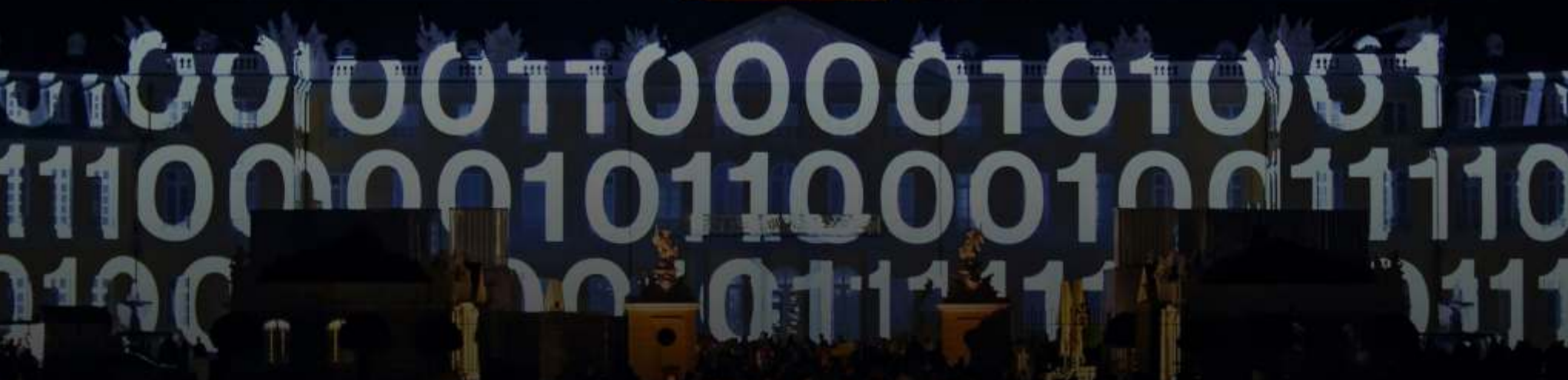


Driving force of digitalization

karlsruhe.digital



DIGITAL LOCATION KARLSRUHE



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Foreword

Karlsruhe is considered, by national standards, an IT stronghold and its flourishing digital industry is a key driver of the city's overall economic development.

The young city can look back on a long tradition: with the founding of Germany's first computer science faculty at the present Karlsruhe Institute of Technology (KIT) almost 50 years ago, numerous IT companies settled here and made the fan-shaped city attractive for innovative minds from all over Germany from an early stage. Graduates of the Karlsruhe universities founded start-ups within the IT industry, many of which developed into industry leaders and internationally successful companies. Additionally, with the CyberForum, a unique high-tech entrepreneur network was formed in the late 1990s – an important step on Karlsruhe's path to becoming an internationally renowned IT cluster.

Today, Karlsruhe's excellence manifests itself in key future themes, such as artificial intelligence, IT security, smart cities, energy and mobility. All of these areas are driven by digitalization and must be actively shaped in order to not only keep pace with international competition, but to set the pace.

This is made possible in the Karlsruhe region by the close cooperation of business, science, politics and culture.

Established networks that mediate contacts between small and medium-sized companies and strengthen the positioning of the location play an important role here. After all, innovative strength is determined by functioning ecosystems: the initiative karlsruhe.digital brings together more than 150 players from business, science, culture and public administration with the aim of positioning Karlsruhe as the driver of digitalization. The initiative symbolizes the Karlsruhe principle: short distances, unbureaucratic support and rapid networking. This principle enables the region to fully utilize the potential of digitalization and to link it with other fields of expertise as an interdisciplinary topic.

The following pages provide an insight into the structure and networking of Karlsruhe as a digital hub. You will find facts and figures, exciting projects, key players, unique initiatives and visionary research projects.

We look forward to further expanding this unique IT cluster in the coming years!



Martin Hubschneider

Executive Board
CyberForum e.V.

Gabriele Luczak-Schwarz

First mayor

Professor Dr. Thomas Hirth

Karlsruhe Institute
of Technology



KARLSRUHE AS DIGITAL PIONEER

Thriving Digital Industry

While many cities have only discovered digitalization in recent years, Karlsruhe was an early pioneer in this area: the term „informatics“ was coined here as early as 1957; and in 1972 the University of Karlsruhe (TH) founded the country’s **first Faculty of Computer Science**, where Germany’s first email was received twelve years later.

From that point on, digitalization took on a central role within the Karlsruhe region, which is now one of the world’s leading centres of innovation. With over **4,800 companies** and more than **30,000 employees**, the **digital industry** is one of the strongest economic factors in the region – and generates over **45 percent of the city of Karlsruhe’s business tax revenue**. Regardless of whether you are a mobility start-up, a medium-sized cyber security provider or a listed communications group – Karlsruhe offers ideal conditions for companies of all sizes. In recent years, the region has in particular made a name for itself internationally, in the **field of artificial intelligence (AI)** – as one of the few places where not only basic research and development takes place, but where new technologies are also used in everyday life.

