

2021

MUNICH IS
WAITING FOR YOU ...

SO WHAT ARE YOU
WAITING FOR?



MUNICH AS A GROWING HOTSPOT FOR INNOVATION AND ENTREPRENEURSHIP

WHITE PAPER – OBSERVATIONS ON
THE MUNICH INNOVATION ECOSYSTEM



The
Munich
Innovation
Ecosystem



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EXECUTIVE SUMMARY

Time and again, Munich achieves top positions in city rankings – as was again the case in 2020: The IW Consult city ranking placed the Bavarian capital at the top in such categories as economic strength and dynamics in terms of its labor market, economic structure, real estate market and quality of life¹. But does this also automatically imply ideal conditions for an entrepreneurship and innovation ecosystem? This white paper looks at *Munich as a location* and addresses this question – investigating such aspects as networks, sustainability, the industrial sector and the startup scene. As part of this process, Munich’s attractiveness in a wide range of areas has become very clear. However, one specific problem has also emerged: The city’s profile in the innovation and entrepreneurship ecosystem is not yet differentiated enough and its potential – at both the national and international level – is not yet widely known. To sharpen the focus in this field, this white paper concludes with recommendations for action in the areas of politics and business as well as for professional chambers and all stakeholders with an interest in shaping the future and advancement of Munich.

Specifically, we’re seeing a need to expand the City of Munich’s strategy in the following areas:

1. **Creating a better culture of innovation by promoting entrepreneurship on the part of universities and improving access to capital**
2. **Establishing more living, working and creative space**
3. **Improving location marketing and introducing a holistic location strategy**
4. **Increasing the degree of networking between the various local, national and international initiatives by introducing suitable platforms**
5. **Increasing diversity in a targeted manner by facilitating qualified migration and systematically promoting women**

What’s more, considering local innovation policy beyond purely economic determinants would additionally stimulate a spirit of innovation and lead to greater social cohesion and a more resilient urban society overall. The challenges described in the United Nations’ Sustainable Development Goals (SDGs) are also suggestive of the typical issues that modern cities will need to tackle in the future. The topics mentioned above must be bundled and all stakeholders must be addressed cross-sectorially – to represent Munich internationally as an innovation and entrepreneurship location, to provide globally mobile talent with excellent reasons to settle in Munich, and to make any kind of investment in the city palatable to players from the innovation area. Only through coordinated action can Munich position itself as a globally noticeable innovation ecosystem, thereby ensuring its future development and competitiveness.

The following vision for Munich was adopted as part of a strategy process in which 45 participants from science, industry, the startup scene and politics were involved:

„***Munich’s innovative, open-minded, and diverse community brings together international young talent, startups, and established companies. Together, they co-create scalable innovation that strives toward the Sustainable Development Goals. This unique blend of academia, industry, startups, government, science and society offers a unique high-tech based ecosystem in one of the most livable cities in the world.***“

¹<https://www.muenchen.de/rathaus/wirtschaft/wirtschaftsstandort/ranking.html>

INTRODUCTION AND APPROACH

München, Munich, Monaco di Baviera or 慕尼黑 [mùníhēi] – the world has many names for the Bavarian capital. While this speaks of its diversity, it doesn't prove it.

TARGET With this white-paper-style publication, we therefore want to explore the question of how well Munich, as a capital city, is positioned regarding the future topics of innovation and entrepreneurship. The paper thereby aims to contribute to the debate on the development of Munich's innovation ecosystem, adding to and expanding this discourse. In doing so, we deliberately seek to go beyond existing location descriptions and analyses when it comes to the economic performance of the region and look at Munich from different perspectives that are relevant for social development. As part of this approach, we will also refer to the citizens' dialog and current debates on how urban society would like to shape significant core issues of the future.

PARTNERS To live up to this aspiration, a consortium has been formed: The auditing and consulting firm PricewaterhouseCoopers GmbH WPG (PwC) and MUC SUMMIT GmbH, which is working with many other players on implementing Munich's innovation ecosystem, have joined forces to co-author this paper.

APPROACH The study has been published as a white paper as it represents a snapshot of the ever-changing social and economic reality of a metropolis. It is based on an assessment of high-quality technical information in the form of interviews and document analysis, and aims to provide recommendations for action and solutions to problems.

We focus on the conditions and criteria for the emergence of innovation by entrepreneurial means. The respective opening question is therefore: *Is Munich particularly well suited for innovation?*

To answer this question, we have phrased seven propositions in the form of the following statements:

- **Munich is a tech hub.**
- **Munich is a strong research location.**
- **Munich is a strong business location.**
- **Munich possesses a broad network.**
- **Munich offers a high quality of life.**
- **Munich has a large amount of innovation capital at its disposal.**
- **Munich can play a pioneering role in achieving the UN SDGs.**

We have derived these statements from the established literature on Munich as a business location. To verify them, we evaluated existing material in a text analysis. The material included annual economic reports, studies on regional competitiveness, surveys of startups and company representatives as well as statistical data. On this empirical basis, we developed a questionnaire for expert interviews. We conducted in-depth, approximately one-hour-long expert interviews with ten interviewees. To do justice to the multiple perspectives, we chose decision-makers from a variety of sectors as interview partners: startups and technology groups, research institutions and professional chambers.

The results presented in the following pages enable us to identify structures within the Munich ecosystem and to place the above statements in an empirical context. It has become clear that enormous innovation potential exists in the metropolis that is Munich. We will discuss the extent to which this potential is being exploited already, and how it can – or should – be exploited in the future. Furthermore, we will establish connections to other attractive economic regions and derive recommendations for the most important fields of action.

The following illustration shows an ecosystem geared toward joint value creation. The goal is to create value for all stakeholders involved through the mutual use of the involved players' resources.

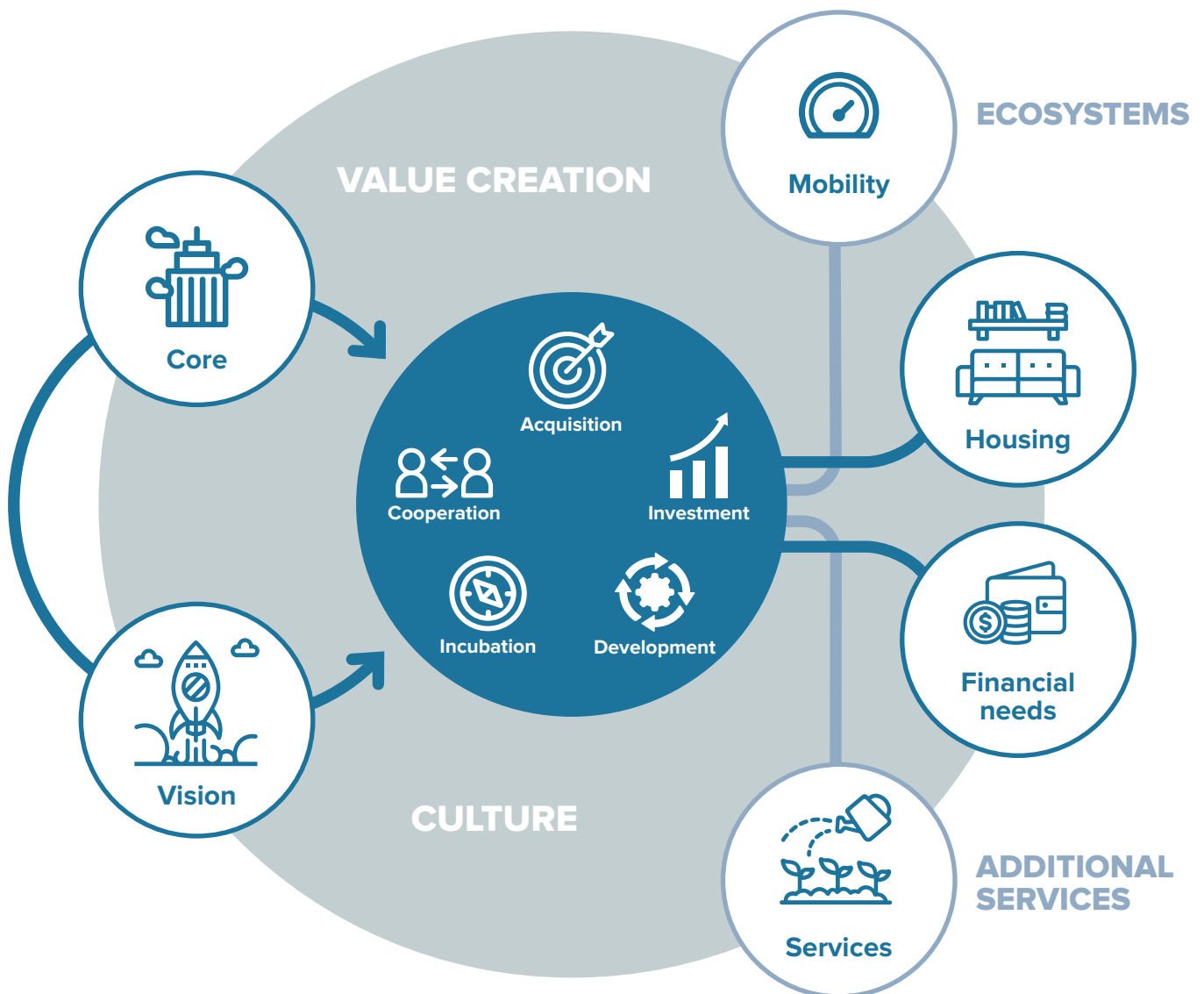


Fig. 1: Value creation process in ecosystems²

² Our own representation, loosely based on: <https://www.baloise.com/de/home/news-stories/top-themen/oekosysteme.html>

PROPOSITION 1

MUNICH IS A TECH HUB

TEASER Digital and technology companies often settle in cities in high concentrations. This results in a cluster formation known as a tech hub. Many of the features of a tech hub that characterize an outstanding environment for technology startups can be found in the Bavarian capital.

”

“When we founded inveox in Munich we knew that we were joining a vibrant and diverse tech community, including startups such as ProGlove and Kronos Solar, and medtech companies such as inveox, as well as globally active tech innovators and, thanks to the Technical University and LMU, a strong local research base as well.” Mara und Dominik Sievert, inveox

POLICY LEVEL The emergence of new technologies and their commercialization in a business context takes more than just bright minds trained at Munich’s renowned technical colleges and universities³ (Proposition 2, see Research location) – the infrastructure of the City of Munich also plays a major role in the establishment of a tech hub. With its proximity to Europe’s only 5-star airport, Munich not only provides a gateway to 266 destinations in 74 countries around the world,⁴ but its tightly meshed mass transit network also makes in-person business meetings quick and easy. The city’s digital infrastructure is equally remarkable: Unlike suburban or rural regions, Munich has almost complete LTE network coverage.⁵ Major research and development institutions, such as the Max-Planck-Gesellschaft zur Förderung der Wissenschaften e.V. and the Fraunhofer-Gesellschaft zur Förderung der angewandten Forschung e.V., are based in Munich and continuously supply the location with the latest scientific findings and their transfer into business practice. In addition, research and development departments of local companies define the framework conditions for Munich as a tech hub.⁶ Last but not least, the proximity to other burgeoning regions in Bavaria – and to the economically strong neighbors Switzerland and Austria – plays a significant role, too.⁷

The political contribution is essential. Currently, Munich is already a hub for the insurance, mobility and biotech industries, largely due to the many local companies and corporations from those respective industries. Thanks to funding from the German Federal Ministry of Education and Research (BMBF), Munich now also has the potential to become a center for artificial intelligence (AI): with the help of the BMBF, the Munich Center for Machine Learning⁸ has now been established with 22 new chairs at the Ludwig-Maximilian-University (LMU) and the Technical University of Munich (TUM).⁹ Munich is also home to one of three Bavarian cross-reality hubs (XR), in which the Bavarian State Ministry for Digital Affairs has been investing €1.5 million annually since 2020.^{10,11} Last but not least, the Free State of Bavaria has developed its own aerospace strategy: Bavaria One. Europe’s largest aerospace department is to be established in the region, for which the state government is

³ <https://www.pwc.de/de/branchen-und-markte/start-up-monitor-dsm-2020.pdf>, p. 52

⁴ <https://www.munich-airport.de/>

⁵ [https://www.toptarif.de/handy/wissen/handynetz-muenchen/#:~:text=Die%20Netzabdeckung%20von%20Vodafone%20in%20M%C3%BCnchen&text=Eine%20LTE%2DVerbindung%20\(4G\)%20mit%20einer%20maximalen%20Geschwindigkeit%20von,%2DVerbindung%20\(4G\)%20m%C3%B6glich.](https://www.toptarif.de/handy/wissen/handynetz-muenchen/#:~:text=Die%20Netzabdeckung%20von%20Vodafone%20in%20M%C3%BCnchen&text=Eine%20LTE%2DVerbindung%20(4G)%20mit%20einer%20maximalen%20Geschwindigkeit%20von,%2DVerbindung%20(4G)%20m%C3%B6glich.)

