



**Wipro iX Solutions**  
**Augmented Reality**  
**The Next Disruption**

**Every day, the line between fiction and reality is getting blurred by technological innovations. Some show up in the market, then vanish as quickly as they appeared. However, there are a few that are making an impact and transforming the way we live and work.**

Two of these transformative technologies have been augmented reality (AR) and virtual reality (VR). Each has made significant advancements in the past five years and continued to increase in popularity and acceptance. Trends show that the technologies are rapidly disrupting various industries, from healthcare to manufacturing and insurance to marketing.

Augmented reality is being adopted by both businesses and consumers. Companies are using it to improve processes and customer experience. Consumers are increasingly embracing virtual assistants. According to [IDC](#), worldwide spending on the technology is expected to reach \$18.8 billion in 2020, an increase of 78.5% compared to the previous year.

Global spending on AR and VR products and services is expected to continue this strong growth throughout the 2019-2023 forecast period, achieving a five-year CAGR of 77.0%. Commercial use cases will account for nearly half of the AR and VR spending in 2020, led by Training (\$2.6 billion) and industrial maintenance (\$914 million) use cases.

We are likely to see many exciting new hardware offerings, even greater immersion and realism, and increasingly innovative use cases as more people discover the potential AR and VR holds. Hardware will account for nearly two thirds of total AR and VR spending throughout the forecast, followed by Software and Services.

Industry experts believe augmented reality will deliver improved communication (72%), increased efficiency (69%) and marketing (61%), and new opportunities (68%) for businesses. According to an AR and VR survey report by [PerkinsCoie](#), gaming (61%), health care and medical devices (41%), education (41%) and manufacturing and automotive (23%) are sectors that will most likely be disrupted by the technology in the near term.

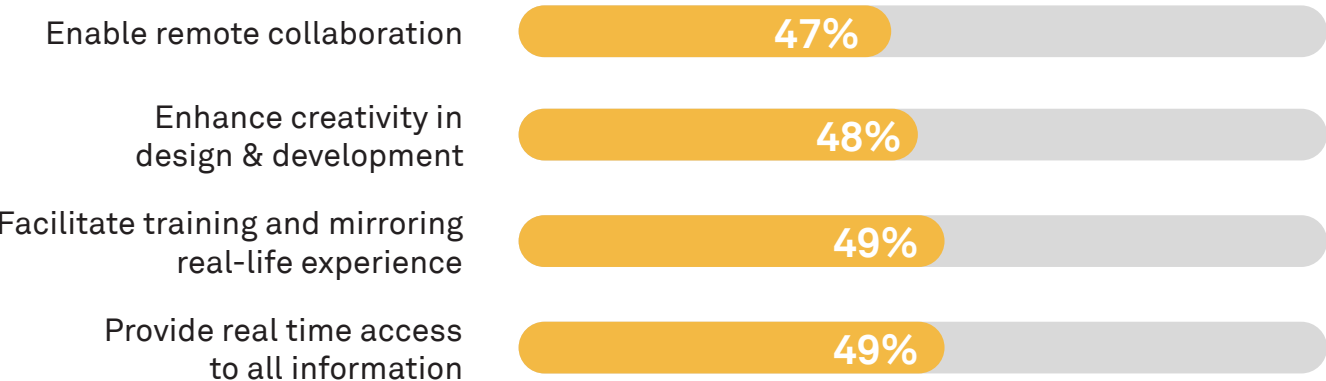


Global CAGR on AR Software & Services spending in next 5 years



Source: [IDC](#)

Top Workforce Development Benefits



Source: [PerkinsCoie](#)



# Factors driving AR enterprise adoption

## 1. Augmented Reality on Mobile

Apple and Google have recently released their AR developer kits. This support is giving both companies and individuals greater access to the technology. As consumers possess more mobile-based AR and VR devices we can expect to see more AR-based content. The opportunity to provide consumers with more immersive experiences will be attractive to brands developing marketing and sales campaigns.

Mobile AR applications have grown so much that Android phones with ARCore capability increased from 250 million devices in December 2018 to 400 million devices as of May 2019. Moreover 77% of Americans used mobile-based AR and/or VR in 2018. These can be attributed to the rising number of companies that use the technology.

## 2. Advancement in Augmented Reality Hardware

To experience AR and VR, you need the right tools, so naturally hardware is the largest segment of the industry in terms of consumer spending. As they proceed, hardware makers will need to take a hard look at Google's stumble when it introduced Google Glass in 2013. The poorly received "smart glasses" failed to excite consumers. Additionally, an [Adweek report](#) showed that 72% of consumers were hesitant to get the AR hardware for themselves, citing privacy as their main concern.

