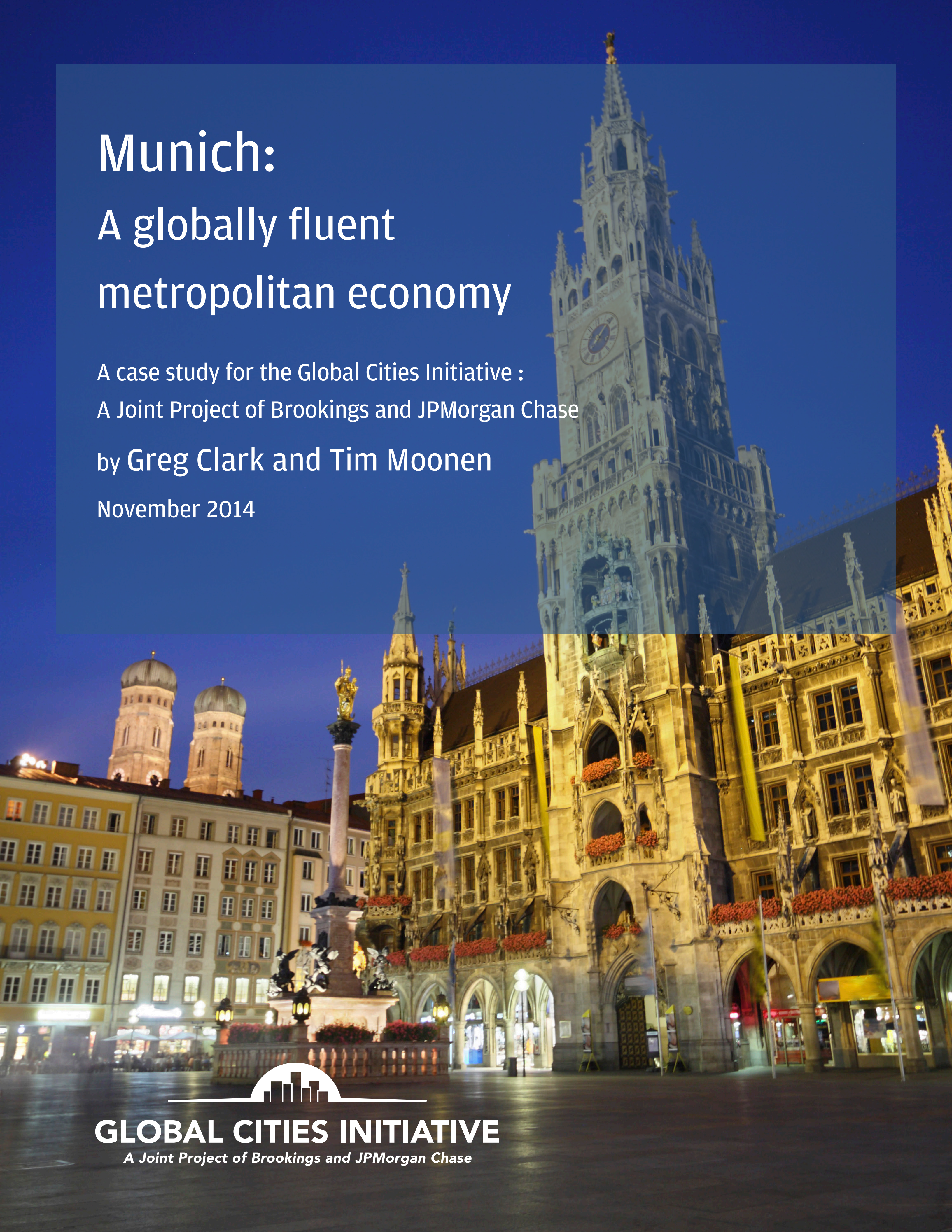

Munich:
A globally fluent metropolitan economy

A case study for the Global Cities Initiative :
A Joint Project of Brookings and JPMorgan Chase

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GLOBAL CITIES INITIATIVE
A Joint Project of Brookings and JPMorgan Chase

Introduction to the Global Fluency project of the Global Cities Initiative

Between autumn 2012 and spring 2013, as part of the Global Cities Initiative, Brookings' scholars based in Washington, D.C., and London began to formulate the idea of 'global fluency' and the traits cities require to achieve it. The project evolved from the observation that in an increasingly interconnected world economy, cities exhibit different degrees of global understanding, competence, behaviour and reach that affect how they optimize their role in globalization and ultimately impact on future progress.

The target audience is metro area leaders and economic development practitioners who desire to be more intentional about the global futures of their regions. With the support of an international advisory board and experts across academia and the private sector, the team began an exhaustive review of literature on cities in the global economy, and assessment of city performance. This helped identify the '10 traits' of globally fluent cities and city regions:

i. Leadership with a Worldview
ii. Legacy of Global Orientation
iii. Specializations with Global Reach
iv. Adaptability to Global Dynamics
v. Culture of Knowledge and Innovation
vi. Opportunity and Appeal to the World
vii. Universal Connectivity
viii. Ability to Secure Investment for Strategic Priorities
ix. Government as Global Enabler
x. Compelling Global Identity

In the first round of research, the team tested the validity of the 10 traits hypothesis by preparing case studies on 42 metropolitan areas, verifying their findings with local experts. The case study cities were: Bangalore, Barcelona, Bilbao, Boston, Brisbane, Busan, Cape Town, Chicago, Colombo, Denver, Greenville, Hamburg, Helsinki, Istanbul, London, Los Angeles, Mexico City, Miami, Milan, Minneapolis-St. Paul, Moscow, Munich, Nairobi, Nanjing, New York, Omaha, Oslo, San Antonio, San Francisco, San Jose, São Paulo, Seattle, Shenzhen, Singapore, Sydney, Tel Aviv, Tokyo, Toronto, Vienna, Washington, DC, Wichita and Zurich.

This first phase of the project produced a number of important insights:

- Cities at are at different stages in the path towards seamless engagement with global markets. They first become globally *aware* (stage 1); later they build a global *orientation* (stage 2); and finally some become *fluent* in their communication with the global economy (stage 3).
- Cities accumulate characteristics over multiple business cycles that later translate into instinctive pro-activity and intentionality in overseas markets.
- Cities tend to embrace international opportunities in waves and cycles, due to deliberate decisions by leaderships to become more globally engaged.
- New pathways to enter and succeed in globalization are opening up all the time, with more cities than ever participating in the most recent cycle.

GCI is now expanding the research scope as part of a second round of more detailed case work. Hong Kong, Mumbai, and Munich are the first case studies to feature in this second phase in 2014.

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About Global Cities Initiative

The Global Cities Initiative aims to equip metropolitan leaders with the information, policy ideas, and global connections they need to bolster their position within the global economy. Combining Brookings' deep expertise in fact-based, metropolitan-focused research and JPMorgan Chase's longstanding commitment to investing in cities, this initiative aims to:

- Help city and metropolitan leaders in the United States and abroad better leverage their global assets by unveiling their economic starting points on such key indicators as advanced manufacturing, exports, foreign direct investment, freight flow, and immigration.
- Provide metropolitan area leaders with proven, actionable ideas for how to expand the global reach of their economies, building on best practices and policy innovations from across the nation and around the world.
- Create a network of leaders from global cities intent upon deepening global trade relationships.

The Global Cities Initiative is chaired by Richard M. Daley, former mayor of Chicago and senior advisor to JPMorgan Chase, and directed by Bruce Katz, Brookings' vice president and co-director of the Metropolitan Policy Program which aims to provide decision makers in the public, corporate, and civic sectors with policy ideas for improving the health and prosperity of cities and metropolitan areas.

