

The European market potential for VR and AR services

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VR and AR technology is booming. The European VR and AR market is projected to grow at an average annual rate of 35% in the coming years. The outsourcing of VR and AR services is further stimulated by the continuing shortage of developers across Europe. While Northern and Western European countries are traditionally the biggest outsourcing markets, Central and Eastern Europe is becoming a promising market for partnerships with nearshore providers.

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1. Product description

Virtual Reality (VR) and Augmented Reality (AR) are forms of Extended Reality (XR). VR and AR use similar technologies but are different concepts. XR provides users with an enhanced or enriched experience by combining real and virtual environments via a display, such as:

- mobile devices – smartphones, tablets
- Head Mounted Displays (HMDs) – such as gaming consoles, in a helmet or in glasses for example
- Spatial Augmented Reality (SAR) systems – digital projectors

Virtual Reality

VR technology uses software to replicate a real or imaginary environment. The user is fully immersed in this closed, virtual 3D environment. VR allows them to interact with it by simulating their physical presence. This technology is especially popular in the gaming industry and for training and practice sessions.

Augmented Reality

AR technology overlays computer-generated information onto a live view of a real environment. It enhances the view and allows the user to manipulate the information. This makes AR only partially immersive, augmenting the user's real world with virtual content. In a specific type of AR, Mixed Reality (MR), the computer-generated objects can also move behind real-life objects via so-called 'occlusion'. The key difference between AR and VR is that in AR, the user interacts with the real world instead of a simulation.

VR and AR technologies are popular among both consumers and businesses. They are used in, for example:

- gaming and entertainment
- healthcare simulations
- tourism destination marketing and virtual tours
- educational tools in various market segments
- architectural design
- engineering support functions

However, within these fields the purpose of VR and AR technologies differs. For instance:

Tourism

- VR – tourism organisations can use a virtual representation of their destination in their marketing to attract tourists
- AR – by adding virtual content to tourists’ real environments, AR can serve as a tour guide on location

Healthcare

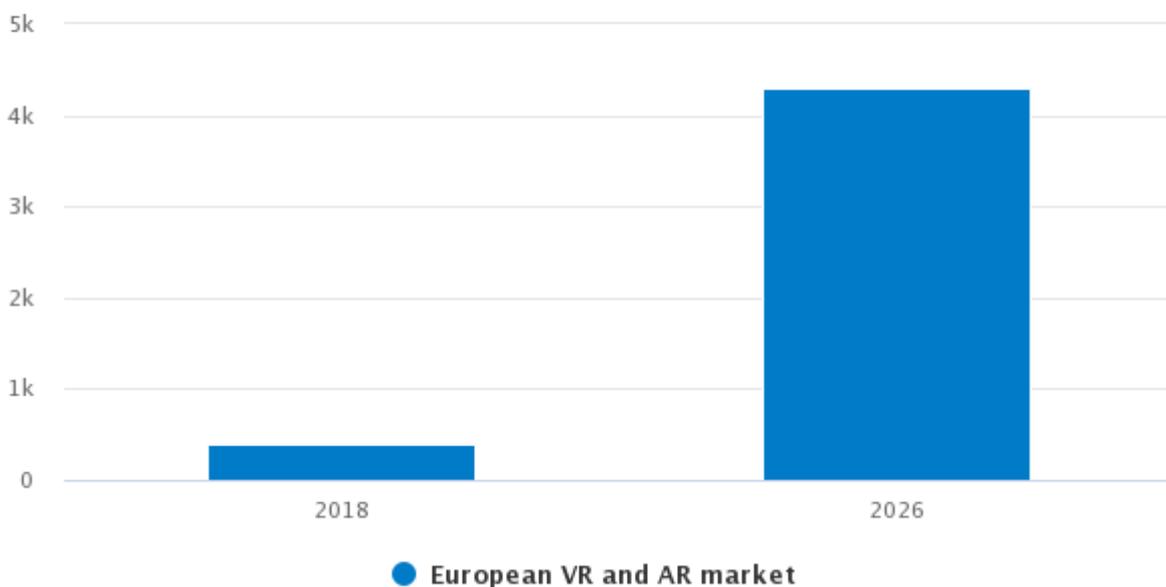
- VR – medical professionals can use virtual simulations to train and practice medical procedures
- AR – by adding virtual content during a live medical procedure, AR can assist medical professionals and improve accuracy

