

Article

Digital reality: The focus shifts from technology to opportunity

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What accounts for such explosive growth? Increasingly, companies are shifting their focus from experimenting with “shiny object” AR and VR devices to building mission-critical applications in the enterprise. Consumer-oriented investments in gaming and entertainment continue, but increasingly the real action is happening in the workplace. IDC estimates that industry AR/VR use cases that will attract the largest investments in 2017 are onsite assembly and safety (\$339



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in the near future AR/VR will likely provide an “always on” connection to the Internet or to enterprise networks. But unlike having to reach into our pockets for our phones, we may soon wear AR/VR gear for hours at a stretch. Advances in design and the underlying technology are giving rise to a new generation of comfortable, self-contained digital devices free of tethering wires or bulky battery packs.

• **Adaptive levels of engagement** : You are attending a virtual



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As with any development initiative, there are real IT ecosystem issues to consider, including core integration, cloud deployment, connectivity, and access. What's more, digital reality's component parts are still evolving, as are standards and governance strategies. Yet even with these headwinds, digital reality initiatives march steadily forward.

Welcome to the Metaverse. ⁷ It's time to get to work.



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In previous editions of *Tech Trends*, we examined AR/VR technologies and early use cases through a future-perfect lens, recognizing that broader adoption and commercialization would not happen overnight. ⁸ Well, the future has arrived. The *digital reality* trend shifts the focus away from technology and firmly toward their development and deployment. As you explore digital reality's potential for your organization, consider the following opportunity areas:



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glasses, construction engineers can see a detailed description of a project's electrical and plumbing parts, and also how the individual parts will fit into a wall. Imagine leveraging this same flexibility in any initial conceptualization phase, such as architecture and interior design, consumer product R&D, or supply chain and logistics mapping. Immersive analytics can further enhance virtual collaboration by helping users explore data in multiple axes and



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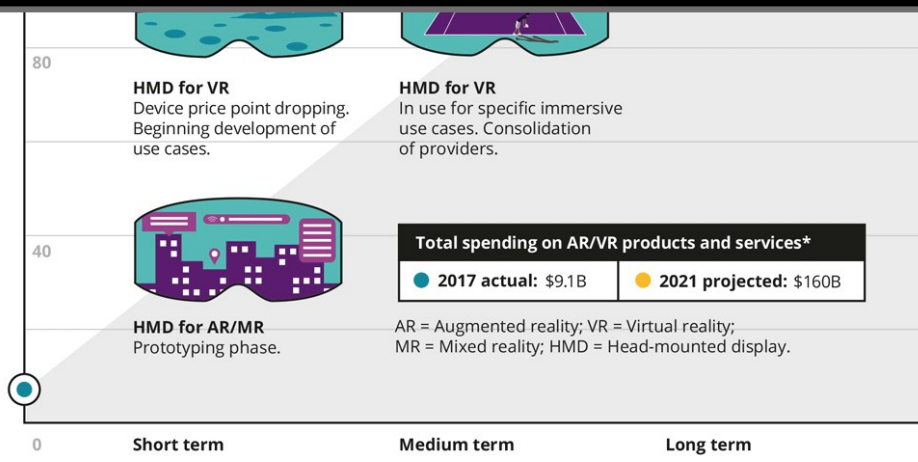


try on product shades using their photo or live video. ¹¹ Meanwhile, guided virtual visits are poised to transform the real estate industry and the way agents work on a daily basis; they may never have to show up for an open house again. ¹²

- **Play** : Use cases and full deployments of DR technologies in gaming, storytelling, and live events are varied and numerous—and will likely



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modernize your approach to data management, governance, and architecture (see *Tech Trends 2018: Enterprise data sovereignty* for more details).

Core integration. Headgear manufacturers are designing APIs that tie core technologies and business processes into DR experiences. Imagine, for instance, being able to present customer, facility, or



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streaming; for HD resolutions, the requirement jumps to roughly 80Mbit/s. ¹⁵ Recent research finds that only 7.1 percent of global connect speeds are above 25Mbit/s. ¹⁶ Though nascent efforts to develop the intelligent traffic management solutions, compression algorithms, and low-latency/high-throughput capabilities needed for AR/VR are under way, in the short term, bandwidth and networking could slow progress in digital reality initiatives.



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Reality check: In late summer 2017, prices for major-label VR gear took a welcome nosedive. ¹⁸ VR kits are running anywhere between \$200 and \$600, last time we checked. At these prices, the threshold for achieving positive ROI with existing VR capabilities becomes considerably lower. As expanded capabilities emerge, new experiences and designs could boost ROI further.

Misconception: We haven't even figured out how to get the most from



five years that it believes will deliver a powerful virtual experience.

These deliberate initiatives are driven by the company's belief in AR/VR's long-term potential.

