



# BEYOND ORDINARY PLM:

## HOW AEROSPACE & DEFENSE MANUFACTURERS CAN MEET CUSTOMER NEEDS & PROFITABILITY GOALS WITH A QUALITY-FIRST PLM STRATEGY

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Aerospace and defense (A&D) manufacturers are tasked with balancing expectations from all angles. From reliability demands from airline passengers and staff, to cost expectations from finance teams, to innovation expectations from business leaders, product developers need to prioritize their goals. Product Lifecycle Management (PLM) provides visibility into all aspects of the product from design to field deployment to help development teams make data-driven decisions to satisfy both their customers and their internal objectives.



## Why A&D Manufacturers are Turning to PLM

As effects of the COVID-19 pandemic subside and air travel returns to the height of its popularity, the aerospace and defense (A&D) industry is experiencing a resurgence, but that business growth isn't without its challenges. The A&D sector now has to confront supply chain issues, recession fears, talent shortages, and sustainability requirements. A&D manufacturers need solutions to help them meet expectations on all fronts and develop products and services that use less fuel to offset high jet fuel prices, expedite time-to-proficiency for new employees, and lower emissions.

Aberdeen's research shows that A&D manufacturers, on average, only experience a 6.8% annual increase in customer satisfaction. This means that only 1 in 20 customers per year change their sentiment from dissatisfied to satisfied. Without visibility into product and quality data throughout the product lifecycle, A&D manufacturers lack the information they need to develop products that meet customer expectations and lead to repeat purchases. 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 A&D 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.

Aberdeen's latest research, which surveyed 200 PLM decision-makers, investigates how top performing organizations leverage PLM technology to

On average, A&D manufacturers **only** experience a

**6.8%**

increase in customer satisfaction year-over-year.

support quality management processes. Of the respondents, 13% work at A&D manufacturing organizations, and their answers reveal that the top market pressures affecting quality management strategies in this industry are:

1. Demand for competitive differentiation with higher quality
2. Demand for more reliable products
3. Need to ensure quality amidst the increasing pace of innovation
4. Demand for more feature-rich products

Demand for competitive differentiation with higher quality is the number one pressure for A&D manufacturers, indicating that they 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 airlines and government organizations engaged, especially as new technology around advanced air mobility (AAM) and digital and advanced analytics make waves in the industry. 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.

Pressures around demand for more reliable products and demand for feature-rich products are intrinsically tied to customer satisfaction and retention. A&D products are an investment for airline and government organizations, and they don't want to be buying new aircrafts 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.

Innovation and competitive differentiation are important, but they can lead to complicated features and quality issues if new capabilities are not implemented properly. A&D manufacturers are the most likely, among all industries surveyed, to encounter challenges from increasing product complexity. On top of ensuring quality amidst the increasing pace of innovation, this demonstrates a need for visibility into quality data early and often, so engineers can quickly identify which updates are going to be successful and which are going to be liabilities. PLM can expand accessibility to quality data across the enterprise to empower all decision-makers.

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Out of all industries surveyed, A&D manufacturers are the most likely to cite **increasing product complexity** as a top challenge.

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## Business Impact of PLM for the A&D Industry

There are many opportunities and use cases for PLM to make a difference for A&D manufacturers, but Aberdeen's research showcases the tangible impact

