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## CIMdata News

### *CIMdata Brings the PLM Industry's Premier Education and Training Program to the Boston Area*

10 July 2019

CIMdata, Inc., the leading global PLM strategic consulting and research firm, will bring its highly acclaimed Product Lifecycle Management (PLM) Certificate Program to the Boston area from September 30 - October 4. The program is recognized as the PLM industry's most comprehensive solution-agnostic education offering.

The program helps prepare PLM professionals to successfully address the challenges commonly faced in PLM strategy development and implementation. The assessment-based certificate program includes a personalized classroom experience, individual and team-based exercises, and individual evaluations of achievement. The program is facilitated by a team of CIMdata experts. Upon successful completion of the program, participants receive a CIMdata PLM Certificate and are invited to join CIMdata's global PLM Leadership community.

The program is built on CIMdata's over 35 years of experience guiding industrial companies in successfully defining and implementing best-in-class PLM strategies and tactics. The program is appropriate for industrial companies that are considering PLM or are already implementing PLM, and to PLM solution providers.

Attendees may choose between a five-day program which earns a Standard Certificate of PLM Leadership or a three-day program which earns a Core Certificate of PLM Leadership. Additionally, CIMdata's one-day Executive Short Course and two-day PLM Fundamentals for Solution Providers Short Course will be offered at this time.

For more information on CIMdata's PLM Certificate Program visit our website at <https://www.cimdata.com/en/education/plm-certificate-program>.

### **About CIMdata**

CIMdata, a leading 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) solutions. Since its founding in 1983, CIMdata has delivered world-class knowledge, expertise, and best-practice methods on PLM solutions. These solutions incorporate both business processes and a wide-ranging set of PLM-enabling technologies.

CIMdata works with both industrial organizations and providers of technologies and services seeking competitive advantage in the global economy. In addition to consulting, CIMdata conducts research,

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provides PLM-focused subscription services, and produces several commercial publications. The company also provides industry education through PLM certificate programs, seminars, and conferences worldwide. CIMdata serves clients around the world from offices in North America, Europe, and Asia-Pacific. To learn more about CIMdata's services, visit our website at [www.CIMdata.com](http://www.CIMdata.com), follow us on Twitter: <http://twitter.com/CIMdataPLMNews>, 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.

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## ***CIMdata Management Team Promotions***

8 July 2019

CIMdata, Inc., the leading global PLM strategic management consulting and research firm announces two changes in its management team. As of 5 July 2019, Gerard Litjens, VP of EMEA, has been elected to Member of the Board of Directors. Gerard, who joined CIMdata in 2000, has served as an adviser to the Board for the past year and has served as the company's leader in the EMEA market space since 2010.

Peter Bilello, CIMdata's President and Managing Director, has been appointed to the additional role of Chief Executive Officer. Under Peter's leadership, CIMdata has continued to grow its PLM consulting offerings, strategic partnerships, and global presence.

According to John MacKrell, CIMdata Chairman: "Both Peter and Gerard continue to provide leadership and value as CIMdata supports its industrial, software provider, systems integrator, and other constituents."

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## *Dassault Systèmes' 2019 Analyst Event: Seeking to Own the Life Sciences (CIMdata Commentary)*

10 July 2019

### *Key takeaways:*

- *Dassault Systèmes' announced acquisition of Medidata is an impressive move that should send a message to all PLM solution providers that Dassault Systèmes intends to own the life sciences market with respect to PLM enablement.*
- *Dassault Systèmes is well positioned to support today's Industry Renaissance across multiple industries focused on designing, delivering, and supporting products, nature, and life.*
- *Dassault Systèmes' 3DEXPERIENCE is evolving into a System of Operations, as well as a Business Model.*
- *Dassault Systèmes is making steady progress across its targeted industries. New and enhanced Industry Solution Experiences and Industry Process Experiences are being delivered at a reasonable pace, illustrating the flexibility and scalability of their 3DEXPERIENCE platform.*

Recently, CIMdata had the opportunity to attend Dassault Systèmes' annual PLM analyst event at their headquarters in Vélizy-Villacoublay, France.<sup>1</sup> Once again, the well-organized two-day event provided an excellent update on Dassault Systèmes' strategy and thought-leadership position in the rapidly evolving global PLM market. This year, the event was organized into four main blocks, with each of the morning blocks focused on updates from Dassault Systèmes' executives and the afternoon sessions on a selection of industry and select brands updates provided by Dassault Systèmes' industry segment or relevant brand leader. This year's event started with Dassault Systèmes' major announcement that it intended to acquire Medidata in an all-cash offer of US\$5.8 billion.<sup>2</sup> Medidata is a US-based leader in clinical technology used to bring new treatments to the market. Once closed, this acquisition will enhance Dassault Systèmes' already robust PLM solution offering for the life sciences industry, as well as increase Dassault Systèmes to 20,000 employees.

This acquisition will complement Dassault Systèmes' Life Sciences BIOVIA brand. As previously reported by CIMdata, the 2014 acquisition of Accelrys provided the core of this brand.<sup>3</sup> Before the acquisition, Accelrys referred to their emphasis on "scientific innovation lifecycle management." This made them a good fit for Dassault Systèmes and their long-time support for innovation enabled by digital tools. The company has continued to expand their efforts to build out their Life Sciences solutions and indeed this has been a source of significant growth for Dassault Systèmes. With the acquisition of Medidata, Dassault Systèmes expands their lifecycle offerings out of the lab and into clinical trials and supporting commercialization activities. Medidata does make physical products to support their vision and should benefit from a linkup with a PLM market leader. The company also has some cloud-based platform solutions that can become part of the 3DEXPERIENCE platform, itself already morphing from an orientation around PLM to support Dassault Systèmes 3DEXPERIENCE Marketplace initiative. Dassault Systèmes' life sciences customers will be able to design new innovations using the traditional BIOVIA solutions and support them through clinical trial to commercialization, ultimately all on the same integrated platform.

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<sup>1</sup> Travel and/or other expenses were provided by Dassault Systèmes.

<sup>2</sup> <https://www.3ds.com/press-releases/single/dassault-systemes-and-medidata-solutions-to-join-forces-to-accelerate-the-life-sciences-industry-in/>

<sup>3</sup> <https://www.3ds.com/press-releases/single/dassault-systemes-successfully-completes-acquisition-of-accelrys-1/>

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## Reasons to Believe

Mr. Bernard Charlès, Vice Chairman, Chief Executive Officer, kicked off the event with a well-articulated presentation that described Dassault Systèmes' support of today's Industry Renaissance, as they describe it, and the company's role in enabling it. He emphasized the company's positioning as a science company that acts as an industry enabler by providing solutions, processes, intelligence, and education. He reminded the attendees that Dassault Systèmes is in it for the long-haul. In fact, the company first introduced their three spheres of support—product, nature, and life—in February 2012. He stressed that the **3DEXPERIENCE** platform isn't just an information technology (IT) thing, but a new way to work—one that is changing everything. For them, their implementation of the **3DEXPERIENCE** platform is where their customers' requirements will be captured, managed, and fulfilled. Mr. Charlès stated his belief that ultimately their platform will replace their own customer relationship management (CRM) system—managing the digital twins of their customers' platform configurations, holding one view of their entire client ecosystem. A non-trivial statement—one that emphasizes the proven and expanding capabilities of the **3DEXPERIENCE** platform and how it can be used as a system of operations, as well as a business model. As always, Mr. Charlès left the analysts with much to think about and digest.

Ms. Florence Verzelen, EVP, Industry Solutions, Field Marketing, Global Affairs, was next to present. Her presentation updated the attendees on Dassault Systèmes' extensive solution portfolio focused on industry and process enablement. It provided numerous illustrations that showed how Dassault Systèmes is on a solid path. Ms. Verzelen noted that Dassault Systèmes' currently serves eleven industrial segments, with three being newly named (Home & Lifestyle; Energy & Materials; and Construction, Cities & Territories), and one renamed segment (Business Services). She claimed that this segmentation gives its industry leads enhanced clarity and results in more focused solutions being defined and delivered to its customers. The adjusted segmentation also illustrates synergies that naturally exist amongst the subsegments. For example, the Construction, Cities & Territories segment includes Cities & Territorial Authorities, Utilities, Transportation Infrastructure, Buildings & Facilities, Construction Products & Services, and Agriculture & Forestry.

Ms. Verzelen commented that Dassault Systèmes continues to build out its Industry Solution Experiences (ISEs), which now number over 70, with 29 already accessible as cloud offerings—at least one for each industrial segment served. She also mentioned that they are currently delivering more than 500 Industry Process Experiences (IPEs) based on their extensive and expanding set of Roles and Applications. These numbers represent a sizable increase over last year and illustrate that Dassault Systèmes continues to invest in the platform and its enabled solutions.

Ms. Verzelen was then joined by selected industry leads to discuss a number of major strategic transformation deals in which Dassault Systèmes is currently engaged. Deals involving The Boeing Company, the EDF Group, and ABB were all discussed in some detail. According to Dassault Systèmes, their deal with The Boeing Company represents the longest contract they have ever signed. Ms. Verzelen and her team commented that Dassault Systèmes' relationship with Boeing goes back some 30 years and they intend it to continue for at least another 30. Dassault Systèmes is providing solutions to help Boeing deliver on their significant aircraft order backlog. For EDF, the France-based €70 billion integrated electricity company, Dassault Systèmes, and EDF's services partner, Capgemini, signed a long-term partnership agreement, Dassault Systèmes' second longest, for the digital transformation of EDF's nuclear engineering processes and its ecosystem. According to a June 2018 press release, "The partnership aims to support EDF in the digitalization of its plant engineering projects with the view to strengthen plant performance and overall competitiveness of nuclear power. It represents a major step in

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accelerating the digital transformation of the nuclear industry as a whole.”<sup>4</sup> And finally, Dassault Systèmes’ discussed their partnership with ABB. This agreement, signed in February 2019, is a global software partnership that will support ABB’s reorganization of its four businesses. According to a February 2019 ABB press release, their partnership will “combine the strengths of ABB Ability™ digital solutions and Dassault Systèmes’ 3DEXPERIENCE platform, and build on both companies’ strong installed base, deep domain expertise and global customer access.”<sup>5</sup> Finally, it stated that “ABB has already adopted the 3DEXPERIENCE platform to model and simulate its solutions before delivering them to its customers. With this partnership, ABB will develop and provide customers with advanced digital twins, enabling customers to run ABB’s solutions and their operations with improved overall efficiency, flexibility and sustainability.” Taken collectively, the customer and partner stories presented during this session further illustrate the commitment Dassault Systèmes has made to enable the long-term success of its customers.

