# Innovate, Transcend, Realize—Aras ACE 2019

**_CIMdata Commentary_**

_Key takeaways:_

- _Aras' mission is simple—Great, Good, Important—great for shareholders, good for stakeholders, and solving important problems._
- _Recent investments of $110M from top tier investors are helping support Aras's 55% annual growth rate, acquisitions, headcount increases to almost 500 people, and internal process retooling._
- _Customer presentations from Microsoft and GM described the scale and scope of problems that can be solved with Aras Innovator._
- _Aras continues to focus on the product lifecycle from requirements and systems engineering through simulation, design, manufacturing, to MRO._

CIMdata attended the Aras ACE 2019 user conference in Phoenix from April 15-18. It was a new location but with the same format and energy as last year. The two and one-half-day agenda had up to eight parallel tracks including two Aras training tracks and new this year, True North training from Mr. Joe Anderson of IpX, the Institute of Process Excellence. There were about 500 attendees, and the best parts from previous events such as Aras In the Round where CEO Mr. Peter Schroer and Chief Architect Mr. Rob McAveney take questions, and the pre-conference developer meeting were repeated. Presentations from top tier customers including GM and Microsoft, and others, augmented lots of product info on released and upcoming modules.

## Aras Keynotes

As usual, Mr. Peter Schroer, CEO of Aras gave the opening keynote which included a high-level review of milestones achieved over the past year. Perhaps the most notable was the $70M investment round led by Goldman Sachs on top of 2017's $40M round led by Silver Lake. CIMdata believes that these top-tier firms are attracted to the large deals Aras won over the past few years, and the repeatable annual growth of over 50% that Aras has achieved. The money is being used to grow the organization, including a new customer success organization, global expansion in China and Belarus, moving Aras operations to Scaled Agile Framework® (SAFe), new partners, and more acquisitions.

Mr. Schroer noted that Aras is up to almost 500 people with about 45% in R&D. This is quite a bit larger than the handful that started the company in 2000 when CIMdata first started following them. In addition to adding people, Aras made two acquisitions in the Maintenance, Repair, and Overhaul (MRO) and Simulation Process and Data Management (SPDM) areas, Impresa and Comet Solutions. These acquisitions help Aras expand the breadth and depth of their platform. Rather than just integrating the acquired solutions Aras is incorporating them, that is rewriting the solutions as web services on their platform. This methodology ensures the new capabilities will be able to leverage the existing services such as security and workflow while maintaining application consistency across the platform. Solutions developers are able to incorporate the new functions and capabilities into their solutions expanding and enhancing lifecycle coverage.

Aras's updated mission "Great, Good, Important" was explained by Mr. Schroer. The story behind it is:

When Silver Lake Partner Mr. Adam Grosser visited Aras for the first time, he had a two-hour conversation with the founder, Mr. Schroer. After that conversation, he concluded that Aras was "great, good, and important." What did he mean by that?

- According to Mr. Grosser, a great company is not only one that someone will write a book about, one that has achieved something significant and survives their dumb mistakes—but it's also a company that has great financials.
- When Silver Lake chooses to invest in a company, "great" is not enough, they also want good. That means a company with good morals and a conscience— one that's honest in everything they do and, in all interactions, treat their employees, customers, and partners fairly.
- There are many companies that are both great and good, but Silver Lake backs companies that also do something important—that are changing the world. Aras is helping customers reduce costs, improve product quality, and design safer products, and that's certainly something important.

According to Mr. Schroer: "Great, good, important—at Aras it's the standard we are committed to." CIMdata sees this concise mission as appropriate for a PLM mindshare leader.

The other major piece of Mr. Schroer's keynote was on myths about digital transformation (DX) shown in Figure 1.



**Figure 1—Digital Transformation Myths According to Aras**
*(Courtesy of Aras)*

The opening myth "most succeed," is countered by research published by IDC and Forbes, that states 64% to 84% of digital transformation projects do not succeed. The final myth "Most Digital Transformation projects focus on the core operational lifecycle," supports the premise that not focusing on core operations such as product data and related processes, and especially lack of robust configuration management are not root causes of failures. CIMdata wholeheartedly agrees with the premise that proper configuration management of product data and effective business processes are the foundation for successful digital transformation. Mr. Schroer stated he is doubling down on support of best in class configuration management which is the foundation of core operational lifecycle management and absolutely necessary for companies to own the lifecycle of their product.

