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PERVASIVE SIMULATION ACCELERATES INNOVATION IN HIGH-TECH

August 2017

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ABERDEEN

To address shifting market trends, competitive pressures, and product design challenges, High-Tech firms are investing in a broad portfolio of engineering simulation tools. The Best-in-Class maximize their advantage by performing all engineering simulation within a consolidated engineering simulation platform, reaping numerous business benefits.

Today's smart products contain complex electronic systems that require flawless operation in the real world, demanding the rigorous analysis provided by pervasive engineering simulation.

Shifting Market Trends Drive the High-Tech Design Process

Customer demand for more affordable smart products is driving high-tech companies to focus on delivering lower cost, lower power, and higher performance through the integration of discrete functions. The Internet of Things (IoT) mega-trend is also converging with the automotive and healthcare, among other industries, to embed communication, sensors, and software, into their products. In this context, mobility and connectivity is enhanced across the board through faster networks, such as the emerging 5G technology. All these factors are leading to a stronger foundation of data that can be leveraged to drive superior business outcomes (Table 1).

Table 1: Shifting Market Trends Are Driving Key Business Initiatives

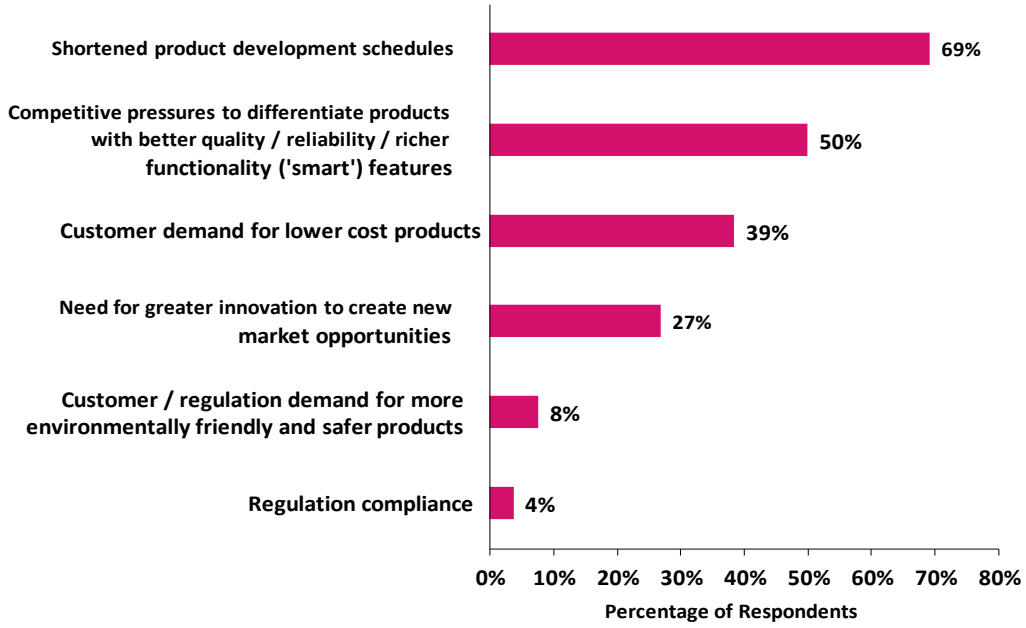
Miniaturization	Improve Power, Performance, Cost
Energy Efficiency	Initiate Green Product Development
Internet of Things	Cross Industry Convergence, ADAS, Digital Twin
Mobility & Connectivy	Design Reliable Communication Systems, 5G
Increasing Data Volume, Velocity, Variety	Deliver Business Outcomes, AI, Autonomy

Today's smart products contain complex electronic systems that require flawless operation in the real world. Device miniaturization, support for multiple wireless mobility & connectivity technologies, faster data rates, and longer battery life, for example, all demand rigorous analysis.

Unique Competitive Pressures Impact High-Tech Products

In addition to shifting market trends, key high-tech competitive pressures also exist. These pressures flow from the demand for shortened development schedules; differentiated product innovations with better quality / reliability / smart features; and lower cost products. Customers also want products with a lower environmental impact.

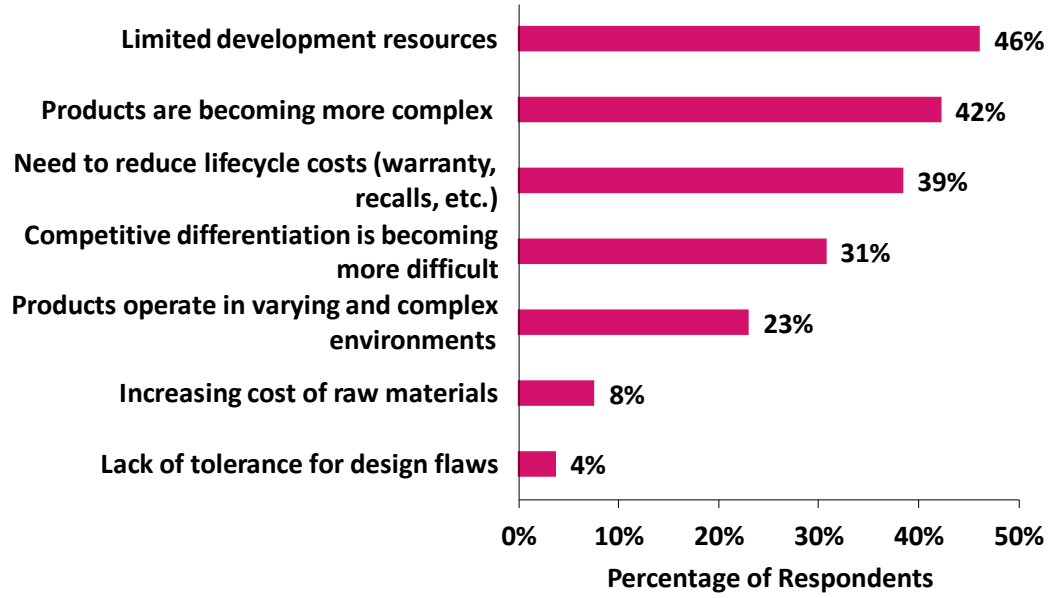
Figure 1: High-Tech Competitive Pressures



