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IDC MARKET SPOTLIGHT

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Modern virtual reality (VR) started life as a consumer-focused technology, but forward-thinking enterprises recognized its potential to change the way employees train, collaborate, and get work done. VR market leaders are focused on commercial needs, and the enterprise market is growing at a fast clip.

Technology Evolution and Use Case Expansion Drive Virtual Reality Growth in the Enterprise

May 2020

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Introduction

The modern era of virtual reality (VR) technology kicked off in 2016 with the critical launch of pioneering products that leveraged the advancements in display and graphics technologies to create products focused primarily on early adopting consumers. A VR headset takes the wearer out of his or her current reality and places the person into a virtual reality, wholly rendered in a headset that places a high-resolution display inches from the wearer's eyes. A good VR experience requires a carefully created experience that merges artificial sights and sounds into a believable experience for the wearer. We should note that VR existed before this, but it was a niche technology utilized primarily by companies and governments that could afford high-end, purpose-built solutions. This IDC Market Spotlight examines the key drivers to the growth of the enterprise VR market in 2020 and beyond.

AT A GLANCE

KEY STATS

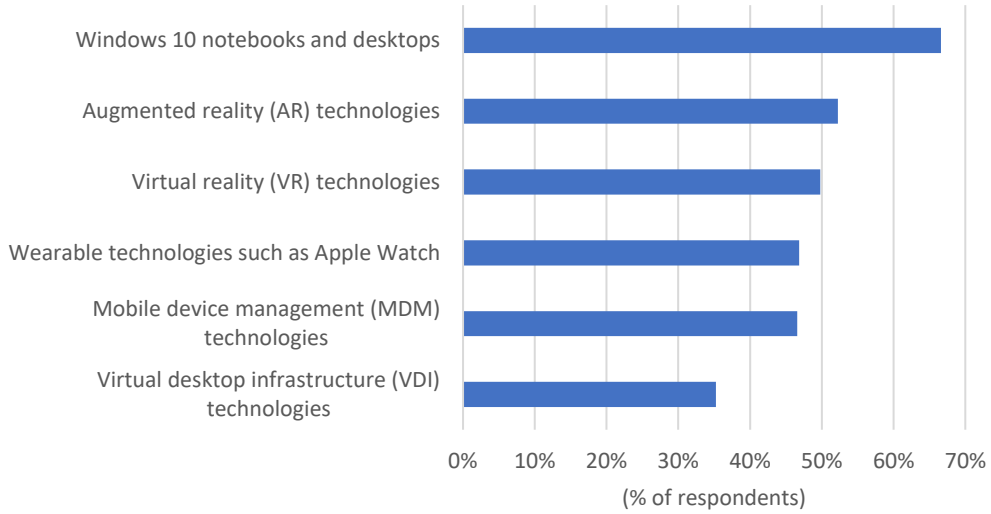
- Worldwide spending on commercial virtual reality solutions inclusive of hardware, software, and services will grow to $7.1 billion in 2020, up from $4.5 billion in 2019.
- The percentage of virtual reality headsets shipped for commercial use cases is growing much faster than the percentage of virtual reality headsets shipped for consumers. Commercial headset shipments grew 92.5% year over year in 2019, and the market is forecast to grow another 70% in 2020.

In 2016, early consumer-focused VR applications centered primarily on 360-degree video experiences and gaming. While VR vendors focused those first products almost entirely on consumers, visionary people inside many enterprises immediately saw the potential for VR inside their organizations. In the span of a few short years, that potential has grown into an imperative for many companies as they race to embrace VR as a key driver to success in a highly competitive market. In an IDC survey conducted in the United States in 2019, 50% of IT decision makers (ITDMs) said their company had already begun to research, test, pilot, or deploy VR (see Figure 1). Of the respondents who hadn't started the process, a clear majority said they expected to in the future.

As more companies began to recognize the advantage of using VR in the enterprise, the major VR vendors moved to expand their hardware, software, and service offerings to include enterprise-focused solutions. As recent world events have forced an increasing number of people to work and collaborate from home, this shift has proved fortuitous. Inside the headset market itself, commercial shipments grew to 36% of total shipments in 2019, and that percentage is forecast to grow to 39% in 2020 for a total of nearly 4 million units. This shift has helped drive dramatic growth in the purchase of commercial-focused VR solutions, driving substantial year-over-year increases in commercial VR industry revenue, as illustrated in Figure 2.