Mr. Pascal Daloz, Dassault Systèmes’ Executive Vice President, Chief Financial Officer, and Chief Strategy Officer provided the audience with a business update and growth outlook. His session included an extensive review of Dassault Systèmes’ 2018 numbers. He commented that the 3DEXPERIENCE platform now represents 25% of the company’s software revenue and that the company saw an organic increase of 27,000 new customers in 2018. He also spent some time discussing their push into the cloud, explaining that the cloud is a way for them to address the needs of new customers, more so than existing clients. In other words, they see their cloud offering as providing additional revenues and not a shift in revenue. He commented on a few major deals, including a ten-year contract signed with Airbus.

As for 2019, Mr. Daloz stated that their guidance to the financial markets is 10 to 11% growth as they actively continue to expand their addressable market. One of the reasons for the growth in their addressable market is the announced acquisition of Medidata, which is a strategic acquisition for them. One that will allow them “...to connect the dots” and continue to build out the innovation platform for the future. According to Mr. Daloz, only 24% of Medidata’s current revenues come from outside of the United States, he argued that Medidata is only scratching the surface. Many new opportunities will be open to them once they are part of Dassault Systèmes. Mr. Daloz was then joined by Medidata’s Chairman & CEO, Tarek A. Sherif. Mr. Sherif spoke briefly about the acquisition and how their solutions fit nicely into Dassault Systèmes’ life sciences solution portfolio. As previously mentioned, CIMdata believes that this acquisition gives Dassault Systèmes a clear leadership position in the life sciences PLM domain.

Like last year, the group was given a guided tour of major components of the 3DEXPERIENCE Playground. The playground is an ever-expanding set of live exhibits that display, simulate, and demonstrate many of Dassault Systèmes’ solutions. As in the past, this proved to be an excellent way to obtain an overview of Dassault Systèmes’ diverse and expanding solution set.

## Detailed Industry Updates: Part 1

The afternoon sessions provided insight into three industries—Consumer Packaged Goods (CPG), Aerospace & Defense (A&D), and Transportation & Mobility (T&M), and three brands—DELMIA, DELMIWORKS, and Centric Software. Each of these sessions provided an update on their industry approach and/or solution set currently being offered, as well as what is on the horizon. In total, six breakout sessions were held.

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<sup>4</sup> <https://www.3ds.com/press-releases/single/edf-dassault-systemes-and-capgemini-partner-to-digitally-transform-edfs-nuclear-engineering/>

<sup>5</sup> <https://new.abb.com/news/detail/16803/abb-and-dassault-systemes-enter-global-software-partnership-for-digital-industries>

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Mr. David Ziegler, VP, A&D industry segment, provided a well-thought out update on how they are approaching the industry and what solutions they now have available. He stressed how the **3DEXPERIENCE** platform was developed to support an A&D company's lifecycle from design to operations on a single data model. For A&D, Dassault Systèmes' solution set includes the enablement of model-based design through the implementation of systems modeling and simulation; model-based engineering with design in configured context support; model-based manufacturing that includes process planning modeling, production simulation, and manufacturing execution; and model-based support capabilities that enable various maintenance, service, and support activities. This provides a rather complete digital thread from as-specified to as-maintained. The **3DEXPERIENCE** platform delivers these capabilities using an expanding set of platform services, including search & navigate, 3Ddashboard, 3Dspace, 3Dsearch, 6Wtagging, 3Dplay, 3Dmodeling, 3Dinstantmessaging, 3Dpassport, lifecycle configuration, and change management. Mr. Ziegler also outlined several A&D Solution Experiences, including Program Excellence, Co-Design to Target, Ready for Rate, and Passenger Experience, to name a few of the expanding list of ISEs offered. Each ISE includes anywhere from five to almost twenty IPEs. Finally, Mr. Ziegler related some of the measurable benefits their customers have reported, including 20% less inventory and increased availability, accelerated concept to take-off up to 50% faster, and 20% lower testing and certification costs. Within this context, Mr. Ziegler commented that Dassault Systèmes' **3DEXPERIENCE** platform will be the platform upon which Airbus' corporate transformation program—Digital Design, Manufacturing and Services (DDMS)—is based. This is clearly another major win for Dassault Systèmes and its **3DEXPERIENCE** platform.

During the T&M industry update, Mr. Olivier Sappin, the segment's VP, provided an update that focused on how Dassault Systèmes is designing and delivering solutions that help their customers successfully deal with today's major business drivers—electric, connected, and autonomous vehicles; new customer experience; quality, costs, regulations; and mass production to mass customization. He emphasized that vehicle manufacturers are spending a significant amount of effort and money on simulation. For example, 10 billion miles are need to certify an autonomous vehicle and this is just not feasible without simulation. He also reviewed Dassault Systèmes' expanding ISEs for the T&M segment, which currently include Electric-Mobility Accelerator; Smart, Safe & Connected, On-Target Vehicle Launch; and Lean Production Run, to name a few. All of these examples include one or more IPEs. The On-Target Vehicle Launch ISE, for example, currently includes 25 IPEs. These solutions are designed to offer four key benefits: help boost innovation, think in systems, master vehicle electrification, and reach customers with experiences. Mr. Sappin also provided some tangible metrics, including how their solutions have helped select customers introduce a new mobility concept in less than 2 years, reduce development cost by 30%, warranty cost reduction by 20%, and improve market share and lower cost per vehicle. Finally, he described evidence on how various automotive OEMs, including many of today's autonomous and electric vehicle OEMs (e.g., NIO, Tesla, Lucid, Spark, Canoo, and Nikola), are leveraging Dassault Systèmes' solutions to deliver value. He elaborated on a few, including JLR, Renault, PSA, Honda, and Toyota, who use 10's of thousands of seats of CATIA and are moving to the **3DEXPERIENCE** platform. While Dassault Systèmes' T&M industry segment accounts for approximately 30% of their overall business, the **3DEXPERIENCE** platform penetration is gaining momentum according to Mr. Sappin. This is a good sign for Dassault Systèmes and should also lead to faster and broader adoption of CATIA **3DEXPERIENCE** throughout the industry and its supply chain participants.

## **Achieving Sustainable Double-Digit Growth**

Mr. Philippe Laufer, Chief Executive Officer CATIA, kicked off day two of the event and its theme of

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achieving sustainable double-digital growth. His presentation focused on the evolution of CATIA and growth drivers for this €1 billion brand. He reminded the audience that Dassault Systèmes is driving CATIA to be the “Cognitive Augmented Design” (CAD) solution that is being used by its customers...to shape the world in which we live.” With more than 1 million users, there should be no doubt that most of us interact with one or more products each and every day that were designed using CATIA, especially automobiles and aircraft. Mr. Laufer also presented the CATIA brand’s growth drivers, namely the enablement of cognitive augmented design, 3D as a social media, cyber physical systems, and the industrial renaissance. Finally, he described the development team’s work redesigning the CATIA experience for cloud delivery, which is now available. Dassault Systèmes’ progress with CATIA has been consistent and extensive. This should bode well for them as they continue to build out more capabilities that support tomorrow’s design requirements.

Mr. Laufer was followed by Ms. Cecile Doan, Dassault Systèmes’ VP CATIA Strategy. Ms. Doan provided a detailed presentation on why Dassault Systèmes is delivering their cloud solutions, who they are targeting, their offerings, and how they are engaging to sell and deliver them. The why is easy. The benefits of the cloud are reasonably well-known, including it is secure, available 24/7 everywhere, with no IT management required, a low total cost of ownership, always remaining state of the art, and easy to install and deploy. These are all characteristics actively sought by companies today. Ms. Doan claimed they are targeting companies that want a low cost of entry with the ability to rapidly deploy and scale as and when needed. These companies tend to be startups and industry and innovation leaders, as well as governmental projects. While Mr. Daloz commented that their cloud revenue is yet to be material, Ms. Doan provided a few eye-opening numbers related to their cloud business—72% increase in new customers and 92% revenue growth associated with existing customers. This is a good indication of what is to come.

Ms. Doan went on to remind the audience that Dassault Systèmes started down the cloud path some five years ago. Since that time, they have consistently expanded their cloud offerings associated with the **3DEXPERIENCE** platform, as well as with CATIA and other brands. The 2020x release enables more than 300 roles and 81 IPEs on the platform, as well as three xApps—xDesign, xGenerative Design, and xShape—with more being worked on. Adoption has been steady, with some solutions increasing significantly (e.g., from 2017 to 2018, CATIA users on the cloud increased 3x). Additionally, she claimed their cloud infrastructure is performing well and that their strategic 2017 investment in OutScale provides the enterprise-class cloud services required by their customers. Finally, she commented that moving forward, Dassault Systèmes will develop their solutions for the cloud first and then for on-premise use.

Next up was Mr. Aaron Kelly, Senior Director, Product Portfolio Management. Mr. Kelly’s presentation focused on The WORKS Strategy & Portfolio. it’s all about **3DEXPERIENCE.WORKS**—an extensive solution offering that covers mechanical CAD, simulation, digital manufacturing, and data and process enablement. In general, **3DEXPERIENCE.WORKS** leverages the **3DEXPERIENCE** platform to deliver to its users dashboard templates, roles and managed services, communities and other social media capabilities, as well as eLearning and Certificates. The **3DEXPERIENCE.WORKS** solution portfolio includes capabilities from four of Dassault Systèmes’ iconic brands—**SOLIDWORKS**, **DELMIAWORKS**, **ENOVIA**, and **SIMULIA**. The approach that Dassault Systèmes has taken is intended to expand key elements of their overall portfolio into the mainstream market—making more of their solution ready for small to medium-sized organizations that have simple to complex design and manufacturing problems to solve. The **DELMIAWORKS** solution is the re-branding of the recently acquired IQMS manufacturing software.