There's no question that the technology is gaining in popularity. Going forward expect hardware to be both more comfortable and address issues like privacy. In 2015, only 700 thousand units of AR headsets were sold. However, it is projected that sales will grow to 68.6 million units by 2023, suggested by [Statista](#).

## 3. Augmented Reality with Artificial Intelligence

AR and artificial intelligence (AI) complement each other. Adding AI to an AR application, by incorporating smart and cognitive functionalities, can bring even more effective solutions. For instance, computer vision, using a camera, is vital for AR because it allows objects in the user's field of view to be identified and appropriately labeled. This helps users to provide contextualized support. This technology will become increasingly sophisticated in the near future.

## 4. Augmented Reality with Internet-of-things

As automation increases with the rise of digital transformation and Industry 4.0, technology will be necessary that enhances what humans can do. Combining AR with internet-of-things (IoT) devices can create an interface that allows humans to better interact with machines, making it easier to gather data, enabling faster, more flexible, and more efficient processes, supporting data-driven decisions and providing smarter services.

AR and IoT can improve the way maintenance is carried out. AI can take the data from such IoT-powered devices and use it to build models of "predictive maintenance". This allows field service providers to spot patterns of failures and breakdowns and develop solutions—such as using alternative components—to improve the ongoing production and development of medical devices.

## 5. Augmented Reality with 5G

The widespread deployment of 5G mobile networks will allow AR and VR to thrive. The faster data speed, high bandwidth and ultra-low latency will give developers a larger canvas on which to design new experiences that allow the technology to reach its full potential.

Fully realized AR and VR will transform the retail experience—inside and outside the store. Marketers will now be able to individualize offers for customers and let them experience products in different environments. Research from [Gartner](#) shows that 100 million consumers will be shopping online and in-store using this technology by the end of 2020.



## 6. Augmented Reality Cloud

An AR cloud is a machine-readable 1:1 scale model of the world, continuously updated to ensure accurate representation of the environment at all times. AR clouds are being used for a myriad of use cases, including training, audio/video streaming, education, travel, real estate, healthcare, retail and social messaging.

AR cloud is particularly useful for navigation indoors, where GPS is not very effective. Spaces such as shopping malls, exhibition centers, and warehouses can be mapped so that customers, visitors, and workers can easily be guided to specific locations. Event organizers can also use AR cloud to design, schedule, and manage physical and virtual environments remotely.

Google, Apple, Facebook and, Amazon have all released their own AR studios. With the support of these tech giants, we can expect to see many more AR applications in the near future.

## 7. Web Augmented Reality

Web AR gives advertising a revolutionary new look with the use of AR enabled smartphones. Users can point their device at an object of interest and a 3D annotation will be projected above it.

Adopting WebAR for your business ads can mean better engagements with your target. Since its [release](#), 80% of end-users have spent more than one full minute within each published WebAR they have experienced. WebAR can also help you to reach new potential customers online, encouraging engagement with lower cost and faster deployment. Additionally, a recent report published by ARTillery, the global market for WebAR compatible devices is at about \$2.97 billion. Meanwhile, there are 1.11 billion ARKit and 550 million ARCore compatible devices. This means you can reach more people just from your native app.

# Conclusion

Augmented Reality is playing a massive role in digital transformation. It is changing the way we live and work. This technology is paving the way for more immersive experiences for the students, improving navigation for drivers, and reinforcing medical procedures in healthcare. Moreover, AR is making it possible for distributed teams to collaborate seamlessly, connect with remote experts faster to resolve in-the-field issues, and marketers to create increasingly effective and efficient campaigns.

These innovations will lead consumers to set higher expectations for the brands that they do business with. So now is the time for companies stay ahead of the curve and reshape their business journey by incorporating AR and VR into their operations. You can start small by leveraging AR-enabled apps internally, or as part of your company's learning and development program. Alternatively, you can use free AR development kits from Google and Apple to equip your business app(s) with AR properties during the application development phase.

# About the author

## Vijay Garg

Vijay is the Global Sales Leader for Wipro's Interactive Experience (iX) practice. He has over 20 years of experience in dealing with CxO level clients across Fortune 500 organizations and expertise in technology innovation, digital transformation and customer experience enhancement. His responsibilities include business development, pre-sales, digital transformation, and strategy and planning.

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