POV | DIGITAL TRANSFORMATION SERVICES

Beyond the Hype: The Immersive Reality of Xverse for Enterprise

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Virtual sightseeing with digital humans

NTT DATA Virtual Innovation Studio

In the Xverse, technology precedes markets. Often linked to the metaverse — a virtual world promising connection and collaboration using avatars — the Xverse refers to a superset of highly immersive virtual reality (VR) worlds. Each individual island of VR acts as a point of convergence for virtual and physical (phygital) realities and for a wide range of technologies.

"While there are lots of debates on whether the metaverse is here or not, what is here is the immersive space of that physical and digital world," said Mary Leos, senior director, Digital Innovation and Digital Experience, NTT DATA. "And now we're layering in all of these technologies, mainstream or growth areas where we've been playing over the last several years."

The technologies that enable seamless integration of virtual and physical realities and real-time user interaction via avatars are widely used. But what's less clear is their application in the market.

Xverse's use in social media and gaming created several years of metaverse-related excitement. But it also obscured its value for many enterprises. With the hype receding, a range of practical use cases is emerging. From enhancing existing customer service to building more fully developed implementations in industry-wide or industry-specific scenarios, there are numerous ways to realize the value of this innovative blend of technologies. No matter what use case an enterprise adopts. Despite the uncertainties and risks that remain, the benefits for well-considered Xverse implementations are real and potentially significant.

Technical requirements

The Xverse has several basic prerequisites that fall into the following categories:

- **Network:** The Xverse requires potentially millions of connections. Fortunately, the same increasingly high-speed, low-latency wired and wireless broadband networks that enable internet companies and massive multiplayer online role-playing games are well suited for this purpose.
- **Hardware:** There are several suppliers of the distinctive headsets and peripherals that enable immersive VR experiences. They include HTC,
- Meta, Microsoft, Pico, Sony and Valve. Although much older, the head-up displays used in the aviation industry are a precursor to this visual technology.
- **Security:** A paramount and ongoing concern for any online business, security for the Xverse is no different. It too can leverage existing standard tools such as multi-factor authorization (MFA) and data encryption schemes such as Transport Layer Security (TLS) and WebRTC.
- **Computation:** It takes huge computational power to render complex, modeled environments. The same well-established processing technologies and evolving architectures (for example, edge computing) that support video games, however, can meet the needs of the Xverse and related functions. These include digital twins, artificial intelligence (AI), machine learning (ML) and blockchain.
- **Persistency:** Xverse services and individual sessions need to endure through hardware failures, upgrades and server refactoring. However, because continuous availability is a characteristic of the cloud computing architectures that would host these services, there's no need for any extraordinary concern.
- **Human skills:** Organizations may lack relevant programming skills and a solid understanding of user interface/user experience (UI/UX), animation and graphics, and Xverse concepts. However, by leveraging low-code, no-code tools, transferable gaming "engines" like Unity and easy-to-use software development kits (SDKs), non-technical users can overcome these limitations. Partnering with a tech-savvy consulting organization can also lower the barrier to Xverse use.

None of these requirements are perfectly met. "There are still some limitations," said Vishal Brown, a GTM and digital portfolio leader, NTT DATA. "A lot of us want the headsets to be lighter and be both work and lifestyle friendly. Today, that is not the case." But for many, the bigger challenge is figuring out how to harness these technologies in ways that are useful, worthwhile and that make a positive impact.

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The emerging market

“But at the end of the day, the hype is vanishing, and the real use cases are surfacing.”

The virtual world has entered a second phase, marked by the arrival of immersive VR headsets and richer applications. These include VR Chat (2014), Decentraland (2015), Meta’s Horizon Worlds (beta 2019, GA 2021) and Star Atlas (2022). With the Meta launch and transition, interest has soared. More than a dozen immersive metaverse platforms are now oriented toward end users. But the simplicity of first-generation applications lingers, and the close association with gaming, social networks and unusual business models like virtual real estate have made it difficult for many enterprises to understand the potential value.