“AR/VR works as a platform not because of portability or personalization but because of its increased *intuitiveness*,” says Steven Kan, Google's head of AR/VR global strategy. “The primitives of computer science are input and output. On the output front, display



with today's technologies to spur business and government investment, even though the timing and trajectory of broader mass adoption remain uncertain. Google has identified four enterprise scenarios that show promise:

- **“Help me learn.”** Google validated the technology’s power to educate with Google Expeditions, putting Cardboard headsets in schools to facilitate virtual field trips. ¹⁹ Now the company is looking



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Developers are still working on some of the elements needed to expand beyond these use cases, Kan notes. For example, it is still difficult to access 3D models and digital assets: CAD programs were not built with AR and VR in mind, which can lead to rendering problems. Likewise, existing policy management, device management, and enterprise controls for access and entitlements also present challenges. “The initial round of devices were not designed with manageability in mind, though

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Facebook has set a goal of reaching 1 billion users through virtual reality with Oculus, the VR headset and platform maker it acquired in 2014. Although Facebook is primarily a consumer-focused platform, in the past couple of years it has seen large-scale enterprises adopt its Oculus technology, including the Oculus Rift headset, to assist in training, sales, marketing, and collaboration.

“Our virtual reality products originally were targeted at consumers, but



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choose, and preview, thousands of model configurations and interior and exterior colors and fittings.

- Cisco is experimenting with new collaboration tools by integrating its existing Cisco Spark product with VR technology. Remote teams can be “present” in the same room collaborating by writing on and pinning to either a virtual whiteboard or a connected whiteboard device that is on-premises. The resulting diagrams and content can be printed for



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constant movement of minds to be effective, but Shaver is convinced there will be demand for a virtually immersive workspace.

“As great as we think phones and tablets are, there’s just something magical about unbounded screen space,” he says. “Truly immersive VR experiences trigger emotional responses, which is important for consumer and enterprise adoption. Ultimately, those responses will help you tell stories better, translate relationships, and help grow your



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taken an interest in using digital reality for tasks as varied as designing vehicles, training operators and service technicians, performing simulations for autonomous vehicle training, and creating compelling marketing and sales experiences. Unity is extending its platform by adding tools that can assist in automobile design. While automakers have used CAD software for years, most continue to use physical prototypes made of clay—which can be a costly and time-consuming



across many industries .”

My take

**JUDITH MCKENNA, EXECUTIVE VICE PRESIDENT AND CHIEF
OPERATING OFFICER
WALMART US**

How people live, work, and shop is changing rapidly—and so is
Walmart. By combining technology and innovation with a commitment



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year.

When you do something at that scale, you need to think about *how* you will teach as well as *what* you will teach. From the start, we wanted to enhance the training experience with technology. In the academies, the coursework doesn't require printed or written materials—just tablets, screens, and facilitators. We designed the curriculum to



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reality as a training tool became clear. I'm not sure VR will ever be a 100 percent replacement for real-life sales floor situations, though there is value in being able to experience situations that are difficult to recreate, and using cutting-edge technology makes the experience fun and engaging for our associates.

There is undoubtedly a lasting impact on our associates' overall experience when they learn from this technology. More than a how-to



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Rather than viewing these issues as obstacles, meeting them head-on early in the development process can help mitigate cyber risks, enable faster deployment and innovation, and minimize brand and reputational risks.

The risks associated with digital reality are varied, becoming more nuanced and serious as applications are ported onto DR platforms. They can include physical harm, property damage, public safety, and



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Another dimension is third-party access to your platform and network.

If you use third parties or open-source software to build your platform, you should mitigate the risk of exposing code or sensitive data due to poor or malicious design. Build in security from the start of development, and extend it throughout your technology ecosystem.

With today's pressure around speed to market and first-mover advantage, developers may not consider risk implications until after the



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infrastructure in harm's way. Also, it makes an effective threat-modeling tool for physical and logical threats. In the very near future, VR could allow security professionals to visualize the paths that an adversary might take through a network, building, city block, or industrial facility. It could also provide penetration testers with three-dimensional virtual threat models of applications, software, and solution blueprints.



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region are integrating multidimensional layers of experience architecture across strategic, digital, and spatial initiatives and are measuring these against key performance indicators. On the European front, organizations are piloting the technology in a variety of contexts, including infrastructure maintenance and retail, but the main barrier to widespread adoption is the low adoption rate of ultra-broadband networks.



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<https://www2.deloitte.com/content/dam/insights/us/articles/Tech-Trends-2018/4236_Digital-reality/figures/4236_Fig.2.png>

Where do you start?

Few companies have fully commercialized their digital reality deployments. Many are just beginning their journeys by learning more about these solutions and surveying the growing AR/VR market.

Because DR components are still being tested in enterprise



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VR interaction.

- **Take a look around you** : Across industries, companies and government agencies are developing use cases, piloting DR technologies, and in some cases moving toward production deployments. As you explore your organization's possibilities, look first within your own sector. What are your competitors doing in this



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less like science fiction and more like a reasonable vision of the future.

To be sure, challenges remain on digital reality's path to full commercialization. But these challenges do little to diminish its long-term disruptive potential. Digital reality is poised to transform the way we interact with data and experience the world around us. Are you ready?



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