Launched in 2012, the Global Cities Initiative will catalyze a shift in economic development priorities and practices resulting in more globally connected metropolitan areas and more sustainable economic growth. Core activities include:

INDEPENDENT RESEARCH: Through research, the Global Cities Initiative will make the case that cities and metropolitan areas are the centers of global trade and commerce. Brookings will provide each of the largest 100 U.S. metropolitan areas with baseline data on its current global economic position so that metropolitan leaders can develop and implement more targeted strategies for global engagement and economic development.

CATALYTIC CONVENINGS: Each year, the Global Cities Initiative will convene business, civic and government leaders in select U.S. metropolitan areas to help them understand the position of their metropolitan economies in the changing global marketplace and identify opportunities for strengthening competitiveness and expanding trade and investment. In addition, GCI will bring together metropolitan area leaders from the U.S. and around the world in at least one international city to explore best practices and policy innovations for strengthening global engagement, and facilitate trade relationships.

GLOBAL ENGAGEMENT STRATEGIES: In order to convert knowledge into concrete action, Brookings and JPMorgan Chase launched the Global Cities Exchange in 2013. Through a competitive application process, economic development practitioners in both U.S. and international cities are selected to receive hands-on guidance on the development and implementation of actionable strategies to enhance global trade and commerce and strengthen regional economies.

Executive Summary

Munich is one of the most dynamic medium-sized urban economies in Europe. The city is Germany's most productive urban centre and remains firmly among the 50 most connected cities in global economic networks. It has a highly diversified and high-performing economic base, with vibrant clusters in financial, advanced manufacturing, ICT and media sectors. The city inherits outstanding infrastructure systems, technological and innovative capacity, and quality of life that has global appeal.

Munich acquired many of the traits of global fluency thanks to intentional, forward looking leadership. After having seized the opportunities of Berlin's Cold War decline, the city has benefited from supportive state and federal governments, and has fostered outstanding collaboration between private and public sector commercial and R&D institutions.

As one of Europe's principal growth regions, Munich faces substantial population growth and spatial management challenges as it runs out of easily developable space within its city boundaries. Developable land scarcity has led to high property prices, increased pressure on road networks, and restrictions on the ability of ethnically diverse, low-income and youthful populations to settle in the city. This has highlighted the need for both new spatial models and better collaboration with largely residential neighbouring municipalities, with whom the city currently lacks a shared metropolitan tier of government.

Munich is a thriving metropolitan region, but many of its biggest advantages are the product of previous cycles of investment, leadership and innovation. Much of the capacity created by these cycles of success has been used up, and there is a need to renew the productivity and innovation system in light of global competition. It is not yet clear if Munich is prepared for the future dilemmas and challenges of regional growth in the next business cycles. At least four strategic imperatives are currently visible:

i. **Can Munich extend and expand its innovation and business brands in the newly growing regions of the world?** Munich does not fully reach out to the world despite being highly globalised, connected and successful. The city is well known for its world-class soccer club, Oktoberfest, heritage and shopping, but its technological, cultural and innovation assets are under-recognised, especially in some emerging regions.

ii. **Can Munich extend its collaboration with its metropolitan region and neighbouring municipalities to maintain momentum and appetite for growth and success?** The City requires the state of Bavaria to take a leadership role to strengthen the inter-municipal relationships that can ensure the supply of new residential, commercial and transport functions beyond city boundaries.

iii. **What is the best approach to managing Munich's short-term housing supply and land constraints?** Existing house-building rates are insufficient to meet high demand. Re-development of brownfield sites has so far opened up new land within the city limits, but it is now running out of spaces to re-use, strengthening the case for more polycentric urban development and tangential transport links. The city will need to address the issues of density and accessibility carefully to maintain its quality of life advantages.

iv. **Can Munich successfully balance its ageing population and skills shortage with further immigration?** High demand means the city already faces a skills shortage of over 100,000 workers, and its high value-added economy depends on staying open to international talent. This issue may intensify in the years to come – with potential strains on integration and cohesion.

1. Introduction and core data

GDP/ $bn	% foreign born population	International visitors	FDI European Cities of the Future	GaWC global firm connectivity	↑↓ since 2000	AT Kearney Global Cities Index 2014	Annual economic growth 1993-2008 [1]	World-class Strong Average
308*	23%	4.9m	6th	42nd	↑	37th	1.5	Limited Under-performing

Sources: Landeshauptstadt Muenchen (2014)[2]. Brookings Global Metro Monitor 2012; Muenchen.de, 2012[3]; MasterCard Global Destination Cities Index 2014; Eurostat, 2014[4]
*2011 figures

Among medium-sized cities, Munich is among the world's five most globally connected economies. At 42nd globally, it is one of the smallest cities to rate among the top 50 most embedded cities in global economic networks, and one of the only continental European cities to have improved its position since 2000.[5] Munich's global links combine with very high employment rates, high disposable incomes and positive signs of growth in several key sectors.[6]

Map of the Munich Metropolitan Region

Munich has one of Europe's most vibrant and diversified metropolitan economies. The City of Munich itself comprises over a third of a €250 billion metropolitan economy. The six million person metropolitan region occupies a third of the state of Bavaria, but creates half of its economic output.[7] The metropolitan region is notable for the fact wealth is very evenly distributed between the City and the region, even though global functions are mostly based within Munich itself.[8] The term "Munich Mix" (*Münchner Mischung*) stems from the broad range and effective balance of economic activities in the metropolitan area, where large globally oriented firms and SMEs complement each other, making it a "cluster of clusters" in which no sector is overly dominant.[9]

Different spatial definitions of Munich[10]

	Population/m.	Size/'000 km2	Economy/$bn
City of Munich	1.5	0.31	85
Upper Bavaria	4.5	17	240
Munich metropolitan region	6	24	308
Bavaria	12.5	71	600

Munich's growth into a global city region means it is now immersed in relationships with at least three systems of cities:[11]

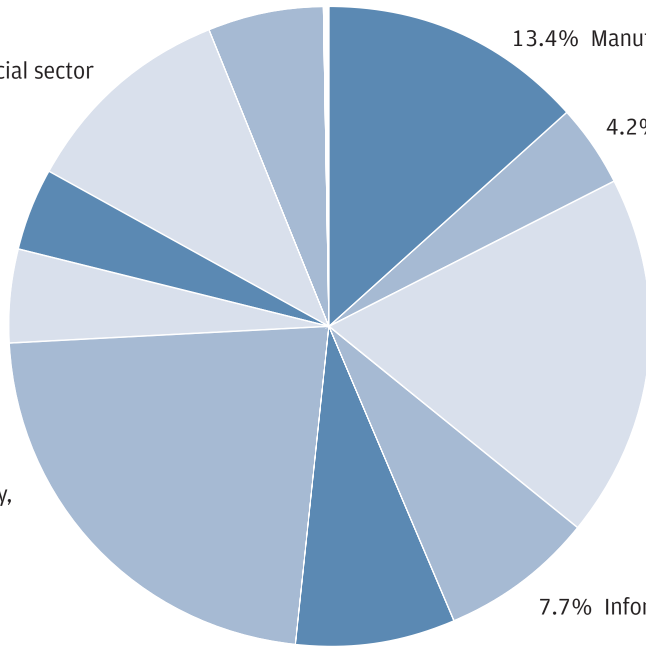
i. Regionally – with Regensburg, Augsburg, Ingolstadt, Rosenheim and others.
ii. Nationally – with Berlin, Hamburg, Frankfurt, Dusseldorf, Stuttgart and Hannover.
ii. Internationally – with Paris, London, New York, Tokyo, Shanghai, Singapore and Milan.

