

Achieving Faster Time to Market and Lowering Costs

Accenture Product Lifecycle Management in Aerospace
and Defense Survey 2014

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Executive Summary

Aerospace and defense companies want more from their investments in Product Lifecycle Management (PLM) assets. They want to realize PLM's potential to dramatically increase revenue and lower costs. But to maximize PLM's return on investment (ROI), aerospace and defense companies must address some key business challenges, in an increasingly complex environment.

Fundamentally, aerospace and defense companies need to promote greater collaboration between functions and with suppliers, improve access to data and reduce configuration management complexity.

The results of an Accenture Survey, which polled senior executives about PLM challenges and opportunities, reveal that while they believe Product Lifecycle Management systems are essential to improve their end-to-end performance across a product's life, many companies face major obstacles to securing greater PLM benefits.

In particular, a significant proportion of aerospace and defense companies are encountering challenges – and missing out on considerable value – as they seek to achieve greater PLM integration with key functions such as manufacturing and supply chain. Accenture's survey highlights several areas with particular need for improvement. Aerospace and defense companies will need to address these to achieve better returns on their PLM system investments.

Aerospace and defense companies are looking to improve how they manage every stage of what are often very long product lifecycles. They want to harness PLM assets to accelerate time to market, lower costs and increase revenue.

To achieve that aim, key goals include providing broader access and collaboration to PLM for power and casual users, unifying PLM hardware and Application Lifecycle Management (ALM) processes, achieving greater program visibility across systems and departments and deploying analytics to support faster and better decision-making.

The implications of the survey results are that aerospace and defense companies need to:

- Invest in broader end-to-end process integration capabilities versus deeper PLM capabilities
- Drive top-line revenues with PLM data
- Gain insight and speed without over-engineering processes
- Reduce configuration management complexity

Aerospace and defense companies are seeking ways to decrease time to market and better manage costs

Visibility across systems and departments is keeping programs on schedule and an eye on costs

Companies cite the lack of a single system of record (45%) and of integration between engineering functions (39%) as the most common challenges around engineering product configuration and design management. This is understandable as maintaining a single technical 'master' for each product is a complex undertaking. Its absence also points to persistent missing integration between siloed functions and systems.

Other challenges highlighted by survey respondents included a lack of traceability from requirements to product design and lack of collaboration with external suppliers. These point to the need for greater PLM integration across other functional areas.

Aerospace and defense companies are looking to drive value and insights from their PLM-related data. They are therefore increasingly focused on analytics and business intelligence.

65% of aerospace and defense companies use or plan to use analytics to enhance program management, gain better visibility into product data and improve usage of product information.

74% are using or planning to use analytics or business intelligence capabilities to maximize or broaden the use of product and design related data, and 55% of companies plan to use analytics to enhance supply chain decisions.

Accordingly, as PLM matures, we expect to see greater introduction of analytics solutions that work with PLM data to improve and enhance decision-making capabilities and insights. From an engineering leadership perspective, analytics is seen as important to drive capabilities such as better program and project execution, achieve greater visibility into product data and enhance decision making about suppliers.

65%

of companies use or plan to use analytics to enhance program management and gain better visibility into product data



Gain insight and speed without over-engineering processes

By providing visibility across multiple enterprise systems, analytics offers a powerful and cost-effective way to support better and faster decision-making.

Collaboration and better configuration/cost management is driving PLM investments and anticipated rewards

Capabilities and assets driving ROI from PLM investments are set to shift over the course of the next 2-3 years. Companies are investing and expecting to reap benefits in the areas of configuration management (42%), supplier relationship management (35%), product cost management (32%) and integration with other enterprise systems (32%).

Although seen more as a risk mitigation action versus ROI driver, compliance – and in particular environmental considerations – is attracting investment as aerospace and defense companies respond to a more onerous global regulatory environment.

The survey also found that PLM priorities are set to shift over the next 2-3 years. Configuration management will remain the single largest area of focus and investment, reflecting the need for greater integration with PLM.

