



Building the Innovation Economy

City-Level Strategies for Planning, Placemaking, and Promotion

Case study: Munich

October 2016

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**Urban Land
Institute**

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Acknowledgements

This case study has been developed through a literature review of available academic scholarship, public and private research reports, and media publications. This effort has been supported by interviews with public officials, landowners, and district marketing organisations.

We offer our thanks to the following individuals for their insight and advice in the development of this case study:

Dr Rainer Emenlauer, Manager, ProStadt

Robert Kulzer, Chairman of the District Committee, Berg am Haim

Johannes Marx, Property Development/Property Management, R&S Immobilienmanagement GmbH

Christiane Thalgott, former Councillor of Urban Development, City of Munich

The authors wish to thank the following for their advice, ideas, and input:

Lisette Van Doorn, CEO, ULI Europe

Dr Elizabeth Rapoport, Content Director, ULI Europe

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Executive summary

Many cities around the world are seeking an enhanced presence of the emerging innovation economy in order to grow a new base of jobs, adjust to industrial change, or to leverage technology to address sustainability, resilience, and social cohesion. In the current cycle, cities are focusing investment and promotion on new 'innovation districts', locations within the city where the innovation economy may develop and expand, although not all cities have the endowment, ecosystem or expertise to host them.

As part of a collaboration between ULI and the City of Rotterdam, this case study of Munich was developed in order to review and explore the ways in which cities can foster an innovation ecosystem and build a long-term strategy to establish themselves as centres for innovation. Munich was selected as a case study city, along with San Diego and Tel Aviv, because of its mature innovation system, with the city now in its third cycle as a city of innovation.

Three overriding research questions informed this case study:

- What roles are played by city governments, landowners and investors in building an innovation economy, creating new innovation districts, and sustaining them over time?
- How does land use, placemaking and real estate help support the innovation economy, and how can it contribute to making a city more liveable and attractive?
- How does branding, communication and promotion of the city's innovation focus help build identity and successfully attract investors and businesses?

Munich possesses one of Europe's most advanced and mature innovation systems that has developed over the past 60 years, characterised by strong German federal and Bavarian state support for high-technology sectors. This model of innovation resulted in distinctive polycentric development around a

strong urban core, with sub-centres anchored by specialised R&D functions and institutes. The collaboration between universities, institutes, corporate R&D, trade unions, and multiple tiers of government created a unique 'institutional thickness' sometimes called the 'Munich Mix'.

Today, Munich's main innovation sectors include biotechnology, ICT, media automotive and aerospace, all supported by a strong system of finance and venture capital. Over successive economic cycles, Munich's growth has successfully addressed quality of life challenges amid substantial population growth and diversification. In the context of current serious land and growth constraints, Munich is bringing forward new locations to a new kind of innovation economy model.

One of Munich's most important innovation locations is Werksviertel, a re-purposed former industrial district and one of the last remaining sites near the city centre. Over the last 15 years, family-owned landowner-investors have patiently collaborated and taken the initiative to support cultural activity on the site, initiate viability studies, agree a joint development plan, and make catalytic investments. The city government has deployed instruments effectively to enable land

intensification and recycle profits into social infrastructure.

Werksviertel has been developed according to a model of placemaking that aims to retain all real estate of heritage value, attract a mix of uses and larger and smaller tenants, and achieve a very high environmental performance. The site is distinctive for providing a substantial housing component, and a dynamic combination of recreational, artistic and retail spaces to sustain its vibrancy.

Munich's city-level branding approach has evolved over the last 15 years, focusing on its credentials as an open, welcoming and youthful city, but calibrating the brand towards innovation is an ongoing challenge, despite the strength of Bavaria's innovation brand. Werksviertel is not yet widely and explicitly promoted by the city as a flagship innovation district. Instead currently district leaders have employed tactics to build demand and identity in Werksviertel, from urban design competitions to nightlife development and attracting cultural assets, always encouraging stakeholders to sample the district in different ways. Today it is established as a go-to neighbourhood within Munich's large and diverse innovation ecosystem, and is helping to expand Munich's long-term innovation capacity.

