



OECD Territorial Reviews

# HAMBURG METROPOLITAN REGION, GERMANY

POLICY HIGHLIGHTS



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# OECD Territorial Reviews: Hamburg Metropolitan Region, Germany

## POLICY HIGHLIGHTS

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# Key findings

## Hamburg Metropolitan Region spans four federal states and a heterogeneous mix of urban and rural areas

With about 8% of national territory, the Hamburg Metropolitan Region (HMR) is the second largest in Germany, just behind the metropolitan region of Berlin-Brandenburg. Home to almost 5.4 million inhabitants, it encompasses the Free and Hanseatic City of Hamburg (which is also a federal state) and parts of three states surrounding it: Schleswig-Holstein (51% of its territory lies within HMR), Mecklenburg-Western Pomerania (30%), and Lower Saxony (26%). The metropolitan region brings together 20 districts and more than 1,100 municipalities.

Among the eleven metropolitan regions in Germany, HMR registers the second lowest population density, with only 186 inhabitants per square kilometre and 12.5% of its territory used for settlement or transport. This reflects the heterogeneous combination of a densely populated urban core and a relatively wide periphery. The core area, composed of the city of Hamburg and its immediate surroundings, is economically stronger but also struggling to maintain affordable housing, attract skilled workers, and preserve its high quality of life.

Some rural areas have capitalised on economic sectors such as tourism and renewable energy, but many are also losing population and have poorer accessibility to public services and employment opportunities.

With four federal states, HMR spans the highest number of states among the eleven metropolitan regions in Germany and includes two of the four state capitals. Regional co-operation in the area dates back as far as the 1920s and was progressively institutionalised through an inter-state agreement in 1991, the recognition at federal level by the Standing Conference of Ministers responsible for Spatial Planning (*Ministerkonferenz für Raumordnung*) in 1995, and further regional expansion up until 2017. The HMR Office, governed by a Regional Council, does not constitute a tier of government and has no dedicated competencies. It serves as a co-ordination body and a platform for dialogue to help build consensus among its 36 stakeholders, who are frequently driven apart due to differences in their legal frameworks, policy objectives, and political interests.

**Figure 1. Hamburg Metropolitan Region with its constituent districts**



Source: Hamburg Metropolitan Region

## While HMR enjoys a strong economy overall, it is quickly losing ground to regions in the South of Germany; its labour productivity remains low in the OECD context

Among the eleven metropolitan regions in Germany, HMR is the fifth largest contributor to national GDP (6.2%) and enjoys the fourth highest level of GDP per capita (EUR 39,604). Its unemployment rate dropped from about 12% in 2005 to about 7% in 2015. With Germany's largest and Europe's third busiest port in Europe (behind Rotterdam and Antwerp), HMR has developed strong clusters in various sectors, ranging from its traditionally leading maritime, logistics, and port-related industries to aviation, renewable energy, and life sciences. Compared to other parts of Germany, entrepreneurial activity is high in the urban areas of HMR. The region is home to a number of major research institutes, including the world-class XFEL (European X-ray Free-Electron Laser) research facility, in operation since 2017, and the German Electron Synchrotron (DESY), Europe's leading centre for particle accelerators. Hamburg hosts the offices of social media/IT multinational firms and has a vibrant fabric of tech start-ups. HMR also stands at a unique strategic location along the transport and trade corridor linking Germany, Denmark, Sweden, and Norway, with promising new opportunities from the upcoming construction of the Fehmarn Belt Fixed Link. Quality of life is relatively high in the region, and in many dimensions exceeds that in other regions across the OECD.

However, HMR's growth potential remains underexploited. HMR fell behind all other metropolitan regions in Germany in terms of GDP per capita growth between 2005 and 2015 (19% in HMR vs. 42% in Central Germany; 39% in MR Berlin-Brandenburg, MR Nuremberg, and MR Stuttgart; 30% in MR Munich). A major explanation of this poor performance is comparatively low growth in labour productivity (measured in terms of GDP per employed) during the same period. In particular, metropolitan regions in Southern Germany performed considerably better. MR Munich, which was already at a higher level than HMR in 2005, almost doubled its advantage by 2015; MR Stuttgart, which was initially at a lower level, leaped ahead comfortably; and MR Rhein-Neckar, also initially at a lower level, is now at about the same level as HMR. The gap in labour productivity between HMR and regions in the South rose from less than EUR 4,000 in 2005 to more than EUR 6,000 in 2015. If this trend continued, every four years HMR would be missing out about EUR 1,000 in GDP per employed relative to metropolitan regions in the South of Germany.

