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PERVASIVE ENGINEERING SIMULATION: THE PULSE OF THE HEALTHCARE INDUSTRY

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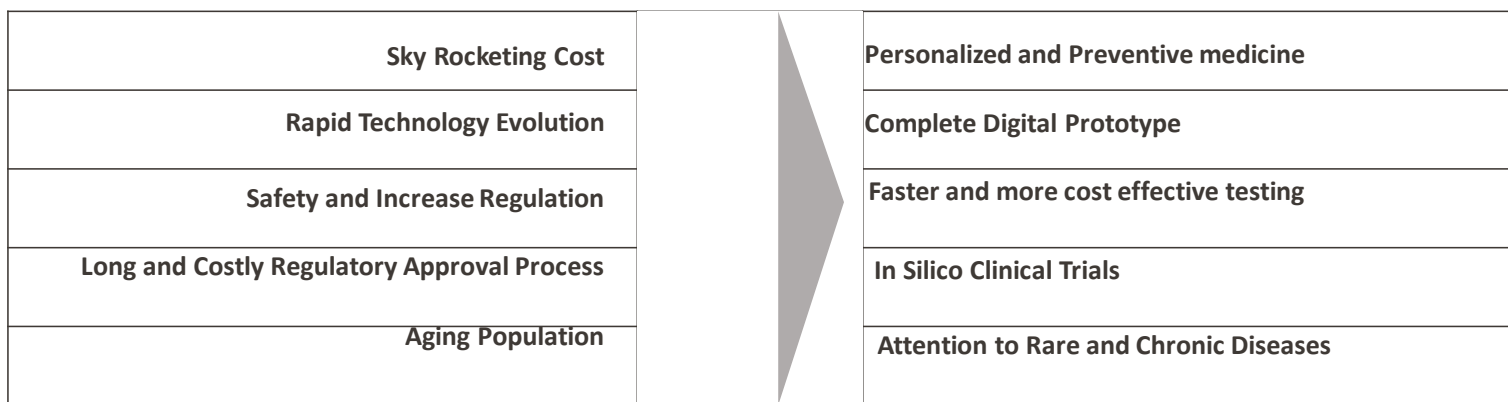
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In the healthcare industry, engineering simulation is becoming more pervasive throughout the conceptualization, design, and operation of a product. A consolidated simulation platform enables engineering teams to confidently address increasing system complexity, and more successfully meet product targets (launch date, cost, quality) while significantly reducing the total cost of ownership for engineering simulation tools.

Shifting Market Trends Drive the Healthcare Design Process

In the healthcare industry, patient safety, regulatory, technological, and time-to-market demands are placing an ever-increasing value on the ability to verify and validate product and process performance before creating the first physical prototype. Computer modeling & simulation enables designers to identify problems early in the design cycle when there is more flexibility to make changes. This helps lower the time and cost of bringing new products to market, and significantly reduces failure, failed approvals, and recall risk.

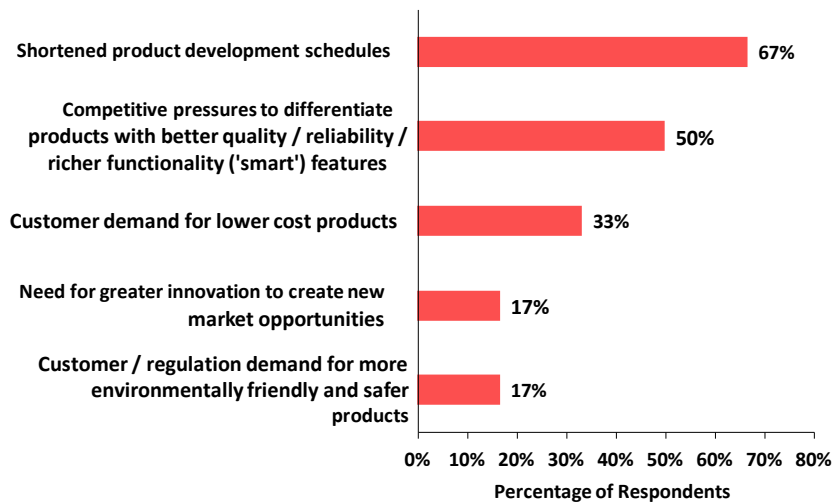
Figure 1: Shifting Market Trends are Driving Investments in Key Business Initiatives



Unique Pressures and Challenges Impact Healthcare Products

In addition to shifting market trends, key high-tech competitive pressures also exist. Shortened development schedules, the need to reduce costs, and the requirement to differentiate via product innovation / quality / reliability / smart features are key healthcare pressures.

