

PERVASIVE ENGINEERING SIMULATION SUPERCHARGES AUTOMOTIVE DESIGN



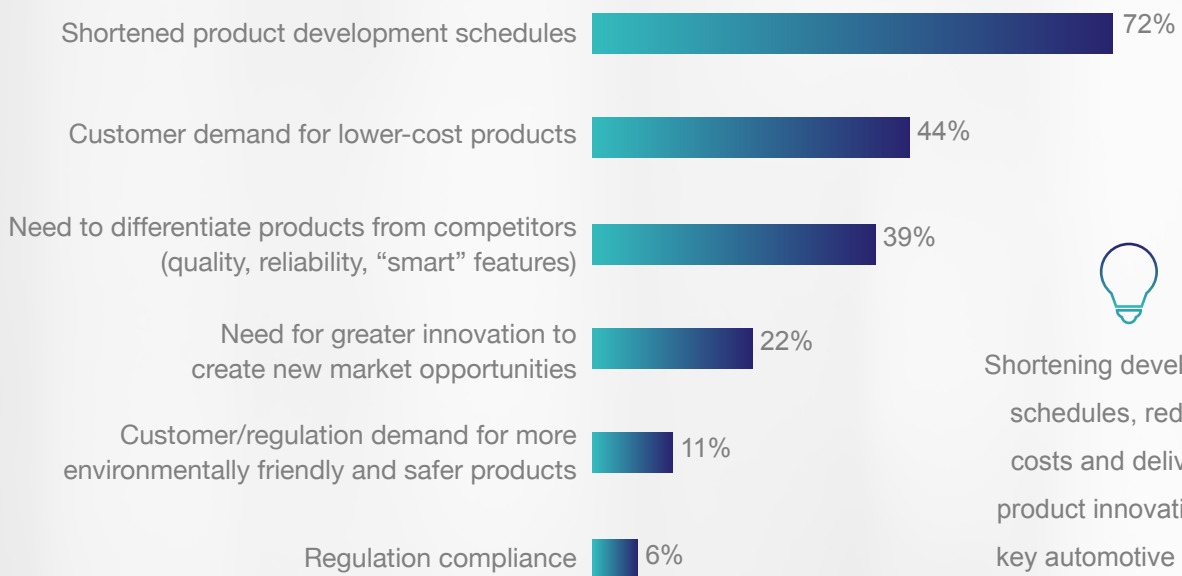
Market Trends Drive the Automotive Design Process

Consumers are demanding efficient, reliable, safe, environmentally friendly, smarter, connected and increasingly autonomous vehicles. Regulators continue to demand improvements in safety and emissions. The automotive industry must deliver these increasingly complex products to market faster, in the face of increasing competition from traditional sources, new geographies and new entrants and with continued pressure to reduce cost. Failure of any magnitude can result in significant, and even irreparable, financial and brand impact.

Shifting Market Trends are Driving Investments in Key Business Initiatives

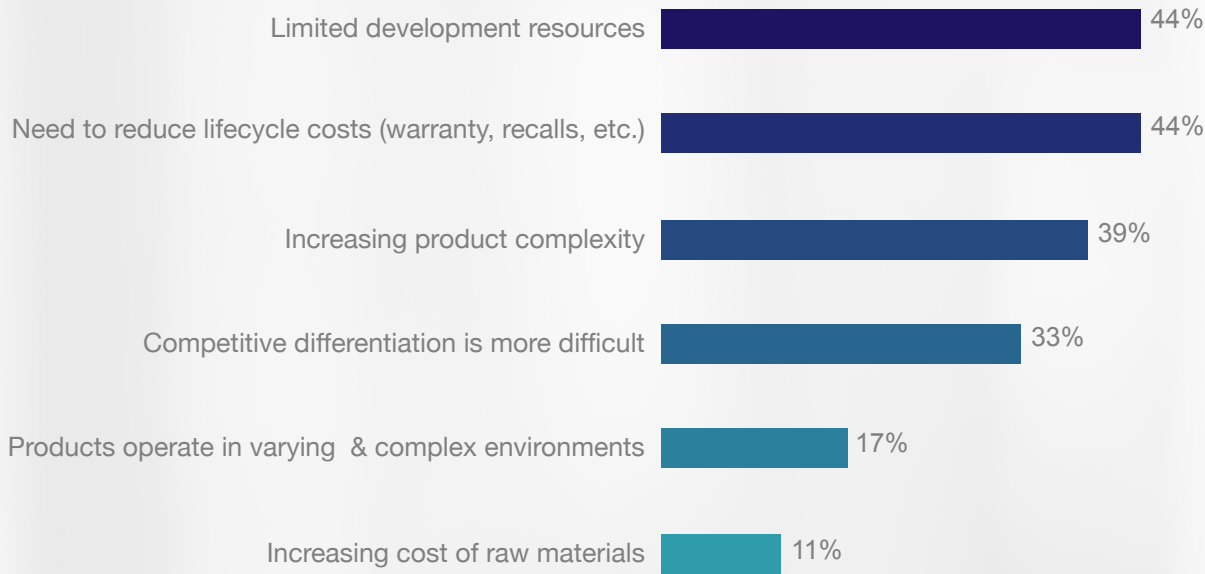
Efficient & Clean		▶ Improve fuel economy & emissions
Electrified & Connected		▶ Develop hybrid & electric vehicles
Autonomous & Shared		▶ Develop ADAS & autonomous vehicles
Safe & Reliable		▶ Ensure safety & reliability upfront
Elegant & Economic		▶ Manage complexity of electronics, software

