

SIEMENS DIGITAL INDUSTRIES SOFTWARE

# Accelerated Product Development

Design next-generation automotive products faster  
with an integrated and automated solution  
**[siemens.com/apd](https://www.siemens.com/apd)**





Electric cars aren't new, but they are increasing in popularity faster than anticipated. Instead of choosing from one or two models, your customers now expect a full line-up of EV styles and genres to be available, and they don't want to wait years for delivery. According to the McKinsey Group, battery electric vehicles (BEVs) and plug-in hybrid vehicles (PHEVs) will make up 55% of new vehicle sales by 2030 across China, Europe, and North America.

Additionally, driver-assist technology is becoming more commonplace. Features like adaptive cruise control, automatic emergency braking, and driver drowsiness protection are a few examples of high-tech ADAS applications attracting new car buyers.

Henry Ford is credited with saying, "If I had asked people what they wanted, they would have said faster horses." As an automotive manufacturer, you are under pressure to keep up with the competition today and anticipate the brand-new features your customers will want in the future.

Incorporating these software-driven features and technologies into your vehicle design is a complex process that crosses multiple domains and increases the risk of errors. Failing to catch design errors until late in the development cycle or during physical testing can drive lengthy program delays and increase costs drastically.

How can you accelerate development while ensuring that your first prototype works as planned?

## Trends

### Trend #1

Electric, autonomous, connected, and shared mobility are reshaping the industry.

### Trend #2

New technology-driven competition is emerging.

### Trend #3

Consumers are demanding sustainable and personalized products.

### Trend #4

Regulatory, sustainability and homologation requirements are increasingly strict.

## Key drivers

- Autonomous driving incorporates advanced sensor engineering and connectivity technologies.
- Electrification requires innovative noise, thermal, and range optimization solutions.
- Climate change is increasing customer, regulatory, and sustainability requirements.
- Globalization requires seamless collaboration and resource integration.





# Remove barriers to innovation with Accelerated Product Development

Traditional development processes that have worked for decades are falling short when innovating and developing the next generation of transportation. To succeed, a new approach that leverages digital collaboration and simulation is needed.

## Connecting the data

"The start of the development process is especially challenging for complex products because the various stakeholder groups, such as sales, engineering, and finance, may have different or even contradictory product requirements." Engineering teams often waste time looking for information or designing with the wrong information, making costly errors they could have avoided. By providing continuous access to a single, up-to-date source of requirements and targets to everyone involved in the project, you can ensure product compliance and auditable traceability throughout development and production.

## Developing the concept

To innovate new, complex features that affect multiple systems, your electrical, electronic, mechanical, and software engineering teams must plan for them at the earliest stage of development.

However, the time-consuming nature of the traditional design, test, and redesign development cycle keeps you from fully exploring design alternatives. By using an intelligent process to automatically generate configurations and evaluate them against parameters, constraints, and targets, you can choose the optimal design upfront, saving time and money down the road.

## Validating the design

Individual system designs, specifications, and parameters are constantly changing throughout the development process, potentially affecting other domains. When your process cannot automatically communicate design changes to all domain teams, performance and compliance problems are likely. Also, by using an array of engineering simulations, a digital twin of the product, to continuously validate performance throughout development, you can ensure that even the first physical prototype will meet all requirements and perform as designed. Avoid delays, reduce physical prototyping, and increase your market share by developing the next generation of vehicles with Siemens' Accelerated Product Development.



Innovate and develop multiple products faster than the competition with continuous validation.







# Accelerate your product development with a digital solution from Siemens

When you develop every system in the context of the entire vehicle, you will execute even the most complex features flawlessly.

[Learn more](#)

You're under pressure to design and develop innovative products and features efficiently and bring them to market ahead of the competition. At the same time, you can't neglect your traditional products currently in production. You will develop multiple products faster by connecting people, processes, data, and technologies using a digital data backbone and a comprehensive digital twin.

## **Siemens' Accelerated Product Development solutions:**

- Provide a single source of truth for requirements, targets, and issues from concept through production
- Enable you to choose the best design upfront by automatically generating and assessing many potential configurations.
- Simulate design changes across all disciplines before implementation to reduce the need for redesigns and rebuilds.
- Improve decision-making and foster stronger collaboration with a data-driven feedback loop from the product to simulation.
- Operate seamlessly with all technologies.

## What our customers are saying about Accelerated Product Development solutions:



I can honestly say that it's been faster to create body metal data using Siemens' NX.

**Dean Bailey,**  
Senior Engineer,  
Nissan Technical  
Centre, Europe



We are using Siemens' finite element analysis as an upfront tool for the design so that we don't have to break the part before we improve it.

**Jim Wall, Director of  
Engine Programs,**  
Hendrick Motorsports



Constructing a model is a complex and time-consuming process, so that ability to automatically update our models with multiple iterations is one of the reasons we chose Siemens' Simcenter.

**Mohamed Ben-Tkaya,**  
Functional Simulation  
Expert, Faurecia



### About Siemens' Accelerated Product Development:

Siemens' APD digital solution helps automotive manufacturers optimize their returns by driving innovation and accelerating productivity across the enterprise. This integrated solution incorporates next-generation design capabilities to navigate the dynamic automotive landscape and meet complex market requirements.

Siemens' digital thread creates a seamless, synchronized, and collaborative environment throughout the many disciplines involved in today's vehicle development. With an emphasis on advanced simulation capabilities and early virtual validation, digital twin technology is especially valuable in fast-moving high-tech markets. Partnered with Siemens, OEMs and their suppliers will create the next generation of cars faster.

Siemens' digital twin technology is especially valuable in fast-moving high-tech markets using emerging technologies such as 5G, the Internet of Things (IoT), smart manufacturing, and artificial intelligence (AI). Working with Siemens enables OEMs and their suppliers to develop the next generation of innovative vehicles faster.

For more information on Siemens Accelerated Product Development, visit [siemens.com/apd](https://www.siemens.com/apd) or follow us on LinkedIn and Twitter.

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