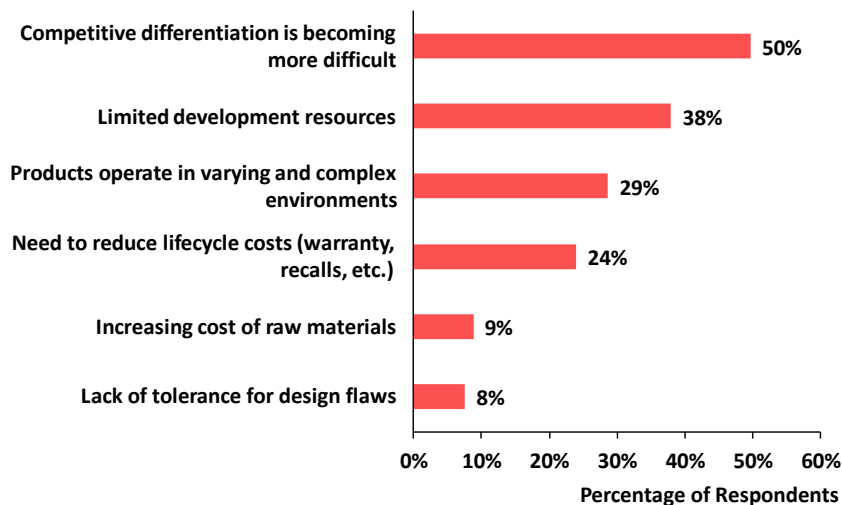
Figure 2: Healthcare Product Competitive Pressures



Source: Aberdeen Group, August 2017

Unique design challenges also accompany these competitive pressures. These come in the form of environmental complexity, limited resources, and competitive differentiation.

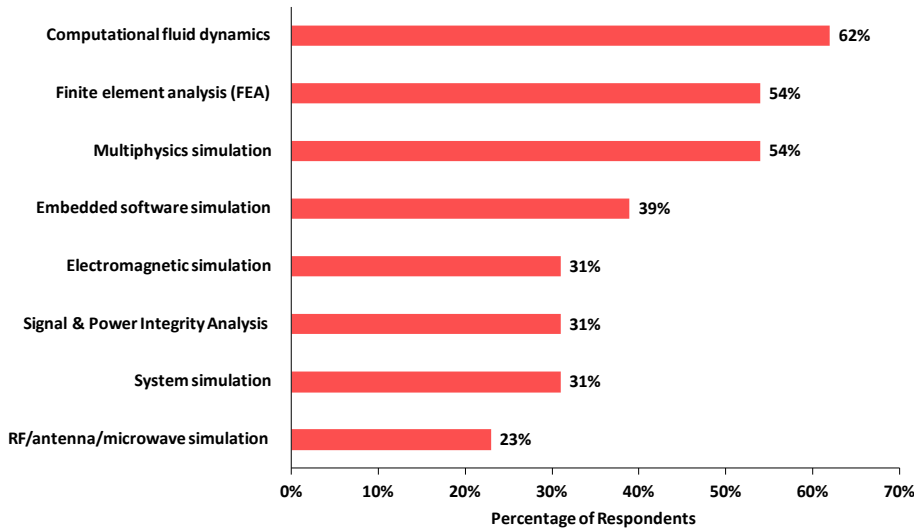
Figure 3: Healthcare Product Design Challenges



Source: Aberdeen Group, August 2017

To address these design challenges, research shows that Best-in-Class companies invest in a broad portfolio of engineering simulation tools.

Figure 4: Computer Modeling Investments by Best-in-Class Firms



Source: Aberdeen Group, August 2017

The use of these engineering simulation tools in the healthcare industry is pervasive from the component to the system level.

Figure 5: Pervasive Engineering Simulation in Healthcare



The Aberdeen maturity class framework is comprised of three groups of survey respondents. This data is used to determine overall company performance. Classified by their self-reported performance across several key metrics, each respondent falls into one of three categories:

- ▶ Best-in-Class: Top 20% of respondents based on performance
- ▶ Industry Average: Middle 50% of respondents based on performance
- ▶ Laggard: Bottom 30% of respondents based on performance

Sometimes we refer to a fourth category, All Others, which is Industry Average and Laggard combined.

Benefits of Engineering Simulation with a Consolidated Platform

Platform-based simulation users are better at meeting their targets in product launch date, product cost, and product quality.

Table 1: What percentage of your company’s products CURRENTLY meet your targets for the following?

	Non- Simulation Users	Simulation Users
Product Launch Date Target	63%	69%
Product Cost Target	59%	67%
Product Quality Target	74%	76%

Source: Aberdeen Group, August 2017

Best-in-Class platform-based simulation users compound their advantage and extend their market leadership over All Others by using a consolidated engineering simulation platform. In fact, the Best-in-Class are much more likely than All Others to meet product launch dates, decrease the length of development time, and reduce the total cost of ownership (TCO) of their engineering simulation tools.

Figure 6: Additional Benefits of a Consolidated Simulation Platform



The Best-in-Class are 50% more likely than All Others to see a decrease in the Total Cost of Simulation Ownership in the past 12 months.

Takeaways

In a highly competitive healthcare environment, pervasive engineering simulation is more crucial than ever. Consolidated engineering simulation platforms leverage healthcare investments in a broad portfolio of engineering simulation tools.

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

As pervasive engineering simulation accelerates innovation in healthcare, 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 healthcare product 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 platforms have earned this title.

Related Research

[Pervasive Simulation Accelerates Innovation in High-Tech, August 2017](#)

[Why Simulation is Critical to Success in Developing Autonomous Systems; July 2017](#)

[The Benefits of Simulation-Driven Design; May 2017](#)

[Multiphysics Simulation Platforms Supercharge Industrial Design; March 2017](#)



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