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# BEYOND ORDINARY PLM:

## HOW INDUSTRIAL MANUFACTURERS CAN REDUCE DEFECTS & INCREASE PRODUCTIVITY WITH A QUALITY-FIRST PLM STRATEGY

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Industrial manufacturers are constantly looking for new methods to increase speed of production while reducing costs, but they are often hindered by quality issues and supply chain disruptions. The future of industrial manufacturing starts by leveraging PLM to increase accessibility to quality KPI's, streamline supply chain decision-making, and boost overall efficiency. Knowing the benefits PLM has on industrial manufacturing will enable leaders to take the necessary steps toward establishing a culture of quality and agility.

### Why Industrial Manufacturers are Turning to PLM

Productivity is critical for industrial manufacturers looking to stay ahead of their competitors. With hundreds, if not thousands, of parts to assemble in heavy machinery and equipment, these organizations need to act fast and streamline their production processes to get products out the door on time. But in the rush to decrease time-to-market, industrial manufacturers can't forget about quality. Aberdeen's latest research with 200 PLM decision-makers, 27% of whom work in the industrial sector, shows that, on average, only 57% of products generated by industrial manufacturers are shipped with zero defects. Defects in essential parts like safety mechanisms or rotary motor blades would require an immediate recall, resulting in an increase in operating costs to manage the recall on top of the sunk costs from the defective parts. Other defects may go unnoticed and cause problems later in the product lifecycle, such as mistakes in operating manual or loose parts. These delayed quality issues can decrease customer satisfaction as well as increase costs for warranties and repairs. Establishing a quality-first strategy ensures the value of industrial equipment is not impacted by initiatives to speed up time-to-market, and it saves time and money further down the line.

Industrial manufacturers need end-to-end visibility into material and product data to detect and handle defects efficiently without disrupting productivity. Product Lifecycle Management (PLM) solutions are built to enable visibility into all stages of product development and deployment to educate business leaders about the need for and benefit of quality management. Aberdeen's research reveals that industrial manufacturers using PLM solutions generate 28% more products that meet their launch dates (percent difference between 73.2% vs. 56.9%) and 23% more products that are shipped with zero defects (61.8% vs 50.2%). From their supply chain through their service operations, executives with access to holistic product data are better able to guide their teams to prioritize quality without sacrificing productivity. Greater visibility can



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help these leaders overcome the supply chain issues and negative perceptions of quality that are affecting industrial manufacturers more than others.

Compared to manufacturers from other industries in Aberdeen's study, industrial manufacturers are:

1. **105%** more likely to struggle with **perceptions that quality solutions reduce productivity.**
2. **75%** more likely to struggle with **complexity of global supplier networks.**
3. **53%** more likely to struggle with **lack of executive leadership focused on quality.**
4. **43%** more likely to struggle with **lack of training for quality assurance.**
5. **30%** more likely to struggle with **the rising cost of raw materials.**

A lack of training for quality assurance and lack of visibility into areas for improvement contribute to poor company culture. When business leaders build a culture with an emphasis on improving quality, training, employee engagement, and overall worker well-being, they can expect higher employee satisfaction, which leads to increased productivity and job focus. Currently, 55% of industrial manufacturers say they are currently targeting company culture as an area for quality improvement (e.g., by increasing understanding of sustainability and operational excellence programs). PLM is an important enabler in collaboration and visibility to support company culture initiatives.

Another market pressure to put under the microscope is supply chain issues. The complexity of global supplier networks and rising cost of raw materials are significant pain points for industrial manufacturers, and 79% say they are currently targeting their supply chain as an area for quality improvement (e.g., increase suppliers' performance, reduce part cost, increase visibility into supplier's quality). If companies can't secure the raw materials they need for production due to high costs or make supplier decisions due to unforeseen disruptions, it forces them to halt production until the materials they need are delivered or change designs to fit what is available. An end-to-end solution like PLM helps tie product quality and performance back to suppliers and material types for historical insights to inform supply chain decisions. PLM can also be used to monitor and optimize raw material utilization and traceability throughout the product lifecycle from the moment materials enter the factory, helping to offset high raw material costs by cutting back on spending and operating costs. Understanding daily supply chain issues from a strategic viewpoint is critical for leaders in the industry to connect with their frontline workers on the topic of quality.