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The information-intensive day two morning next included a joint presentation by Mr. Patrick Johnson and Ms. Clare Biot. Ms. Biot is Dassault Systèmes' VP for the Life Sciences Industry and Mr. Johnson is their VP Sciences, Corporate Research. They primarily focused on the company's vision for delivering end-to-end solutions for Life Sciences given the acquisition of Medidata, and how Medidata's clinical and commercialization solutions fit well within Dassault Systèmes' current solution offering for the industry. Additionally, Mr. Johnson explained that Dassault Systèmes continues to make the investments necessary to be relevant well into the future. One of his summary remarks was that "the new workbench is the real world." This further illustrates Dassault Systèmes' desire to bring together the virtual and physical worlds using its platform.

Ms. Florence Verzelen, in one of the last presentations of the morning, discussed Dassault Systèmes' systems integrators strategy. Her main message was that they view the partner community as a means to business scalability and growth. Dassault Systèmes is clearly in a transition, looking for and expecting partners to carry a heavier and more strategic role in their ecosystem. Some of larger and more global partners include Tata Technologies, Infosys, HCL, Accenture, and Capgemini. Finally, she reviewed Dassault Systèmes' "strategic digital transformation project" a six-stage effort where 1) strong partners are identified, 2) complementary value is defined, 3) executive connections are made, 4) goals and ambitions are understood and aligned, 5) deals are closed, and 6) the partnership improves. The results of this project are promising. This is critical for Dassault Systèmes' long-term viability. As a software-first company, they must focus software while allowing partners to perform a significant part of the services. Dassault Systèmes would be best to provide the system architects and other high-end consultants that have deep knowledge of their solutions, and allow their partners to supplement and provide all the other services that are needed to successfully implement the Dassault Systèmes portfolio.

"Empowering the Workforce of the Future" was the last presentation of the morning, also delivered by Ms. Verzelen. In this presentation, she highlighted how Dassault Systèmes is delivering the **3DEXPERIENCE** platform to connect academia and industry, which they claim further supports the ongoing industrial renaissance. She stressed the value of the platform to those communities and how its cloud-based delivery to multiple disciplines supports social collaboration, ultimately establishing "a new learning experience portfolio." Currently, Dassault Systèmes' solutions have been made available to 7.6 million students across 44,000 institutions, with 50,000 academicians currently using the **3DEXPERIENCE** platform. Some of the key learning areas include how to: be an innovator, master cyber-physical systems, excel with lean manufacturing, and finally, design to make with additive manufacturing techniques and tools. This was a great summary that illustrated how Dassault Systèmes is bringing know how and leading technologies to the next generation of innovation workers. Doing this will contribute to helping Dassault Systèmes fully achieve the sustainable double digital growth it is seeking.

## **Detailed Industry Updates: Part 2**

The second day finished up in the same manner as the first, with a set of breakout sessions. This time they included five industry and one brand focused breakout sessions. The industry sessions included: High-Tech; Energy & Materials; Life Sciences; Consumer Packaged Goods; Industrial Equipment; and Construction, Cities & Territories. The one brand session focused on EXALEAD. As on the afternoon of the first day, these sessions provided the analysts with updates on strategy and progress.

Mr. Olivier de Percin, VP for the High-Tech industry, commented during his session that the High-Tech industry now accounts for around 10% of Dassault Systèmes' revenue. This industry, along with other targeted non-core industries, has significant growth potential. Dassault Systèmes' focus within the High-

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Tech industry segment are OEMs designing and producing consumer electronics; security, control & instrumentation; computing, software & communication equipment, as well as suppliers to those OEMs. The key focused solutions include connected objects, white goods, OEM telecom, batteries, and semiconductors. Mr. de Percin cited some key challenges and trends for these High-Tech companies and how Dassault Systèmes' modular solutions can scale to fit their needs. Strategically, Dassault Systèmes' solutions are helping High-Tech firms to achieve their goal of zero physical prototypes. Unlike some other PLM solution providers, Dassault Systèmes can provide a common platform for battery design, for example, that not only supports all the mechanical design elements, but also the simulation of aging and down to the design and analysis of chemical composition of the battery. This is an excellent example of how Dassault Systèmes' solutions that cover product, nature, and life can be used to provide a comprehensive solution development environment.

In the final session, Mr. Philippe Bartissol, VP of Dassault Systèmes' Industrial Equipment (IE) industry segment, described how they have been able to achieve over 20% new license growth over the last year, making Industrial Equipment a US\$500 million market for them. Mr. Bartissol described Dassault Systèmes' end-to-end ISE for the IE industry and how they divide the IE industry into seven segments. Currently, Dassault Systèmes' ISE for this industry includes six solutions as part of their "equipment continuity" strategy. He reported that they are currently focused on their Operation & Ownership solution area. They are finding that customers are looking for models (i.e., digital twins) of their physical machines so that they can better monitor and maintain them. The emphasis is on model-based everything. Additionally, he reported that to support this, Dassault Systèmes' Power'By is enabling the team to integrate with all the common MCAD tools, well beyond CATIA and SOLIDWORKS, including third-party MCAD solutions from Siemens and PTC, for example. This is very important for this industry where there is no dominant CAD solution and where systems modeling and optimization and the ability manage product-as-a-service (PaaS) will be critical for long-term success.

## Concluding Remarks

Dassault Systèmes' announced acquisition of Medidata is a clear indication that it wants to own a significant and sizable portion of the Life Sciences PLM domain. It is an impressive move and should send a message to all PLM solution providers that Dassault Systèmes' Life Sciences industry strategy is broad and deep. It is important to note that this is only one of 11 industries Dassault Systèmes is targeting. Dassault Systèmes' broad and deep solutions are well positioned to support today's Industrial Renaissance across multiple industries, helping them design, deliver, and support products, nature, and life. Finally, Dassault Systèmes' is making steady progress across its eleven targeted industries. New and enhanced ISEs and IPEs are being delivered on the platform at a reasonable pace, illustrating the flexibility and scalability of the 3DEXPERIENCE platform—a platform that is evolving into a System of Operations, as well as a Business Model that supports new ways of working. CIMdata continues to be impressed with Dassault Systèmes' vision and progress, and looks forward to see what is around the corner.

## 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

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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.

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## ***Data Can Save the World: Hexagon Live 2019 (CIMdata Commentary)***

11 July 2019

*Key takeaways:*

- *Hexagon Live highlighted Hexagon’s corporate commitment to climate change and how the firm can address the problems AND be financially successful.*
- *The smart factory is a journey, not a destination, one that starts with brownfield environments that have data that can be harvested.*
- *Autonomous vehicles are 90% there and still have 90% to go.*
- *Hexagon continues to make investments across all of their business units that will serve them well in reaching their corporate mission and vision.*

CIMdata was pleased to attend Hexagon Live 2019 from June 11-14, 2019 in Las Vegas, NV. This global event brought together more than 3,000 attendees from Hexagon’s customers and partners.<sup>6</sup>

Mr. Ola Rollén, Hexagon’s President and CEO, kicked off the event Tuesday afternoon with a presentation entitled “Your Data Can Save the World.” Last year’s message about autonomous connected ecosystems (ACE) still saw some play at this year’s event, but the focus was squarely on addressing climate change. (ACE is still core to Hexagon’s stated corporate mission.<sup>7</sup>) Mr. Rollén believes that we have the technology to cut CO2 emissions by 33%, if we only had the will to leverage the data that could help us create efficiency in key industries like agriculture, automotive, and the construction sector. All sectors can benefit, claimed Mr. Rollén. Their vision: “a future where data is fully leveraged so that both humanity and sustainability thrive.” He echoes the message of many business leaders that companies can reduce their environmental impact, and the impacts of their customers, and be quite successful doing it. Hexagon stands ready to help manufacturing firms investing to address climate change issues.

On Wednesday we had a “Welcome to the Smart Factory” from Mr. Stephen Graham, President of Metrology Software and Vice President of Marketing. According to Mr. Graham, Hexagon’s Manufacturing Intelligence (MI) business unit, is almost synonymous with the smart factory. CIMdata agrees, particularly given all of the top-notch acquisitions Hexagon made since 2001 to build their portfolio. But, Mr. Graham continued, a factory implies a physical space, but it is really not a destination but a journey. A quite complicated journey, given that each plant is unique and a brownfield in its own way. Hexagon’s goal is to make it smarter. Mr. Graham dated the start of MI to their 2014 acquisition of Vero Software, when they started to consider production, and then they added MSC Software in 2017, which provided entre to design and engineering. In fact, Mr. Graham stated, the smart factory is really a

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<sup>6</sup> Travel and/or other expenses were provided by Hexagon.

<sup>7</sup> “Putting data to work to enable autonomous connected ecosystems that boost efficiency, productivity, and quality for our customers,”

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virtual construct linked together by data. It is more likely to span multiple buildings in sites around the world. To be successful, solutions need to go beyond a company to embrace their suppliers and customers, as suggested in Figure 1. The rest of his presentation focused mainly on the MSC portfolio and how it supports co-simulation, closely-coupled multi-physics to improve performance and accuracy.

Mr. Luca Casignani, Autonomous Driving Strategist at Hexagon, delivered a sobering presentation entitled “From ADAS to Autonomous: Today and Tomorrow of Mobility.” The news is full of reports talking about our impending autonomous future. He claimed that 94% of serious crashes are due to human error (based on NHTSA data). If we could just get those pesky humans out of the picture things would be perfect. Not so fast, said Mr. Casignani. Autonomous vehicles (AVs) will still cause fatalities, but likely in different ways from their human counterparts. In 2016, the Society of Automotive Engineers proposed a five level automation hierarchy, from No Assistance (0) through to Full Automation (5). Level 5 is a dream, said Mr. Casignani, and he claimed no one is working to implement Level 0 and 1 capabilities. What is meaningful to driving in the real world? Level 2, partial automation, is delivering some value. He believes that tomorrow’s vehicles will get to level 4. It is Level 3, said Mr. Casignani, where lies danger. Unfortunately, the Wall Street Journal’s recent assessment is probably right: driverless cars are 90% there and there is 90% left to do.<sup>8</sup> CIMdata hears many presentations about how the future of autonomous driving is here today or about to be. Problems are to be tackled using the products and services lauded in the presentation. Yes, there are technologies and services that are critical to future success. But this presentation was more realistic about the work left to do. Mr. Casignani questioned whether our investments in AVs were about safety at all. He claimed that enforcing seat belt use could increase survivability 670%. He further stated that 34% of U.S. traffic fatalities are alcohol related vs. 9% in Germany where they have acted to reduce them. The real reason for AVs? To give us free time! In vehicle mockups you often see the front seats swiveled to face the rear, or to the side to watch video on the wall. Based on this presentation, it might be good to face front and grip the wheel at 10 and 2 for the foreseeable future.



