

MARKET SCAN ABOUT

# XR INDUSTRY

IN GERMANY & AUSTRIA

**BUSINESS  
FINLAND**

Prepared for Business Finland  
03.03.2023



**SILTA**  
MARKET ENTRY GERMANY



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The background of this market scan is to deliver **key market insights** and comprehensible recommendations about XR industry (AI, VR, MR, Metaverse) in German and Austrian market for Finnish companies. The **main focus is the German market**. The Austrian market is taken into account, but with a significantly smaller focus.

This market scan will provide Finnish companies with valuable information about the **current market structures, challenges, and trends** within the XR sector. By analyzing the market dynamics, Finnish XR-companies will be able to better understand the competitive landscape, identify potential areas for growth and innovation, and develop strategies to overcome any barriers to entry.

In addition to the above, this market scan will include a comprehensive list of **important market players operating in Germany and Austria**. This information will be valuable for gaining a better understanding of the competitive landscape and identifying **potential business partners or acquisition targets** in these markets.

Through this market scan, we will also uncover few fascinating **use cases** that demonstrate the potential of the German market. Furthermore, the market scan will deliver valuable insights into the **buying processes within the XR sector**. This will help Finnish XR-companies to better understand how potential customers in the market make purchasing decisions.

This market scan will also list **potential customers** for Finnish XR-companies by identifying specific industries, businesses, or organizations that could benefit from XR solutions.



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# MARKET LANDSCAPE



German XR industry is highly attractive and experiencing dynamic growth.

The European XR market has been growing rapidly, with Germany, the UK and France being the major countries contributing to the growth. The German market growth can be verified especially by numerous market entries and company startups, strong growth in revenue, XR-employees and active patents. The XR industry in Germany is expected to continue growing.

The German government has recognised that XR technology can be an important driver of innovation and growth and has therefore launched various initiatives to support the XR industry. These include, for example, funding programmes and support for start-ups. Position papers to politicians have been prepared specifically for fundings for SMEs needing XR solutions, among others in the Bavarian economy.

PwC analysis puts the economic potential for virtual and augmented reality in 2030 at 104 billion US dollars for Germany.

Large German companies have been active with XR solutions for some time. Despite the advantages, the entrepreneurial SME sector has little experience with AR/VR applications. Currently, most users – even in the business sector – do not know what the Metaverse actually is. As most significant obstacle is seen in the lack of awareness including significant need for explanation for potential customers.

However, the stakeholders of the industry are actively strengthening the understanding of the Metaverse, VR, AR and MR - solutions, by offering workshops, events and other activities. Thus, the number of workshops and webinars in this field is on the rise, attracting a growing interest from both individuals and businesses.



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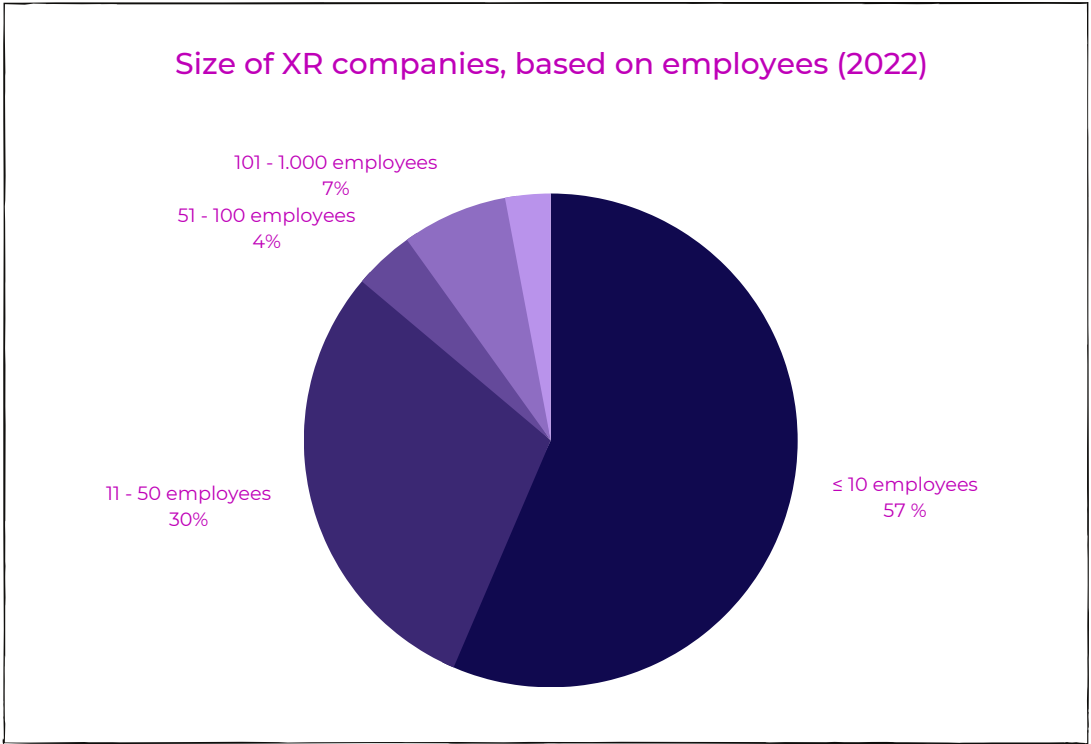


German XR sector is dominated by SMEs.

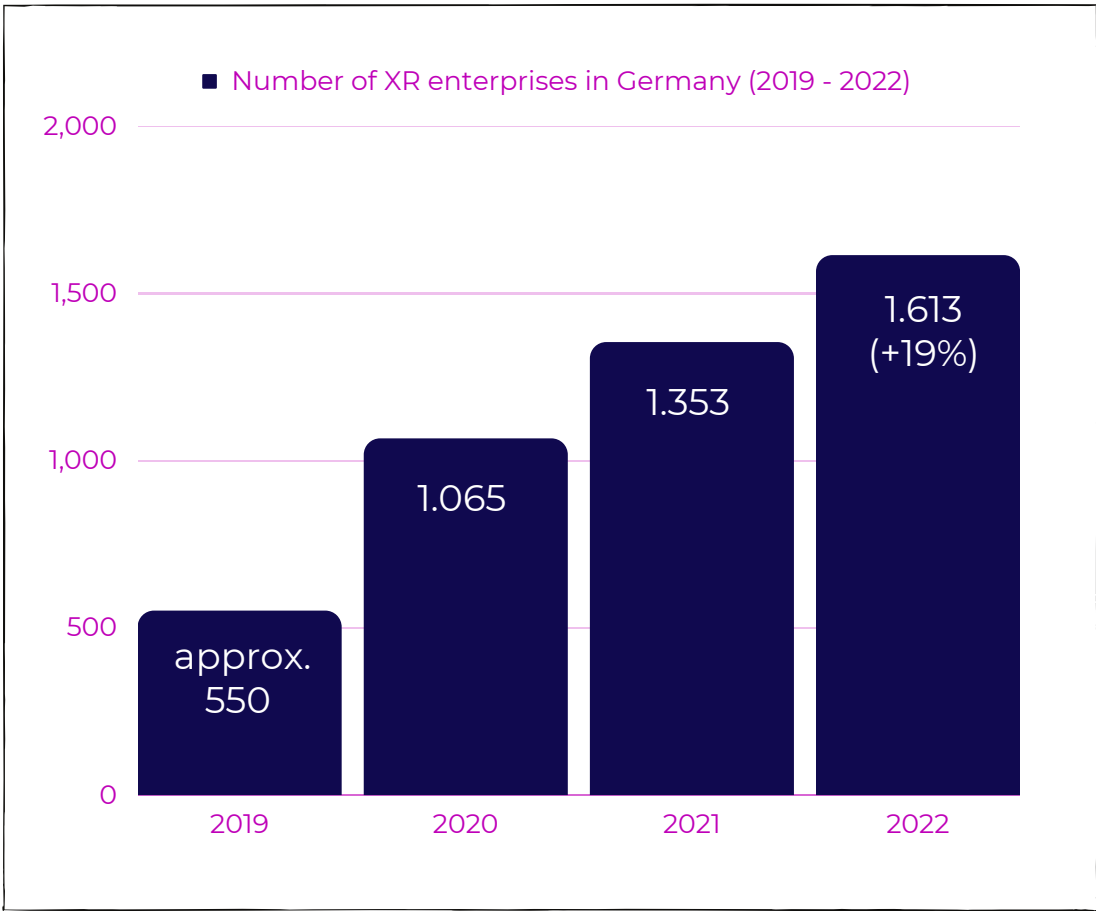
In Germany the numbers of market entries and company startups have been increasing strongly in the past few years. In 2022, the German XR industry numbered **1613 companies** in total, with **growth of +19 %** to previous year (+260).

Between 2015 - 2021, despite of COVID 19 pandemic, on **average 98 companies were founded each year** in the XR sector in Germany. To be noted, on average, four times more XR companies are founded per year than exit the market.

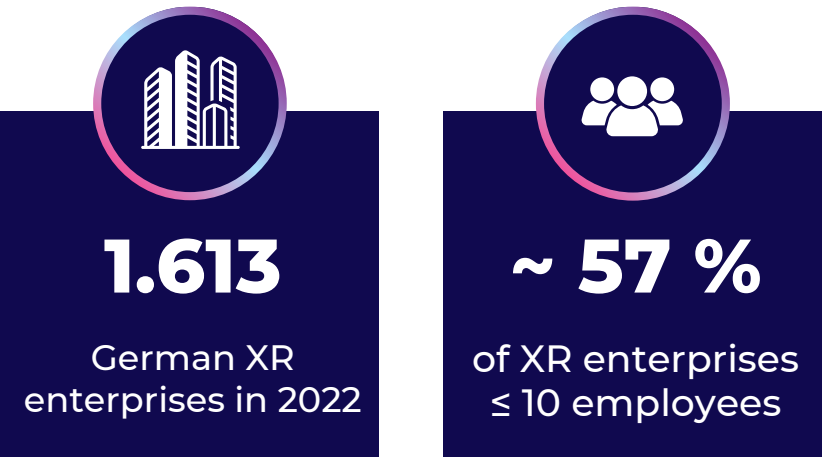
The German XR sector is dominated by small and medium-sized enterprises, employing less then 250 people. **Over half of the of the XR segment (~ 57%) consists of companies with up to ten employees**, while almost one third of the companies (~ 30 %) has between 11 and 50 employees. Only 10 % of the XR companies have more than 100 employees. **Only 3 % of the companies employ more than 1,000 people.**



Size of companies | XR sector | Germany (2022)



Number of enterprises | XR sector | Germany (2019 - 2022)