2. What makes Europe an interesting market for VR and AR services?

The European market for VR and AR is expected to grow exponentially between 2018 and 2026. With an average annual growth rate of an impressive 35%, the market is projected to reach a value of around €43 billion in 2026. This is more than ten times the market size of 2018. Although the COVID-19 pandemic tempered market growth in 2020, expectations for the long term continue to be very good.

Figure 1: European VR and AR market

in € billion



Source: Statista

Europe will be market leader

European VR and AR market growth is expected to outpace North America by 2023. By 2023, 25% of the AR/VR revenue worldwide can be attributed to Europe. North America’s market share will be around 17% at that time. In this process of rapid growth, both VR and AR will evolve into mature business technologies. Since 2018, VR has no longer been included in Gartner’s Hype Cycle for emerging technologies. AR followed suit in 2019.

AR is overtaking VR as the largest market

Currently, VR is the largest sector. The market is estimated to consist of about 30% AR and 70% VR spending. However, the AR market is expected to surpass the VR market somewhere in the next few years (some already expect it to happen in 2021) as global AR revenues are catching up with VR. From 2020 to 2025 the global VR market is expected to grow at a CAGR of 27.9%. In the same timeframe, the AR market is expected to grow at a CAGR of 38.1%.

Tips:

Build expertise and skills in AR, to benefit from the rapidly expanding market.

Develop consulting skills to advise potential buyers on how they can benefit from AR (and VR) and how you can realise this for them. The earlier you are involved in the project, the better.

Skills shortage

There is a large gap between the number of VR and AR jobs and the number of available developers. Currently around one third of every European company is looking for programmers. In Germany alone, [more than 124,000 IT jobs](#) are waiting to be filled. The most-desired AR and VR programming languages are C#, C/C++, Java, Python and Swift. [The most popular one is C#](#).

Besides programming, 3D design/rendering, video/sound production and UX development skills are also very important in VR/AR development. [The ten most-demanded AR and VR jobs are currently](#): software developer/senior software engineer, VR/AR maintenance and support, design/graphics engineer, software engineer, product and project managers, XR gameplay and tools engineer, accounting, auditing and finance, researcher, business development manager, and marketing, sales and distribution.

To fill the gap, many companies in Europe try to hire developers from abroad. Since the developer shortage affects most European countries, companies regularly recruit talent from outside Europe. An easier option, which provides more flexibility, is to outsource VR and AR tasks to offshore providers like you. The recent increase in remote working due to lockdowns may spur this on, as it blurs the distinction between in-house, nearshore and offshore teams.

Tips:

See XRA's Developers Guide for better XR, [Chapter 1](#) and [Chapter 2](#).

Keep your skills up to date. If possible, obtain certification and clearly communicate you are certified in your marketing and client interactions.

Specialise in a few programming languages, rather than several languages you do not fully control.

Cost reduction

Cost reduction remains an important reason for European companies to outsource VR and AR to providers abroad. VR and AR developers in developing countries normally cost less per hour than VR and AR developers in Europe. The lack of VR and AR skilled professionals in Europe further increases the cost of the available specialists, who are in high demand. Be aware, that if your offer is 'too cheap', European buyers may think it must be too good to be true and assume quality is low.

Tips:

Offer competitive pricing, but do not compromise on the quality of your services. Try not to compete only on prices.

In addition to your competitive prices, promote your expertise, experience, references, capacity,

flexibility, reliability and communication capabilities.

Nearshoring versus offshoring

European companies prefer to outsource services to providers within the same country, a practice also known as domestic outsourcing. When outsourcing abroad, they prefer providers in nearshore locations because of proximity, language, cultural similarities and minimal time difference.

