes both regions from the eastern and western part of Germany. Two approaches are pursued:

1. reorientation of the existing funding mechanism "Improvement of the regional economic structure" (*Gemeinschaftsaufgabe Verbesserung der regionalen Wirtschaftsstruktur*),
2. implementation of a new framework concept "Innovation and structural change" within the new societal challenge "Town and Country" as formulated in the Hightech-Strategy 2025 (BMBF 2018, pp. 26ff.).

With regard to the question of how innovation-oriented regional change takes place and how innovation policy can contribute to regional change, the Federal Ministry of Education and Research (BMBF) is carrying out various funding activities. One measure is the support of 16 regional pilot projects addressing regional change in East and West Germany. Fraunhofer ISI was entrusted with the accompanying research for this funding measure between 2016 and 2018.

Common features of the pilot projects are the cooperation between scientific organisations and companies, in part between East and West German, partly only between East German or only between West German partners, and the explicit task of developing and

implementing measures for regional structural change in relation to the specific topic of the project (from steel applications to urban development to new recycling concepts).

The accompanying scientific research focusses on the following three aspects:

- Development of new scientific findings on innovation-oriented structural change,
- analysis of the developments and impacts of the pilot projects and analysis of regional structures and innovation potentials,
- initiate learning processes in the pilot projects and disseminate results from the accompanying research.

The fundamental aim of the accompanying research project is to develop basic findings on innovation-based structural change and to link developments and measures in the policy field to scientific discourse. In addition to specialist workshops for the project coordinators and other partners in the pilot projects, the tasks of accompanying research also include the scientific analysis and reflection of regional structural change and its various dimensions.

For this purpose, Fraunhofer ISI organised a publication workshop on "Innovation-based regional change in Europe: Chances, risks and policy implications" on March 28, 2018 and invited scientists and practitioners from the political administrations and regional economic development agencies from several European countries to attend. The aim of the workshop was to exchange views on the subject, but also to reach an agreement on the preparation of this edited volume.

The contributions submitted for this edited volume deal with regional change in different types of regions in Europe (Chapter 2), with innovation opportunities and innovation activities outside metropolitan centres (Chapter 3), with the role of universities in the development of structurally weak regions in England (Chapter 4), with the influence of foreign direct investment on the regional development in South Moravia (Chapter 5), with the development possibilities of a peripheral regional innovation system in Portugal (Chapter 6) and with the additionality effects of a regional promotion programme in Emilia-Romagna (Chapter 7).

The edited volume has been compiled by renowned experts from different disciplines and with different, but in each case long-standing, experience backgrounds. This volume therefore provides an overview of current European research on the topic of regional change.

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