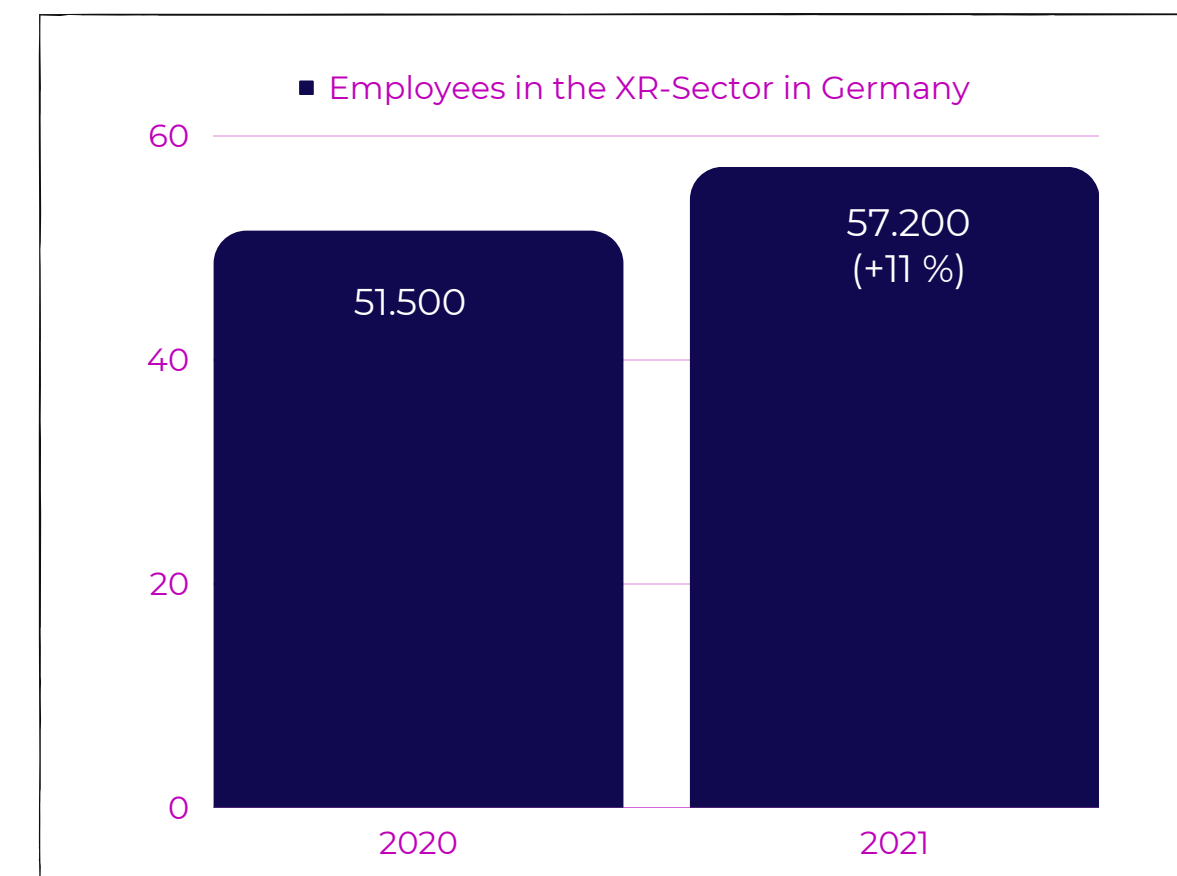
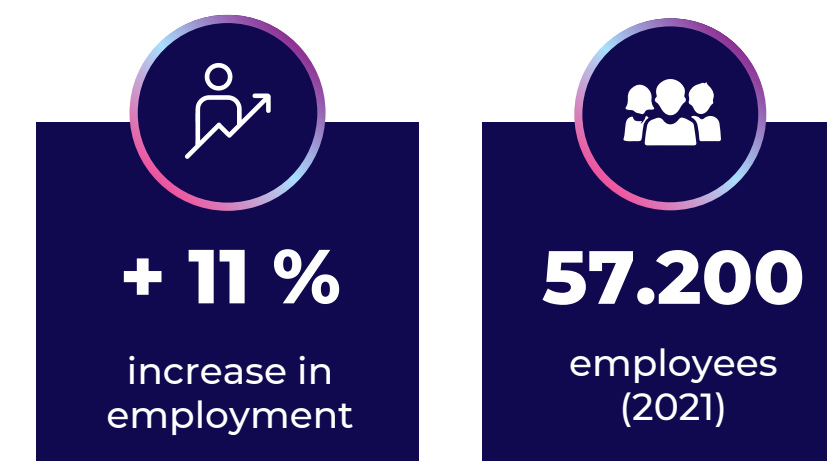
The employment in German XR industry is growing.

The growth of the German XR sector also has a positive effect on employment within the industry. According to PwC analysis, 400.000 people in Germany will be working with AR/VR in 2030. In 2021 the **total number of employees in the XR companies is 57.200\***. This corresponds to an **increase of 11 %** compared to 2020.

Federal Institute for Vocational Education and Training reacts to shortage of skilled workers.

The number of German companies producing virtual 3D worlds or 360-degree videos for their customers is growing continuously. All analyses predict high growth figures for this new business field in the media landscape.

Due to the shortages of skilled XR-workers, a new apprenticeship program "Designer immersive media" will be introduced in Germany in August 2023.



Employees | XR sector | Germany

\*) not including companies with more than 1.000 employees, as this would have greatly increased the figure



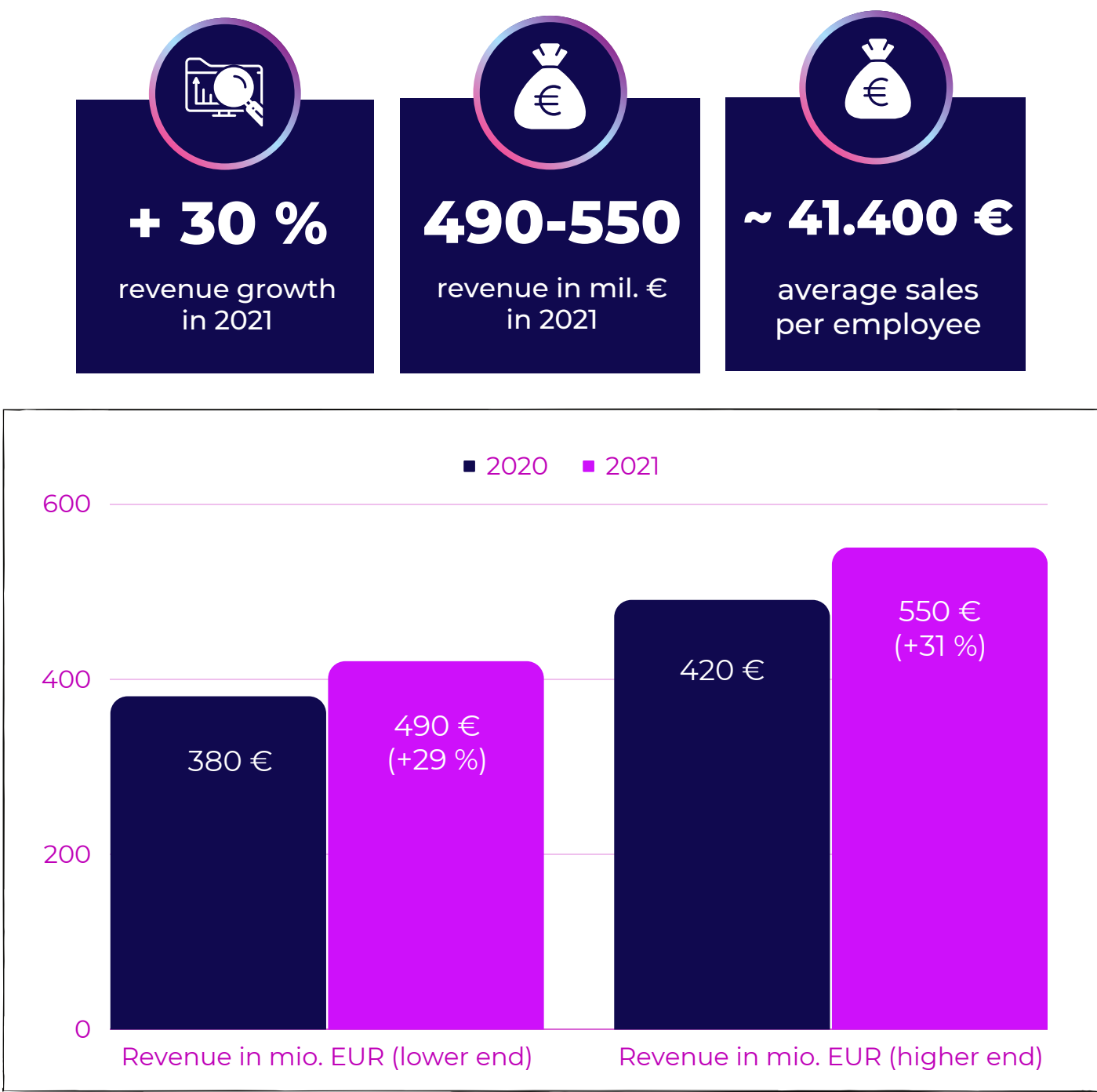
German XR industry revenue grows by 30 percent.

The German XR industry is experiencing a positive revenue development. It generated an estimated **490 - 550 € million revenue in 2021**, up from 380 - 420 € million in the Corona year 2020, representing a growth of 29 % to 31 %.

Looking at the overall productivity in the German XR industry on the basis of the revenue and employment figures, the industry generates an **average sales per XR employee between 40.200 - 42.600 €**. This is more than in the previous year (2021), when the range was between 39.200 - 41.600 €.

According to a statista-forecast, the German AR and VR market will have **47.7 million users in 2027** and a **penetration rate estimate of 46.4% in 2023** and is expected to reach **57.2% in 2027**.

The sales are expected to be around **645 € million in 2023**. In 2024 the German XR market is expected to have a volume of around 800 € million. According to a statista-forecast, the market volume in **2027 could be 2.493 € Mio**.



Revenue growth | XR sector | Germany (2020 - 2021)




Germany is holding the sixth place globally in XR patents.


The patent development can be seen as one of the proves for the dynamic growth in the XR-industry. Since 2015, the number of patents in the field of XR has quadrupled worldwide. 54 % of all world-class patents were invented in the USA, followed by China (18 %), South Korea (9 %), Japan (7 %), Great Britain (4 %) and Germany (3.8 %).

In Germany the patent numbers are going up yearly, but not as strongly as in the USA and in China. In 2021 Germany is holding the sixth place globally.