**Figure 1—Ecosystem for a Smarter Factory**  
(Courtesy of Hexagon)

Mr. Norbert Hanke, President and CEO of Hexagon MI, echoed Mr. Rollén’s focus on data in his keynote entitled “Smart is Hiding in Plain Sight, Finding the Data in Your Factory—and putting it to work.” Mr. Hanke’s scan of the news yielded a range of smart products: Smart Water, smart egg tray,

<sup>8</sup> <https://www.wsj.com/articles/driverless-cars-are-90-here-theres-another-90-left-to-go-11558717322>

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smart toilet, Nest, and virtual assistants were mentioned. If everything is so smart, Mr. Hanke asked, why is smart manufacturing so far off? That was the point of his presentation. Mr. Hanke believes there are smart elements hiding in plain sight, in unused data, for instance. He claimed there are mountains of data to be mined, an assessment that matches CIMdata's industrial consulting experience. Companies can benefit from this data, if they could just see the forest for the trees. Mr. Hanke claimed that manufacturing is obsessed with the trees, with each constituent tending their tree while we all want to see the forest. He emphasized that Hexagon is well positioned to support both the virtual and real of the manufacturing environment, with metrology providing the bridge between them. Their ability to capture real-world data helps them converge the virtual and real, and to provide feedback upstream in the product lifecycle to drive improvements.

Thanks to the efforts of the analyst relations team, CIMdata was able to sit down with several Hexagon executives to get brief updates on the MI business. Our conversation with Mr. Steve Sivitter, recently named President and CEO of Hexagon Production Software, focused mainly on his previous role as CEO of Vero Software, Hexagon's computer-aided manufacturing (CAM) business. Vero was built through acquisition by its previous owner, Battery Ventures, and has a wide range of CAM solutions. Has Hexagon been able to develop any synergy between the solutions to reduce R&D spend and complexity? Yes, claimed Mr. Sivitter, their solutions are increasingly harmonized underneath. Vero, and their other recent acquisitions of Spring Technologies and FASYS, have been rebranded as Hexagon Production Software. FASYS and Vero each had their own tool databases, now there is one consolidated database. According to Mr. Sivitter, postprocessors will be the biggest challenge. Hexagon is acquisitive, and two recent acquisitions brought Vero value-added resellers into Hexagon. This was necessary, Mr. Sivitter claimed, because they served important markets, including Italy, the fifth largest consumer of machine tools in 2018 according to Gardner Research.<sup>9</sup>

Mr. Brian Shepherd, Senior Vice President Software Solutions, Hexagon MI, who joined Hexagon after 20 years at PTC, spends most of his time at Hexagon working on smart factory topics. Part of his job is to help span the silos of Hexagon's three business units: MI, Geospatial, and Power, Process, and Marine (PPM). At last year's Hexagon Live, they announced Xalt, their "framework for accelerating digital transformation."<sup>10</sup> Much like SAP Leonardo, Xalt is a framework for introducing new, potentially disruptive technologies that leverage the Internet of Things (IoT), like data visualization, cloud, mobility, and artificial intelligence. The business units were all working in parallel on these technologies, and Xalt served to bring them together. It is Mr. Shepherd's task to bring common technologies and practices to the silos, using Xalt to build them into Hexagon's platform for the smart factory. Mr. Shepherd believes that things have worked well to date, supported by a choice to use an "open source" approach within Hexagon, e.g., when the MI team creates something useful it is shared into the Xalt code base for use by all business units. Of course, the goal is positive network effects where contributed code is enhanced over time by the community of users, in this case other Hexagon groups. An important goal but Hexagon is just getting started. They are taking the right steps to get there, like empowering a governance team to review the contributions to see if they really fit, if they are the right things to add and at the right level of quality. Nothing kills network effects like poorly planned or executed shared code.

CIMdata also spent some time with Mr. Paolo Guglielmini, the CEO of MSC Software. Hexagon acquired MSC Software in 2017 and the change since then is exciting. While owned by Symphony

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<sup>9</sup> <https://www.gardnerintelligence.com/Economics/post/2018-global-machine-tool-consumption-up-48>

<sup>10</sup> <http://news.sys-con.com/node/4280897>

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Technology Group, an American private equity firm, from 2009 to 2017, the company had limited opportunity to invest in their simulation and analysis (S&A) business during a time of intensive merger and acquisition activity in S&A and rapid S&A market growth. Becoming part of Hexagon allowed them to drastically accelerate their roadmap for MSC Apex, their unified environment for computer-aided engineering for virtual product development. They are continuing to invest in their core solutions, like Adams and Marc, and Mr. Guglielmini spoke of a new non-linear technology in development. They have had some success with SimManager, their simulation data and process management solution, but implementing their current version of SimManager requires too much customization. While this can work for large firms, Mr. Guglielmini said they are working to make it easier to implement for smaller firms. This is an important capability and CIMdata hopes it continues to get needed investment.

In conclusion, this commentary only scratches the surface of Hexagon Live 2019. CIMdata only really participated in the MI track, even though our PLM definition has always included Intergraph, a stalwart of their PPM business unit. CIMdata agrees that climate change demands attention, and that there is money to be made by addressing this issue at multiple levels. Companies like Hexagon help their clients be more efficient and effective in manufacturing, an industry segment with large potential climate impacts, as suggested by empirical data presented by the Hexagon speakers from Mr. Rollén on down. Based on the presentations and conversations at the event, Hexagon is well positioned to be one of those winning firms.

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## ***PLM Road Map 2019 (CIMdata Commentary)***

9 July 2019

*Key takeaways:*

- *Digital Transformation is accelerating in product development companies.*
- *Model-based definition and systems engineering are being actively pursued.*
- *The PLM industry is growing in both depth and breadth.*

On May 29-30, 2019, CIMdata and Eurostep jointly hosted the PLM Road Map™ & PDT<sup>11</sup> North America 2019 conference in the Washington D.C. metro area. Mr. Peter Bilello, President, CIMdata

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<sup>11</sup> PDT (Product Data Technologies).

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(<https://www.cimdata.com>), and Mr. Håkan Kårdén, Director of Marketing, Eurostep (<https://www.eurostep.com>), together welcomed the attendees. Mr. Bilello proceeded to deliver the keynote address, “The State of PLM: Today’s Market and Leading Trends.” He affirmed that the PLM market continues to grow in both depth and breadth, however, many companies appear stuck on PLM as PDM (Product Data Management) or only CAD data management. Mr. Bilello reported from CIMdata’s market analysis that in 2018 the overall PLM market grew 9.4% to \$47.8 billion and continues to be strong.

Mr. Bilello touched on a series of industry trends and potential disruptors including generative design and augmented reality. He also noted that machine learning, a subset of artificial intelligence, was delivering “predictive and learning, data-driven algorithms for design, operations, and maintenance.” He spoke of Digital Transformation, the often-mentioned trend in industry today, emphasizing it requires organizational, cultural, and technical changes in the way companies do business. He ended his presentation with a warning to industrial companies, “Change is the name of the game. Either change, be changed, or no longer exist!”

Mr. Kårdén returned to the stage to introduce Mr. Bruce Mayer, Engineering Application Technology and Strategy Manager, Northrop Grumman, who spoke about “Integrating ‘Smart Documents’ into PLM and the Digital Thread.” Mr. Mayer related details of Northrop Grumman’s experience with the application of a Smart Connected Documents engine to product definition and manufacturing instruction documentation. He posed the question “What if one document could actually ‘talk’ to another document? A document which talks could tell others that reference it that something changed!” Later in the day, that engine was presented by Mr. Rupert Hopkins, Founder and CEO of XSB, Inc. (<https://www.xsb.com>) and the developers of SWISS (Semantic Web for Interoperable Specifications and Standard) a model-based approach to represent concepts buried in unstructured, non-geometric data, such as specifications and work instructions.

Mr. Ken Versprille, Ph.D., Executive Consultant, CIMdata, took the hosting duties and introduced a series of short vignettes from the conference’s sponsors, including Mr. Marc Lind, SVP of Strategy, Aras Corporation (<https://www.aras.com>), Mr. Garrett Clark, Configit (<https://www.configit.com>), and Mr. Joseph Anderson, President of the Institute for Process Excellence (IpX) (<https://www.ipxhq.com>).

These were followed by a presentation from Mr. David Sherburne, Technology Consultant, titled “An Executive Perspective: Selling an IT Transformation Strategy.” Mr. Sherburne spoke of globalization and the Digital Transformation occurring in industry. He offered his ideas on an Enterprise Operational Framework focused on integrating processes and tools used to manage configuration baselines from concept to customer.

This was followed by another short presentation from a conference sponsor, Vertex Software (<https://www.vertexvis.com>). Mr. Craig Brown, retired, General Motors and Mr. Matt Heying, Director of Product, Vertex Software, highlighted the company’s new cloud-based, high performance visualization technology.

In the afternoon, Mr. Kårdén returned to introduce Mr. Roger Hobley, Technology Development Manager—Maritime Services IS&S, BAE Systems Surface Ships. Mr. Hobley captured the audience’s attention by describing the United Kingdom Royal Navy’s new aircraft carrier HMS Queen Elizabeth commissioned in late 2017. Mr. Hobley noted that an aircraft carrier system is one of the most complex pieces of engineering one can imagine. His presentation illustrated the project from a product information management viewpoint, with all its complexity, diversity of stakeholders, and the value of data over time.