⁶ http://www.wirtschaft-muenchen.de/publikationen/pdfs/Wirtschaftsstandort_Muenchen_d.pdf

⁷ https://www.tmf-group.com/-/media/files/publications/2014/eu-tech-hubs-whitepaper_ger_final.pdf?la=en

⁸ https://www.tmf-group.com/-/media/files/publications/2014/eu-tech-hubs-whitepaper_ger_final.pdf?la=en

⁹ http://www.wirtschaft-muenchen.de/publikationen/pdfs/de_factsandfigures_2020.pdf, p.9

¹⁰ <https://www.invest-in-bavaria.com/blog/beitrag/staatsregierung-verstaerkt-foerderung-von-virtual-reality-in-bayern.html>

¹¹ <https://xrhub-bavaria.de/ueber-uns/>

¹² <https://www.bavarian-space-agency.de/bavaria-one/>

planning on spending €700 million.¹²

A project of this size has the potential to generate many more innovations and technological developments that will consolidate Munich's position as a tech hub.



Fig. 2: Essential advantages enabling Munich to position itself as a tech hub ¹³

CORPORATE LEVEL As a tech hub, the Bavarian capital is currently characterized by a high number of employees in the information and communications technology sectors.¹⁴ Munich was even named the best ICT location in Europe in an EU study.¹⁵ Relevant companies located in Munich include Unicorn, founded by TUM students in 2011, and now Decacorn Celonis, which sells process mining software worldwide, as well as global corporations such as Cisco, Huawei and Salesforce.¹⁶ Last but not least, the presence of all five of the largest technology companies in the world confirms Munich as a tech hub: Apple, Amazon, Google (Alphabet), Microsoft and IBM are all represented with important sites in Munich.¹⁷

Global player Google is currently planning and building an additional development center right in the city center, thereby creating some 1,500 additional jobs. On the site of the historic Arnulfpost office, work will soon commence around such topics as data protection, further development of the open web and the Google Cloud. At its Munich site, Google is also pursuing its goal of becoming completely carbon-neutral from 2030 onward, having already been carbon-neutral as a company worldwide since 2007.¹⁸

¹³ Our own representation

¹⁴ http://www.wirtschaft-muenchen.de/publikationen/pdfs/de_factsandfigures_2020.pdf, S.11

¹⁵ http://www.wirtschaft-muenchen.de/publikationen/pdfs/Wirtschaftsstandort_Muenchen_d.pdf

¹⁶ http://www.wirtschaft-muenchen.de/publikationen/pdfs/de_factsandfigures_2020.pdf, S.1315 http://www.wirtschaft-muenchen.de/publikationen/pdfs/Wirtschaftsstandort_Muenchen_d.pdf

¹⁷ <https://www.gevestor.de/details/die-5-groessten-hightech-unternehmen-der-welt-712322.html>

¹⁸ https://about.google/intl/ALL_de/stories/arnulfpost/

With its LabCampus, the Munich Airport site also joins the ranks as a further location for the innovation centers sprouting up. At the LabCampus, joint innovation projects are to be driven forward across all sectors and company sizes – all the way from development and testing to presentation and implementation. Renowned partners such as the Fraunhofer Institute for Integrated Circuits IIS, German Entrepreneurship and Bayern Innovativ are supporting this concept, which is currently under development.¹⁹ Finally, Apple's recent announcement that it will invest more heavily in the Bavarian capital sends a strong signal in favor of Munich as an innovation hub: In addition to its Bavarian Design Center, established in 2015, Apple wants to set up the European Silicon Design Center as an additional base for its development teams. Its primary focus will be on 5G and mobile technologies of the future.²⁰

The strong presence of these key companies promotes the development of many digitization trends, such as the internet of things (IoT), where successful startups like ProGlove or Magazino are also involved.²¹

STARTUPS In Germany, the City of Munich is a front-runner, just behind Berlin, with 1,300 information and communications technology (ICT) startups per year – equivalent to around 9% of all German startups. Munich even leads the field in terms of the number of employees in ICT startups.²² Most importantly, the quality of the startup ecosystem attracts founders: More than 75% of founders appreciate the quality of the network that exists for them locally for finding investors, exchanging ideas and setting up collaborations.²³

On the other hand, large companies setting up divisions and subsidiaries to team up with innovative founders are also seeking proximity to Munich. One such company is Intel: The Intel Ignite program, which originated in the startup country of Israel, supports young companies in their development. To do so, Intel and other industry experts support ten selected startups for twelve weeks. Participants are given access to technology, management and specialist expertise as well as a broad business network. Stephan Heller, Managing Director of Intel Ignite in Europe, explains: "There's a reason why Intel chose Munich as its European location for Intel Ignite. For one thing, we sense that a great deal of technology development creativity still exists in the region. What's more, from here we also have the potential to support startups throughout Europe thanks to highly qualified specialists, a great deal of expertise and a strong network."

At the same time, the hustle and bustle of the location also comes with challenges: For example, many startups struggle with the high rent prices in Munich. In some cases, startups relocated after the financial support ended. For this reason, the City of Munich is actively promoting the location. With the Munich Technology Center (MTZ), it provides startup assistance for founders. The Munich Urban Colab offers another ray of hope for startups. Opened by the city in the creative quarter in cooperation with UnternehmerTUM as a new innovation and startup center, it will also provide affordable office space for startups, among other things.²⁴ At the same time, more and more subcenters are currently being created, especially in the city's east end.

CONCLUSION With its renowned colleges and universities, a large and concentrated business environment and a strong startup ecosystem, the state capital excels both nationwide and in the EU, definitively earning the title "tech hub." The strong presence and settlement of individual key companies also strengthens Munich as an internationally recognized tech location.

However, many projects are only just emerging, and key players such as funding institutions and investors are

¹⁹ <https://www.labcampus.de/>

²⁰ <https://www.apple.com/uk/newsroom/2021/03/apple-to-invest-over-1-billion-euros-in-germany-with-new-munich-campus/>

²¹ https://www.wirtschaft-muenchen.de/publikationen/pdfs/Wirtschaftsstandort_Muenchen_d.pdf

²² <https://www.muenchen.de/rathaus/wirtschaft/branchen/medien-informations-kommunikationsbranche-iuk.html>

²³ <http://www.wirtschaft-muenchen.de/publikationen/pdfs/Forschungs-und-Innovationsbericht-muenchen-2020.pdf>, p. 7

²⁴ <http://www.wirtschaft-muenchen.de/publikationen/pdfs/Forschungs-und-Innovationsbericht-muenchen-2020.pdf>, p. 7

currently beginning to develop an understanding of their leading role in Munich. In order to further strengthen Munich as a leading tech hub in the future, especially internationally, current and future projects need to be jointly promoted and implemented in the innovation ecosystem.

PROPOSITION 2

MUNICH IS A STRONG RESEARCH LOCATION

TEASER It's no longer a well-kept secret: Munich is a unique research location. It makes it into Europe's top 10 in 27 out of 35 of the most important innovation fields examined – an unrivaled result in terms of diversity and performance strength.²⁵

NUMBER OF TECHNOLOGY AREAS IN WHICH THE REGION RANKS AMONG EUROPE'S TOP 10

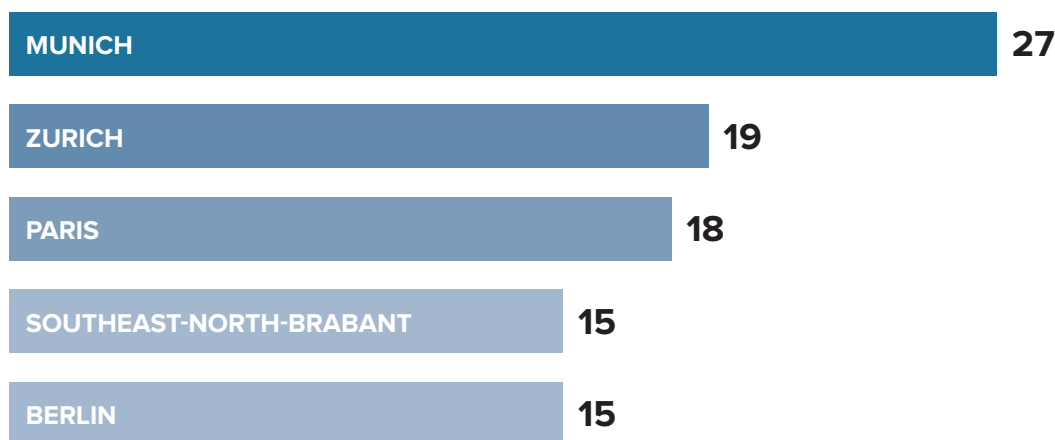


Fig. 3: Number of technology areas ^{26,27}

A study conducted by Prognos on behalf of the state capital has identified the following technology areas in which Munich particularly excels. They read like a Who's Who of the future economy:

- **Information and communication technologies**
- **Life sciences and biotechnology**
- **Aerospace**
- **Automotive**
- **Environmental economy**
- **Creative industries**
- **Fintech**
- **Insurtech**

A strong networking of research and business are the driving force behind this excellent positioning.