FIGURE 1: ***VR Technology Testing in U.S. Companies***

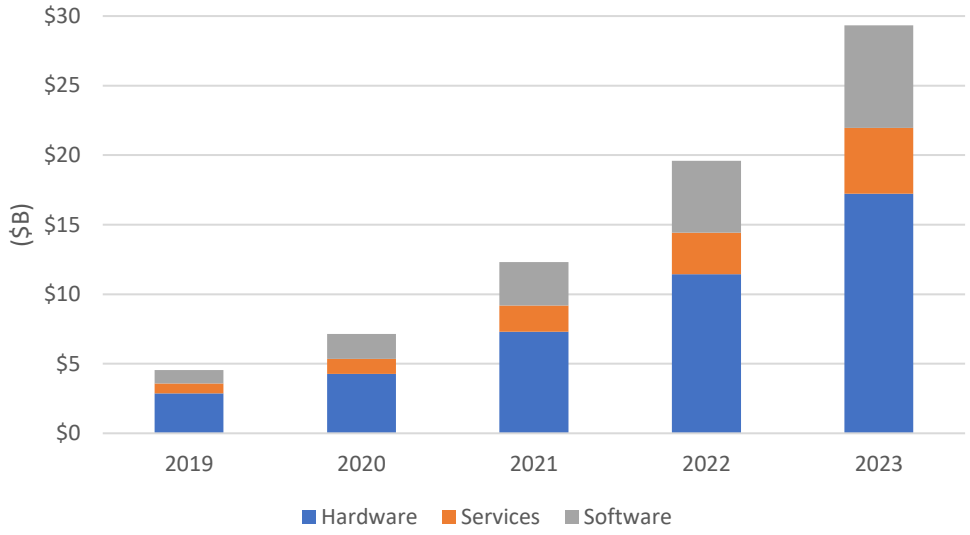
Q Has your company researched, tested, piloted, or deployed any of the following technologies?



n = 350

Source: IDC's AR/VR Commercial Survey, 2019

FIGURE 2: ***Commercial VR Hardware, Software, and Service Revenue Forecast***



Source: IDC's Worldwide Augmented and Virtual Reality Spending Guide, November 2019

Major Enterprise VR Benefits

From the outset of the current VR market, fast-thinking line-of-business managers and cutting-edge ITDMs recognized the business opportunities of the technology despite its early focus on consumer use cases. As the VR industry has shifted its focus to better address the needs of the enterprise, commercial use cases continue to expand. Over time, we expect VR to multiply into a wide range of new use cases, but in 2020, the following use cases represent the most straightforward and impactful for organizations starting down the path to adoption:

- **VR collaboration.** VR has a crucial role to play in organizations when it comes to employee collaboration across a wide range of use cases, inclusive of VR meeting, screensharing, whiteboarding, 3D design, and data visualization. Many organizations are actively experimenting with VR to create better, more inclusive remote collaboration scenarios. The COVID-19 crisis has magnified the need for VR collaboration and has caused many organizations to fast-track this use case for key users. VR collaboration can replace awkward voice- and video-based conference calls with a virtual setting where all participants are present in a room via avatars. VR interactive discussions can be driven by the facial expressions and social cues present in real life, smoothing interactions and driving meeting efficiencies. Moreover, VR provides the ability to view digital data and objects in a group setting, with participants able to interact and manipulate these assets in real time.

- **VR design collaboration.** Design and manufacturing firms have leveraged VR to drive a unique level of collaboration that allows them to iterate on product designs in VR quickly. While design teams have long used 3D software to create products, designers traditionally viewed these designs on traditional monitors in 2D. With VR, designers can adjust and manipulate designs in 3D, which leads to better, more informed design decisions. Conventional design processes also typically require the creation of product mockups (working or otherwise), which is a costly and time-consuming practice that VR can help eliminate. Utilizing VR, teams across the globe can quickly create, iterate, and complete design decisions, cutting the time to market and related costs significantly. Many organizations have begun to use VR to streamline their actual manufacturing processes, too. By using VR to configure their manufacturing plants, they can create new production efficiencies while saving time and money on the plant floor. Cost savings is, again, a key component of VR in product design and manufacturing and one that most firms can realize soon after implementing new VR processes.

