

## Autoliv

# Autoliv China transforms manufacturing processes and training deployment with Mixed Reality and Digital Twin platform

### Company profile

#### Overview

Autoliv is the world's largest auto safety supplier, operating in 28 countries with 14 Tech Centers worldwide, supported by more than 60,000 employees.

#### Industry focus

Mobility Safety

#### Country/Region

Global / China

#### Products and services

World-class, life-saving solutions for mobility and society

#### Customers

Enterprise customers

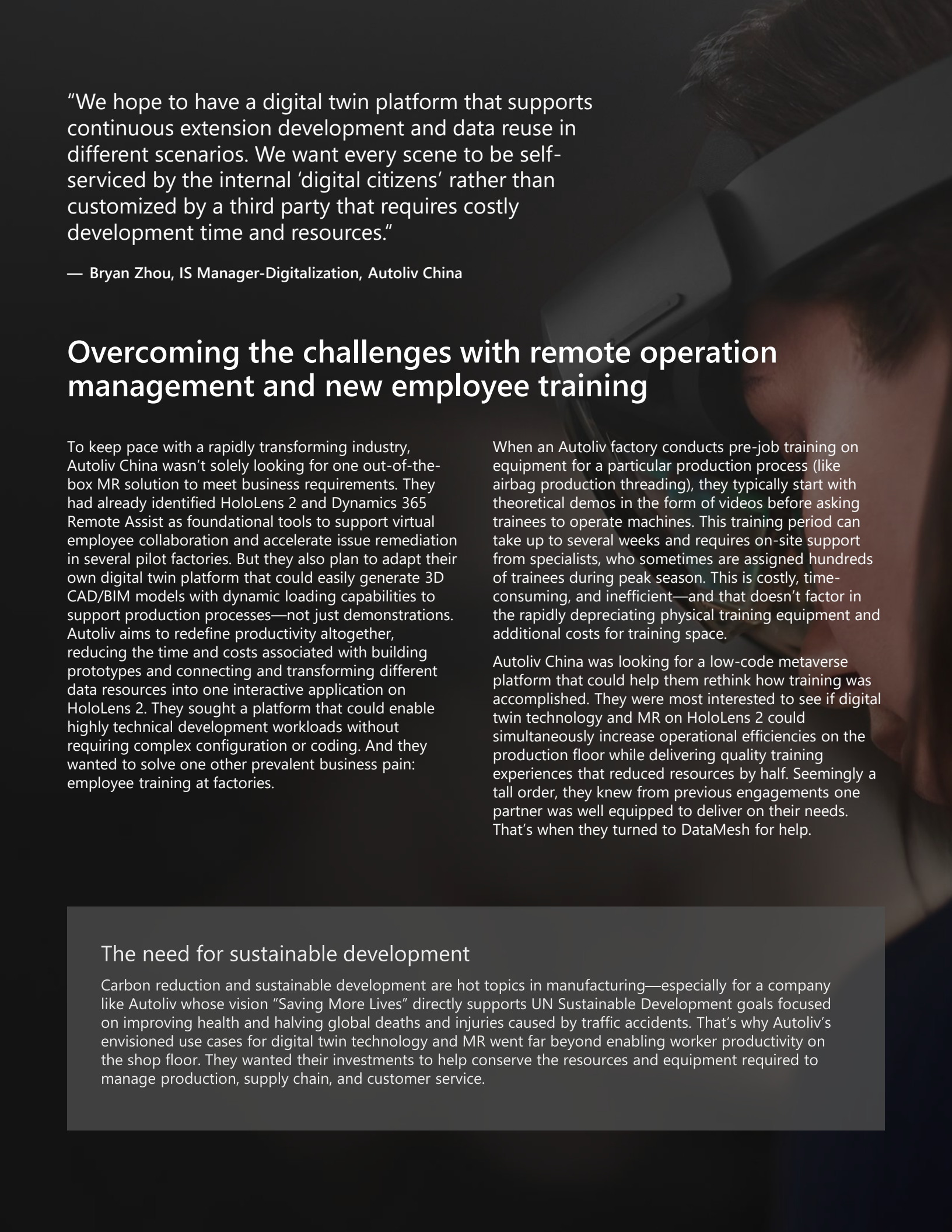
What does it mean to be truly data-driven in the automotive manufacturing industry? What if there was no longer a wall between business and operational insights—a world where Information Technology (IT) and Operations Technology (OT) came together to synthesize manufacturing, physical, and operational data for enhanced efficiencies and resource consumption on the shop floor?