²⁵ <https://www.muenchen.de/rathaus/Stadtverwaltung/Referat-fuer-Arbeit-und-Wirtschaft/News/studie-wissenschaftsstandort.html>

²⁶ Our own representation according to data from Prognos and Schmoch as well as https://www.wipo.int/export/sites/www/ipstats/en/statistics/patents/pdf/wipo_ipc_technology.pdf

²⁷ <http://www.wirtschaft-muenchen.de/publikationen/pdfs/Innovations-und-Wissenschaftsstandort19-kurz.pdf>

POLICY LEVEL When Prof. Dr. Andreas Felix von Oefele, head of the court library, pushed for the establishment of the Bavarian Academy of Sciences in the late 18th century, he could not have known that one day almost 40% of Bavarian students would enroll here – or that Munich would have the highest density of non-university and state research institutions in the country. Today, the Fraunhofer Gesellschaft and the Max Planck Gesellschaft are headquartered in the Munich region and operate additional institutes in the region, too, as do the Helmholtz Gesellschaft und the Leibniz Gemeinschaft. The Munich region is home to three universities and 13 institutions of higher education with some 120,000 students in total. The greater metropolitan region boasts 29 universities and almost 170,000 students.²⁸ Nearly 70 main and secondary locations of non-university research institutions are located here, which makes for an unusually high density of scientific potential and brain power. The two major universities, LMU Munich and the Technical University of Munich (TUM), as well as the Munich University of Applied Sciences stand out as beacons. Both universities have repeatedly received national awards as universities of excellence²⁹ and occupy top positions in numerous international rankings³⁰, while the Munich University of Applied Sciences even ranks first in its category in national comparisons.³¹

STUDENTS AT MUNICH’S INSTITUTIONS OF HIGHER EDUCATION

Fall semester 2018/19

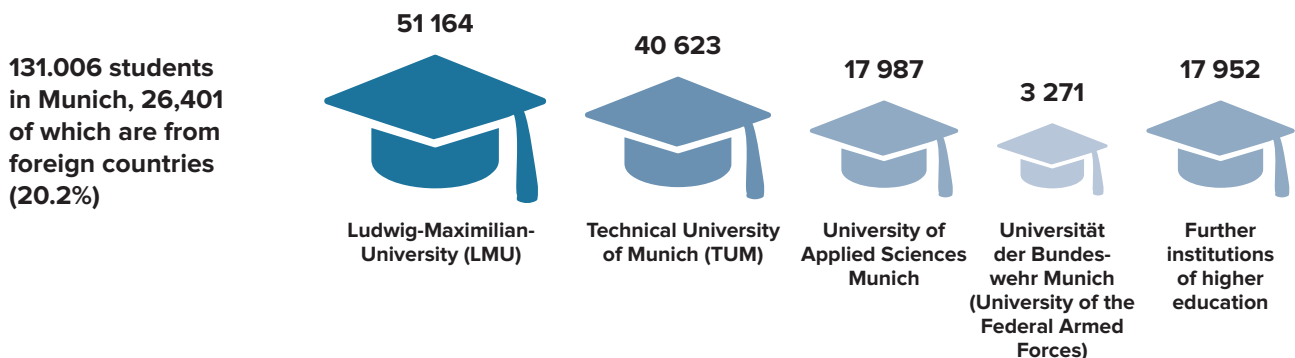


Fig. 4: Students at Munich’s institutions of higher education ³²

Important internationally competitive research fields are also being advanced in Munich’s clusters of excellence across disciplines and in university alliances. The Origin and Structure of the Universe cluster at TUM and the Nanosystems Initiative Munich (NIM) at LMU are two such clusters. Institutions such as the Digital Innovation Hub (formerly the Center for Digitalization Bavaria)³³ or alliances initiated jointly by research and industry, such as bavAIRia, the BICCnet or BioM, create a catalytic effect for further research and startup activities. In this context, it is also worth mentioning the Munich-based Max Planck Institute for Innovation and Competition.

“Munich’s excellent universities with their entrepreneurial orientation, including TUM, LMU, HM and UniBW, offer ideal conditions for positioning Munich as an entrepreneurial ecosystem.”

Prof. Dr. Klaus Sailer, Strascheg Center for Entrepreneurship

²⁸ <https://www.metropolregion-muenchen.eu/region/wissenschaftsstandort/>

²⁹ <https://www.dfg.de/foerderung/exzellenzstrategie/index.html>

³⁰ https://www.timeshighereducation.com/world-university-rankings/2021/world-ranking#!/page/1/length/25/sort_by/rank/sort_order/asc/cols/stats

³¹ https://www.hm.edu/sekundaer_navigation/presse/pressemitteilungen_1/detail_148097.de.html

³² Bayerisches Landesamt für Statistik und Datenverarbeitung

³³ <https://www.bayern-innovativ.de>

Data suggests that this academic environment in Munich is particularly good at implementing the three cooperation strategies³⁴ identified by Gaan, Montresor & Eisenberg in a publication by the World Economic Forum: 1) New formats of cooperation are systematically developed: from the industry clusters mentioned above to spin-off activities or startup accelerators all the way to systematic talent-sharing strategies, innovation is created continuously; 2) The Martinsried Innovation and Startup Center and the Media Lab Bavaria are examples of technology networking with the social sciences; ³⁵ 3) The flexibility and speed of the startup centers have been significantly increased and prove particularly effective thanks to the cooperation of the Bavarian Research Alliance, university transfer offices and professional chambers.

STARTUPS It is therefore hardly surprising that one in five Munich startups has already established a collaboration with research institutions. This is above the German average of 16%.³⁶ And this is also due to the excellent infrastructure of the local startup support institutions. For example, the German Accelerator, implemented by German Entrepreneurship with headquarters in Munich, supports German startups in their international expansion within the framework of various program offerings and is funded by the German Federal Ministry for Economic Affairs and Energy. The Munich University of Applied Sciences with its associated institute, the Strascheg Center for Entrepreneurship and the Technical University of Munich, flanked by UnternehmerTUM, have played a leading role in the Stifterverband's Gründerradar national ranking for years.³⁷ Together with LMU Munich, which also ranks among the top-5 startup universities in Germany according to Startup-Monitor,³⁸ Munich's academic environment offers a unique support system and ideal conditions for startups and spin-offs. More than 120 startups emerge annually from these three centers alone. Furthermore, HM, LMU and TUM were successful with their joint application thanks to funding from the EXIST Potentials initiative of the Federal Ministry for Economic Affairs and Energy. Its objective is to attract international talent and startups with scalable business models so as to anchor innovations with added social value in the Munich ecosystem.

Another example of cross-university collaboration: LMU and TUM have launched the Center for Digital Technology and Management (CDTM) – the CDTM³⁹ becomes visible in the form of numerous well-known startups such as Personio or CliniServe, founded by the "Centerlings" (CDTM alumni). A large network of smaller and often highly specialized universities and private institutions also exists. For this reason, the Munich ecosystem possesses excellent educational opportunities for future talent and founders and attracts students. Not only does Munich have an above-average density of university graduates (> 32%), but the distribution among the promising MINT (MINT: mathematics, IT (computer sciences), natural sciences, technology) subjects (> 40%) and medicine (8%) is also remarkable⁴⁰ and is reflected in Munich's good rating.⁴¹

CORPORATE LEVEL Early on, the Bavarian state government focused on the promotion and settlement of science and research institutions with the goal of achieving a significant incidence effect for economic development and the settlement of key technologies.⁴² To this end, the state capital has promoted the settlement of additional scientific institutions and the secondary trades surrounding them for years now. This public innovation policy is complemented by extensive business research and development facilities, such as the FIZ, BMW's research and innovation center, with some 15,000 employees. In the areas of environmental technology, fintech or information technology, progress has also been made in a structured fashion (for more information, see the "Munich as a tech hub" section). The high density of corporate headquarters of DAX, M-DAX

³⁴ <https://www.weforum.org/agenda/2018/11/3-ways-to-nurture-collaboration-between-universities-and-industry/>

³⁵ An overview: <https://www.ihk-muenchen.de/de/Service/Gründung/Netzwerke-Kooperationen/Inkubatoren-und-Acceleratoren.html>

³⁶ <https://www.pwc.de/de/pressemitteilungen/2017/umfrage-start-up-unternehmen-muenchen-2017.pdf>

³⁷ <https://www.gruendungsradar.de/gesamtranking/grosse-hochschulen>

³⁸ <https://deutscherstartupmonitor.de>

³⁹ Gespräch mit Andrea Hofmann (Lab Campus)

⁴⁰ <http://www.wirtschaft-muenchen.de/publikationen/pdfs/Innovations-und-Wissenschaftsstandort19.pdf>

⁴¹ <https://www2.deloitte.com/content/dam/Deloitte/de/Documents/Innovation/Tech-Standorte-Deutschland-Ranking-Deloitte-2018.pdf>

⁴² https://www.ihk-muenchen.de/ihk/documents/Innovation/FuE-Report_Langversion_finweb.pdf

or Tech-DAX companies⁴³, supplemented by the European headquarters of international ICT groups, results in an extraordinary concentration of company-based research and development in the Bavarian capital, which is naturally well-networked with the universities and scientific institutions.

CONCLUSION Against this background, Andreas von Oefele might be quite satisfied with the seed he sowed over 200 years ago. In a unique mix, Munich brings together the high academic density of small university towns with big-city appeal and institutional density.

⁴³ http://www.wirtschaft-muenchen.de/publikationen/pdfs/boersennotierte_unternehmen_d.pdf

PROPOSITION 3

MUNICH IS A STRONG BUSINESS LOCATION

TEASER According to a new study by Bavarian business association vbw, Germany ranks fourth worldwide among the countries with the best conditions for industrial companies.⁴⁴ Of course, this is also true for Munich. In fact, Munich is particularly strong in this regard. But what is it exactly that makes Munich such a good business location?

“*Many still associate Munich primarily with soccer and the Oktoberfest – and don’t see it as an innovation hub. That’s something we still have to work on. Thanks to its proximity to large industries and DAX companies, however, Munich is very visible indeed.*”

Gabirle Böhmer, Munich Startup

POLICY LEVEL In particular, Munich is characterized by exceptional competitive ratios and an outstanding industry mix. The city accounts for just under 19% of the total GDP in Bavaria, and if the surrounding area is included, this rate increases to 31.4%. Purchasing power in Munich is also about 38% above the national average. The unemployment rate in the Munich region is 3.3%, well below the national rate of 5%.⁴⁵ However, the most significant factor is probably the previously mentioned industry mix, also known as the “Munich mix”⁴⁶, which consists of a balanced composition of large companies, medium-sized companies, startups as well as traditional craft businesses. Relevant industries include information and communication technologies, services, research and knowledge-intensive industries – especially life sciences, medical and environmental technologies – as well as the cultural and creative industries. Munich is also the largest insurance location in Germany and the second most important German banking center after Frankfurt a. M.

Munich is also known as the “DAX capital” with six of the 40 DAX-listed companies headquartered in Munich. These include Allianz, BMW, Munich RE, Siemens, MTU Aero Engines AG and Infineon Technologies (Neubiberg).⁴⁷ Considering all these companies together, it becomes apparent that most of them have a tech focus. In the MDAX, Munich is clearly a frontrunner with 12 companies.⁴⁸ Munich also boasts six companies in the Tec DAX.⁴⁹ In addition to these traditional DAX companies, more and more foreign high-tech companies are also settling in Munich, such as Google (since 2007), which is currently building new headquarters in Munich, as well as Apple, Microsoft, IBM, Oracle, Cisco and Huawei.⁵⁰ There is a clear trend toward strong growth in the (high-)tech sector in and around Munich.

With Messe München, Munich is also an international trade fair hub and attracts numerous industry giants – including analytica, BAUMA, electronica, EXPO REAL, Intersolar, ispo and MATERIALICA – to Munich with its leading trade fairs. In addition, IAA Mobility will be held in Munich for the first time in 2021.⁵¹

⁴⁴ <https://www.sueddeutsche.de/wirtschaft/industrie-muenchen-studie-deutschland-unter-den-top-industriestandorten-dpa.urn-newsml-dpa-com-20090101-190823-99-573180>

⁴⁵ http://www.wirtschaft-muenchen.de/publikationen/pdfs/de_factsandfigures_2020.pdf

⁴⁶ Conversation with Gabriele Böhmer (Munich Startup)

⁴⁷ <https://www.muenchen.de/rathaus/wirtschaft/wirtschaftsstandort/wirtschaftsstruktur/dax-unternehmen-muenchen.html>

⁴⁸ http://www.wirtschaft-muenchen.de/publikationen/pdfs/boersennotierte_unternehmen_d.pdf

⁴⁹ http://www.wirtschaft-muenchen.de/publikationen/pdfs/boersennotierte_unternehmen_d.pdf

⁵⁰ http://www.wirtschaft-muenchen.de/publikationen/pdfs/Wirtschaftsstandort_Muenchen_d.pdf

⁵¹ <https://messe-muenchen.de/de/technisches/veranstaltungen/iaa-mobility-2021.php>