VR and AR projects are often complex. Different professionals (software developers, VR specialists, 3D artists, animators, scene designers and UX specialists) must work together in one project. This makes good communication within the development team as well as between client and developer particularly important.

Traditionally, the buyer markets for VR and AR are Western and Northern European countries. The most popular nearshoring locations for companies in these countries are Central and Eastern European (CEE) countries such as Poland, Bulgaria and Romania. Not only do these countries offer the usual nearshoring benefits, but as they are members of the European Union, contracts and payments are governed and protected by the same European legislation as in the buyer countries.

However, [prices in nearshore countries are rising](#), partly driven by the shortage of software developers. This makes service providers in these countries less competitive than offshore service providers, which makes European companies more open towards outsourcing to farther destinations. You can choose to form subcontracting partnerships with these nearshoring providers or compete with them.

Tips:

Limit the possible disadvantages of being offshore. Provide excellent communication, availability in the required time zone, and good security and privacy measures.

Differentiate yourself from onshore and nearshore providers to remain competitive. Emphasise how you are different in your marketing message. Research what your competitors are doing right and wrong, to learn how you can differentiate yourself from them.

Partner with nearshore service providers, for example in CEE countries, that may be looking for cheaper providers with available workforce.

3. Which European countries offer most opportunities for VR and AR services?

[The European VR and AR research scene is concentrated](#) in France (particularly in Paris and Laval), the United Kingdom (London and Manchester), Germany (Berlin and Munich) and Sweden (Stockholm). The Netherlands and Italy are smaller countries, but still interesting destinations for VR and AR services providers.

Germany - Europe's largest economy

Germany is the largest economy in Europe, home to 19% of the European Union's population. The German economy is widely considered the stabilising force within the European Union, historically showing a higher growth rate than other member states.

[Germany has a long history of fundamental contributions](#) in areas of applied science, like the printing press and

the modern car engine. Germany succeeded in transferring that towards hardware and software technologies. Germany is in many ways leading the rest of the world with experiences like location-based virtual reality. [Germany is one of the top contributors to the global VR/AR market](#). In 2019, they contributed around 11% to the global VR/AR market. By 2030, VR technology is expected to boost [German GDP with €24.7 billion](#).

The main German industries in the VR/AR market are: the 'classic' creative media businesses, healthcare, automotive, finance and entertainment. The combination of VR/AR technologies and companies make Germany an interesting market for VR/AR service providers.

Germany is also facing a knowledge gap, specifically for the cutting-edge skills that VR and AR development requires. This means there is a large demand for VR and AR professionals. Germany is traditionally not very open towards outsourcing, but the country made a big leap during the pandemic. It has [softened Germany's generally stiff corporate culture](#) and shown companies what is possible with remote working and outsourcing.

There could be some language barriers when providing outsourcing services to Germany, as companies generally prefer to work and collaborate in German. Generally, you need an intermediary in Germany to communicate with (potential) clients for you.

The United Kingdom - remaining attractive despite Brexit

The United Kingdom is the second-largest economy in Europe. Among its main sectors are finance and banking, which are included in the services sector, the biggest contributor to the British Gross Domestic Product (GDP). By 2030, VR technology is expected to boost the British [GDP with €16.7 billion](#). Between 2019 and 2025, the United Kingdom's VR market is expected to grow at a CAGR of 33.3%. In the same time, the AR market is expected to grow at a CAGR of 36.5%.

The video gaming market is the most competitive VR/AR sector in the United Kingdom. Combining AR and VR (XR) is quickly gaining ground. The government supports the development of VR and AR companies. Most of them are located in London, but there are also some interesting companies on the East Coast and in Greater Manchester.

Factors such as highly developed graphics, less bulky and/or expensive hardware, new software platforms and tools for faster and easier AR application development make AR technology more usable and are expected to drive the growth of the AR market in the United Kingdom.

Of all European markets the United Kingdom is the most open to offshore outsourcing and the least cautious about doing business with developing countries. This openness is due to the nation's cost-saving business culture and historical ties to many countries across the globe.