Areas of successful leadership in Munich's innovation economy and district development

Strategy

Develop a Strategy as a City of Innovation

- Recognise and leverage the regional innovation context ✓
- Prioritise attention on citywide ecosystem development and networking ✓
- Grow and support existing innovation firms and activity ✓
- Manage externalities that arise ✓
- Adapt through the cycles ✓

Tactics

Optimise Land Use and Placemaking

- Support district development with flexibility, responding to market preferences ✓
- Use infrastructure and land as platform for experimentation
- Employ placemaking to achieve critical mass of real estate and commercial activity, and authentic sense of place

Build the City's Innovation Brand

- Leverage city DNA and expertise in promoting innovation
- Develop innovation brand as a broad identity and shared narrative
- Invite others to feel and experience the innovation culture

1. Introduction

Munich is one of Europe's most diversified and balanced city economies, with a gross domestic product (GDP) of US\$220 billion that makes it the world's 48th largest metropolitan economy.¹ The capital of Bavaria also possesses one of Europe's most advanced and mature innovation systems.

This case study tells the story of Munich's innovation ecosystem development: rapid post-war industrialisation, strong German federal and Bavarian state support for high-technology sectors, and a thriving domestic financial sector

have helped foster a renowned 'Munich Mix' of sectors and companies, contributing to balanced spatial development over the past 60 years. The actors, assets and relationships that constitute Munich's ecosystem has been very effectively translated into an innovation economy of products and services that has consistently driven growth and job creation. Over successive economic cycles, Munich's growth has successfully addressed quality of life challenges amid substantial population growth and diversification.² Only recently has this successful model been challenged by growth constraints.

In the context of current serious land and growth constraints, Munich is bringing forward new locations to a new kind of innovation economy model examined in this case study. One of the most important is Werksviertel, a re-purposed former industrial district just east of the Ostbahnhof. This case study also highlights the key interventions of landowner-investors and the city government in Werksviertel to support a dense mix of uses and companies and to thereby increase Munich's long-term innovation capacity.

Figure 1: Technical University of Munich, a leading driver of innovation in the region



Photo by Maximilian Dörrbecker, CC-by-SA 2.0

2. Munich's innovation ecosystem

Munich's successful innovation ecosystem has been more than 60 years in the making. While the city initially benefited from the exodus of firm headquarters from Cold War Berlin (e.g. Siemens, Knorr-Bremse), what has really marked Munich is the long-term state government investment in human capital and infrastructure development. With federal spending on defence also generating spin-offs in microelectronic sectors through the 1960s and 1970s, a large 'manufacturing-service nexus' emerged in the city that has been resilient to industrial change and actively pursued technological innovation.

Munich's emerging innovation model resulted in distinctive polycentric development around a strong urban core. Unlike many other peer cities, the main central business district (CBD) did not acquire a disproportionate weight in the

metropolitan economy, and Munich has one of the most even distributions of employment among mid-sized cities in Europe.

From the 1970s, the state of Bavaria implemented a long-term research and development (R&D) and innovation policy based around adjusting for future technologies. Public funding was directed towards the growth of the education sector—particularly universities, but also vocational training (which today includes 250,000 students in Bavaria). In addition to the polytechnics, 11 Max Planck Institutes and ten institutes maintained by the Fraunhofer Society were established in the region, and together these now employ more than 50,000 people.³

Investments in public transport to support the expanded innovation system included a regional

and high-speed rail network that improved connections across the metropolitan region and to the rest of Germany. The 1972 Olympics were a catalyst for large-scale investments in quality-of-life, urban realm, and transport projects.

Later, the creation of a new airport in 1992 to the north-east of the city increased Munich's firm links with Eastern Europe, North America, and East Asia. The new airport opened up an important **development corridor**, which has absorbed some of the city's economic development and population, given the shortage of brownfield sites for densification or redevelopment and the limited options for spatial expansion due to planning co-ordination issues (especially over housing) between neighbouring municipalities.

Figure 2: Siemens centre in Neuperlach, 10 km southeast of Munich city centre



Photo by High Contrast, CC-by-SA 2.0

Figure 3: Arnulfpark, one of Munich's many examples of master-planned development, re-using industrial buildings for offices



Photo by Maximilian Dörrbecker, CC-by-SA 2

Expansion of the ecosystem

State government leadership, motivated by the desire not to fall behind economically, was critical to a second and third cycle of investment in the innovation system coming forward. The 1986 Bavarian Innovation Programme and Bavarian Technology Introduction Programme (BayTEP) supported technology transfer and dedicated R&D, training, and infrastructure for Munich's key sectors. They were followed by the €3 billion Future Bavaria Initiative (FBI) in 1994 and the €1.4 billion High Tech Initiative (HTI).