Early adopters have jumped in to try new things and lower the barrier for customers not yet ready for full immersion with the goggles. Nikeland gives fans of the sports apparel giant compelling online experiences while generating new revenue streams. Gucci Garden mixes fashion and interactivity within a model of a historic Italian palazzo. Coca-Cola’s unique experiences related to limited-edition flavors create more profitable launches.

Although perceptions are changing, it’s not a tidal shift. As ABI Research notes in a report on trends, singling out one candidate sector: “The year 2023 will not be when Industrial and Manufacturing (I&M) firms invest vast sums in the metaverse.”[1] But momentum is building for proving it out. “In client engagements and inquiries that I have been part of, the value is more prevalent,” NTT DATA’s Leos said. “References to games, Second Life, etc., are diminishing and being replaced with ‘what if’ and ‘how can I’ statements.”

As has occurred in previous technological cycles, expectations for an emerging new era rose to what may be unsustainable levels. “There were a lot of people looking into the metaverse concept when Facebook changed its name,” said José Ramón Varela Vargas, senior product manager, NTT DATA EMEAL. “But at the end of the day, the hype is vanishing, and the real use cases are surfacing.”

Digital humans and customer service

One transitional step toward the Xverse is through customer service, which is already widely supported by robotic process automation (RPA). New Xverse-friendly team players are semi-autonomous digital humans. Consider them enhanced, increasingly lifelike chatbots.

What gamers would call non-playable characters outside a user's control, these digitally "embodied" personalities can do more than simply answer questions. One of the capabilities that NTT DATA is building into digital humans is reading facial expressions and responding accordingly. If a person looks angry or sad, the avatar on the other side of the screen should be able to detect that.

Digital humans are a step up from traditional chatbots but can pose challenges when, for example, companies try to reuse existing telephone-based scripts. The responses required in customer service scenarios should be based on the individual customer situation, and auto-support desks have historically provided uniform responses that often miss the mark.

"The next generation of digital humans need to be flexible and sympathetic," said Shingo Horiuchi, deputy head of NTT DATA's North America Innovation Center. "We are researching how digital humans can better understand the situation and emotions of the customer and react appropriately."

How these digital humans look matters; the more realistic they appear, the more people will connect with them and stay engaged. But no less important is how they "think." In that light, any digital inference engine relies on data that lives outside its "brain." Digital agents that never get tired or upset must still be linked to the right data and tools and appropriately trained to work with customers. Behind the scenes is a mix of statistical analysis and ML. Currently, the response is scripted text-to-speech; soon, it will be AI-generated natural language processing, like what ChatGPT does.

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Common use cases

Truly immersive Xverse applications fall into two general approaches. One reflects more industry-wide or universal applications and includes any workforce-related application. The other is more industry-specific.

“Think about the digital workforce and the challenges the enterprise faces with respect to hybrid working or onboarding a digital nomad,” NTT DATA’s Brown said. Across those different experiences, regardless of the industry, there’s a high degree of commonality.” The application for immersive technologies then turns on the particular use case; for example, plant training in manufacturing or nursing training in healthcare.

To expand on one of those functions, studies have shown that immersive technology-based training can yield much higher retention rates than written or oral alternatives. Those results are plausible enough. The Xverse can help focus the mind, whether employees are suffering from device distraction, Zoom fatigue or simply struggling to stay alert and on task, in training or not.

Our Innovation Studio team in collaboration with our Vertical SMEs created a virtual environment that is partially a digital twin of our physical studio and envisioned industry environments of the future. This virtual studio application using Unity has since supported use cases across all our clients’ major industries. “We built it during COVID-19 when we were all 100% working from home because we had to have a way to bring our capabilities to our clients and showcase things, but also problem-solve with them,” NTT DATA’s Leos said. “Not only did the technology accelerate really fast, but our mental model of how to use it also accelerated.”