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**79%**

say the same for **supply chain.**

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## Business Impact of PLM for Industrial Manufacturers

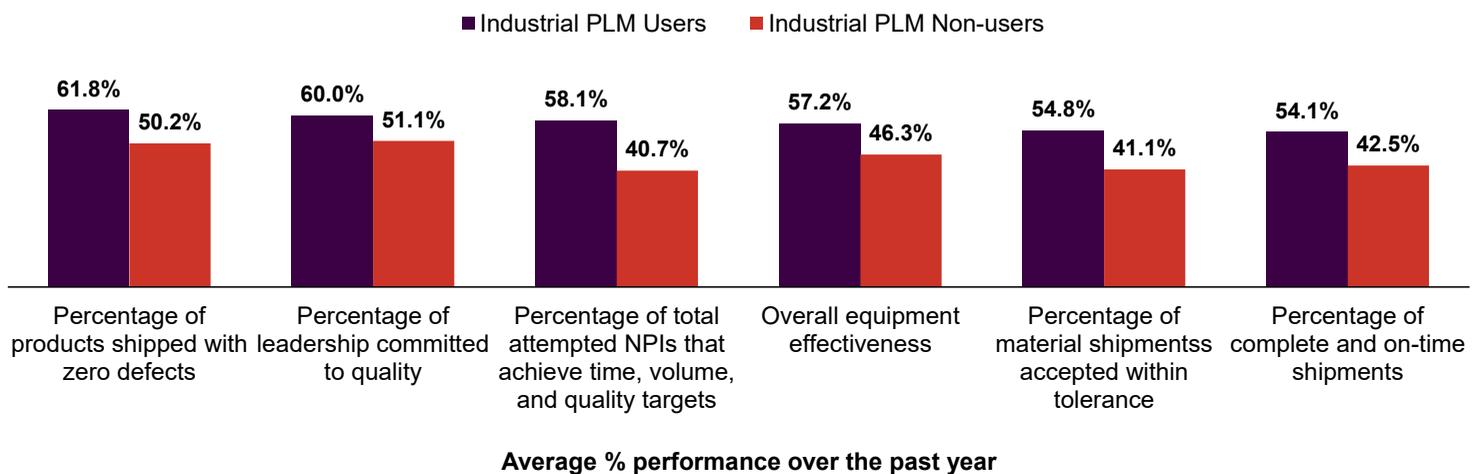
PLM solutions offer numerous opportunities and use cases that benefit industrial manufacturers. Aberdeen's research showcases the tangible impact of PLM solutions on critical quality, financial, and business metrics. When compared to the industrial manufacturers who do not leverage PLM, it's clear that the 57% of industrial manufacturers in Aberdeen's study that currently use PLM solutions (represented by "Industrial PLM Users" in Figure 2) are more likely to have fewer defects, greater operational efficiency, and more complete and on-time shipments, as well as more leaders committed to quality.

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Figure 1. Efficiency & Quality Advantages for PLM Users



n = 200, Source: Aberdeen, March 2023

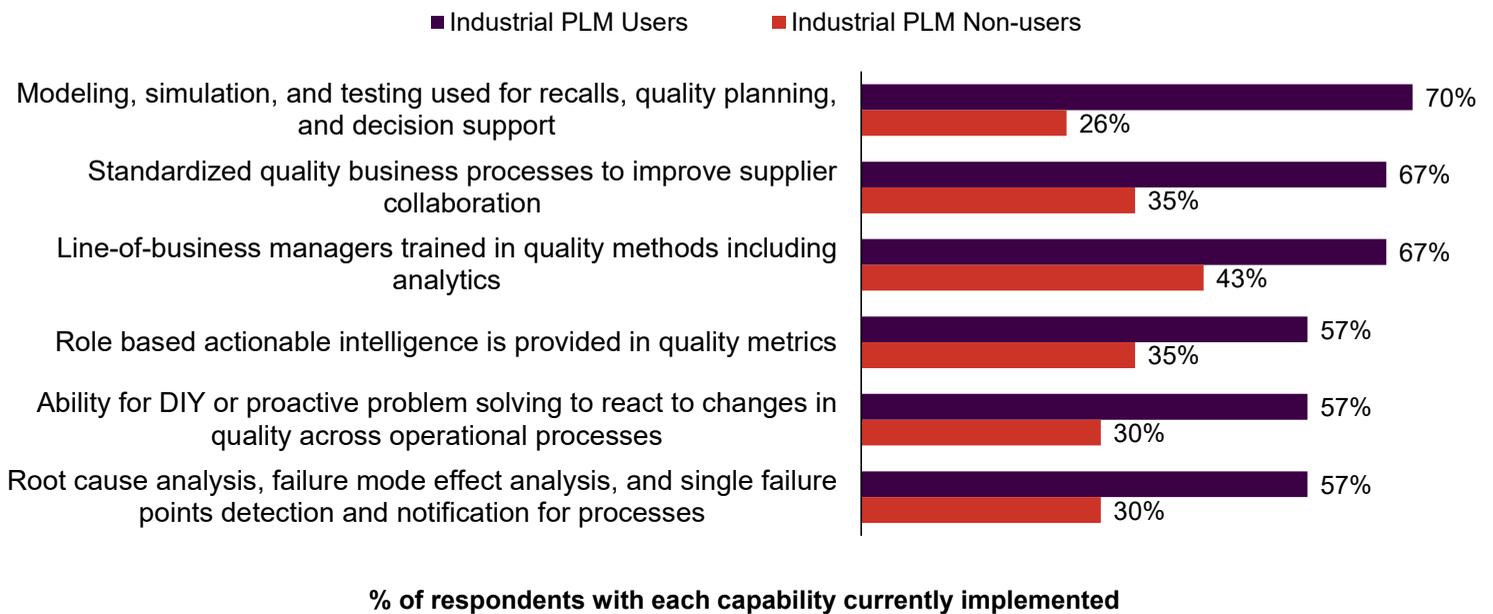
PLM users have an average of 62% of industrial products shipped with zero defects, compared to only 50% for non-users. This implies that PLM can help manufacturers reduce their likelihood of defects by 23% (61.8% vs. 50.2%), and this impact compounds if we consider machinery shipping with multiple defects. Similarly, PLM can contribute to an improvement in the percentage of material shipments accepted within tolerance. The cycle of performance data accessible within PLM improves supply chain decision-making and reduces delays due to poor quality shipments.