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Next, Dr. Versprille, the conference host, took the stage to report on the status of the Aerospace & Defense PLM Action Group's project for defining the Minimum Model-Based Definition and BOM Definition needed for certification. The Group is administered by CIMdata and Dr. Versprille is liaison to the project. The ten member companies<sup>12</sup> have thus far identified 17 different part types, such as machined parts, castings, and wire harness parts, within which they are specifying the numerous data items necessary for model-based definition as the models are presented for regulatory body certification. The results of their study will be used by both the international standards bodies as well as solution providers of data exchange software.

Afterwards, Mr. Kårdén hosted a panel discussion on "PLM and Complexity." He invited on stage a number of company executives and industry analysts to offer their ideas about what can be done to make PLM simpler. The conversations looked at investments in technology, people, and processes.

The first day of the conference ended with a presentation from Mr. Kurt Woodham, Aerospace Engineer, Systems Engineering and Engineering Methods, NASA. Mr. Woodham spoke to "The Challenges of Model-Based Systems Engineering (MBSE) for NASA." He described the MBSE and Infusion and Modernization Initiative (MIAMI) within NASA. The project's goal is to modernize their Systems Engineering Workforce and calls for:

- Informed decision making, increased transparency, and greater insight.
- Linking technical and programmatic insight and data driven decisions.
- Increased understanding for greater flexibility and adaptability in design.
- Increased confidence that any system-of-interest will perform as expected.
- Easier, efficient, connected communication to keep people aligned.
- Closing the chasm between systems analysis and systems engineering (show trade traceability).

The second day of the conference started with a keynote from Dr. Marc Halpern, Ph.D., P.E., Vice President, Gartner, titled "Navigating the Journey to Industrie 4.0. The Good, The Bad, and Making the Ugly—Less Ugly!" Dr. Halpern noted that Industrie 4.0 presents the "Greatest disruption in business models and platform-based technology opportunities in more than a generation." He warned that adaptive emergent systems that worked in the past are hard to change and may not be best for the future. He recommended objectives-driven business planning supported by goals, strategies, and measures, as well as by disciplined systems-centric technology roadmap planning and adoption, all guided by change management.

Dr. Halpern was followed by Dr. Thomas Hedberg, Jr., Ph.D., P.E., Research Mechanical Engineer, NIST. Dr. Hedberg's talk was titled "Identifying Value in Product Lifecycle Innovation using Integrated Product, Process, and Logistics Viewpoints." He explained that when executing a digital engineering strategy, the United States Department of Defense believes a successful digital transformation of manufacturing using digital and model-based engineering practices will address enduring challenges associated with complexity, uncertainty, and rapid changes in deploying and using systems. Small-to-medium enterprises, however, must take a more cautious approach to going digital. One of his key observations was that deploying digital thread via standard interfaces between "things" using consensus-based, voluntary, open standards will enable rapid data exploration, knowledge extraction, and model

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<sup>12</sup> The A&D PLM Action Group member companies include Airbus, The Boeing Company, Gulfstream, Embraer, Rolls-Royce, GE Aviation, Dassault Aviation, Pratt & Whitney Canada, Safran, and Mitsubishi Regional Jet.



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generation.

Next up, Mr. Neil Lichty, Subject Matter Expert, The Boeing Company, offered status of a second A&D PLM Action Group project—Global Collaboration. The charter of the Global Collaboration project is to provide templates for a data integration and exchange setup, process, and practice protocols consistent with industry standards. Mr. Lichty listed the various system architectures currently used between OEMs and suppliers in the aerospace industry, as well as the Group’s thinking about a future state for data exchange and sharing. He continued by explaining Boeing’s current approach: interfacing with their supply chain called Supplier Requirements eXchange (SRX). He described how SRX offers all participants a virtual shared workspace.

This was followed by an interest-grabbing presentation from Ms. Philomena “Phil” Zimmerman, the Deputy Director of Engineering Tools and Environments in the Office of the Deputy Assistant Secretary of Defense for Systems Engineering (DASDSE). Ms. Zimmerman leads the effort to advance the use of model-based techniques to advance systems engineering concepts in acquisition. She spoke of the focus on digital engineering strategy and implementation. Their goals are to ensure technological superiority for the U.S. Military and to bolster modernization, specifically champion and pursue new capabilities, concepts, and prototyping activities throughout the DoD research and development enterprise. She identified focus areas similar to those found in industry today.

Mr. Nigel Shaw, Technical Fellow, Eurostep, turned his presentation to “PLM, Model-Based Systems Engineering, and the Supply Chain” reflecting on challenges and opportunities. He noted that many enterprises have document-based processes in place and their shift to go fully digitalized and really apply MBSE presents real issues with:

- Requirements and their management
- Configuration and change management
- Interoperability of tools
- Traceability
- Integration and consistency

Mr. Shaw spoke of industry standards and their role in supporting systems engineering, however, admitting the current standards situation is “messy.” He recommended adding a cross application capability to manage shared data as a hub with traceability and audit capabilities cross-enterprise.

Mr. Don Tolle, Director Simulation-Driven Systems Development Consulting Practice, CIMdata, presented the third A&D PLM Action Group status of their Model-Based Systems Engineering project. He summarized the project’s research into two-way SysML data exchanges and its failure today. He indicated that “An in-depth analysis of XMI (XML Metadata Interchange) files exported from the different SysML modeling tools would provide important insight on whether the poor model interchange is to be traced back to non-compliance of the modeling tools with the XMI specification or is related to the vagueness of the specification in certain areas.”

Mr. Craig Brown, General Motors (retired) returned to the stage to offer that “Speed to Value” is about optimizing and delivering strategic programs across the entire PLM lifecycle such that the PLM portfolio will realize maximum value in the shortest amount of time. He offered, as an example, General Motors’ approach designed specifically for PLM portfolios containing innovation, product development, and digital transformation initiatives.

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The conference concluded with a “fire-side chat” between Mr. Peter Bilello and Dr. Marc Halpern with questions posed by Dr. Versprille. They gave their opinions on the diverse topics of the changing nature of product with increased electrical and software components, product as a service as seen in both the automotive and aerospace industries, the landscape of mergers and acquisitions in PLM, and whether other providers might enter the market. Finally, they discussed the impact of additive manufacturing in product development.

Overall the conference was well received and praised for its content. Attendees participated from a diverse range of industrial and solution provider companies, including The Boeing Company, Deere & Company, Oshkosh Defense, Cummins, and Microsoft. CIMdata and Eurostep appreciate the support of our sponsors, Aras Corporation, Configit, IpX, Vertex Software, XSB, CMstat, and ArcherGrey.

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## ***PTC’s LiveWorx 2019 (CIMdata Commentary)***

10 July 2019

*Key takeaways:*

- *Deployment of advanced capabilities such as IoT, AR, Digital Twin, and Artificial Intelligence is accelerating but implementation and systematic digital transformation needs careful planning and a value-focused roadmap.*
- *Cyber security continues to grow in importance and PTC’s investment in cyber security leadership is an important step forward.*
- *PTC has configured their offerings into a set of four “platform” segments: 3D Platform, PLM Platform, IoT Platform, and Experience Platform with four investment areas: 1) Enabling solutions for IoT and AR-enabled engineering, service, and manufacturing; 2) System stability, scalability, and security; 3) Lifecycle management of solutions; and 4) Improved interoperability with strategic partners.*
- *PTC executives emphasize that Windchill and its PLM capabilities continue to be an important foundation for successful digitalization and transformation of an enterprise.*
- *PTC’s strategic relationships with Microsoft, ANSYS, and Rockwell Automation continue to mature and are delivering synergies reflected in new and improved product offerings and joint*

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*sales opportunities.*

CIMdata attended PTC's LiveWorx 2019, held in Boston June 10 through 13, 2019. LiveWorx continues to grow as more and more individuals and companies—manufacturers, service and maintenance providers, technology solution developers, systems integrators, consultants, and others—want to learn more about PTC's expanding product suite and its partnerships. According to PTC, there were over 9,500 individuals in attendance or logged in to live streaming sessions during LiveWorx 2019. Additionally, LiveWorx 2019 had over 30 sponsors and over 240 breakout sessions that covered PTC's extensive solution suite. The Xtropolis/X-Factory exhibition included more than 80 exhibitors who provided attendees the opportunity to talk with, see, and learn about PTC partners, technologies, and solutions. CIMdata was among almost 200 analysts, press, and media representatives covering the event.<sup>13</sup>

Mr. James Heppelmann, PTC's President and CEO, kicked off the event. He highlighted PTC's theme of "Better Ways to Get Work Done" and throughout his keynote walked the audience through a series of demonstrations that showcased PTC's solutions and their integration with one another. As part of each demonstration, he introduced customers who presented practical examples of how they had implemented these solutions within their companies. This keynote effectively illustrated how PTC has continued the integration of their solutions to create the digital thread throughout the product lifecycle. Mr. Heppelmann also voiced a renewed emphasis on the Windchill product suite, what PTC refers to as "PLM," and its importance as a key to digital transformation, stating multiple times that PLM is more important than ever. Throughout the demonstrations, he showed the growing power and expanded use of augmented reality (AR) technology and noted that Vuforia would constitute 7% of PTC's software sales in 2019.

Mr. Blake Moret, Rockwell Automation's President and CEO, joined Mr. Heppelmann to discuss the success of the PTC-Rockwell Automation partnership stating that the partnership has resulted in a significant sales pipeline. He presented the example of Ford Motor Company, which began implementing the new Factory Talk Innovation Suite Powered by PTC in one factory and in a short time, based on benefits achieved in the first implementation, decided to deploy the technology in four additional facilities. CIMdata thought that the keynote and its demonstrations showed how well PTC is blending its various technology and application suites and working with its new partners.