France - a VR and AR frontrunner in Europe

[France is among the European frontrunners of VR and AR businesses](#), together with Germany, the United Kingdom and the Netherlands. The French VR and AR market is characterised by early adopting industries, a strong research background and solid public support. [France is one of the top contributors to the global VR/AR market](#). In 2019, they contributed almost 5.5% to the global VR/AR market.

The biggest VR and AR market segments are industrial VR applications (particularly 3D modelling and industrial design) and the entertainment industry.

France is generally a difficult market for ITO and BPO service providers, because outsourcing products or services abroad is not very popular. However, this sentiment is changing and if you can offer French-speaking services, the threshold for outsourcing is even lower.

Italy - a lot of potential

Italy is not considered a frontrunner in the European VR market. However, a [lot of potential for growth](#) can be found there. Italy is the third European country that has the most [European Union-funded VR research projects](#). It is the second European country in terms of receiving research funding from the European Union.

VR activity is spread out over the country, but many companies are located in the Milan area. Tourism is a very popular segment for the use of VR and AR technology in Italy.

The Netherlands - a creative European IT hub

The Netherlands has the sixth-highest GDP per capita in Europe. An impressive [60% of all Forbes 2000 IT companies have established operations in the Netherlands](#), making the country a real IT hotspot. It also has the [most tech-related start-ups out of the smaller countries](#).

[The Netherlands is among the European frontrunners for VR and AR businesses](#), together with France, Germany and the United Kingdom. Where the French VR and AR market is more research based, the Dutch market is more engineering based. Other characteristics of the Dutch VR and AR market are: willingness to experiment and a creative and highly skilled labour force. The biggest VR and AR industry segments are the film and gaming industry. The food and agriculture segments follow closely.

Companies in the Netherlands are traditionally fairly open towards outsourcing. In fact, [79% of the top IT-spending organisations plan to continue outsourcing at their current rate or even more](#) in the next two years. Language barriers are generally not an issue, as the Dutch are very proficient in English.

Sweden

Sweden is a small-sized powerhouse in the IT sector. It is one of the most tech-savvy countries in Europe. It is also considered to be one of the frontrunners in the European VR and AR business. Other characteristics of the Swedish VR and AR market are: [gaming studios and schools, the community character of the VR scene](#), gender equality in VR and a powerful women's scene.

Sweden has a strong economy. According to the European Commission, Sweden will come close to a [complete return of their economic powers in 2021](#). Like in the Netherlands, language barriers are generally not an issue because Swedes have excellent English skills. This, combined with the country's openness towards outsourcing, makes it an interesting market to focus on.

Tips:

Select your target market not only based on size, but also on cultural similarities, historical ties and shared languages.

Use the member lists of relevant industry associations to identify potential buyers, such as [EuroXR](#) and the national chapters of the [VR/AR Association](#). You can also attend (online) industry events such as [AR/VR World](#).

Make sure you have access to skilled professionals, for example by working with universities, setting up training courses or centres, systematically collecting and analysing CVs and having a partner network of companies and individuals.

Emphasise your professional skills in your marketing, as well as the lower costs you offer. For more ideas, see our [tips for finding buyers on the European outsourcing market](#).

4. What trends offer opportunities or pose threats on the European market for VR and AR services?

VR and AR are trends in itself. The basic techniques have been around for more than 15 years, but the main obstacle for a wide use of these techniques has been accessibility, first in software and then in devices. But now we are at a point where good VR and AR experiences can be offered through devices most people already have (like their smartphone, computer or game console). This is a breakthrough that seriously increases the demand for VR and AR developers and designers worldwide.

The COVID-19 crisis and VR and AR

The pandemic increased the adoption of VR and AR technology. With many Europeans forced to stay (and work from) home, the pandemic has emphasised the benefits of IT solutions such as VR and AR. The adoption of virtual meetings, conferences, exhibitions and other gatherings are fuelling the demand for VR and AR solutions.

Companies have become aware of the possibility that this type of disruption could occur again in the future, and of the effects this would have on their operations. In industries like healthcare and education, lockdowns and social distancing measures highlighted the need for technologies that allow essential tasks to be performed remotely.