- **VR events.** As COVID-19 has forced the cancellation of major trade shows, industry events, and even day-to-day sales calls, an increasing number of organizations are looking to VR as a possible answer. Utilizing VR to hold employee events can drive a sense of unity among geographically dispersed workers. The technology can also make it possible to run important software and hardware demonstrations that would typically be done on stage at events or in face-to-face sales settings. Further, VR makes it possible to still hold external events that include important elements such as featured speakers, product videos, and expert panels. While the current volume of fully virtual events is still relatively low, the broader VR industry is focusing notable time and energy on making this happen.

- **VR training.** One of the most immediately obvious benefits of VR in the enterprise is for the training of employees. Early on, this training focused primarily on specific use cases where real-world training was either too expensive or too dangerous. For example, many organizations used VR to train employees on high-value machines that couldn't be taken out of use for training purposes or that they couldn't risk trainees damaging. VR is also excellent for training people in scenarios that are dangerous in real life, such as doctors training for complicated surgeries or emergency personnel training to deal with life-threatening situations such as fires. Over time organizations have come to realize

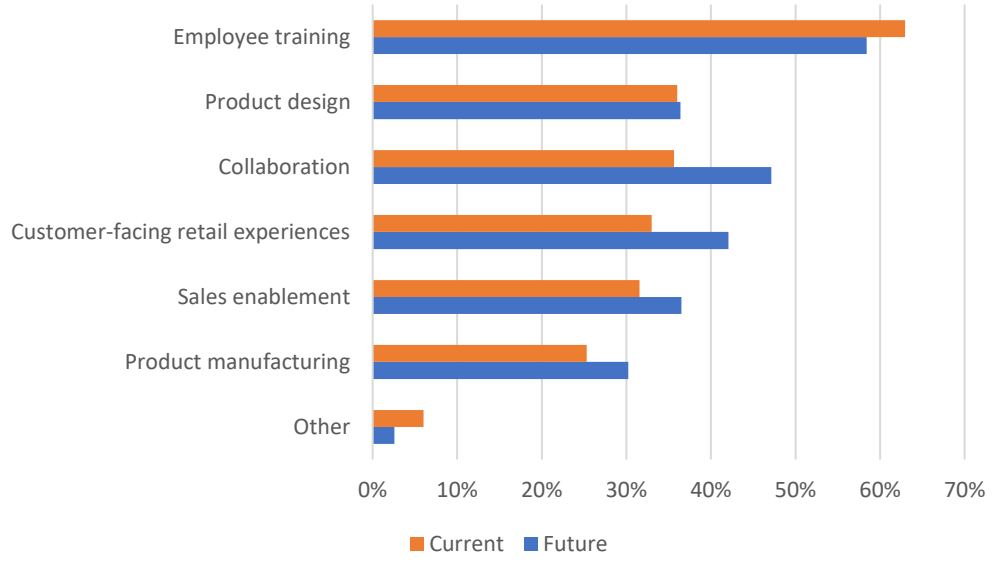
that VR has much broader application in training, including initial onboarding scenarios for new hires and basic customer-facing experiences. More recently, firms have begun to utilize VR for soft skills such as dealing with challenging employee issues and hiring and firing. As companies face an increasingly tight labor pool, VR training becomes a critical recruitment and retention tool, showing prospective hires and current employees that the company is using the latest technology to enable its employees to succeed. A key theme with training and repeated across use cases is the clear and measurable return on investment (ROI) that VR can deliver. From faster ramp-up for new employees to better knowledge retention and savings from a lessened need for travel, VR can drive fast and long-lasting cost savings in the area of training.

» **VR education.** While VR training focuses primarily on employees, VR education is geared more toward the student population. Focused primarily on next-generation educational formats geared toward acknowledging that no two students learn the same way, VR in education can be seen as an empathy-building technology designed to bring about the best outcomes for every student. In addition to bringing to life regular lessons and driving interactions among students and between teacher and student, VR has the potential to radically change student testing.

In an IDC survey conducted in the United States in 2019, we asked respondents inside companies about the current benefits they are experiencing using VR and their expectations around future use. Notably, employee training, product design, and collaboration were the top 3 uses, with collaboration expected to grow significantly in usage going forward (see Figure 3).