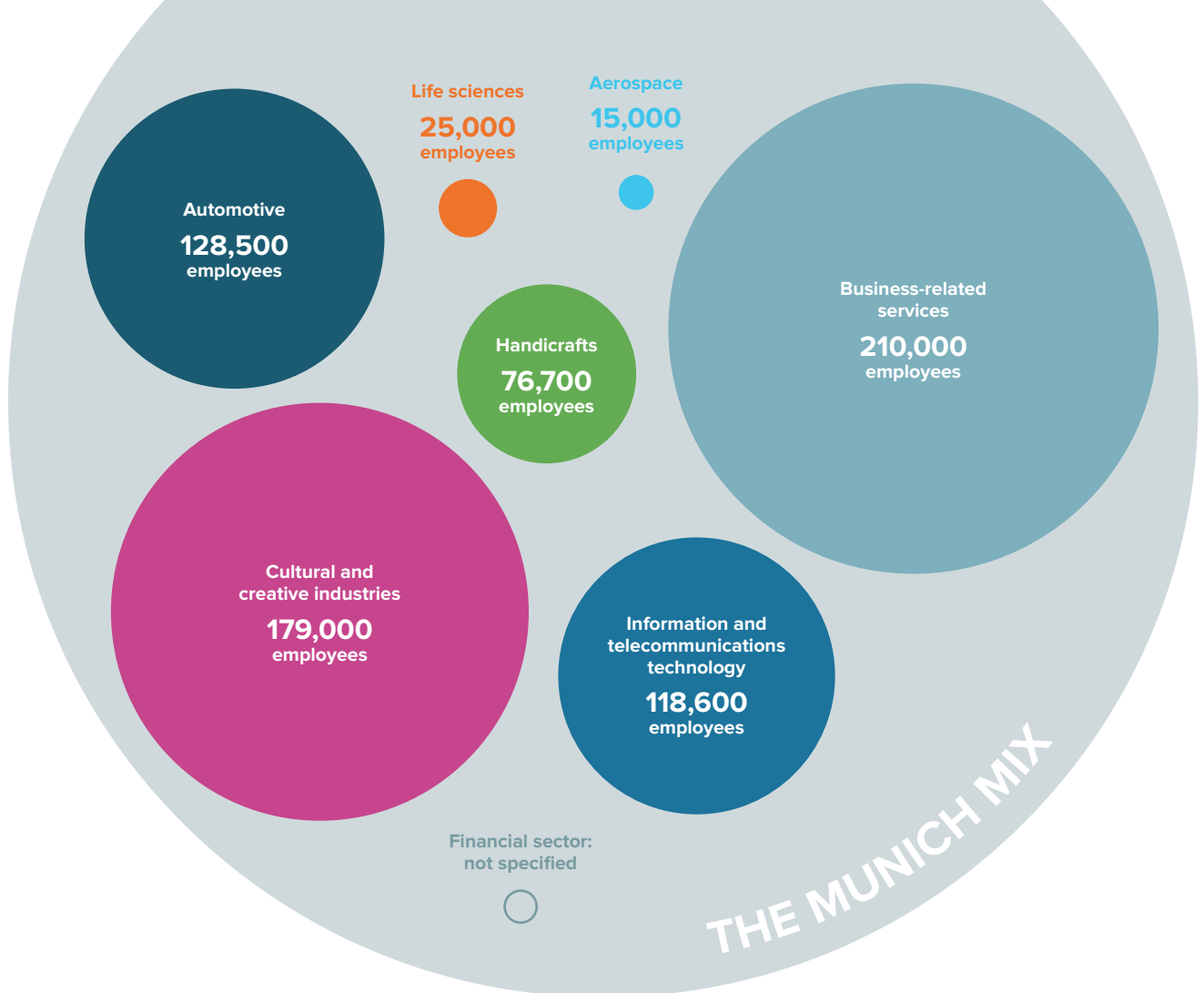


Fig. 5: The Munich mix – a multilayered economic structure⁵²

CORPORATE LEVEL A closer look at companies in Munich reveals that the city is particularly well positioned in the automotive and information and communications technology sectors, as well as in business-related services such as insurance. In total, some 460,000 people are employed in these areas in around 46,700 companies. The close proximity of companies along various stages of the value chain, such as suppliers and end manufacturers, is a particular advantage of the location, along with a wide range of opportunities for collaborations with universities and research institutions. Furthermore, the mix of industrial and service companies as well as the proximity to important customers benefit the work of these sectors.

Munich is also Germany's most important insurance location, and the consulting sector has a formative presence here, too. Last but not least, the city is characterized by being the most significant location for (patent) law firms, which is due, in particular, to the large number of tech companies there. A further 210,000 people or so are employed in these sectors in Munich. The aerospace industry is also worth mentioning, as it is of special historical significance in Munich. In that field, production alone generates some €10 billion in sales, and with Airbus, MTU Aero Engines and Premium Aerotec, three world-class companies are located there. In this context, the largest aerospace department of its kind in Europe is being established at the Technical University of Munich (TUM). Such activities also consolidate Munich's reputation as an industrial location.⁵³

⁵² Our own representation loosely based on: http://www.wirtschaft-muenchen.de/publikationen/pdfs/Wirtschaftsstandort_Muenchen_d.pdf
⁵³ http://www.wirtschaft-muenchen.de/publikationen/pdfs/Wirtschaftsstandort_Muenchen_d.pdf



“Through our activities, we aim to develop Munich as a location for the long term, attract talent with valuable and scalable business models as well as identify potentials and synergies between startups, universities, corporations and the public sector. This way, we can actively shape collaborations across sectors and bring together the right partners in networks.”

Frizzi Engler-Hamm, MUC SUMMIT

STARTUPS As a strong business and industrial location, Munich is highly relevant for the settlement of startups. Many large industrial companies enrich their innovation areas with the expertise arising from startups and then enter into joint ventures and collaborations with them. The same applies to the major educational institutions in the metropolitan region: They actively promote startups and spin-offs from the science and research field.⁵⁴ For example, the “BMW Startup Garage” was created as part of the company’s startup promotion program, through which the group aims to use the knowledge of particularly innovative startups for itself. The “TechFounders” accelerator program for technology startups was created in collaboration with the Technical University of Munich (TUM).⁵⁵ Likewise, industry-specific offerings are emerging such as the Drink Innovation Campus (DICA) accelerator program of the Strascheg Center for Entrepreneurship and the Weihenstephan Food Startup Incubator, in which the innovation ecosystem of the beverage industry and the innovative power of startups are brought together with product and market know-how from established companies.⁵⁶ Initiatives such as these are certainly one of the reasons why Munich is also a relevant location for the startup scene. To further promote networking, the Insurance Industry Hub and the Mobility Hub as well as the BioM biotech cluster have been launched in Munich. There are also plans to make Munich the Bavarian center for artificial intelligence (AI), with the “Mission Institute for AI” and 22 new AI chairs at the LMU and TUM universities.⁵⁷

CONCLUSION Munich is not just extremely strong as a business location, but also as an industrial site, especially in the technology sector. The strong networking between industry, startups and scientific institutions is to be emphasized, as it makes the Bavarian capital particularly interesting for startups. Although Munich is making big steps forward in terms of networking, e.g., in the form of new hubs, there still seems to be further potential for expansion in terms of vertical integration and cross-industry networking. Frizzi Engler-Hamm, Managing Director of MUC SUMMIT, tells us, “As part of the MUST initiative – the Munich Innovation Ecosystem – the MUC SUMMIT GmbH has taken on the task of cross-industry networking, among other things, in order to further strengthen Munich as a business location, both nationally and internationally, together with stakeholders from the public sector, business, science and the startup scene.”

⁵⁴ <https://www.businessinsider.de/gruenderszene/allgemein/bmw-i-ventures-investment-caroobi/>

⁵⁵ <https://gruenderfreunde.de/bmw-setzt-verstaerkt-auf-startup-trend/>

⁵⁶ vgl. www.drinkinnovation.de & <https://fsiws.com>

⁵⁷ http://www.wirtschaft-muenchen.de/publikationen/pdfs/de_factsandfigures_2020.pdf

MUNICH POSSESSES A HIGH DEGREE OF NETWORKING AMONG ITS STAKEHOLDER GROUPS

PROPOSITION 4

TEASER The proverbial Bavarian Gemütlichkeit (conviviality) is considered the ideal prerequisite for the networking and coming together of the Munich ecosystem. For this reason, it's hardly surprising that, in conjunction with Oktoberfest as the largest folk festival in the world, Bits&Pretzels emerged as one of the essential networking events of the innovation and entrepreneurship scene.

POLICY LEVEL The manageable size of the city and the high density of events and opportunities for exchange give the Munich tech hub an extremely solid starting position for the rapid distribution of information. The density of players can be clearly seen on the Munich Startup's Ecosystem Dashboard: More than 1,500 startups meet over 300 companies specifically looking to collaborate with startups and are paired with around 130 investors and a talent pool of 45,000 employees.⁵⁸

“*A great deal of networking already exists in Munich through MUST, Bits&Pretzels, events of the Entrepreneurship Centers or the Startup Unit of the IHK (Chamber of Industry and Commerce).*”

The BCG study ‘The most innovative companies,’ identified 50 of the most innovative companies – and 40 of them are represented in Munich or Bavaria. It's important that we bring them together and integrate them into our stakeholder mix.”

Frank Dollendorf, IHK for Munich and Upper Bavaria

The Munich Innovation Ecosystem has a unique stakeholder mix. The MUST – The Munich Innovation Ecosystem initiative brings together the most relevant stakeholders, thus promoting exchange in, by and for Munich and making the Munich innovation ecosystem more visible, both nationally and internationally. This enables stronger connections and synergies to emerge between business, research, startups and politics, as well as other partners in the ecosystem, and for the location to be made more attractive for the long term.

The state capital itself, the chambers of commerce, business associations and research centers also play a major role in this. In addition, events and trade fairs supported by the city and the state shape mutual networking. For example, Digital Life Design (DLD), launched by Steffi Czerny and the Burda Media Group, has, for over 15 years now, been the leading conference for exchange among innovative thinkers and politics, art and science against the backdrop of the rapid digital transformation of our world. This perspective is increasingly the focus of another very important annual conference held in Munich: the Munich Security Conference. This forum, too, is networking to an ever-greater degree with other sectors outside the political arena, as the close intertwining of ecology, social issues and the economy in the public sphere requires innovations from the private and third sectors. It is precisely the supra-regional and European levels that the Startup Cities Alliance (SCALE) addresses.⁵⁹ Through a common platform, an ecosystem map and numerous other tools, the most important European technology locations can be compared with each other. Overall, SCALE has the potential for a European response to the U.S. or Chinese startup ecosystems and will stimulate collaborations from Oslo to Rome and from Porto to Vilnius. Munich's central location at the heart of Europe once again becomes evident in this context.

⁵⁸ <https://www.munich-startup.de/ecosystem/insights/>

⁵⁹ <https://scalecities.com>

CORPORATE LEVEL In the international race for markets, innovations and talent, it will also be crucial for established companies to collaborate with startups so as not to be left behind.⁶⁰ A BCG study examined this type of collaboration between large companies and startups and identified five collaboration instruments, all of which exist in Munich:

- **Innovation or digital labs: e.g., Deloitte Digital and Siemens AI Lab**
- **Accelerators: e.g., BMW Startup Garage, Climate-KIC Accelerator**
- **Corporate venture capital (CVC): e.g., Allianz X, BayWa r.e. Energy Ventures and HV Holtzbrinck Ventures**
- **Partnership units: e.g., Infineon's Inno.Wafer and Giesecke+Devrient**
- **Incubators: Media Lab Bayern and ESA Business Incubation Centre (BIC) Bavaria**

Notably, around 50% of startups and companies in the DACH region are dissatisfied with existing collaborations while high expectations regarding processes, structures and cultures are not met.⁶¹ Thanks to a clear and generally shared idea of what collaboration goals should look like, it is suggested that a connection be established between startups and the core business of large companies. For the partners to find the right counterpart in each case and then the right addressees within the highly diversified structures of large companies, networking efforts again become necessary.