Labour productivity in HMR also remains low relative to the average of comparable metropolitan regions across the OECD. Although labour productivity grew faster in HMR during the 2005-2015 period, it remains well below the level of Copenhagen (Denmark), Gothenburg (Sweden), and Rotterdam (Netherlands), for example.

## Human capital is lower in HMR than in other metropolitan regions in Germany

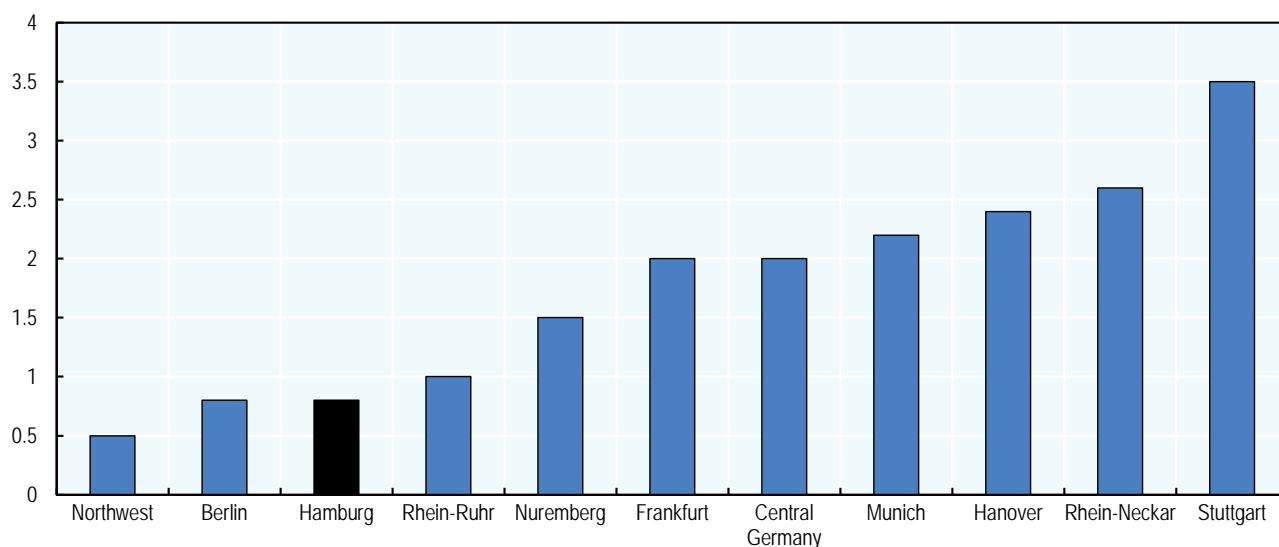
One reason behind sluggish labour productivity growth in HMR is the relatively lower level of human capital. Only 14.4% of the labour force hold a tertiary degree, placing HMR eighth out of the eleven metropolitan regions in Germany and four percentage points below Munich and the Capital Region of Berlin-Brandenburg. More than 6% of high school graduates in HMR left school without a degree in 2016. The high-tech sector employs a meager 4.8% of the labour force, the second lowest share among the eleven regions in Germany and almost three times less than in MR Stuttgart.

Firms across HMR struggle with a shortage of skilled workers, especially in the sectors of health and social

care, information and communication, engineering, and crafts. The skills shortage is most severe in jobs requiring a vocational qualification, in the sectors of crafts or social care. However, it also affects occupations that require tertiary education, in the areas of medicine, engineering, software development, and STEM (science, technology, engineering, and mathematics). On the supply side, schools and universities in HMR score, on average, only midfield to lower midfield when it comes to standardised achievement. On the demand side, other metropolitan regions in Germany are registering higher job creations than HMR (as evidenced by higher vacancies-unemployed ratios), which is likely to drain HMR of qualified candidates and increase existing skill shortages even further.