Cumulatively, these schemes served the growing network of research facilities and enabled universities and polytechnics to expand, new startup centres to be set up, and a new generation of digital infrastructure to be rolled out. This scale of investment was unique for a European city and was made possible through the sale of public shares in major local firms. From 2006 onwards, a smaller programme

(the Cluster Initiative) was set up to manage 19 clusters through management teams that facilitate networking and collaboration among firms, venture capital, and research bodies.

The sustained collaboration among Munich's universities, institutes, corporate R&D departments, trade unions, and different tiers of government has created a unique 'institutional thickness'. In particular, Munich is noted for the strong alignment of private and public sector interests and the empowerment of firms and knowledge institutions to shape policy. Public representatives often acknowledge that companies and universities are better placed to understand the right kind of people the city needs to attract. This equilibrium is also made possible by political stability. For years the city has been governed almost continuously by the social democrats, and the state government by conservatives, with strong collaboration between the two.⁴

Munich's biotechnology and life science firms tended to cluster in the small municipalities just beyond the city (see box 1), while creative industries and media have remained in the centre because of its vibrant environment and quality of place. The limited amount of space in the centre, the high quality of life on offer beyond the urban core, and competition among municipalities seeking to strengthen their respective tax bases have spurred the evolution of specialised districts.

In general, Munich's core became home to its more globally oriented activity while its sub-centres are part of more domestic and regional value chains.⁵ As capacity in the main CBD became tight, Parkstadt Schwabing emerged slightly further north as a business sub-centre that hosts an increasing number of CBD functions.

Box 1: Munich's 'Mature' Innovation Model

Many of Munich's mature cycle of innovation locations are located at the city's edge or outside the city limits. While media clustered in areas such as Geiseltal, 10 kilometres from the city centre, important science and innovation functions developed even further afield. Garching is a small town between Munich and its airport that has emerged into a major business cluster for science firms. The cluster grew around Germany's first nuclear reactor, which made it an attractive location for science and technology institutions, with federal bodies playing a catalytic role. Multilevel political unity and commitment have provided the long-term conditions for institutes and companies to continue to re-locate there, while investment in fast public transport (less than 30 minutes) to the Munich city centre has been an important advantage.

Meanwhile Munich's biotechnology sector has become concentrated in Martinsried, a rural community just outside the city where 200 biotechnology firms and research institutes are located. First initiated in the 1970s, the district has benefited substantially from federal and state investment in commercial research by funding to physical and networking infrastructure. The district has added a new life sciences campus as well as incubators. The district benefits from a state agency called BioMAG, which operates as a broker between startups and venture capital.⁶

Munich's ecosystem today

Today, Munich possesses a very diverse and mature innovation economy and is responsible for 10–15 per cent of Germany's patents. Its main innovation sectors include:

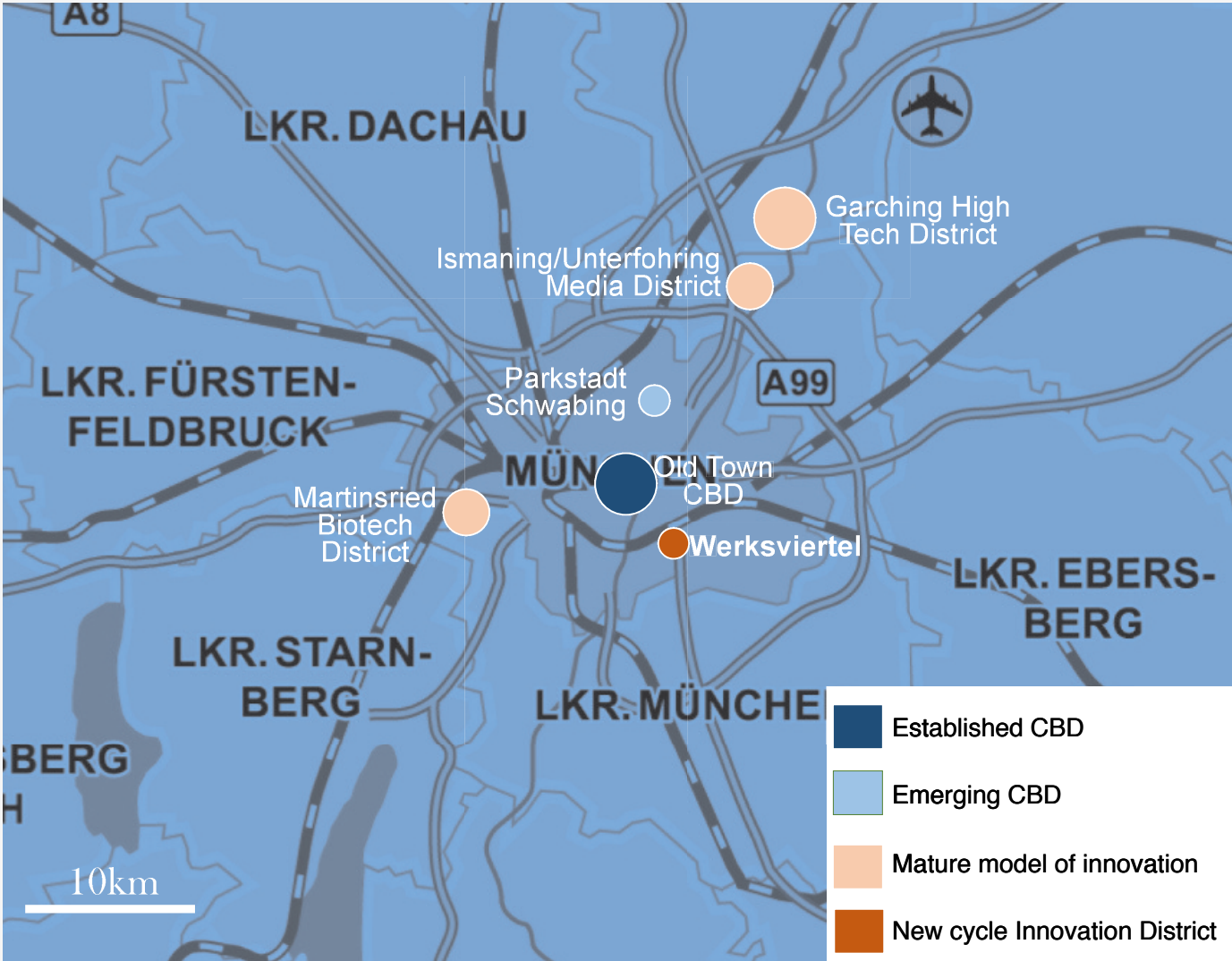
- A highly competitive **manufacturing** sector, including an €80 billion car industry (e.g., Audi, BMW, MAN) and an advanced aerospace cluster (e.g., Airbus, IAGG, and MTU)⁷;
- **Biotechnology and life science** clusters, which now employ around 30,000 people in over 400 companies, many of which are anchored by the Max Planck Institute for Biochemistry⁸; and
- **Information and communications technology (ICT) and media**, which employ 150,000 people, mainly in software, digital media, advertising, e-commerce, TV, and publishing.⁹

This diverse sectoral mix has been supported by a strong local financial system, which has given firms easy access to capital. Venture capital remains critical to the current cycle of Munich's innovation economy.

A number of softer factors also serve Munich's innovation ecosystem. Inherited quality-of-place advantages, partly due to past investment in the city's baroque heritage and controls on car-centric development, mean that Munich is an attractive city for workers at multiple stages of life. The city's reputation for quality of life, attractive scenery, and high culture, its vocal leadership support for cosmopolitanism, and the extensive public transport system with multi-modal integration have been important in continuing to drive demand from investors, firms, and talent.¹⁰

Munich's innovation system has been guided by a strong planning framework, which ensures that the private sector prioritises brownfield, contributes to physical and social infrastructure, and caters to both large firms and small and medium-sized enterprises (SMEs). A genuine commitment to maintaining mixed-income neighbourhoods has so far contributed to relative spatial equity, but the scarcity of core land is threatening affordability and disagglomeration.

Figure 4: Map of economic centres in Munich



Note: CBD = central business district.

3. A new model of innovation districts for Munich

Munich's innovation economy in the last cycle mostly took place outside the city core, often in outlying towns including Garching, Martinsried, and Taufkirchen and Grunwald. Recent efforts, however, have directed investment to more central locations—especially to support the ICT and creative economies.