At the same time, hiring additional staff to develop new solutions is generally not feasible. To solve this, businesses are coming to realise that ITO can make them more flexible and resilient in difficult times. In a 2020 survey among British companies not currently using ITO, 37% indicated they would consider outsourcing IT and development as a result of COVID-19. As remote working is blurring the distinction between in-house and outsourced teams, this could open new doors for you with buyers that were previously reluctant to offshore.

On the providers side, the COVID-19 pandemic disrupted business on a global scale. Clients have cancelled non-essential activities, moved their outsourced tasks back in-house, or even ceased trading altogether. However, the crisis has also offered opportunities for some providers. While 56% of participants (from developing countries) in a CBI webinar in April 2021 indicated that their business was negatively affected by the crisis, a promising 25% reported a positive effect.

Tips:

Consider offering VR and AR solutions for educational purposes. Various industries across Europe are investing in virtual training and education solutions. Examples are automotive, education, healthcare, aerospace and defence.

For more information about guiding your company through crisis situations, see our study on [how to respond to COVID-19 in the IT and Business Process Outsourcing sector](#) (ITO/ BPO).

5G mobile internet

VR and AR applications require considerable bandwidth. As 5G mobile internet promises to be considerably faster than 4G, it promises a greatly improved mobile VR and AR experience. The European Union intends to have 5G cover at least 40% of the European workforce by 2025, including 70% of European industrial sites and 80% of main logistics routes. And even though the number of Europeans able to connect to a 5G network almost doubled from 13% in 2019 to 24% in September 2020, it is still far behind the United States of America (76%) and South Korea (93%).

Smaller European countries currently seem to offer the highest-quality 5G experience, such as the Benelux and

the Nordic countries. Czechia also performs remarkably well. For now, 4G continues to be most common in Europe. However, 4G coverage varies across countries, both in terms of availability and download speed.

Tip:

If you provide mobile VR and AR services, focus on countries with good mobile internet coverage. For more information, see Open Signal's [State of the Mobile Network Experience 2020](#).

Transition from 2D to 3D

There is an increasing awareness of the benefits of 3D over 2D. Since people started using screens (or books), we increasingly do things in 2D. But humans are naturally programmed to do things in 3D. VR and AR let us experience the world in 3D and that is much more effective. For example, [people learn four times faster in VR \(3D\) than in regular training programs](#). They are also much more focused and confident after a VR training.

The education and training industry is increasingly recognising this factor and therefore is increasingly interested in working with 3D training programs. This conversion from 2D to 3D can also be seen in the market. The web has an increasing number of 3D elements, AR is supported by mobile devices and 3D functions are standard in most operating systems. However, the developments and possibilities in the VR and AR technologies go so fast that most European companies do not know what is possible and how VR and AR can benefit their business.

Portable or mobile augmented reality

[Portable or mobile augmented reality is one of the biggest growth segments within the AR market](#). It currently takes advantage of the widely distributed base of hardware such as smartphones and tablets. However, holding up a smartphone or tablet can be distracting and takes the immersion out of an AR experience. But most headsets are too large and expensive to be carried around all the time. Although progress is slow, the industry is working its way towards treating AR headsets as a wearable technology, like smartwatches and earbuds.

Within portable or mobile augmented reality, customer experience will be a major driver of commercial investments in these technologies. AR enables organisations to attract and engage clients and offer more meaningful experiences, injecting more content and more fun into the customer journey. This is especially true for the tourism and event industry.

You can develop mobile VR and AR software for:

- handheld mobile devices – especially suitable for AR experiences
- smartphone headsets – allow users to wear their smartphone like a Head Mounted Display, particularly suitable for immersive VR experiences

Tips:

Consider providing mobile VR and AR development services. The developments in this segment are going fast and you can tap into a relatively new market segment.

Follow technological developments and innovations to keep your knowledge and skills up-to-date and to understand what is happening in the market.

Refer to our study on [trends for ITO/BPO](#) to get more information about general ITO and BPO trends.

This study has been carried out on behalf of CBI by [Globally Cool B.V.](#) in collaboration with Laszlo Klucs.

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