



Urban Agenda Platform

The global platform for sharing progress, action and knowledge on the implementation of the New Urban Agenda to achieve sustainable urban development.

Modernizing Heidelberg through industrial upgrading and diversification

Region	Europe and Central Asia
Themes	Local Economic Development
Sustainable Development Goals	Goal 8 - Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all Goal 9 - Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation Goal 11 - Make cities and human settlements inclusive, safe, resilient and sustainable
New Urban Agenda Commitments	Sustainable and Inclusive Urban Prosperity and Opportunities for All

Summary

This case highlights Heidelberg's development in advancing sustainable urban economic development through the process of industrial upgrading and diversification of its economic base.

Background and Objective

Heidelberg is a dynamic city with a mixture of traditional and contemporary tourism, culture, science and technology, and education. The city has a population of approximately 160,000 of which 56,000 are estimated to have immigrated – many of whom are scientists or students. In combination with Mannheim and Ludwigshafen, the city makes up part of the Rhine-Neckar metropolitan region, a polycentric area serving as a key driving force in the German economy aiming to be one of the most attractive and competitive regions in Europe. With a strong scientific presence, Heidelberg is also home to Germany's oldest university and hosts a number of internationally renowned research institutes and research-based companies, thus making it a high-quality place to live and work with strong economic foundations. Heidelberg is an international tourist destination receiving over 3 million tourists annually. It has 18 museums and is famous for its traditional red roof houses which perfectly preserve the style of the Medieval Ages. The Neckar River divides the city into the north and the south banks, with greenways running parallel which offer leisure areas for local people. The two parts of the city are connected via several bridges, the most famous of which is Karl-Theodor-Brücke, built in the 18th century. Steeped in history, Heidelberg aims to preserve these relics and the cultural identity of the city, as reflected by the city's local cultural identity preservation programme which includes approximately 1,000 protection objects and 2,100 individual buildings. Founded in 1386, Heidelberg University is an important landmark and pillar of the city, and the oldest university in Germany. The university campus is fully integrated into the old city in that there are no gates, walls or clear boundaries, creating a strong academic presence and reinforcing the prestige of Heidelberg as an academic city. Renowned writers and thinkers including Ernst Bloch, Martin Heidegger, Max Weber and Hannah Arendt all lived, taught and studied at the university, and it is this rich history that attracts a great many tourists every year. As of 2017, a total of 56 Nobel Prize winners and 19 Leibniz Prize winners once studied, taught or conducted research at the university. In the 18th and early 19th centuries, romantic literature was born in the city, and even today a large number of philosophers and sociologists live here. The United Nations Educational, Scientific and Cultural Organization (UNESCO) awarded Heidelberg the title of 'City of Literature'. Heidelberg is home to 45,000 students from all over the world as well as a great many publishers, bookshops (1.5 per 10,000 inhabitants on average) and renowned translators. Heidelberg ranks third among all German cities in terms of per capita investment in cultural activities by public organizations (USD 295 per capita, USD 42.5 million in total). The important segments of the creative economy are book publishing (one-third of all creative professionals) and software. Its proportion of cultural and creative industries in overall economics is higher than other cities, with 75 per cent of its revenue coming from literature and publishing. Currently, over half of Heidelberg's working population are employed in culture-related industries. However, the development of the local economy has faced great challenges with the economic system over reliant on the tourism industry and its status as a university town. The homogeneous industrial structure reduced sustainability of the city's economy, which led to difficulties in raising the income level for local residents. Urban expansion and economic diversification thus became the common choice of local government, businesses and citizens.

Actions and Implementation

Each area of Heidelberg contains its own unique characteristics and it is this diversity that makes the city vibrant and attractive. The long and narrow old city – the cradle of Heidelberg – is surrounded by city roads that intertwine with nature, whilst Weststadt contains many examples of residential buildings from the reign of Wilhelm. Bahnstadt is a railroad town and currently the largest Passivhaus colony, while other districts such as Handschuhsheim are comprised of combinations of less urbanized areas and life science research institutes with Rohrbach formerly known as a wine village. In terms of rental



