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WHITE PAPER

How Your PLM is Holding You Back

"Traditional PLM systems aren't able to keep pace with the ever-accelerating demands from manufacturers of smart, connected products. The solution for manufacturers is to base their PLM applications on a resilient, industrial, low-code platform designed to adapt and grow with the market. No one can predict the future, but those companies that can meet tomorrow's challenges are in a better position to dominate their industries."

THE PLM BACKSTORY

Product Data Management (PDM) systems trace their origins to the 1980s with the burgeoning use of computer-aided design (CAD) programs. Along with these programs came a huge influx of digital product information. This meant that there was a significant need for the management of all of this data, which, in turn, led to the development of PDM systems.

While PDM was fine for managing CAD programs, it lacked the ability to manage data throughout the entire product lifecycle, from design and development to manufacturing and service. Enter Product Lifecycle Management (PLM) in the late 1990s as a new term for PDM vendors to differentiate themselves and sell beyond engineering departments.

The intention behind PLM was to provide mechanical, electrical, and software engineers a way to collaborate in the development of complex product systems as well as across engineering, manufacturing, and service departments. Additionally, it was to exchange data across growing supply chains. However, due to rigid architectures, these systems failed to achieve the promised PLM, and even today, continue to fall far behind the needs of today's manufacturers.

5 REASONS LEGACY PLM MISSES THE MARK

1. **Projects that involve traditional PLM systems often fall victim to the "10-10-100" formula.**

   In other words, ten percent of the desired functionality is achieved, ten percent of the expected users are connected to the system, but 100 percent of the planned budget is consumed.

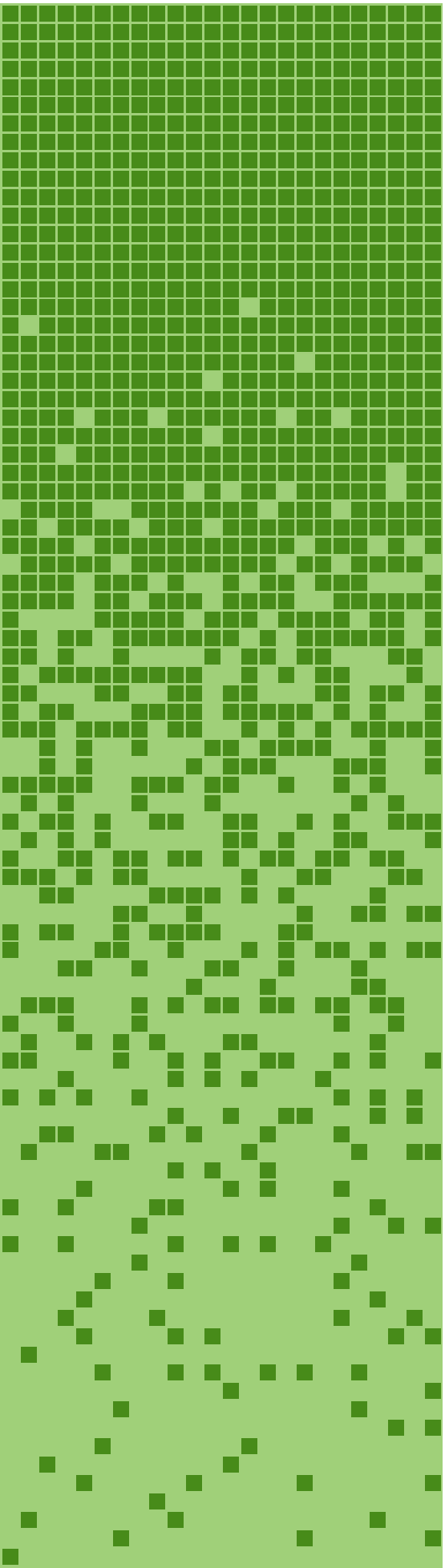
2. **Traditional PLM systems are difficult to customize.**

   This is because conventional PLM solutions rely on hard-coded business logic and data models to define workflows, approvals, item types, etc. Extensive reprogramming is required in order to customize, change, or add new features to meet business needs. This process is high-risk and can take months or even years to complete. As business needs change, it can be too expensive to go back and update the system.