“*The innovation ecosystem can further benefit from efforts to become more professional, as driven by MUST, to strengthen its image, particularly when it comes to how it's perceived internationally.*”

Matthias Marschall, Google Germany

STARTUPS Munich is an attractive and innovation-friendly location that attracts talent and startups as well as companies from the region and from all around the world. With the MUST – The Munich Innovation Ecosystem initiative – founded by UnternehmerTUM, the Strascheg Center for Entrepreneurship and German Entrepreneurship – the networking of the unique stakeholder mix can be made more and more real through formats such as the MUST Dialogue or subject-specific workshops.

For this reason, the functions of market-makers and the systematic processing of knowledge resources are becoming increasingly important for content curation. Interestingly, Munich startups have been picking up on these trends for quite some time. Some of the most successful startups of recent years – the new data mining software house Celonis and recruiter Personio – offer respective solutions to their customer groups. But there is “still a great deal of room for improvement” according to the two managing directors of inveox, Maria and Dominik Sievert: “The Munich area is also home to so many more players and stakeholders – the opportunities that exist here should be made much more transparent and accessible for future entrepreneurs. Entrepreneurs shouldn't have to need to search for suitable Munich companies to partner with. Easier access to resources and the necessary support for entrepreneurs would certainly do even more to strengthen the innovative power of Munich as a location.”

CONCLUSION While the Munich innovation ecosystem is highly networked, there is still upward potential with regard to reaching the level of shared value creation. This will primarily involve connecting specialized communities such as the One Mission Initiative and the Female Investors Network and Venture Capital Club e. V. with other players. Being permeable enough to build valuable cross-connections while maintaining the identity of groups and their sense of belonging – this is a task for the future.

⁶⁰ Weiblen, T., & Chesbrough, H. W. (2015). Engaging with startups to enhance corporate innovation. *California Management Review*, 57(2), 66–90. Abrufbar unter <https://journals.sagepub.com/doi/10.1525/cm.2015.57.2.66>

⁶¹ <https://www.bcg.com/publications/2019/corporate-startup-relationships-work-after-honeymoon-ends>

TEASER Munich is a beautiful city and boasts the largest inner-city park in the world, through which runs the Isar River. Numerous great destinations for excursions are close by, and the city is internationally connected via its modern airport. Munich simply abounds with quality of life.

POLICY LEVEL The quality of life in Munich is also relevant when it comes to choosing an employer or company location. For example, nine out of ten professionals in Munich say they feel comfortable in their region, about one in two came to the metropolitan region for professional reasons, and just under one in five came for vocational training or studies. Reasons why people are satisfied to live and work in Munich include its excellent public transport connections, accessibility to activities in public green spaces and parks, as well as good everyday shopping facilities and other opportunities, such as sports and exercise, to name just a few.⁶²



Fig. 6: Munich's great network connections within the EU ⁶³

⁶² <https://www.pwc.de/de/standorte/muenchen-und-umland-auswirkungen-hoher-mieten.pdf>

⁶³ Our own representation, loosely based on: <https://www.lmu.de/de/die-lmu/die-lmu-auf-einen-blick/die-lmu-muenchen/index.html>

In addition to these factors, Munich offers a varied cultural and gastronomic milieu. According to the EU Commission’s 2019 Cultural & Creative Cities Monitor, Munich ranks second in this category, just behind Paris. The theater and opera scene boasts five state-run, 50 private and three municipal stages.⁶⁴ Certainly, the home of the most successful German soccer club, FC Bayern Munich, is also an attractive factor for many people. Among other things, Munich offers cultural diversity and exciting international exchange – about 28% of all people living in Munich come from abroad. People from some 180 countries live there – making the city an international hotspot.⁶⁵ The large number of expatriates in Munich is also an indication of Munich’s pioneering role when it comes to quality of life in Germany.

A cause for concern for the 1.47 million residents, however, is the steady trend toward rising prices for houses and apartments, even in times of crisis.⁶⁶ Lack of affordable housing has been a perennial issue in Munich for some 30 years now. With the Bavarian State Office of Statistics predicting that the population will grow to 1.67 million by 2038, it certainly doesn’t look like the situation is going to ease any time soon.⁶⁷ In Germany, the average share of rent in household incomes is around 20.6%.⁶⁸ In Munich, this figure lies at 29.5% on average, which corresponds to 18.61 euros per square meter.⁶⁹ Particularly for people with low incomes or those just starting out their careers, the figure is likely to be significantly higher. In the case of home ownership, the Munich disparity is even more pronounced by comparison.⁷⁰

Munich continues to be Germany’s frontrunner when it comes to housing costs and is in the same league as other major international cities.

RENT LOAD BY HOUSING SITUATION IN MUNICH

Median in % of net household income from 10,000 people surveyed

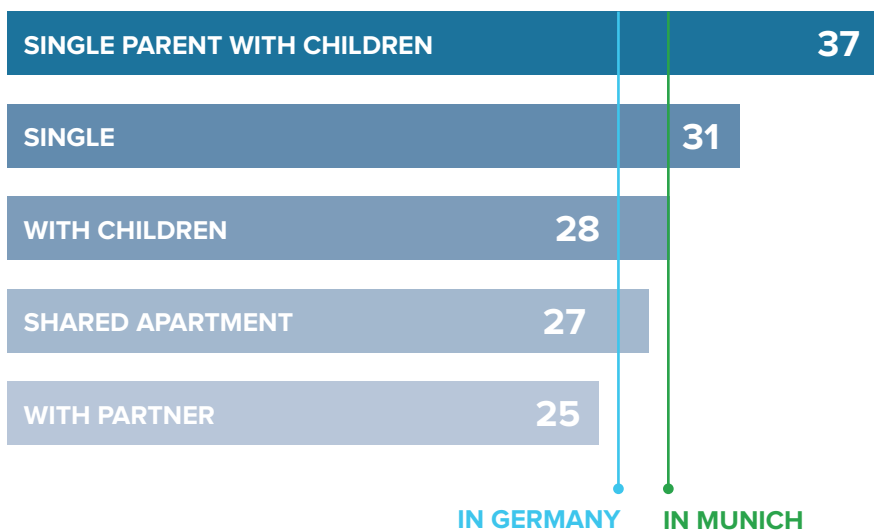


Fig. 7: Rent load by housing situation in the City of Munich ⁷¹

⁶⁴ <https://exporo.de/standortanalyse/muenchen/>

⁶⁵ http://www.wirtschaft-muenchen.de/publikationen/pdfs/Wirtschaftsstandort_Muenchen_d.pdf

⁶⁶ <http://www.kommunalreferat-muenchen.de/gaa/immo/analysen/index.htm>

⁶⁷ https://aigner-immobilien.de/download-muenchner-immobilien-marktbericht-20-21/?ref=AdW-SU-Marktbericht-2021&gclid=EAlaIqob-ChMlwPKBI6Cj7wIVGuJ3Ch3oDgIgEAAAYASAAEgKDj_D_BwE

⁶⁸ <https://de.statista.com/statistik/daten/studie/459578/umfrage/mietanteil-am-haushaltseinkommen-privater-haushalte-in-deutschland/#:~:text=Im%20Jahr%202019%20belieft%20sich,auf%20etwa%2020%2C6%20Prozent.>

⁶⁹ <https://de.statista.com/infografik/20131/anteil-der-miete-am-gehalt-in-grossstaedten-in-ost-und-west/>

⁷⁰ <https://de.statista.com/statistik/daten/studie/6654/umfrage/immobilienpreise-fuer-eigentumswohnungen-in-deutschen-staedten-2008/>

⁷¹ <https://projekte.sueddeutsche.de/artikel/muenchen/meinmiete-so-stark-belastet-die-miete-die-muenchner-e807307/>

CORPORATE LEVEL The housing issue is also relevant for employers. Maria and Dominik Sievert, who founded inveox in 2017, complain: “[Complicated formalities] – and not least the high cost of living in Munich – make it difficult to attract talent, from both the local and international labor markets.” Nevertheless, Munich is an attractive place for companies and their employees for a variety of reasons. Infrastructure and connectedness appear to be extremely relevant as a location factor. Munich has excellent public transport connections. Munich’s main train station is one of the busiest in Germany. In particular, the new high-speed rail line from Munich to Berlin makes life easier for business travelers – a further plus in terms of attractiveness.⁷² Munich Airport offers excellent international connections for business travelers in particular and is THE central factor when it comes to city accessibility. A passenger survey has now named Munich’s Franz-Josef Strauss Airport the best airport in Europe for the 12th time, and in the global ranking, it comes in fifth. However, the significant volume of cars and commuters continues to pose major challenges for the city and professionals from the surrounding area and will continue to be the subject of public debate for some time to come.

The extraordinary stakeholder mix also makes Munich an interesting place. Last but not least, the city, which plans to invest almost €10 billion by 2023 to promote infrastructure, schools, daycare centers and the like, as well as climate protection,⁷⁴ itself shapes the Munich lifestyle.

STARTUPS Munich’s international flair is of particular interest to startups. Approximately 46% of all employees in startups come from abroad, and about 11.5% of all founders possess foreign citizenship. This also means that while their working language is often still German, English has already become established in 42.5% of all startups. A good work-life balance and a fulfilling private life are particularly important to younger generations, as is job satisfaction, which makes a city like Munich, with its diverse opportunities, an ideal location – if you can afford it.⁷⁵ Office space is not exempt from the constant price increases and is a scarce commodity in Munich. The vacancy rate is almost zero. Those looking to relocate to Munich face a similar problem as those looking for housing. Presumably this will remain the same in the post-pandemic era as well.⁷⁷

At the end of the day, startup founders certainly choose Munich to benefit from the stakeholder mix and excellent connections as well as to recruit all the well-educated students from the local universities.

CONCLUSION Munich offers its inhabitants as well as its companies an extraordinary mix of amenities and has thereby grown into a significant location, especially for startups. However, the housing situation may deter some and is an area where Munich must become more attractive, particularly for younger people and the creative scene.

⁷² http://www.wirtschaft-muenchen.de/publikationen/pdfs/Wirtschaftsstandort_Muenchen_d.pdf

⁷³ <https://www.muenchen.de/rathaus/wirtschaft/wirtschaftsstandort/infrastruktur.html>

⁷⁴ <http://www.wirtschaft-muenchen.de/publikationen/pdfs/Jahreswirtschaftsbericht-muenchen-2019.pdf>

⁷⁵ <https://www.pwc.de/de/branchen-und-markte/start-up-monitor-dsm-2020.pdf>

⁷⁶ <https://unternnehmer.de/lexikon/online-marketing-lexikon/generation-y-millennials#:~:text=Merkmale%20der%20Generation%20Y%2F%20Millennials&text=Sie%20haben%20sowohl%20den%20gro%C3%9Fen,dem%20Internet%20zu%20ihrem%20Alltag.>

⁷⁷ https://aigner-immobilien.de/download-muenchner-immobilien-marktbericht-20-21/?ref=AdW-SU-Marktbericht-2021&gclid=EAlaIqob-ChMlwPKBI6Cj7wIVGuJ3Ch3oDglgEAAYASAAEgKDj_D_BwE

PROPOSITION 6

MUNICH HAS A LARGE AMOUNT OF INNOVATION CAPITAL AT ITS DISPOSAL

TEASER Founders typically stand out because of more than just their creativity and will to break new ground. Their readiness to implement ideas and not shy away from risks also sets them apart and allows them to steadily drive our economy forward. However, this only works if sufficient capital is available for start-ups to implement innovations.



Fig. 8: Monetary support for implementation ⁷⁸

POLICY LEVEL When founding a startup, the first question is who will bear the costs for development, personnel and advertising, among other things. Founders who do not have relevant savings of their own depend on external sources of funding such as government subsidies, venture capital or business angels. The desire for financial support also extends beyond the startup phase: Among startups that already employ more than 50 people, one in two considers it necessary to scale the business in order to improve the situation for late-stage investments.⁷⁹

⁷⁸ Eigene Darstellung 4 <https://www.munich-airport.de/>

⁷⁹ <https://www.pwc.de/de/branchen-und-markte/start-up-monitor-dsm-2020.pdf>, S. 60



“In addition to active regional funds such as UVC, Vito and Earlybird, large international funds, such as Lakestart, are also attracted for follow-on rounds.