Top 6 regions with highest household disposable income in Europe[12]

	Disposable income (€)
Luxembourg	23,800
Munich (Upper Bavaria)	23,700
Inner London	23,500
Stuttgart	22,100
Paris (Île de France)	21,600
Nuremburg	21,400

Source: Eurostat[13]

Munich's balanced employment mix[14]



Munich's financial sector plays a critical role in serving the metropolitan economy. The city specialises in banking, insurance, asset management, and venture capital financing, and hosts major companies such as the Allianz Group, Munich Re, DAS, Unicredit and the Bavarian Insurance Chamber. The city's national and international financial importance has spurred a global business services presence – in audit, tax, consulting and corporate finance. Many of Munich's public-owned banks support low-income housing, SMEs and local economic development in the region. This formula makes Munich an 'established transnational' financial hub, rated 37th in the 2014 Global Financial Centres Index, and among the top ten in Europe.[15]

Munich has emerged as an international leader in technology R&D and innovation – including in biotechnology, medical, automotive and energy. Technological know-how, outstanding education provision, and high levels of human capital have made it Germany's leading technology city, rated first in Europe for specialist knowledge.[16] The metropolitan area alone produces 10-15 percent of Germany's patents,[17] and is home to 13 higher education establishments, while being consistently rated as one of the best student cities globally.[18] As a result, its performance on innovation and human capital benchmarks is outstanding. In 2014, it ranked as the seventh best performing European city on AT Kearney's 'human capital' benchmark, and seventh globally for innovation.[19] Munich is distinctive in that 20 percent of the workforce is still occupied in export-led manufacturing, while services and high tech capital-intensive clusters have also thrived.[20]

Top 10 regions in Europe for high-tech workforce share of total employment (l); top 10 regions in Europe for patents per 1 million population (r).

City-region	% high tech population
Berkshire, Buckinghamshire + Oxfordshire (London region)	9.7%
Copenhagen (Hovedstaden)	9.6%
Helsinki	9.4%
Brabant Walloon (Belgium)	9.2%
Stockholm	8.5%
Munich (Upper Bavaria)	8.4%
Dublin	8.4%
Karlsruhe	8.1%
Madrid	8.0%
Prague	7.9%

City-region	No of patents/m. pop
Voralberg (Austria)	472
Nuremburg	346
Munich (Upper Bavaria)	325
Upper Palatinate	319
Stuttgart	210
Tubingen	298
Karlsruhe	281
Swabia	227
Detmold-Bielefeld	218
Lower Franconia (Bavaria)	183

Source: Eurostat[21]

Munich's inherited infrastructure platform is very strong, both in terms of public transport and international connectivity. The city is rated in the world's top five for electricity, water, transport and telecommunication systems, and these play a part in sustaining high quality of life.[22] The re-development of Munich's airport has allowed it to become Lufthansa's second most important hub after Frankfurt. Its regular flights each week to North America and emerging regions such as China and the Gulf have fostered strong trans-continental business connections, although the airport's 45-minute rail connection to the city centre is a strategic deficit.

Munich's cluster attributes[23]

Sector	Number of firms	Annual turnover	Global firms	Actors in the innovation cluster
Car / Automotive	1,000	€80bn	Audi, BMW, Man	Global suppliers: WET, Webasto R&D: Ingolstadt Institutes at the Technical University of Munich
ICT and media	27,000	€70bn	ICT: Microsoft, Google, Amazon, Intel, Adobe, Siemens, Telefonica Media/Film: Bayerischer Rundfunk, ProSieben Sat.1, Arnold & Richter	R&D: Fraunhofer Institute for Communication Systems, University of Television and Film
Financial Services (Banking, PE, Asset Management)		€60bn	Allianz, Munich Re, DAS	Professional services: BCG, KPMG, E&Y
Cultural and creative industries	29,000	€20bn		Finance/incubation: Arts Office, the City of Munich; FilmFernsehFonds Bavaria. R&D:University of Munich Applied Sciences 'Creative Platform'
Engineering	2,000	c.€20bn*		Firm network: M × A × I Carbon cluster. R&D: 32 research bodies, inc. Max-Planck-Institute for Biochemistry and the Fraunhofer Institute for Reliability and Micro-integration
Timber and Forestry	c.15,000	c.€17bn*		Training: German Society for Wood Research, Rosenheim wood cluster. R&D: University of Rosenheim
Food Industry		c.€14bn*		
Life sciences	400	€9bn	Roche, GlaxoSmithKline, MSD, Hexal and Sandoz	R&D: Max-Planck-Institute of Neurobiology, Biochemistry and Psychiatry; Research Center for Environment and Health (GSF); depts at Ludwig-Maximilians-University (LMU) and Technical University of Munich. Innovation center for biotechnology in Martinsried.
Chemical Industry	30	€8bn	Wacker	Garching Research Center at the Technical University of Munich
Aerospace	230	€5bn	Airbus Group, MTU Aero Engines, Premium Aerotec	Finance: EU Galileo project R&D: German Centre for Aerospace, European Southern Observatory, Max-Planck-Institute for Extraterrestrial Physics
Nanotechnology	100			Firm network: M × A × I Carbon cluster. R&D: 32 research bodies, inc. Max-Planck-Institute for Biochemistry and the Fraunhofer Institute for Reliability and Micro-integration
Environmental technologies	2,000			R&D: Competence Center Environment (KUMAS), Augsburg. Manufacturers: Siemens, MTU Aero Engines, Linde Suppliers: AVANCIS,CENTRO SOLAR, Wacker.

Sources: Metropolregion München, 2014; Brookings Global Metro Monitor, 2012

*Figure derived from national or Bavarian statistics

Munich also stands out as a major international tourist destination, and as a pole for inward migration in Germany and Europe. International visitors reached a new high in Munich in 2013/14, reaching 4.9 million, making it the 10th most visited European city.[24] Growth in visitor numbers stands at over one million since 2010, and tourists are estimated to spend nearly $6billion annually.[25] The US continues to be the pivotal foreign visitor market, followed by Italy, the UK and Switzerland, but Arab Gulf and Russian tourism are major growth areas in recent years.[26] The Oktoberfest festivities continue to be synonymous with the city.[27]

Munich's comparative performance across key benchmarks

	AT Kearney - Business Activity 2014	Mercer - Top Cities for Infrastructure 2012	2thinknow Consulting - Innovation Cities Global Index 2014	Mercer - Quality of Living Survey 2014	QS - Best Student Cities 2014	Mastercard GDCI- Visitors (in millions)
Singapore	9	1	27	25	3	12.4
Zurich	29	24	59	2	5	-
Munich	36	2	7	4	10	4.9
Stockholm	25	18	16	19*	27	-
Boston	42	31	4	35*	8	1.6
Vancouver	57	9	35	5	21	3.4
Melbourne	38	34	23	17*	5	2.2
Helsinki	-	18	25	32*	47	-
Barcelona	18	-	56	40*	24	7.4
Milan	35	-	58	41*	24	6.8

*indicates 2012 data

Munich is rated the second best real estate investment prospect in Western Europe in 2014 having been consistently among Europe's most attractive cities for international investors for the last five years.[28] The city continues to attract investment from major pension and institutional funds worldwide, including from the US, because of its stability and economic progress.[29]

Population growth is putting substantial pressure on Munich's housing stock and infrastructure. Population within the city is set to grow by another 15 percent by 2030, to 1.7 million, but the rate of completion for new residential and commercial constructions already lags nearly 40percent behind requirements As a result house prices have reached unaffordable levels for young professionals and lower-income workers.[30] High prices have pushed some workers outwards, adding to congestion, on the road network, making Munich among the more congested global cities.[31]

2. Munich's history in/of globalisation

Munich's unique commercial diversity derives from its pathway into the globalising 19th century economy. A lack of raw materials in the region meant that the city did not become heavily industrialised. Instead it became a centre of commerce that gained royal patronage in the arts and sciences.[32] Since 1870, its population has been on a consistent upward curve, interrupted only by the two world wars.

