



# Three Game Changers for Manufacturing

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Three ways leaders in the automotive industry are using RFID to implement Industry 4.0

# Intro

## Visibility in real time

Supply chain visibility has become critical for the automotive industry. Manufacturers need more visibility in real time, including material stock and inventory tracking at suppliers, and at assembly plants to deliver targets, minimize disruption, and reduce waste.

Visibility at scale means automating part and inventory identification, and ensuring data is connected across the supply chain.

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It's very important to have a chain of information not only from direct suppliers but also from second and third tier suppliers. This transparency across our supply chain is vital to enabling BMW Group iron out inefficiencies and also become more sustainable.

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Thomas Lenker  
Head of Production System  
and Capacity Management  
BMW Group

# Component identification for zero mistakes

Reliable identification is beyond the capability of manual solutions. Auto makers and now component manufacturers are tagging units at the start of the production process with RFID to optimize both manufacturing operations and logistics. The RFID tags store data to identify a single component, installation information, manufacturing dates, and unique serial numbers. They are being embedded into parts, and are readable whether in a cardboard box, on a pallet, or in the back of a truck, while entire pallets or truckloads can be simultaneously identified without continuous counts.

The result is that using RFID to automate tracking achieves fast read-rates, has extremely low error rates, and enables smart manufacturing approaches.



**How does it work? One of the world's leading suppliers of foam components uses RFID to ensure every outbound consignment is perfect.**

[Read more](#)

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Since RFID technology ensures exact tyre identification, it is conceivable in the future that drivers will see a tyre status display next to their fuel gauge. RFID in tyres makes many new business models possible and can also further increase safety when driving. We are convinced it represents a significant step forward in the tyre industry.

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Michael Ewert  
Vice President of Global Sales for Original Equipment  
Michelin



# Supply chain identification: Logistics unleashed

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By creating a digital twin of a facility, and a process, systems can pinpoint the location of every RFID tagged component. Precisely.

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Mieloo & Alexander

One decision early in the supply chain reveals opportunities for everyone. What happens when component manufacturers apply intelligent labels to each component at the earliest possible moment? Now you can automate and increase data collection across parts delivery and manufacturing stages. Now you have detailed visibility at OEMs and suppliers can identify stock shortages. Just-in-time and just-in-sequence deliveries become viable with RFID based solutions. Suppliers can load and dispatch components and modules in controlled sequences so that they arrive lineside in the right order. If components arrive out-of-sequence, you can instantly see which supplier is accountable to remove future inefficiencies. For outbound shipments you can implement automatic loading verification to ensure the correct components are shipped through the correct doors and to the right truck. It also works for future issues.



If you have faulty parts you can track components back to their individual point of production, identifying where workers or equipment might have caused errors or where efficiency improvements are possible.

Lack of buy-in from upper management is cited as one of the top three barriers to achieving supply chain success — Avery Dennison Supply Chain Research, 2022.

**Epic in scale and complexity, one of the world's biggest truck brands is using RFID to optimise its global distribution center for parts.**

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# Advanced manufacturing empowered by RFID

Industry 4.0 is being implemented factory by factory, and RFID is a building block technology. Component manufacturers are now using RFID to individually identify their units at every production stage, and car brands are requiring components be delivered pre-tagged with RFID. Many automotive assembly lines have RFID read points across their facilities (at a combination of different gates, forklifts or readers on conveyor belts) to track each component from delivery through material stock, bodyshop, paint shop, assembly and finished product yards and warehouses. Linked to ERP and MES means a log is captured of all serialized components and an as-built record of the components going into each car.

It's a goldmine of data to reduce cycle times, and the basis for machine learning and artificial intelligence based optimizations in manufacturing processes.

It is estimated the automotive industry wastes \$10b of inventory every year due to overproduction – AD Global Supply Chain Research, 2022.

Car brands are powering ahead with Industry 4.0, and a German brand is implementing RFID to optimise production globally.

