An Enterprise Digital Transformation Platform

CIMdata Commentary

Key takeaways:

- *Executives often don't understand PLM and often pay lip service to digital transformation.*
- *Digital transformation initiatives often proceed without employing PLM as the source of authoritative product information.*
- *Product information must be at the core of any successful digital transformation and is usually much more complex than initially assumed.*
- *Every business has different drivers; can a generic out-of-the-box (OOTB) PLM solution really deliver a competitive advantage?*
- *Aras Innovator was designed to be a low-code platform at its inception. Customers use it to support rip and replace, as well as embrace, extend, extinguish their legacy solutions per their transform roadmap.*

Introduction

Digital is hot—digital thread, digital twin, digital transformation, and so on—but it is rapidly becoming an overused term. All data stored electronically is digital and has been from the inception of computer-based data processing more than sixty years ago. According to mainstream media, any company that doesn't have a digital strategy and go all-in on it is missing an opportunity of a lifetime. But, what does it mean? Is it just a slogan? Does it have any substance behind it? A key point to remember is digitization is not digitalization. Digitization is converting analog or paper data into an electronic file or record, digitalization is the process of moving information to digital processes (e.g., computer files, connected data elements representing a product, managing a configuration and all its dependencies) to transform business—moving to a digital business where information becomes more valuable than a company's traditional products and/or services.[1]

A second key point to remember is products (and also remember that services are products too) are instantiations of ideas and intellectual property and are what generate a company's revenue (i.e., a product is a result of the data that defines it). This is why a solid product lifecycle management strategy is so important and why CIMdata is so passionate about the topic of product lifecycle management (PLM). Technically, PLM doesn't require digitization or digitalization, but practically speaking it does. Products were developed for thousands of years without information being created or being managed digitally, but given the scale, complexity, and timelines required to deliver today's products, it's hard to imagine any modern product being developed without at least some aspect of digitalization.

Ultimately, any digital transformation that isn't focused on improving the creation, use, reuse, and dissemination of the information that describes a product is unlikely to have a material impact on a company's top and/or bottom line. To have substance, a digital transformation initiative has to address product information from an end-to-end lifecycle perspective. As a product moves through its lifecycle states of concept, design, production, operation, and end of life or next life, data representing information is moved bidirectionally across these states.

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[1] Research for this commentary was partially supported by Aras

To make rapid and sound decisions, the data and processes acting on the data need to be managed and traceable to ensure integrity, thereby enabling quality products to be produced on a predictable and repeatable basis. The product data and related processes reside within the PLM environment, whether a well implemented commercial solution or an ad-hoc group of tools with lots of human glue. Digital transformation is the process of continuously improving the former, and dramatically updating the latter.

Continuous Transformation

Transformations don't happen instantaneously, and digital transformations are no different. Digital transformation is not "one and done." The well documented, accelerating pace of innovation guarantees transformation needs to be done regularly (i.e., on an on-going basis). The benefit of becoming more digitalized is that the more connected product information is, the easier it is to innovate. Connected data enables faster processes and reduces the need to validate data before using it, thereby reducing administrative drudgery. For example, when a part is added to an EBOM within a PLM solution, the part number can be automatically assigned to the CAD model and fill in the drawing title block. Furthermore, the new item can be inherited into the MBOM without rekeying data, then transferred to ERP for downstream operations.

Digital, within the context of the product lifecycle, is a way to create, manage, and consume digital product information. Most products get instantiated as a physical item, but more and more, products have a growing digital component (e.g., software, simulation results, or operating asset performance derived using analytic solutions). Unfortunately, many companies are struggling to adapt legacy solutions to new and evolving requirements especially software related ones.

Tools and processes need to transform to support the rapidly evolving software and operational data aspects of products. A product innovation platform[2] choice may support the current requirements, but what about the next three or five years, or even fifty years? A platform needs to be resilient, adaptable, and upgradeable to support evolution and at its speed (i.e., at the speed that business is evolving) because replacing it is difficult and expensive.

How to Digitally Transform

Deciding how to transform can be complex because the end-to-end lifecycle is complex for most products. There are many stakeholders each with their own needs and wants. In the past, tools were heavily customized to make earlier generations of PLM-enabling technology work. In many cases, the customizations were difficult and costly to change and upgrade. This often leads to a backlash against customizing and demand for OOTB solutions. Unfortunately, this strategy doesn't work well, because some needed capabilities are unique or specialized and not available with OOTB implementations. To support every company's unique requirements, solutions are often customized adding risk, cost, and complexity. The consequences experienced are why so many companies stress that they want an OOTB solution. What they really want is a solution that can transform along with them without adding excess risk, cost, and complexity.