Autoliv China is exploring innovative technologies to address these challenges. After preliminary research, they knew they could find them by looking through the window of Mixed Reality (MR) and digital twin technology that brings together powerful 3D data visualization with the internet of things (IoT), artificial intelligence (AI), analytics, and more. The challenge for Autoliv was choosing the right platform and hardware to make these technologies more accessible while supporting their goal of continuous innovation. They needed a solution that could connect IT and OT data systems, drive optimization of business processes, support remote collaboration, optimize their production line's designs, and do more with data insights and predictive analytics to intelligently recommend solutions to frontline employees and improve execution of daily tasks.

Easier said than done. With 14 production factories, any transformation would require a sizeable effort. Autoliv China also had to think through how they would train hundreds of frontline employees to adapt to new ways of working using virtual workstations instead of physical equipment.

### Reaching a new mobility horizon with Mixed Reality

Autoliv is a manufacturing company that sits at the forefront of innovation—providing safety solutions for mobility and society. In 2021, their products saved close to 35,000 lives. As pioneers in mobility safety, they saw an opportunity to reach unprecedented operational efficiencies to the equal benefit of customers, suppliers, and employees. The question was: who would guide them on this journey to a more streamlined, sustainable, and innovative horizon?



“We hope to have a digital twin platform that supports continuous extension development and data reuse in different scenarios. We want every scene to be self-serviced by the internal ‘digital citizens’ rather than customized by a third party that requires costly development time and resources.”

— Bryan Zhou, IS Manager-Digitalization, Autoliv China

## Overcoming the challenges with remote operation management and new employee training

To keep pace with a rapidly transforming industry, Autoliv China wasn't solely looking for one out-of-the-box MR solution to meet business requirements. They had already identified HoloLens 2 and Dynamics 365 Remote Assist as foundational tools to support virtual employee collaboration and accelerate issue remediation in several pilot factories. But they also plan to adapt their own digital twin platform that could easily generate 3D CAD/BIM models with dynamic loading capabilities to support production processes—not just demonstrations. Autoliv aims to redefine productivity altogether, reducing the time and costs associated with building prototypes and connecting and transforming different data resources into one interactive application on HoloLens 2. They sought a platform that could enable highly technical development workloads without requiring complex configuration or coding. And they wanted to solve one other prevalent business pain: employee training at factories.

When an Autoliv factory conducts pre-job training on equipment for a particular production process (like airbag production threading), they typically start with theoretical demos in the form of videos before asking trainees to operate machines. This training period can take up to several weeks and requires on-site support from specialists, who sometimes are assigned hundreds of trainees during peak season. This is costly, time-consuming, and inefficient—and that doesn't factor in the rapidly depreciating physical training equipment and additional costs for training space.

Autoliv China was looking for a low-code metaverse platform that could help them rethink how training was accomplished. They were most interested to see if digital twin technology and MR on HoloLens 2 could simultaneously increase operational efficiencies on the production floor while delivering quality training experiences that reduced resources by half. Seemingly a tall order, they knew from previous engagements one partner was well equipped to deliver on their needs. That's when they turned to DataMesh for help.

