



BEYOND ORDINARY PLM:

HOW MEDICAL DEVICE MANUFACTURERS CAN REDUCE COSTS & INCREASE RELIABILITY WITH A QUALITY-FIRST PLM STRATEGY

April 2023

Sarah Gaffney
Manager
Research Data & Operations

The medical device field is one of the most innovative sectors of manufacturing, but the demand for complexity can put cost and quality targets in jeopardy. Medical device manufacturers must balance the desire to increase speed and meet customer needs with the requirements around operating margins and product reliability. Product Lifecycle Management (PLM) provides a visibility into these critical business areas to help leaders ensure they're delivering long-lasting products that satisfy their customers and their internal objectives.



Why Medical Device Manufacturers are Turning to PLM

Medical devices are unique in that their quality is directly tied to the livelihood of the hospital employees who use and implant them, as well as the well-being of the patients who benefit from them. These devices bring manufacturers, doctors, and patients together for a common goal: improving the health of the patient by making it easier for them to breathe, walk, and live their lives. The quality of medical device products is essential for hospitals to feel confident in their supplier relationships and for patients to feel confident in the care they are receiving.

Aberdeen's research shows that medical device manufacturers, on average, are considered certified suppliers by only 57% of the hospitals, clinics, scientists, and other healthcare professionals they work with. This means that barely half of the medical device organizations in this industry are prioritizing quality enough for their customers to consider them certified suppliers. Without visibility into product and quality data throughout the product lifecycle, medical device manufacturers lack the strong relationships they need to succeed and are at risk of losing their customer base to the competition. Establishing a quality-first strategy ensures product performance and quality is monitored every step of the way, even into the field where performance data can be relayed back to engineering teams for a cycle of continuous improvement.

As product complexity continues to rise and innovation in the medical device sector accelerates, manufacturers need end-to-end visibility into material and product data to detect and handle defects efficiently to reduce their operating costs and meet customer expectations. Product Lifecycle Management (PLM) solutions are built to enable visibility into all stages of product development and deployment and provide business leaders with insights for smarter decision making to stay ahead of the competition.

Medical device
manufacturers are
considered certified
suppliers by an average
of only

57%

of the hospitals, clinics,
scientists, and other
healthcare professionals
they work with.

Aberdeen's latest research, which surveyed 200 PLM decision-makers, investigates how top performing organizations leverage PLM technology to support quality management processes. Of the respondents, 13% work at medical device manufacturing organizations, and their answers reveal that the top market pressures affecting quality management strategies in this industry are:

1. Managing risk in operations
2. Demanding for competitive differentiation with higher quality
3. Reducing costs while maintaining quality standards
4. Meeting the demand for more reliable products
5. Ensuring compliance with regulatory requirements
6. Ensuring quality amidst the increasing pace of innovation

Managing operational risks is critical for medical device manufacturers, with 46% of them citing this as one of their top three pressures. Compliance with regulatory requirements also makes it to the top five concerns. For medical devices, risk management encompasses the entire product lifecycle, including design, production, and use. Developing a systematic approach to risk that considers all stages into account can be more effective than looking at them as separate pieces. With PLM technology, data from all stages can be consolidated on a single platform to perform effective risk management.

In addition, medical device manufacturers are the most likely, among all industries surveyed, to encounter challenges from their lack of insight into quality data. This demonstrates a disconnect between the necessary data for risk analysis and the data available. However, PLM can expand accessibility to quality data across the enterprise, bridging the disconnect and improving risk management processes.

Demand for competitive differentiation with higher quality is another top pressure, indicating that medical device manufacturers need to improve their quality to maintain their customer base in a competitive industry. Additionally, they need to provide innovative product and service offerings to keep healthcare organizations and professionals engaged, especially as new technology around digital and at-home health (e.g., telemedicine, home diagnostic testing) and AI and robotics (e.g., smartphone testing applications, genome services, X-ray image enhancement) continue to flood headlines. Closed-loop quality processes enabled through PLM help manufacturers identify areas for improvement by bringing together product performance and customer feedback from the field and sending these insights to engineering teams.

Even amidst the race to get high-quality, innovative products to market, medical device manufactures are concerned about costs. Surges in inflation,

Out of all industries surveyed, medical device manufacturers are the most likely to be challenged by **lack of insight into quality data.**

raw material prices, and energy costs are forcing organizations to prioritize every penny. A quality-first strategy enabled through PLM can help cut costs by reducing resources spent on cleaning up defective product batches and by reducing the cost of non-quality further down the line for recalls and warranty claims.