3. **Traditional vendors promote "out-of-the-box" solutions.**

   By their nature, PLM projects are highly individual, and each company has its own structure and products. Out-of-the-box (OOTB) systems sound attractive as they relate to a simplified implementation and faster time to value, but in reality, all companies have unique processes that give them a competitive advantage. Additionally, market requirements and technology will continue to accelerate, causing companies' PLM systems to adapt to changing market realities. In practice, once you begin to customize an OOTB PLM, you have created "instant legacy"—stuck in time, a system that adds to companies' technical debt and decreases competitiveness.

You can't prepare for tomorrow's opportunities when you're busy fixing yesterday's problems.



4. **Conventional PLM systems are fragmented.**

   Traditional PLM systems consist of a myriad of acquired technologies based on different technology stacks. At best, they may have been loosely cobbled together, but more often, they result in fragmented systems that impede collaboration. Even while legacy PLM systems may boast about their breadth and depth of their functionality across disciplines, the individual software systems do not work well together and inhibit collaboration. Despite spending millions of dollars and many years, the majority of companies do not have a PLM system that spans engineering, manufacturing, and services with a connected Digital Thread.

5. **Conventional PLM systems are hard to upgrade.**

   Typically, new releases of software mean that hard-coded customizations must be recompiled, tested, and migrated into the new system. An upgrade can take nine months to a year and cost several millions of dollars while consuming many IT resources. In the worst case, the new release may be several versions ahead of the instance being used by the customer and, the customizations must be redeveloped from scratch. Companies are left with two choices: waiting as long as possible to upgrade (especially if an important feature is no longer supported in the new release) so they can't take advantage of new capabilities available—or, if they do upgrade, finding themselves in a lengthy and expensive process.

All of this boils down to the simple fact: You can't prepare for tomorrow's opportunities when focused on yesterday's problems.

ALLEVIATING THE FRUSTRATIONS: THE ARAS PLM PLATFORM – A MODERN APPROACH TO PLM

Aras has disrupted the PLM market by offering an open, flexible, scalable, and upgradeable PLM platform that is capable of handling the processes and data to manage the lifecycle of complex products.

All Aras applications, including acquired technologies, applications written by third parties, and any customizations, are built on the Aras Platform, connecting all disciplines to product information throughout the enterprise and into the field. Aras' open business model and innovative deployment options simplify the entire PLM process from evaluation through purchase, installation, and ongoing, long-term maintenance.

All Aras applications are included with the Aras Innovator Platform, which, in addition to being a PLM system, is an industrial, low-code development platform.

Aras offers an open, flexible, scalable, and upgradeable PLM platform solution that is capable of handling all of the processes and data to manage the lifecycles of complex products.

Flexible

The Aras model-based technology fits your business now, and in the future, with adaptive data models, process models, and business rules. Instead of the traditional approach—defining an object model that is hard-coded into the services—we started by creating a service-oriented architecture (SOA) platform that is optimized for flexibility and scalability. Applications are created using the integrated modeling engine and access services, such as lifecycles, workflows, and permissions.

This approach allows organizations to quickly create applications that precisely meet their business needs and evolve as these needs change over time. Customers can also take advantage of OOTB capabilities that address areas such as requirements management, quality management, and change management. Applications are created by Aras using the same modeling engine and can be easily modified.

Scalable

The Aras architecture is optimized for scalability that's tried and tested. Aras has been proven with over one million named users and 250,000 concurrent users, making it a truly enterprise-wide solution.