### The need for sustainable development

Carbon reduction and sustainable development are hot topics in manufacturing—especially for a company like Autoliv whose vision “Saving More Lives” directly supports UN Sustainable Development goals focused on improving health and halving global deaths and injuries caused by traffic accidents. That's why Autoliv's envisioned use cases for digital twin technology and MR went far beyond enabling worker productivity on the shop floor. They wanted their investments to help conserve the resources and equipment required to manage production, supply chain, and customer service.

# Build faster and train smarter with DataMesh FactVerse and HoloLens 2

Autoliv China and DataMesh joined forces to discuss the design of a next-generation digital twin platform. They began to make some digital twin scenarios, such as Digital Factory and Mixed Reality Training, based on the Microsoft HoloLens2 and DataMesh FactVerse platform, which accelerated time to value and accomplished more than the company could have imagined.

The platform:

- DataMesh Director, a zero-code Mixed Reality content creation application on the DataMesh FactVerse platform, accelerates Mixed Reality content production by the frontline worker.
- HoloLens 2, integrated with Microsoft Remote Assist and DataMesh Director to achieve immersive interaction and remote collaboration.
- Microsoft Azure aggregates and analyzes data with the ability to collaborate anytime, anywhere.
- Simple, low-code application design in the Autoliv Digital Twin platform will integrate enterprise-level production process data & AI in the future.

They kept on exploring the capability of safety through the prevention and immersive interaction with customers by Digital Twin/Metaverse, including remote monitoring, maintenance, 3D layout, production line simulation, and more to accelerate the C2X as a whole.

## Autoliv China redefines productivity for frontline workers

The digital twin and MR platform Autoliv China fully own will help them achieve operational efficiency and reduce resource consumption across R&D, procurement, production, and sales to achieve sustainable new solution development and training deployment.

### How does HR benefit from MR Training?

Using a 3D version of the airbag sewing machines on the production floor, HR managers have quickly created new MR training courseware on HoloLens 2. This no-code means of producing materials has made it easier to onboard employees and has augmented the number of new hires that can be trained, by more than five times.

### How are new employees benefitting?

By interacting with holographic equipment on HoloLens 2, employees have learned firsthand what it takes to operate the equipment. Many have greatly benefitted from the opportunity to walk through operational processes on their own virtually—without needing trainer oversight. These experiences have shortened employees' time to grasp concepts while improving overall assessment pass rates.

### How are trainers benefitting?

Trainers no longer need to travel on-site to support employee onboarding. Onboarding is now a much faster process and can be conducted virtually using the HoloLens 2 that models real-life, hands-on experiences—without using up resources or introducing risk.