Postwar revival and the preservation of cultural assets

Despite the stigma of being labelled the capital of the National Socialist movement, and the damage of heavy bombing during the Second World War, Munich revived swiftly in the years after 1945, and resumed its status as a trade portal to Northern and Southern Europe. Under the inspirational stewardship of Mayor Thomas Wimmer, the city's central neo-Baroque and monumental architecture was elegantly restored despite development pressures. The plan for *Das Neue München* was unusual for its time in seeking to safeguard the inner city from congestion. It steered a suburban building boom which paved the way for the urban population to surpass one million. In 1957, 750,000 tourists visited the city, and in 1958 Munich's 800-hundred year anniversary celebrations proudly declared that "Munich is Munich again."[33]

A major factor in Munich's corporate resuscitation was the decision by Siemens to relocate from Berlin in the 1950s, partly as a result of high war reparations imposed in the Soviet sector. This catalyzed the formation of a critical mass of banking, insurance, media and manufacturing firms – including BMW and Allianz – in a city that had ample land to grow. Munich also benefited from in-migration of skilled German migrants, and soon acquired a reputation as a consummate automotive/aerospace centre and insurance provider. Because the city did not have a big manufacturing history, intensive clustering and organisational modernisation was able to take place without large-scale opposition from entrenched industrial or union interests. Publishing, film and advertising companies continued to switch from troubled Berlin, and Bavaria's politicians positive relationship with the West German capital Bonn gave it license to keep growing, supported by American investment. By 1963, the city's so-called 'Jensen Plan' began to take into account the city's international character and sought to balance cosmopolitan influences with respect for the traditional cityscape.[34]

Emergence of high-value specialisation: 1960-1980

Expertise in high technology niches accelerated through close connections to the defence industry. West Germany's commitment in the 1960s to technologically-oriented armed forces saw a rise in investment in weapons research and development, and Munich was chosen to host one of only two federal research universities tied to the army. Corporate proficiency combined effectively with a revitalised knowledge platform such as the headquarters of the Max Planck Society. As the city became a magnet for talent, it forged international expertise in electronics and advanced manufacturing, producing a host of globally successful products for export.

The communication by Munich's leaders of its values of technical proficiency, post-war dynamism and artistic apolitical intensity were instrumental in persuading the IOC to award the Olympic Games to the city.[35] The award renewed the city's commitment towards deterring congestion and investing in liveability, with the promise that the 1972 event would be 'the Games of good connections'.[36] Despite being overshadowed by terrorism, Munich managed to achieve the fiscal balancing, the retail and hotel development, and the subway and pedestrianisation goals that it had set out to. The city's prudent model of event infrastructure financing and urban district regeneration was revolutionary at the time and has rarely been emulated since.[37]

Growing the platform for internationalisation: 1980-1995

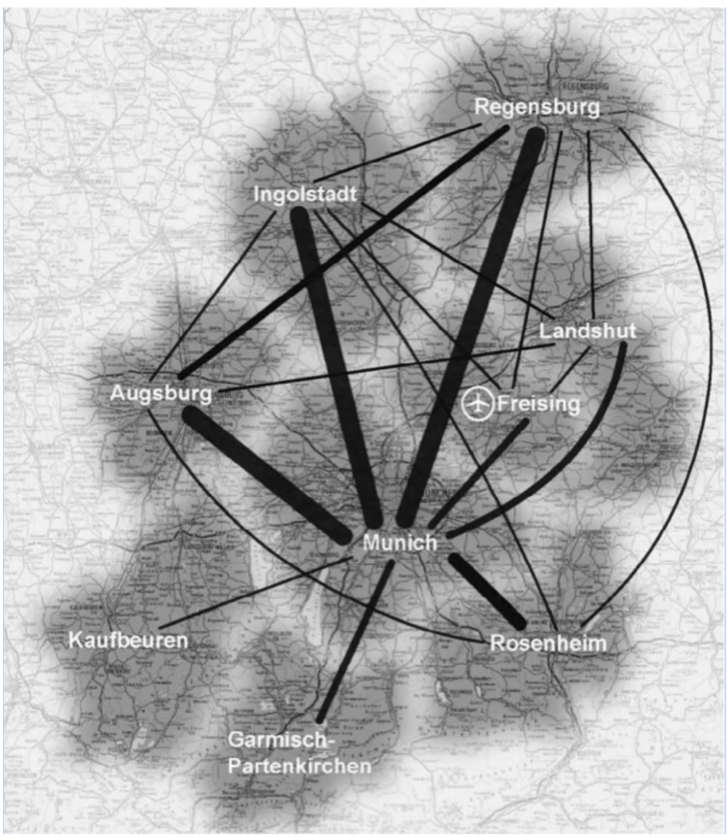
Munich and Bavaria were pioneers of new innovation and technology policies in the 1980s. A number of valuable programmes sought to build its high-tech sector strength by supplying specific R&D, training and infrastructure for the life sciences, ICT and mechatronics sectors among others.[38] The Bavarian Innovation Programme and Bavarian Technology Introduction Programme (BayTEP) helped with technology transfer, and were followed by the €3 billion Future Bavaria Initiative (FBI) and the €1.4 billion High Tech Initiative (HTI) which deployed money from the sale of public utilities. Cumulatively these schemes built a prodigious array of research facilities, start up centres and university spin offs.

Munich's global economic links were dramatically enhanced by the construction of a new international airport which eventually opened in 1992. The new airport resolved many of Lufthansa's capacity limits at Frankfurt and became the airline's second global hub for Germany. This move gave Munich a key business advantage over Hamburg, Cologne and other national competitors after German re-unification. It also opened up land at the old airport to host international trade fairs, and boosted the construction of office space along the CBD-airport corridor.

The metropolitan dimension of growth

Munich's internationalisation and airport development has spread economic de velopment across a wider region, with the city itself no longer able to concentrate all major functions. As suburbanization persisted, the spatial notion of a greater Munich area became visible, but has not been a clearly defined region. The city of Munich's functional links to Regensburg, Ingolstadt, Augsburg and Nuremburg intensified, while specialised global functions are still heavily concentrated in the city of Munich.[39] The region's firms outside Munich are much less likely to have offices in European or even international locations, and are more likely to have links to other German cities. Munich itself is therefore very much at the top of the regional hierarchy, and plays the role of regional knowledge centre and international gateway for the companies and institutions in the smaller surrounding cities.

