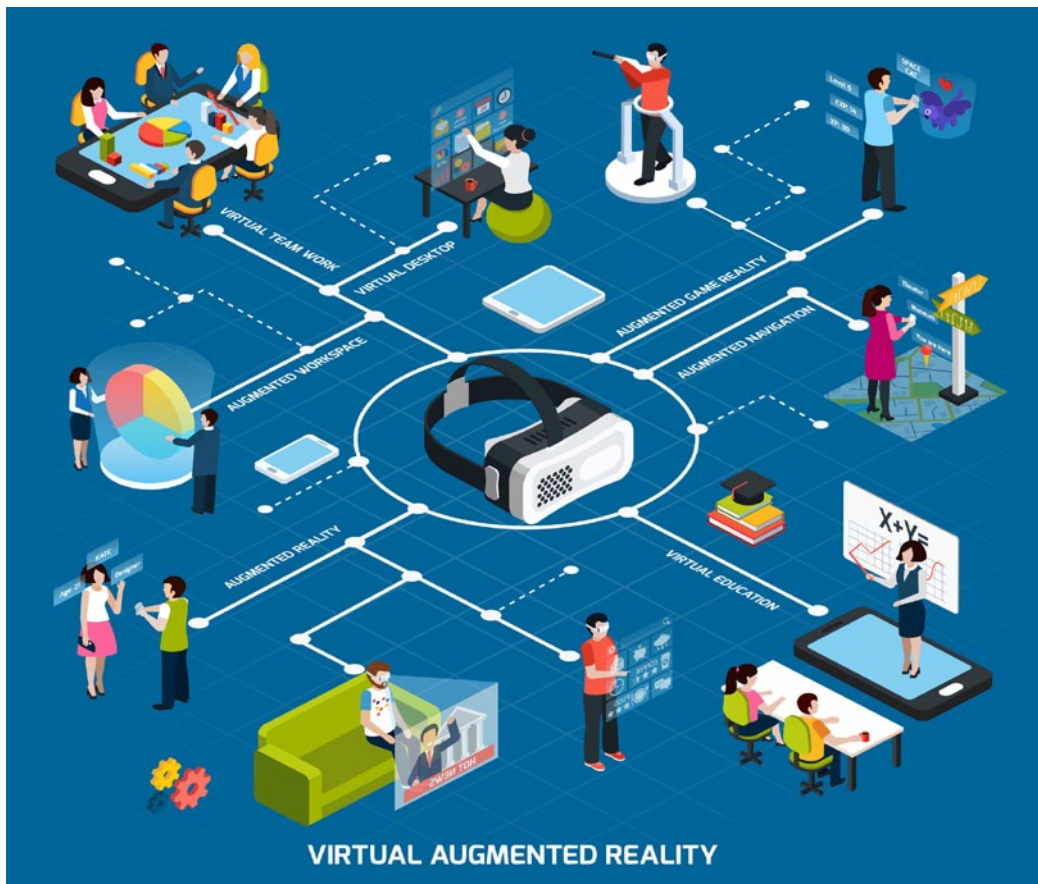# AR And VR Market Size Likely To Grow Exponentially

To succeed in the AR/VR market, adopting perfect strategy is the most important task because competition is increasing drastically

VIRTUAL AUGMENTED REALITY

Deepshikha Shukla

Augmented reality (AR) is a unique technology through which people can have an interactive experience of a real-world environment where real objects are showcased either through various sensory modalities or via computer-generated perception information. It also includes visual, auditory, haptic, somatosensory and olfactory experiences. In a simple way, it amalgamates the physical environment and digital information, which helps people to view the superimposed object
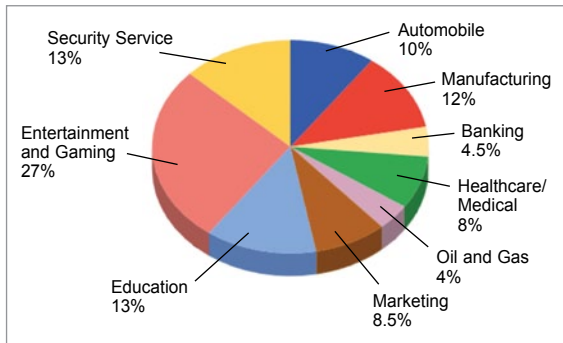
Fig. 1: VR and AR application field and their market share

as reality. This technology is bringing scores of innovative opportunities for upcoming and existing businesses and trade. Through AR, people from various professions are being benefitted and can impose the graphics generated from computers in their field-of-vision (FOV).

