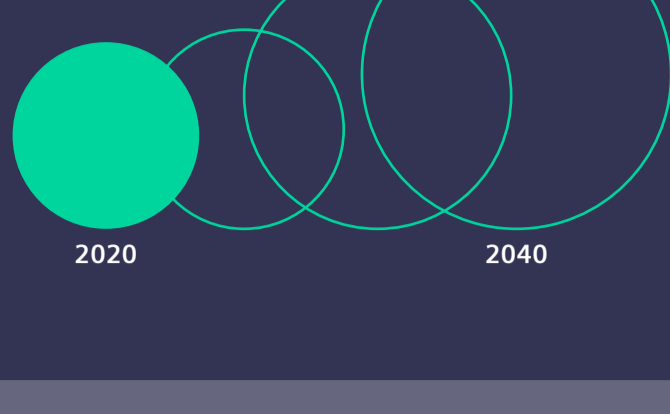


# Integrated manufacturing process planning for the automotive industry



## Unprecedented change in the automotive industry

Companies in the automotive industry are pushing to develop the next generation of vehicles – autonomous, electric, connected and shared. These new vehicles are becoming more and more software-defined, posing new design challenges for auto makers. How will they accelerate their product engineering and manufacturing and get it right the first time?



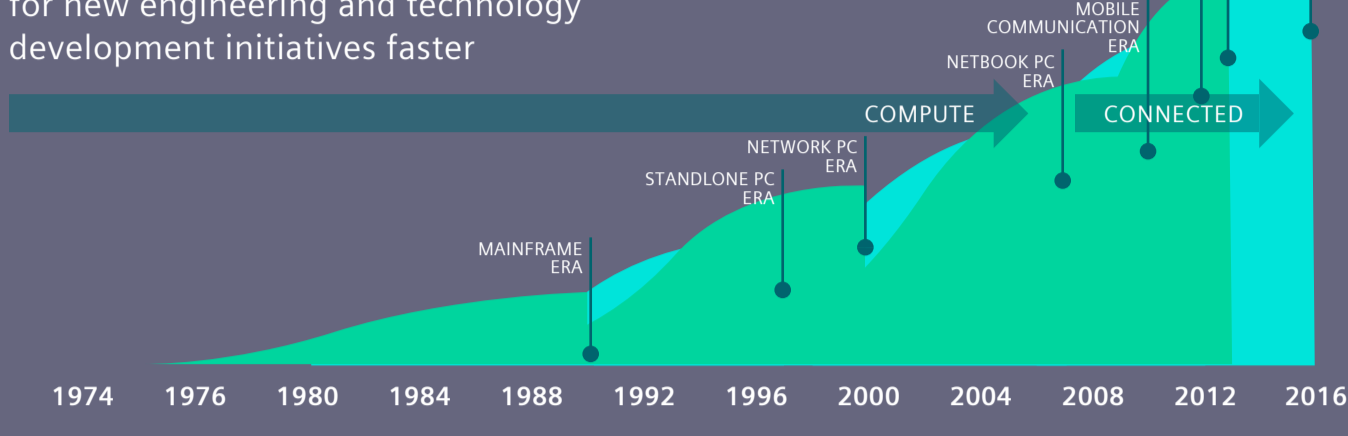
Up to 15% of all new vehicles sold in 2030 could be fully autonomous