Initiatives backed by the city and the Technical University of Munich, such as UnternehmerTUM and Munich Technology Centre, have helped to provide flexible startup spaces closer to the core. The city government is developing a 'creative quarter' on Dachauer Strasse, and it recently approved the creation of a new innovation and startup centre there.¹¹

Probably Munich's largest new mixed-use innovation district is **Werksviertel** ('factory quarter'). Located on a 40 ha brownfield site just outside the city centre east of Ostbahnhof station, it is one of the last remaining large sites available so close to the centre. It originally housed light and medium industry, such as motorcycle and food processing factories.

The city of Munich took over much of the responsibility for the project, but because of a lack of time and resources, for some years the district became a low priority. However, the growth of Munich in the post-2008 period created a new sense of urgency to accelerate the

district's development. Active public sector involvement in the redevelopment process has helped drive consensus among all site owners around a final development plan, after years of negotiation. Having drawn inspiration from the regeneration of New York's Meatpacking District, the complex may provide as many as 1,200 new homes and 7,000 new jobs as it evolves over the next ten years.¹²

Figure 5: 3D map and image of the Werksviertel district



Figure 6: Werksviertel



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3.1 The catalytic roles played by landowners, investors, and the city government

The land in Werksviertel is co-owned by nine organisations, including a mix of private (e.g., Corpus Sireo, IVG, Otec, Rohde and Schwarz, Hamberger) and public bodies (Stadtwerke Munich, Munich Society for Urban Renewal). These landowners have been working towards a common purpose, with development largely financed and undertaken by the respective parcel owners and overseen, coordinated, and connected to infrastructure by the city government.¹³

The Werksviertel project is distinctive because four of the nine investors are family-owned businesses. This means that most of the developments are not driven by a quick exit, but instead the four family businesses have incentive to retain the land and the buildings on it and to build long-term value.

As owner of 90,000 square meter on the site, Otec GmbH, through its Chief Executive Officer Werner Eckhart, played an important catalytic role at the start of the process of redevelopment in the 1990s. The four- to five-year delay in obtaining rights to convert the land from industrial to mixed-use proved very expensive, but as chief landowner and investor Otec showed patience. From 2003, Otec actively supported the ongoing cultural and artistic events and activity on the site.

The other eight landowners on the site have worked collectively with Otec to form a common set of goals and a joint development plan. The property arm of Rohde & Schwarz—the anchor employer on the site—has also made a number of important catalytic investments, including Technology Centre 1 and 2.

In the early phases of the project (mid to late-2000s), the private landowners were vital in pushing the planning process forward. During a hiatus after 2003, investors decided to take the lead and push the project forward, with the various studies then approved and confirmed by the Munich city authorities and the city parliament.

In the latest phase of Werksviertel's development, Otec aims to build a concert hall where clubs in old factory buildings used to operate, as a public-private partnership. Under the terms, investors acquire the land and build the music centre, and the state includes the operating company in a lease contract with a 50-year maturity. Figure 7 illustrates the various roles of public and private partners.

3.2 Land use, real estate, and placemaking in Werksviertel

Although ensuring agreement and compromise among nine landowners has sometimes been difficult in Werksviertel, the owners have been able to create common guidelines around:

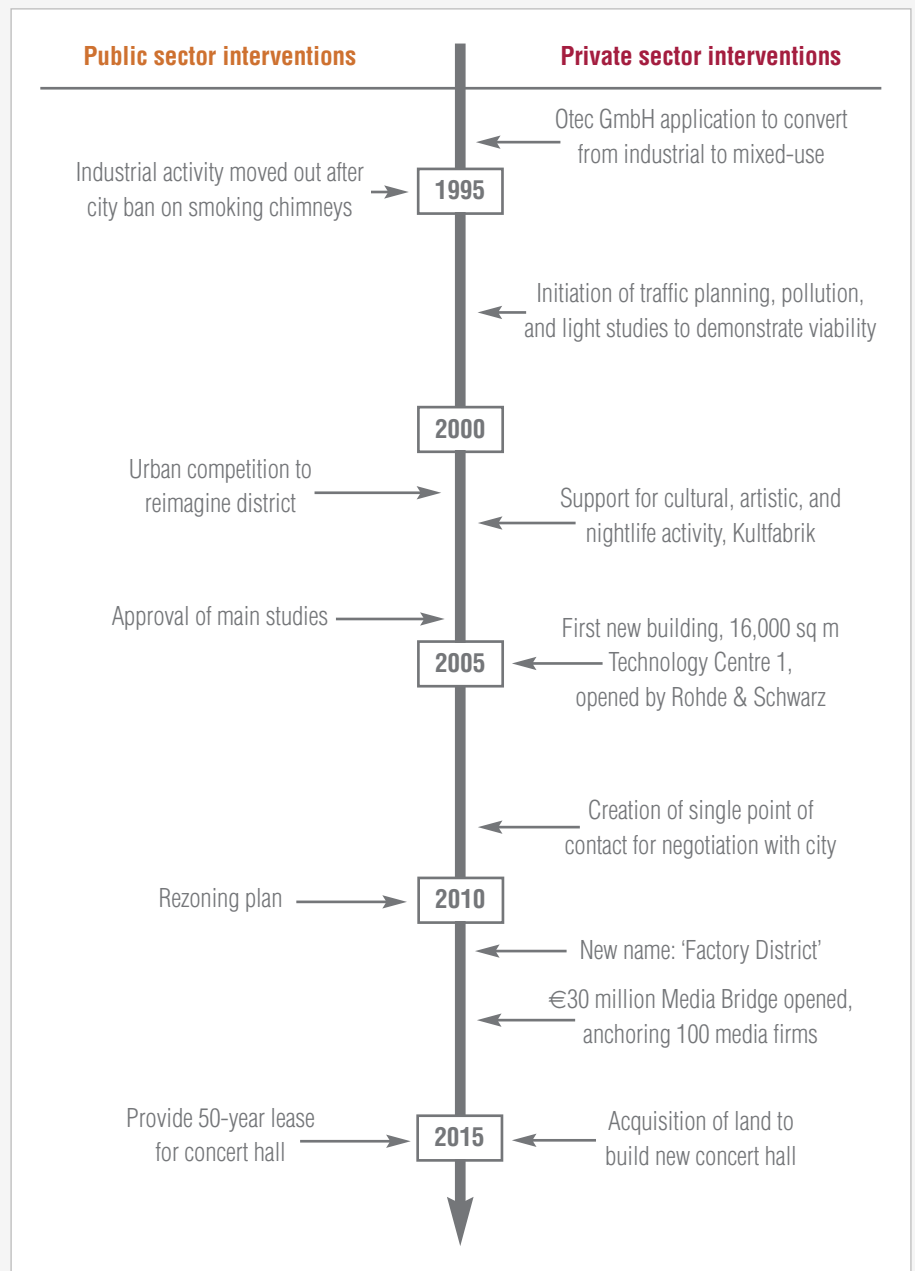
- Attracting a mix of larger and smaller tenants,
- Retaining real estate of heritage value and ensuring that new developments fit into the character of the site and create continuity with the past, and
- Maintaining the standard of green space and environmental quality.

Because many of the district's investors have long-standing attachments to the area, they have a deep commitment to ensuring a high standard of placemaking.¹⁴

Werksviertel is guided by a zoning plan, and the project has been enabled partly through development rights whereby the city of Munich offers the landowners the right to increase the floor area ratio (FAR) from a low original starting point that reflected its former status as an industrial zone. The current land price of all plots within Werksviertel is estimated at about €250 million, and after development it will exceed €500 million. In return, the city applies a special instrument called SoBoN (Sozialgerechte Bodennutzung—the 'social and fair use of plots'). The new zoning plan allows for twice the density and intensity. The SoBoN issues a maximum 30 per cent charge on the profit (currently €50 million). This money is then used for building social infrastructure such as roads, parks, kindergartens, and schools.