In contrast to AR, virtual reality (VR) can be experienced through devices that make people fully immersed in simulated or non-realistic environments. The basic difference between the two is that VR produces an artificial environment, whereas AR simply uses the current environment by superimposing a new environment or objects on top of it. Specially-designed headsets and glasses can be used for visual immersion, while handhelds and wearables offer tactile immersion.

Currently, both technologies have gained massive demand and popularity across such applications as healthcare, life and sciences, media, gas and oil, tourism, education and training, gaming, entertainment, military, marketing, e-commerce and retail. But market researchers have now predicted that retail and e-commerce will need to push this technology more because of escalating competition among industry tycoons.

Sudden augmentation of demand for mobile devices and efflux in R&D investments are the most imperative factors responsible for the growth of the worldwide AR and VR market.

The healthcare sector is also using this technology for training through 3D modelling. As per market insights provided by MediaTek, Imaginate and Institution of Engineering and Technology India, different applications of AR and VR share an approximate market share as represented in the 3D pie-chart given in Fig. 1.

Companies investing in AR/VR

Unlike other consumer electronics available in the market, demand and adoption ratio of AR/VR technology is a quite low, which is also due to the high price and impact of VR headsets on eyes. Many of the leading multinational tech companies are now investing and preparing budgets for VR/AR R&D so that the technology progresses more.

Microsoft is now said to be leading in this technology, as along with millions in investment it also owns the rights for over 10,000 AR/VR patents across thousands of patent families. Apart from Microsoft, Intel and Sony are also investing a lot in this technology for its enhancement.
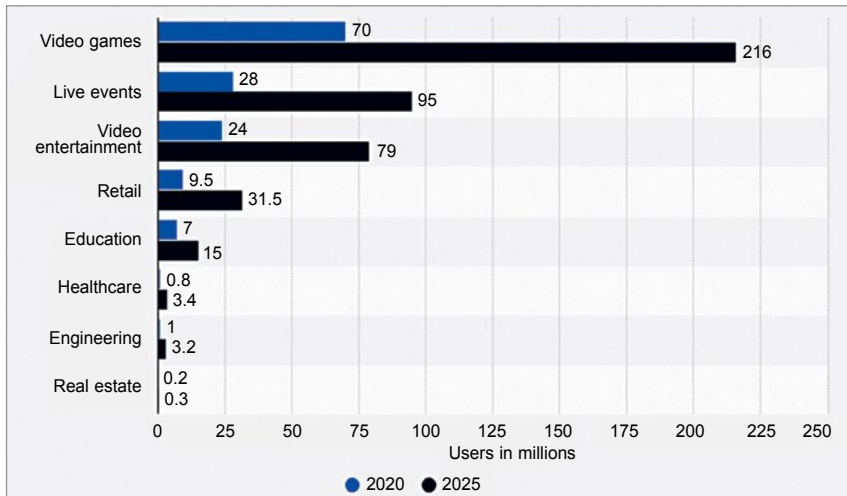
It is not only buyers and media

