



Bekaert and delaware explore how XR can optimize the production process

Bekaert is a global market and technology leader in steel wire transformation and coating technologies and employs almost 30,000 people worldwide. To deliver superior value to its customers, the company is constantly looking for ways to optimize its processes. For its most recent adventure, Bekaert teamed up with delaware to explore the possibilities of XR technology.

When Bekaert wants to install a new production unit at one of its 80 production sites, it sends out one of its most experienced engineers to make a detailed feasibility study. These highly experienced engineers have expert knowledge of how Bekaert's production lines function and how new elements can be added or subtracted. Because they are so highly specialized, these engineers continuously travel around the world to set up new projects. This approach has two major disadvantages: one, it's very costly, and two, since an engineer can only be at one place at a time, projects need to be handled one after the other.

[Read the Data News article about this collaboration \[In Dutch\]](#)

What's the difference between AR, VR and MR?

AR, VR and MR are terms that are thrown around a lot these days, with XR or 'Extended Reality' as the collective noun that ties the bunch together. But what's the difference between these terms, and what do they seek to achieve? A short explainer.

VR or virtual reality refers to an experience where you are completely immersed in a computer-simulated reality. The goal is to create an imaginary world in which, ideally, all five senses are stimulated. This, of course, is not always possible: most VR headsets today only engage hearing and vision and, to a lesser degree, haptics (touch).

AR or augmented reality provides a live view of the world around you but supplements it with additional information in real time. This information can take the form of pictures, graphics, videos and text. In essence, it adds a layer to reality. A common example is the AR game Pokémon Go, or GPS data that is projected onto the windshield of your car.

MR or mixed reality merges the virtual and the real worlds through simultaneous localization and mapping (SLAM). This allows both environments to interact with each other. Think: making a digital ball bounce off a real wall, or – why not – placing a digital piece of equipment in a brick-and-mortar production hall.

1 XR feasibility task force

“When we first heard about AR and MR, we immediately realized that this new technology could offer huge opportunities in terms of remote assistance,” says Filip De Coninck, Senior Engineering Manager at Bekaert. “We contacted our long-term partners at delaware to develop a proof of concept that could show us how mixed reality could help us become more efficient in setting up new production equipment globally.”





Armed with Bekaert's requirements, delaware set up a feasibility task force headed by solution lead Nick Thienpondt and integration expert Andy De Meyer. "We decided to use Microsoft's HoloLens as our starting point," explains Andy. "Our goal was to create a HoloLens app that would allow someone wearing the device to make a 3D scan of the factory floor. This 3D scan can then be used to provide the 'expert engineers' with detailed and context-sensitive information about maintenance and installation tasks. But there are many more possibilities."

Solution store: VR Learning Experience

2 The flexibility of Unity

Andy and his team of developers used the Unity 3D game engine to create the 3D environment scanning app. "It's the de facto standard in the world of AR because it offers many advantages," he explains. "But the major one is that it's compatible with numerous other platforms. This means we don't have to reinvent the wheel every time we want to transfer the app to another platform: we can just reuse the code and adjust the specifics."

Another advantage is the huge community of developers that work with Unity 3D, which allows for C# development and as such is attractive to millions of .net developers. "The engine is well-known at delaware, which means we have a huge amount of in-house expertise to rely on."

3 A 3D match

The app allows the user to perform a 3D factory scan and take pictures or videos while doing so. This results in a detailed plan that can be created by anyone walking around in the factory. "This 3D match allows our experts to assist the local engineers remotely by adding digital annotations," explains Filip. "The engineer wearing the HoloLens then gets on-the-spot instructions and guidance, all while keeping his hands free."

The data the HoloLens acquires is immensely valuable – to discover exactly how valuable is what delaware and Bekaert are currently collaborating on.

4 The future of XR

Just recently, Microsoft announced the next iteration of HoloLens, the HoloLens 2. Andy was one of just 400 attendees at the official presentation in Redmond, Washington. "The new device is even more comfortable than the first HoloLens, and offers interesting features such as full hand and eye tracking. The device also offers a fully implemented Bluetooth stack, which allows for connectivity with noise reducing headsets."

In short, XR technology is constantly improving, and Andy and Nick are expecting major leaps in the next few years. Andy: "In the future, VR and AR will converge and become more prominent in people's lives. This push from the consumer side will open up new possibilities for industrial applications as well."

With comfort being addressed recently by major players like Microsoft and Oculus, the two key remaining hurdles for wider XR adoption are the cost of the devices and the lack of quality content. But don't expect those to remain standing much longer. "The twin forces of industry





and consumer markets have a knack for pushing cutting-edge technology forward. I expect it to be the same for XR," Andy concludes.

At delaware, we challenge our clients to think outside the box and explore uncharted territory. [Discover the hidden opportunities of VR at your organization.](#)

[Are you ready to add an extra layer with AR?](#)