SMART MANUFACTURING FOR AUTOMOTIVE

10 September 2024

Detroit, MI, USA

Industry Insights:

How Can Disruptive Technologies Transform Your Industry 4.0 Roadmap?

featuring insights from 4 technology experts:

BANNER® more sensors, more solutions

COPIA

KCF technologies

Photoneo Focused on 3D

Introducing Four of our Official Event Partners...

Ahead of September's Smart Manufacturing for Automotive Summit in Detroit, we spoke with 4 of our official event partners to address what they feel are the benefits of integrating industry 4.0 initiatives, the challenges their solution addresses, and what they're most looking forward to about sharing their expertise at #SmartManuAuto 2024.

Read on to find out how Banner Solutions, COPIA, KCF Technologies and Photoneo are actively solving OEM and Tier 1 automotive companies' biggest digital transformation challenges with industrial automation solutions, machine health platforms, AI-powered robotics and more.

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What do you see as the overarching benefits of industry 4.0 implementation for automotive manufacturers?

KCF technologies

1 Enhanced Maintenance Practice

Predictive Maintenance (PdM) helps identify improper maintenance practices, ensuring that all interventions are effective and contribute positively to equipment health. This aspect is **crucial for maintaining high standards** of equipment care and prolonging the life of machinery.

2 Increased Safety

Industry 4.0 technologies like predictive maintenance elevate safety standards by proactively **identifying potential equipment failures** before they occur. This foresight prevents accidents and ensures a safer working environment, contributing to employee well-being.

3 Improved Process Understanding

Industry 4.0 provides deep insights into the **intricacies of industrial processes.** By pairing continuous machine health data with process data, manufacturers can make **clear correlations and timely adjustments,** crucial for developing new standard operating practices that prioritize machine health without sacrificing throughput.

4 Reduction in Energy Consumption

By optimizing equipment performance, predictive maintenance ensures **energy-efficient operations.** This not only cuts down costs but also **supports eco-friendly practices,** aligning with the growing emphasis on sustainability in the industry.

What do you see as the overarching benefits of industry 4.0 implementation for automotive manufacturers?

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It's all about creating a **feedback loop** so decisions can be made in **real-time**, whether that is ensuring a smooth flow of goods from one process to the next, or predicting when maintenance needs to be performed on critical assets.

Industry 4.0 **connects equipment to people,** the information flows both ways, and that information supports those critical decisions, along with letting manufacturers be more nimble to **adapt to changing customer needs.**

What do you see as the overarching benefits of industry 4.0 implementation for automotive manufacturers?

COPIA

Copia sees Industry 4.0 as an **ongoing evolution** for automotive manufacturers, and **Industrial DevOps** is the key to unlocking its full potential due to the **continuous growth** of technology and the code that guides it. Here are a few key areas of focus when thinking generally about Industry 4.0:

Unprecedented Efficiency and Productivity

Industry 4.0 technologies, such as smart sensors, robotics, and AI-powered analytics, enable automotive manufacturers to **streamline their operations from design to production.** By connecting machines, processes, and data, we can optimize production lines, predict maintenance needs, and reduce downtime, ultimately leading to significant **cost savings and increased output.**

Enhanced Product Quality and Customization

With timely data collection and analysis, manufacturers can **monitor product quality** at every stage of production, identify defects early on, and make necessary adjustments. Additionally, Industry 4.0 enables **mass customization,** allowing customers to personalize their vehicles and manufacturers to cater to individual preferences while maintaining efficient production.

Data-Driven Decision Making

Industry 4.0 generates massive amounts of data from various sources, including sensors, machines, and customer interactions. By harnessing this data through advanced analytics and machine learning, manufacturers can gain valuable insights into their **operations, customer behavior, and market trends.** This data-driven approach enables them to make informed decisions, optimize processes, and develop innovative products and services.

Agility and Responsiveness to Market Demands

The automotive industry is constantly evolving, with new technologies and consumer preferences emerging rapidly. Industry 4.0 **empowers manufacturers** to adapt quickly to these changes by leveraging **flexible production systems, timely data insights, and rapid prototyping**. This agility allows them to stay ahead of the competition and meet market demands effectively.