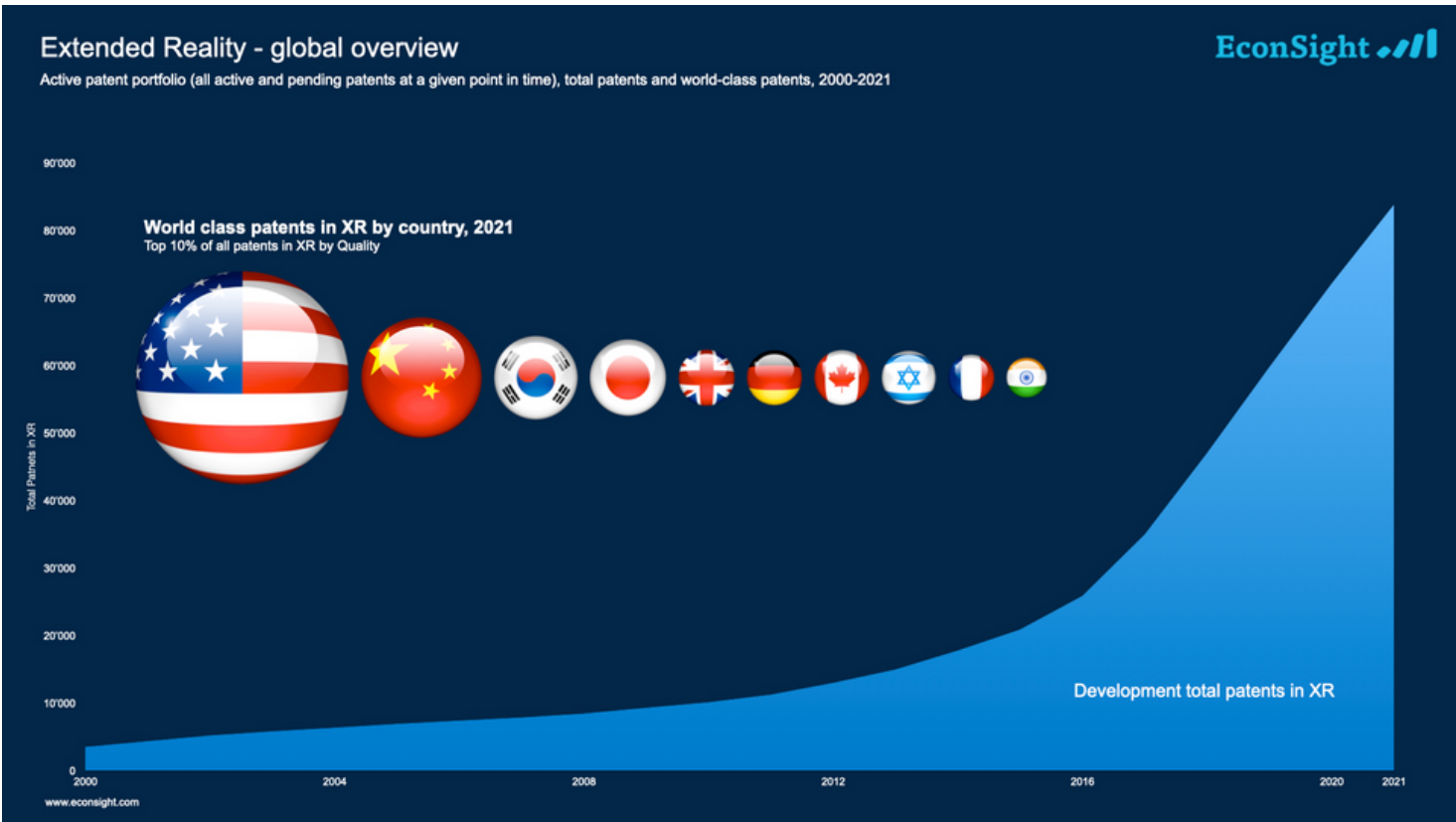
Munich is clearly the XR-hotspot of Germany with 476 patents. In terms of patents with particularly high value ("world-class patents"), the State of Bavaria with its 106 world-class patents has the 13th place in the global ranking, being the leader within Germany, followed by Baden-Württemberg (70) and North Rhine-Westphalia (39).



**3.8 %**  
of world-class  
patents come from  
Germany



**Munich**  
is Germany's  
leader in patents



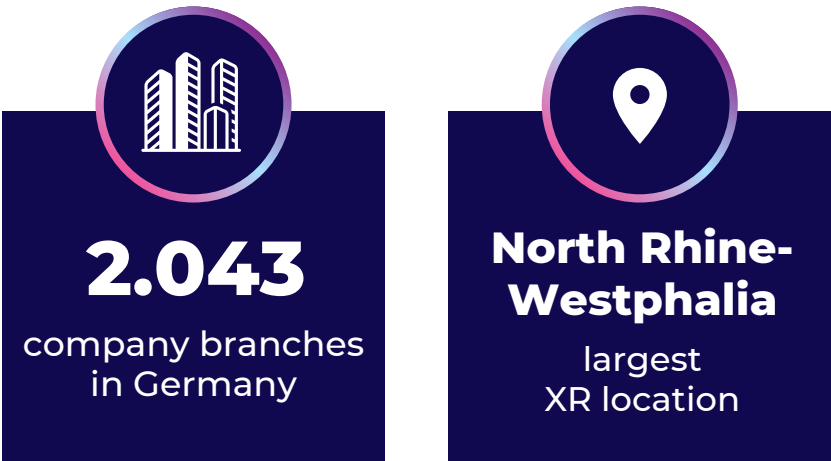
Largest German XR location is North Rhine-Westphalia.

The regional distribution of the German XR sector varies strongly. Out of 1.613 German XR companies about 430 also have a secondary office in Germany. This increases the total number of company branches to 2.043.

Most of the XR companies are located in a small number of federal states, with the top 5 states accounting for nearly three-quarters (74.4%) of all company locations: North Rhine-Westphalia, Bavaria, Berlin, Baden-Württemberg and Hamburg.

North Rhine-Westphalia is considered the most important German state with the highest estimated cumulative XR sales of approx. 111 million euros and the largest number of XR employees, approx. 2.675.

TOP 5 XR LOCATIONS	CUM. XR SALES	EMPLOYEES	BRANCHES
1. North Rhine-Westphalia	111 mil. €	2.675	428
2. Bavaria	90 mil. €	2.175	358
3. Berlin	83 mil. €	2.025	321
4. Baden-Württemberg	65 mil. €	1.575	253
5. Hamburg	40 mil. €	925	160



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Most growing German XR location is Bavaria.

There is also a strong regional differentiation within the federal states. There are quite a number of locations with a sufficiently large number of XR firms, which enables local or regional networking advantages.

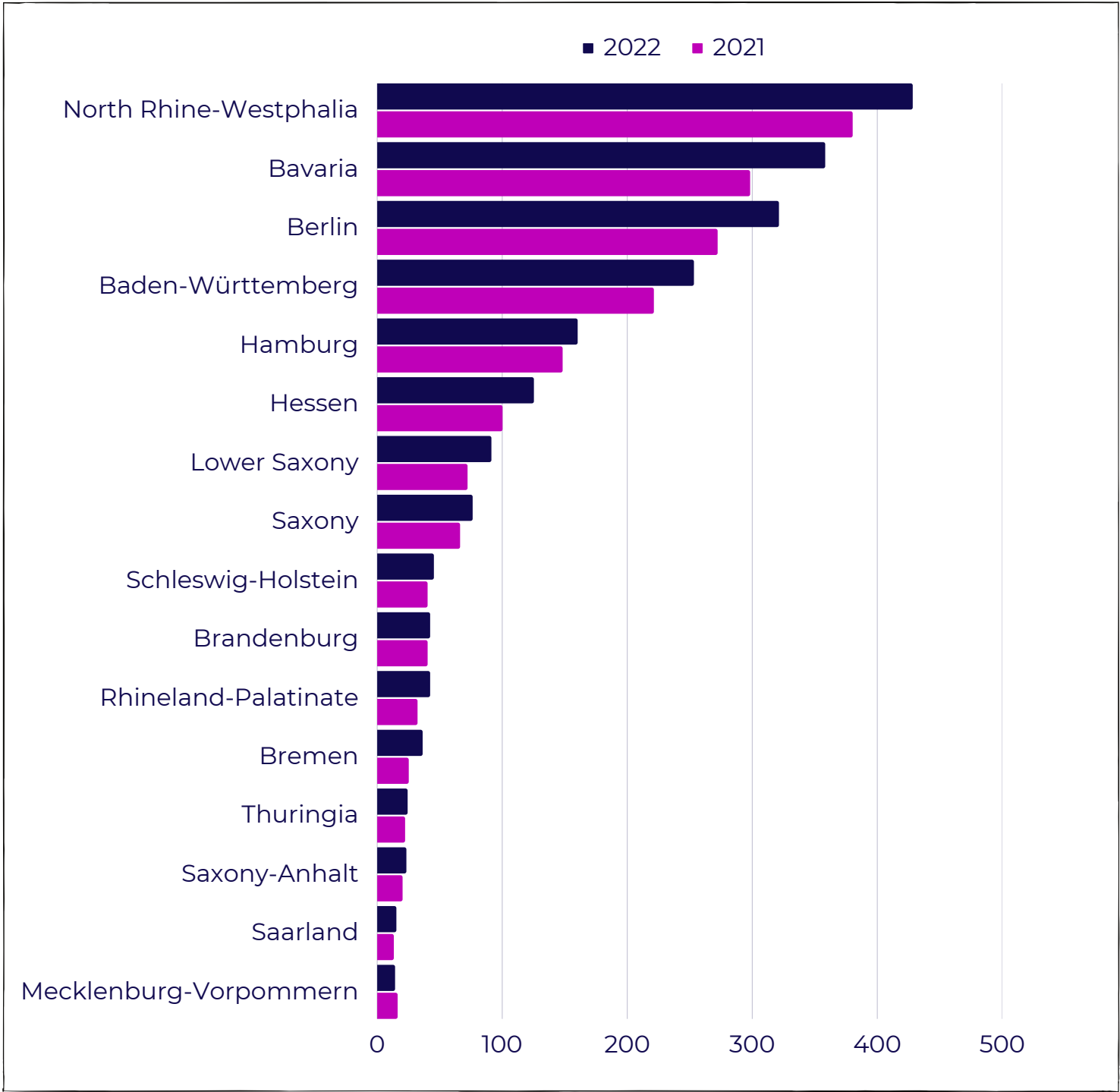
The largest regional clusters by cities are **Berlin** (321), **Munich** (181), **Hamburg** (160), **Cologne** (128), **Düsseldorf** (71) as well as **Stuttgart** (61) and **Frankfurt am Main** (44). Of the four major locations, Munich and Cologne were able to increase the number of companies the most compared to 2021.

TOP 3   GROWING WITH BRANCHES	GROWTH
1. <b>Bavaria</b>	<b>+ 60 branches ( +20%)</b>
2. Berlin	+ 49 branches ( +18%)
3. North Rhine-Westphalia	+ 48 branches ( +12%)



**Bavaria**

most growing  
XR location



XR company locations according to federal states | XR sector | Germany (2021 - 2022)

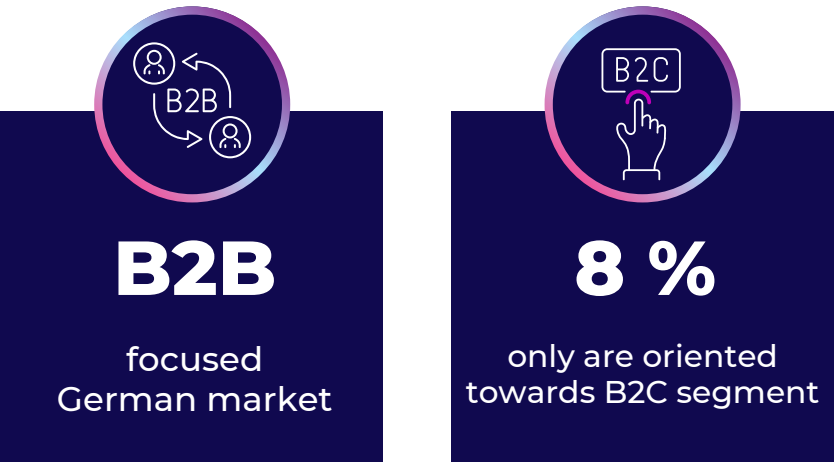


XR companies in Germany have a clear B2B focus.

The XR market in Germany is currently **predominantly a B2B market**. The market targets the use of XR by professional users, e.g. in companies.

Only under 8 % of the German XR companies are oriented towards the B2C market (2021: 5 %). However, as many as 37 % state that they address also B2C markets in addition to B2B markets.

German XR companies **serve B2B-customers** on an average **from five industries** and **only 14 % concentrate on a single industry**.





Manufacturing is the most important customer sector for German XR companies.

The most common customer sector for German XR companies is the **manufacturing industry and production**. According to a study of the TH Cologne, **66 %** of XR companies work for customers from this field.

It is not surprising that manufacturing is the most important customer segment, as the automotive industry falls into this category and it has long relied on XR applications. Many of the more lucrative applications are apparently made (also) for the manufacturing sector.