**Figure 2. Private sector R&D expenditure as percentage of GDP in metropolitan regions**  
Investment of firms in R&D



Notes: Figures take into account the exact geographical borders of regions, by aggregating observations over districts they are composed of Berlin = Capital Region of Berlin-Brandenburg; Northwest = Bremen-Oldenburg in the Northwest; Frankfurt = FrankfurtRheinMain; Hanover = Hannover Braunschweig Göttingen Wolfsburg.

Source: Own calculation based on Federal Institute for Research on Building, Urban Affairs and Spatial Development (n.d.), INKAR online: Indikatoren und Karten zur Raum- und Stadtentwicklung, [http://www.bbsr.bund.de/BBSR/DE/Raumbeobachtung/InteraktiveAnwendungen/INKAR/inkar\\_online\\_node.html](http://www.bbsr.bund.de/BBSR/DE/Raumbeobachtung/InteraktiveAnwendungen/INKAR/inkar_online_node.html) (accessed on 18 December 2018), latest available data at the district level on shares of firms by firm size from 2014 and on research and development personnel and investments from 2009.

## Limited capacity to invest in innovation and scattered efforts to develop clusters undermine the region's growth potential

The lack of large companies is another reason for HMR's sluggish growth in labour productivity. Compared to other metropolitan regions in Germany, HMR has a higher share of smaller firms and a lower share of larger firms, especially compared to the regions in the South of Germany. There is only one DAX (the German national stock market index listing the 30 largest firms by market capitalisation) company headquartered in HMR. The lack of large firms at least partly explains the low level of R&D expenditure, which only accounts for 0.8% of GDP – the second lowest share out of eleven regions and strikingly far below the EU target of 3% of GDP for 2020. Compared with other economic hubs in Germany, such as the cities of Berlin, Frankfurt, or Munich, the lack of alternative sources of funding for private sector innovation (such as venture capital) constrains small businesses and inhibits entrepreneurship in HMR.

Co-operation between higher education research and the economy remains underdeveloped. Over the past decade, several science and technology parks were established in

HMR with the explicit aim of fostering further interaction between firms and higher education institutions. Such measures have contributed to improving science-industry linkages, but research and business needs are not always aligned.

While all four federal states that compose HMR have followed the EU approach of smart regional specialisation, they have developed independent cluster strategies. Hamburg identifies eight business clusters as crucial for economic development and innovation, Schleswig-Holstein five, Lower Saxony seven, and Mecklenburg-Western Pomerania five. Several of these clusters overlap across the four states (e.g. maritime industries, logistics, health and life sciences, aviation, and renewable energy) and collaboration sometimes occurs across state boundaries, with excellent outcomes (e.g. in aviation and renewable energy). However, there is no overall, shared vision to exploit synergies across the region and no mechanism to pool resources and capacities.



## HMR is well-positioned to make the most of digitalisation in Germany, but a digital divide remains between urban and rural areas

More than 35% of households have access to optical fibre in HMR compared to around 15% in MR Munich, the second-best equipped region, and less than 5% in six out of eleven German metropolitan regions. With the relatively rapid roll-out of high-speed broadband, businesses in HMR are in a better position to design, test, and implement new digital technologies into their production processes and methods. Digital innovation also offers new solutions to simplify and accelerate public service delivery while reducing barriers for entrepreneurs and small firms. In particular, HMR is making significant strides forward to reduce congestion in urban areas and improve the supply of buses and taxis for residents of remote areas through Intelligent Transport Systems (ITS). Hamburg will host the next ITS World Congress in 2021,

which has boosted the digital agenda and stimulated closer co-operation between government, businesses, and universities to position the region as a global player in smart transport solutions.

However, substantial disparities remain between urban and rural areas. While the urban core and the districts in the North of HMR report nearly full coverage of high-speed broadband access, more remote areas (particularly in the East of HMR) report much lower coverages, sometimes below 60%. Differences in broadband access coverage may be a result of different priorities of federal states involved in HMR, all of which follow an independent digitalisation strategy.