During the Q&A session for analysts and media, Mr. Heppelmann provided additional information regarding PTC's on-going business, as well as its future plans and activities. He stated that PTC continued to see strong growth in Internet of Things (IoT) and AR, projecting that these two areas would represent 40% of new software sales for PTC in 2019. He also said that CAD sales were growing at double digit levels. Mr. Heppelmann provided additional insight into the success of the PTC-Rockwell Automation relationship with over 30 new joint customers signed within the past two quarters. Mr. Heppelmann stated that AR growth will make up 1/3 of the overall 2019 software sales growth for PTC and that PTC's CAD value-added resellers (VARs) who may not be ready to sell PTC's PLM offering are looking to sell PTC's AR tools. He also noted that funding for smart, connected products primarily comes from engineering and Information Technology (IT), but that funding for the convergence of IT and Operational Technology (OT) is more likely to come from manufacturing.

With their major commitment to IoT and Cloud computing PTC is tackling, what is arguably the most significant barrier to adoption, namely cyber security. They have recruited Mr. Josh Corman to the

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<sup>13</sup> Travel and other expenses were provided by PTC.

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position of PTC's Chief IIoT Security Officer. Mr. Corman has served in several key roles in industry and the public sector including Research Director for Enterprise Security at The 451 Group and Principal Security Strategist for IBM Internet Security Systems. During a session for analysts and media, Mr. Corman spoke on the importance of security in the new connected world, stating "if you can't afford to protect it, you can't afford to connect it." He noted that the threats to security have begun to trigger political responses with new public policies such as requiring software Bill of Materials (BOMs) on all medical devices being put into place. He discussed PTC's commitment to security and their new initiatives to address security issues, both for their solutions and their customers' environments. Mr. Corman said that PTC has created a "Shared Responsibility" policy and a Coordinated Vulnerability Disclosure (CVD) program for identifying, testing, and solving security issues. CIMdata congratulates PTC on taking a leading position in this crucial area—one that will only grow in importance as smart, connected products and systems proliferate.

Ms. Hillary Ashton, PTC EVP and General Manager Augmented Reality, hosted a panel session with representatives from Aggreko, Fujitsu, GlobalFoundries, and Howden who talked about their implementation and use of AR and provided the following Top AR Tips:

- An innovation journey is non-linear—you must take some zigs and zags to reach high ground.
- To drive value from AR, you must have very clear use cases about how it supports the enterprise's digital journey.
- Understand the business problem you are trying to solve and measure as you go.
- Collaborate and build cases for AR across your value chain. No one is alone on this journey.

The first day's closing keynote was presented by Mr. Peter Diamandis, Founder and Executive Chairman, XPrize Foundation, who delivered a very engaging and enlightening discussion on "The Power and Implications of Exponential Change." Mr. Diamandis started by saying "the future is brighter than you believe, and the future is faster than you think." He provided many examples of companies that didn't take advantage of new technologies or changes, and who are now out of business. He stated that the convergence of technologies is creating new opportunities for business and new business models. With the exponential growth of computing power, network bandwidth, and truly global coverage, Mr. Diamandis said that we are headed to a world where anyone can know anything, anytime, anywhere. With more minds able to imagine and do more things, Mr. Diamandis stated that we can and will solve many of the problems that today we think are unsolvable. This was a great session to end the day giving inspiration and challenges for all the attendees.

Over two days, in addition to the executive keynotes and special sessions for analysts and media, CIMdata attended several track sessions on a wide range of topics and technologies. While there were too many sessions to comment on in this commentary, the following paragraphs provide selected highlights.

Mr. JP Provencher, PTC VP Manufacturing Strategy & Solutions described PTC's Factory Solutions Framework and how they are working with Rockwell Automation in four focus areas:

1. Enterprise Operational Integrity
2. Digital Workforce Productivity
3. Scalable Production Management
4. Intelligent Asset Optimization

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One of the major objectives of this initiative is to enable their customers to get more value from the investments they have already made. Mr. Provencher said that a key enabler is Kepware, which is used to make connections between both new and older equipment. He said the process is to **wrap** around the current environment, **extend** it into new areas and new capabilities, and then **transform** the environment for the future. CIMdata believes that this strategy provides companies a practical approach to integrating their R&D and manufacturing environments while leveraging their legacy investments.

Mr. Martin Neumueller from Creo Product Management led a session titled “Creo Parametric 6.0 Product Update: Core Modeling and User Experience.” He discussed PTC’s investments in additive manufacturing and generative design, and reported on a series of user interface improvements released in Creo 6.0. These include user manipulation of column width in the model tree and ability to control the color and transparency of the background of a dimension’s text. He noted that a few subtle enhancements that can deliver productivity improvements such as helical volume sweep to generate a helix curve and that regeneration is avoided for features not affected by an edit. He stated that, over time, PTC’s objective is to embed emerging technologies within Creo, e.g., expand the Frustum AI capabilities. However, the most impactful news Mr. Neumueller delivered was that in the future Creo 7.0 release multi-body solids will be supported. CIMdata welcomes this announcement as Creo is the last remaining, premium solids-modeling solution in the industry to support multi-body.

In a session on the ThingWorx platform and solutions, Mr. Joe Biron, PTC CTO IoT was joined by Mr. Howard Heppelmann, PTC GM Smart Connected Operations, Mr. Iain Michel, PTC General Manager ThingWorx IoT, and Mr. Kevin Wrenn, PTC Divisional GM, PLM Segment. Mr. Biron stated that PTC has four platforms—3D Platform, PLM Platform, IoT Platform, and Experience Platform and across these are four investment areas:

- Enabling solutions for IoT and AR-enabled engineering, service, and manufacturing
- System stability, scalability, and security
- Lifecycle management of solutions
- Improved interoperability with strategic partners (i.e., Microsoft, Rockwell Automation, ANSYS)

During a one-on-one session CIMdata had a chance to probe further regarding the PTC-Rockwell Automation relationship. Announced one year ago, this relationship has the hallmarks of a well-planned and, to date, well executed strategic partnership. During the first six months both companies realigned several of their business departments, e.g., sales, to work together to create a combined product solution. This co-branded “Factory Innovation Suite Powered by PTC” consists of Kepware, ThingWorx, and Vuforia from PTC and Factory Talk Analytics and Factory Talk MES from Rockwell Automation. PTC stated that, over the past six months, the joint team has closed almost 40 deals—50% non-Rockwell customers and 70% non-PTC customers, and has generated a significant pipeline of business opportunities. Going forward, both companies plan to expand their joint offerings by embedding PTC IoT and AR technology and solutions into Rockwell Automation products, and potentially into Rockwell Automation partners’ products. CIMdata believes that this relationship can provide significant business opportunities for both Rockwell Automation and PTC. At this time the relationship does not include CAD or PLM—two areas that CIMdata thinks could provide additional opportunity for both companies.

Mr. David Breugh, Microsoft Manufacturing Lead–Americas, presented an insightful talk on “Digital Transformation for the Industrial Enterprise.” He stated that AI is transforming the workforce in areas from talent management, skills enhancement, productivity enablement to the work environment itself.

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Mr. Breagh stated that AI is also transforming manufacturing execution and powering intelligent supply chain operations. He then described three waves of digital transformation:

- Wave 1—**Connected** in which companies and process are more integrated and aligned, using the cloud to connect and automate
- Wave 2—**Predictive** in which companies will work smarter and faster as they move from reactive to predictive using big data, machine learning, and IoT
- Wave 3—**Intelligent and Empowered** in which companies will use algorithmic decision making and automated execution

Additionally, he shared transformation lessons from industry leaders. These include:

- What to Do—Take a “digital first” mindset and align top leaders on a shared vision
- Where to Focus—Prioritize opportunities based on potential value and develop a balanced roadmap
- How to Do It—Establish proactive governance and change leadership and use transformation experts to lead until you are ready

CIMdata thinks that Mr. Breagh’s examples and insights are very practical and useful, and can help guide companies through their digitalization journey.

## Concluding Remarks

LiveWorx continues to be an exciting event showcasing PTC’s commitment to helping their customers create, deliver, and operate smart connected products and systems. No longer focused on just IoT, LiveWorx showcases the full range of PTC solutions and partnerships. Sessions covered all of PTC’s products and technologies, and demonstrated PTC’s broad suite of solutions to better address the full product lifecycle. CIMdata thinks that PTC’s strategic relationships, e.g., ANSYS, Rockwell Automation, and Microsoft, are delivering new and valuable capabilities for their customers. PTC continues to maintain its position on the forefront of IoT and AR development and adoption, while enhancing and evolving its traditional CAD and PLM solutions. Finally, CIMdata heartily agrees with Mr. James Heppelmann’s statement that PLM is more important than ever as companies proceed down their digitalization transformation journey.

## 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.

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## Acquisitions

### ***IBM Closes Landmark Acquisition of Red Hat for \$34 Billion; Defines Open, Hybrid Cloud Future***

9 July 2019

IBM and Red Hat announced today that they have closed the transaction under which IBM acquired all of the issued and outstanding common shares of Red Hat for \$190.00 per share in cash, representing a total equity value of approximately \$34 billion.

The acquisition redefines the cloud market for business. Red Hat's open hybrid cloud technologies are now paired with the unmatched scale and depth of IBM's innovation and industry expertise, and sales leadership in more than 175 countries. Together, IBM and Red Hat will accelerate innovation by offering a next-generation hybrid multicloud platform. Based on open source technologies, such as Linux and Kubernetes, the platform will allow businesses to securely deploy, run and manage data and applications on-premises and on private and multiple public clouds.

"Businesses are starting the next chapter of their digital reinventions, modernizing infrastructure and moving mission-critical workloads across private clouds and multiple clouds from multiple vendors," said Ginni Rometty, IBM chairman, president and CEO. "They need open, flexible technology to manage these hybrid multicloud environments. And they need partners they can trust to manage and secure these systems. IBM and Red Hat are uniquely suited to meet these needs. As the leading hybrid cloud provider, we will help clients forge the technology foundations of their business for decades to come."

"When we talk to customers, their challenges are clear: They need to move faster and differentiate through technology. They want to build more collaborative cultures, and they need solutions that give them the flexibility to build and deploy any app or workload, anywhere," said Jim Whitehurst, president and CEO, Red Hat. "We think open source has become the de facto standard in technology because it enables these solutions. Joining forces with IBM gives Red Hat the opportunity to bring more open source innovation to an even broader range of organizations and will enable us to scale to meet the need for hybrid cloud solutions that deliver true choice and agility."