Mr. John Sperling, Senior Vice President Product Management, talked about Aras's internal operations and how they have transitioned the company to the Scaled Agile Framework

(SAFe).[1] He positioned SAFe as a methodology and noted Aras has built a supporting tool on their platform to accelerate improvements while maintaining quality of their product innovation platform. CIMdata believes this is a great investment to ensure that Aras Innovator remains a sustainable platform long into the future.

Mr. Sperling also reviewed the status of the latest application development projects including Requirements Engineering, Systems Architecture, an Application Lifecycle Management (ALM) prototype, Graph Navigation to visualize complex structures, Simulation Process and Data Management based on the technology acquired from Comet Solutions, and a major user interface refresh in Version 12. Incorporation of last year's acquisition of Impresa MRO is in process and prototypes are in use at lead customers. CIMdata views incorporation as a critical Aras strategy. While growth by acquisition is common in the enterprise software industry, Aras does not follow the common model of integration and reselling legacy code. They incorporate the acquired technology into new platform services so capabilities can be used in solutions across the platform. The platform service strategy enables Aras to reuse common services such as security, effectivity, and configuration when incorporating new capabilities and ensuring compatibility with existing implementations. An example is enabling the new effectivity service within Product Engineering. In addition to the major developments, Mr. Sperling also presented a plethora of minor enhancements that existing customers will appreciate. CIMdata is looking forward to next year's ACE to see how much more SAFe enables Aras to bring to market.

## Customer Keynotes

Mr. Boris Cononetz Jr. Director, PLM and Product Compliance Systems and Ms. Erika Klein Director, Azure Hardware Engineering, from Microsoft, gave an update on the latest Aras use at Microsoft. The Azure based implementation has moved beyond the Microsoft device group that develops hardware such as the Surface computer and Xbox gaming system into managing the Azure cloud infrastructure. Microsoft designs, configures, deploys, and manages all the hardware associated with Azure's 150 data centers with 3 million services in 140 countries. Ms. Klein provided the key metrics of her group stating that they improved from 39% on-time delivery to 90%, an impressive feat, by adopting a lifecycle-based approach supported by Aras Innovator. While Aras innovator was the core technology used, a big part of her presentation was reviewing the organization change management (OCM) approach used to support the implementation. OCM is often overlooked and must be a part of any complete PLM strategy.

General Motors (GM), perhaps Aras's largest customer to date, has kept a low profile in the Aras community. This year GM presented some results of the Aras Innovator implementation efforts. A team that included Mr. Peter Swartz, Mr. Carlo Guigliano, and Mr. Randy Klinefelt, from GM along with Mr. Mark Saraceno from Aras gave an overview of GM's implementation entitled "A Journey to Change Management on the Aras Platform." GM did most of the work inhouse, noting that they were a leader in outsourcing IT 25 years ago, and started insourcing 7 years ago. Aras's consulting group was one of the few outside providers included in the project. Key drivers for GM's project included the need to manage change early in the design process, a strong desire to support digital twins, and 50-year data retention requirements. Unique technical aspects of the solution include complex access control requirements, a classification driven ECR creation process, custom data, submittal validations, and large scale inbound and outbound data interfaces. 5,000 users are live on the solution today and that

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[1] https://www.scaledagileframework.com

number will grow rapidly as new programs come online over the next 2 years. CIMdata found the stated scale of 15-20 million records coming from legacy programs astounding.

## Systems Thinking

In addition to enabling the Digital Thread and Digital Twins by providing an open and resilient platform, "Systems Thinking" is one of the core pillars of the Aras solution vision and product strategy as enumerated by Mr. Rob McAveney, CTO. Over the past 2 years, Aras has been devoting considerable R&D thought and resources to the areas of requirements management and systems architecture design which support the functional, logical, and physical dimensions of systems engineering (often referred to as RFLP). With the ever-increasing value add and volume of electronics and software in today's complex cyber-physical systems, a systems engineering approach that enables interdisciplinary design collaboration across the domains of mechanical, electrical/electronic, and embedded software engineering is becoming an absolute necessity for market success and enterprise survival. Aras is addressing this industry challenge with two new major capabilities to be released during 2019.

Requirements Engineering, available in the Innovator v11R1 release in May, is the next generation of the current requirements management capability. This will provide new capabilities in the areas of improved usability and flexibility for editing requirements including document comparison and language translation support. Future enhancements are planned in the areas of customer requirements capture and parametrized requirements flow down.

