

Home grown twin solution to leverage data, assist in an era of remote working

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exposé National Manager of Technology, Solutions and Quality, Etienne Oosthuysen, with exposé General Manager Kelly Drewett.

A unique digital twin platform which can be tailored to suit the full spectrum of businesses and organisations has been developed at Lot Fourteen by leading data and analytics business, exposé.

The platform can also enhance and enable remote management of processes, facilities and assets, making it ideal for businesses that need to respond quickly to the challenges of operating during the COVID-19 pandemic.

The exposé Digital Twin was released to market in February and can be utilised by clients as diverse as utilities, aged care, urban planning agencies and major facilities, such as sports stadiums. It enables users to track progress on their KPIs by monitoring physical assets and activity, linked to multiple sources of data and information.

A digital twin is a virtual representation of any physical world object, space, asset, model, or system. The operations of the physical twin are projected onto the digital twin, enabling monitoring, real time management, analysis, simulation and modelling.

The concept of a twin created to understand its counterpart is not new. In the 1960s, NASA used the twinning concept to create physically duplicated systems on earth to match its systems in space, which allowed earthbound engineers to model and test possible solutions, simulating the conditions in space.

When Apollo 13's lunar module ran into serious problems, such as dangerous CO2 levels, the engineers used the duplicates on earth to model and test theories and simulations so that they could instruct the astronauts, and eventually get the ill-fated crew of Apollo 13 back to earth alive.

Development of the exposé Digital Twin was led by the company's National Manager of Technology, Solutions and Quality, Etienne Oosthuysen, and his team.

"Our platform has got a lot to offer in the pandemic world, especially where movement is becoming restricted," he said.

"Our Digital Twin enables businesses to do much more remotely, including monitoring the operations of an asset, process, place, or environment, without having to be there in person," he said.

"Our platform is tightly coupled with the Internet of Things and Artificial Intelligence (AI) and it offers a highly immersive user experience, which means users can traverse the physical twin through a virtual reality immersion.

"They can then see what is happening in real-time, and be alerted to any issues, and likely events through AI and predictive analytics.

Mr Oosthuysen said Digital Twin, like any other technology supporting remote working, could also help to reduce the spread of infectious diseases such as COVID-19 while supporting a productive workforce.

"For example, it can be used to track and record real time movement of people in institutions such as schools, shopping centres and aged care facilities, including staff and service providers, such as cleaners.

"This monitoring can highlight the best ways of encouraging social distancing and exposé Digital Twin can even send alerts where people are not adhering to these requirements."

"The platform can link to sensors to measure parameters such as odour, air quality, moisture levels and use of soap dispensers and AI-based object recognition can evaluate factors such as the efficacy of cleaning regimes."

Mr Oosthuysen said the Digital Twin could also support and facilitate working from home during the current COVID-19 restrictions.

"It fully supports remote working and placing staff in virtual locations as if they are in the physical space. Remotely, they can then perform monitoring, simulation and control, which is not just for the sake of convenience, but imperative in our current world of social distancing.

"As our landscape evolves to embrace digital integration, we're seeing the physical and virtual worlds move closer together than ever before," he said.

"It's helping businesses across a breadth of industries to gain a deeper understanding of their physical world through analysis and insights via simulation and modelling on a platform that acts as a replica twin of the physical.

"Our solution is cost effective and quick to commission, which means that the obvious advantages of having a digital twin are now within the reach of most Australian businesses.

"Rather than retrofit a solution to a completely different industry, as is the case with many digital twin offerings, our offering can quickly be provisioned from the ground up to suit any industry and use case," Mr Oosthuysen said.

"Our digital twin can operate as an extension of existing data analytics ecosystems," he said.

The home-grown product is already getting national interest, with work underway for local and national clients across education, utilities, government and aged care.

"Many of our clients need to ensure that the services they provide continue to improve the lives of citizens, but they also need to make cost savings," Mr Oosthuysen said. "We are already working with clients in tertiary education and local government.

"Our Digital Twin builds on what organisations already have, so clients are likely already licensed for most of what they need, including two prominent Microsoft platforms.

"We augment this with cutting edge virtual reality technologies, based on online games, which creates a 360-degree view of your physical world," Mr Oosthuysen said.

"We're incredibly excited about the potential of this offering. Our modular approach means we can seamlessly integrate the various layers required to understand the client's physical world.

"The exposé Digital Twin was conceived with people at its core and is based on human centred design," Mr Oosthuysen said.

"Whilst there are other great digital twin offerings out there, they're not very human friendly.

Development of the Digital Twin has also opened opportunities for South Australian university graduates and students in disciplines such as software engineering and computer science.

"Some of our talented graduates who worked on the Digital Twin solution pushed us to think even further outside of the box than we already do, and this has led to the solution we have today," said Kelly Drewett, exposé's General Manager.

"We are passionate about retaining graduates in South Australia. Being able to offer them exciting projects using leading edge technologies to work on, is a big contributing factor in keeping them in the State."

exposé and its sister companies, Chamonix and Cortex Interactive, are part of the AMpowered program, conceived to secure a pipeline of deep tech talent.

The program has led to graduate employment of around 22 students since its inception in 2014 and more than 105 students have been part of the mentoring scheme or completed an internship or placement with the group.

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