Red Hat will continue to be led by Jim Whitehurst and its current management team. Whitehurst is joining IBM's senior management team, reporting to Ginni Rometty. IBM will maintain Red Hat's headquarters in Raleigh, North Carolina, its facilities, brands and practices. Red Hat will operate as a distinct unit within IBM and will be reported as part of IBM's Cloud and Cognitive Software segment.

Both companies have already built leading enterprise cloud businesses with consistent strong revenue growth by helping customers transition their business models to the cloud.

IBM's cloud revenue has grown from 4 percent of total revenue in 2013 to 25 percent today. This growth comes through a comprehensive range of as-a-service offerings and software, services and hardware that enable IBM to advise, build, move and manage cloud solutions across public, private and on-premises environments for customers. IBM cloud revenue for the 12-month period through the first quarter of this year grew to over \$19 billion. The Red Hat acquisition is expected to contribute approximately two points of compound annual revenue growth to IBM over a five-year period.

Red Hat's fiscal year 2019 revenue was \$3.4 billion, up 15 percent year-over-year. Fiscal first quarter 2020 revenue, reported in June, was \$934 million, up 15 percent year-over-year. In that quarter, subscription revenue was up 15 percent year-over-year, including revenue from application

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development-related and other emerging technology offerings up 24 percent year-over-year. Services revenue also grew 17 percent.

## **The Hybrid Cloud Opportunity**

Digital reinvention is at an inflection point as businesses enter the next chapter of their cloud journey. Most enterprises today are approximately 20 percent into their transition to the cloud. In this first chapter of their cloud journey, businesses made great strides in reducing costs, boosting productivity and revitalizing their customer-facing innovation programs. Chapter two, however, is about shifting mission-critical workloads to the cloud and optimizing everything from supply chains to core banking systems.

To succeed in the next chapter of the cloud, businesses need to manage their entire IT infrastructure, on and off-premises and across different clouds – private and public – in a way that is simple, consistent and integrated. Businesses are seeking one common environment they can build once and deploy in any one of the appropriate footprints to be faster and more agile. IBM's offerings have evolved to reflect new customer needs and drive greater growth. The acquisition of Red Hat further strengthens IBM as the leader in hybrid cloud for the enterprise.

"As organizations seek to increase their pace of innovation to stay competitive, they are looking to open source and a distributed cloud environment to enable a new wave of digital innovation that wasn't possible before. Over the next five years, IDC expects enterprises to invest heavily in their journeys to the cloud, and innovation on it. A large and increasing portion of this investment will be on open hybrid and multicloud environments that enable them to move apps, data and workloads across different environments," said Frank Gens, Senior Vice President and Chief Analyst, IDC. "With the acquisition of Red Hat, and IBM's commitment to Red Hat's independence, IBM is well positioned to help enterprises differentiate themselves in their industry by capitalizing on open source in this emerging hybrid and multicloud world."

The collective ability of IBM and Red Hat to unlock the true value of hybrid cloud for businesses is already resonating among customers moving to the next chapter of digital reinvention.

"Delta is constantly exploring current and emerging technology as we transform the air travel experience," said Ed Bastian, CEO, Delta. "We've been working with both IBM and Red Hat for years to deliver on that goal, and as they together build the next generation IT company, they will be an essential part of our digital transformation."

"As a long-standing partner of Red Hat and IBM, we look forward to capabilities that these two companies will bring together," said Michael Poser, Managing Director and Chief Information Officer, Enterprise Technology & Services, Morgan Stanley. "We know first-hand how important and impactful cloud technology contributes to unlocking business value."

## **IBM Reinforces Commitment to Open Source and Red Hat Neutrality**

IBM and Red Hat have deep open source values and experience. The two companies have worked together for more than 20 years to make open source the default choice for modern IT solutions. This includes the importance of open governance and helping open source projects and communities flourish through continued contribution.

With Red Hat, IBM has acquired one of the most important software companies in the IT industry. Red Hat's pioneering business model helped bring open source – including technologies like Linux, Kubernetes, Ansible, Java, Ceph and many more – into the mainstream for enterprises. Today, Linux is the most used platform for development. Red Hat Enterprise Linux alone is expected to contribute to



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more than \$10 trillion worth of global business revenues in 2019. By 2023, an additional 640,000 people are expected to work in Red Hat-related jobs.

IBM has committed to scaling and accelerating open source and hybrid cloud for businesses across industries, as well as preserving the independence and neutrality of Red Hat's open source heritage. This includes its open source community leadership, contributions and development model; product portfolio, services, and go-to-market strategy; robust developer and partner ecosystems, and unique culture.

Red Hat's mission and unwavering commitment to open source will remain unchanged, and Red Hat will continue to offer the choice and flexibility inherent to open source and hybrid IT environments. Red Hat also will continue to build and expand its partnerships, including those with major cloud providers, such as Amazon Web Services, Microsoft Azure, Google Cloud and Alibaba.

IBM and Red Hat also share a strong commitment to social responsibility and a sense of purpose for applying technology and expertise to help address some of the world's most significant societal challenges. Together, the two companies have committed to expanding this longstanding commitment through new joint initiatives, addressing education and skills, civic and societal needs and Science, Technology, Engineering, and Math (STEM) workforce development. For more information visit: <https://ibm.com/blogs/corporate-social-responsibility/2019/07/be-open-and-change-the-world/>.

For more information on today's news, visit: <https://newsroom.ibm.com/> and <https://www.ibm.com/redhat>.

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## ***Matterport to acquire AI-driven production platform Arrai***

10 July 2019

[Matterport](#) announced today that it intends to acquire [Arrai](#), the pioneer behind breakthrough machine learning and computer vision technology that allows visual creators to integrate real and virtual worlds.

Matterport introduced the category of affordable 3D capture for business and has increased adoption of 3D capture and visualization technology across industries, including architecture, engineering and construction (AEC); insurance, restoration, and property claims; travel and hospitality; residential and commercial real estate; among others. Arrai has developed a self-improving artificial intelligence (AI) software that leverages machine learning and computer vision to unlock new techniques for integrating real and virtual digital imagery.

Upon completion, the acquisition will integrate Arrai's core engineering team into Matterport in support of the company's mission to build the industry's leading computer vision data platform. [Earlier this year](#), Matterport took a significant step toward achieving this aim with the launch of its proprietary cloud software, Matterport Cloud 3.0, and AI engine Cortex, leveraging AI-powered image-processing technology to transform panoramic and 360-degree images into fully immersive 3D models; understand objects, rooms and the detailed characteristics of a space and label specific rooms on a floor plan.

"Arrai has assembled some of the very best minds in the industry to solve really hard problems in machine learning and computer vision today," said [RJ Pittman](#), CEO of Matterport. "By integrating Arrai's groundbreaking technology and talented team, we will be able to accelerate the creation of new products and features that will make Matterport significantly more powerful and accessible to both new

and existing users."

"The Arraiy team is thrilled to join with Matterport to continue to innovate with computer vision and machine learning," said Ethan Rublee, CTO and founder of Arraiy. "I'm convinced that Matterport's platform will enable incredible opportunities to leverage AI in the places we live and work."

The Arraiy acquisition will also bring Matterport into close collaboration with [OpenCV](#), the AI industry's leading open source computer vision and machine learning software initiative, led by Arraiy co-founder Gary Bradski.

"We look forward to working closely with our newest team members and the Arraiy CV tech stack, along with Gary Bradski and the OpenCV initiative to expand our role helping to shape the computer vision industry," said Dave Gausebeck, co-founder and CTO of Matterport.

"Matterport's industry-leading 3D capture technology has harnessed the power of computer vision and deep learning to transform multiple industries throughout the built world," said Bradski. "We see fresh potential to further disrupt these markets by leveraging our combined advancements in the field of computer vision and machine learning."

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## Company News

### ***Arena Solutions Increases Global Reach with Expanded EMEA Partnerships***

11 July 2019

[Arena Solutions](#) has broadened its sales channel in the EMEA region—adopting a think global, act local approach that considers local customs, language, and culture. This new strategic partnership with solutions provider [eBOM](#) will assist Arena in expanding its customer base throughout Europe and in Israel.

“The new strategy is driven by Arena’s continued growth and success in the EMEA region, which has been strongly supported by eBOM in its previous role as an integrator and VAR,” said Craig Livingston, Arena’s president and chief executive officer. “eBOM is seeing an average increase of 43 percent in annual recurring revenue over the last four years. Its exceptional sales model has contributed greatly to our expansion in the region and we expect it will continue to help us with an expanded global reach.”

Under the new partnership, eBOM will be able to replicate its successful sales model to all resellers in EMEA and Israel by enabling companies to streamline collaboration with distributed teams and supply chains throughout the new product development process.

“We are extremely excited to be able to expand our expertise even further in EMEA and now Israel,” said Daniel Nihlen, CEO and co-founder of eBOM. “Our long-standing relationship and success with Arena positions us to extend best practices and services to our target markets. We look forward to broadening our reach into new geographic areas. Arena’s solutions are helping customers, many of which are producing complex high-tech products, to develop and launch new products faster with better quality and fewer quality issues.”

With eBOM on board, Arena will extend its leadership position internationally as it builds upon its global-leadership competencies. Through unification of product development and quality processes,

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Arena can help global enterprises accelerate new product introduction to increase competitiveness and profitability.

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## ***Computer Aided Technology Continues Expansion***

1 July 2019

Computer Aided Technology (CATI) announced today their ability to provide SOLIDWORKS solutions in Minnesota and Iowa. Supporting clients in Minnesota and Iowa with [Stratasys 3D Printing Solutions](#) since 2013, the expanded offer makes Computer Aided Technology the region's only single source for both SOLIDWORKS Software and Stratasys 3D Printers.

“We are excited to be able to offer our full portfolio and range of expertise to clients in Minnesota and Iowa. We look forward to helping many new customers grow their business,” said Rich Werneth, President of Computer Aided Technology. “They will have access to local resources for [SOLIDWORKS training](#) and [support](#) as well as the combined knowledge of our entire organization.”