Automotive Competitive Pressures



Shortening development schedules, reducing costs and delivering product innovation are key automotive design pressures

Automotive Product Challenges



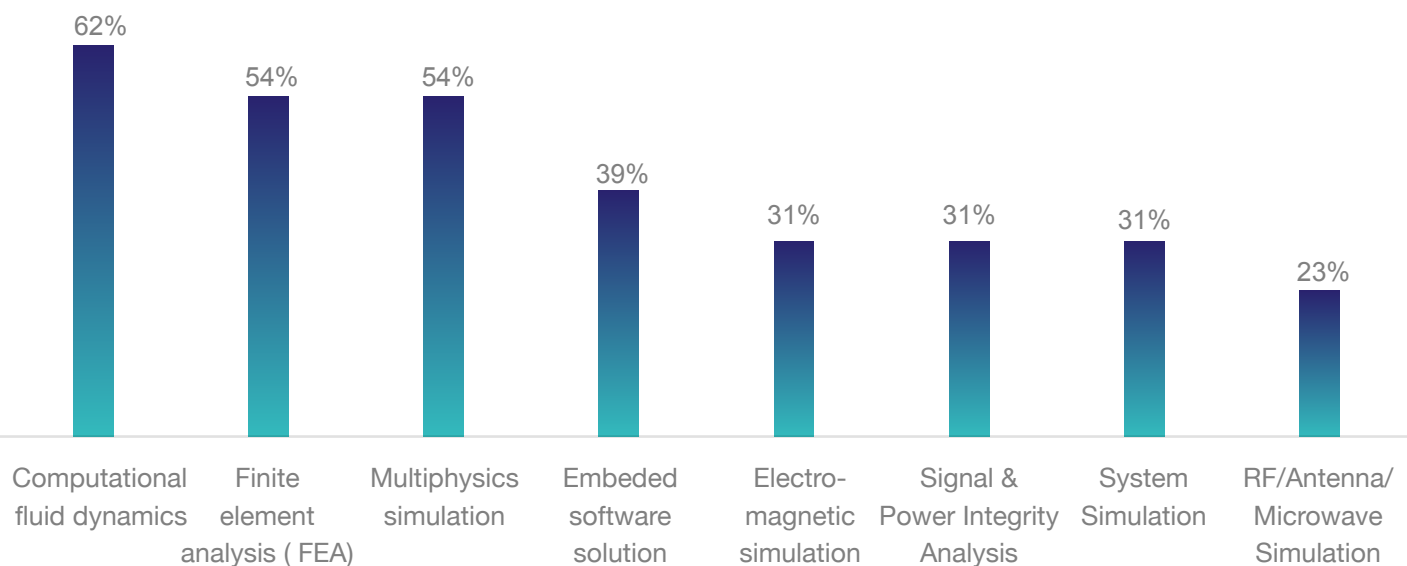
Limited resources, reducing warranty costs and increasing product complexity are key automotive design challenges

Aberdeen Group, February 2017

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To address these design challenges, research shows that best-in-class companies invest in a broad portfolio of engineering simulation tools. The use of engineering simulation in the automotive industry is pervasive from the component to the system level.