Karlsruhe is a place of opportunities. The networking of business, science, culture and public administration, which has grown over

the years – and is unique in Germany – has made a decisive contribution to this. This model of the initiative karlsruhe.digital, known as the **“Karlsruhe principle of short distances”**, guarantees a regular exchange between all those who are jointly pursuing the same goal: to further develop Karlsruhe as the **driving force of digitalization**.

For many years, Karlsruhe has been bringing together stakeholders, institutions and facilities that are active across industries in the areas of start-up advice and support. The renowned universities and non-university research institutions that are based in the region give rise to young talents who either found start-ups or bring their know-how to local companies. Strong regional networks connect trainees and students with experienced managers.

Against this background, a number of leading European providers of software solutions, data centers and IT services have emerged in Karlsruhe over the past few decades. Many of the start-ups founded in the local IT ecosystem are now among the **big players** in their respective industries.

Excellence in Education and Research

Even in the age of digitalization, pioneering innovations do not arise overnight, but are the product of an **outstanding university and research landscape**. And therefore, the former University of Karlsruhe (TH), where the first Faculty of Computer Science was founded, together with the Karlsruhe Research Center, has become one of the world's most renowned research universities: **the Karlsruhe Institute of Technology (KIT)**, where over half of the students in Karlsruhe are enrolled. As one of eleven **"Universities of Excellence"** in Germany, it offers young talents access to courses in the fields of Computer Science, Mechanical Engineering, Electrical Engineering and Industrial Engineering. The **HKA - Karlsruhe University of Applied Sciences** also regularly occupies top positions in the university rankings of ZEIT and WirtschaftsWoche.

Overall, the region is home to more than **25 leading universities and non-university research institutions**, including the FZI Research Center for Information Technology, several Fraunhofer institutes, the Baden-Württemberg Cooperative State University and the Karlshochschule International University. As a result, Karlsruhe has earned a high reputation as a city of science on a national and international level, which attracts thousands of

students (around 15 percent of the city's population) year after year. The prominent role of Computer Science and Digitalization repeatedly plays its part.

For this reason, in 2020 the KIT became the National Centre for High-performance Computing. In 2021, **HoreKA, one of the 15 fastest supercomputers in Europe**, went into operation in Karlsruhe. In addition, future-oriented courses and research projects – such as the **Test Area for Autonomous Driving Baden-Württemberg** – are shaping digital change. In this living lab, new mobility concepts for public and private transport are tested. The Karlsruher Research Factory for AI-integrated Production is meanwhile – like the **Smart Production Park** – working on practical research into the global challenge of intelligent production.

Students can acquire the necessary know-how, among others, in the „Data Science“ courses at the HKA - Karlsruhe University of Applied Sciences or „Mobility and Infrastructure“ at KIT. And even classical disciplines such as Musicology cannot escape IT in Karlsruhe: the University of Music has had a computer studio since 1994 and teaches Music Informatics.



University facts



26

Universities and research institutions



40.000

Students



1972

Founding of the Faculty of Computer Science



Multifunction app for citizens

It bundles municipal citizen services and offers from commercial providers, for example in the field of mobility, in a single app.

Smart Cities

Regardless of whether it is in the field of mobility, public administration, infrastructure or energy – as a digital, networked city, Karlsruhe is always at the forefront. In 2020, Karlsruhe took **first place** in Germany in the „Digital Administration“ category of the **Bitkom Smart City Index** and proved itself to be the city with Europe’s smartest cultural tourism in the „Cultural Heritage and Creativity“ category of the „Capital of Smart Tourism 2020“ competition. Furthermore, Karlsruhe was the only city in Germany to be selected by the World Economic Forum as a **Pioneer City of the G20 Global Smart Cities Alliance**. The core idea of this alliance is to reconcile sustainability and growth in the world’s major cities through smart solutions.

And that is exactly what Karlsruhe does. To this end, the city is pursuing a number of holistic development concepts in order to make the region more efficient, more technologically advanced and greener. It starts with topics such as smart traffic control and parking space organization. In addition, Karlsruhe’s citizens have

access to the services of the city administration at the self-service terminals of the digital citizens’ office – easily, quickly and with the highest level of data security. And those who visit the fan-shaped city can use the digital tourist information to virtually explore cultural attraction and excursion destinations.