FIGURE 3: ***Primary Current and Future VR Use Cases for Current Commercial Users***

Q How is your company currently using VR? How do you expect your company to be using VR in the next 12 months?



n = 200

Source: IDC's AR/VR Commercial Survey, 2019

Key Enterprise VR Trends

The VR market is still relatively young, and we expect the industry to continue to evolve at a rapid pace as more organizations embrace the technology and industry vendors continue to ramp their enterprise-focused solutions. Key trends to watch for the next few years include the following:

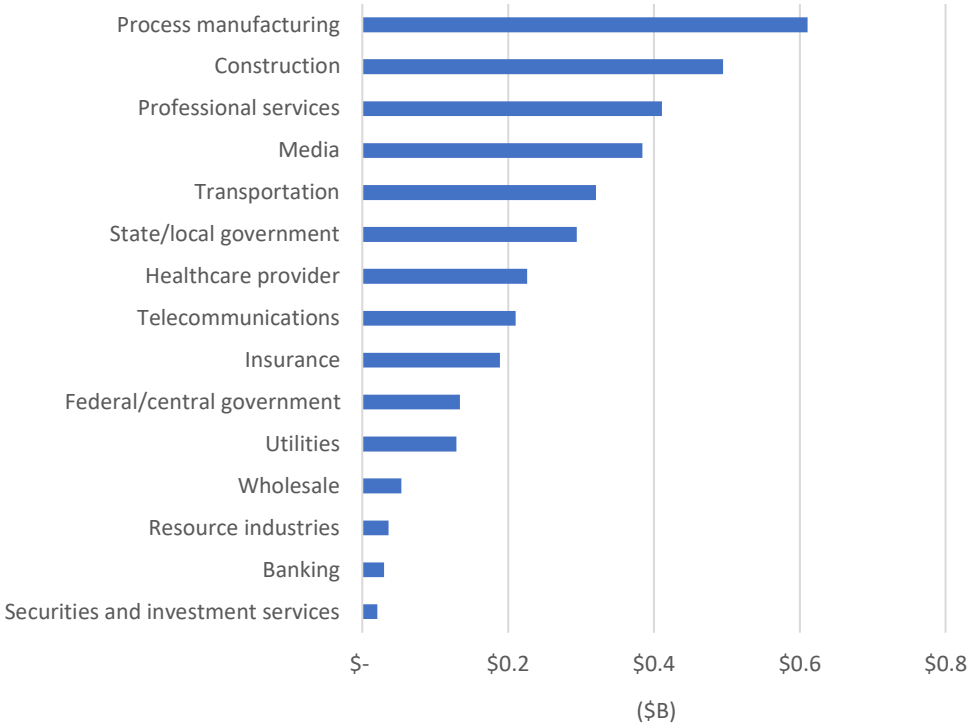
- **Iterative upgrades of existing hardware that drive new experiences.** In just a few short years, VR hardware vendors have dramatically improved their headsets through iterative improvements to the technology. Today's headsets are more comfortable to wear, have higher-resolution displays, and include numerous new features that help drive new commercial-focused uses. One of the key developments has been the integration of required compute capabilities into standalone headsets, so there's no need to utilize a smartphone or a PC to power the VR experience. These new standalone products are ideal for commercial scenarios where top-end graphics are not required and where a lightweight, untethered experience is more important. Another key feature included in some headsets is "inside out" tracking, which eliminates the need for outside sensors to track the user. With sensors and cameras on the headset, these VR experiences can be easier to set up and use while utilizing less physical space. Another key new feature appearing on some headsets is hand-tracking capabilities. This feature lets users put down the traditional handheld controllers and interact with VR using just their hands, which can drive increased immersion that can be key to soft skills training and other VR experiences.

VR hardware is only as good as the software that runs on it, and one of the key areas of growth to watch in the coming years is the predicted explosion of commercial-focused applications designed to drive enterprise VR experiences.

- **Increased focus on commercial software and enterprise use cases.** VR hardware is only as good as the software that runs on it, and one of the critical areas of growth to watch in the coming years is the predicted explosion of commercial-focused applications designed to drive enterprise VR experiences. At present, much of this software is developed as purpose-built applications to serve specific company needs. Over time we expect more general-purpose commercial VR applications to emerge as the utility and cost savings become more evident to a broader range of organizations. In addition to software, companies also require assistance when it comes to choosing, procuring, deploying, and managing their VR solutions. We expect the industry to continuously evolve in response to these needs, with major VR players partnering with trusted third-party partners to address the needs of their new commercial customers. New types of procurement, such as VR as a service, where companies pay monthly fees to have experts deploy and manage their fleets of VR hardware, are also likely to become more common.