Connectivity between advanced producer services firms in the Munich metropolitan region



Source: Stefan Luethi, Alain Thierstein and Victor Goebel (2010)[40]

The value chain of Munich's knowledge economy has reorganized as new economic actors emerged and technology sectors altered production processes. The region's high tech industries (automotive, pharmaceutical, machinery, computers, telecoms and medical instruments) have become highly internationalised. Their links are visible not only with European centres such as Zurich, Milan, Vienna, Paris, London and Amsterdam, but also inter-continental locations such as Sydney, Singapore and San Francisco. By contrast, the advanced services sectors – banking, insurance, accounting, law and advertising, are more locally and nationally oriented. In some respects the latter operate as an experienced support network for the globalising high-tech firms. Munich's technology firms also rely on high quality logistics services and platforms to enter global supply chains.[41]

Munich's resilience to volatility

Munich's export-oriented economy has faced at least three periods of instability and uncertainty since re-unification: (i) the early 1990s; (ii), the 2000 dot-com crisis, and (iii) the 2008-2012 Eurozone crisis. Its ability to withstand each of these disruptions and emerge stronger have attracted much attention.

In the early 1990s, Munich's defence and aerospace industries were at risk of low demand at the end of the Cold War. Its manufacturing and electronics base was threatened by German (and Berlin's) re-unification and the turbulence of new global markets. A small risk opened up that the city would no longer be able to nurture innovation on its previous scale.

In response, Munich relied on its diversification as a competitive advantage over more affordable centres and the revival of Berlin. A culture of exchange and collaboration flourished among the region's public and private institutions, delivering an agenda built around cluster densification, educational investments, and green economy initiatives. The combined potential of Munich's old and new economic niches was recognised within a flexible development framework called *Perspective Munich*, which also involved the state government. This has allowed spatial decision-making to foster links between SMEs, in-house R&D of large firms, research bodies and commercialisation specialists.

Regional agencies such as the International Technology Forum Bavaria, Bayern International and Invest in Bavaria were established to prepare Munich's new cycle of internationalisation as a mature science hub. €65 million was invested by Bavaria to support the region's high-tech industries in 1999. Munich re-established itself as Germany's premier high technology exporter, thanks to an innovation system that rigorously supports the global market entry of SMEs and larger firms alike.[42] Growth sectors included media, medical equipment, aerospace, ICT and biotechnology, many of which have cross-pollinated.

Despite Munich's vulnerability to the dotcom crisis due to the concentration of ICT production, productivity in fact accelerated away from the national trend in the late 1990s.[43] Again, in the aftermath of the 2008-9 recession, Munich's city and state governments have come under fiscal strain because of the downturn in revenue and the net fiscal outflows to the rest of Germany. Its banks have also been hampered by the economic problems affecting Greece and other Southern European economies. Nevertheless, in total, economic output per capita has doubled in the last two decades.[44]

Success breeds complacency?

Munich's success has, however, created questions about its growth model. A rapid rise in population and in living space (24m^2 to 40 m^2 since 1970) has created concern about where Munich can accommodate future growth. The City's 5 year housing plans have tried to initiate higher building rates, but there is a lack of land for redevelopment, and the City is unable to use public land to underpin the costs of affordable housing. The task to build denser urban districts, based on smaller housing unit sizes, is meeting political resistance from local residents. The on-going development of Munich's north-east, one of the last areas of continuous open land available for development, epitomises the current dilemma: whether to densify and defy Munich's "village of a million people" image, or whether to develop outwards in co-operation with its neighbours.[45] Munich's leaders find it hard to generate the urgency or imperative to build infrastructure that will unlock further growth.

Mayor Dieter Reiter's options to address Munich's growth challenges therefore depend on improving the City's co-operation with its surrounding region which would provide integrated solutions to housing and transport.[46] A metropolitan alliance is not immediately likely because of different appetites for growth, different political complexions and attitudes towards self-rule. [47] The existing system of co-operation, the Munich Regional Planning Association, does not cover the whole functional urban region, and has struggled to devise common approaches. Munich therefore risks entering a low-co-ordination, low investment equilibrium that could damage future competitiveness.

3. Inherited and intentional factors to the city's international dimension

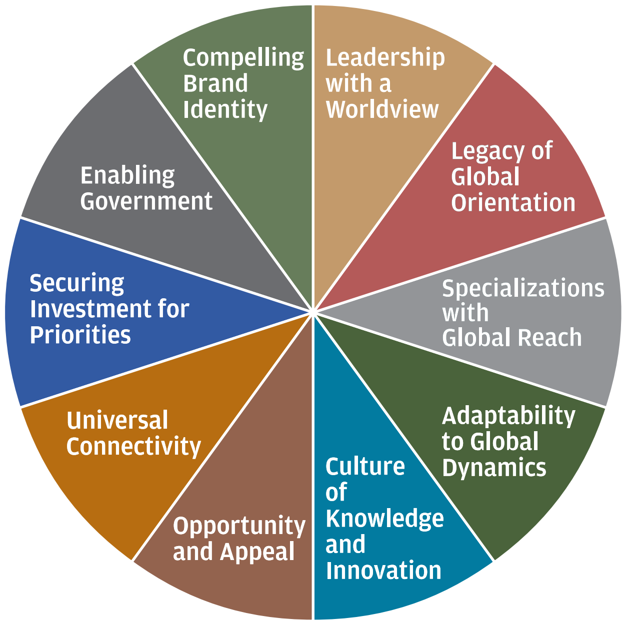
Munich is one of a small number of cities worldwide that strongly exhibits a majority of traits of global fluency. There are no traits that are entirely absent. Its most visible traits, in order, include:

- Trait 5: an outstanding **culture of knowledge and innovation** that embeds profound collaboration between its private and public sector institutions.
- Trait 1: rational political, business and civic **leadership with a world view**.
- Trait 3: several **specializations with global reach** – including its automotive, insurance, pharmaceutical and IT sectors, most of which are comprised of a range of firms. This has been conducive to multi-cycle resilience.
- Trait 4: an **adaptability to global dynamics** thanks to a responsive economic ecosystem whose needs are well represented and channeled in local policy.
- Trait 6: place assets and integration policies that give the city an **opportunity and appeal** to newcomers.
- Trait 7: a strong and professional **connectivity and logistics platform** to link local companies to each other and to international markets.
- Trait 2: a **legacy of global orientation** extending back at least 50 years since the 1950s revival.

Many of Munich's strongest traits have become inherited strengths over time. The city's current major challenges within the GCI global fluency framework appear to relate to how it manages the next cycle of growth. **There are at least three traits which are either not fully developed, or no longer as visible as they have been in the past:**

- Trait 9: Munich has previously benefited from **an enabling government framework** that has kept the city physically connected to the global economy and worked hard to maintain its cultural, aesthetic and commercial appeal at a global level.
- Trait 8: The city has had some success in **securing investment for strategic priorities** both at the state and municipal level, but new mechanisms are needed to co-ordinate, manage and fund investments at the metropolitan level.
- Trait 10: Munich's **brand identity** also faces challenges as the centre of economic gravity shifts eastwards, and given the very strong visibility of tourism assets over some business and quality of life asset.[48]

Munich's wheel of global fluency



3.1 Munich's most visible traits

Trait 5: Culture of Knowledge and Innovation

Munich has a remarkable network of higher education, research, cultural and scientific institutions that together support one of Europe's most highly qualified labour markets. These institutions, which assembled and grew especially after investment in the postwar period, are also active partners and stakeholders in solving Munich's challenges in innovative ways.