Upgradeable

Because of the unique Aras architecture, customizations are implemented at the application level, leaving the Platform untouched. No matter how much the applications are customized, the Aras core technology can be easily upgraded without any impact on the applications.

For our subscription customers, Aras performs all version upgrades at no extra cost, including the migration of all customizations.

Open

The Aras PLM Platform architecture is based on open standards and can be seamlessly integrated into existing software environments.

IF YOU CAN'T DO THESE THINGS, YOU CAN'T MOVE TO THE NEXT STEP: DIGITAL THREAD

Organizations are already talking about the next step in PLM—the Digital Thread. Aras defines the Digital Thread as the connections between a product and its digital assets that define it over the course of the product's lifecycle. For example, the Digital Thread connects requirements for a product, the CAD models that describe the mechanical components, the electronics and embedded software, the manufacturing process for assembly, and the service manual to maintain the product.

If you're using the Aras PLM Platform, you're already inherently building a Digital Thread as all assets are connected and available to all users subject to access privileges. Not only does the Digital Thread make it easier for users in different functions and disciplines to collaborate, it also streamlines processes like engineering change or problem investigation.

Once you've established a Digital Thread, you can go even further by creating a Digital Twin—a Digital Twin of a real-world physical asset. A Digital Twin can simulate real-time performance, analyze the impact of change, and verify that physical assets are built/maintained correctly.

Aras is set to ensure that product lifecycle management remains an asset powering your business and not a frustrating liability.

ARAS' UNIQUE BUSINESS MODEL

Just like our technology, Aras' business model breaks with common conventions. Unlike legacy PLM systems with proprietary licensing rules, the Aras PLM Platform is available for open download. With traditional PLM systems, there is a high initial licensing cost followed by unpredictable ongoing costs for support, maintenance, and upgrades. This traditional model creates a high total cost of ownership (TCO), often before the success of the system is known. The Aras PLM Platform, however, can be downloaded and tested prior to purchasing a subscription.

With the Aras open approach, not only can companies invest in a PLM solution over time and with less risk, it also means that Aras is held accountable for the success of its customers' implementations.

Aras users never need to choose between their existing PLM system or the Aras PLM Platform. If a legacy PDM/PLM system has been successful for certain processes, then the system can remain in place and be fully integrated with the Aras Platform. Initial investments remain secure and existing solutions are expanded with much less effort than would be possible using the approach of traditional providers.

WHAT'S NEXT?

While it's impossible to predict the direction technology will take in the future, businesses must be prepared for the rapid pace of new market trends. Smart, connected products have disrupted development with increasing dependence on embedded software and lifecycles that extend far beyond the manufacturing floor. Globalization has left businesses with new and emerging challenges in the form of expanding global suppliers and disparate design and manufacturing teams who must collaborate effectively from opposite sides of the globe.

Whatever future changes technological innovations ultimately bring, companies must be able to efficiently manage enormous amounts of product data—the whole product configuration—through every phase of the product lifecycle, including design, development, manufacturing, and service. Aras is designed to grow with the needs of rapidly evolving businesses. Supporting a Digital Thread across the entire lifecycle, Aras can reduce cycle times, mitigate risks, lower product costs, and improve product quality. Aras is set to ensure that product lifecycle management remains an asset powering your business and not a frustrating liability.

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Aras provides a resilient platform for digital industrial applications. Only Aras offers open, low-code technology that enables the rapid delivery of flexible, upgradeable solutions for the engineering, manufacturing, and maintenance of complex products. Aras' platform and product lifecycle management applications connect users in all disciplines and functions to critical product data and processes across the lifecycle and throughout the extended supply chain. Headquartered in Andover, MA with major offices throughout the world, Aras supports more than 350 global multinational customers and over 250,000 users. The Aras Innovator platform is freely downloadable. All applications are available at a single subscription rate, which includes all upgrades performed by Aras. Aras customers include Airbus, Audi, GE, GM, Honda, Kawasaki, and Microsoft.

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