Fig. 2: Forecast user base of the augmented and virtual reality software market worldwide in 2020 and 2025, by segment (in millions) (Source: Goldman Sachs Statista 2018)
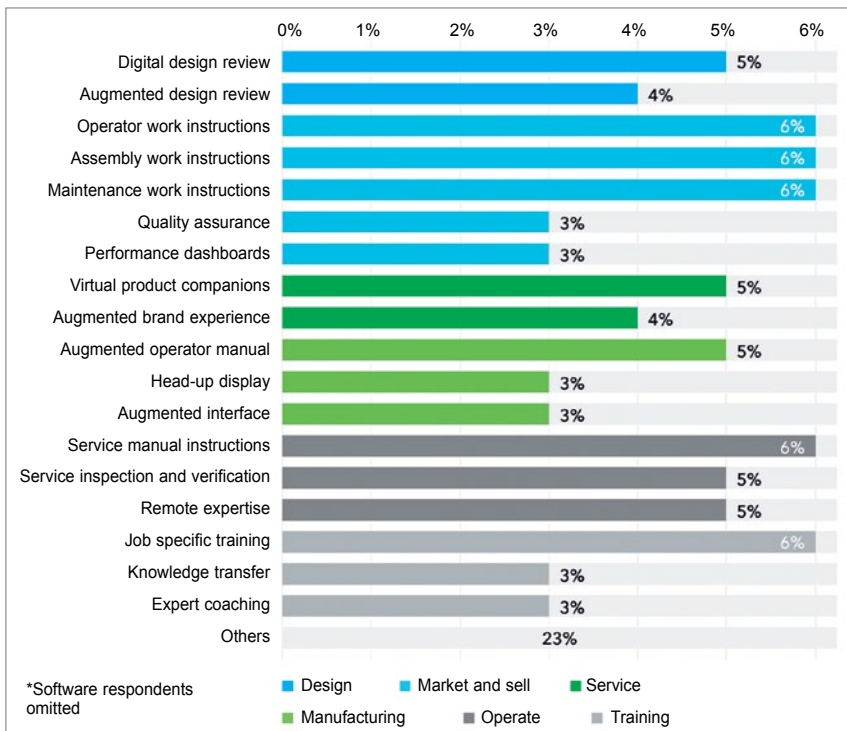

Fig. 3: AR use-case adoption (Source: ptc.com—The State of Industrial Augmented Reality 2019)

planners who want to include more AR/VR ads into their campaigns—which is useful to perk up user experience—popularity of this technology has reached such an extent that giant companies are now pushing for more VR training as an important element apart from existing training routines.

Global MNCs dominating Internet platforms, such as Microsoft, Google and Facebook, have wrapped the entire value chain, starting from the terminal dais to interactive devices and then distribution platforms to developer tools. String distributing platforms and innovative developer tools are attracting numerous third-party companies or startups to craft content for AR/VR, which then helps construct a full-fledged ecosystem.

The AR and VR market is segmented based on device type, component, technology, platform, device application and geography. Further, e-commerce and marketing applications are bifurcated into real estate, footwear, beauty (cosmetics), jewel toning, apparel fitting, furniture and lighting design, grocery shopping and other commercial verticals.

Additionally, consumer applications are further categorised into gaming, sports and entertainment, aerospace and defence, medical and other consumer verticals. Entertainment applications include theme parks, games, art galleries and exhibitions, museums (archaeology) and movies.

The medical application segment is classified into surgery, pharmacy management, medical training, fitness management, etc.

Other applications of AR technology include automotive, geospatial mining, enterprise solutions, and architecture and building design.

Market forecast

In the coming years, overall market size of AR is speculated to increase exponentially, predicts Statistica. It further predicts that revenues earned from the AR/VR market have managed to reach US$ 27 billion, and they should increase to US$ 209.2 billion by 2022.

Another research agency, Research and Markets, stated that between 2019 and 2026, both AR and VR markets would increase at a 38.4 per cent

Experts' views

The commercial market of AR/VR is going to see continuous expansion as deployment costs decline and full deployment becomes tangible. Focus is shifting from talking about benefits of the technology to implementing real and measurable business outcomes, including productivity and efficiency gains, knowledge transfer, employee's safety and more engaging customer experiences.

—Giulia Carosella, research analyst, IDC

VR/AR technology today is becoming a part of our everyday lives, right from social media filters and virtual shopping tours to applied training programmes. With Indian AR and VR industries poised to grow to US$ 5.9 billion and US$ 0.5 billion, respectively, by 2022, India is set to emerge as one of the largest suppliers of the global immersive technology demand.

Further, India's capabilities across engineering and technology, content generation and mobile application development will enable the creation of personalised content that will appeal to a larger demographic profile and audience, furthering its stronghold across technical capabilities. With increasing investments flowing into this space, AR/VR technology will create new possibilities in the way the world works.

—Shekhar Sanyal, director and country head,
The Institution of Engineering and Technology India

Important technology enablers including 5G, artificial intelligence (AI) and machine learning/deep learning, and devices are setting the right stage for AR/VR to take off. It has already taken off, but mass adoption will spur with these enabling technologies. Consumers have so far lived with the tech, which means they have interfaced with the technology through content made available to them.

For instance, chats, pictures, videos, games, etc, everything has been across the screen and we have been interfacing with the content through keypad, touch, gestures, etc. So, AR/VR is going to be the future of content for consumers as well as industrial /enterprise use-cases, where humans will be more through the tech.

