VR and the future of computing

Awaiting its iPhone moment

Virtual reality is a promising technology, but will not go mainstream in its current form

Print edition | Leaders
Aug 27th 2015

IS IT vividly realistic—or is it still just vapid razzmatazz? Virtual reality (VR), a technology that flopped in the 1990s, is making a glitzy comeback. The dream of a headset that can immerse you in a detailed, realistic 3D world is now being pursued in earnest by a gaggle of startups and the giants of technology alike. Last year Facebook bought Oculus, the most prominent VR fledgling, for $2 billion. Mark Zuckerberg, Facebook's boss, says "immersive 3D content is the obvious next thing after video." Google supports VR in several of its products and is backing a secretive new company called Magic Leap. Microsoft, having missed the boat on

smartphones, has developed an impressive VR system named HoloLens. Tech leaders have decided that VR could be the next big thing after the smartphone (see article). Are they right?

The VR devices appearing in the next few months will focus on video-gaming, where VR is a natural fit. But the technology will eventually have many other uses: in data visualisation, education, communication and entertainment (including VR pornography, which is already starting to appear). Whether the 3D world is computer-generated or captured using special cameras, rendering it fast enough to seem realistic—and for it not to cause nausea—requires processing power, high-resolution screens and motion sensors. Happily, all those things can be found inside modern smartphones, which is making VR hardware cheaper to put together. Smartphones have also boosted VR thanks to adaptors that turn phones into basic headsets, the cheapest of which (devised by Google) are made of cardboard and cost $10. These cannot compete with high-end VR headsets, but they offer much of the experience for less than 5% of the price. Over the past year this has led to a surge in the experimental production and consumption of VR content.

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As well as hastening the rise of VR, smartphones provide an analogy for how the technology is likely to develop. VR today is where smartphones were in 2001. Back then it was clear that mobile phones, connected to the internet and armed with cameras and colour screens, were going to be important. Sure enough, people now use phones for everything from maps and music to payments and picture-sharing. But the strongest advocates of the smartphone revolution, such as Nokia, failed to anticipate how it would play out, with the result that others now dominate the new industry. The turning-point was Apple's iPhone. With its touchscreen and elegant apps, it set the model for the entire industry. VR has yet to have its iPhone moment. The idea is sound and the gear works, but today's chunky headsets are unlikely to conquer the mass market.

The future is a mixed picture

How might VR triumph? One intriguing possibility would be to overlay graphics onto reality rather than replace it entirely—a technique called mixed or augmented reality (AR). Architectural models will seem to stand on your desk and video-game

aliens will jump out from behind your sofa. Microsoft's HoloLens is taking this approach. Magic Leap, meanwhile, is thought to be working on the technology for smaller and lighter AR headsets: people would sooner wear sunglasses and headphones than spend their day inside a motorbike helmet. AR could be the missing ingredient, just as the touchscreen was for the smartphone.

For the time being, VR remains a promising technology, worth watching closely, but still in a primitive incarnation. The offspring of today's VR systems will be ubiquitous in 2030, by which time current devices will look as clunky as the folding camera-phones of 2001 do today. If the smartphone is anything to go by, the rise of VR will wrong-foot incumbent technology giants and turn obscure startups into household names. Sci-fi novelists have already sketched out a bewildering range of uses of AR, from head-up displays for soldiers to virtual jewellery that is drawn around the wearer by other people's headsets. Such fiction provides a helpful guide to the potential impact of this emerging technology which, like the internet and smartphone, promises to touch every field of human endeavour. Just not very rapidly.

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