Fast, public internet access isn’t an issue in large parts of the city because the public Wi-Fi **KA-WLAN** can be used free of charge, unlimited and encrypted after a one-time registration. In addition, Karlsruhe is constantly expanding the broadband and fiber optic network in the region in order to meet the rapidly increasing demand for data bandwidth.

Another milestone on the way to becoming a Smart City is the **multifunctional app for citizens**. It combines municipal citizen services and services from commercial providers – for example from the mobility sector – in a single, customizable application.

UNESCO City of Media Arts

As a booming IT location, Karlsruhe naturally has a flourishing **cultural and creative economy**. After all, it is culture and creativity that shape global challenges such as digitalization and enable innovations.

In 2019, Karlsruhe was the first and only German city to be named **“UNESCO City of Media Arts”** and regularly promotes innovative, cooperative and interdisciplinary media art projects in the international city network “Creative Cities”. The decisive factor here: the cultural and creative industries do not act separately from other areas, but work hand in hand with institutions from science, public administration and business – in order to make the city as a whole a more attractive living space, characterized by cultural diversity.

As early as 1984, the Department of Cultural Affairs of the City of Karlsruhe had the idea of founding an institution that would combine artistic concepts with future-oriented technologies. A few years later a unique cultural institution emerged from this: the

ZKM | Center for Art and Media Karlsruhe. In the current ranking of the world’s largest art database „ArtFacts.net”, the ZKM comes fourth – after the Museum of Modern Art (MoMa) in New York, the Biennale di Venezia and the Center Pompidou in Paris.

The **Karlsruhe Light Festival Schlosslichtspiele**, which has been taking place since 2015, is among the most impressive projects that the ZKM has produced in the field of media art. Year after year, hundreds of thousands of visitors from all over the world marvel at the imposing projections on the facade of the castle, which marks the center of the radial floor plan of the fan-shaped city.

While the Schlosslichtspiele use state-of-the-art video mapping, Karlsruhe’s museums are also working on multimedia concepts. The Staatliche Kunsthalle makes use of the capabilities of digital technologies for the **„Museum 2.0”**. The Badisches Landesmuseum makes closed-off areas accessible to visitors with virtual 360-degree tours.



KARLSRUHE AS A TEAM PLAYER



Achieving more together

Global issues such as IT, energy and mobility dominate the economic and scientific landscape of Karlsruhe. The region owes its position as one of the world's leading innovation hubs not only to the strong digital industry and excellent research facilities, but also to a structural peculiarity: the „**Karlsruhe principle of short distances**“.

Business, science, public administration and culture have committed themselves to the overriding goal of pooling their interests in the field of digitalization and continuing to position the region as the **driving force of digitalization**. To achieve this, the institutions work hand in hand – and each area contributes its know-how to a wide variety of projects. As a result, new ideas and innovative

concepts can be implemented quickly, which would not be possible without this close interlinking.

The „Karlsruhe principle of short distances“ doesn't only have an institutional component, but also a spatial one. Companies, universities, non-university research institutions, start-up centers, creative spaces, cultural institutions and the town hall are all within a few hundred meters radius. Thanks to **connected mobility solutions** and the multi-award-winning bicycle infrastructure, all central facilities in the fan-shaped city are easily reachable. This facilitates personal exchange and cross-institutional, unbureaucratic cooperation.

Initiative karlsruhe.digital

In order to achieve more together and actively shape digitalization, you need a strong overarching brand as well as a shared conviction. In Karlsruhe, therefore, the course for the future was set at an early stage with the Initiative karlsruhe.digital.

The initiative brings together stakeholders from **science, business, culture and public administration**. It pools expert knowledge in order to take advantage of the opportunities associated with digital change, to master challenges as a team and to actively shape the future of the region.

karlsruhe.digital comprises **150 experts** from over 50 institutions who work together under the umbrella of the initiative. At the top is the **steering committee comprising three chairmen** from business, science and public administration. Ideas for future pro-


jects are discussed in this committee. The agency is responsible for operational activities and is supported jointly by the Scientific Office of the City of Karlsruhe and the CyberForum. In the **eleven working groups**, the digital aspects and success criteria of areas such as public administration, science, education and culture, but also topics such as location factors for professionals, start-up culture and sovereignty are analyzed and further developed. The holistic approach of karlsruhe.digital is particularly evident in the showcase events developed by the initiative. The city festival **„Bunte Nacht der Digitalisierung“**, was launched to make digital ideas and solutions tangible and give citizens a glimpse behind the scenes. At the **InnovationFestival @karlsruhe.digital**, the best digital innovations from Karlsruhe and the Karlsruhe TechnologyRegion are presented on site and in a live stream to a global audience.