13 higher education institutions – headed up by Ludwig Maximilian University and the Technical University of Munich - host over 100,000 students, including around 15,000 foreign students. Higher education co-exists in a strong cluster with:

- Numerous public research bodies such as the Max Planck Society and the GSF National Research Centre for Environment and Health
- Scientific institutes
- A strong corporate sector and private sector research firms
- Museums
- Libraries

Furthermore, Munich has exhibited the importance of establishing private sector partnerships and collaborations with foundations to solve infrastructure investment challenges and assemble capital in innovative ways. From the late 1950s, when almost 70 organisations and institutions contributed to the S*tadtentwicklungsplan*, a culture of balance and collective compromise among chambers of commerce, trade unions, publishers and universities has characterised decision-making. Leader Hans Jochen Vogel later remarked that the initiatives made in the lead-up the Olympics had brought a sea change in planning style:

> *"For the first time something like open planning had taken place. Not only had citizens made their voices heard, they had worked out plans themselves. And the City Council had made parts of these plans their own."*[49]

Munich's firms have few challenges accessing skilled workers because of strong connections to skill suppliers. Large companies, employer associations and universities have become viewed as the actors best placed to understand the right kind of people the city needs to educate and attract. There is a profound dialogue between them and the designers of the well-funded school system, which enlists and integrates companies and universities as stakeholders in the city, placing knowledge generating institutions and innovative thinking at the heart of urban decision making.

The curriculum in vocational skills training offers Munich's mid-ability students wide access to high-quality on-the-job apprenticeship training, combined with classroom tuition – as part of the so-called German dual system. Approximately 250,000 students are in vocational training in Bavaria, nearly as many as are in higher education.[50] Although Munich's university attainment rate is not outstanding, at 37 percent (London 63 percent, Copenhagen 47 percent, Madrid 46 percent, Paris 42 percent), the employment rate of young people and women is one of the highest in the EU.[51] The responsive education ecosystem allows Munich to create a mid-skill, technical workforce that continually sustains its manufacturing prowess.

Trait 1: Leadership with a Worldview

Munich's heritage as a richly artistic, well designed and open city has been effectively nurtured by a succession of politicians, and increasingly from institutions beyond the political class. City leaders, chief among them Thomas Wimmer and Hans-Jochen Vogel, grasped the assets of iconic and liveable architecture. At several junctures they limited the extent of car dependency and tower-block construction in favour of pedestrian lanes and aesthetically planned streets. Pre-National Socialist monuments and arts were restored to affirm neo-baroque heritage. As a result, Munich's post-war leaders helped secure its position as a pleasant and liveable city, rejecting the typical car-based developed of the immediate post-war era. More recently, under long-time Mayor Christian Ude, the city has made a successful transition into a more tolerant city in adjusting to Munich's altered social composition.

Munich exemplifies how effective global orientation can be achieved not just through powerful government leaders, but through the decisions initiated by rational interest groups and business communities. Local firms are seen as stakeholders and allies whose concord with local policy will bring sponsorship for cultural or social events. Regular engagement of residents ensures a high degree of consent to the city's economic direction. A notable example of this practice was the mobilisation of the Munich Chamber of Commerce and Industry (IHK), in order to convince the rest of the city of the urgent need for a new convention centre. Business leadership has also been key at advocating for a new opera house and museum of modern art, mobilising the public sector into action. Munich benefits from an environment in which many different institutions and civic leaders and entities believe they can contribute to a growth agenda, and have a high propensity to take the initiative to win political support.

Three generations of Munich leadership: Thomas Wimmer (l); Hans-Jochen Vogel (c); Christian Ude (r)

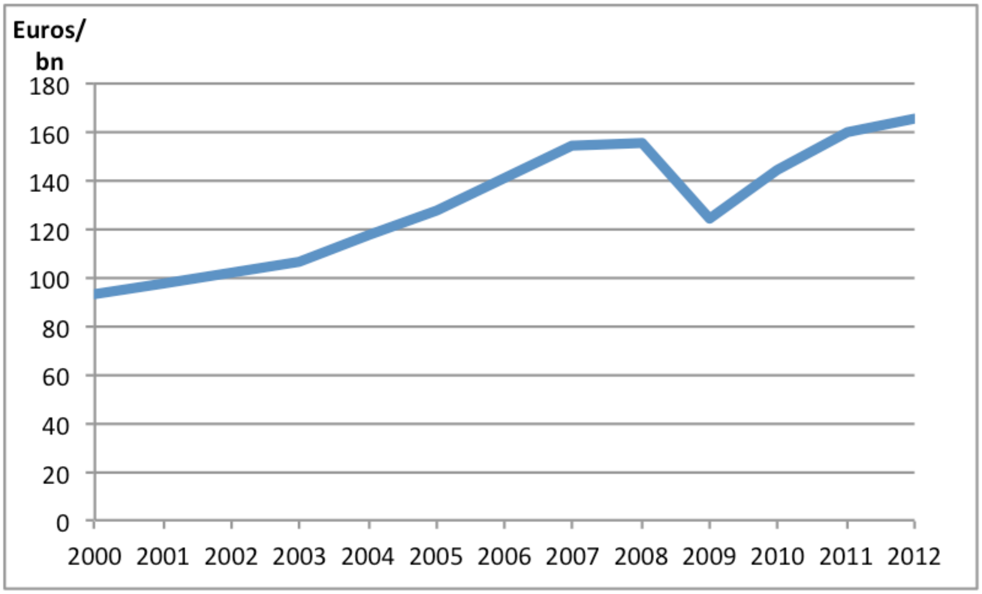


Trait 3: Specializations with Global Reach

Munich has benefited from a number of specialized growth clusters, none of which ever became hegemonic. In most cases, it has managed to nurture domestic, globally oriented brands, alongside SMEs and large foreign subsidiaries, in productive environments where the different types of company complement each other.

Export-oriented specializations have been key to Munich's global orientation. The automotive industry was one of the first to globalize, led by giants such as BMW, Audi and MAN, while the aerospace industry did the same soon after. Vehicles account for nearly a third of Bavaria's exports, ahead of electrical equipment and machines. In total Bavaria still accounts for more than 1.2 percent of global exports, with the main markets being the US, China, Austria, France, Italy and the UK.[52] Other specialisations include finance, which harbours global giants such as Allianz, Munich Re, and DAS. Within ICT, Munich can also boast a strong global reach with companies such as Microsoft, Google, Amazon, Intel, Adobe, Siemens and Telefonica.

Bavaria export volumes, 2000-2012[53]



Many specializations have developed because of very close links between sector companies and teaching institutions, and because of good availability of capital and technology transfer. Munich's **biotechnology cluster** has grown in the city's southwest, centred on a campus first established in 1973 when the new Max Planck Institute of Biochemistry decided to locate next to the LMU Clinical Centre. Educational and research facilities began to produce spinoff firms and the federal government awarded a €12.5 million grant for a start-up centre in 1995. An organization named BioM AG was created to build links between entrepreneurs and venture capital, while the Bavarian state government supplied finance via the Offensive Zukunft Bayern programme. In the decade from 1996, more than €1 bilion of venture capital flowed into the cluster. Subsequently LMU relocated its Chemistry, Pharmacy and Biology Departments to the area to create a life-sciences campus. [54]

Munich's **media specialization** illustrates the successful but largely non-global character of some of the city's successful clusters. Innovations in precision mechanical and optical goods in the early 20th century led to many film production and camera start-ups settling in Munich in the 1920s. After Berlin's UFA Studios were seized by the Soviet Union, political choices saw Munich become Germany's top film industry and public broadcasting location. The Institute for Broadcasting Technology, the Academy of TV and Film, and the Bavarian Academy of Television, became the post-production, etc. The sector's pattern of information has tended to be quite localised, and few global media groups have settled. International links are mostly related to joint TV institutional anchors of a successful public print, TV and advertising economy that began to boom with the creation of private TV stations in the 1980s, many owned by the Kirch Group. Growth was enabled by the City's construction of media parks on greenfield sites, federal film funds, and an active economic development agency. Tight agglomeration allowed Munich's media firms to assemble project teams quickly and flexibly, and for the whole value chain to be well represented – production, equipment, distribution, shows, but co-productions are rare – as are international successes (eg. *Das Boot, Das Leben der Anderen*). Its success is due to well-developed value chains and a large domestic market more than its global reach.[55]