In the second place of the the most important customer sector is **arts and entertainment**. **55 %** of the XR enterprises work for customers from this area.

Third important customer is the **media, information and communication** sector, **52 %** of the XR enterprises work for customers from this field.

### IMPORTANT CUSTOMER SECTORS

#### 1. **MANUFACTURING, INDUSTRY & PRODUCTION (66 %)**

- a. automotive (41 %)
- b. mechanical engineering (41 %)
- c. Other Manufacturing/Industry/Production (25 %)

#### 2. **ARTS AND ENTERTAINMENT (55 %)**

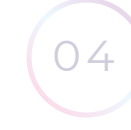
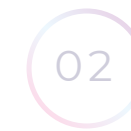
- a. Art and Architecture (35 %)
- b. Live Entertainment: Concerts, Sports and Leisure (20%)

#### 3. **MEDIA, INFORMATION AND COMMUNICATION (52 %)**

- a. Gaming (19 %)
- b. IT Services (17 %)
- c. Film & Television (15 %)

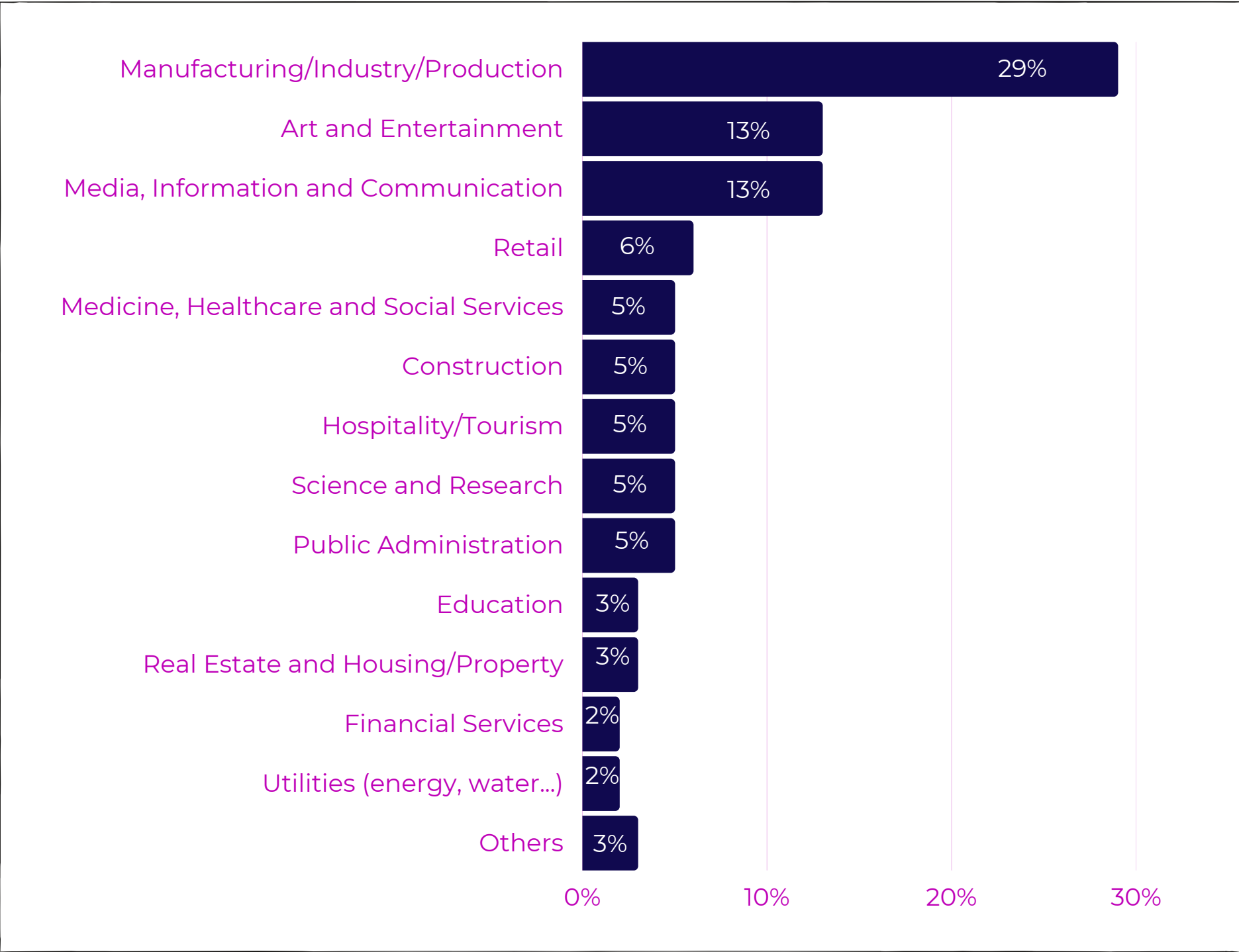
#### 4. **OTHER SECTORS**

- a. Science and Research (28 %)
- b. Hospitality and Tourism (22 %)
- c. Education (21 %)
- d. Medicine, Healthcare and Social Services (20 %)
- e. Retail (19 %)
- f. Construction (17 %)
- g. Public Administration (15 %)



Important customer sectors (in brackets: How many percent of German XR companies work with the sector)  
XR sector | Germany (2022)

Breakdown of the most important customer sectors for German XR companies  
*(in percentages, out of 100 %)*



Breakdown of most important customer sectors | XR companies | Germany (2022)





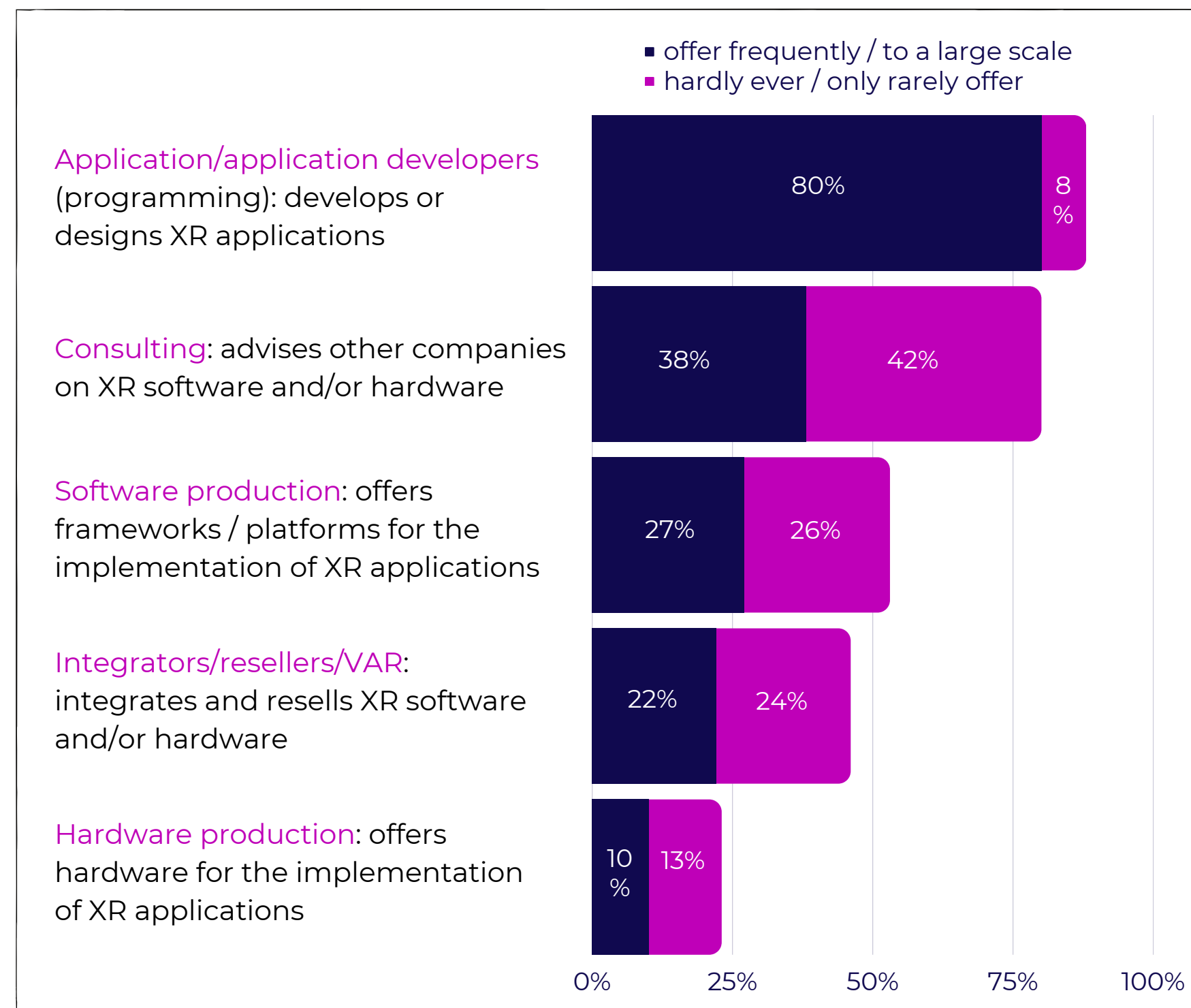
German XR companies are active in developing and designing applications.

80 % of German XR companies **develop or design** XR applications in a large scale.

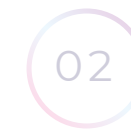
**Consulting** services are also widespread, with 38 % of German XR companies offering them frequently and further 42 % offering them at least sometimes.

The higher proportion of 27 % in the XR **software production** could reflect the attempts of the local XR industry to build up independent scalable platforms, for example for the distribution of XR applications and content.

A significant proportion of the XR companies are also active as **resellers or integrators** (22 % frequently / 24 % rarely) and only 10 % offer hardware for the implementation of XR applications on a large scale.