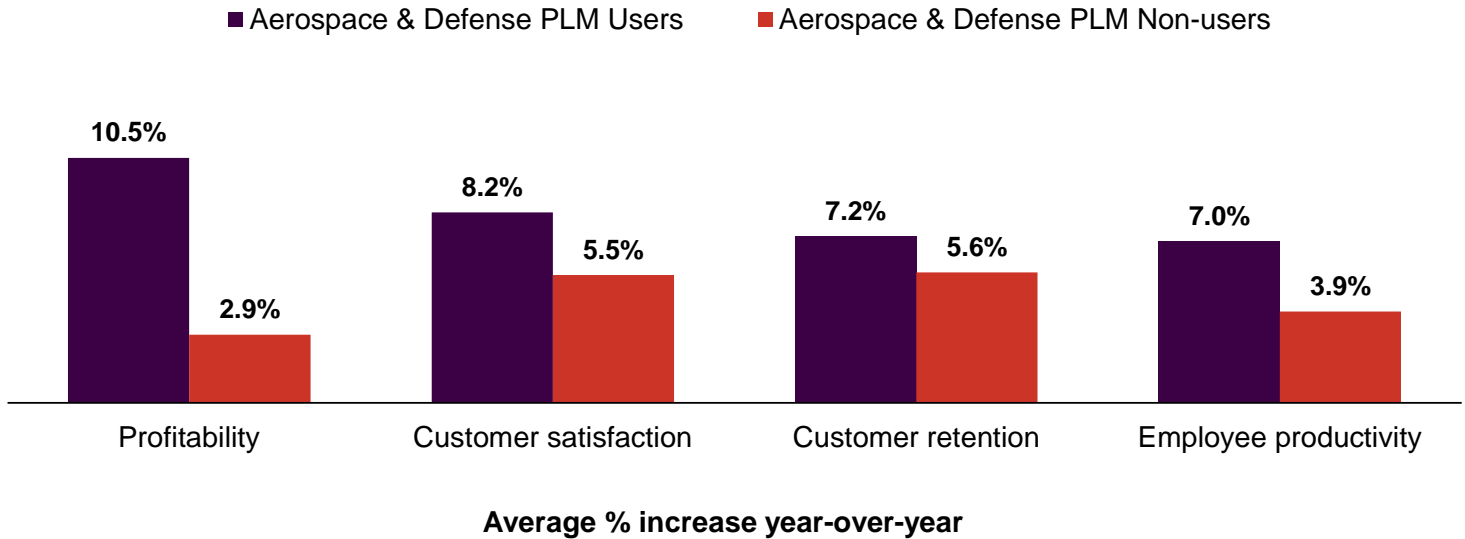
PLM solutions can have on efficiency and business growth. When compared to those who are not leveraging PLM, it's clear that the 50% of A&D manufacturers in Aberdeen's study that currently use PLM solutions (PLM users in the chart below) are more likely to see annual increases in profitability, productivity, and customer satisfaction (Figure 2).

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**50%**  
of A&D manufacturers  
are **currently using**  
PLM solutions.

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**Figure 2. Customer & Operational Advantages for PLM Users**



n = 200, Source: Aberdeen, April 2023

On average, A&D manufacturers who use PLM experience an 8.2% annual increase in customer satisfaction compared to only a 5.5% annual increase for non-users. This implies that PLM can help manufacturers improve their growth in customer satisfaction by 49% (percent difference between 8.2% vs. 5.5%). Organizations using PLM are tuned in to what their customers want, and they have the standardized quality processes in place to execute new features and get them into market before their competitors. Additionally, PLM users experience 27% greater annual improvements in customer retention (7.2% vs. 5.6%). Their customers trust their products and are more likely to continue purchasing from them and recommending them to other airlines and government organizations.

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 experience 77% greater annual improvements in employee productivity than non-users (7.0% vs. 3.9%). They also fulfill 17% more complete and on-time shipments (58.5% vs. 50.1%), and their Overall Equipment Effectiveness (OEE) is 9% greater (63.9% vs. 58.6%) than non-users (see sidebar). With greater productivity comes reductions in costs,

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On average, A&D PLM  
users cite  
**17%**  
more **complete and on-**  
**time shipments** (58.5%  
vs. 50.1%) and  
**9%**  
greater **overall**  
**equipment effectiveness**  
(63.9% vs. 58.6%).

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allowing A&D manufacturers to decrease operating costs while maintaining quality standards.

The biggest area where PLM has an impact is profitability. PLM users experience 2.6 times greater annual improvement in profitability than non-users (10.5% vs. 2.9%). Closed-loop quality processes enable manufacturers to identify areas to cut costs and drive efficiency as well as areas to innovate and provide more value for customers. With visibility into all stages of the product lifecycle, the opportunities to increase profitability are endless.