—Faisal Kawoosa, founder, techArc

As per Counterpoint Research, global XR device shipments are set to grow at a CAGR of thirty per cent during 2019-2025. Extended reality (XR), which includes VR/AR/MR (mixed reality) is one such technology that will benefit from the introduction of 5G and AI.

In the consumer world, XR is already gaining popularity as one of the top initial 5G-era use-cases from consuming 4K, 360-degree, multi-view live streaming VR/AR content to the real-time multiplayer cloud and spatial gaming. We have seen a lot of tethered AR/VR implementations in this decade. However, with the advent of such technologies as 5G and Wi-Fi 6, we are entering a new era of untethered XR experiences, making it more useful beyond the four walls.

—Satyajit Sinha, research analyst, IoT, Security & Devices, Counterpoint Research

CAGR and have a market value of US$ 172.8 billion.

As of now, there are about 1684 AR startup companies, as stated by AngelList. It also surveyed that in 2019, there were 2048 VR startups on the platform, as well as 970 investors and 375 jobs. Moreover, the AR sector accounts for 113 investors and 436 job positions.

The new survey report by IDC titled 'Worldwide Augmented and Virtual Reality Spending Guide' revealed that worldwide spending on AR/VR services and products will continue to mount all through the period of 2019-2023, thereby gaining a CAGR of 77 per cent.

Commercial sectors will lead the spending on AR/VR solutions. Commercial industries that are expected to spend the most on AR/VR in 2020 are retail (US$ 1.5 billion), discrete manufacturing (US$ 1.4 billion),

training (US$ 2.6 billion) and industrial maintenance (US $914 million). Around US$ 7 billion will be spent by consumers in the coming year, of which the gaming section will profit US$ 3.3 billion, and features at US$ 1.4 billion because VR headsets are becoming cheaper, thanks to the path shown by Google.

The VR/AR market in the aviation sector is speculated to escalate from US$ 78 million in 2019 to US$ 1372 million by 2025, at a CAGR of 61.2 per cent during the forecast period of 2019-23. Increased efficiency and cost savings are major factors driving the growth of the AR/VR industry in aviation.

Hardware and software market for AR/VR

As stated above, AR and VR captures a very diminutive market share in the

technology domain but is massively expected to gain popularity and prominence in the coming few years because of increasing use-cases and global companies' focus to display innovative technologies via a partnership approach. Giant tech companies are also welcoming a hybrid strategy to leave their footprint on both hardware and software segments. They are buying startups and building their R&D to progress this technology more.

As VR popularity is increasing, shipments of headsets are speculated to escalate four times by the end of 2022. The software market is mainly centred on mobile device AR, which is equipped with SDK packages. Developers can now add AR capabilities to phone cameras, for example, and to apps such as Facebook and Snapchat.

To be able to scale and deploy VR training, a platform is needed that can carry out these functions, while also being able to integrate with existing systems. Apple's ARKit and Google's ARCore are both driving the mobile AR market.

Education and training are other major areas driving adoption in this segment. Apart from this, current developments in AR software platforms (for example, addition of vertical space detection in Apple's AR Kit) and upgraded development of application support have led to maturation of AR-enabled applications in smartphones.

Game engines like Unity and Unreal are critical to AR/VR development. They provide an expansive toolset for developers to work with. Furthermore, Apple and Google have improved their AR-oriented developer libraries as well as allowed creation of never-seen-before AR experiences. Research and Markets' new report predicts a market value of US$ 38.7 billion for VR headsets by 2024.

Conclusion

Technology has been going through a huge revolution for the past several years. VR and AR have been a huge part of this revolution. Emerging companies must keep in mind that, to succeed in the AR/VR market, adopting perfect strategy is the most important task because competition is increasing drastically.

In the last five years, the momentum of AR/VR market has been very active and, hence, scores of companies, both startups and MNCs, have rushed to develop this technology. Education and retail segments are now driving this market. Consumers will make the market bigger because prices are going down and the technology is maturing.

With current figures in hand, we can say that the AR/VR market has not yet reached its full potential. However, numbers definitely show a huge revolution in the industry. Several businesses are at the forefront of experimenting with AR/VR services and technologies to keep pace with growing customer interest. Emerging players in this segment will gain more opportunities from diverse demands of business customers. EFY