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prices, Heidelberg ranks sixth among all German cities but a 'core-edge' structure is significant within the city and the rent in the northern 'creative' zone is on average 30 per cent higher than the cheapest neighbourhood in the south (Emmertsgrund/Boxberg). Heidelberg has taken advantage of its rich tourism influx as a means to drive industrial development. Here, both conventions and exhibitions have played a key role in the economy. In regard to academic symposiums, 70 per cent of Heidelberg's tourist accommodation income is generated from business travellers who make short stays and enjoy the city's history, cultural tradition and prestigious scientific presence. In addition, classical concerts, musical performances and other significant creative events are regularly held at the Heidelberg Convention Centre along with large-scale exhibitions, trade shows organized by global companies, annual conferences and other events. Small meetings play an important role too with the renowned Heidelberg Convention Hotel providing the ideal venue for conferences and meetings due to its high-quality facilities. The city benefits from universities, technological innovation and creative industries which attract highly skilled and creative workers and residents. This also creates new potential for high-quality education where an increased number of families with a strong academic ethos contribute to a more educated workforce. Statistics from Gerhard and Hoelscher's research highlight that students who attend elementary schools within 'professorial communities' are far more likely to attend the best secondary schools. With the support of Heidelberg University, local industries began to develop with healthcare one of the strongest performers. The healthcare industry in Heidelberg contains 20 per cent of the city's working population; far higher than the German average of 7 per cent. Due to the abundance of medical research projects, clinics and hospitals associated with Heidelberg's universities, the health industry is closely linked to these entities. Universities and higher education serve as important sectors in Heidelberg whereby R&D equates to 4 per cent of local gross domestic product (GDP) and 1.9 per cent of national GDP; and cultural institutions 6 per cent of local GDP and 3.8 per cent of national GDP. Technologiepark Heidelberg, is located at Heidelberg University with an additional research base in Bahnstadt. It is an important local industrial cluster that is now world-renowned as a high-tech park. The park is home to one of the most important biotech research centres in Germany with 2,800 scientists and employees. It is also the most important bio-pharmaceutical industry cluster in Germany and a leader globally, with hundreds of resident pharmaceutical companies such as BASF, Merck, Sanofi and Roche Diagnostics. In addition to relying on R&D resources from Heidelberg University, the park cooperates closely with numerous international bio-technology parks, renowned domestic and international research institutes, and bio-technology companies boosting the development of bio-technology industry clusters in the city. The Neuenheimer Feld zone is one of many zones with a 40,000 m² radius comprising laboratories as well as commercial and industrial facilities which make up the core zone of Technologiepark Heidelberg. Due to its integration with Heidelberg University, it is often used for practical research with a creative and dynamic atmosphere that encourages communication between students, young scientists, experienced entrepreneurs and lecturers. To further develop local high-tech industries, Heidelberg goes beyond its geographical boundaries to establish technical cooperation with neighbouring cities. As Heidelberg's closest city, Mannheim is less than a 30-minute drive away. The Heidelberg-Mannheim Health and Life Sciences Alliance was founded in the mid-1980s in Bergheim, Heidelberg. As the first medical park in Heidelberg, it pioneered modern clinical facilities and inspired a range of innovations in medical research and teaching. The network comprises multinational companies such as BASF, Merck, Sanofi and Roche Diagnostics as well as more than 400 small and medium-sized pharmaceutical companies. Research institutions in the vicinity include the Heidelberg University, two local medical schools in Heidelberg and Mannheim, and domestically and internationally-leading research centres such as the German Cancer Research Centre, the European Molecular Biology Laboratory and the Max Planck Institutes in the Rhine-Neckar region. Combined, they create an exclusive technological development network in the medical engineering field whereby companies provide technical knowledge services for companies and conduct R&D and training. As life science and medical researchers and institutions in the Rhine-Neckar region joined the Heidelberg-Mannheim Health and Life Sciences Alliance, Heidelberg has made a great leap forward in innovative research, patient care and health economy. In addition to cross-regional cooperation, transnational cooperation is also an important means to upgrade Heidelberg's technology. In 2013, a cooperation agreement was signed between André Domin (Illinois Institute of Technology, Chicago, United States of America) and Dr. David Baker in the presence of Rita Athas, President of World Business Chicago and Ralf Kindervater, President of BIOPRO Company in Baden-Württemberg. Dr. Eckart Würzner, the Mayor of Heidelberg and X Scharff, his counterpart in Palo Alto, signed the Smart Cities Alliance at Heidelberg City Hall to cooperate on economic matters, science and the environment.

Conclusion

Although Heidelberg initially faced a lack of economic sustainability and resilience due to the composition of its industrial structure, the process of industrial diversification through the integration of creative industries was key to laying the foundations for the emergence of additional industry, creating a more heterogenous and resilient economic base. Despite its position as a traditional tourist city, Heidelberg quickly ushered in economic recovery following the outbreak of COVID-19 due largely to the introduction of a series of emerging industries in recent years. Other cities with varied resource endowments can therefore use the example of Heidelberg as a reference for industrial diversification based on local characteristics and foundations. Heidelberg has seen significant transformation throughout its history and the city has undergone an extensive process of industrial development and diversified industry integration. Where Heidelberg first developed a business conference and exhibition industry based on local assets and cultural heritage, this was followed by the incorporation of biomedicine and other emerging industrial clusters due to the advantages created by science and technology talent from the local universities and industrial bases. The progression in knowledge and technology has strongly influenced life in the city, and has been key in bolstering the capacity and sustainability of Heidelberg's local economy and the wider Rhine-Neckar metropolitan region. In particular, knowledge and innovation among urban and regional industries aims to innovate the spatial compositions of industry, unlock and provision key resources, and drive the advancement of technology and economies to boost the competitiveness of regional industry. Consequently, in an era in which knowledge, technology and innovation are the powerhouses that enhance competition between quaternary industries and therefore, economies, it is important to understand the role of such industry in boosting economic growth and competitiveness. Heidelberg's high-quality industrial clusters and cross-regional coordination strategy help accelerate the city's development. Whilst industrial diversification is a gradual process following the formation



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of specialized industries, it is necessary to build a cross-regional cooperation network to further accelerate industrial development. According to relational economics, industrial innovation and upgrade is dependent on local and external knowledge combined; neither local nor external resources can be overlooked. Cross-regional cooperation in the traditional sense emphasizes the optimal allocation of material factors to promote economic growth. Although the role of technological factors is valued, it emphasizes the importance of technology in driving economic growth in an exogenous way. Cross-regional innovation cooperation states that intellectual capital formed by knowledge spill-over and human capital flow will directly impact the cost of new knowledge capital in a region, thus making technology an endogenous driver of regional economic growth. Facilitating cross-regional innovation cooperation will greatly improve a city's ability to acquire external knowledge resources and establish new knowledge networks so as to improve the city's economic momentum and economic growth potential.