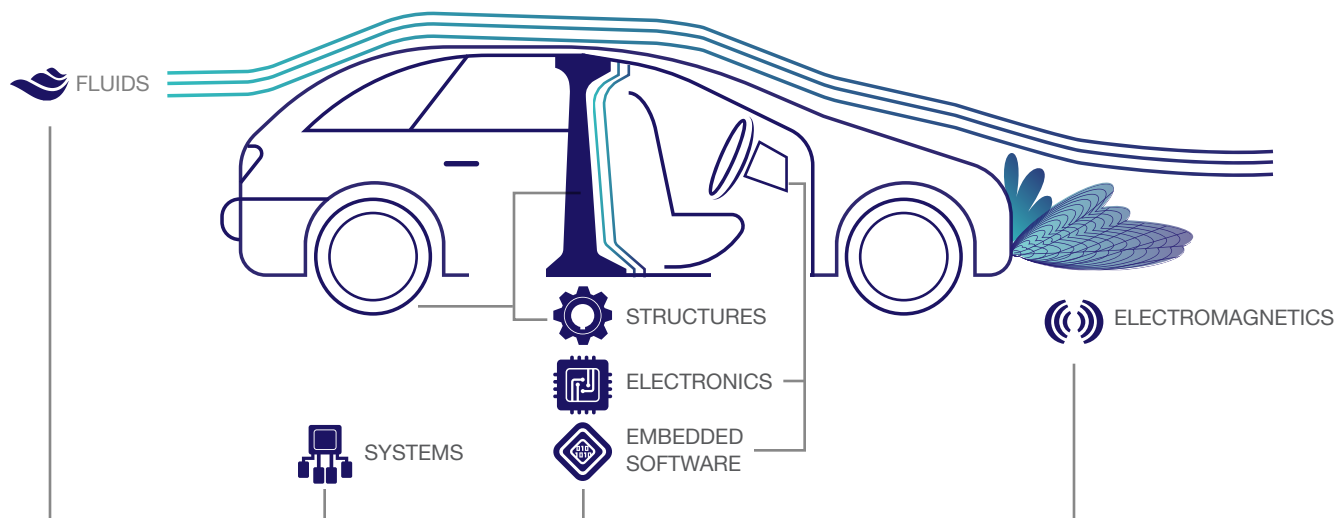
Computer Modeling Investments by Best-in-Class Firms



Aberdeen Group June 2016

Pervasive Engineering Simulation™ from the Component to the System

ANSYS DIGITAL PROTOTYPE OF AN AUTOMOBILE



The benefits of engineering simulation are significant.

What percentage of your company's products CURRENTLY meet your targets for the following?

	NON SIMULATION USERS		SIMULATION USERS*
Product Launch Date Target	50%	►	71%
Product Cost Target	45%	►	67%
Quality Target	60%	►	77%

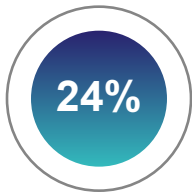


Simulation users are better at meeting their targets in product launch date, cost, and quality

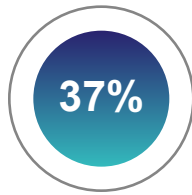
Automotive Industry Best-in-Class Extend Their Market Leadership Using a Consolidated Engineering Simulation Platform

The best-in-class compound their advantage by performing all of their engineering simulation with a common simulation platform. By doing so, they are able to further reduce develop time, more successfully meet launch and cost targets all while reducing the total cost of ownership for their engineering simulation tools.

The Additional Benefits of a Consolidated Simulation Platform



more likely to meet product launch dates



more likely to decrease their length of development time



more likely to see a decrease in Simulation TCO (past 12 months)



Using a Consolidated Engineering Simulation Platform the Best-in-Class are even more likely to meet launch date and cost targets while reducing the total cost of ownership of their engineering simulation tools

ANSYS provides the most widely adopted engineering simulation platform that enables comprehensive simulation of complete digital prototypes that are both scalable and extensible

ANSYS Consolidated Engineering Simulation Platform



**COMPREHENSIVE
SIMULATION**

Systems & Multiphysics
Digital Twin & Big Data



**SCALABLE
SOLUTIONS**

Process & Data Mgmt
Desktop to Cloud



**EXTENSIBLE
ECOSYSTEM**

Partner Networks
Customizable Apps



ANSYS is the most widely adopted engineering simulation platform

Industry leaders acknowledge the power of the ANSYS consolidated engineering simulation platform.

Case in Point: Cummins Increases Productivity by more than 50%



“ELA (Enterprise-Wide License Agreement) and HPC improvements have increased productivity by more than 50%”
Wayne Eckerle, VP Corporate R&D, Cummins

READ ARTICLE



ANSYS SIMULATION PLATFORM enables comprehensive simulation of all engineering aspects of a vehicle, in one seamless simulation toolset



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DRIVING
SYSTEMS



HMIs &
INFOTAINMENT



RADAR &
V2X COMMUNICATION



BATTERY & POWER
SYSTEMS



ENGINE &
POWERTRAIN



ELECTRIC
MACHINES



ELECTRONICS
& POWER
ELECTRONICS



BRAKES &
STEERING



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THERMAL MGMT