These are of considerable scale throughout Germany and visible internationally, too.”

Prof. Dr. Helmut Schönenberger, UnternehmerTUM

Of founders in the Bavarian capital, 44% manage without external capital, which is roughly in line with the national average. For those who raise external capital, 31% manage with an amount of less than €150,000, whereas every fourth startup relies on cash injections of more than €2 million.⁸⁰ Although more than half of the founders were able to raise external capital, their own savings still accounted for the largest share of financial sources at 81%, both in Munich and nationwide. However, one out of two founders would prefer the option of using external sources of financing. Other frequently used sources of financing for young companies include government subsidies at just under 40%, family and friends at just under 30% and financing from the cash flow of the startup at more than 20%. Munich stands out in a particularly positive way in a comparison at the national level with investments from business angels (33% compared with 23% nationwide) and incubators and accelerators (25% compared with 14% nationwide). What Munich founders would prefer, however, is primary financing from business angels, venture capital and government funding. In this area, there is currently a large discrepancy between desire and reality.⁸¹

Nevertheless, compared to the national average, Munich startups have a much easier time raising capital. Of these founders, 55% find access to investor companies and their network very easy or rather easy, while nationwide it is only one in three.⁸² This is not least due to the fact that the Bavarian state government supplements federal funding programs with its own. The Bavarian Program for Technology-Oriented Startups (Bay-tou) supports startups with up to 45% of the costs for their development project, while university graduates receive financial support for innovative product and service ideas through the Bavarian Ministry of Economic Affairs' *Flügge* Program. The ministry's *Start?Zuschuss!* startup competition gives young founders in the field of digitization another opportunity to obtain relatively large amounts of funding for their startup idea.⁸³ The Fraunhofer Gesellschaft has also launched Fraunhofer Venture, a platform that brings together investors with high-tech spin-offs with Fraunhofer involvement.⁸⁴ But it is not only institutional investors that make Munich more attractive than other cities as a capital location on a national average.

CORPORATE LEVEL Despite the COVID-19 pandemic and the associated economic consequences, Munich startups were able to attract €1.4 billion in venture capital investment in 2020. This amount builds on the previous year's record investment of nearly €1 billion.⁸⁵ Among the funders in Munich are large national venture capital firms such as Acton Capital, Holtzbrinck Ventures and Target Partners. More and more companies from neighboring countries are also opening branches in the Bavarian capital, including Speedinvest from Austria and Ventech from France.⁸⁶ With its network of universities, young founders, large- and medium-sized companies and its many years of experience and technological expertise, UnternehmerTUM offers UVC Partners, an early-stage venture capital company that invests in technology-based startups in the European region.⁸⁷ In order to make Munich an attractive location for a large startup community, however, further work needs to be done in the future to ensure that increasingly larger financing rounds are also held with investors so that entrepreneurs from the local ecosystem obtain the investment capital they need. Google has also expressed the opinion that, compared to Berlin, Munich still has some catching up to do.

⁸⁰ <https://www.pwc.de/de/branchen-und-markte/deutscher-startup-monitor-2019-hotspot-muenchen.pdf>, S. 14

⁸¹ <https://www.pwc.de/de/branchen-und-markte/deutscher-startup-monitor-2019-hotspot-muenchen.pdf>, S. 15

⁸² <https://www.pwc.de/de/branchen-und-markte/deutscher-startup-monitor-2019-hotspot-muenchen.pdf>, S. 16

⁸³ <https://www.munich-startup.de/service/finanzierung/>

⁸⁴ <https://www.fraunhoferventure.de/de/angebote/investoren.html>

⁸⁵ <https://www.munich-startup.de/ecosystem/insights/>

⁸⁶ <https://www.munich-startup.de/46498/muenchner-investoren-szene/>

⁸⁷ <https://www.unternehmertum.de/angebot/uvc-partners>

On a positive note, however, Munich boasts 37 single-family offices, the largest number in Germany by far.⁸⁸ In addition, the 160 business angels and 29 accelerators based in the Bavarian capital invest large sums in the Munich startup ecosystem.⁸⁹ The numerous investor networks such as BayStartUP, Munich Network or Alphazirkel also prove very helpful for founders. They bring together a wide variety of private and institutional investors with founders.⁹⁰ Founder competitions held by the startup centers or the annual Munich Business Plan Competition of BayStartUP, some of which offer high prize money,⁹¹ provide important support in obtaining financing for the early stages of startup companies. The Bavarian capital also boasts major investment companies for Munich's founders: Each year, Bayern Kapital invests €40 million with a focus on high-tech companies, while Bayerische Beteiligungsgesellschaft has invested in some 30% of local startups.⁹²

The aspect of social sustainability is also not neglected in Munich: Important funders of social entrepreneurship include the Guerrilla Foundation family office, but also, and most importantly, venture capital companies BonVenture and Ananda. The latter, also known as the "Impact Investment Fund," spent €50 million on investments in social impact companies in 2018 alone.⁹³

STARTUPS The planned IPO of the air taxi company Lilium is probably one of the most prominent current examples of innovation capital among Munich startups. Founded in 2015, the company will not be going public in Germany, but rather on the US technology exchange Nasdaq via an empty shell company called Spac (special purpose acquisition company). With increasingly fierce competition in the industry, the IPO and the resulting cash infusion of about US\$830 million is an important step for Lilium to launch commercial operations, the start of which has been announced for 2024.⁹⁴ Personio's latest round of funding adds another unicorn to the Munich startup scene: The HR platform provider, founded in 2014, most recently raised US\$125 million, bringing its market value to US\$1.7 billion. In addition to European VC company Index Ventures as the main investor, Munich-based VC company Picus Capital was also involved.⁹⁵ Another recent example of Munich companies participating in a Munich startup's funding round is IoT transport startup KONUX: The company recently raised €80 million, thanks in part to support from Munich VC companies DIVC and Sanno Capital.⁹⁶

CONCLUSION While current surveys indicate that a great deal can still be done to improve the support and financing conditions in Munich, as a science, business and technology location with many local investor companies and associations, the Bavarian capital offers an outstanding basis for the startup ecosystem in Germany. By international standards, Munich nevertheless lacks several billion USD in venture capital to further strengthen the city as a leading innovation location.

⁸⁸ <https://www.listenchampion.de/2019/06/13/ranking-staedte-mit-den-meisten-single-family-offices-in-deutschland/#:~:text=Platz%201%3A%20M%C3%BCnchen%20%E2%80%93%2037%20Single%20Family%20Offices&text=Die%20bayerische%20Landeshauptstadt%20geh%C3%B6rt%20zu,Private%20Equity%20Gesellschaften%20in%20Europa.>

⁸⁹ <https://www.munich-startup.de/ecosystem/insights/>

⁹⁰ <https://www.munich-startup.de/46498/muenchner-investoren-szene/>

⁹¹ <https://www.munich-startup.de/service/finanzierung/>

⁹² <https://www.munich-startup.de/46498/muenchner-investoren-szene/>

⁹³ <https://en.munich-startup.de/2018/11/22/a-talk-with-ananda-impact-ventures/>

⁹⁴ <https://www.aerokurier.de/elektroflug/lilium-boersengang-ueber-ein-spac/>

⁹⁵ <https://www.vc-magazin.de/blog/2021/01/19/personio-wird-zum-einhorn-folgt-bald-das-ipo/>

⁹⁶ <https://munich.dealroom.co/companies/konux>

TEASER Munich as a Cool City? The climate protection campaign of the same name to save energy is only one aspect of the city's efforts to make Munich climate-neutral by 2035.⁹⁷

POLICY LEVEL If Munich wants to remain one of the best regions in the world in terms of quality of life and attractiveness as a location, it must and, in fact, does strive to take on a pioneering role in the area of sustainability. The 17 United Nations Sustainable Development Goals (SDGs)⁹⁸ provide a uniform reference framework for recording the social and ecological consequences of economic and governmental action. Since this set of rules was ratified as part of the 2030 Agenda for Sustainable Development, it has also set the standard for competition between countries, regions or companies, as the strength of implementation clearly demonstrates both the adaptability and the future viability of the economic actor. Accordingly, the state capital of Munich signed on to the "2030 Agenda for Sustainable Development"⁹⁹ resolution of the German Association of Cities as early on as in the ratification year 2016.¹⁰⁰ The city declared a climate emergency in 2019 to give the issue top priority. With the involvement of civil society stakeholders and companies, Munich has adopted an ambitious action program for climate protection (IHKM), which largely follows the guidelines of the "Munich 2050 Climate Protection Target and Strategy"¹⁰¹ expert report. The key issues with the greatest leverage for a metropolis – energy efficiency, e-mobility and resource-conserving new construction, as well as the ecological refurbishment of existing public and private properties – are prioritized. To give the topic more weight and systematics, it will be coordinated in a newly created department for climate and environmental protection.¹⁰² The latter is also the central contact point for citizens, the press, companies and associations. Immediate results of these efforts include the goal of becoming a Zero Waste City,¹⁰³ the signing of the Supply Chain Act to ensure social-ecological standards in public procurement and the Munich Sustainability Initiative (MIN) alliance initiated by the civic foundation.¹⁰⁴

From the early Club of Rome or Intergovernmental Panel on Climate Change publications to the current agendas of the World Economic Forum and the G20 summits, the issue is defined as one of the greatest challenges of this generation. The associated changes in economic activity have long since become a question of international competitiveness in terms of economic efficiency, speed of change and innovative strength. This much is clear to most stakeholders: Munich must, and aspires to, play a major role when it comes to this topic.

⁹⁷ <https://coolcity.de/newsarchiv/bundeswettbewerb-klimaaktive-kommune-2020>

⁹⁸ Vgl. <https://unric.org/en/sdgs-in-your-language/>

⁹⁹ https://www.muenchen.de/rathaus/Stadtverwaltung/Referat-fuer-Gesundheit-und-Umwelt/Nachhaltige_Entwicklung/Nachhaltigkeit_Grundlagen.html

¹⁰⁰ https://www.muenchen.de/rathaus/Stadtverwaltung/Referat-fuer-Gesundheit-und-Umwelt/Klimaschutz_und_Energie/Klimaneutralitaet.html

¹⁰¹ https://www.muenchen.de/rathaus/dam/jcr:8fab7200-cc0b-4e9b-8a9a-319d459e1a57/fachgutachten_2050.pdf

¹⁰² <https://www.sueddeutsche.de/muenchen/muenchen-stadtverwaltung-referat-klimaschutz-umweltschutz-1.4983950>

¹⁰³ <https://ru.muenchen.de/2021/27/Resolution-Muenchen-Erstunterzeichnerin-fuer-starkes-Lieferkettengesetz-94505>

¹⁰⁴ <https://www.muenchen.de/rathaus/Stadtpolitik/M-nchner-Zukunftsdialog/M-nchen-soll-Zero-Waste-City-werden.html>



SUSTAINABLE DEVELOPMENT GOALS

17 GOALS TO TRANSFORM OUR WORLD



Fig. 9: UN Sustainable Development Goals ¹⁰⁵

CORPORATE LEVEL Sustainability, however, has long since become more than a mere city administration issue in Munich; it is also demanded by the population and businesses. This was demonstrated through the 2017 referendum on phasing out coal by the municipal utility company¹⁰⁶ and recently through the bicycle referendum.¹⁰⁷ It also became clear in terms of the strong weighting of sustainable issues across all factions in the last city council and mayoral elections.¹⁰⁸ It is therefore not surprising to see a whole cluster of companies that see the SDGs as a source of competitive advantage and sustainable growth settling in Munich. To reinforce this effect, the Bavarian Environmental Pact brings together small and medium-sized enterprises and equips them with tools and implementation support to improve their competitiveness.¹⁰⁹ Sustainable solutions are also emerging in Munich's established industries around large companies: For example, the automotive industry is working flat out on new, environmentally friendly drive systems and integrated local transport concepts for cities. As part of the Climate Pact, 15 major companies based in Munich have pledged to reduce carbon emissions by 20 kilotons through climate protection measures.¹¹⁰ The measures cover a broad spectrum, including energy supply and property maintenance, and extend to the creation of sustainable value chains in production. Things are also moving in the financial sector: Pimco, the asset management arm of Munich-based Allianz Insurance, for example, is developing sustainable investment strategies (ESG investment strategies) in order to be able to invest assets according to SDG criteria. It demonstrates the importance of the latter with studies that show how investors are unequivocally pursuing SDG goals and using performance data to invest in companies that report in a vigorous, transparent and relevant way.¹¹¹