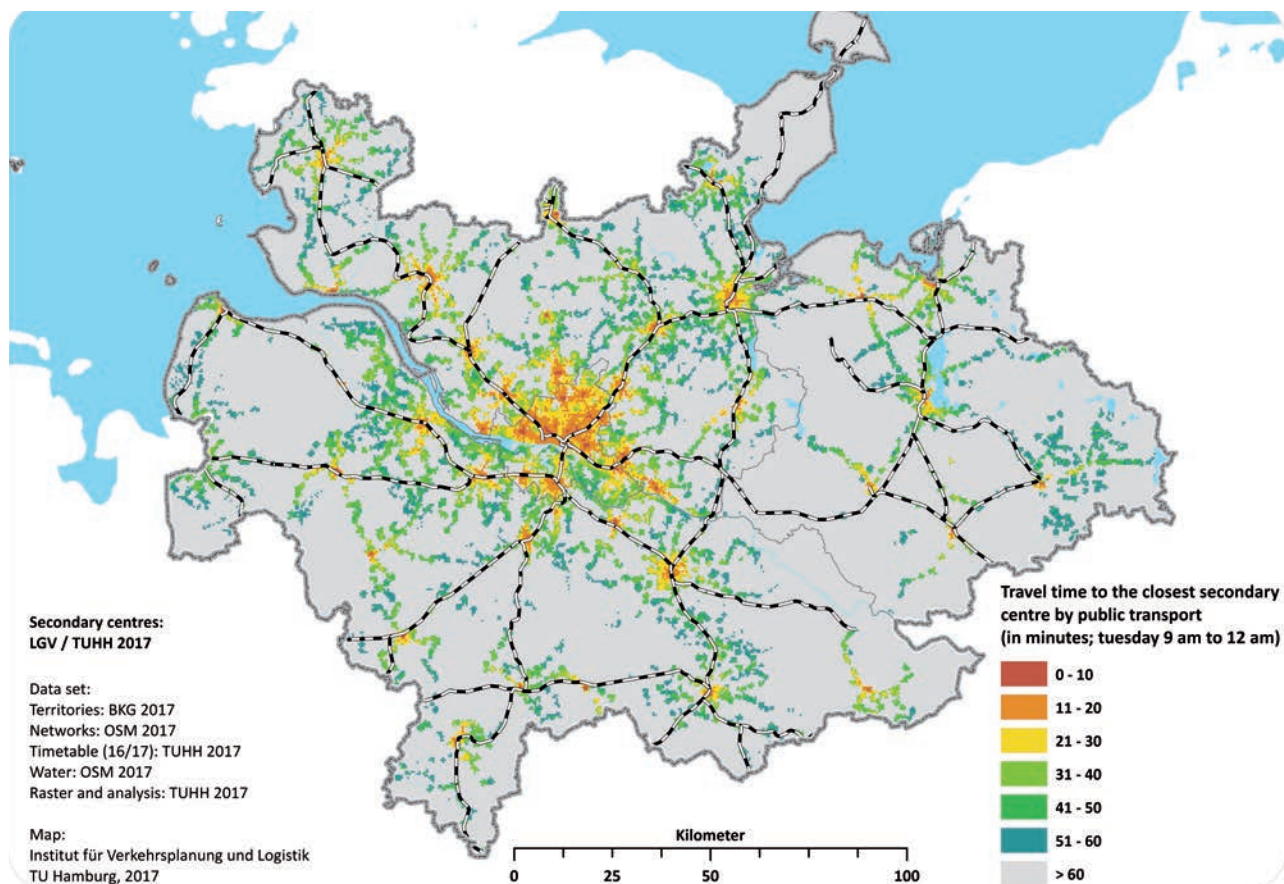


## Despite successful regional collaboration in transport, large differences in accessibility within HMR are hampering economic integration and territorial cohesion

While the creation of the Hamburg Traffic Association (HVV) and its integrated transport network offer a major example of successful regional collaboration, it only covers part of the HMR territory and wide disparities exist in terms of transport accessibility across the region. In some districts, the average driving time to the closest train station is close to 60 minutes, more than twice the HMR average (26 minutes). The average linear distance to the nearest public transport stop with at least ten departures

per day is only 429 metres in HMR, but varies substantially by district, ranging from 191 metres in Neumünster (a district-free city in the North of HMR) to 895 metres in Ludwigslust-Parchim (a district in its East). Even though efforts have been made at all levels of HMR to improve transport services, the multimodal and extensive public transport network in the urban core stands in stark contrast with less extensive and less accessible transport options in rural parts in the periphery.