The new System Architecture application, targeted for release in Innovator v12R1 in the fall of 2019, will become the foundational backbone for enabling systems thinking for Model-Based Systems Engineering (MBSE), Product Line Engineering (PLE), and Variants analysis. This new application provides a high-level graphical representation of the system design from within the Innovator GUI that bi-directionally connects with and manages the systems design information that is authored in external systems design tools such as IBM DOORS, No Magic Magic Draw (now part of Dassault Systèmes), IBM Rational Rhapsody, internal custom-developed tools, or MS Excel spreadsheets. At the same time, systems engineers will have continuous access to the latest physical BOM and parts information within the Innovator platform. Since many new systems are variants of previous designs with a large number of carryover components, this enables the systems architect to leverage "approved" design data at a finer level of granularity for use in conceptual trade studies to define the optimal physical aspects and costs of the conceptual design.

In addition, design engineers and managers, as well as supply chain partners who are not familiar with requirements engineering or systems engineering tools and modeling languages such as UML/SysML, AADL, or Capella, can visually understand and collaborate with systems engineers through a "single source of truth" system model that takes advantage of all the core services of the Aras Innovator platform (i.e., multi-CAD visualization, change management, configuration management, roles and data, access and permissions, effectivity, requirements management, etc.).

CIMdata anticipates that this new approach to integrating the currently disconnected engineering silos within the SE, PDM, and ALM domains via the Innovator Systems Architecture will be a major step forward in enabling the emerging Digital Thread vision for Aras customers.

## Simulation Management

Although access to simulation tools and their high-performance computing requirements has always been limited by the deep domain and technical knowledge required, the greater barrier to mainstream use of simulation has been the limited adoption of existing simulation process and data management (SPDM) tools. Without an effective SPDM capability, design teams are not able to efficiently incorporate simulation into existing design processes or connect the evolving product configuration to validate results during development, much less simulate and predict the performance of an asset in service (i.e., a digital twin) that is intended to operate for many decades such as ships, power and process facilities, off shore structures and aerospace and defense systems.

Based on the abstract modeling approach and technology acquired from Comet Solutions, Aras is in the process of creating an open, scalable and readily extensible simulation data model within the Innovator platform that will be augmented with a simulation process automation environment to capture, refine, and share simulation best practices within multi-disciplinary engineering work groups as well as across the virtual enterprise including with supply chain partners. The stated goals for this new SPDM capability are to:

- Embrace heterogeneous COTS 3D CAD and performance simulation tools including Excel via direct connectors as well as in-house custom tools via an open API.
- Support simulation use cases throughout the product lifecycle; especially those that cross lifecycle stages such as from design to manufacturing and operational feedback to design based on simulation of in-service performance (a digital twin).
- Enable and support multi-discipline scenarios, mixed-fidelity models, and different data types that comprise the range of system, subsystem, and component level simulation activities.
- Integrate simulation processes with model-based engineering processes to create and maintain the digital thread for today's complex cyber-physical systems.
- Be transparent and "invisible" to users in managing the pedigree of a simulation model and any associated metadata and data including CAD geometry, key simulation performance parameters, summary results, and reports.

Aras is currently working with early adopter "beta" customers to develop and refine the Innovator simulation data model requirements as well as the user interaction environment that will empower simulation experts by reducing the overhead associated with using a formal data management system as well as extending the power of using more simulation in the design process to engineers who are not experts in creating simulation models. The Comet third-party tool integration and process automation technology for creating standard "best practices" templates is being re-authored on the Aras Innovator platform to enable this goal of "democratization of simulation."

The first release of the new Innovator SPDM capability is currently planned for mid-year 2020 and CIMdata will be monitoring closely the progress of Aras in this important area.

## Conclusion

Aras ACE 2019 was their largest event to date. Aras continues to grow their sales and mature their organization and product. CIMdata has written a lot about Aras because they are an important part of the PLM market segment, and while smaller in revenue than their major

competitors, we recognize them as a mindshare leader based on the impact they have had on the market.

Top tier financial companies such as Goldman Sachs, Silver Lake, and GE Ventures have invested in Aras and it appears that Aras has put these funds to good use. They have had a massive growth in headcount but are investing in systems such as SAFe to ensure the new-hires' contributions add value.

Perhaps most important they are recognized by their customers, including some of the largest and most important manufacturers on the planet, as having technology they can use to produce their products. Airbus, GM, Microsoft, Audi, BMW, and Lord, as well more than 300 other companies. Aras continues to be exciting to watch and CIMdata looks forward to their next moves.

## About CIMdata

CIMdata, an independent worldwide firm, provides strategic management consulting to maximize an enterprise's ability to design and deliver innovative products and services through the application of Product Lifecycle Management (PLM). CIMdata provides world-class knowledge, expertise, and best-practice methods on PLM. CIMdata also offers research, subscription services, publications, and education through 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.