Sustainability and Resource Optimization

Industry 4.0 technologies can significantly contribute to sustainability efforts by **optimizing resource consumption, reducing waste, and minimizing environmental impact.** For example, smart energy management systems can monitor and control energy usage in factories, while predictive maintenance can prevent equipment failures and extend its lifespan.

What do you see as the overarching benefits of industry 4.0 implementation for automotive manufacturers?

Photoneo
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Industry 4.0 is a set of tools and procedures that have a transformative potential for automotive manufacturers. By embracing Industry 4.0 principles, automotive manufacturers can gain a competitive edge, improve operational efficiency, and deliver enhanced value to customers. From Photoneo's perspective, here are some of the overarching benefits:

Enhanced Efficiency and Productivity

Automation: Replacing manual tasks with robotic processes can significantly increase production speed and reduce errors.

Data-driven optimization: Utilizing real-time data to analyze and optimize production processes leads to higher efficiency.

Improved Product Quality and Consistency

Traceability: Detailed tracking of components and processes allows for rapid identification and rectification of quality issues.

Customization: Industry 4.0 enables mass customization while maintaining high quality standards.

Cost Reduction

Optimized resource utilization: Data-driven insights help optimize resource allocation and reduce waste.

Energy efficiency: Smart factories can reduce energy consumption through intelligent systems.

Reduced labor costs: Automation can lead to lower labor costs while improving productivity.

Flexibility and Adaptability

Rapid response: Industry 4.0 enables quick adaptation to changing market demands and customer preferences.

Agile production: Flexible manufacturing systems can easily accommodate product changes and variations.

Customer Satisfaction

Improved quality: Higher product quality leads to increased customer satisfaction and loyalty.

Faster delivery: Efficient production and supply chain management result in shorter delivery times.

Innovation

Collaboration: Connected systems facilitate collaboration between different departments and external partners, fostering innovation.

New technologies: Adoption of emerging technologies, such as AI and augmented reality, drives innovation.

In your experience, what's the most significant challenge in automotive manufacturing that Industry 4.0 can address?

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Unplanned Downtime due to Equipment Breakdowns

A $300 electric motor failure can literally cause hundreds of thousands of dollars' worth of **lost throughput** if a line has to be taken off-line to perform service.

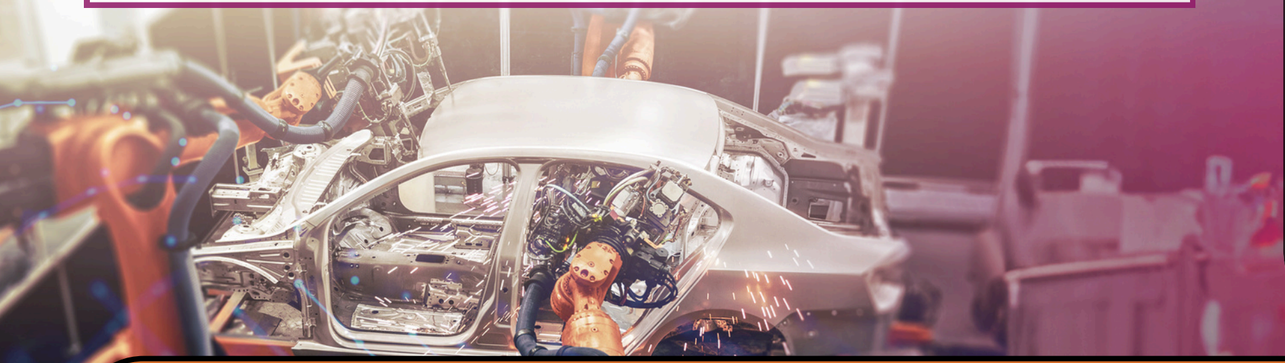
Parallel to unplanned downtime, **monitoring and understanding the impact** of operational and equipment effectiveness has allowed many companies to apply available resources more effectively. These approaches and resulting benefits can be applied to the automotive manufacturing space in both large- and small-scale deployments.

In your experience, what's the most significant challenge in automotive manufacturing that Industry 4.0 can address?