Facts about
karlsruhe.digital


150
experts


50
institutions


20
Steering committee
members


11
working groups



Strong Networks

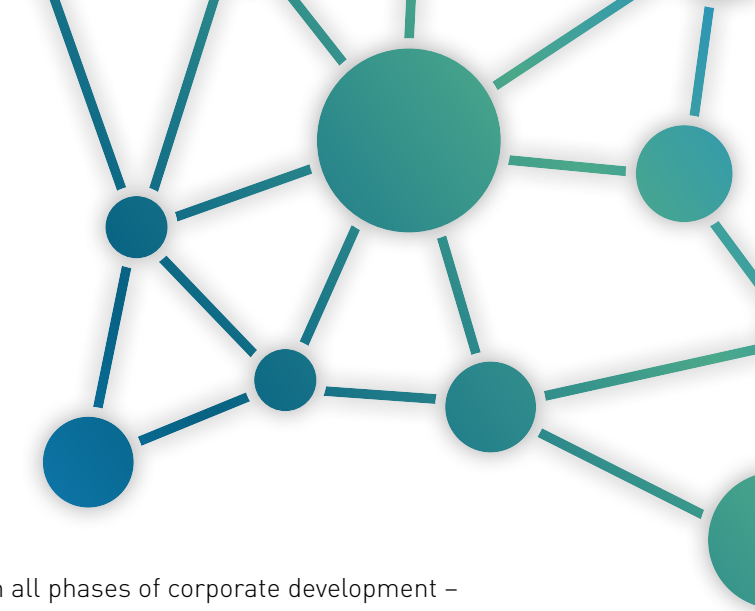
A **strong digital hub** needs strong networks. The Karlsruhe entrepreneur Dr. Friedrich Georg Hoepfner recognized this early on – and in 1997, together with eleven partners from science, research, public administration, business and finance, initiated the **first network of business start-ups** in Karlsruhe.

25 years and many milestones later, the **CyberForum e.V.** is, with over 1,200 members, now the largest regionally active **high-tech entrepreneur network** in Europe. Regardless of whether it is a start-up, medium-sized software company, global IT group or research institution - the CyberForum brings all stakeholders in the region of Karlsruhe together.

The focus is the exchange of experience, knowledge, contacts and ideas. In addition, the CyberForum supports companies from the

IT and high-tech sector in all phases of corporate development – from foundation, through the recruitment of skilled workers and employee training, to location marketing.

For the creative industries, these tasks are undertaken by the **K³ Culture and creative industries office** and the **MEKA Medienregion Karlsruhe e.V.**, companies from the energy sector are represented by the **EnergieForum** and **focus.energie e.V.** and the **Automotive Engineering Network** serves as a regional platform for mobility and engineering. The **Gründerallianz Karlsruhe** supports start-ups on their way to market entry across all industries.



Inspiring Creative Spaces

The digital industry benefits in a way that hardly any other does from the networking and cooperation of the individual players. Karlsruhe takes this into account with initiatives such as karlsruhe.digital and strong networks. But even in the **age of digitalization**, where a lot happens virtually, physical proximity and personal exchange remain important cornerstones of new ideas and pioneering innovations.

This requires singular places where the IT, cultural and creative industries not only work together, but also live together. The best ideas are often not born in meetings between colleagues, but rather during a coffee break in an exchange with others.

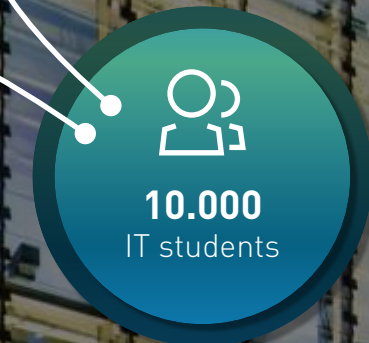


For this reason, several creative spaces have been created in Karlsruhe in recent years, which give start-ups and companies the opportunity to combine their existing potential and use synergies effectively.

These include the **Alter Schlachthof** with the **Perfect Futur** Startup Center for Creatives and the **FUX** Fortification and Expansion Center, the **CyberLab** in the **Hoepfner Burg**, the **Technology Park Karlsruhe** and the **RaumFabrik Durlach**. In all of these locations, emphasis has been placed on an inspiring atmosphere, modern **open-space concepts** and the provision of public space for creative exchange.



Key figures, data and facts



KARLSRUHE AS AN INNOVATION HUB



Lively start-up scene

Supported by the strong digital industry, the proximity to research and development as well as the innovation-friendly climate of the entire region, a flourishing start-up scene has developed in Karlsruhe. For start-ups, the fan-shaped city is a place where they not only find technical know-how and first-class trained specialists, but also support through all stages of development.

The start-up support begins during education. Students at the **xLab at the HKA - University Karlsruhe** have the opportunity to learn how to think and act entrepreneurially and to work on their start-up project at an early stage. The **Karlsruhe Institute of Technology (KIT)** has in the Founders Forge, the PionierGarage and the entrepreneurship training through EnTechnon created several platforms for potential start-ups.