However, shifts in other areas show a change in emphasis as major programs move into full-scale production.

This includes, for example, an expected sharp decline in program and project management (from 42% to 29%) and an increased focus on managing costs.

Other areas in particular, such as digital development and software, are also prominent candidates for increasing investment. While core computer-aided design systems in aerospace and defense are mature, Accenture expects to see more investment in integrating digital systems with PLM.

Companies also expect to spend much more in software and Application Lifecycle Management (ALM), reflecting a trend to focus on this area.



42%

are investing in configuration management over the next 2-3 years

Reduce configuration management complexity

To accelerate time to market and lower costs, companies need to take an end-to-end view of processes and identify opportunities for outsourcing and/or automation of specific activities.

Broader access to data enables better collaboration and coordination within design engineering, across functional boundaries and into the extended enterprise

Complexity drives the need for better collaboration and coordination across supply chain, manufacturing and in-service

Aerospace and defense companies are improving how they federate product development to other functions, more so in the supply chain and manufacturing than with their in-service group. When asked to identify unmet needs for PLM data, aerospace and defense companies' responses indicate that while functions are to some extent connected to PLM data, that access falls short of the ideal depth and breadth they require.

For example, 94% responded that manufacturing could benefit from integration with product development. It comes as no surprise that greater integration with other functions is therefore a priority. Three quarters (74%) of respondents are currently upgrading or planning to upgrade or enhance PLM integration with enterprise systems. For supply chain and manufacturing functions, over 65% of companies are collaborating and 60% are seeking to improve bill of materials reconciliation.

But there is some way to go. Only 21% rated their collaboration with vendors as good, and less than half (48%) returned a similar assessment for manufacturing and design engineering.

These results underscore the complexity of technical information repositories for aerospace and defense products and the lack of integration between design and engineering systems from different vendors.

Capability Gaps

Product development and manufacturing integration

Companies' responses show significant discrepancies between expected benefits of integrating product development and manufacturing, and satisfaction with today's performance. Similar gaps are seen across the bill of materials, efficiency and control of change orders, graphical work instructions and process plans.

However, most recognize these gaps and plan to invest accordingly.

Supply chain and PLM integration

Operating as an 'extended enterprise' is a strategic priority to lower costs, access scarce talent, address new competitors from emerging economies, and adapt to a changing industrial footprint.

PLM has a pivotal role to play in making the extended enterprise a reality. But survey findings suggest there is much work to be done.

Nearly three-quarters (73%) of respondents doubt their capabilities to integrate product development with their supply chains from a design perspective. Nearly two-thirds (63%) point to the same gap between engineering and the supply chain.

Again, these are all areas identified as requiring investment.

Aftermarket integration

As aerospace and defense companies shift emphasis from product sales to 'as a service' business models, they will require new capabilities and technologies. Here again, the survey points to sizeable gaps between current and desired abilities.

Service engineering collaboration with design engineering is seen as important by 84% of respondents, but only 23% are satisfied with their approach today.

Similarly, only 36% of companies expressed the view that their leveraging of customer feedback to drive product improvements and changes was good.

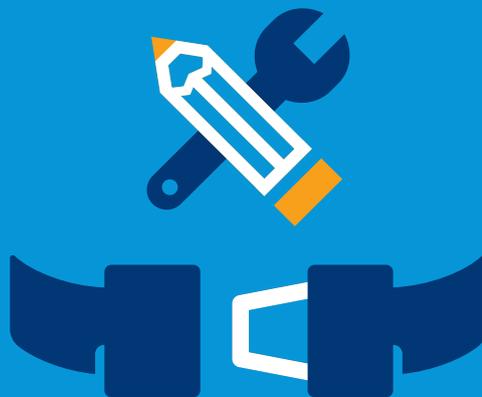
While a lower absolute spending area for companies than pure-play engineering PLM systems, almost half (49%) continue to invest in better collaboration between in-service and design engineering along with better leveraging of field data for product improvements.