COPIA

The Inherent Complexity and Inflexibility of Traditional Manufacturing Processes

Automotive production involves numerous intricate steps, from design and engineering to supply chain management and assembly. These processes are often **rigid,** making it **difficult for manufacturers to adapt quickly** to changing market demands or introduce new product variations efficiently. This lack of agility can **hinder innovation and responsiveness** to customer preferences.



Transition from ICE to EV Manufacturing

This amplifies the need for the agility that Industry 4.0 can deliver with its **emphasis on automation, data exchange, and modular production systems,** offering a powerful solution to this challenge. By leveraging timely data and connected machines, manufacturers can achieve:

Agile Manufacturing

Timely data insights enable manufacturers to **respond quickly** to fluctuations in demand, adjust production schedules, and optimize resource allocation. This agility allows them to **meet customer needs** promptly and **avoid overproduction or shortages.**

Mass Customization

Industry 4.0 facilitates mass customization, allowing manufacturers to offer personalized vehicle configurations without sacrificing efficiency. This is achieved through **flexible production lines and modular components** that can be easily adapted to individual customer preferences.

By overcoming complexity and inflexibility, Industry 4.0 empowers automotive manufacturers to be **more responsive, adaptable, and competitive** in today's dynamic marketplace. This transformation is not just about implementing new technologies; it's about reimagining the entire manufacturing process to be **more agile, customer-centric, and data- driven.**

In your experience, what's the most significant challenge in automotive manufacturing that Industry 4.0 can address?

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The automotive industry is characterized by a **high degree of product complexity and variability.** Different models, options, and customizations require flexible and adaptable production processes. Industry 4.0 addresses this challenge by:

Enabling Mass Customization

Through intelligent systems and automation, manufacturers can tailor production to individual customer preferences while maintaining efficiency.

Increasing Flexibility

Smart factories can rapidly adapt to changes in product design, demand, and supply chain disruptions.

Essentially, Industry 4.0 provides the tools to manage the intricate dance of **balancing mass production with personalized offerings,** a challenge that has traditionally been a significant hurdle for automotive manufacturers.

In your experience, what's the most significant challenge in automotive manufacturing that Industry 4.0 can address?

KCF technologies

1 Reactive Maintenance Practices

Reactive maintenance is responsible for:

- significant productivity losses
- industrial injuries
- excessive energy and emissions waste

2 Machine Health

The traditional approach of responding to machine failures only after they occur leads to:

- unplanned downtime
- increased maintenance costs
- safety hazards.

How Does Your Solution or Service Specifically Tackle this Challenge?

COPIA

Our **Industrial DevOps Platform** enables automotive manufacturers to:

Accelerate Innovation

By fostering collaboration and communication between teams, we can **streamline the development and deployment** of new technologies and processes, bringing innovative solutions to market faster.

Ensure Reliability and Security

We implement **robust testing and monitoring practices** to ensure the reliability and security of critical systems, minimizing downtime and protecting against cyber threats.

Industrial Code Management

The amount of industrial code continues to grow and the Copia Industrial DevOps Platform provides the tools and processes to **maintain, track, adjust, and update that code** in the best possible way.

Scale and Adapt

Our scalable Industrial DevOps Platform allows manufacturers to **adapt** to changing business needs and **expand** their Industry 4.0 initiatives seamlessly.

Industry 4.0 presents a wealth of opportunities for automotive manufacturers to **transform their operations, enhance product quality, and drive innovation.** By embracing Industrial DevOps, they can unlock the full potential of these technologies and gain a **competitive edge** in the rapidly evolving automotive landscape.

At Copia Automation, we are committed to partnering with automotive manufacturers on their Industry 4.0 journey, providing the expertise and solutions needed to succeed.

How Does Your Solution or Service Specifically Tackle this Challenge?