To increase the speed of implementation and bypass their own slow structures, some large companies are looking to startups to combine technology and innovation. Microsoft and Volkswagen's "10 To Go" program

¹⁰⁵ United Nations: <https://unric.org/de/17ziele/>

¹⁰⁶ <https://www.muenchen.de/aktuell/2017-10/infos-zum-buergerentscheid-raus-aus-der-steinkohle.html>

¹⁰⁷ <https://www.radentscheidmuenchen.de>

¹⁰⁸ <https://www.muenchen.de/rathaus/Stadtpolitik/Wahlergebnisse/Kommunalwahl/Wahlfahrplan.html>

¹⁰⁹ https://www.umweltpakt.bayern.de/download/werkzeuge/nachhaltigkeitsmanagement/sdg/sdg_wegweiser_letfaden.pdf

¹¹⁰ <http://www.wirtschaft-muenchen.de/publikationen/pdfs/klimapakt-muenchner-wirtschaft-Broschuere-1.pdf>

¹¹¹ <https://europe.pimco.com/en-eu/insights/viewpoints/2018/12/corporate-reporting-on-the-un-sdgs-mapping-a-sustainable-future>

follow this formula in addressing concrete climate-related problems with data-driven solutions and scale them through startups.¹¹² Truck and bus manufacturer MAN has partnered with Yunus Social Business in a similar model. Together, they help social entrepreneurs bring their innovations from the areas of transportation, mobility, and logistics to market maturity and enable them to take off successfully in the world of business.¹¹³

“**Many everyday items that we use, as well as our lifestyle, have revealed themselves to be real climate killers in recent years. Many young entrepreneurs are therefore working on sustainable solutions. No longer just a buzzword in startup culture, climate protection is often the driving factor for establishing a startup in the first place.**”

Stephan Heller, Intel Ignite

START-UPS Sustainability is in vogue: According to the white paper “Sustainability in Startups” recently published in Munich, more than 80% of the nearly 300 startups surveyed said that they recognized a business case in the topic of sustainability, and 89% cited social impact as at least one reason for founding.¹¹⁴ In Munich, the basis for an impact ecosystem in the startup sector was laid more than ten years ago: BonVenture and Ananda, the two most important impact venture capital funds, are based in Munich, as is the financing agency for social entrepreneurs and its parent organization, the social entrepreneur network Ashoka. These organizations source young talent from the outstanding educational institutions of the metropolis. For their part, LMU and TUM, the two universities of excellence, offer numerous courses of study in social innovation and engineering with a sustainability focus, just as the application-oriented Munich University of Applied Sciences supports founders in fleshing out their entrepreneurial ideas. An important innovation in this field was the creation of a joint startup center for sustainable enterprises, the Social Entrepreneurship Academy, which trains and promotes social entrepreneurs.¹¹⁵ The internationally oriented Munich Global Impact Sprint project also promotes and anchors innovation and social change through responsible and impact-oriented entrepreneurship.

The extended network also includes the European Climate-KIC capacity-building program for green startups, which is based at the Technical University of Munich (TUM), and the Incubator of the UN World Food Program.

Well-known startups from Munich in the sustainability sector include FlixBus, which is revolutionizing long-distance passenger transport, the IoT startup Hawa Dawa, the smart heating thermostats from Tado, the deposit system for returnable cups from Recup, the ecological-social energy service provider Polarstern, SocialBee, the social temporary employment agency for refugees, and Joblinge, which is developing solutions to combat youth unemployment.

CONCLUSION We are witnessing a high level of awareness of the SDGs across all stakeholders in Munich, and they can find a direct point of contact in the city with the Climate Unit. The topic is supported by all key political stakeholders in City Hall and in the Bavarian State Government. Many citizens are getting involved, and business leaders are guided by sustainability principles. The goals of the Paris Climate Agreement, however, and the 1.5-degree target for 2050 above all, require far more ambitious measures. “Climate is about multiplying things by zero,” Bill Gates emphasized drastically in a recent interview.¹¹⁶ By this he means that entire sectors such as transportation, cement and steel production must become completely climate neutral. Reducing existing emissions cannot be the solution. That’s why Professor Sailer of the Strascheg Center states this demand: “Munich should be the most holistic innovation location in Europe, where all stakeholders collaborate on future solutions.” This is the only way to activate the necessary transformative processes to address the climate issue.

¹¹² <https://www.10togo.eu>

¹¹³ <http://impact.man.eu>

¹¹⁴ https://www.akzente.de/wp-content/uploads/2020/04/Whitepaper_Sustainability-in-Startups_RZ.pdf

¹¹⁵ www.seakademie.de

¹¹⁶ <https://www.politico.com/news/2021/02/15/bill-gates-climate-change-468928>

RECOMMENDATION FOR ACTION

A pattern has emerged from the interviews conducted for this white paper as well as from the evaluation of numerous studies and articles on Munich's location quality. According to this pattern, the above-average values in many areas have prevented Munich from developing a specific profile as an innovation location. Munich thus scores well to very well in terms of location factors – but what does Munich stand for? The city is often perceived as a tech hub, while Berlin stands for creativity and hipness, London is known as a financial and banking center and Beijing as an ideal place for growth capital. However, in order to be perceived as a leading innovation location internationally, a holistic view is needed – an economic, ecological and social one. The state capital lacks a catchy profile with which to be associated in the entrepreneurship and innovation landscape at home and abroad. It will take a holistic mindset for Munich to contribute to the common good of all and stand out in the international race for talent, startups and technologies. If Munich wants to play at the top of international rankings, it must actively work on a location strategy. So how will Munich become one of the most exciting and attractive places for innovation and startups, even by international standards?

The basic fact that Munich has the potential to be commercially successful and is a city offering a high quality of life is not in question. However, there is still work to be done on the framework conditions that will make this location internationally competitive. Overall, five thematic fields of action can be derived from the above theses.

1. CREATING A BETTER CULTURE OF INNOVATION

Munich is not lacking resources, clear goals or supporters, but rather people who take advantage of existing opportunities or create new ones. The key lever here is more willingness to take risks. This topic is a perennial issue in the entrepreneurship community and has a lot to do with the so-called “German angst.” Hesitancy, emphasizing problems and downplaying opportunities may be helpful around some issues, but certainly not when it comes to innovation. This is evident in many areas: Real estate is still considered a better investment than a good idea. No matter what proposal is on the table – the energy system transformation, inner-city densification, bicycle ring road, Transrapid trains, the Olympics, a new concert hall, online meetings of the district council committee – it is typically rejected as not feasible instead of being discussed in terms of its potential positive effects. When potential positive effects are considered, the risks can then be weighed up in a clear and transparent process. Urban and civil society are slowly finding ways to dare increased citizen participation, district issues are being addressed in the Social Lab,¹¹⁷ students are developing images of the future¹¹⁸ or working on the circular city of the future¹¹⁹ in hackathons, and the city is networking internationally with “smart cities.”¹²⁰ Even so, this attitude remains a burden in the international competition for the best ideas and brightest minds. A closer look at places in Munich where innovation and startup culture are actively promoted and communicated, however, reveals a differentiated picture. The large entrepreneurship centers of TU Munich and the Munich University of Applied Sciences are achieving the highest spin-off rates, which also attests to

¹¹⁷ <https://www.hanssauerstiftung.de/social-lab-zukuenfte-diskutieren/>

¹¹⁸ https://www.hm.edu/allgemein/aktuelles/news/newsdetail_116544.de.html

¹¹⁹ <https://seakademie.org/en/hackathon/>

¹²⁰ <https://www.smarter-together.eu/cities/munich#/>

a top level in an international comparison.¹²¹ In addition to the highly specialized vertical clusters, i.e., clusters that address all stages of the value chain in a given field – from the insurance industry to biotechnology – approaches have been found for overcoming these paralyzing effects. How could this succeed? “For me, the lever is high-reach education, which we deliver at TUM – with over 30% of students using the entrepreneurship offerings. As I see it, all educational institutions should deliver this penetration rate,” says Prof. Dr. Helmut Schönenberger from UnternehmerTUM. This statement is also confirmed by the latest studies from the biotechnology market, where this topic is discussed under the title Ecosystem Translation.¹²² Boston, the Greater London area and Basel are world leaders in this field because they cooperate closely with large companies – all the way from training young scientists to university research and from financing to commercialization. This is both desired and encouraged by the sphere of politics. It is a path that Munich has also pursued for some time now, and especially in the biotech sector, an overproportionately large number of startups are currently being created.

Another indicator of a location’s propensity to take risks is its access to venture capital. Germany is not considered a venture capital country,¹²³ and there has been much lament around this situation: It’s precisely this kind of funding, which is necessary for growth and the establishment of consistent business structures, that is lacking. According to Jenny Boldt of the Bitcom industry association, this has recently led around a quarter of the larger startups to considering relocating their headquarters because of the lack of available growth capital.¹²⁴ The latest figures confirm that the relative amount is growing rapidly, but almost all eight- or nine-figure financing rounds in the startup sector have been significantly supported by foreign venture capitalists. The funds available in Munich are – in absolute terms – only a fraction of the amounts coming from the US or China.¹²⁵ In other words, while Munich has built up an excellent and well-connected infrastructure for idea generation, incubation and acceleration across public and private initiatives, the location additionally needs a potent venture capital supply on par with the Parisian model. The “Bavarian Growth Fund” of €100 million launched by the Bavarian Ministry of Economic Affairs is a good start. It provides incentives for private venture capital providers by making these funds available as co-investments, with the aim of generating up to €250 million for Bavaria.¹²⁶ There is also good news coming out of Berlin: The long-awaited Future Fund with a volume of €10 billion has finally been set up.¹²⁷ In particular, the KfW Growth Fund and DeepTech Future Fund, both of which are fed by this fund, promise to remedy the high financing rounds. Some market data has also garnered attention: According to a first-time survey by Capitol Momentum, some €310 million were invested in the aerospace sector (dubbed “NewSpace”) in Germany in 2020, a good third of which is based in Munich. In 2021, the IPO of Lilium alone, valued at €3 billion, heralded a new dimension in venture financing.¹²⁸

A new standard of startup recruitment and support can currently be observed in Southeast Asia. As Kirstin Eckert from German Entrepreneurship Asia reports, governments in Korea, Singapore and Taiwan are launching completely new startup infrastructures. These contain comprehensive solutions for all challenges faced by young companies – “Startup Infrastructure as a Service,” so to speak – similar to relocation services for top executives or politicians. They include solutions for scouting and linking talent, access to space or labs, generous and readily available access to capital, and particularly effective systematic networking with lead customers in the local industry. Munich can take its cue from these role models to get to the front of the pack.