**Figure 3. Accessibility of the next medium-level centres by public transport in the HMR**



*Note:* Medium-level centre (*Mittelzentrum*) is a qualitative description of an agglomeration in the German central place classificatory system, according to the administrative, social, and economic functions it performs in a polycentric system of cities.

*Source:* Institut für Verkehrsplanung und Logistik TU Hamburg (2017), *Leitprojekt Regionale Erreichbarkeitsanalysen: Abschlussbericht und Erreichbarkeitsatlas*, <http://www.metropolregion.hamburg.de/erreichbarkeitsanalysen>.



## The fragmented spatial planning framework contributes to a persistent mismatch between supply and demand on the housing market

Housing prices and rents in Hamburg were among the highest in Germany in 2016 and are still on the rise. The urban core of HMR is, therefore, increasingly struggling to provide affordable housing. While federal, regional, and local policies have aimed at increasing the supply of affordable housing, the lack of land made available for development, a shrinking social housing stock, and an increase in planning and building costs related to quality and regulatory requirements (including lengthy planning processes) have driven housing costs up in the urban core. In contrast, some municipalities in the second ring of HMR face higher vacancies and a housing stock ill-adapted to the changing needs of the population (such as large single-family houses located far from public transport, which are no longer suited to an ageing population).

Co-ordination of housing policy in HMR is further complicated by the fact that the four participating states organise spatial planning at different levels and with different timelines. While Hamburg and Schleswig-Holstein have one spatial planning body each at state level, Mecklenburg-Western Pomerania has several regional planning associations; Lower Saxony, on the contrary, leaves regional planning entirely to the discretion of districts, which form the smallest planning units within the HMR.

## HMR has the potential to become a global leader in renewable energy

HMR is in a unique position to take advantage of the energy transition in Germany. It could benefit from its high volume of onshore wind power and the potential of offshore wind energy, the connection of Scandinavia's hydropower generation with the Central European grid, and the intersections of the supra-regional gas transmission pipelines with future LNG (liquid natural gas) terminals. The North German Energy Transition (NEW 4.0) initiative connects 60 public, private, and research partners across the two federal states of Hamburg and Schleswig-Holstein in 2016-2020 with the aim to supply the region with 100% renewable energy by 2035. HMR has been taking steps to integrate renewable energy production into land use and spatial planning, and some of its participating states have introduced legislation around citizen participation in production (e.g. Bürger- und Gemeindenbeteiligungsgesetz in Mecklenburg-Western Pomerania).

However, HMR needs to address several challenges for renewable energy generation, especially wind power, in the near future. These include addressing local resistance more comprehensively and consistently when it comes to replacing old wind turbines with larger, new ones at existing sites; how to most effectively use green energy by jointly optimising electricity, heating, and transport sectors; and how to control electricity consumption and shift demand in times of underproduction towards times of overproduction. Given also the lack of high-power transmission lines from the North of Germany to its industrial hubs in Rhein-Ruhr and Rhein-Neckar, renewable energy generation in HMR is not reaching its full potential.



## The region offers a diverse range of cultural and natural assets, but these remain underexploited

World-renowned cultural assets, such as the Elbphilharmonie and the UNESCO world heritage site Speicherstadt, act as magnets to Hamburg and the HMR as a whole. Historic towns, including Wismar (Mecklenburg-Western Pomerania), Lübeck (Schleswig-Holstein), and Lüneburg (Lower Saxony), offer a rich cultural history. HMR is also endowed with numerous natural assets and recreational amenities, including five UNESCO Biosphere Reserves. The latter can help combat climate change and preserve biodiversity, sustain recreational and green areas, and promote research and education. In an effort to encourage a broader understanding of the region's cultural heritage, HMR has aimed to promote lesser-known sites as well.