31%

only rated their ability to leverage in-service field data as good

Integrate with in-service

Leverage in-service data to deliver new services to customers, improve product reliability and enhance safety.



Software-driven capabilities are required for better coordination between hardware and software design engineering

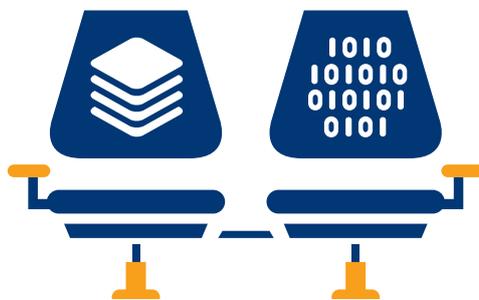
The results of the survey confirm the shift to a greater focus on software and point to the need for coordination across the hardware and software domains within design engineering. New systems and applications have the potential to improve performance, extend the life of existing assets, and redefine capabilities.

81% of companies believe software-oriented Application Lifecycle Management (ALM) capabilities are important, with three-quarters citing integration of software-oriented ALM capabilities with hardware-oriented PLM as key.

68% of companies cited coordinated change management and 65% cited integration requirements as the biggest challenges when integrating ALM with PLM.

75%

believe integrating software-oriented Application Lifecycle Management (ALM) capabilities with hardware-oriented PLM is a key aim



Unifying software with hardware is crucial

Greater emphasis on software is driving the need to bring PLM and ALM systems together across design engineering's hardware and software domains.

Implications & Recommendations

Invest in broader end-to-end process integration capabilities versus deeper PLM capabilities

While there is some integration of PLM data across organizational silos, aerospace and defense companies broadly gave themselves poor marks across every measure of effectiveness.

They are investing to address these large gaps in performance versus expectations. They recognize that better integration and data exchange can streamline often time-consuming processes such as bill of materials reconciliation.

Drive top-line revenues

PLM integration and data can drive both top and bottom line gains. In particular, integration with the in-service area can reap rewards, especially for products with limited life or high value parts.

Moving beyond the traditional area of technical publications, this integration can help to deliver better services to customers, such as tailored maintenance or logistics plans.

Additionally, timely feedback from fielded products can accelerate product reliability and safety improvements.

Gain insight and speed without over-engineering processes

Analytics builds on existing data to draw insight and can be especially powerful in supporting better program management decisions. This is particularly important for addressing the complexities of the aerospace and defense PLM environment.

Because analytics can provide visibility across multiple enterprise systems, it can be a very cost-effective and powerful tool to facilitate faster and more informed decision-making.

Additionally, to help streamline and reduce costs, analytics can help minimize process over-engineering in areas such as bill of materials management.

Reduce configuration management complexity

Configuration management is the lifeblood of PLM and is a key driver for better integration with other enterprise systems.

Given the disparate systems, data and organizations in play, no single system or integration response can address the totality of configuration management.

Aerospace and defense companies should therefore take an overall end-to-end process view and support this with a combination of outsourcing and/or automation of certain subsets in order to lower costs and accelerate time to market.

About Accenture

Accenture is a global management consulting, technology services and outsourcing company, with more than 293,000 people serving clients in more than 120 countries. Combining unparalleled experience, comprehensive capabilities across all industries and business functions, and extensive research on the world's most successful companies, Accenture collaborates with clients to help them become high-performance businesses and governments. The company generated net revenues of US\$28.6 billion for the fiscal year ended Aug. 31, 2013. Its home page is www.accenture.com.

About the Accenture Product Lifecycle Management in Aerospace and Defense Survey 2014

From January through March 2014, Accenture conducted a telephone survey with aerospace and defense engineering executives involved in Product Lifecycle Management. This covered 31 companies in Brazil, Canada, France, Germany, Italy, Sweden, the United Kingdom and the United States. The survey polled executives in commercial, military, engine manufacturing and defense electronics about their Product Lifecycle Management strategies and capabilities.

Please visit
www.accenture.com/PLMinA&Dsurvey2014

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