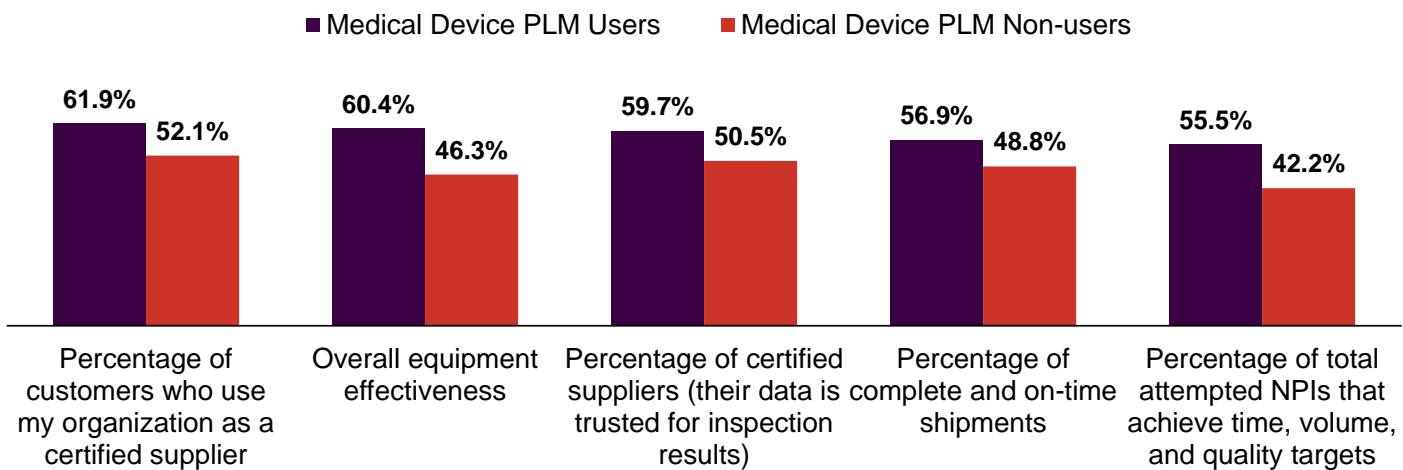
One of the most interesting pressures on this list is the demand for more reliable products, which is intrinsically tied to customer satisfaction and retention. Expensive equipment is an investment for healthcare organizations, and research labs don't want to be buying new spectrometers every five years. Prioritizing quality can improve relationships with customers by giving them the maximum value for their dollars. With visibility into quality data with PLM, manufacturers can track performance over the years and even schedule predictive maintenance to keep products functioning effectively to increase their longevity.

Business Impact of PLM for the Medical Device Industry

There are many opportunities and use cases for PLM to make a difference for medical device manufacturers, but Aberdeen's research showcases the tangible impact PLM solutions can have on critical quality, financial, and business metrics. When compared to those who are not leveraging PLM, it's clear that the 54% of medical device manufacturers in Aberdeen's study that currently use PLM solutions (PLM users in the chart below) are more likely to have better quality NPIs, greater efficiency, and healthier customer and supplier relationships (Figure 2).

54%
of medical device manufacturers are currently using PLM solutions.

Figure 2. Operational and Innovation Advantages for PLM Users



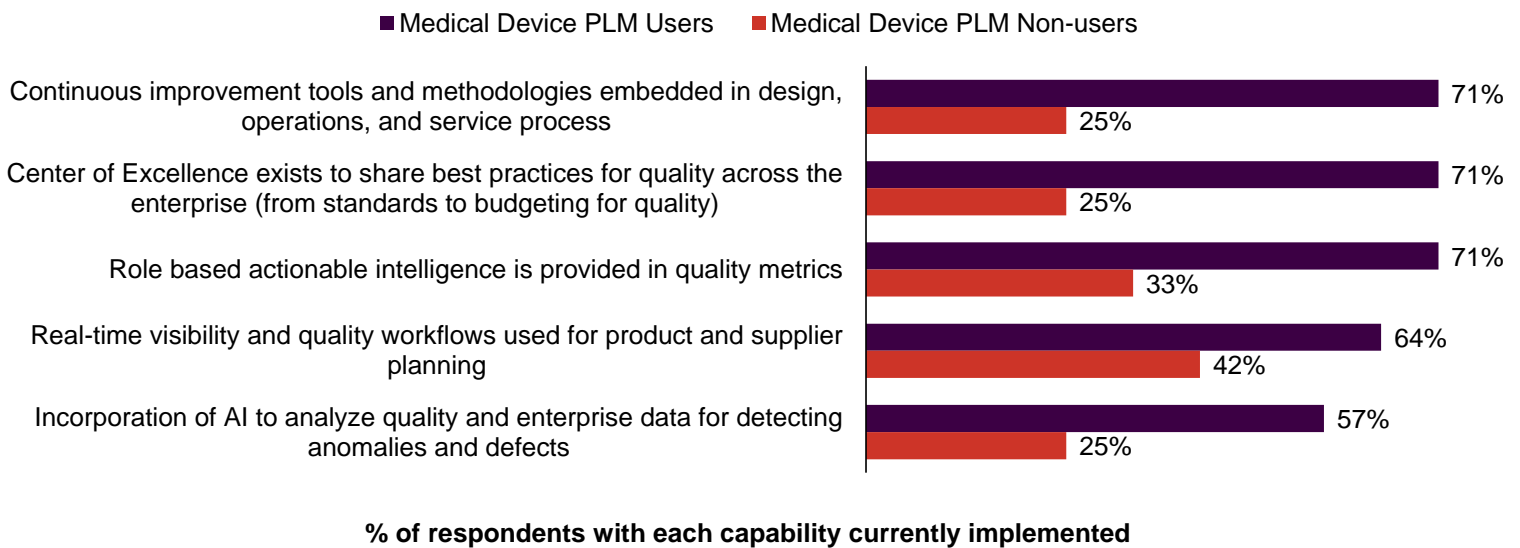
Average % performance over the past year