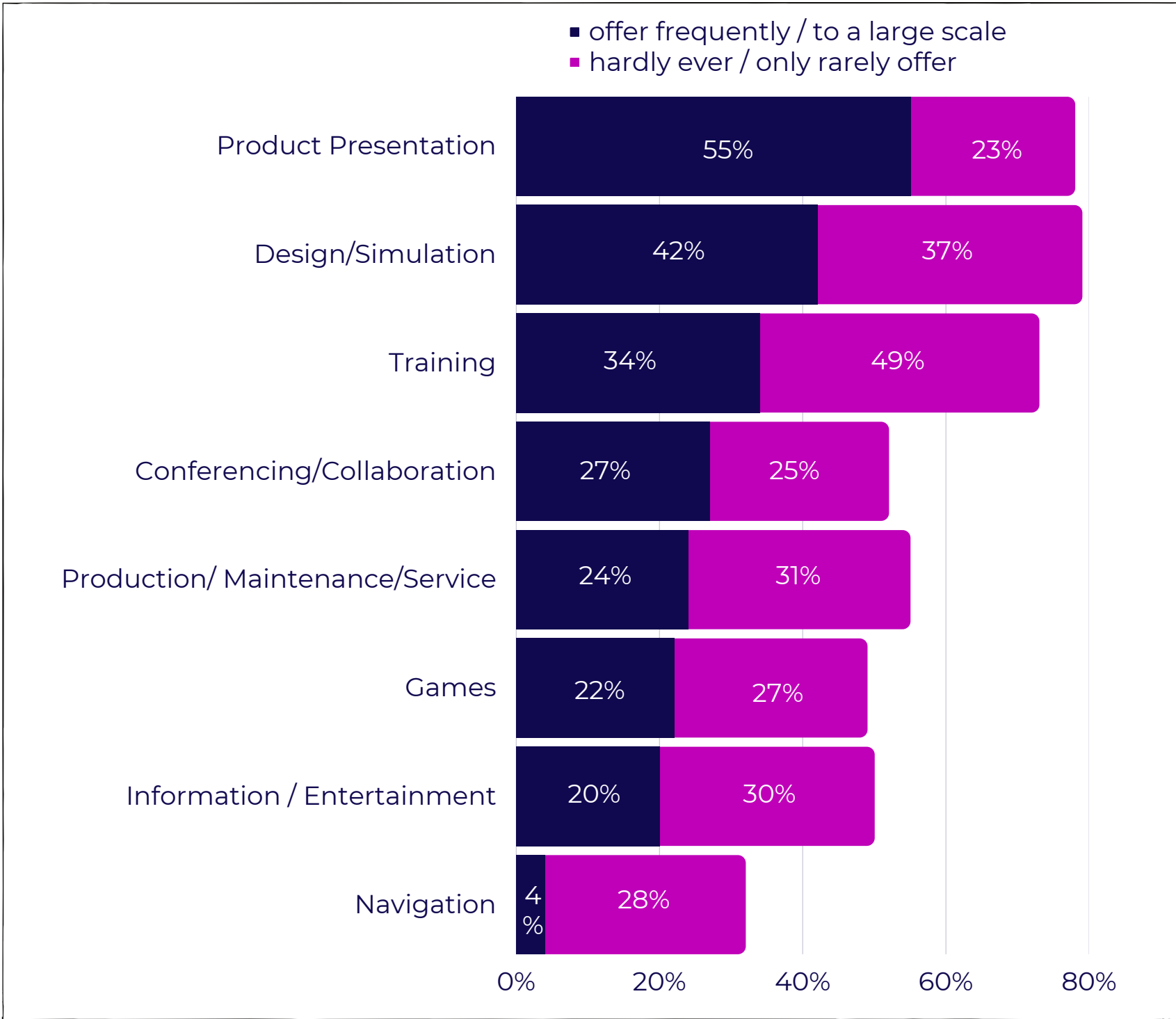
Fields of activity of the XR companies | XR sector | Germany (2022)



German XR companies mostly offer product presentations and design & simulation solutions.

The fields of application for XR are diverse: simulation solutions for product presentations and manufacturing processes, **interactive VR training** for companies, offerings for AR-based learning or virtual shops or showrooms.

In Germany, 55% of companies offer **product presentations**, with an additional 23% engaging in this area on a limited basis. Whereas 42% of XR companies frequently provide **design and simulation solutions**. Navigation offerings are comparatively scarce, with only 4% of companies offering them.



Types of offerings of XR companies | XR sector | Germany (2022)





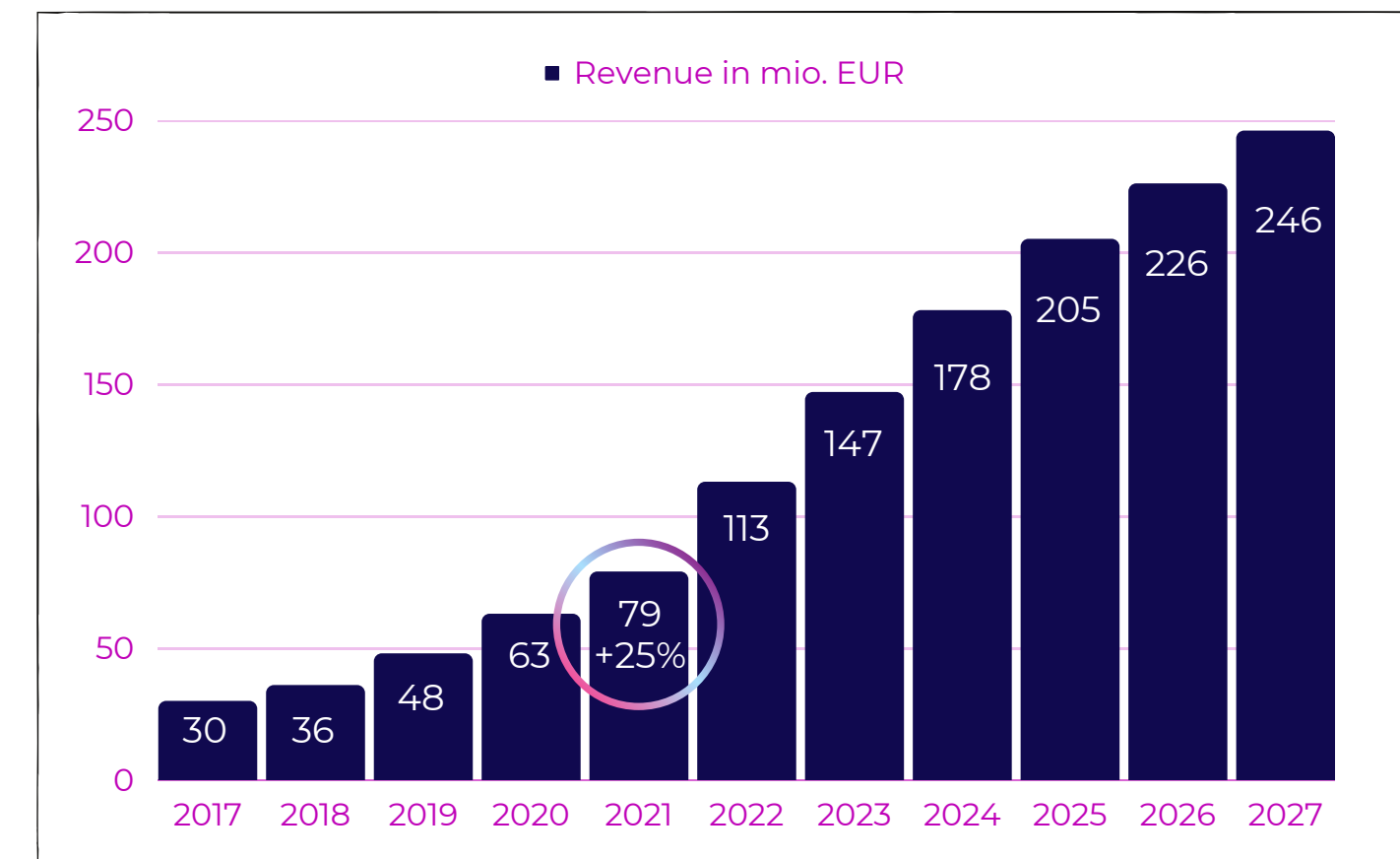
Also Austrian XR industry is growing.

With a healthy mix of a vital start-up scene and established companies, Austrian XR industry is experiencing a positive revenue growth. The revenue in the Austrian AR and VR market generated an estimated **79 € million revenue in 2021**, up from 63 € million in Corona year 2020, representing a growth of 25%. The revenue is estimated to be approximately 147 € million in 2023.

"AR Software" is the largest market segment with an expected volume of 53 € million in 2023.

According to a forecast, the Austrian AR and VR market will

- reach a volume of **246 € million in 2027**; this corresponds to an expected annual revenue growth of 13.7% and
- have **5.9 million users in 2027** and
- have a **penetration rate estimate of 53.8% in 2023** and is expected to reach **64.6% in 2027**.



Revenue growth | XR sector | Austria (2017 - 2027)

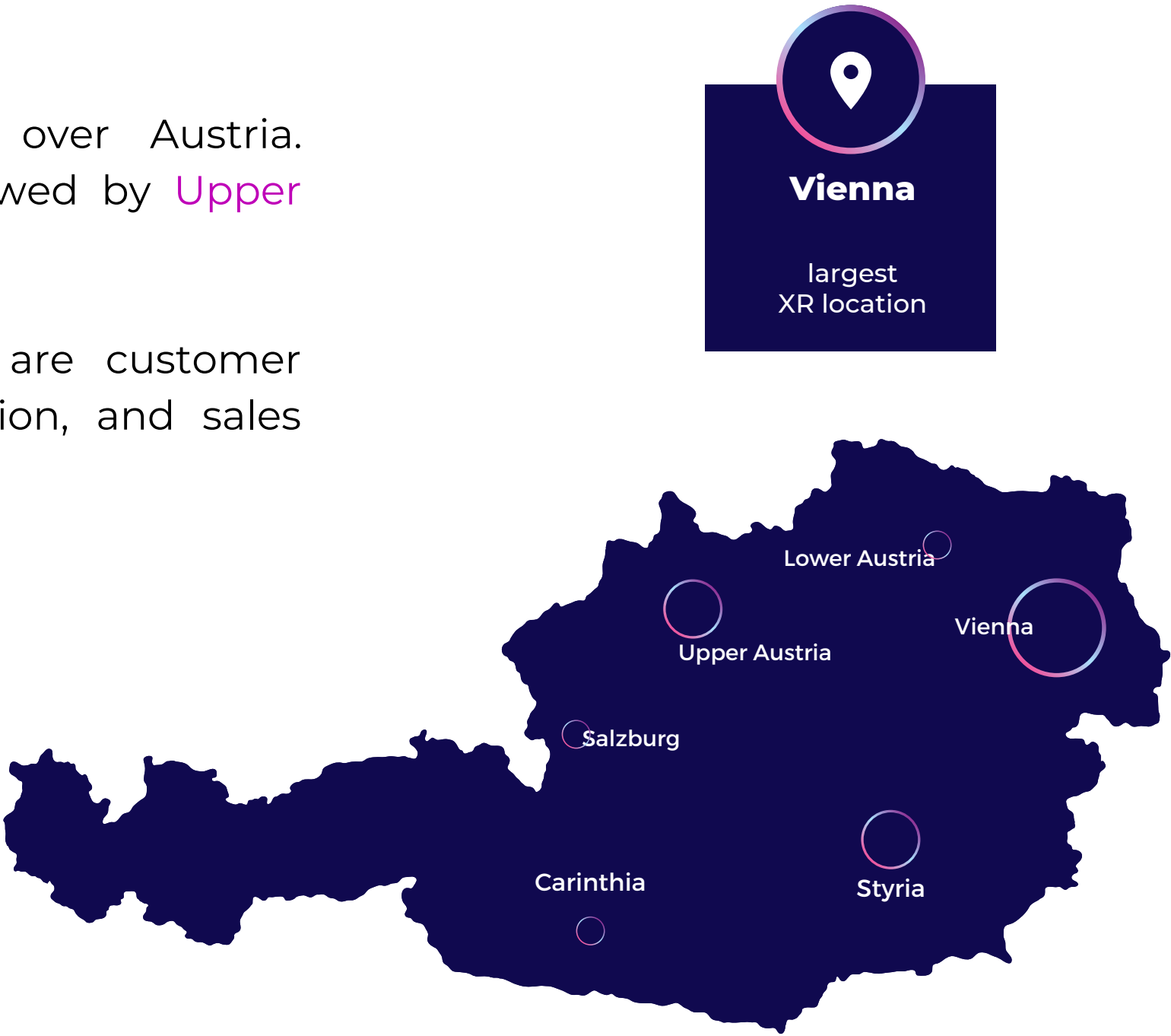
Largest Austrian XR location is Vienna.

The locations of the XR organizations are spread all over Austria. Geographically, the focus of XR activities is in Vienna, followed by Upper Austria and Styria. Carinthia, Lower Austria and Salzburg.

The most relevant areas of use for Austrian companies are customer experience, employee training, data analysis and visualization, and sales support.

