



A NEW REALITY:
**THE ENTERPRISE
IN AN AR/VR WORLD**

Like everything else, reality has its limits. Today, that fundamental truth is being challenged. Reality is beginning to blur at its edges as sophisticated technologies arrive to boost visual communication. Gaming, using digital technology to generate digital worlds, was until recently considered a niche pursuit. Now Augmented Reality (AR) and Virtual Reality (VR), the key ingredients that gave birth to the rich universe of gaming, have begun to mainstream at an astonishing pace. Businesses will soon be jumping on to the AR and VR bandwagon.

The predictions for AR/VR are getting knocked out of the park. According to one authoritative forecast, the AR market valued at US\$11.14 billion in 2018 is expected to hit US\$60.55 billion by 2023; the VR market valued at US\$7.90 billion in 2018 is expected to hit US\$34.08 billion by 2023 . A 2018 study by Harvard Business Review Analytic Service commissioned by Microsoft showed that 87% of respondents were exploring, piloting, or deploying Mixed Reality (MR) in their company workflows (See “The many flavors of reality: A handy primer” for key differences between AR, VR and MR). Naturally, the interest in AR/ VR startups has begun to surge. In the year ending mid-2018, AR/ VR startups had raised an impressive US\$3.6 billion in investments .



Clearly, one way to stay ahead of the curve is to infuse AR/VR into business streams and practices, starting with areas where customer experience, enterprise collaboration, employee learning and human and environmental safety can be impacted.



“If you can’t think of any way that your reality can’t be better, then you’re not thinking hard enough” -



Mark Zuckerberg,
Founder, Facebook*

The many flavors of reality: A handy primer

Augmented Reality (AR)	Virtual Reality (VR)	Mixed Reality (MR)
<p>Definition: Live integration of data and media into real/ live images of the environment</p>	<p>Definition: A 100% synthetic, computer generated environment that replaces the real world, aimed at providing an immersive experience that feels real</p>	<p>Definition: A combination of computer generated images, human input and environmental input</p>
<p>Output: Users are in a physical environment and never feel they have left that environment</p>	<p>Output: This is a 100% digital environment; users are unaware of what happens in the physical environment around them</p>	<p>Output: These experiences blend the real world and the digital world but users may not necessarily be able to differentiate between the real and the digital</p>
<p>Device types: Uses screens to display live images/ reality and overlay it with digital information</p>	<p>Device types: Uses opaque, immersive devices that block out reality, exclusively displaying a digital world</p>	<p>Device types: Uses a combination of holographic images/ devices and see-through displays that blend the real world with the digital world</p>
<p>Example: Maps and street images overlaid with names of streets or locations of restaurants, ATMs, hospitals, etc., on your mobile phone</p>	<p>Example: Using an Oculus Quest or Google Cardboard headset to “go” on a rollercoaster ride without leaving the living room couch</p>	<p>Example: Using Microsoft HoloLens to collaborate on tasks with uses in multiple, disparate locations</p>

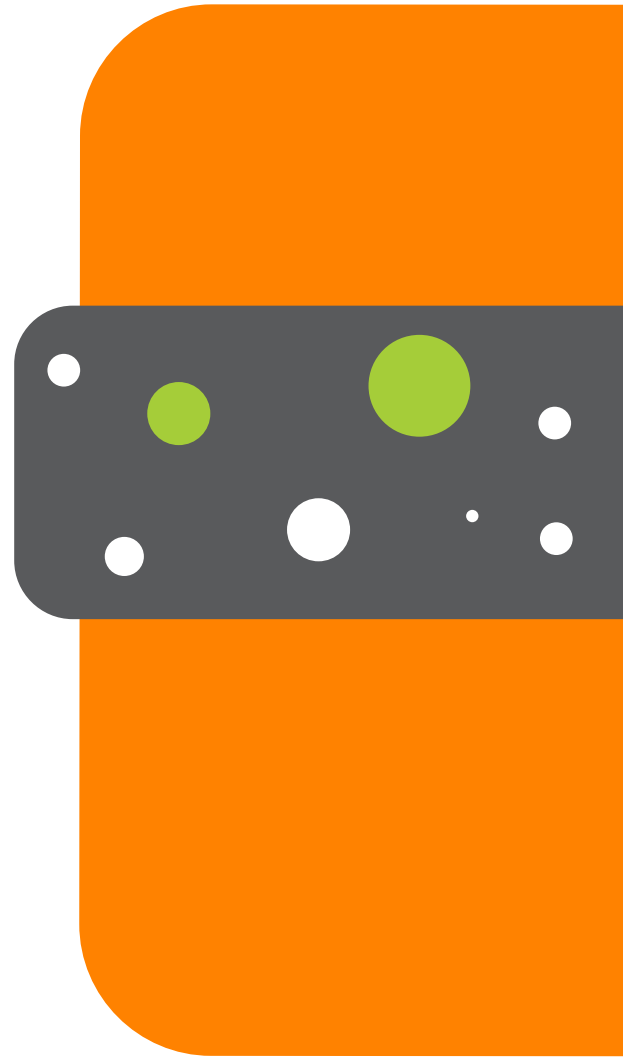
* Source: <https://www.independent.co.uk/life-style/gadgets-and-tech/news/mark-zuckerberg-virtual-reality-better-real-world-comments-vr-a7995546.html>