After graduation, accelerators such as the **CyberLab** or the **energy accelerator AXEL** in the Technology Factory, support start-ups

with intensive coaching on the way to founding a company. In contrast to this, start-up centers, so-called incubators, are more general and operate in the medium term. Start-ups can rent office space, exchange ideas with other founders and make use of the existing infrastructure.

Including the accelerators, there are **twelve start-up centers** in Karlsruhe with a total area of around **33,000 square meters**, in which over **250 companies** are located. Another start-up and growth center, **Smart Production Park**, a division of the CyberLab is currently being built on the site of the Hoepfner Brewery. This 5,400 square meter start-up space will offer start-ups focused on IT, AI, IT security and smart production access to 150 mentors and 1,200 companies – all in a central, inner-city location.

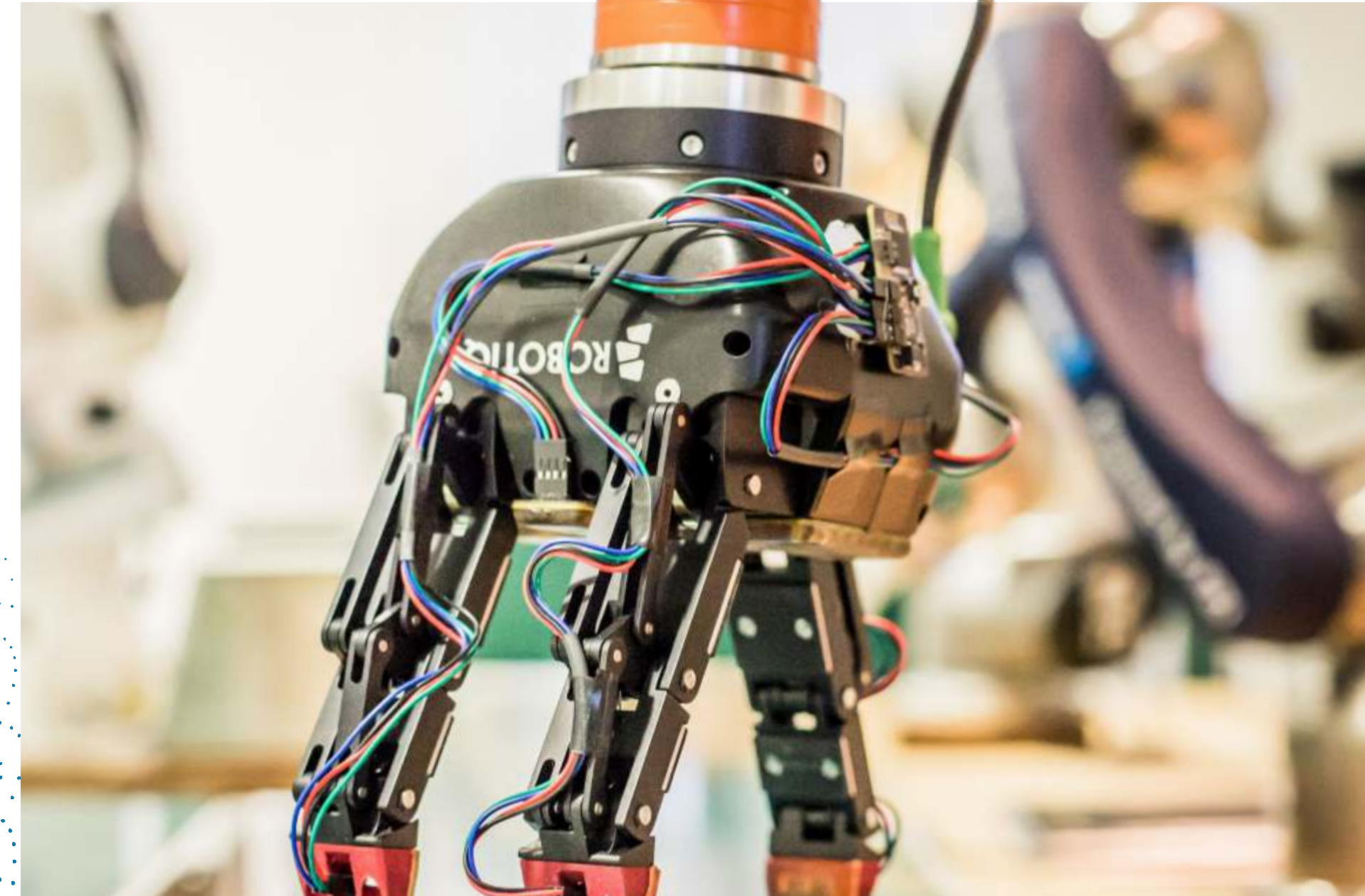
Applied Artificial Intelligence

Artificial intelligence (AI) is one of those **future topics** that has the potential to change our world in the long run. This was acknowledged early in Karlsruhe and the competencies of local institutions that had grown over decades were pooled. In 2017, the Federal Ministry for Economic Affairs and Energy recognized Karlsruhe as a **digital hub for applied artificial intelligence**. Today the region is one of the most important locations in Germany for the development and application of AI.