**TOP 6  
XR LOCATIONS  
IN AUSTRIA**

- 1.Vienna
- 2.Upper Austria
- 3.Styria
- 4.Carinthia
- 5.Lower Austria
- 6.Salzburg





# TRENDS AND CHALLENGES



Trends in the XR industry in german speaking countries.

1

TRAINING

XR technologies offer new opportunities for **education and training by creating immersive learning environments** that can improve learner motivation and engagement.

2

VIRTUAL CONFERENCES +  
PRODUCT EXPERIENCES

German companies see particular potential, additional to virtual training, in solutions for **conferencing and collaboration** and **product experiences**.

3

INCREASING DEMAND

There is an increasing demand for XR applications in various industries such as **gaming, education, retail, healthcare, architecture and construction**.



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## Trends in the XR industry in german speaking countries.

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### INVESTMENTS

Investment in the XR industry in Germany has increased as more companies recognise that XR technologies have great potential to change the way we learn, work and interact

5

### NEW APPLICATIONS

New applications for XR technologies are constantly emerging in various industries, such as virtual conferences, virtual training programmes, virtual exhibitions and much more.

6

### COLLABORATION

Companies and organisations are increasingly working together to develop and implement XR technologies. For example, Deutsche Telekom and Deutsche Bahn have partnered to work together on XR solutions for the rail industry.

7

### RESEARCH AND DEVELOPMENT

Germany has a strong tradition in research and development of XR technologies. There are numerous universities and research institutions that specialise in XR technologies, such as the Fraunhofer Institute for Applied Information Technology FIT and the German Research Centre for Artificial Intelligence (DFKI).



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Main challenges the XR industry is facing in german speaking countries.

1

LACK OF AWARENESS  
AND KNOWLEDGE

The biggest obstacles are seen in the **lack of awareness and knowledge** (the **high need for explanation** and the still **low penetration of VR glasses**, especially in comparison to other international regions, play a major role).

2

ACCEPTANCE

XR is a trend technology also in Germany for some time. However, it **has yet to gain widespread acceptance**. The dynamics have certainly accelerated in recent years, but it is currently not a technology that is as known among consumers as, for example, the cell phone. Thus, XR technologies are **not yet accepted** by the masses and there are still many reservations about using such technologies.

3

COST-INTENSIVE

The development of XR applications is **very cost-intensive** and requires significant investment, especially in research and development.



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Main challenges the XR industry is facing in german speaking countries.

4

PRIVACY

XR applications may also pose **potential privacy issues** as they are able to collect and process a variety of data. Especially Germany has one of the most strict data protection and privacy regulation in Europe:

5

LACK OF  
STANDARDS

There are currently **no universally accepted standards** in the XR industry, which can lead to products and applications being incompatible. DIN German Institute for Standardisation is currently finding out what kind of standards are necessary for metaverse and XR in Germany.

6

REGULATION

As XR technologies are still relatively new, there is **not yet any uniform regulation or legislation** (e.g. tax and legal) that relates fully to these technologies.

7

SKILLS  
SHORTAGE

There is a **shortage of qualified professionals** who are able to develop and implement complex XR technologies. In addition, XR technologies are very complex and require a high level of technical expertise to understand and develop.



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# MARKET PLAYERS





German-speaking market is rather dominated by many SMEs than just a few big key players.

The known international players, such as HTC, PICO, Meta and Microsoft/Hololens count to the players also in Germany. The German-speaking market is rather dominated by **many SMEs** than just a few big key players. Those SMEs are developing innovative XR solutions and making contributions to the growth of the industry. The key player examples of the SMEs are presented starting from the page 26. To be mentioned first is, that **some big German enterprises have their own XR teams or department with focus on the development of AR and VR technologies**. Here are some examples of those:



Volkswagen Group has established its own XR team called "shaping-mobility-hub" that specializes in the development of VR technologies. Check also Volkswagen Virtual Reality Training Centre.



Siemens Healthcare GmbH internal team focuses on the development of XR technologies and applications for various sectors.



Deutsche Telekom has established a department called "Telekom XR" that focuses on the development of AR and VR technologies as well as the integration of XR into the company's business sectors.



Mercedes-Benz Group has its own XR company called "Mercedes-Benz Tech Motion GmbH" that focuses on the development of VR and AR technologies for the design, production, and marketing of vehicles.



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**Holo-Light GmbH** is a German XR company that specializes in developing AR and MR solutions for industry and enterprise applications. They create unique, industry-ready AR/VR technology: highly innovative and tailored.

Location/s: Munich, Bavaria + Vienne, Austria

Founded: 2015

Employees: ~ 50 (2021)



LinkedIn

YouTube



01



**Hololux GmbH** is a German XR company that specializes in developing AR and VR solutions for marketing and advertising applications. Their solutions are used by companies to create immersive brand experiences for their customers.

Location/s: Cologne, North Rhine-Westphalia + Berlin

Founded: 2017

Employees: ~10 (2021)



LinkedIn

YouTube

02

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**VRdirect GmbH** operates a platform for the easy creation and instant distribution of interactive 360°/ Virtual Reality projects. The platform consists of an authoring and publishing tool as well as various flexible distribution options. Companies using VRdirect can create and distribute their own 360°/ Virtual Reality projects completely with their internal resources.

Location/s: Munich, Bavaria

Founded: 2017

Employees: ~20 (2021)



YouTube

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**Innoactive GmbH** is a VR software company that develops VR solutions for training and simulation applications. Innoactive's platform enables companies to create customized VR training simulations for a wide range of use cases, such as employee onboarding, safety training, and skills development.

Location/s: Munich, Bavaria

Founded: 2013

Employees: ~50 (2021)



LinkedIn

YouTube

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**Eyecandylab** is a German AR company that provides AR solutions for media and entertainment applications. Their solutions enable interactive AR experiences for TV shows, sports broadcasts, and other media content. Acquired by Accedo.

Location/s: Munich, Bavaria

Founded: 2018

Employees: ~ 20 (2021)



LinkedIn

YouTube



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**Holoride GmbH**: XR startup that develops VR software solutions for the automotive industry. Its products include a platform for creating immersive in-car entertainment experiences. The company is a spin-off from Audi Electronics Venture GmbH.

Location/s: Munich, Bavaria

Founded: 2018

Employees: ~ 50 (2021)



LinkedIn

YouTube



02

4tiitoo

**4tiitoo GmbH** specializes in developing eye tracking technology and software solutions for enterprise applications. 4tiitoo's technology enables users to control digital devices and software using their eyes, providing a more intuitive and efficient user experience.

Location/s: Munich, Bavaria

Founded: 2011

Employees: ~ 40 (2021)



LinkedIn

YouTube



03

augmensys

**Augmensys** offers Augmented Reality solutions for the Industry. The company is developing high sophisticated software products and offers related consulting and services, with the objective to introduce and operate Augmented Reality applications in the international Power, Chemical- and Oil&Gas Industry.

Location/s: Klagenfurt and Linz, Austria + Bamberg, Bavaria + Schwelm, North Rhine-Westphalia

Founded: 2014

Employees: ~ 20 (2021)



LinkedIn

YouTube



04





Crytek GmbH is a video game development company that has also been involved in the development of VR games and experiences.

Location/s: Frankfurt, Hessen

Founded: 1999

Employees: ~ 500 (2021)



LinkedIn

YouTube



01



Parametric Technology GmbH (PTC) is a software company that provides product lifecycle management (PLM) and CAD (computer-aided design) software solutions for various industries. PTC plays a leading role in the development of industrial AR solutions. PTC is growing its portfolio by acquiring RE'FLEKT GmbH, a company with AR and VR experts.

Location/s: Unterschleißheim, Bavaria

Founded: 1988

Employees: > 500 (2021)



LinkedIn

YouTube

YouTube

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Volucap GmbH specializes in providing high-resolution 3D scanning and motion capture services for the film, television, and gaming industries. Volucap's services include full-body and facial motion capture, 3D scanning of objects and environments, and post-production services. The company uses a specialized capture system that combines 32 ultra-high-definition cameras with a custom-designed software suite to create detailed and realistic 3D models and animations.

Location/s: Babelsberg, Brandenburg

Founded: 2016

Employees: > 50 (2021)



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Sehsucht GmbH is an animation and design studio that specializes in creating visual effects, animations, and branding solutions for various media, including film, television, advertising, and digital content. Sehsucht's services include concept development, design, 3D animation, motion graphics, and post-production. Referencies: Coca-Cola, BMW, Audi

Location/s: Berlin

Founded: 2000

Employees: > 100 (2021)



LinkedIn

07



Hologate GmbH specializes in developing multiplayer VR experiences for location-based entertainment (LBE) venues. Main product is a multiplayer VR platform that allows up to four players to enter a virtual world and interact with each other in real-time. The platform includes a custom-designed headset, motion tracking technology, and a selection of games and experiences.

Location/s: Munich, Bavaria  
Founded: 2014  
Employees: > 50 (2021)



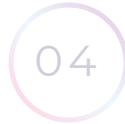
headraft GmbH is a pioneering strategic consultancy and full service production partner for interactive storytelling with immersive media. They leverage the creative potential of Augmented Reality (AR), Virtual Reality (VR) & Mixed Reality (MR) to tell brand stories that stand out. Whether at home, on the street, or in virtual Metaverse worlds. Ref:Lufthansa, Netflix, Sony Music, Siemens

Location/s: Hamburg  
Founded: 2016  
Employees: n/a



realworld one GmbH & Co. KG a global leader in enterprise virtual (VR) and augmented reality (AR) software solutions, focusing on the life sciences, analytical, diagnostics and medical, pharmaceutical, chemical and processing industries. Systematic approach to implementing VR and AR within the areas of sales and marketing, service and support, research and development, as well as manufacturing and production.

Location/s: Freiburg im Breisgau, Baden-Württemberg + Berlin  
Founded: 2015  
Employees: n/a



VR INSIGHT GmbH supports renowned brand manufacturers in their sales process - enabling sales excellence. Develops relevant digital solutions for retailers and manufacturers to continuously optimize the sales processes - Enabling Sales Excellence - with Leading Edge Virtual Reality technologies. Complementary services include 3D modeling and implementation of VR showrooms.

Location/s: Hamburg  
Founded: 2018  
Employees: ~10 (2023)





**VIEWAR GmbH** specializes in creating AR solutions for businesses: 3D visualization apps for mobile business solutions. ViewAR creates Augmented Reality custom apps for businesses. Started by offering visualization solutions to furniture industry and later expanded to architecture, real estate, interior designing.

Location/s: Vienna, Austria

Founded: 2010

Employees: ~50 (2021)



01



**VISCOPIC** is a specialist in the field of interactive 3D visualization as well as mixed reality solutions. With the acquisition of Viscopic, TeamViewer expands its industry-specific AR offering for companies. Viscopic has received several awards for its innovative solutions, including the "Best AR/VR Solution" award at the 2020 German Innovation Awards.

Location/s: Munich, Bavaria

Founded: 2016

Employees: ~ 70 (2021, before acquisition)



02

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**Viewpointssystem GmbH** combines trendsetting technology development with scientific expertise in the field of eye-tracking research. The deep-tech company develops and produces internationally awarded smart glasses based on eye tracking. The data glasses are used by B2B customers worldwide for remote support and maintenance, for training, documentation, research and analysis. As the inventor of Eye Hyper-Tracking the company is pioneer of Digital Iris Technology

Location/s: Vienna, Austria

Founded: 2014

Employees: ~50 (2023)



04

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**NXRT** is a tech venture leading in the field of real time simulation. NXRT is developing immersive driving simulations with virtual and mixed reality for training and retail.