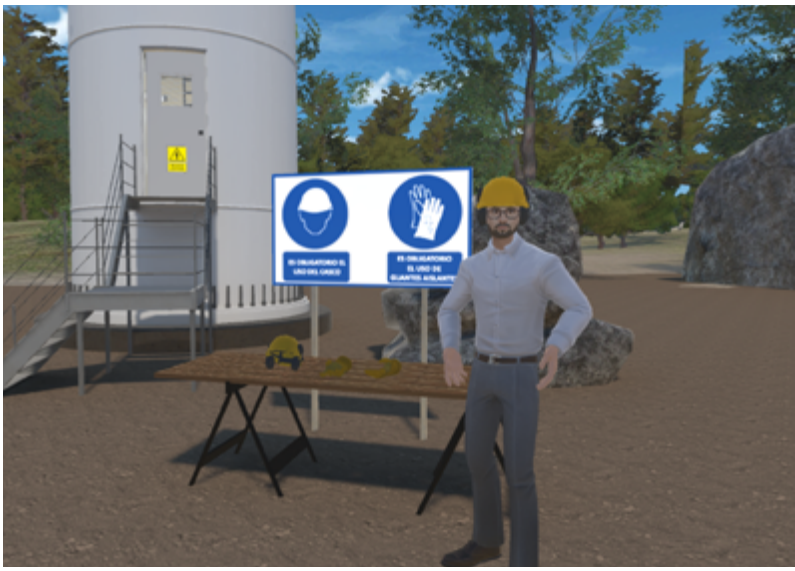
Users can gather in the NTT DATA virtual office lobby before joining breakout rooms, training sessions or presentation halls, as they do in physical office locations. Room templates are in place to support many training and collaboration instances. The rooms can be modified for the activity taking place and branded with client logos.

Industry-specific applications

A second class of Xverse use cases ties more closely to specific industries. Take healthcare, which has used AR for several years to train medical students. Xverse applications could extend training across a wider span of clinicians and likewise aid in the treatment of certain pathologies.

Other examples include:

- Banking, which is evolving into a model that includes virtual branches
- Financial services, which has already begun to incorporate digital-first technologies such as blockchain and non-fungible tokens (NFTs)
- Sports, media and entertainment, where "courtside" or "front-row" seats could command premiums
- Manufacturing and life sciences, where a relatively good understanding of how digital twins or VR and AR experiences can better and more accurately onboard and train employees in a safe environment



Safety training for an energy company

Safety and training are high priorities for multinational power company Naturgy. The company is using another NTT DATA Xverse platform, NAKA, to train Spanish employees on safe operations at wind farms. NTT DATA designed a framework for Naturgy with the three elements common to every immersive experience: scene, gadgets and content. In this case, that translated into a remote power station, instrument panels and safety training — all accessible to Naturgy employees using VR headsets. Simulation would be a natural follow-up.

"If I am in a virtual wind turbine, I can be instructed on what the steps are for getting out in the event of a fire. That is training," said NTT DATA's Varela. "But if I am put in a situation where there is a sudden fire and must do whatever I can to get out of there, and it's not guided, that is a simulation." Few companies would want to expose employees to that kind of danger or destroy valuable assets in so doing. An immersive Xverse framework, however, removes those risks and costs.

Varela described two more NAKA proof of concepts with similar benefits that illustrate the expansive reach of Xverse. The first was for a large grocery chain looking to become more efficient and reduce waste in training employees in its high-turnover fish and meat department. The second is for doctors at two healthcare providers who are looking for ways to help patients better manage psychological triggers and cope with mental illnesses.

Xverse platforms can also promote sales. The NTT DATA team in Barcelona is talking with fashion retailers about virtual showrooms and catwalks. NAKA's first full project enabled SEAT, part of the Volkswagen Group, to present its new models to national sales companies over a period of several months. "They purchased glasses, distributed them around the world and did the event remotely," Varela said. "We had different rooms with different models, an expert in each room and 35 to 40 people together at the same time in each room."

NAKA is built on Unity and designed with low-code/no-code capabilities, reusable components and a cloud-based back-end system. The next iteration of NAKA, according to Varela, will allow thousands of users simultaneously on the platform. It will also incorporate more elements of gamification and be easy for non-technical people to use. Unlike other platforms, NAKA isn't set up to monetize user data but to provide enterprises with a scalable way to harness the capabilities of immersive experiences.