Developing a transformation plan is a well understood process and can be achieved using different methodologies. At a high level, the company needs to develop a vision of what it wants

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[2] See: https://www.cimdata.com/en/resources/complimentary-reports-research/position-papers/item/8484-product-innovation-platforms-definition-their-role-in-the-enterprise-and-their-long-term-viability-position-paper

to achieve, a strategy that addresses the important business dimensions including people, process, technology, and data. A roadmap can then be developed to execute the strategy. To transform, an organization's roadmap must decompose changes into digestible chunks organized by business priority. Technology is only part of the solution, digitalization is the way the transformation is achieved, not the goal. It's easy to forget that the goal is to improve the business.

The reality is technology sometimes needs to be customized to meet transformation requirements. The key is to make sure the customizations are sustainable while satisfying the roadmap, that is all the short- and long-term requirements are met in the most cost-effective way possible. The process of transformation is well understood. The current best practice is to use an agile approach. Execute a sprint, measure and analyze the results, refresh the roadmap, then repeat. Of course, the devil is often in the details.

Aras Platform

CIMdata has followed Aras from its inception. We have a deep understanding of the company and their solution and understand how it has evolved and where it is headed. We have published a lot on Aras, and can review all our publications in our Aras Dossier.[3] Many of these publications go into depth on different aspects necessary to have a successful digital transformation.

We have been impressed with Aras' customer stories on how they have been able to solve a wide variety of lifecycle issues by configuring a custom solution and keeping it upgraded. One of the important points from the customer stories is implementation can start anywhere within a company's product lifecycle. Aras' ability to integrate with legacy technologies allows solutions that are working to be incorporated in the lifecycle via integration rather than rip and replace. This ability is why customers are able to execute a vision that addresses the highest business value issues first, generating benefits as soon as possible, improving return on investment (ROI).

Aras has had a public roadmap for many years. Their platform services and applications have grown significantly to where they credibly enable an end-to-end lifecycle solution. Investments in platform services to support model-based systems engineering (MBSE) and maintenance, repair & overhaul (MRO) have enabled Aras to extend their digital thread support on both ends of the lifecycle, thereby supporting an even broader range of transformation projects.

Aras' System Architecture and Digital Twin apps leverage new lifecycle services within the platform. Their OOTB apps can be tailored and web services can connect non-Aras toolsets to the platform. This openness is a critical element of Aras' strategy—one that is well proven.

Finally, while Aras has many customers using virtual machines in the cloud, CIMdata is looking forward to more detail on Aras' native cloud offering. SP12, released in December 2020, is their initial release that supports containerization. Aras has stated their commitment to remain open, flexible, scalable, and upgradeable. These are all critical characteristics of a sustainable platform. No upgrades will be forced on customers, and their data sovereignty is fundamental to their offering both on-premise and in the cloud.

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[3] See: https://www.cimdata.com/en/resources/solution-provider-profiles/plm-dossier-aras

Conclusion

Business transformations are never easy but are necessary for long-term survival. Changing or transforming is the only sustainable way to stay ahead of the competition when there are significant landscape changes in areas such as markets, products, competitors, and technology constantly on the horizon. To support a digital transformation, technology needs to adapt to solve current problems and issues many years out that are hard to imagine today. Digital transformations are best executed on an open, flexible, scalable, and upgradable digital product innovation platform as the most important issues will be product related.

Aras has many customers that have used the Aras Platform to transform their product lifecycles and businesses. CIMdata is impressed with the diversity in how Aras' technology has been used to improve their customers' businesses. Companies planning a digital transformation should consider Aras Innovator as a solution to their digital transformation requirements.

About CIMdata

CIMdata, an independent worldwide firm, provides strategic management consulting to maximize an enterprise's ability to design, deliver, and support innovative products and services through the identification and implementation of appropriate digital initiatives. Since its founding over thirty-five years ago, CIMdata has delivered world-class knowledge, expertise, and best-practice methods on a broad set of product lifecycle management (PLM) solutions and the digital transformation they enable. CIMdata also offers research, subscription services, publications, and education through certificate programs and international conferences. To learn more about CIMdata's services, visit our website at http://www.CIMdata.com or contact CIMdata at: 3909 Research Park Drive, Ann Arbor, MI 48108, USA. Tel: +1 734.668.9922. Fax: +1 734.668.1957; or at Oogststraat 20, 6004 CV Weert, The Netherlands. Tel: +31 (0) 495.533.666.