Location/s: Vienna Austria + Mödling, Austria

Founded: 2019

Employees: ~40 (2023)



07





**VRTUAL X GmbH** develops virtual reality and augmented reality projects and shoot 360° films for companies worldwide. Virtual and hybrid events are currently the focus. With Lea X, they have developed an own software platform for this. They also offer Safety X, a VR instruction system for companies, and Selfie X, an innovative augmented reality fan experience.

Location/s: Hamburg

Founded: 2017

Employees: ~ 15 (2023)



LinkedIn

YouTube



01



**Omnia360 GmbH**, a VR agency, we design, produce and advise on all aspects of virtual reality and 360°-content. Specialties: Virtual Walkthrough, Virtual Tours, 360 Degree Videos, 360 Video, 3D Showroom, 3D, VR Applications, Marketing Consulting, Virtual Tour, Virtual Showroom, and 360 Degree Technology.

Location/s: Hamburg

Founded: 2019

Employees: < 10 (2023)



LinkedIn

YouTube



02

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REACTIVE REALITY

**Reactive Reality AG** is the leading augmented reality (AR) provider in e-commerce. Its PICTOFiT platform powers the most realistic, scalable and fun online shopping experiences for brands and retailers around the world. It transforms a brand or retailer's product photos into smart AR assets which online shoppers can try on their own avatars.

Product: App for virtual trial of fashion products

Location/s: Graz, Austria

Founded: 2014

Employees: 51-200 (2023)



LinkedIn

YouTube



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**TriLite Technologies GmbH** builds world's smallest projection displays and ensures that everyone can enjoy augmented vision as lightweight as the eyewear of today. TriLite's display solutions are based on proprietary, multi-parameter algorithms and deploy advanced machine learning algorithms to generate laser beam scanning devices with unprecedented size, weight and image quality.

Location/s: Vienna Austria

Founded: 2011

Employees: < 50 (2023)



LinkedIn

YouTube



07

German and Austrian supporters bring together the stakeholders from the XR industry to collaborate and exchange knowledge and expertise.

Supporters, research institutes, labs centres and other organisations around Germany and Austria bring together companies, startups, researchers, and other stakeholders from the XR industry to collaborate and exchange knowledge and expertise. They organize events, workshops, and conferences to promote XR technologies and their applications in various industries. Overall, these organisations play an important role in promoting and developing the XR industry in German speaking market and creating a favorable environment for XR companies to thrive.





# USE CASES



Interesting use cases from different fields of German XR industry.

*Detailed information on the next four pages.*

**AUTOMOTIVE**

With AR engineering software the car manufacturer BMW accelerates the development of vehicle concepts by up to twelve months | [Holo-Light GmbH](#)

**TRAINING**

Virtual training platform for firefighters | [Northdocks GmbH](#)

**MAINTENANCE**

More precise damage forecasts and predictive and sustainable maintenance management | [customQuake GmbH](#)

**TOURISM**

Through AR, tourists in German cities like Soest and Lübeck can be told the story of the city by accessing additional content at specific points | [SpotAR GmbH](#)



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Shorter development cycles through digital processes in product design.

COMPANY/DEVELOPER


[Holo-Light GmbH](#) is a German XR company that specializes in developing AR and MR solutions for industry and enterprise applications.

USE CASE

The car manufacturer [BMW uses](#) the Augmented Reality Engineering Space [AR3S](#) developed by Holo-Light to speed up processes by as much as twelve months, from individual vehicle sections through to complex production stages. Engineers can verify assembly processes at an early stage and adjust them for series production.


[AR3S enables engineers and industrial designers to realize concept evaluations faster, detect design flaws early on, and significantly accelerate the process from planning to design to implementation.](#) Aside from shortening the time-to-market, AR3S helps to minimize the resources needed for prototype production and makes shipping of components obsolete until a very late stage.

*" The AR goggles and CAD data allow us to find out much faster, whether the production worker will be able to fit the component properly later on, in series production. That way, we need far fewer test setups. "*  
*Michael Schneider, Head of Complete Vehicle at the BMW Pilot Plant Munich*



Linked in

YouTube



Linked in

YouTube





First virtual reality training platform for firefighters in Germany.

COMPANY/DEVELOPER

[Northdocks GmbH](#), a German company founded in Kiel in 2009, is a team of specialists from various disciplines with a focus on **data visualisation** and **virtual training applications**. The aim is to make operations and missions safer and more efficient by creating digital images of facilities and buildings and making them interactively usable.

USE CASE

Northdocks launches the first **virtual reality training platform for firefighters** in Germany. They have developed fully immersive training environments for a spectrum of scenarios using the Unreal Engine (UE4) from Epic Games; the [FirefighterVR](#) simulations where firefighters can train in virtual reality whenever and wherever they want. Using Northdocks´ technology, firefighters can train in a safe and controlled environment, preparing them to tackle emergencies with confidence and precision.

Global Recognition for quality and innovation: Northdocks got rewarded with a [Grant from Epic Games](#) for the outstanding development of VR Trainings for Firefighter and Emergency associations.





More precise damage forecasts and predictive and sustainable maintenance management.

COMPANY / DEVELOPER

customQuake GmbH develops modern intuitive software products. It combines existing systems with individual services to create modern, intuitively usable industry solutions and hide the complexity of business processes under user interfaces that are easy to consume and operate. Including use and interaction in Virtual Reality (VR) and Augmented Reality (AR).

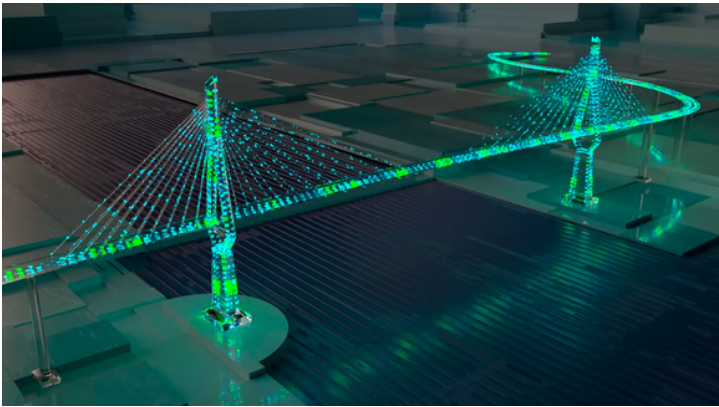
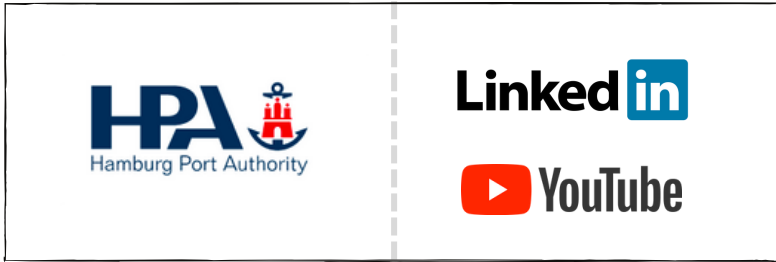
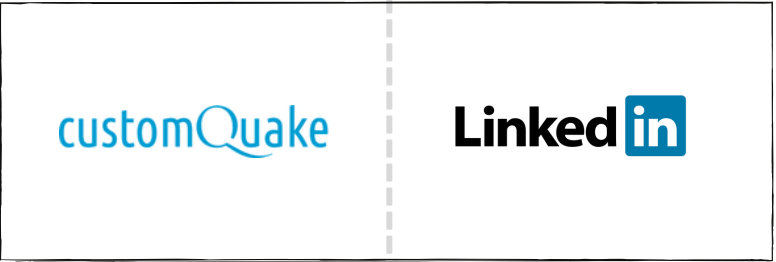
USE CASE

smartBRIDGE Hamburg: The Köhlbrand Bridge is the most important traffic artery in the Port of Hamburg. The increasing ageing process poses great challenges for maintenance management.

Question: How can the maintenance management of the ageing bridge be optimised?

Answer: digital transformation.

Solution: In the form of its **Digital Twin**, the Köhlbrand Bridge is brought to life **to unite analogue and digital condition data**. More precise damage forecasts and thus predictive and sustainable maintenance management are the result.



Awards smartBRIDGE Hamburg has won:



buildingSMART  
Awards Program  
Category Asset Management



deutscher  
digital award  
SmartBRIDGE Hamburg  
Digital Transformation | Innovation level: AI | Gold

smart BRIDGE  
Hamburg



Tourism with AR: Showing the right way and buildings that no longer exist.

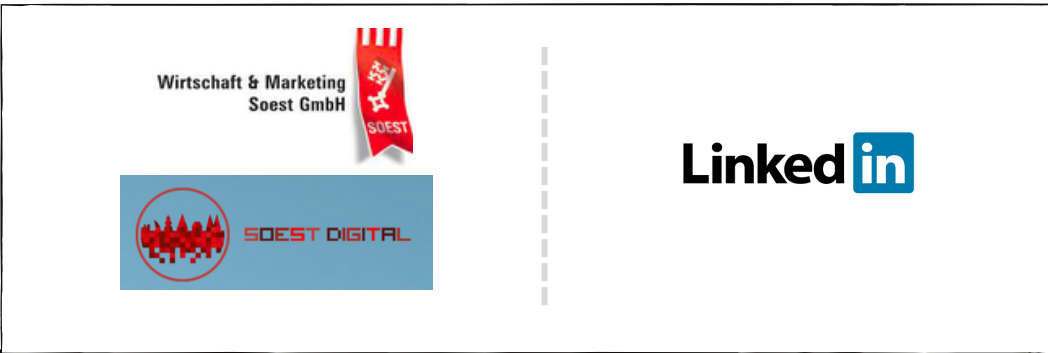
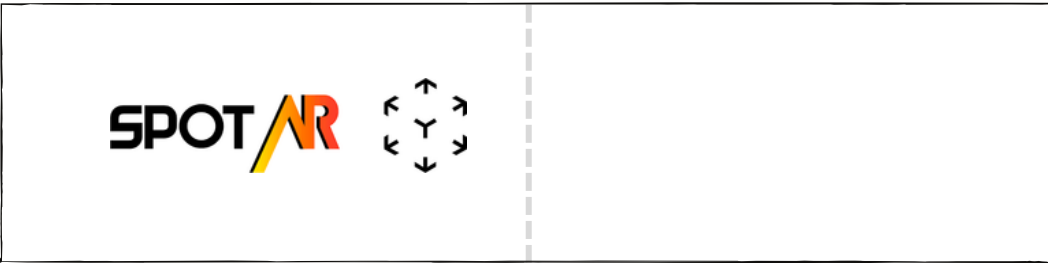
COMPANY / DEVELOPER

[SpotAR GmbH](#) is a jung start-up and offers **Augmented Reality Guides**, an AR platform for cities, municipalities and destinations to create their own interactive city tours and digital walking tours and make them available to tourists and citizens. Augmented reality technology is used to tell the story of cities in a new way.

USE CASE

Augmented reality **makes 3D models of historical buildings visible** in the camera image of the mobile phone or tablet where they once stood. The 3D models are positioned via GPS data where they once stood and can therefore only be viewed there.

The reconstruction of the models is based on 3D data of the [city of Soest](#), so-called Virtual City Maps. With the help of modern technologies such as computer vision and object recognition, the virtual models fit into the city backdrop as it stands today and some can even be viewed from the inside.