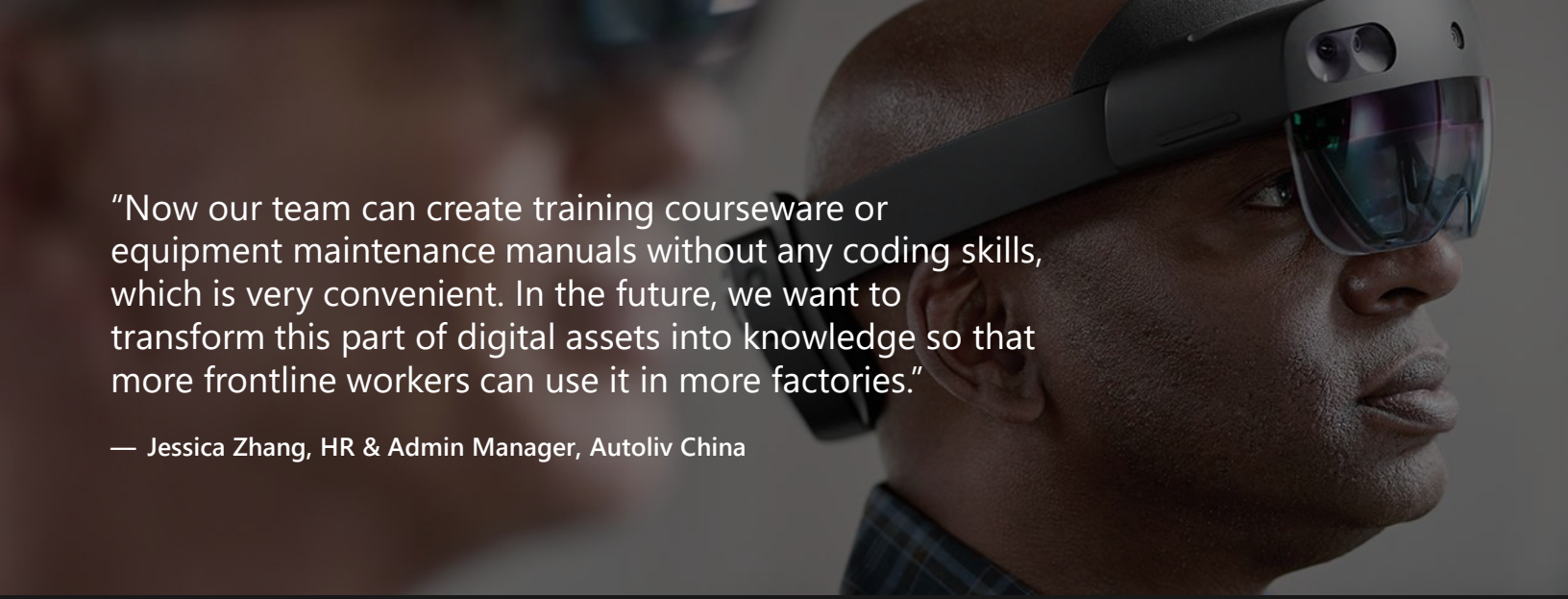
### How are frontline workers benefitting?

Frontline workers can import CAD/BIM sources quickly at a low cost to standard 3D models. They're empowered to build their own applications and edit digital twin scenes with zero coding. As more experiences are digitized, it helps them optimize the operation and maintenance of equipment on-site, giving them heightened visibility into performance with access to intelligent recommendations to streamline production processes and drive operations sustainably.

### How are CIOs/CDOs benefitting?

CIOs/CDOs can cover IT/OT, effectively use the organization's data assets, and get process assets into the digital twin platform, breaking the information silos, directly empowering frontline personnel, and improving collaboration. This platform enables Autoliv to be a great competitor by allowing them to independently manage the platform and digitize their experience with digital twin content, a low-code platform that continues accumulating digital assets for the enterprise.





“Now our team can create training courseware or equipment maintenance manuals without any coding skills, which is very convenient. In the future, we want to transform this part of digital assets into knowledge so that more frontline workers can use it in more factories.”

— Jessica Zhang, HR & Admin Manager, Autoliv China

## Reduce application development and field operation costs

### Training capability augmented by more than five times

Using DataMesh FactVerse as the foundation for their MR and digital twin platform, the Autoliv Nantong site benefitted from low-code development features that did not require professional oversight to support workforce input. This technological advantage enhanced their training capability by greatly increasing the number of trainees during a certain training period, with the help of MR equipment.

### 50% decrease in physical training resources

With greater 3D visualization and the ability to effortlessly create interactive courses using MR, the Autoliv Nantong Site was able to reduce the need for in-person trainers as well as high-carbon equipment usage. As a result, the total cost of physical training classroom and equipment was reduced by more than 50%.

## DataMesh

DataMesh is a high-tech innovator focusing on industrial metaverse technologies. DataMesh believes in democratizing Digital Twins and Mixed Reality to empower frontline workers. DataMesh has global operations and offices in Southeast Asia, Japan, China, Australia, and North America, with more than 400 customers in AEC, manufacturing, and facility management industries.

### Learn more

To learn more, please visit: [datamesh.com/datamesh-factverse](https://datamesh.com/datamesh-factverse).

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