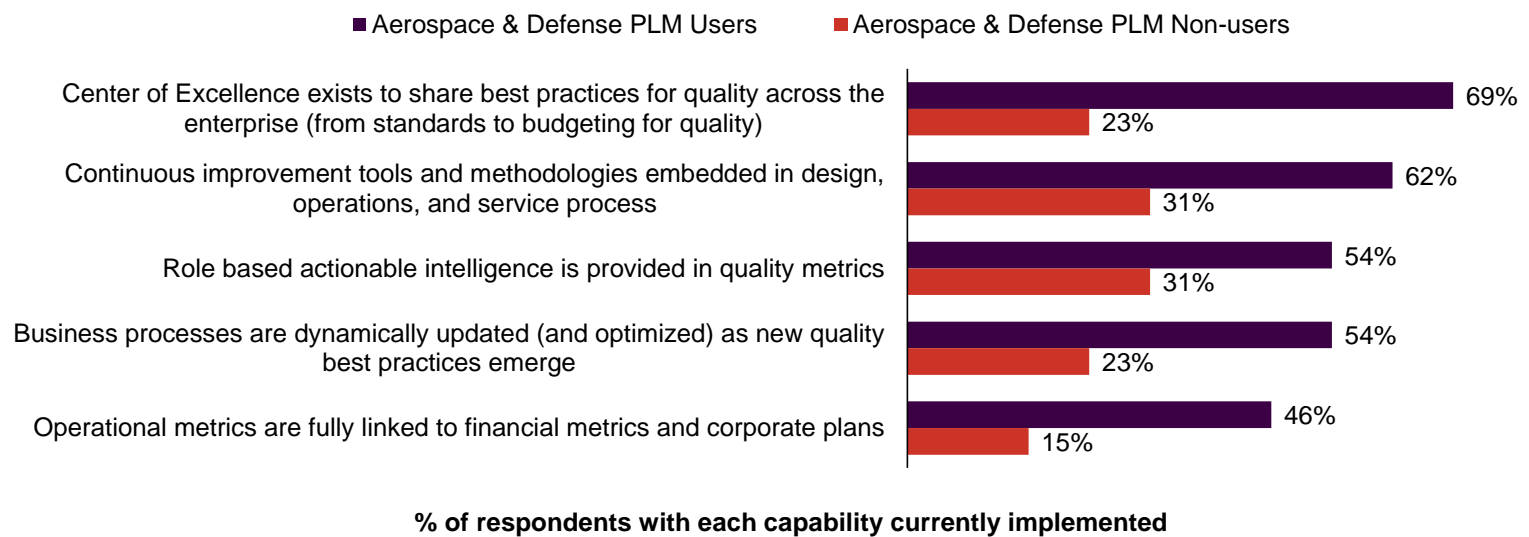
The capabilities for visibility and control offered through PLM enable A&D manufacturers to generate more products with greater efficiency. Figure 3 showcases several key capabilities PLM users have to boost their performance over their competitors.

A&D PLM users experience

2.6x

greater annual improvements in profitability.

Figure 3. PLM Enables Greater Accessibility to Quality Insights for Continuous Improvement and Product Innovation



n = 200, Source: Aberdeen, April 2023

A center of excellence to share best practices for quality across the enterprise strengthens continuous improvement strategies by helping teams standardize their quality goals as well as easily access necessary metrics to measure performance against those goals. A single center of excellence housed within a PLM solution increases efficiency by reducing time spent searching for information and reconciling entries from different sources, which leaves more time for strategic thinking and actions. Dynamic updates to this center of excellence ensure all information is up to date.

PLM also supports continuous improvement tools and methodologies across the product lifecycle. Tracking quality metrics enables a cycle where leaders



can 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.

Role-based actionable intelligence enhances continuous improvement and decision-making processes in general by providing quality insights in the context that is the most important for each person. PLM can feed role-based dashboards to show decision-makers only the necessary metrics for them. Visibility into quality processes at an executive level allows business leaders to effectively guide workers in the pursuit of quality, and, when linked to financial metrics, business leaders can see how quality issues are affecting their bottom line and how to avoid them in the future.

## Summary & Key Takeaways

PLM is the beating heart of any manufacturing organization, and a quality-first PLM strategy can help A&D manufacturers stay ahead of changing customer needs, rising operational costs, potential disruptions, and the pace of innovation. For the 50% of A&D organizations 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 50% 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.

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## Key Benefits of PLM for Aerospace & Defense Manufacturers:

- **Improve decision-making for continuous improvement & business success** – PLM users have better strategies for promoting quality best practices and continuous improvement methodologies, and they experience greater annual increases in profitability.
  - **Nurture customer relationships** – PLM users experience greater year-over-year improvements in customer satisfaction and customer retention.
  - **Increase operational and employee productivity** – PLM users experience greater OEE, complete and on-time shipments, and annual increases in employee productivity, and a single source of truth reduces time spent searching for information.
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