Tech-Clarity

Tech-Clarity Perspective:

Best Practices for Developing Industrial Equipment

Top Performers Drive Growth and Profitability with Advanced Design Practices and Enabling Technology

Table of Contents

***This summary is an abbreviated version of the report and does not contain the full content. A link to download the full report is available on the Tech-Clarity website, www.tech-clarity.com.**

If you have difficulty obtaining a copy of the report, please contact the author at jim.brown@tech-clarity.com.

Executive Overview

Industrial equipment companies struggle to differentiate themselves in today's highly competitive, global markets. This report investigates the business strategies, approaches, challenges, processes, and technologies these companies employ and how they impact financial performance. The goal of the research is to identify and share best practices that drive better product profitability. The results are based on 378 online survey responses from manufacturers around the globe that compete in the industrial equipment market.

Some industrial equipment manufacturers have taken significantly more advantage of the recovery.

Analysis of the responses shows that the global economic recovery has helped industrial equipment companies economically. In fact, the companies responding to this survey have, on average, effectively grown revenue and profit margins over the last two years. Some industrial equipment manufacturers, however, have taken significantly more advantage of the recovery. These companies, the "Top Performers," have:

- Grown revenue 2.2 times more than average
- Increased profit margins 2.4 times more than average

The research shows that the top performing companies have taken different approaches when compared to average performers. While the strategies and challenges across different performance levels are similar, what sets the leaders apart is how they implement and support these strategies. The top performing companies have adopted more advanced engineering approaches, including:

- Modular design approaches
- Platform design techniques
- Rules-based design approaches

The top performers also use technology that supports these techniques. While the most common technologies are relatively the same across performance levels, the top performers are more likely to leverage:

- Simulation tools
- Product configurators or design automation
- Product Lifecycle Management (PLM)
- Factory layout / simulation tools

The findings from this report show how the top performers leverage advanced processes and tools. These results can be used as guidelines for other industrial equipment companies to improve their growth and profitability.

Conclusion

Industrial equipment companies face many challenges in tight markets and struggle to differentiate themselves. Although most companies have grown and improved margins over the last two years, likely due to the economic recovery, some manufacturers have been able to take more advantage. These top performing companies face the same challenges and adopt similar strategies, but have adopted more global strategies and place higher emphasis on innovation (fresher product portfolios) and developing accurate quotes.

The leaders take advantage of more advanced design and product development approaches, including the adoption of platform design, modular approaches, and rules-based design.

What really sets the top performers apart are the different approaches used to design and develop their products. The leaders take advantage of more advanced design and product development approaches, including the adoption of platform design, modular approaches, and rules-based design. They have also adopted different systems. While they use 2D, 3D, and spreadsheets like the rest, they are much more likely to use simulation, configurators, PLM, and factory simulation technologies. These solutions are highly complementary with the advanced design techniques and help them develop more accurate quotes to win more business with confidence.

"Through the use of engineering and product development best practices and software we significantly improved quality and reduced time and cost of new product development."

As one manufacturer of equipment for consumer products and other industrial industries summarizes nicely, "*Through the use of engineering and product development best practices and software we significantly improved quality and reduced time and cost of new product development*." The lessons learned from the top performers support this, and offer guidance to others looking to improve their business performance.

Recommendations

Based on industry experience and research for this report, Tech-Clarity offers the following recommendations:

- Place significant emphasis on performance metrics for quote accuracy and the percent of revenue from new products
- Adopt advanced engineering techniques such as modular design, platform design, and rules-based approaches
- Support advanced design techniques with the appropriate design tools, including simulation, configurators, design automation, and factory layout tools
- Consider implementing PLM to manage the complexity of today's global, complex, customized products and design and development environments
- Consider globalization as a strategy to increase business performance

About the Author

Jim Brown is the President of Tech-Clarity, an independent research and consulting firm that specializes in analyzing the true business value of software technology and services. Jim has over 20 years of experience in software for the manufacturing industries, with a broad background including roles in industry, management consulting, the software industry, and research. His experience spans enterprise applications including PLM, ERP, quality management, service, manufacturing, and others. Jim is passionate about improving product innovation, product development, and engineering performance through the use of software technology and social computing techniques.

Jim is an experienced researcher, author, and public speaker and enjoys the opportunity to speak at conferences or anywhere that he can engage with people that are passionate about improving business performance through software technology.

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About the Research

Tech-Clarity gathered and analyzed 700 responses to a web-based survey on designing software-intensive products. These survey responses were gathered by direct e-mail, social media, and online postings by both Tech-Clarity and Autodesk. Of these, 378 respondents were identified as manufacturers in the industrial equipment industry and their responses were analyzed to make observations and draw conclusions for this report.

The respondents were comprised of less than one-half (40%) who were individual contributors. Over one-third (38%) were manager or director level. There was also good representation (15%) from VP or executive levels, along with some others (7%) who were not classified.

The respondents represented a mix of company sizes, the majority of whom (57%) were from smaller companies (1 to 100 employees). 22% were between 101-500 employees and 20% were over 500 employees. A small number did not know or chose not to disclose their company size. While this sample size is weighted more heavily to smaller companies than some Tech-Clarity studies, this is likely due to the fact that the industrial equipment industry includes a large number of smaller businesses.

The respondents also indicated a good mix in regards to product complexity, as represented by the average size of their BOMs. When asked about average BOM size, 10% reported relatively small BOM sizes (1-10 parts). Others were more complex, 41% indicating BOM sizes from 11-100 parts, 30% indicating BOM sizes from 101-1,000 parts and 13% reporting highly complex products (over 1,000 parts). A small number, 6%, either didn't know or chose not to disclose.

The respondents reported doing business globally, with most companies doing business in Western Europe (63%), about one-half doing business in North America (46%), about one-quarter doing business in Eastern Europe (22%), 20% doing business in China, and others doing business in Latin America, India, Africa, Australia, Japan, Korea, and other regions.

Initial respondents included manufacturers as well as service providers and software companies, but responses from those determined not to be directly involved in designing and developing products (software vendors and consultants) were not included in the analysis. In addition, those that did not compete in the industrial equipment market were not included in the survey results. The majority of companies (378, as reported above) were considered to have direct involvement in designing and developing industrial equipment and the report reflects their experience.