However, the tourism sector is fragmented across HMR. There is no co-ordinated tourism offer between urban and rural areas, with several different brands advertising different parts of the region. The potential to capitalise on the name value and international visibility of Hamburg remains largely underexploited due to the lack of a joint tourism strategy, resulting from the dominance of strong local identities and concerns about serving not only the HMR territory but also the remaining territory of each state.



# Key recommendations

## Strengthen collaboration across local, state, and national boundaries to raise HMR's international profile

An overarching recommendation is to “think big” beyond local, state, and even national boundaries to achieve a critical mass in the international context and maximise benefits for the entire region in the long term. In a rapidly changing world where powerful megatrends such as globalisation, digitalisation, demographic shifts, and climate change are reshaping economies and societies, maintaining a status quo of fragmented, small-scale initiatives means missing opportunities for growth and well-being. Despite valuable economic, environmental, and cultural assets, and an unprecedented opportunity to step up its role in the economic corridor running from

Hamburg to Oslo, HMR is already falling behind regions in the South of Germany and often busy competing locally (within itself) instead of globally. As a result, HMR is not delivering at a level that a region of its size could do, as evidenced by its low labour productivity. An urgent shift is required to jointly re-focus energy and funding across the four federal states on shared core strengths that can put HMR on the world map and generate benefits for all residents in the region: innovation, education, and human capital; digitalisation; planning; renewable energy; cultural and tourism branding.



## Develop an integrated regional innovation strategy

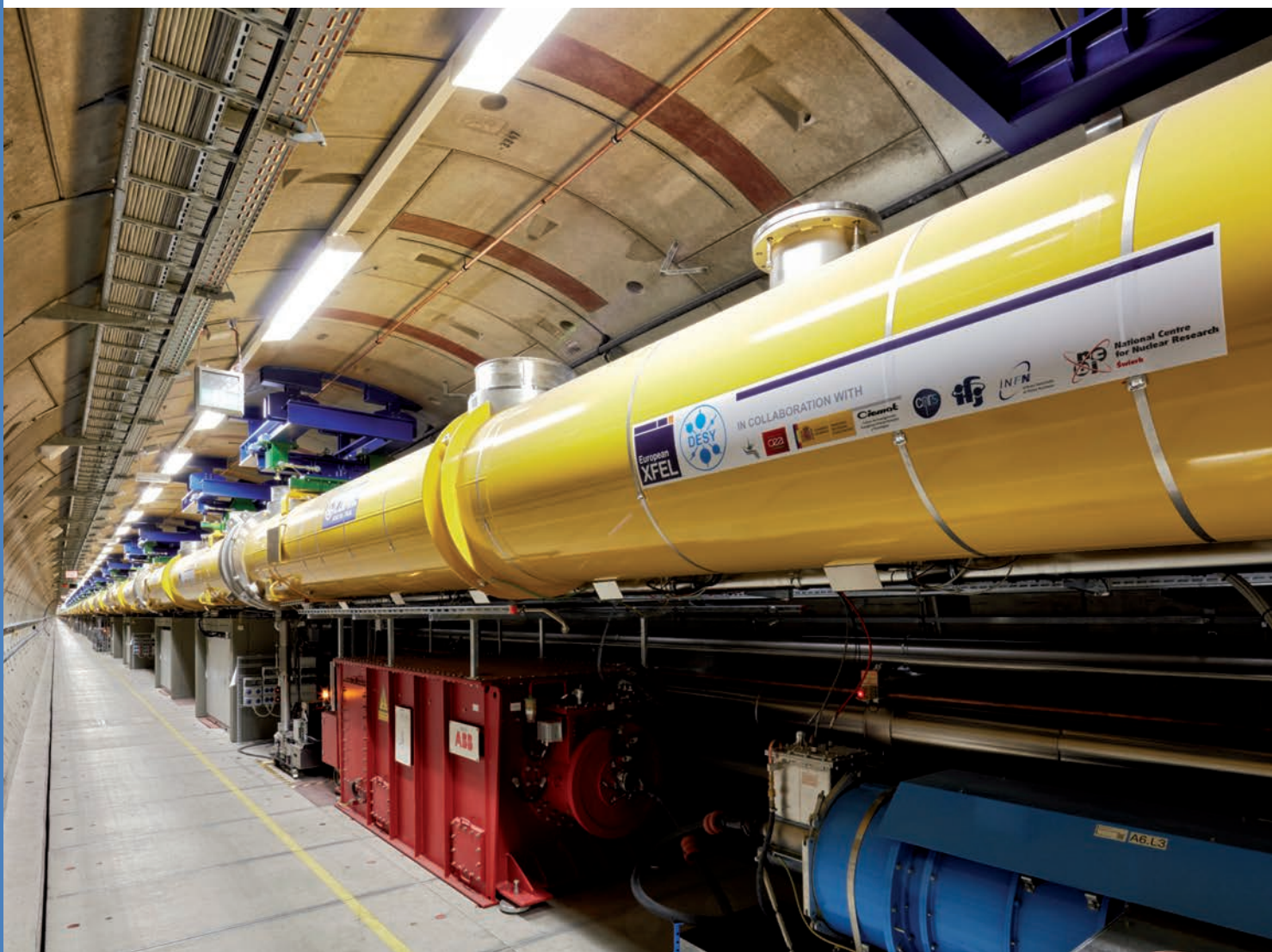
A joint focus on clusters in sectors such as energy, life and health sciences, food industry, and maritime industry will tap into synergies, create new jobs, and achieve greater international visibility and competitiveness. In particular, HMR holds a unique competitive advantage in the renewable energy sector (especially wind power), both in Germany and in Europe. There are high hopes to benefit from technological advances in research on hydrogen fuel cells. Stronger collaboration to develop a