Source: McKinsey

## Market growth

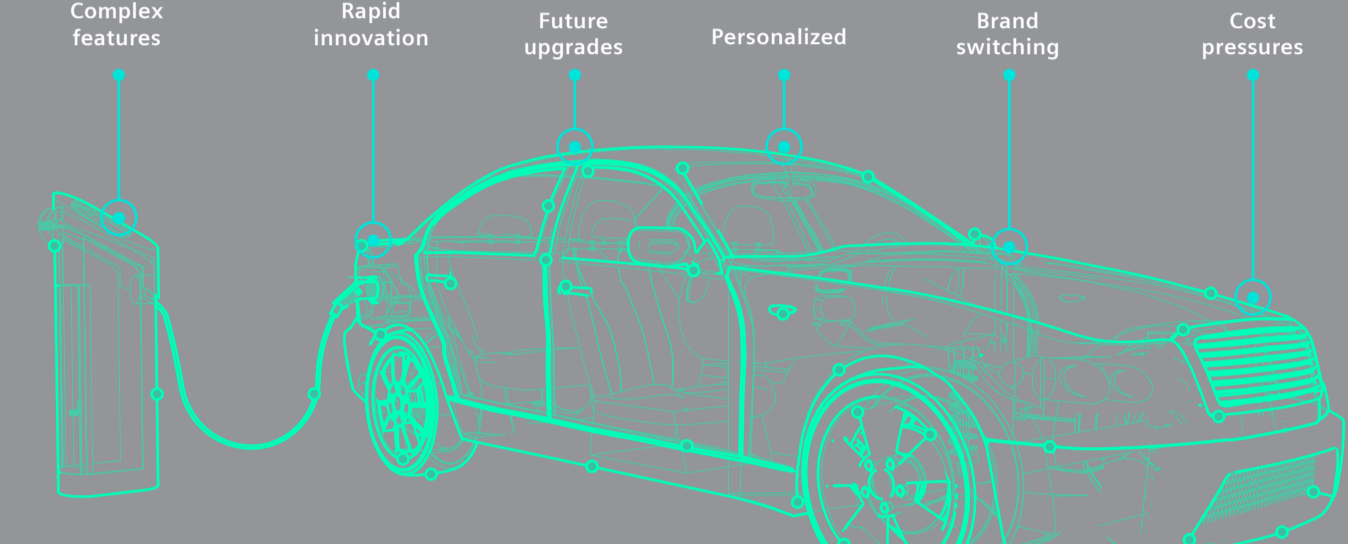
### Rapid pace of innovation

The accelerated pace of disruptive innovations are driving the need for new engineering and technology development initiatives faster



## Connectivity

OEMs must develop flexible, scalable and reliable E/E architectures to manage increasing complexity.



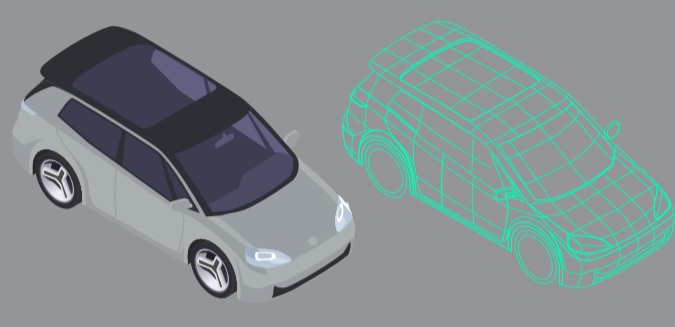
Connectivity and personalization will top future consumer demands.

25% of cars will be connected by 2023.

94% of cars will be connected to 5G by 2028.

## Explosion of complexity

Intensified competition, changing consumer demands and increased regulatory requirements have caused an increase in complexity.