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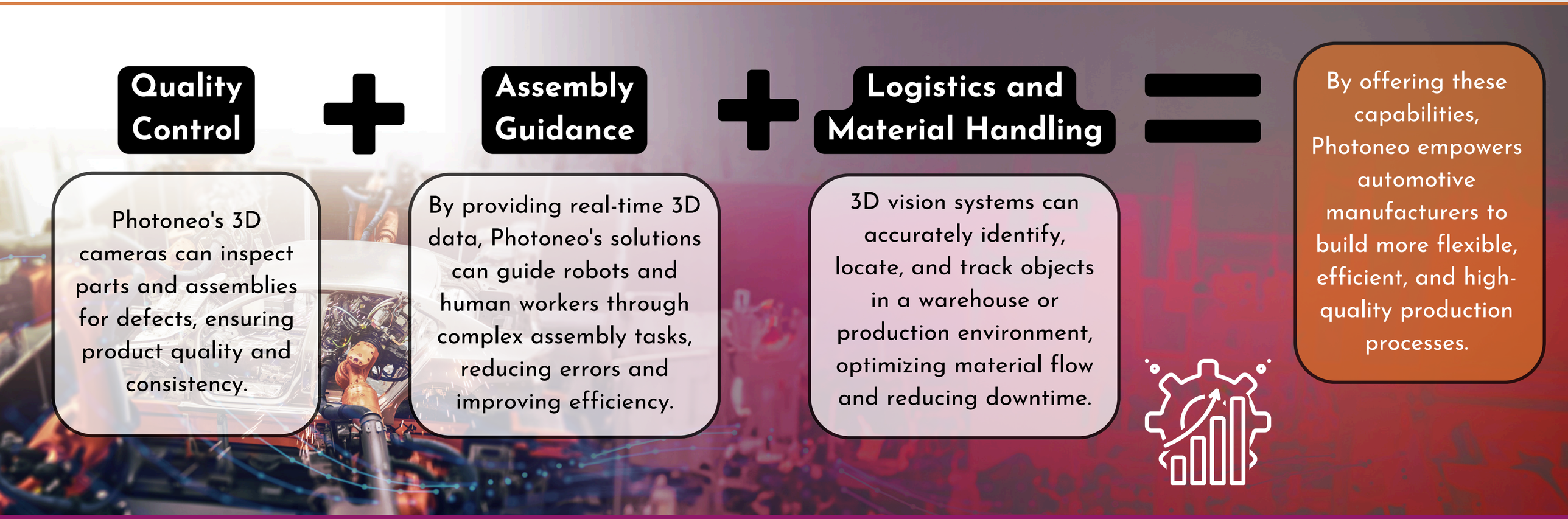
Photoneo primarily addresses the challenge of complexity and variability in automotive manufacturing by providing advanced 3D vision solutions. These solutions offer a crucial foundation for Industry 4.0 initiatives by providing real-time, accurate, and detailed visual information about the production process. Here's how Photoneo's technology specifically tackles this challenge:



Quality Control

Photoneo's 3D cameras can inspect parts and assemblies for defects, ensuring product quality and consistency.

+

Assembly Guidance

By providing real-time 3D data, Photoneo's solutions can guide robots and human workers through complex assembly tasks, reducing errors and improving efficiency.

+

Logistics and Material Handling

3D vision systems can accurately identify, locate, and track objects in a warehouse or production environment, optimizing material flow and reducing downtime.

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By offering these capabilities, Photoneo empowers automotive manufacturers to build more flexible, efficient, and high-quality production processes.

How Does Your Solution or Service Specifically Tackle this Challenge?

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It's simple, we provide the sensors and monitoring solutions needed to **measure the health and utilization of equipment in real-time,** giving maintenance staff the information they need to decide when machines need service, which can then be performed during scheduled downtime.

We go a step further and have made our solution

Easy to Deploy

Scalable

and importantly, we give our customers

Ownership over their Data

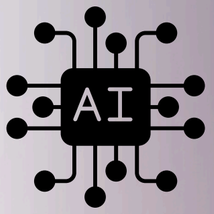
How Does Your Solution or Service Specifically Tackle this Challenge?

KCF technologies

1

Right Data

We gather comprehensive, high-fidelity data using various sensor types, ensuring frequent data collection to **discern the root cause of machine issues.** For example, we collect full spectrum data frequently, even down to once per minute, to observe and diagnose conditions like cavitation and resonance that cause excessive damage over time.