clear, integrated regional innovation strategy will generate benefits for all of HMR, including the city of Hamburg. Building on the successful experience of NEW 4.0 and the aviation cluster, the four states are strongly encouraged to develop an integrated regional innovation strategy that consolidates overlapping initiatives and promotes a more efficient approach to knowledge creation and diffusion. A regional innovation agency could be established for this purpose, with adequate capacities and resources.

## Intensify national and European co-operation on innovation

Stronger co-operation between the HMR and German and European functional regions will help enhance the HMR's own capacity for innovation and complement its existing strengths. Given their geographic proximity and already existing economic linkages with the HMR, the Copenhagen-Malmö-Gothenburg-Oslo corridor is a

natural partner for collaboration. In particular, supporting further research co-operation between XFEL and the European Spallation Source (ESS) research facility located in Lund (Sweden) would yield significant mutual benefits to the HMR and international partners.



## Invest in strengthening education and human capital

Boosting education and human capital is a key component of enhancing economic development in HMR. Policy-makers need to increase the low level of R&D while also strengthening science-industry linkages that are currently undermined by a mismatch between research and business needs of enterprises. Facilitating collaboration across research institutes and firms from all parts of HMR will yield additional benefits for technology transfer and knowledge creation. A co-ordinated approach will also raise the national and international profile of HMR, which, in turn, will boost its capacity to alleviate the widespread skills shortage by attracting skilled workers.

Exploiting the full potential of new research facilities should be a joint priority for policy-makers in HMR. The European X-Ray Free-Electron Laser Facility (XFEL), in conjunction with the German Electron Synchrotron (DESY), opens up unprecedented research opportunities and manifold possibilities for combining research with private sector development. If managed successfully, they can attract further world-class researchers and highly skilled workers, establishing HMR as a globally leading location. The four federal states of HMR need to strengthen their co-operation to take advantage of the economic and social benefits that XFEL and associated applied research in sectors such as material or life sciences generate.

## Seize the opportunities of digitalisation to nurture new sources of growth and improve public service delivery

Considering that digitalisation will have a significant impact on production and work processes and change the skills demanded by the labour market, public, private, education and research sectors across the four states need to join forces to provide workers with the necessary training. For example, life-long learning and up-skilling opportunities should be further expanded to ensure that older employees are not left behind in the change that digitalisation will bring. Given the lack of large firms in the HMR economy, targeted support to help SMEs transition into digital technologies and solutions is particularly required.