¹²¹ <https://www.gruendungsradar.de>

¹²² https://assets.ey.com/content/dam/ey-sites/ey-com/de_de/news/2020/04/ey-deutscher-biotechnologie-report-2020.pdf

¹²³ <https://bankenverband.de/blog/venture-capital-deutschland-noch-viel-luft-nach-oben/> oder <https://www.rolandberger.com/de/Media/Treibstoff-Venture-Capital-Wie-Deutschland-Innovation-und-Wachstum.html>

¹²⁴ Boldt, Jenny. Die Start-up-Szene braucht neuen Optimismus. Venture Capital Magazin Start-up Special 2020: https://www.vc-magazin.de/wp-content/uploads/_EPAPER_/2019_Special_StartUps/index.html#2

¹²⁵ <https://www.munich-startup.de/ecosystem/insights/>

¹²⁶ <https://www.stmwi.bayern.de/service/foerderprogramme/wachstumsfonds-bayern/>

¹²⁷ <https://www.businessinsider.de/gruenderszene/business/zukunftsfonds-zeitplan-update/>

¹²⁸ <https://www.businessinsider.de/gruenderszene/automotive-mobility/lilium-spac-boersengang-qell-acquisition/>

2. CREATING AFFORDABLE LIVING, WORKING AND CREATIVE SPACE

Cost of living slows innovation and talent influx, especially outside the ICT sector. Munich is, and will remain, one of the most sought-after locations in the world – both in terms of living and working. The demand pressure for real estate, however, will also remain. Werk1 offers a best-practice example of affordable office space. Here, talent and creative minds can interact in the startup scene, and startups are given the opportunity to grow. It's no wonder that such diverse incubators such as Werk1, the Munich Urban Colab and the Campus of Ideas on the Neue Balan Campus are popular with startups.

Unfortunately, however, the demand is far greater than the supply, which explains why clusters are already forming outside the city.

It is also becoming increasingly difficult for companies to attract talent to Munich. The housing issue seems to be a constantly growing challenge for the city. To counteract this, more building permits are certainly needed along with structural redensification and more approvals for high-rise buildings outside the Mittlerer Ring to meet demand in the short, medium and long term.

In its 2017 population forecast, the Munich Demographics Report by the Department of Building Regulations assumed growth rates of between 10 and nearly 30 percent through 2040.¹²⁹ This makes Munich a so-called swarm city: The large universities, coupled with the excellent range of employment opportunities and high quality of life, lead to an increase in in-migration and number of companies settling here. Striking the right balance between social and economic concerns on the one hand and existing as well as new urban structures in the areas of housing, district development and commercial space on the other, remains one of the great challenges for the politics of this city.

3. IMPROVING LOCATIONAL MARKETING AND DEVELOPING A COMPREHENSIVE LOCATION STRATEGY

This white paper has shown that overall, Munich scores very well for both soft and hard location factors for startups, and as an innovation location. The social and political reality of the city contribute greatly to Munich's national and international reputation, but unlike many European or, even more so, Southeast Asian metropolises, there is still a great deal of potential for systematically attracting talent, capital and startups.

With MUST – The Munich Innovation Ecosystem, Munich already possesses a strong partner for strategically developing location marketing and ecosystem building. Paris has a lobby organization provided by the French government, La French Tech, which is of course based in the world's largest incubator, Station F, in Paris.¹³⁰ Flanking this, Business France constantly organizes roadshows and trade fair appearances and creates publications and online campaigns to market France and Paris.

That Munich cannot simply leave this topic alone becomes clear when you take an outside perspective. Kirstin Eckert, who runs startup programs and scouting in Singapore for the BMWi-funded German Accelerator, says: "Foreign startups, especially from the fintech or AI sector, think of Berlin when looking for investors in Germany and don't even know about the opportunities that exist in Bavaria." In this respect, better and more target-

¹²⁹ <https://www.muenchen-transparent.de/dokumente/5435790/datei>

¹³⁰ <https://www.startup-energy-transition.com/the-french-start-up-ecosystem-at-a-glance/> oder <https://startupgenome.com/ecosystems/paris>

ed marketing activities are urgently needed. The goal here should be to present the characteristics identified in these seven theses in a striking manner and to exploit them as a unique selling proposition for Munich. The proverbial complacency of the people of Munich and their “Mia san Mia” (“we are who we are”) attitude simply will not do on the international stage. Making the right efforts will truly be worthwhile since “for startups from the US or Asia, the question also arises,” continues Eckert, “about the extent to which can Munich be where they get a foot in the door to Europe, thereby opening up the entire continent. Munich can be a strategic location in the middle of the DACH region. That’s very attractive, and many of the big technology companies have already demonstrated that and can serve as role models.”

” **“Munich already possesses an incredible amount of substance for a successful startup and innovation ecosystem – yet there’s still a long way to go when it comes to marketing this ecosystem. This is, however, a task that can be achieved.”**

Matthias Notz, German Entrepreneurship

For location marketing and ecosystem building, the prerequisites are in place with MUST, and with the Department of Economics and Labor, a suitable anchoring in the administration would be possible and sensible. However, before Munich can compete with Startup Amsterdam, La French Tech and other ecosystem drivers, far more financial and human resources must be developed. Munich is selling itself short and needs to decide promptly how it plans to stand out more in the international scene. There are plenty of opportunities to participate in events, launch online campaigns, produce image videos and implement other marketing activities. In close collaboration with organizations such as Invest In Bavaria, Gründerland Bayern as well as nationally with Germany Trade and Invest (GTAI), effective marketing of Munich as an innovation location can succeed. This would also have a positive impact on the region as a whole, as the Startup Genome project has shown. The relative added value of each individual startup increases overproportionately with the size of the ecosystem. Thanks to the network effects through which stakeholders in the ecosystem cross-fertilize each other, the marginal utility of each additional actor increases.¹³¹

4. JOINT VALUE CREATION IN THE NETWORK VIA PLATFORM SOLUTIONS

With its unique stakeholder mix of industrial companies, SMEs, research institutions and universities, Munich possesses a high level of networking. The MUST – The Munich Innovation Ecosystem initiative is already bringing relevant stakeholders together to promote exchange in, by and for Munich and thereby making the Munich innovation ecosystem more visible. There is a desire for more joint action and strategic alignment. Universities and colleges, as well as initiatives such as MUST – The Munich Innovation Ecosystem, have a responsibility to live out the vision of a cross-industry network. “Munich has all the relevant stakeholders to be an innovative ecosystem,” says Klaus Sailer of the Strascheg Center for Entrepreneurship. “However, this also requires a change of mindset on the part of stakeholders, and Munich is still very much in the early stages here.”

There is also a desire for easier establishment and access to networks and potential partners. “Munich has huge potential in terms of attractive companies of all sizes. However, both founders and business people seeking collaborations need transparency and support to find each other more easily. This would significantly increase the innovative power of Munich as a business location,” explain Maria and Dominik Sievert of inveox.

The solution for easier access can also take the form of a virtual platform for establishing not only more collaboration, but also coordination. As part of the MUST – The Munich Innovation Ecosystem initiative, MUC SUMMIT GmbH built such a platform, with was launched in 2021. This is a big step forward when it comes to

¹³¹ The Global Startup Ecosystem Report 2020, Startup Genome, S. 50

networking within the Munich innovation ecosystem. There is also a desire for stronger international networking. “The topic of networking needs to be considered even more in European terms,” says Moritz Müller of Lab Campus.

International stakeholders would also benefit from stronger international networking. “For startups, the key criterion for evaluating a location from afar is the number of potential customer contacts, especially in the B2B sector,” says Kristin Eckert of German Accelerator Singapore.

Munich’s innovation ecosystem is already well connected, but to take things to the next level, the network needs to be more accessible so as to include valuable stakeholders from outside Munich, and to open up enough to enable innovation among existing stakeholders. International collaborations and exchange formats or platforms would thus strengthen not only networking but also the international visibility of Munich as a location for innovation.

5. OPENING UP AND TARGETED INCREASE IN DIVERSITY

It’s a well-known fact from the field of work psychology that diverse teams are more successful and better positioned to deal with change.¹³² What’s more, diversity promotes innovation, creativity and empathy in social structures.¹³³ That’s why the Munich ecosystem must continue to invest in its diversity. This includes some obvious options such as facilitating skilled immigration, which professional chambers and the industrial sector have long been calling for.¹³⁴ The issue has been recognized and addressed in the state capital, as evidenced by the intercultural integration report.¹³⁵ Yet, many employers and skilled workers willing to immigrate still speak of disconcerting experiences when dealing with the authorities.¹³⁶ To attract the international skilled personnel needed by almost all sectors of Munich’s economy, a service-oriented administration is needed. In close networking with foreign professional chambers, professional associations and other interest groups, they need to offer qualified “onboarding” covering all aspects of life, from residence permits and aspects of employment and insurance law to accommodation and family issues. This is an investment that pays off, as qualified immigrants contribute overproportionately to the culture of innovation.¹³⁷

The situation is similar when it comes to the value creation potential of women – employment rates and, in particular, startup rates for women are still significantly lower than those for men.¹³⁸ This is detrimental not only for reasons of equality or personal career development, but also in macroeconomic terms. Munich will need 600,000 female and male university graduates by 2030,¹³⁹ and without women, who are generally better educated, there will be a huge gap. Special support programs for female founders¹⁴⁰ as well as networking and information resources¹⁴¹ can only be the beginning of systematic support for women. The Principles for Empowering Women in Business were issued by the UN back in 2010,¹⁴² and the topic will also occupy the City of Munich for a long time to come.

¹³² <https://hbr.org/2016/11/why-diverse-teams-are-smarter>

¹³³ <https://www.weforum.org/agenda/2019/04/business-case-for-diversity-in-the-workplace/>

¹³⁴ https://www.ihk-muenchen.de/ihk/documents/Fachkräfte/IHK-Impulse_Studie-qualifizierte-Zuwanderung-2018.pdf

¹³⁵ https://www.muenchen.info/soz/pub/pdf/602_Integrationsbericht_2017.pdf

¹³⁶ <https://www.sueddeutsche.de/muenchen/kreisverwaltungsreferat-gnadenloses-buerokratieversagen-in-der-auslaenderbehoerde-1.5205545>

¹³⁷ https://www.hamiltonproject.org/charts/high_skilled_immigration_increases_innovation

¹³⁸ <https://www.munich-startup.de/47410/female-founders-monitor-2019/>

¹³⁹ <https://docplayer.org/50138218-Empirica-erwerbstaetigenprognose-fuer-die-landeshauptstadt-muenchen-und-die-planungsregion-14-kurzfassung-auftraggeber.html>

¹⁴⁰ <https://www.muenchen.de/rathaus/Stadtverwaltung/Referat-fuer-Arbeit-und-Wirtschaft/Arbeitsmarktpolitik/Gleichstellung/GUIDE.html>

¹⁴¹ <https://www.sce.de/fivepodcast.html>

¹⁴² https://www.globalcompact.de/wAssets/docs/Menschenrechte/Publikationen/grundsaeetze_zur_staerkung_der_frauen_im_unternehmen.pdf

CONCLUSION AND OUTLOOK

This white paper provides insights into the Munich Metropolitan Region and formulates five recommendations for action to further strengthen the Munich Innovation Ecosystem. It does not claim, however, that these five fields of action are the only potentials. Further research, statistical surveys and discussions need to be carried out in this field.

This paper is based on scientific articles, expert interviews as well as daily events from 2021 that were recorded by the authors. In a first approach, it describes the effects and potentials of innovation and entrepreneurship on the economic, ecological and social system of the location. The finite nature of the Earth's natural resources and a growing awareness of the SDGs mean that high hopes rest on startups to find and entrepreneurially implement innovative solutions to solving the problems of the future.

The dynamic developments in Munich's innovation scene are also evident in the fact that the national press reported on it several times in 2021, attracting nationwide attention. Munich also has great potential internationally, both in marketing its location and through its attractiveness for companies, startups and talent. The collaboration of these players and their interaction with the local universities can continue to improve the Munich Innovation Ecosystem every year, if the framework conditions continue to be worked on as part of a public-private partnership.

Overall, Munich is on the upswing: The settlement of global tech corporations, the growth of young startups into medium-sized companies, and above all the founding of new startups from the university sector are revitalizing the city and creating new jobs. Munich is thus a growing hotspot for innovation and entrepreneurship.

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