- **Increase in VR spending across a wide range of vertical industries.** We expect VR to become a pivotal technology to an increasingly large number of business types. Training, collaboration, and customer service are requirements across company types. Over time new use cases will further drive growth across industry verticals. We forecast commercial VR spending will grow to $7.1 billion in 2020. Figure 4 illustrates our forecast of the top 15 industries for VR spending.

FIGURE 4: ***Commercial VR Spending for 2020 by Industry***



Source: IDC's Worldwide Augmented and Virtual Reality Spending Guide, November 2019

Important Considerations

VR has a vital role to play in the enterprise, and many organizations are reaping the benefits today. But as the broader market moves toward adoption and commercial VR shifts from early adopters to more mainstream businesses, there will be challenges to overcome, just as there are with any next-generation technology. Key challenges — and the opportunities inherent in them — include the following:

- **Inexperienced IT.** One of the key challenges that any organization faces as it rolls out VR is that very few people in the IT group are likely to have experience with VR. That means there is a steep learning curve around understanding the hardware, software, and service needs of a company that's just beginning its VR journey. In addition to the standard challenges of buying, configuring, deploying, and managing VR hardware, there are other challenges unique to the technology. How will you charge standalone headsets? Do you have the right PCs for tethered headsets? Is the company data on those headsets secure? Do first-time users know how to start a VR experience? Are headsets adequately sanitized between uses? All these potential issues must be addressed during the proof-of-concept and pilot stages to ensure a smooth move toward deployment. Companies that carefully address these challenges at the outset can drive improved opportunities and outcomes sooner.
- **Finding an independent software vendor (ISV) partner.** The best VR hardware in the world is of little use without the right applications. That's why its so important for enterprise organizations to find a trusted ISV at the beginning of the process that can help create the purpose-built VR software they will need to accomplish their goals with VR. Companies

must spend adequate time vetting ISVs, ensuring that their chosen partners fully understand the use cases for which they are designing, the key performance indicators (KPIs) that they'll apply, and the hardware they intend to use. Companies must be sure to leverage key executives within the line of business to set clear goals for the first application, not rushing this part of the process. Time spent getting things right at the front end will speed the process at the back end.

- **VR technology's consumer roots.** Companies should expect there to be some pushback from employees who may have had negative experiences with early versions of consumer VR that utilized smartphones placed inside special headsets. While many employees saw these first experiences for what they were (a low-cost way to try VR), many others had outsized expectations of these new products and found them disappointing. Worse, some employees may have experienced physical discomfort due to the technical limitations inherent in these devices. The upside is that most enterprise-focused VR products today offer a notably better experience. Once most employees try VR, they come to realize its real power and potential.

Conclusion

Enterprise VR is here today. Companies beginning their embrace of the technology should focus on critical use cases such as collaboration, events, training, and education. As they gain experience with VR, and as the technology evolves, more use cases will appear, and companies will be ready to take advantage of them. VR has a vital role to play in most companies, and as competition for the best employee talent continues to increase, the technology could well be a key differentiator for many organizations.

IDC expects VR hardware to continue to improve at a rapid clip, bringing new features such as hand tracking to the user experience. Just as important, we expect software developers to increasingly focus on commercial-centric use cases, bringing new features and functionality to current VR experiences. Further, we expect the entire selling motion of commercial VR to evolve rapidly in the coming years as more firms engage with today's VR leaders and their trusted systems integrator partners.

MESSAGE FROM THE SPONSOR

About Oculus

Oculus for Business helps enterprises defy distance and deliver secure, reliable VR experiences designed to transform training, collaboration, employee engagement, and more.

The platform includes the company's VR headset, Oculus Quest, which delivers a truly immersive VR experience with six degrees of freedom and controller-free hand tracking. There is no need for a PC or wires.

Oculus for Business also includes software to set up and manage VR deployments, a tailored in-headset experience, and enterprise-grade security and customer support.

To learn more and see how leading companies are reimagining work with Oculus for Business, visit ***https://business.oculus.com***.

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Tom Mainelli manages IDC's Device & Consumer Research Group, which covers a broad range of hardware categories, inclusive of both home and enterprise markets, as well as IDC's growing consumer research practice. Tom has also helped lead IDC's Augmented and Virtual Reality research, focused on the ways these technologies will impact how we live and work.

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