The transfer of knowledge and technology from research to application plays a vital role in this context. Or to put it another way: it is only the close cooperation between business, science and public administration that makes it possible to bring AI methods and technologies from mere theory to practical application.

The Digital Hub Karlsruhe has access to a strong network of around **4,800 IT companies**, over **30 AI start-ups**, **26 research and development facilities** and **10,000 IT students**. This gives companies in the region the unique opportunity to integrate AI solutions into their business models during the development stage – and at the same time support researchers with data from practical applications.

The optimization of district heating networks, the intelligent processing of data in the construction industry and AI-supported diagnostics in medicine are just a few of the projects that de:hub has implemented in recent years with a strong network from business, science and education.





Concentrated Competence

In Karlsruhe, within a few hundred meters radius, there are excellent universities and renowned research institutions. Embedded in strong networks, established companies meet ambitious founders. The resulting innovative strength has created several important centers of competence in the region of Karlsruhe.

The **Competence Center for Applied Security Technology (KASTEL)** is one of three competence centers for cybersecurity across Germany. It represents research and teaching in the field of Information Security and Dependability at KIT. Founded in 2011, it has successfully advanced IT security research. KASTEL is focused on IT security in the areas of **Industry 4.0** and **5G network expansion**.

Similar to the de:hub for Applied AI, the regional competence center **“Artificial Intelligence for Working and Learning in the Karlsruhe Region” (KARL)** was launched in 2021. The focus here is on the transparency and traceability of AI applications as well as data protection and answering ethical and legal questions. If you will, everything revolves around people, which is intended to increase the acceptance of artificial intelligence in society in the medium term.

In addition, there are several competence centers for the topic of **Midmarket 4.0** in Karlsruhe, which drive digital transformation in small and medium-sized companies. The Karlsruhe Research Factory for AI-integrated Production by KIT and Fraunhofer is dedicated to the global issue of intelligent production, which is being researched and developed using real processes.

KARLSRUHE IS SHAPING THE FUTURE



Early Digital Learning

If you want to shape the (digital) future, you have to think about the professionals of tomorrow today. This includes providing a sufficient number of daycare places to give working parents the best possible support – as well as a wide range of educational opportunities across all types of schools. But Karlsruhe goes one step further.

While the calls for **early digital education** and compulsory lessons in subjects such as media literacy and programming have been getting louder in politics and business for years, the Karlsruhe Technology Initiative has been inspiring young people in the fields of Mathematics, Computer Science, Natural Sciences and Technology (MINT) since 2014. Through working groups, robotics competitions, vacation programs and company visits, talents are discovered and promoted at an early stage. Every week **technology and robotics groups at 100 schools** and institutions reach over 1,500 students.

It is therefore hardly surprising that three of the 41 schools that have won the **German Bitkom Smart School Competition** come from Karlsruhe. With the Ernst Reuter School, the fan-shaped city even has a community school where media education is an integral part of the curriculum.

The aspiration to be a **MINT region** is also clearly evident in extracurricular activities: the CoderDojo Karlsruhe has committed itself to supporting young people interested in programming with free support. Every two weeks, volunteer mentors work with young people to program apps and websites or build robots. The **Girls' Digital Camps** were launched in 2018 to attract more girls and young women to technical professions. As part of this pilot project, weekly Girls' Digital Camps take place at secondary schools, especially in grades 6 to 8. Due to the success of the project, the concept is currently being expanded to the Northern Black Forest region.

Digital Industry Meeting Point

For many people, who have little interaction with digitalization in their daily life, topics such as artificial intelligence or robotics are not tangible. However, new technologies can only be successfully introduced if they are accepted by the people whose lives they are intended to improve. That is why it is important to let society take a look behind the scenes – and to shape digital change together.

The „**Bunte Nacht der Digitalisierung**“, which took place for the first time in 2019, showed what this can look like. As part of a city-wide festival, almost 100 companies, scientific institutions, cultural institutions, societies and municipal authorities from Karlsruhe provided insights into the fascinating world in which the technology and IT of tomorrow is being developed. 6,000 visitors took part in the decentralized event and spent a whole evening exploring Karlsruhe's digital ecosystem. Due to its success, events of this type will take place regularly in the future.