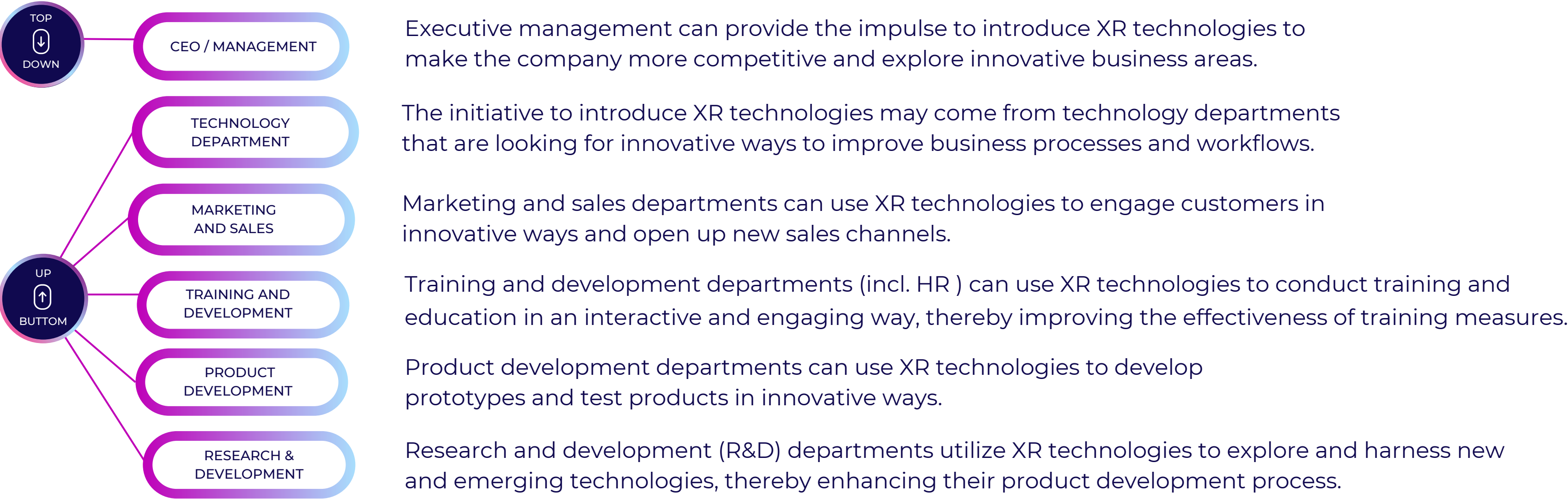


# BUYING PROCESS

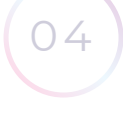


Impulse to integrate new XR solution in a German company can come from various departments.

As XR technologies can be used in many areas, also the **impulse** to introduce an XR solution in a German company **can come from various departments**. Below listed six departments can be identified for impulse givers:



The initiative to introduce XR technologies can also come from a combination of these and other departments, (e.g. Innovations) that have collectively recognized the benefits of the technology. Generally, the **smaller the company, the more likely it is that the drive to integrate new XR solutions comes from the management**.



CIOs, IT executives or CEOs mostly take the lead in VR and AR projects.



German large enterprises, such as BMW, Volkswagen, Siemens, Deutsche Telecom, Daimler and SAP, have their own XR teams or departments with focus on the development of AR and VR technologies. Hence, these teams/departments play also an important role for purchasing decisions and they are a good address to be contacted when offering XR solutions.

In large corporations, without a specialized XR team, it is often the task of the CIO (Chief Information Officer), CTO (Chief Technology Officer) or IT Director to implement projects in the VR and AR field. Thus, these parties often play an important role for purchasing decisions.



In small- and medium-size enterprises it is often the Managing Director (CEOs), Sales & Marketing or IT Director who takes the responsibility for XR projects. Therefore, these parties are relevant in decision making for new potential partners, vendors, or technology providers.



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## Example purchasing process within German SME.

Similar to the entire XR industry, the companies currently **lack uniform established standards** for the purchasing process. While some companies already have established XR departments, others cannot identify a specific point of contact responsible for XR-related matters. In other companies the process is decided case by case. Nevertheless, following purchasing process can be given as an example:

- 1 The **business department that will use the XR solution initiates** the project and has specific requirements for the technology that need to be met.
- 2 Usually, both the **business departments and the purchasing departments are involved** in the purchasing process.
- 3 Ultimately, however, it is the **responsibility of management** to make an informed decision about whether or not to integrate the XR solution into the organisation. Usually, several stakeholders are involved in the decision, including executives, IT managers, department heads and possibly also employees who will use the new XR solution.
- 4 The **purchasing department leads the procurement process**, including vendor evaluation, price negotiation and contract signing, in some companies working closely together with the management and/or business department.
- 5 In many cases, the business departments and the purchasing department **work closely together** to ensure that the technology meets the business departments' requirements while being procured economically and efficiently.

It is also possible for the purchasing department to have sole responsibility for purchasing, especially if the solution offered is a standardised technology that can be used by many business departments.



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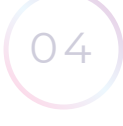
07



# POTENTIAL CUSTOMERS



Potential customers in the XR field for Finnish companies | automotive



AUTOMOTIVE



German automakers such as Volkswagen, BMW, Mercedes-Benz, Porsche and Audi are investing in XR technologies to improve their manufacturing processes (redesigning the car production) and create new customer experiences.

Also many German subcontractors from the automotive industry have been investing in XR technologies: Bosch | Continental | ZF Friedrichshafen | Hella | Brose.

XR solutions that can enhance design and prototyping, as well as in-car experiences, could be valuable for German automotive companies.



## Potential customers in the XR field for Finnish companies | manufacturing

## MANUFACTURING



XR technologies are being used in manufacturing for training, maintenance, and quality control.

German manufacturing companies such as Siemens and Bosch are developing their own XR solutions for training, maintenance and quality control. However, other manufacturing companies that may not have the resources to develop their own XR solutions could benefit from third-party XR solutions that improve efficiency and accuracy.

Finnish companies who are **developing AR and VR solutions for factory workers** to improve their efficiency and accuracy could find potential customers in the German manufacturing industry.



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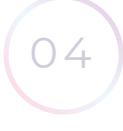
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Potential customers in the XR field for Finnish companies | education



EDUCATION



XR technologies are being used in education for immersive learning experiences, particularly in STEM fields.

XR solutions that can enhance student engagement, improve knowledge retention and provide hands-on learning experiences could be valuable for institutions such as Technical University of Munich, Humboldt-Universität zu Berlin and University of Bonn.

Finnish companies such as ThingLink are **developing AR and VR solutions for educational institutions** and could find potential customers in the German education industry.



Potential customers in the XR field for Finnish companies | gaming



The German gaming industry is increasingly interested in XR technologies for creating immersive gaming experiences.

XR solutions that enhance the gaming experience could be valuable for companies such as Ubisoft, Crytek, InnoGames, Daedalic Entertainment and Gameforge.

Finnish companies who are developing VR solutions for location-based entertainment and enterprise training could find potential customers in the German gaming industry.



Potential customers in the XR field for Finnish companies | healthcare

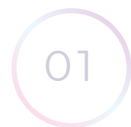
HEALTHCARE



XR technologies are being used in a variety of healthcare applications in Germany, including surgical training, patient rehabilitation and telemedicine.

XR solutions that can improve patient outcomes, reduce costs and enhance medical training could be valuable for healthcare providers such as Charité, Universitätsklinikum Heidelberg and Asklepios.

Finnish companies such as Disior is developing AR and VR solutions for healthcare providers and patients, could find potential customers in the German healthcare industry.





Other potential customers in the XR field for Finnish companies | SME

MECHANICAL / INDUSTRIAL ENGINEERING		Fifth largest manufacturer worldwide of robots. Size: 501-1000 employees Established: 1919 Headquarters: Haiger, Germany	RESEARCH	
MEDIA PRODUCTION		End-to-end marketing and product communication. Size: 201-500 employees Established: 1910 Headquarters: Pforzheim, Baden-Württemberg	LOGISTICS	
AUTOMATION MACHINERY MANUFACTURING		Manufacturer of special machines, plants and complete solutions. Size: 1.001-5.000 employees Established: 1946 Headquarters: Straubing, Germany	ARCHITECTURE AND PLANNING	
MACHINERY MANUFACTURING		Manufacturer of large corrugated plants. Size: 1.001-5.000 employees Established: 1717 Headquarters: Weiherhammer, Bavaria	TOURISM	
HOSPITALS AND HEALTH CARE		Leading medtech company with over 125 years of experience. Headquarters: Erlangen, Bavaria		



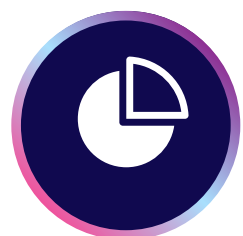
# RECOMMENDATIONS





### Focus on German main XR locations.

Focus on the German XR hotspots, such as North Rhine-Westphalia, Berlin, Bavaria (Munich), Hamburg, and Baden-Württemberg, which have a significant number of XR firms and offer local or regional networking advantages.



### Target manufacturing, art & entertainment or media & communication sector.

Target the manufacturing, art & entertainment, and media & communication sectors, as these industries are increasingly incorporating XR technology.



### Target key application areas in the German market.

Target key application areas in the German market for XR technology:

VR | virtual training, design and simulation, conference and collaboration solutions

AR | product presentations and experiences, training applications and B2B use in production and maintenance services

MR | training, B2B use in production and maintenance services and conference and collaboration solutions.



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### Consider targeting companies operating in the digital and technology sector.

Target digitally savvy clients, as these companies are more likely to have a deep understanding of and experience with augmented reality (XR). Therefore, they are also more likely to integrate promising XR technologies into their business strategies.



### Strengthen the XR ecosystem in Germany and Austria with Finnish solutions.

To keep up with the significant growth of the XR industry, it is important to establish strategic partnerships with German companies and organizations. Through these partnerships, businesses can share knowledge, resources, and expertise to drive innovation and expand XR capabilities.



### Seek opportunities for collaboration with German universities or research institutes.

One effective strategy is to seek opportunities for collaboration and knowledge-sharing with German universities and research institutes, which have a long-standing reputation for excellence in the research and development of XR technologies. By tapping into these resources, research teams can gain access to cutting-edge test beds and experimental facilities to drive innovation forward.



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### Fundings can be beneficial.

Explore potential funding opportunities for XR startups and entrepreneurial SMEs, which may become more available as this issue gains political attention. Be sure to investigate funding options for your own company as well as your customers. In Germany, it is typically necessary to be a German entity in order to be eligible for German funding.



### Finnish expertise can provide a valuable solution for the shortage of skilled workers in German XR industry.

With the rapid growth of XR companies, there is a significant shortage of skilled workers. Finnish companies can serve as valuable co-operators or subcontractors for German companies, helping to alleviate this shortage. Ultimately, both sides stand to benefit from this collaboration, creating mutually beneficial opportunities for expanding XR capabilities and expertise.



### Research and identify the right department for each potential client.

To effectively target potential clients, it is important to research and identify the appropriate department based on the nature of the XR solution and the industry. In medium-sized companies, initial conversations typically occur with the business department or the CEO, depending on the company's size and hierarchy.



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# THANK YOU!

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*All information in this market scan has been compiled with the utmost care. Nevertheless, errors cannot be excluded. The team worked on this market scan points out that they assume neither a guarantee nor any legal responsibility or any liability for consequences resulting from possible erroneous information.*