## Increasing day-to-day challenges

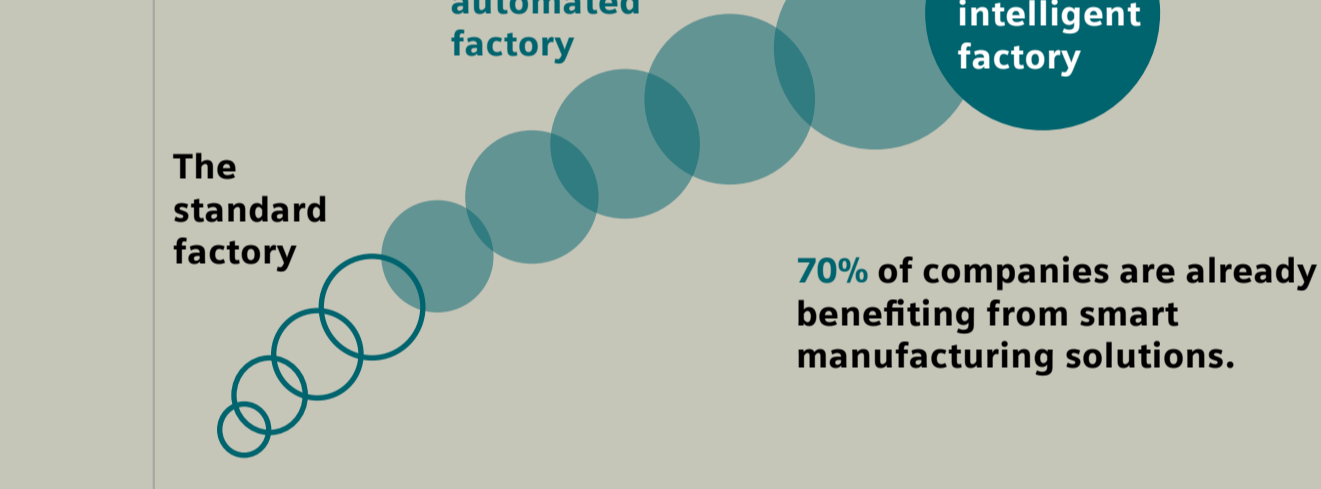
- Unpredictable supply chain disruptions affecting materials, parts and components availability, lead to unexpected downtime
- Ongoing labor shortages
- Increasing complexity across organizations



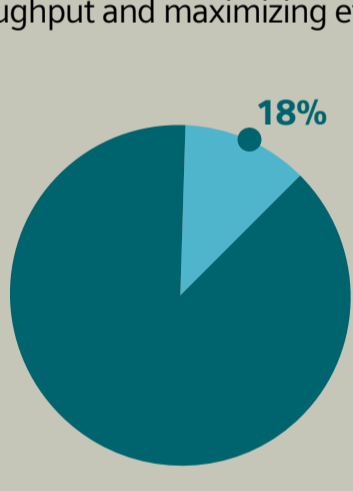
Market research\* indicates that for 47% of the respondents, it has taken up to five days to detect and recover operations from a production line shutdown and 18% said it has taken a full week.

\*Source: IndustryWeek

Companies realize they must gain agility and efficiencies in order to meet customer demand and overcome day-to-day challenges.



The manufacturing landscape is quickly evolving to adopt and implement more intelligent factory capabilities to meet the needs of today and address the challenges of tomorrow. Reducing time to launch, improving quality, decreasing warranty, eliminating recalls, increasing throughput and maximizing efficiency.



