

Cross-industry innovation: Mobility & Aerospace



Diverse business opportunities

- Bavaria has been a leading international location for key mobility sectors for many decades. For example:
 - Automotive: With famous brands such as Audi and BMW as well as leading OEMs such as Brose, DräxImaier Group or Webasto, automotive accounts for approximately 30% of revenues in the manufacturing sector.
 - Aerospace: Over €11 billion in revenues are generated annually in the manufacturing aerospace sector by around 450 companies. As such, Bavaria is one of the few regions worldwide where companies serve the whole aerospace value chain.
 - > <u>Railway Technology</u>: The German rail industry generates annual revenues of approx. €12 billion and holds a significant share of the world market. Some of the most essential companies are located in Bavaria.
 - Logistics: Bavaria is centrally located between Western and Eastern Europe, its road network of 138.000 kilometers links many important logistic hubs – via water, road, rail and air alike. It is therefore an important location for logistics innovation.
- Its diverse mobility landscape is also the key driver for cross-industry innovation in Bavaria. In fact, the state has become Europe's leading testbed for future mobility solutions, with many high profile projects such as <u>Hydrogen Centre.Bavaria</u> in Nuremberg, Ingolstadt's <u>Urban Air</u> <u>Mobility Initiative</u> and the <u>Digital Motorway Testbed</u>, attracting attention far beyond its borders. Disruptive start-ups such as <u>Lilium</u> and <u>TUM</u>. <u>Hyperloop</u> are settling here as a result, likewise collaborative initiatives such as <u>IONITY</u>, the first pan-European high power charging grid, a joint venture of Audi, BMW, Porsche, Ford, Volkswagen and Daimler.

Access to talent

- Bavaria has 30 world-class universities and universities of applied sciences with a total approximately 400,000 students – many of whom are enrolled in specialties relevant to the mobility sector.
- A number of academic programmes specifically build the skills required for shaping the future of mobility. For example:
 - University of Applied Sciences in Landshut: bachelor's degree in <u>Automotive Computer Science</u>.
 - <u>TUM Campus Straubing</u> for biotechnology and sustainability: special focus on clean tech, conducting specific research in the area of synthetic fuels, for example.
 - Department of <u>Aerospace and Geodesy</u> at the Technical University of Munich: founded in 2018 with the vision of becoming the core of a "space valley" in the metropolitan region of Munich.
- In addition, a well-established system of in-company education via vocational training and dual studies has evolved over the past several years with a focus on areas such as digitalisation or clean technology.

Effective networks

- Since 2006 the state-funded Cluster-Offensive Bayern promotes the formation of industry networks that drive cross-functional and cross-industry innovation. Three renowned clusters in <u>automotive</u>, <u>aerospace</u> and <u>railway</u> today serve as high performance networ-king and innovation platforms with international connections. The Cluster <u>MAI Carbon of Composites United</u> pursues the goal of implementing lightweight construction technologies on an industrial scale not just for the mobility sector. E-Mobility Cluster Regensburg focuses on technology for e-mobility including infrastructure. The <u>Cluster Mobility & Logistics</u> and the Logistics Initiative Bavaria are key innovation platforms for the logistics sector.
- In addition, new platforms have been formed that harness the power of digital technology. For example, the <u>Digital Hub Mobility</u> is part of a nationwide hub initiative. It focuses on networking and pooling projects around big data, eMobility and autonomous driving. The focus of <u>MCube</u> and <u>EIT Urban Mobility</u> is on developing sustainable solutions for mobility in metropolitan regions.
- In the same spirit, larger corporations have founded start-up programmes to cross-innovate with young founders and digital entrepreneurs. Among them are, for example, the <u>BMW Startup Garage</u>, <u>co-pace</u> by Continental, <u>UNLIMITED X</u> by Rehau, the <u>Volkswagen</u> <u>Data Lab</u> or <u>MAN Impact Accelerator</u>.
- Two start-up centres are specifically focused on the aerospace industry: <u>ESA BIC Bavaria</u> is a business incubator for space technology while <u>brigkAIR</u> specializes in three-dimensional mobility and unmanned aerial vehicles.

Glocal perspectives

- From 2021 onwards, Munich will be hosting the <u>IAA Mobility trade</u> <u>show</u>, welcoming fair attendees from all over the world. IAA Mobility is one of the world's most important trade shows in this sector with exhibitors from 39 countries (2019). Its relocation to Munich reflects not just the city's international clout as a location for the future of mobility but also its overall global perspective.
- Not only the big players such as Audi, Siemens, BMW, Airbus or MAN – but also Bavaria's hidden champions innovate cross-border. For example, <u>Goldhofer</u>, based in Memmingen since 1705, is a world leader in vehicles for heavy-duty transport and special cargo haulage and exports more than 80% of its production.
- Innovative mobility companies are drawn to the region: for example, <u>lyft</u>, an on demand transportation company based in San Francisco, recently opened its first European office in Munich. <u>NIO</u>, a Chinese electric car start-up based its global design office here.