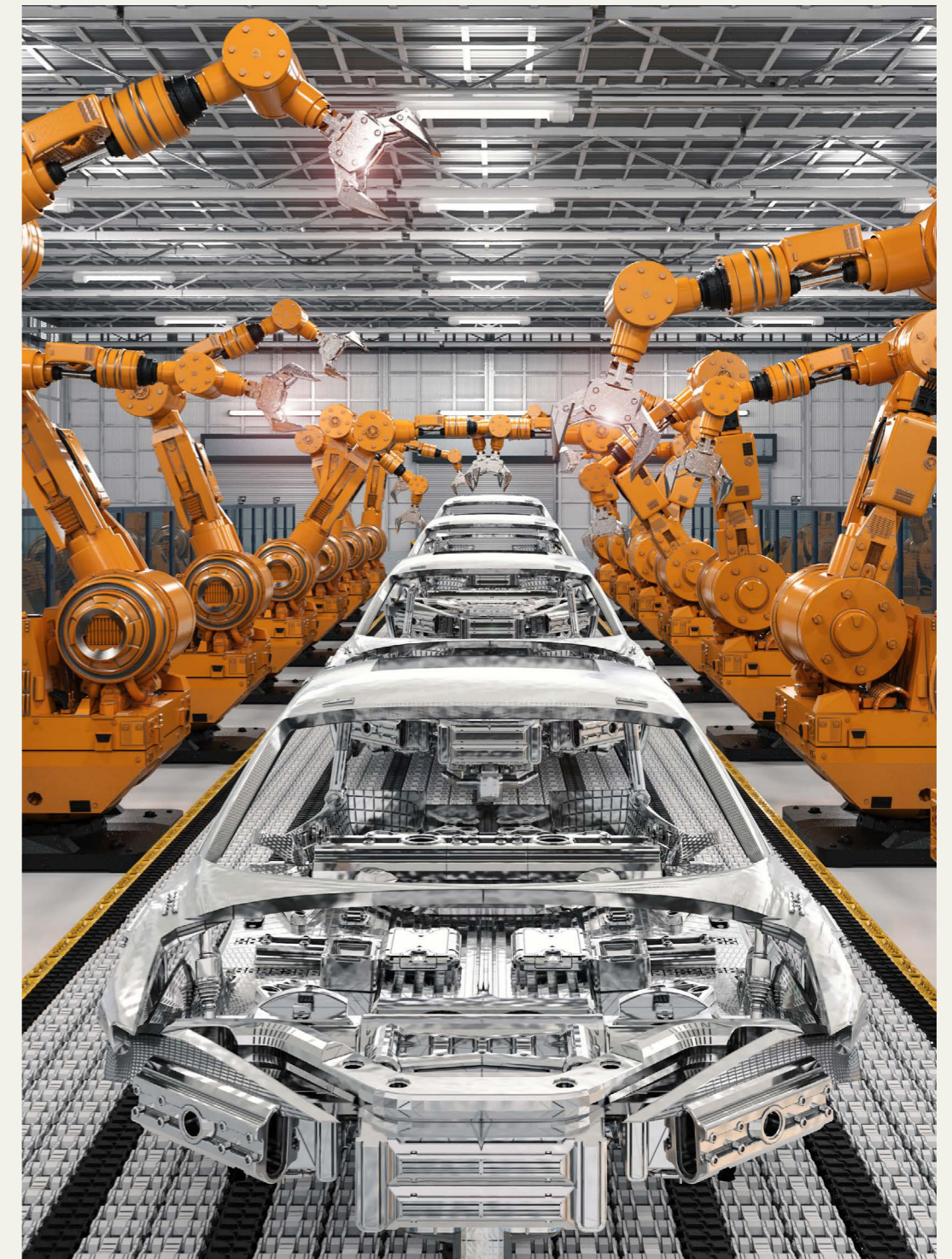
[Read more](#)

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We can now apply RFID solutions to over 70% of a modern car assembly line.

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Turck Vilant Systems



# Smartrac Summary

Avery Dennison is supporting car brands, component manufacturers and their partners to accelerate their Industry 4.0 programs and business optimisation goals. We invite you to learn from our experience and experts, and from our specialist partners.

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**70% of companies are still stuck in ‘pilot purgatory’.**  
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World Economic Forum  
Global Lighthouse Network on  
Industry 4.0 Leadership

**Download**

Recent case studies with component manufacturers and car brands.

**Connect**

Johannes Helmreich, is our expert in RFID for the Automotive Industry.