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Rewards and risks

Every development in technology has its tradeoffs or pros and cons. How well does the Xverse stack up? Do the rewards outweigh any risks? Here are a few points to consider, starting with the benefits:

- **Focus and concentration:** It may be counter-intuitive to correlate more technology with less distraction. However, Xverse-like experiences can lead to greater retention of training material and employees who are less likely to "check out" during corporate communications or other presentations.
- **Expectations of the younger generation:** Demographic cohorts who grew up playing online games appreciate companies that adopt technologies from that domain and wonder why others don't.
- **Distance and geography:** The Xverse is another tool for collaborating in a distributed and hybrid workplace, as the Volkswagen subsidiary SEAT example shows.
- **Sales and marketing:** The SEAT example also shows how an enterprise can harness the Xverse to help accelerate a sales and marketing campaign. Some of the world's leading brands are already generating positive results from their initial efforts in the phygital arena.
- **Existing infrastructure:** Some of the enabling technology, like VR headsets, is clearly new. But enterprises and users may already be paying for other aspects of it, like high-speed broadband networking and cloud computing. It makes sense to leverage those assets.
- **More united workforce:** An immersive Xverse experience is well suited for opportunities to build a cohesive workforce during, for instance, employee onboarding. One-to-many applications of Xverse can reduce social isolation in the hybrid workplace.
- **Faster, more efficient training:** In the case of the Naturgy safety training, employees could "visit" the wind farms without having to travel. For supermarket employees who are learning how to cut meat or filet fish, making the Xverse part of the process reduces waste.
- **Super Mario Effect:** Simulations also reduce disincentives to act, whether that means escaping danger or confronting something psychologically troubling. It's easier to acquire new skills when it's OK to fall.

What about the other side of the equation? What are the risks of deploying Xverse-like solutions? Here are a few considerations on the con side:

- **Potentially isolating:** While one-to-many instances of Xverse can promote cohesion, solitary use of immersive technologies can lead to social isolation, a point not unknown to the gaming community.
- **Digital divide:** The current market for VR headsets makes them cost-prohibitive for many potential users, creating VR haves and have-nots. Successful enterprise deployments may involve making wearable hardware freely available to all users.
- **Transactional data:** Given the association of social media to some implementations, concerns over the monetization of user data could create user resistance to the Xverse. It becomes an upfront policy and design decision.
- **Security and privacy:** Even if the Xverse platform transacts with aggregate data, users have a right to know whether their privacy is protected, as would be the case under any comparable use. Security breaches would also destroy confidence, especially when they concern healthcare and other sensitive data.
- **Generation gap:** Xverse-style technology may draw younger generations, but it could have the opposite effect on the older crowd or anyone still uncomfortable talking to Apple's Siri or other such bots.
- **Environmental impact:** Advanced technologies, such as ML, are known to have an outsized environmental impact due to high CPU requirements. A digital human acting as a front-office assistant may cost less in salary and benefits than a real human but still have a high carbon footprint. It's important to assess any energy requirements Xverse technologies may impose externally.

Conclusion

Xverse offers a wide universe of possibilities. We think the pros outweigh the cons, but each company will need to conduct its own analysis. For most enterprises, this isn't a time for massive investment but rather thoughtful consideration and targeted trials.

At the same time, the clock is ticking. Employees are getting younger; the new hybrid workplace is subject to disintegrating forces; costs are rising; and the competition is (likely) on the move. The Xverse is no panacea, but it is a novel and surprisingly effective approach to a host of new challenges. NTT DATA's Leos added, "I think the isolation of being home and now the normalization of the hybrid world we find ourselves in is one reason we're getting so many questions about it."

The multifaceted Xverse is one of many technology solutions that NTT DATA's highly skilled professionals can deliver anywhere. Don't start your Xverse journey alone. "We are NTT DATA," Vargas said, "a major consultancy firm with presence in all countries and with all the unmatched experience and knowledge that we have gained from our clients." Reach out to our authors for more information on the Xverse and to see how this technology can benefit your organization in new and exciting ways.

About the authors

José Ramón Varela Vargas has extensive experience in Digital Experience at NTT DATA EMEAL, where he leads the development of NAKA, an enterprise-grade SaaS platform for Immersive Experiences. He specializes in digital transformation initiatives associated with extended reality technologies.

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Sources

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