The shape of things to come

One indication of where AR/VR technologies are headed is already visible in Google's Glass Enterprise Edition 2. The recently-announced AR-focused headset costs US\$999 and features Qualcomm's Snapdragon XR1 chip designed for AR/VR along with advanced Machine Learning capabilities. This device, designed for factory workers and surgeons, could be the initial spark that frees users from the clutches of their mobile devices and moves them firmly towards wearables. As investments in AR/VR startups grow, we can expect increasingly sophisticated devices with affordable price tags to flood the market. Competing with the devices will be software that helps existing devices—smartphones, tablets and touch displays—access the growing world of AR/VR.

There is a good reason why interest in AR/VR is peaking. Until now, the challenge was to connect AR/VR devices over wireless networks and ensure they deliver reliable and stable performance. However, a surgeon using an AR headset in Osaka performing a remote surgery in a hospital in Seattle can't afford to have congested networks with latency issues result in a loss of control. But the new ultra-reliable, low-latency 5G networks will change that as they are rolled out across the world in 2020, pushing AR/VR into medical facilities, manufacturing plants, field services, education and technical training, sport arenas, entertainment, hazardous operations, retail environments and customer support platforms.

The combination of cheap AR/VR devices, smart software that makes existing devices more powerful and the advent of fast and reliable 5G will create the perfect environment for these two technologies to push enterprises to think in unconventional ways.



The new business of “reality”



There are several interesting examples of how AR/VR is being deployed by businesses. Ikea’s mobile app Place allows users to virtually ‘place’ Ikea products—from beds to baskets—that are available in 3D and can be scaled anywhere in their homes, offices, stores, restaurants, lounges, etc . This can be used to see how products look and blend in the environment they are meant for before making a purchase. Marriott’s Teleporter transports users to Wai’anapanapa Black Sand Beach in Maui and to the top of Tower 42 in London using a VR headset and 4D sensor elements . Shoppers at Lenskart, an eyewear retailer, make a 5-second 3D video of themselves and use it to try on thousands of frames from every angle before making a purchase .

Earlier this March in Incheon, Korea, a wyvern (a mythical dragon-like creature) “appeared” in the stadium on the opening day of the baseball season which featured defending league champions SK Wyverns. The flying dragon was interactive—responding to the press of a button on a smartphone from cheering fans . The event used a 5G network to demonstrate the power of advanced mobile communication combined with AR and VR. GE Aviation is using Glass Enterprise Edition 2 with AR software for torquing B-nuts on aircraft engines. Earlier, mechanics were required to refer to manuals which were time consuming. Now, 60% of mechanics say they prefer the new method to the old and are reporting an 8 to 12% efficiency improvement. And construction companies are accurately seeing sub surface utilities using AR, eliminating the need to conduct expensive and time-consuming excavations . It is evident that AR/VR is going to fulfil the futuristic promise that came with the hype of ideas such as Industry 4.0 and Smart Cities.

Next step: Getting real with AR/VR

The time is right for AR/VR to become the spring board for improving customer experience, employee efficiency, safety and to develop new and innovative products. This is because growth in devices that support AR/VR has not only been healthy but they are becoming more convenient and affordable; organizations like Adobe and Google are creating sophisticated AR/VR authoring tools that will improve the quality of the experience; and standardization of the technology will ensure that AR/VR experiences can be extended between devices and to newer devices.

It is often the case that when a new technology gains traction, existing processes undergo change. However, AR and VR are the kind of technologies that will alter the way enterprises think in a connected world. It is time for leaders to replace their thinking caps with AR/VR headsets and ask, "What can I do with digital reality that I couldn't with old-style reality?" Expect some truly inspiring answers.





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