Unique Product Challenges Impact High-Tech Products

Competitive differentiation is more difficult in a sea of lookalike products, and rising product complexity makes it critical to get the design right the first time. New products are also operating in varying and complex IoT environments, adding further complexity. Wrap it all in a pressing environment of limited development resources and the need to reduce lifecycle costs, it's easy to see why designing for high-tech products is a huge challenge.

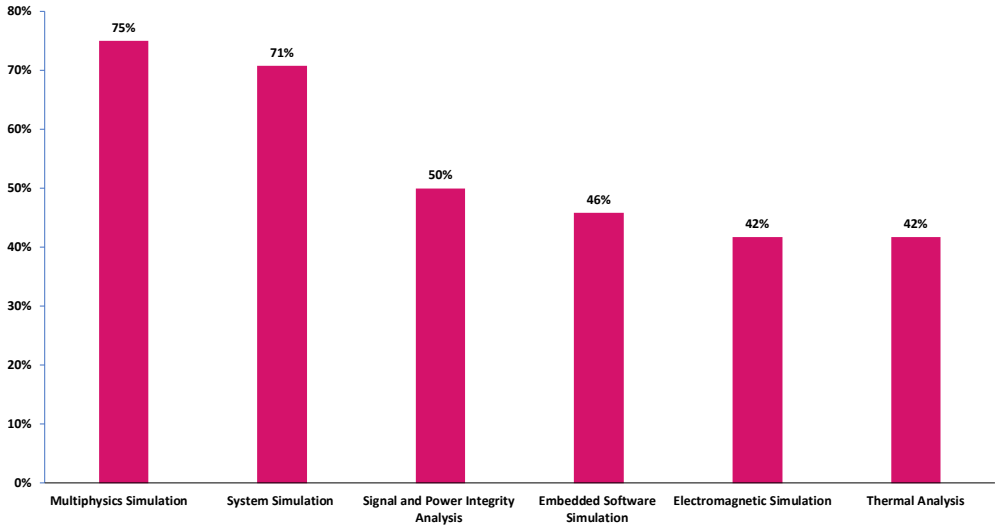
Figure 2: High-Tech Product Challenges



Source: Aberdeen Group, July 2017

To address shifting market trends, competitive pressures, and product design challenges, Aberdeen research shows that High-Tech companies invest in a broad portfolio of engineering simulation tools. (Figure 3).

Figure 3: Engineering Simulation Investments by High-Tech Firms



Source: Aberdeen Group, July 2017

As a result of these investments, the use of engineering simulation in the High-Tech industry is pervasive from the component to the system level in:

- Electronics
- Systems
- Embedded Software
- Electromagnetics
- Fluids, and
- Structures

Engineering simulation in the High-Tech industry is pervasive from the component to the system level.

High-Tech Companies Extend Their Market Leadership Using a Consolidated Engineering Simulation Platform

The Best-in-Class maximize their advantage by performing all engineering simulation within a common simulation platform. By doing so, they can further improve engineering productivity and the quality of their engineering design and analysis.

This enables them to further reduce development time to deliver projects on time and under budget, all while reducing the total cost of ownership by consolidating their engineering simulation tools. A consolidated engineering simulation platform also enables comprehensive simulation of complete digital prototypes that are both scalable and extensible.

Business Benefits of Pervasive Engineering Simulation

The business benefits of pervasive engineering simulation in high-tech are significant (Table 4).

Table 4: Engineering Simulation Investments by High-Tech Firms

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

	Simulation Users	Non-Simulation Users
Product Launch Date	**71%**	**50%**
Product Cost Target	**67%**	**45%**
Quality Target	**77%**	**60%**

Source: Aberdeen Group, July 2017

High-Tech simulation users are better at meeting their product launch date, cost, and quality targets.

Using a consolidated engineering simulation platform, Best-in-Class firms are:

- 50% more likely to see a decrease in Simulation TCO (in the past 12 months)
- 37% more likely to decrease length of development time
- 24% more likely to meet product launch dates.

With a consolidated engineering simulation platform, the Best-in Class are even more likely to reduce the total cost of ownership of their engineering simulation tools, decrease their length of development time, and meet product launch dates.

Takeaways

In a highly competitive High-Tech environment, pervasive engineering simulation is more crucial than ever for product success. Consolidated engineering simulation platforms leverage High-Tech investments in a broad portfolio of engineering simulation tools.

A consolidated engineering simulation platform is the best tool for improving engineering productivity and the quality of engineering designs and analysis, reducing time-to-market, lowering cost, and boosting quality.

As pervasive engineering simulation accelerates innovation in High-Tech, Best-in Class firms are even more likely to meet product launch dates and decrease development time while reducing the total cost of ownership of their engineering simulation tools.

Every good High-Tech designer knows the importance of choosing the "right tool for the right job." By reducing time to market, lowering cost, and boosting quality, consolidated engineering system platforms have earned this title.

Related Research

Why Simulation is Critical to Success in Developing Autonomous Systems; July 2017

Virtual Prototyping Versus Traditional Product Development Methods; June 2017

Multiphysics Simulation Platforms Supercharge Industrial Design; March 2017

The Benefits of Simulation-Driven Design; May 2017

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