The **InnovationFestival @karlsruhe.digital**, which was initiated in 2020, takes a different approach. As a hybrid event, it offers

digital innovations from the Karlsruhe region a platform - on site and via live stream around the world. In top-class keynotes, representatives from science, business, public administration and culture showcase the extraordinary diversity of the digital landscape of Karlsruhe.

The exchange on digital society and network culture is meanwhile the focus of the Karlsruhe **digiTALK**, while the **Gamification Congress bizplay** and the Franco-German **AI Conference AixIA** shed light on two other important facets of digitalization. In addition, **LEARNTEC**, Europe's largest trade fair for digital education in schools, universities and jobs is located in Karlsruhe. It attracts over 15,000 trade visitors from all over the world every year.

Anyone who wants to discuss the digital age in a relaxed atmosphere or simply wants to make new contacts can do so at numerous **after-work events** – such as the regular netzstrategen Feierabend #nmfka.



WORKING IN KARLSRUHE



Pursue a Career in the Digital Industry

As one of Europe's leading IT locations, Karlsruhe offers everything that today's (and tomorrow's) professionals could wish for. Whether it's a start-up, medium-sized company, large corporation, university, non-university research institution or public authority – the **multifaceted digital industry** in the region of Karlsruhe opens up career and further education opportunities in a wide variety of fields for students and professionals. The self-employed naturally play their part in the fan-shaped city, with its numerous coworking spaces and creative rooms.

Likewise, companies in Karlsruhe have the opportunity to reach out to young talents early on and get them interested. The **proximity to universities** such as the Karlsruhe Institute of Technology (KIT) or the HKA - Karlsruhe University of Applied Sciences with its internationally outstanding achievements in the natural and engineering sciences are a decisive location advantage for IT companies. The same applies to the direct contact with renowned

research institutions such as the FZI Research Center for Information Technology or the Fraunhofer Institutes for the development of joint projects.

Either way, cooperation is prioritised in Karlsruhe. More than **4,800 innovative** companies in the region work hand in hand with science, public administration and culture. The resulting cross-institutional knowledge and technology transfer makes it possible to implement new ideas and projects that are difficult or impossible to realize elsewhere. In addition, there are **strong networks** such as the CyberForum and the initiative karlsruhe.digital, which bring all the stakeholders together and consistently develop the location further.

In this open community of kindred spirits, people, companies, professionals, students and trainees alike can develop their full potential – and shape digital change together.

Beacon of IT Security

Digitalization brings numerous benefits, but also poses challenges. Year after year, the number of cyberattacks on critical infrastructure, data centers and companies increases. The theft of intellectual property and targeted sabotage of individual companies causes billions of Euros in damage.

For small and medium-sized enterprises as well as start-ups and research institutions, **protection against cyber attacks** has therefore become an important location factor. Karlsruhe has reacted accordingly and pooled its resources in the field of cybersecurity.

Four initiatives and centers, each with different competencies, have teamed up in the Karlsruhe IT Security Region: the **Competence Center for Applied Security Technologies (KASTEL)**, the

Competence Center IT Security (KIS), the **DIZ | Digital Innovation Center**, and the **Karlsruhe IT Security Initiative (KA-IT-Si)**.

Subdivided into the areas of research, research transfer, awareness-raising and networking, the association is concerned with the emergence of and protection against digital threats.

Meanwhile, IT security start-ups are working, in close cooperation with established companies and research institutions in the House of IT Security, on viable solutions to the increasingly complex challenges posed by cyberattacks.

Closely linked to IT security is the topic of digital sovereignty. As a shaper of the future and one of the leading digital hubs, Karlsruhe took up the issue of Europe's digital sovereignty at an early stage. As early as 2017, the **Office for Information Technology and Digitalization** of the City of Karlsruhe addressed the question of what options remain for municipalities to maintain digital sovereignty.

In 2018, leading scientists from the field of IT security published the highly regarded **„Karlsruhe Theses on Europe's Digital Sovereignty“** – outlining what is required to remain capable of acting autonomously in the age of digitalization and to avoid dependencies.

Finally, in 2020, the **fair.digital seal** was initiated in Karlsruhe, which represents the fair treatment of users and the promotion of the digital sovereignty of people and companies. Only products and services that respect users' sovereignty over their personal data and ensure transparency are awarded the seal.





HoreKa

It can provide a computing power of about 17 petaFLOPS, or about 17 quadrillion computing options per second, which is equivalent to the power of more than 150,000 laptops.

(Digital) Infrastructure

In addition to access to well-trained specialists and strong networks, companies and start-ups in the digital industry competing on a global level need one thing above all: a **first-class (digital) infrastructure**. This applies equally to universities, research institutions, public administration and society as a whole.