2

Right Analysis

Our solution uses AI and machine learning to **organize and simplify data into actionable insights**. By automatically identifying and diagnosing issues, such as rotating looseness and cavitation, our AI models create tickets with all relevant information, allowing plant teams to investigate and **eliminate the root cause effectively.**

3

Right Action

We ensure that insights are served to the **right person**, at the **right time,** in the **right place**, and in an understandable manner. This elevates workers to act on the data and solve problems, improving maintenance quality, optimizing machine health, and eliminating unplanned events.

What Are You Most Looking Forward to at this Year's Smart Manufacturing for Automotive Summit?

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1

Having the chance to meet key partners and potential customers

2

Presenting Photoneo's achievements and newest technology advancements

Photoneo strives to expand the network of automotive OEMs with direct integration into their R&D and production processes.

What Are You Most Looking Forward to at this Year's Smart Manufacturing for Automotive Summit?

KCF technologies

1. **Networking Opportunities** — **Engaging with industry leaders,** experts, and peers to share knowledge, insights, and best practices in smart manufacturing.

2. **Innovative Solutions** — **Distributing learnings** about the latest advancements in Industry 4.0 technologies and how they can be applied to further enhance automotive manufacturing processes.

3. **Success Stories** — Sharing **real-world case studies** and success stories that demonstrate the tangible benefits and impact of implementing smart manufacturing solutions.

4. **Collaboration** — Exploring **potential collaborations and partnerships** that can drive innovation and improve overall industry standards.

What Are You Most Looking Forward to at this Year's Smart Manufacturing for Automotive Summit?

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To see how the automotive manufacturing sector continues to **apply condition monitoring and OEE tools** to their production and maintenance challenges.

As these technologies and approaches are adopted, how are they being tied together to develop **better overall production approaches.**

What Are You Most Looking Forward to at this Year's Smart Manufacturing for Automotive Summit?

COPIA

Honestly, we're excited for everything. These events are so great for **sharing ideas, learning, and iterating on innovation.** We're most excited about:

Collaborative Innovation

This summit brings together the **brightest minds in automotive manufacturing and technology.** We're eager to engage in discussions and share insights with industry leaders, fostering a collaborative environment where we can **collectively drive innovation** and shape the future of automotive manufacturing.

Showcasing Cutting-Edge Solutions

For us, it's a great opportunity to **showcase our Industrial DevOps Platform,** which is bringing quantifiable benefits to the automotive industry. We're thrilled to **demonstrate how our technology can empower manufacturers** to accelerate innovation, enhance efficiency, and achieve greater agility in their operations. We're also excited to see and **connect with the other vendors** in attendance, especially friends and former colleagues.

Learning from Industry Experts

The summit's agenda features a **diverse range of presentations and workshops** led by industry experts. We're looking forward to learning about the latest trends, challenges, and best practices in smart manufacturing from both a **technical and strategic perspective**. We're also excited to share our recently published report, the 1st annual State of Industrial DevOps. There's a wealth of peer benchmark data in it to help decision makers advance their Industry 4.0 initiatives.

Networking Opportunities

Building relationships and connecting with peers is a crucial aspect of any industry event. We're excited to meet with fellow executives, engineers, and innovators, exchange ideas, and explore potential collaborations that can drive the adoption of smart manufacturing technologies in the automotive sector.

Inspiring the Future of Automotive Manufacturing

Ultimately, we see the summit as **an opportunity to inspire and be inspired.** By sharing our vision for the future of automotive manufacturing and showcasing the transformative potential of Industrial DevOps, we hope to contribute to the ongoing evolution of this dynamic industry.

We're confident that this year's Smart Manufacturing for Automotive Summit will be a **valuable experience** for all participants, **fostering collaboration, innovation, and growth** in the automotive manufacturing sector.

Engage with these Solution Providers and Gain the Necessary Tools to Accelerate Your Organization's Transition Towards Automotive 4.0 at #SmartManuAuto!

SMART MANUFACTURING FOR AUTOMOTIVE

10 September 2024

DoubleTree Suites by Hilton Hotel Detroit Downtown - Fort Shelby, Detroit, MI, USA

Implementing Cutting-Edge Technologies and Streamlined Processes for Flexible, Efficient Automotive Manufacturing

VIEW AGENDA