Trait 4: Adaptability to global dynamics

Up to now, Munich's sustained global fluency has been cultivated by a forward-looking and non-complacent political ethos. This has partly stemmed from stable collaboration between government, university and private research firms. This "institutional thickness" has enabled Munich's different stakeholders to develop a sense of common purpose, and the ability to collectively predict, adapt and respond to changing global dynamics. In response to Munich's slowdown in the early 1990s, the *Future Bavaria Initiative* made a big impact in adapting Munich's innovation potential and reducing the city's vulnerability to structural shocks. The programme has been followed by specific injections of investment into high-tech and sciences clusters, often using funds from the privatisation of electricity and telecoms systems.

One of Munich's challenges is to continue to adapt and avoid complacency, for example by keeping up investment in the regional energy system that had originally incentivized many firms to re-locate. Commentators note that Munich does not watch the global competition as closely as other cities do, and has not taken any clear message from the rise of Asian innovation cities. The city could prepare for increased competition by encouraging the use of the city as a test-bed for new commercial solutions, and supporting new economic development experiments. Munich's future adaptability will also depend on strengthening its universities which are slightly under-funded compared to international rivals, and on growing the international student base further to ensure a robust supply of qualified workers.

Trait 6: Opportunity and Appeal to the world

Munich has been highly attractive to talent, and has largely succeeded at integrating new arrivals into its labour force and society. Although the city was almost exclusively Bavarian for centuries, the urban planning proposed by Bavarian kings in the 19th century turned Munich into a city of art, culture and science, attributes which survived two world wars. As early as the late 1950s Munich was acclaimed for its liveliness and artistic sensibility, which some placed on a par with Paris and Vienna.[56] Eminent postwar historian Karl Bosl described Munich as a city which safeguarded 'bohemian life, libertarianism…and odd habits in clothing, appearance in discourse.'[57] Munich was therefore one of the first cities in continental Europe to nurture attributes of tolerance and cosmopolitanism effectively in the postwar period, even despite a pervasive cultural conservatism.

A more recent manifestation of Munich's open-ness is its commitment to fostering an integrated urban society. The 50-year influx of migrants from West German states, from overseas, and most recently from East Germany, has transformed Munich's social composition and political outlook. More than a third of the city's population has a migration background, and it has succeeded where Berlin failed in terms of immigrant integration.[58] Munich was a popular first stop for European guestworkers as well as German refugees, and as early as 1972, the City commissioned a report on community integration. Mayor Hans-Jochen Vogel (1960-72) recognised Munich as a "city of immigration".

Although official labour recruitment stopped after the Olympics, the city sustained its focus on anti-discrimination policies and raising awareness of the positive contribution of new arrivals. An anti-segregration approach in urban planning has resulted in Munich's migrant population becoming fairly evenly distributed across all districts. Munich boasts a high share of businesses created by foreign entrepreneurs, and there is much lower migrant unemployment than in many German cities.

Today, the implementation and monitoring of integration is carried out by the Munich Office for Intercultural Affairs and the city council's Integration Committee. The Office oversees the provision of fair access to core education, housing and employment services, and publishes three-yearly evaluations of progress. There is strong provision of European and American private schools to attract target group business-people, and a range of services to support foreign scientists and students. This sits alongside an allegiance towards cohesion, safety and the assimilation of lower value-added workers, on the basis that Munich's business brand is indivisible from resident comfort and security.[59] Munich's conviction in genuinely mixed-income and mixed-tenure communities has produced successful and sustainable place-making for residents and international professionals alike.

Munich's attraction to young people as a place to visit and study increased in the aftermath of the 2006 World Cup. The University of Munich's strongly international perspective has helped a new generation of entrepreneurs enter employment, allowing Munich to avoid over-specialisation in its established sectors. The city's quality of place, amenities and security are key factors at retaining workers in tech-oriented economy.

Munich is a highly attractive and respected city without being especially global in its approach. It continues to attract a combination of established talent, young entrepreneurs, migrants and refugees – a mix which highlights the city's challenge to embrace diversity. The sense of opportunity associated with Munich is at risk from high property prices in the core of the urban agglomeration. If difficulties in expanding the city's residential and commercial stock beyond municipal limits, worsen its accessibility and appeal to younger professionals may diminish, with potential impact on the city's economic agility and versatility.

Trait 7: Universal Connectivity

Key items of inter-regional and international transport infrastructure have stimulated Munich's business attraction for over four decades. Periodic investment in basic infrastructure and business parks has enabled Munich's firms to tap the entirety of the labour force and move people and goods with few delays. Scholars note that Munich's planning regime was much more focused on a range of transport modes in the 1950s and 1960s than other European and North American cities.[60]

Because of the expense of oil-based transport, Munich has sought to grow its reliance on efficient and environmentally friendly public transport systems. A new high speed train to Nuremberg connects the two largest cities in Bavaria, and will eventually connect to Berlin. The seamlessness of intra-regional transport prompted Siemens recently to describe Munich as 'the model' for cities 'pursu[ing] the path of achieving a nearly carbon-free future over the coming decades.'[61]

The prestige of becoming Lufthansa's second air gateway has opened up vital new links with Shanghai, Sao Paulo and Dubai among many others, providing the whole of the metropolitan region with new diverse market opportunities. Global fluency, from Munich's perspective, has therefore required not only a certain openness to global trends, but also a commitment to building up local assets, namely human capital and infrastructure.[62]

New connectivity challenges have now appeared. In the wider Munich region, urban sprawl has created congestion and unproductive commuting patterns. Munich Airport also needs a third runway to prepare for growth, but the project has stalled due to political opposition.[63]

Trait 2: Legacy of Global Orientation

Munich is one of a group of cities that began to internationalize in the post-1945 period, amid a wave of global economic expansion. Its internationalizing trajectory since 1945 owes much to good fortune, Berlin's political and economic regression, West German and American military sector investment, and a decentralised federal government structure that was conducive to supporting Munich's growth.

Longer-term factors have also played a part. Munich was an administrative centre and residence of the Bavarian royal family, which meant its economy benefited from long periods of investment in the arts and sciences – including the finance of two universities. Royal civic-mindedness attracted creative and cultural population[64] Meanwhile Munich's location on a major railway line in 19th century made it a transhipment centre for the brewing and machine industries.[65]

Munich's global legacy forged since 1945 is gradually becoming an *inherited* asset, but the city's various institutions have shown far-reaching *intentional* capacity to capture the benefits of framework conditions. High-quality leadership and effective multi-level governance in education, R&D, and infrastructure investment have been arguably more decisive than Munich's original inherited strengths.[66]

3.2 Munich's traits where new challenges are becoming visible.

Trait 9: Government as a global enabler

For over half a century, Munich has gained from assertive and evidence-based leadership at the city and state level. The character of Germany's decentralized government structure – and the legacy of the pre-unification – created a balanced urban system, where no one city in Germany is dominant. No one interest group or tier of government dominated the policy agenda. The German planning system also enabled large cities to oblige investors to redevelop brownfield sites, and to spend a proportion of surplus on social programmes such as kindergarten and social housing. Clear delegation of land-use powers has allowed a strategic approach to emerge towards land that has deliberately catered for both SMEs and global firms. It has also given opportunities for Munich to adjust land-use to provide for companies in future sectors and create a broad sector mix, rather than rely on industries that risk becoming uncompetitive. The 'rules of the game' have suited Munich's model.