Opportunities to raise the daily well-being of residents through the digitalisation of public service delivery should also be pursued further across HMR, particularly in remote areas. The expansion of broadband infrastructure needs to continue, especially in rural areas. Intelligent transport systems could make HMR an international leader in the mobility sector, thus further strengthening the regional economy. The upcoming ITS World Congress in 2021 provides a unique opportunity to enhance mobility and transport solutions in HMR to raise international visibility as well as create jobs. Digital services such as ride-hailing and vehicle-sharing applications have great potential to improve mobility in rural areas and should be further developed.

## Improve regional planning for housing and transport

Quantitative and qualitative assessments need to be carried out to ensure that the housing stock keeps pace with the needs of the population and development patterns, which vary across the HMR. While demand for single-family houses seems to be rising across the HMR in the future, demand for apartment buildings appears to be increasing in and around its urban core but decreasing at its fringes. Between 2015 and 2030, demand for floor space available per resident overall is forecasted to increase between 12% and 15% in the first ring around the urban core (more so than in the urban core itself). Considering that land consumption increased faster than the population in all parts of the HMR (except in Hamburg) between 2000 and 2015, there is a need to encourage more compact development of towns and cities. The housing stock for low- and medium-income groups in the HMR should be expanded, particularly as the stock of social housing in Hamburg decreased between 2006 and 2017. Conferring spatial planning competencies to a regional planning association, which could establish a regional plan covering all or a significant part of the HMR, would help overcome the fragmentation on the housing

market, better match housing supply and demand, and curb the rise of house prices and rents.

Bottlenecks in rail and road transport in and around the city of Hamburg need to be alleviated. A shift from road to rail for freight transport should also be encouraged. Accessibility in rural areas needs to be improved, for example by implementing a single tariff scheme across the HMR and harnessing the potential of digital mobility solutions and public-private partnerships, which can help reduce spatial disparities in mobility and meet environmental goals. Municipalities and districts could further leverage digital solutions and public-private partnerships to ensure mobility in rural areas. On-demand mobility services integrated with the public transport network, for example, have the potential to reach HMR residents throughout the region and improve accessibility in peripheral areas. The common regional plan for the HMR mentioned above should integrate housing and transport planning and promote more sustainable, transit-oriented development.





## Leverage the region's biodiversity and leadership in renewable energy production

The protection of natural areas to improve environmental sustainability and preserve their recreational value plays an important role in building a cohesive region. Greater co-operation should take place across administrative boundaries on Biosphere Reserves, for example. Energy efficiency in buildings should also be encouraged. Tax incentives may also be needed in the case of new buildings, as applying energy standards is sometimes considered as being at odds with the imperative to increase the construction of housing. Retrofitting existing buildings can also be costly for low-income households that would, however, greatly benefit from lower energy costs. To

encourage energy efficiency throughout the HMR, urban and regional development plans should include energy concepts for production and consumption.

Measures need to be taken to retain and improve the acceptance of renewable energy production through citizen participation. Municipalities taking part in renewable energy production should invest in informing households and engaging them in co-planning of renewable energy production sites, wherever possible. Districts and federal states also need to include adequate modalities to inform and engage residents in strategic and regional plans.



## Join forces around a common cultural and tourism brand as a driver of balanced regional growth

Leveraging the HMR's cultural assets will help raise the visibility of the whole region to the outside world and strengthen the attractiveness of the HMR to visitors, firms and skilled workers. The HMR should build on the strengths of being a heterogeneous region in the area of tourism by offering a diversified range of activities and attracting visitors that will spread throughout the region. The interplay between urban and rural areas should be used as a key selling point. A joint marketing

campaign promoting attractions in and around Hamburg, from coastal areas and cities of the Hanseatic league to the urban core, could convince tourists to discover new places and stay in the region longer than they would have otherwise. A joint strategy could integrate tourism with sustainable mobility planning to broaden the focus from the city of Hamburg and put the infrastructure in place to develop joint offers promoting different areas within the HMR.

### The way forward

A more coherent and integrated approach to innovation, planning and branding will offer a powerful tool to boost productivity, reconcile competing objectives for land, respond more effectively to demographic pressure,

improve quality of life both for residents and visitors, and raise the national and international competitiveness of the HMR.





This document summarises the key findings of:  
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