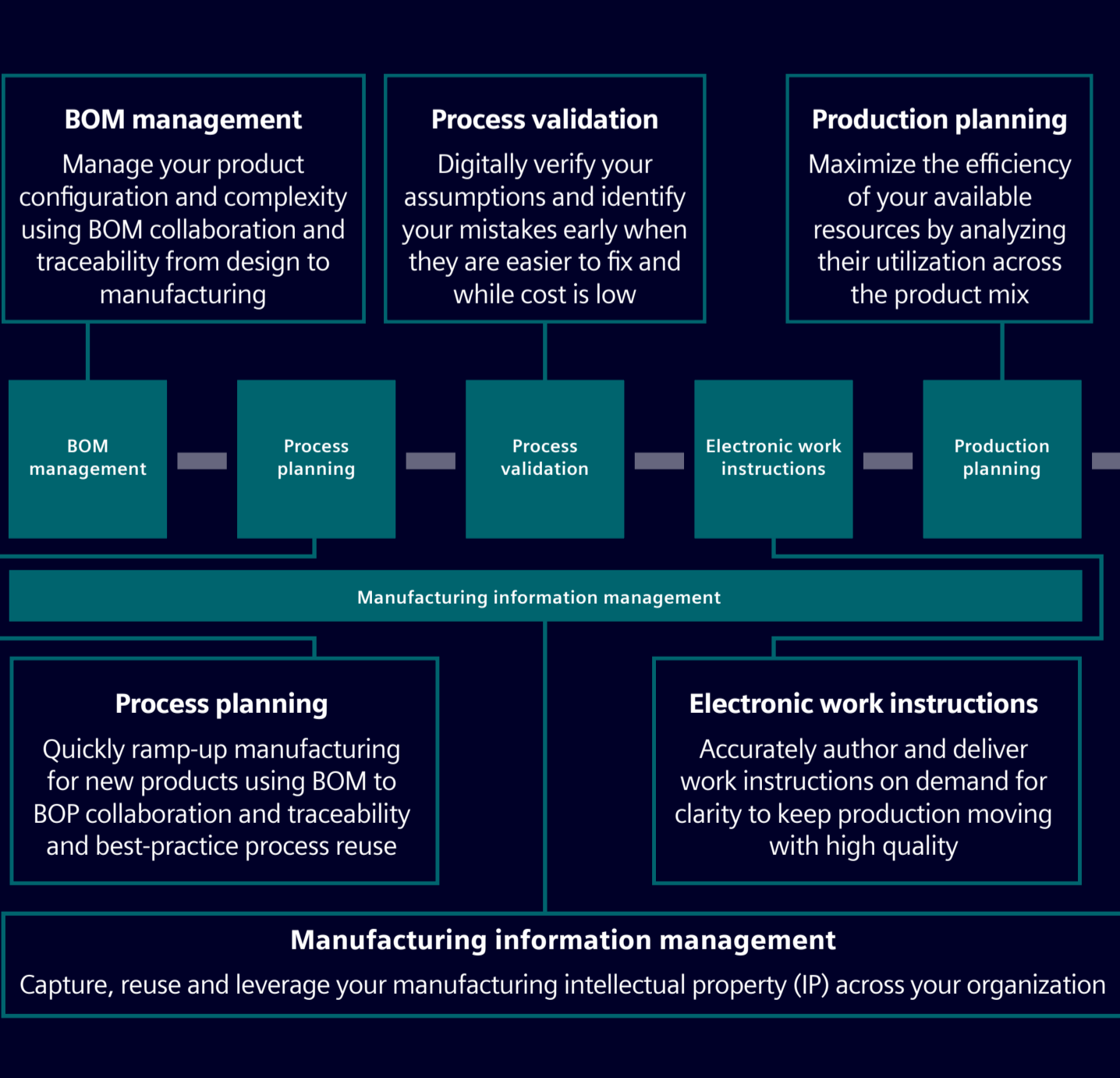
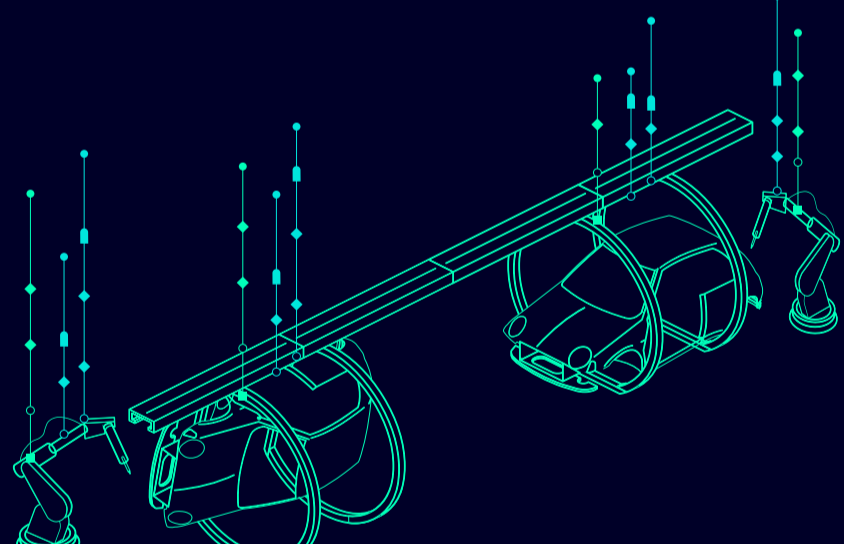
Only 18% of auto manufacturers have an intelligent, connected loop of technologies that helps them to predict and proactively maintain and manage the entire production process.

