

The metaverse: a transformative technology

AVEVA's Simon Bennet predicts how the industrial metaverse will evolve and why it could improve supply chain management, design processes, collaboration and more

BY REBECCA GIBSON

Described as an immersive, 3D virtual world where an infinite number of people can interact with a computer-generated environment and other users, the metaverse has been touted as having the power to transform how we socialise, shop, game, work and more. However, many analysts have predicted that the biggest potential of metaverse lies with critical sectors such as industrial manufacturing where it could be used to solve design, operational, supply chain management and other real-world challenges.

Industrial software provider AVEVA already has more than 100,000 physical sites using its software, giving it a head start on building the industrial metaverse. AVEVA's global head of research Simon Bennet shares how the firm expects the industrial metaverse to evolve, what technologies will be involved, and suggests possible applications that could improve how the sector operates.

How does AVEVA see the industrial metaverse evolving?

In some ways, the much-hyped industrial metaverse represents older-than-a-decade technology that is being presented in new hardware. However, the industrial metaverse is all about the digital twin (from birth throughout its extended life), the data (artificial intelligence-infused and first principles-enhanced), and the experience (seamlessly traversing desktops, mobile devices and

wearables via 5G and wi-fi). With these three elements, the industrial metaverse is a natural layer that organisations can deploy on top of their existing digital infrastructure to future-proof their businesses.

AVEVA sees the industrial metaverse as a persistent virtual environment that allows live collaboration across teams, is device-agnostic, open to the full gamut of data sources and delivers role-based access to real-time operations, data streams and engineering data. The wide-ranging application of this technology is why we're working with partners such as Microsoft to make the industrial metaverse concept a reality.

What role could the industrial metaverse play?

Today's industrial metaverse solves real challenges in the design-operate-optimize asset life cycle like never before – and in a manner that helps preserve our Earth's natural resources, while opening up new value and opportunities for industrial brands in dynamic economic conditions.

We offered a preview of how the industrial metaverse could work at AVEVA World in San Francisco, California, USA, in November 2022. Delegates saw how easy it is to create and deploy an industrial metaverse, how engineering companies can use the technology to speed up design reviews, and how operators can use the industrial metaverse to improve on-site optimisation and better manage operational issues.





Should we be looking at the metaverse as a single behemoth or is it likely to be fragmented? What does that mean for business and industry?

Over time, the metaverse will feel and be perceived as one entity in the same way we regard the internet as one thing, despite being able to interact with it in many different ways. Metaverse representations will mature over time and common user design and interaction models will develop, in part influenced by the 3D environments already being used in industries such as gaming.

There is a school of thought which discusses 'the' metaverse as a single place for us all to exist in an alternative reality. The truth at the enterprise level will be very different as heavy industries and all private enterprises will continue to protect their intellectual property and sources of commercial advantage from public access. Any organisation will be able to create its own industrial metaverse – which could be the collection of their operational assets or each one individually – but access to

each metaverse will be strictly controlled with role-based privileges and security protection in the same way that businesses protect their financial systems.

From the videos available online, the metaverse seems like it will only be accessible via artificial and virtual reality (AR/VR) headsets and applications. What technologies and devices will make the industrial metaverse a reality?

AI, the industrial internet of things, cloud computing, and interactive technologies such as AR and VR will all be essential to building the many different industrial metaverses.



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INTERVIEW

However, it is important to recognise that the industrial metaverses will extend beyond AR/VR headsets. Rather, the metaverse is going to be experienced on phones, tablets and desktops. For the workforce to engage in collaborative experiences in an industrial metaverse, they must be able to use any device they wish, connect to any software they need, be able to see a rich and trusted set of data from their digital twin, and cooperate in a single shared application.

What benefits can industrial metaverse applications deliver? What do we need to achieve critical mass here?

The dominant benefit of industrial metaverse applications lies in the platform they create for very rich collaboration, providing access to real-time data, engineering data and 3D virtual environments for large groups to share conversations, interactions and speed up their decision-making. Clear benefits will also emerge from reduction in travel and its associated carbon dioxide emissions, as well as a decrease in safety risks.

There is a wealth of opportunities in industry, ranging from supply chain management to construction simulations during design, safety assessments, operations optimisation and any time when people meet to solve design, construction or operations issues together. As always, critical mass will be achieved when technology can take existing business processes and either significantly improve them or remove them altogether to help us to have a material effect on our efficiency.

With such a broad appeal it's easy to see how all industries will be able to gain advantage but the first movers will be those industries with a mature digitalisation strategy and a solid digital twin. Industries that have invested in their information management discipline will emerge as those best positioned to gain an advantage.

Is AVEVA making a play to own and run the industrial metaverse?

Our focus is to spark industrial innovation by connecting people with trusted information to support responsible use of the world's resources. As a leader in engineering and HMI/SCADA software, AVEVA unifies operational and enterprise data to create a single source of truth for authorised users in the cloud.



Industrial workers using AVEVA technology can already use a smartphone or other device to view assets and solve problems from anywhere in the world. We also have over 100,000 physical sites implementing our software, and these are the same customers that are going to go into the industrial metaverse. So no, we do not want to own the industrial metaverse, rather we are focused on creating the tools that allow

“We are focused on creating the tools that allow companies to create their own metaverses ”

companies to create their own metaverses – and protect their intellectual property while sharing data with industrial partners. The technology to support industrial metaverse applications already exists but is siloed for one reason or another. AVEVA, together with partners such as Microsoft, is focused on connecting it together to support innovation within organisations’ industrial metaverses. ■