Federal decisions also favoured Munich in its early global orientation. Defense contracts spurred its aviation, weapons and microelectronic sectors, and federal funds into universities, research institutions and the airport were a major source of momentum. Although federal policy since re-unification has been less supportive, national funding of biotechnology and renewable energy innovations have aided product development.[67]

The state of Bavaria has had policy and financing responsibilities for education, research, economic development, culture, media and the arts. Bavarian State politicians have tried to support Munich by establishing the basic physical and human infrastructure for growth, and securing research and commercial contracts. Two federal Ministers of Finance, Franz Josef Strauss and Theo Waigel, were senior Bavarian politicians that favoured the city in the 1960s and 1970s. Strauss's advocacy in particular helped relocate the airport to north-east of the city, unlocking a new corridor of development opportunity. Bavarian leaders have grasped the need to part-fund research and education facilities to support the regional economy.[68]

During Munich's rapid growth between 1945 and 1990, its relationship with Bavaria was mostly productive, despite antagonism between the state (usually led by the Christian Social Union) and city (usually led by the Social Democratic Party - SPD) governments. Although the city and state by no means had a shared agenda, a rational set of propositions emerged organically with both Bavaria and Munich recognising their inter-dependence, and Bavaria's regional planning authority working effectively for Munich. Inter-governmental reliability, if not always consensus, enabled Munich to implement groundbreaking projects and strategies with confidence that political and enforcement mechanisms would be effective and efficient. Government shareholdings, for example, have been leveraged to accelerate entrepreneurial agendas such as The Future Bavaria Initiative and the Cluster Programme, which have strengthened Munich's international presence as a cutting edge scientific and clean technology centre.

Munich has therefore tended to benefit from the commitment of the two higher tiers of government – and also EU policy - to maintaining its competitiveness. There are, however, indications that the city-state relationship is no longer as positive.

- The 2006 state government cluster policy, which identified 19 clusters and established management teams to lead inter-firm collaboration, were less well funded than previous schemes, and have not proven especially successful at engaging the global players.[69] Some argue that state economic and research policies now only play a marginal role in stimulating the growth sectors. [70]

- The pace and selection of infrastructure projects have become sub-optimal. The state has obliged Munich to set up satellite teaching hospitals at huge cost. Competing S-Bahn and metro projects are being brought forward at the same time, although their purposes overlap, while no progress has been made on high-speed rail links to the airport and cities such as Vienna and Zurich.

- Over time, the fragmented nature of Munich's metropolitan governance has delayed efforts to integrate land-use and transportation planning, and led to a rise in car dependency and congestion.[71] Munich's evolution into a city region due to space constraints, industrial dispersion, and suburban population/housing growth has required residential, commercial and transport infrastructure to be extended. In 2008, the *Europäische Metropolregion München* was formed to stimulate intra-regional co-operation. The EMM has endorsed a range of projects such as high-speed rail and multi-modal ticketing, but there remain problems of fragmentation, cultural differences, and lack of public awareness of metropolitan scale.[72] Wealthy municipalities tend to put their own interests first, and their reliance on property and payroll taxes have made them unwilling to contribute to the costs of growth. The voting constituency of the Bavarian government, where the CSU party has been in power since 1945, does not encourage it to prioritise effective metropolitan regional urban planning.

Munich currently lacks a functional metropolitan government, and in this respect has made less progress than the other leading German regions of Stuttgart, Frankfurt and Hannover. For such a metropolitan government approach to take hold and succeed, the state of Bavaria may have to decide to take a leadership role and develop an enabling framework. Currently, Munich's voice in the state system is not well heard.

Trait 8: Ability to secure investment for strategic priorities

The relationship between Munich and the State of Bavaria has allowed surges of infrastructure development – especially before 1972 and 2006 – to be brought forward. But the city's future ability to secure investment in expanding its housing, commercial and transport network beyond the city limits is dependent on improved co-operation mechanisms with its neighbours and hinterland.

Munich's delivery concerns are not due to a shortage of capital. Most planned projects can be funded by a mix of federal, state and local finance. The major problem to securing investment is the lack of agreement between different actors about which project is most urgent and which order to prioritise them. Recent efforts towards greater co-operation between municipalities in the metropolitan region are slowly yielding results, but there is no guarantee that this will unlock further investment. Moreover, the State of Bavaria has recently cut expenditure, and re-distributed its assets more evenly across its cities. It remains to be seen how appeals for more federal spending will play out.[73]

Trait 10: Compelling Global Identity

Munich's historical assets have been safeguarded and deployed in international marketing materials ever since the 1972 Olympics, helping to create the city's association with quality, conviviality and productivity.

In recent years, competitive dynamics have put pressure on Munich Tourism Office to identify its unique assets and put in place a branding strategy. The city has been widely perceived as a conservative and traditional location, which clashes with its values of open-ness, tolerance and dynamism. In the mid-2000s, the city created two slogans: 'The tolerant city with heart', and 'The city of zest for life and beer', while a München mag dich ('Munich loves you') logo has been used in advertising and online communications to emphasise the city's hospitality, especially to business tourists.[74]

Munich is perhaps best known internationally for Oktoberfest, Bayern München football club, its technology sector and its finance industry. The city is also a retail and medical services hub for visitors from the Gulf Peninsula, boosted by connections established by Qatar Airways and Emirates airlines. Other fields are, however, under-recognised globally. Its position as a global technological, innovation and manufacturing hub is underplayed, and its cultural and liveability offer is not always as visible as in other German cities.

4. Munich in the future

Munich is a thriving metropolitan region, but many of its biggest advantages are the product of previous cycles of investment, leadership and innovation. Much of the capacity created by these cycles of success has been used up, and there is a need to renew the productivity and innovation system in light of global competition. It is not yet clear if Munich is prepared for the future dilemmas and challenges of regional growth in the next business cycles. At least four strategic imperatives are currently visible:

i. **Can Munich extend and expand its innovation and business brands in the newly growing regions of the world?** Munich does not fully reach out to the world despite being highly globalised, connected and successful. The city is well known for its world-class soccer club, Oktoberfest, heritage and shopping, but its technological, cultural and innovation assets are under-recognised, especially in some emerging regions.

ii. **Can Munich extend its collaboration with its metropolitan region and neighbouring municipalities to maintain momentum and appetite for growth and success?** The City requires the state of Bavaria to take a leadership role to strengthen the inter-municipal relationships that can ensure the supply of new residential, commercial and transport functions beyond city boundaries.

iii. **What is the best approach to managing Munich's short-term housing supply and land constraints?** Existing house-building rates are insufficient to meet high demand. Re-development of brownfield sites has so far opened up new land within the city limits, but it is now running out of spaces to re-use, strengthening the case for more polycentric urban development and tangential transport links. The city will need to address the issues of density and accessibility carefully to maintain its quality of life advantages.

iv. **Can Munich successfully balance its ageing population and skills shortage with further immigration?** High demand means the city already faces a skills shortage of over 100,000 workers, and its high value-added economy depends on staying open to international talent.[75] This issue may intensify in the years to come – with potential strains on integration and cohesion.

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