Source: IndustryWeek

The remainder rely on either employees pulling together the data manually, or some mix of manual processes plus software.

## Siemens can help

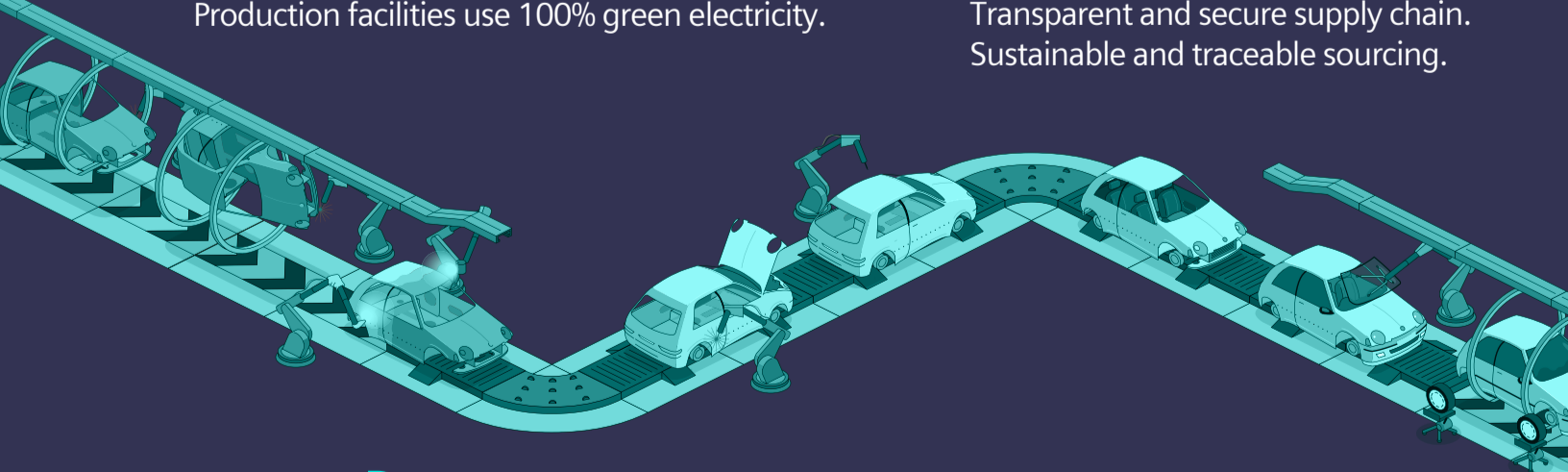
Modernize your manufacturing process by connecting the data of all engineering disciplines to the knowledge of your factory floor. Monitoring performance and predicting operational issues in real-time, by using sensors, smart devices and IIoT technology you will have a complete loop of manufacturing communication. Leverage a virtual replication of your entire production plan to eliminate the iterative element of physical commissioning.



## Embrace smart manufacturing to win the race

**Meet sustainability goals**  
Reduction of water usage and CO<sub>2</sub> footprint. Production facilities use 100% green electricity.

**Embrace globalization**  
Ensure fair-trade supplier practices. Transparent and secure supply chain. Sustainable and traceable sourcing.



**Adapt to changing consumer preferences**  
New business models – product personalization. Highly sustainable vehicle, minimum footprint. Electrified, connected vehicles, ADAS and AV.

## Everything to enable a flawless launch