PLM also helps 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 28% more complete and on-time shipments (54.1% vs. 42.5%) and their OEE is 23% greater (57.2% vs. 46.3%) than non-users. They also generate 43% more NPIs that achieve time, volume, and quality targets than non-users (58.1% vs. 40.7%). They spend less time pausing production to handle defects or design issues, and

they're able to execute on NPIs and get them into market before their competitors.

The capabilities for visibility and control offered through PLM enable industrial manufacturers to generate more products faster at lower costs and higher quality. Figure 3 highlights several key capabilities PLM users have, including culture-building and supply chain management which ultimately help users to outperform their competitors.

**Figure 2. PLM Gives Business Leaders Critical Information at All Stages of the Product Lifecycle**



n = 200, Source: Aberdeen, March 2023

Scenario planning is easier with PLM acting as a centralized database of product information. This data can be plugged into models to support decision-making for recalls and quality planning without slowing down the production process. Setting up standardized quality business processes is also easier with PLM. Visibility into supplier quality at the enterprise level allows different teams and site locations to align supplier decisions with those insights. When the same set of rules are used to guide supply chain operations across the board, all stakeholders are on the same page, leading to faster decision making and less back and forth with suppliers.

Quality management training for line-of-business managers supports a culture of quality by starting to prioritize quality from the top down. PLM can supply the real-time data required to design those training modules to show managers the value of quality management. Role-based actionable intelligence also contributes to a more quality-conscious culture 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. Using PLM for proactive problem solving and root cause analysis further promotes a culture of quality by speeding up time-to-information for quality decisions. With all product data at their fingertips, decision-makers need not have to make a choice between productivity and quality – they can conduct quality assurance efficiently without disrupting manufacturing. Now is the time to increase transparency and achieve a responsible and informed workforce through PLM.

## Summary & Key Takeaways

PLM is the beating heart of any manufacturing organization, and a quality-first PLM strategy can help them remain agile in the face of supply chain disruptions, improve quality while also improving productivity, and build a culture of quality to prioritize delivering the best possible products to customers. For the 43% of industrial manufacturers who have yet to integrate PLM into their tech stack, the use cases, benefits, and performance gains outlined in this report present the case to invest (see sidebar). For the 57% 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 insight into product performance and customer feedback and take action based on those insights to impact all stages 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 Industrial Manufacturers:

- ▶ **Boost productivity** – PLM users have a higher percentage of products meeting launch dates, complete and on-time shipments and OEE, and they develop more NPIs that meet time, volume, and quality targets.
  - ▶ **Improve product & supply chain quality** – PLM users experience a higher percentage of products shipped with zero defects. They are also more likely to standardize supplier collaboration and utilize modelling, simulation, and testing for critical quality management processes.
  - ▶ **Accelerate decision-making** – PLM users have more leaders committed to quality and are more likely to provide decision-making tools and training to empower their workforce.
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