The true lifeline of digitalization, and at the same time one of the most important advantages of a region, is **broadband expansion**. In Karlsruhe, 98 percent of households already have an internet connection with 100 Mbit/s or more. At the same time, the region is pushing ahead rapidly with comprehensive fiber-optic expansion. In July 2021, a further 11,000 households in Karlsruhe received an FTTH connection. In the Alter Schlachthof, Killisfeld and RaumFabrik business parks, 33 kilometers of fiber optic cable will soon be laid, guaranteeing high bandwidths for 750 companies.

However, future topics such as cloud computing, AI applications and autonomous driving require not only fast internet, but also

high computing power. In the Karlsruhe region, companies have access to several of the most modern, powerful and, above all, secure data centers in Germany. At the same time, the Karlsruhe Institute of Technology (KIT) is home to **HoreKa**, one of the 15 fastest high-performance computers in Europe. Researchers from all over Germany can use it to tackle problems and data volumes from different subject areas where the previously available computing power had reached its limits.

But the Karlsruhe region also excels outside the IT landscape with its first-class infrastructure. For example, with one of the most modern and **well-connected public transportation systems** in Europe: almost all relevant facilities in the fan-shaped city can be reached within a few minutes. Appropriate mobility solutions, such as public transport, bike or car sharing, can be conveniently used with the Karlsruhe multifunction app. The digital citizen's office, among other things, guarantees up-to-date contact with public authorities.

LIVING IN KARLSRUHE



Digitalization in action

Digital change can only succeed if it is thought of holistically. To achieve this, it is important that digitalization is perceived by society as an opportunity that improves everyone's lives.

This is precisely the approach that Karlsruhe takes: making digitalization tangible for its citizens.

For example, everyone in the fan-shaped city is familiar with the **EVA shuttles**, three autonomous minibuses that operate in the Weiherfeld-Dammerstock district. They are part of the **Test Area for Autonomous Driving Baden-Württemberg** – a living lab for mobility concepts that provides insights into the individual and public transportation of the future. As part of the state's digitalization strategy, the Ministry of Science will, in future, fund the „Artificial Intelligence“ Living Lab at the Karlsruhe Institute of Technology (KIT), while the **Karlsruhe Real Lab for Sustainable Climate Protection (KARLA)** will focus on the climate and conduct research into solutions on site.

Meanwhile, the **“Robotic Artificial Intelligence” real-world laboratory at KIT** makes artificial intelligence tangible for people through a variety of experiments and different real-life situations,

from day care centers to schools, museums, libraries and hospitals.

In other areas, the focus is also on people. Subscribing to the concept of open government, the city of Karlsruhe has set itself the goal of making government and public administrative actions more transparent and comprehensible. The participation portal actively involves citizens in projects and decisions. Anyone who discovers problems within the city, such as potholes or broken street lamps, can use **KA-Feedback** to report problems easily via a smartphone app.

Meanwhile, easy access to administrative services is provided not only by the digital citizens' office of the city of Karlsruhe, but also by the **digital@KA** project. Fitting the requirements of a smart city, the innovative multifunctional app combines municipal citizen services as well as services from the areas of business, science, culture and mobility. For example, anyone who wants to visit a museum can use the app to not only find out about opening hours, but also buy an entry ticket directly and book suitable mobility services (public transport, bike or car sharing) – all conveniently in one app with just one login.



Surprisingly different

Karlsruhe lives and breathes digitalization – but it also has a lot to offer offline. For example, the region is one of the sunniest in Germany, with a **large proportion of green space** thanks to beautifully landscaped parks and grounds that invite visitors to relax and linger. **Local recreation areas** such as Alsace, the Palatinate Forest or the Black Forest are in the immediate vicinity of the fan-shaped city – and can also be reached quickly, conveniently and, above all, in a climate-friendly manner by public transport.

Speaking of climate-friendly: in summer, up to 200,000 cyclists take to the road in Karlsruhe every month. No wonder, because thanks to regular investments in cycling, Karlsruhe was once again named Germany's **most bike-friendly city** in 2020. So you

can easily leave your car behind and explore Karlsruhe's numerous green spaces and the region's unique natural and cultural landscape with zero emissions. If you don't want to completely forego digital support, the augmented history app **„Stadtgeist Karlsruhe“** allows you to take a virtual journey through time on your own smartphone at various locations.

Whether it's art, architecture, leisure, water sports or nightlife – with its numerous leisure and sports activities and a **remarkable cultural scene**, Karlsruhe offers its citizens and visitors a wide range of opportunities to enjoy life in a completely analogue way. There's a good reason why Karlsruhe was named **„Germany's most liveable city“** in 2015.



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