n = 200, Source: Aberdeen, April 2023

On average, medical device manufacturers who use PLM have 61.9% of their customers who use them as certified suppliers, compared to only 52.1% of customers for PLM non-users. This implies that PLM can help manufacturers improve their likelihood of healthcare organizations using them as a certified supplier by 19% (percent difference between 61.9% vs. 52.1%). Their customers trust their products and are more likely to continue purchasing from them and recommending them to other healthcare organizations. Additionally, PLM can help manufacturers improve their likelihood of an NPI meeting its goals by 32% (55.5% vs. 42.2%). Organizations using PLM are tuned in to what their customers want, and they have the standardized quality processes in place to execute on NPIs and get them into market before their competitors.

PLM can even improve productivity by helping decision-makers quickly and effectively address roadblocks during design or production to get products out the door on time. PLM users fulfill 17% more complete and on-time shipments (56.9% vs. 48.8%), and their Overall Equipment Effectiveness (OEE) is 30% greater (60.4% vs. 46.3%) than non-users. With greater productivity comes reductions in costs, allowing medical device manufacturers to decrease operating costs while maintaining quality standards. The capabilities for visibility and control offered through PLM enable medical device manufacturers to generate more products with greater efficiency. Figure 3 showcases several key capabilities PLM users have to boost their performance over their competitors.

Figure 3. PLM Enables Continuous Improvement and Data-Driven Decision-Making



n = 200, Source: Aberdeen, April 2023

PLM users experience faster decision-making through real-time visibility into quality workflows, role-based quality metrics, and AI for anomaly and defect detection. Visibility into quality processes at an executive level allows business leaders to effectively guide workers in the pursuit of quality excellence. They can help identify quality issues before they become problematic and leverage quality data for planning purposes.

PLM also supports continuous improvement tools and methodologies across the product lifecycle. Tracking quality metrics throughout the product lifecycle develops a cycle of continuous improvement by enabling leaders to identify areas where quality can improve performance, make changes, measure the impact of those changes, and repeat to keep increasing quality, speed, and accuracy while reducing costs. A center of excellence to share best practices for quality across the enterprise further strengthens continuous improvement strategies by helping teams to standardize their quality goals as well as easily access necessary metrics to measure performance against those goals.

Summary & Key Takeaways

PLM is the beating heart of any manufacturing organization, and a quality-first PLM strategy can help medical device manufacturers stay ahead of customer needs, rising operational costs, potential disruptions, and the pace of innovation. For the 46% of medical device manufacturers who have yet to integrate PLM into their technology stack, the use cases, benefits, and performance gains outlined in this report provide compelling reasons to invest (see sidebar). However, for the 54% who have already implemented PLM, the journey to quality excellence doesn't stop there. These organizations have the opportunity to leverage their PLM solutions to gain valuable insight into product performance and customer feedback, enabling them to take necessary actions that will impact every stage of the product lifecycle.

About Aberdeen Strategy & Research

Aberdeen Strategy & Research, a division of Spiceworks Ziff Davis, with over three decades of experience in independent, credible market research, helps **illuminate** market realities and inform business strategies. Our fact-based, unbiased, and outcome-centric research approach provides insights on technology, customer management, and business operations, to **inspire** critical thinking and **ignite** data-driven business actions.

This document is the result of primary research performed by Aberdeen and represents the best analysis available at the time of publication. Unless otherwise noted, the entire contents of this publication are copyrighted by Aberdeen and may not be reproduced, distributed, archived, or transmitted in any form or by any means without prior written consent by Aberdeen.

Key Benefits of PLM for Medical Device Manufacturers:

- ▶ **Improve decision-making for continuous improvement** – PLM users have better visibility and analytics capabilities to enhance decision-making, and they experience greater operational productivity (OEE and complete and on-time shipments).
 - ▶ **Nurture customer relationships** – PLM users experience a greater NPI performance and a greater percentage of customers that use them as a certified supplier.
 - ▶ **Mitigate operational risk** – PLM brings together data from all stages of the product lifecycle on a single platform to perform effective risk management.
-

18597