In terms of the commercial space, Werksviertel leverages its large industrial spaces to provide a total mix of work environments—Grade A offices, workshops, modifiable office environments for startups and SMEs, coworking spaces, event and loft spaces, and artists studios. This mix has been demonstrated in the

Figure 7: Examples of public and private sector roles in Werksviertel's development



initial projects (see box 2), and the Plaza (due in 2017) will also host a mix of commercial hospitality, retail, and resident services.¹⁵

As it matures, Werksviertel is committed to becoming a very mixed urban development without destroying the existing industrial uses. The aim is to have offices for a range of firms, a substantial housing component, and recreational and retail space. Artists' studios, training rooms and showrooms, bars, night canteens, new

restaurants, and the preservation of existing nightlife will sustain its vibrancy.¹⁷ The housing benefits from access to the district's own primary school and child care facilities, and it is designed specifically for mixed-income and mixed-age occupancy. Most of the housing is being developed by two local landowners, Corpus Sireo Asset Management and Deutsche Telekom.

Box 2: Demonstrating a new kind of workspace

Landowner investors have played a key role in showing how Munich can bring forward new types of working environment conducive to the next cycle of innovation. Rohde & Schwarz—the anchor employer on the Werksviertel site—made a €40 million investment in 2005 with Technology Centre 1. This 16,000 square meter building consists of flexible and customisable room sizes and directly accessible exhibition space, and it has a design and architecture quality that has raised the district's profile.

That was followed up by another demonstration project—Werk 1. Designed for startups and SMEs, Werk 1 is an incubator that offers coworking spaces with cheap and flexible leases, as well as mentoring, training, and events facilities and relaxation hubs (e.g. a games room). It also provides all-inclusive services, such as fast internet, printing and scanning, and catering. The recently completed Werk 3 unit was built and extended from the reclaimed Pfanni factory and is now rented out for retail, entertainment, public events, and office and workshop spaces, while its silos will be absorbed into a hotel.¹⁶

3.3 Marketing and promotion of innovation: Munich and Werksviertel

In general the promotion and positioning of innovation has been more active at the Bavaria state level than in Munich, through initiatives such as gotoBavaria, BayernOnline and Aufbruch Bayern. At the city level, Munich's explicit branding approach has been developed over the past ten to 15 years, since the city began preparations for hosting the 2006 World Cup.

Its tagline—'Munich likes you'—highlighted Munich's credentials as a welcoming international city. The city has tried to leverage Oktoberfest, its old city charm, and its quality of life, but also has attempted to add new images to Munich that associate the city with youth, innovation, sport, and emotion. Some analysts have observed that Munich has not always co-ordinated its promotional activity as effectively as it could and that re-adjusting the city brand towards innovation is a difficult task.¹⁹

Werksviertel itself is not yet explicitly promoted by the city of Munich as an innovation district for international audiences. Instead, the promotional approach is more local. A number of important tactics or initiatives have been and are being used to build Werksviertel's brand and to link it to Munich's evolving reputation as an innovation-oriented city:

- Urban design competitions have been used to build media and public interest and to position the district as a leader in terms of architecture and placemaking
- Support for open house events and nightlife development in Kultfabrik over many years during the 2000s established the area's identity and reputation for entertainment and culture
- The 2012 birth of the name 'Factory District' aimed to build a strong link to the area's industrial heritage
- The naming of new streets—Studio Street', for example—has sought to provide continuity with the city's cultural journey

- The decision to develop a new concert hall on the site is considered an extremely bold step because it relocates a major cultural asset to an 'unproven' area well beyond the major business districts
- Adherence to smart and ecological urbanism principles has sought to promote and reflect Munich's wider ambitions for sustainable development.

Over the course of ten years, these tactics have built significant interest in Werksviertel among prospective residents, tenant employers, and investors. In 2016, the district is established as a go-to neighbourhood within Munich's large and diverse innovation ecosystem. Because it encourages many types of stakeholders to sample the district in different ways, Werksviertel has gained recognition as a foremost example of how Munich can convert an industrial area to a highly mixed urban development without destroying existing industrial buildings, with landowners playing an influential role in shaping its quality and success.

4. Conclusion

Munich's mature innovation system is a product of a nearly unique 50-year synergy between higher tier of governments, public and private research institutes, capital providers, and large and small technology firms. The city also stands out for its continual commitment to accommodating this innovation activity without compromising quality of life, place or belonging.

Munich's model is now coming under challenge because of land and housing constraints, and so locations such as Werksviertel are critical to enable the city's innovation economy to adapt to new needs and preferences. Although the pace of redevelopment has been protracted, the signs are promising that Werksviertel's focus on placemaking, heritage and inclusion can help renew Munich's model in the next cycle of the innovation economy.

Areas of successful leadership in Munich's innovation economy and district development



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