This expansion will provide manufacturers and engineers in Minnesota and Iowa with a wide range of industry-leading product development solutions including those of InFlow Technology. [InFlow Technology is a wholly owned subsidiary of CATI](#) dedicated to PLM and PDM. InFlow Technology is among an elite group of companies to be certified as a [SOLIDWORKS PDM Service](#) Provider.

Computer Aided Technology will support their Minnesota clients from their current Eden Prairie, MN office. Plans are already underway for renovation of that space to include a state of the art SOLIDWORKS training facility. Iowa clients will be supported from a new facility in Des Moines, IA.

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## ***CONTACT Software presents Collaboration Hub at Daimler EDM CAE Forum***

11 July 2019

At this year's EDM CAE Forum, CONTACT Software shows how efficient collaboration across company boundaries can be realized.

Mergers and alliances are becoming more and more important for companies. A decisive success factor for development cooperation is a data and process management that makes secure and efficient work across companies possible.

CONTACT Software presents an example of digital data and process management based on a merger of different companies or organizational units. The aim is to connect existing heterogeneous systems using a collaboration hub and thus make the data available regardless of where it originates and without interfering the existing architecture. This lecture is titled "Collaboration Hubs: PLM Coupling and Contractor Portals for Joint Engineering".

The presented solution uses the CONTACT Elements platform and links different forms of partner and supplier integration with modern PLM technologies. This includes fast on- and off-boarding of partners for cross-company workflows in interaction with specialized applications such as parts lists, CAD data

and document management.

This year's motto of the Daimler EDM CAE Forum is "Communicating. Cooperate. Inspire." In the context of specialized lectures the newest technologies and innovations of the automotive industry are presented. In addition, the exhibition offers an insight into current EDM and CAE topics.

The event will take place from 17 to 18 July 2019 at the ICS of the Stuttgart Exhibition Centre. CONTACT Software can be found at booth A228-229. Further information on the event can be found [here](#).

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## ***DESL Celebrates 10 Years as a Microsoft Gold Certified Partner***

10 July 2019

DeSL celebrates its tenth consecutive year as a Gold Certified Partner in the Microsoft Partner program. Gold is Microsoft's highest level of certification used to demonstrate proven expertise and best-in-class capability. DeSL has distinguished its business competency and specialization as not only a Microsoft Gold Partner, but an Independent Software Vendor (ISV) as well. An ISV describes companies developing, marketing, and selling software running on third-party software and hardware platforms, including Microsoft's.

"We are extremely proud of our ongoing recognition as a Microsoft Gold Certified Partner" stated Dave Richards, Co-Founder and Director of DeSL, "This translates directly to our ongoing efforts to develop the best software solutions for our clients."

Gold certification is exclusively awarded to best-in-class partners that must meet the highest standards set forth by Microsoft. To accomplish this task, DeSL was required to demonstrate development quality, meet a performance commitment, and submit customer references that demonstrate successful projects.

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## ***Oracle Names Rona Fairhead to the Board of Directors***

10 July 2019

The Oracle Board of Directors today announced that it has unanimously elected Rona A. Fairhead to the company's Board of Directors. The election is effective as of July 31, 2019 and increases the size of the Board to 15 directors.

"I am very pleased to welcome Mrs. Fairhead to the Board," said Larry Ellison, Chairman of the Board of Directors and Chief Technology Officer. Bruce Chizen, Chair of the Nomination and Governance Committee, added, "Mrs. Fairhead is an accomplished leader with extensive international experience in finance, risk management, government affairs and global operations. The Board will benefit from her unique perspective."

Mrs. Fairhead, 57, most recently served as Minister of State for Trade and Export Promotion, Department for International Trade in the United Kingdom from September 2017 to May 2019. She previously served as Chair of the British Broadcasting Corporation Trust (BBC) from 2014 to 2017.

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From 2006 to 2013, Mrs. Fairhead served as Chair and Chief Executive Officer of the Financial Times Group Limited, which was a division of Pearson plc, and, prior to that, she served as Pearson's Chief Financial Officer. Before joining Pearson, Mrs. Fairhead held a variety of leadership positions at Bombardier Inc. and Imperial Chemical Industries plc. Mrs. Fairhead previously served as a director of HSBC Holdings plc and PepsiCo, Inc.

Members of Oracle's Board of Directors serve one-year terms and stand for election at the company's next annual meeting of stockholders in November 2019.

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## ***Propel Continues Commercial Team Expansion with PLM and High Tech Industry Veterans***

11 July 2019

[Propel](#) announced the promotion of September Higham to Vice President of Professional Services, as well as the addition of Bill Aston as Executive Vice President of Sales, Kevin Crothers as Vice President of Solution Consulting, and Suresh Haridas as Vice President of High Tech Industry Marketing. Higham has been with Propel since 2016, while Aston, Crothers, and Haridas join the company following the recent additions of Dario Ambrosini as Chief Marketing Officer and Kishore Subramanian as Vice President Engineering.

Propel was founded in 2015. Four years later, we see Fortune 500 companies rapidly accelerating requests for the next-generation cloud-based PLM in the first half of 2019. After [record revenue growth in FY 2019](#), Propel is forecasted to grow even faster in FY 2020 as companies continue to embrace PLM in the cloud.

“We founded Propel in 2015 because we knew the next-generation of companies would choose a fresh approach to product lifecycle management over older legacy systems,” said Ray Hein, CEO. “We are seeing this transformation taking place now, with technology leaders making the move to the cloud. September, Bill, Kevin, and Suresh will help us capture additional market share as [PLM](#) catches up to other major software categories that have already moved to the cloud.”

Propel is the only next-generation cloud-based multi-tenant solution that combines the functionality of [product lifecycle management](#), [product information management](#), and [quality management](#) into a single solution that helps companies get the right [products to market faster](#). Its unique approach fosters greater collaboration across entire organizations and geographic locations, helping to manage the entire product lifecycle from concept-to-customer.

Higham joined Propel in March 2016 as the Director, Professional Services. She is a seasoned software industry veteran and brings over two decades of enterprise software solutions experience from several companies, including Agile Software and Arena Solutions.

Aston joins the sales team from Cyara, a leading CX Assurance platform provider, where he was GM, Americas. He is a software industry veteran and brings over two decades of enterprise software sales, operations and field experience from several companies, including Agile Software.

Crothers joins the engineering solutions team from Pramata, a billing optimization platform, where he was the Vice President of Solution Consulting. His previous experience includes senior positions in technical sales and marketing at Oracle, Agile Software and PTC, which grew from a \$2 million startup

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to \$1.2 billion in revenue during his tenure.

Haridas joins the marketing team from Nvidia, where he was the Director, Supply Chain Operations. His previous experience includes sales, business development, and operations at PTC and Flex, where he was responsible for implementing the company's worldwide PLM system.

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## ***PTC Named a Visionary in Industrial IoT Platforms for the Second Consecutive Year***

9 July 2019

PTC today announced that it has been positioned in the Visionaries quadrant for Industrial IoT Platforms by an independent industry analyst firm. According to the report, PTC placed highest for its ability to execute for the second consecutive year.

“We are pleased to once again be named a Visionary in [the report] for Industrial IoT Platforms,” said Jim Heppelmann, president and CEO, PTC. “We believe that being positioned as the highest in ability to execute for the second year in a row underscores our commitment to IIoT and continues our trajectory toward being recognized as the definitive market leader.”

PTC's ThingWorx® industrial innovation solutions platform is the centerpiece of its IIoT technology portfolio. Comprised of a rapid application development platform, device connectivity, machine learning capabilities, augmented reality, and integration with leading device clouds, ThingWorx delivers a comprehensive IIoT technology stack that enables customers to securely connect assets, quickly create applications and experiences, and innovate new ways to capture value. PTC also offers a wide range of solutions that extend the ThingWorx platform with packaged capabilities based on the most common use cases found in industrial settings.

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## ***The Schneider Electric Foundation partners with the Solar Impulse Foundation***

9 July 2019

Solutions already exist for accelerating the necessary ecological transition, but to find and implement them remains a challenge. The Schneider Electric Foundation, under the aegis of the Fondation de France, has entered a four-year partnership with the Solar Impulse Foundation, which is selecting 1,000 solutions that protect the environment in a profitable way and awarding them the Solar Impulse Efficient Solution label. This label promotes solutions, assessed by independent experts, that combine technical innovation, profitability and environmental protection, demonstrating that solutions to fight climate change do exist and should not be regarded as expensive fixes but tremendous opportunities for clean growth.

### **Through its Foundation, Schneider Electric experts are helping assess the solutions faster**

“By contributing to this project through the Schneider Electric Foundation, we want to push our employees to develop new solutions and implement the available ones,” stated Jean-Pascal Tricoire,

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Chairman and CEO of Schneider Electric and President of the Schneider Electric Foundation. “The Solar Impulse and Schneider Electric Foundations are both pragmatic organizations. Bertrand Piccard and I believe in innovation and creating solutions to fight climate change. The Schneider Electric Foundation aims to move forward in this pioneering spirit. Its role is to act as a catalyst of technological, social and entrepreneurial innovation, which will help close the energy gap and promote a fairer environmental transition worldwide.”

As a partner of the first zero emission polar scientific research station and the Low Tech Lab, the Schneider Electric Foundation is monitoring progress and serving as a liaison between the corporate sector and civil society. In this way, it is making a full contribution to Schneider Electric’s sustainability commitment.

## **Solutions to help reach the United Nations Sustainable Development Goals**

Through this partnership, Schneider Electric is helping accelerate the ecological transition and promote viable solutions to help achieve at least five of the 17 United Nations Sustainable Development Goals, and in particular:

- Clean, accessible water for all;
- Affordable and clean energy;
- Industry, innovation and infrastructure;
- Sustainable cities and communities; and
- Responsible consumption and production.

The aim of the Solar Impulse Foundation is to select and endorse 1,000 solutions that contribute to achieving at least one of these five goals and meet the following criteria: technical feasibility, environmental benefits and profitability. Bertrand Piccard, Chairman of the Solar Impulse Foundation, will then promote this portfolio of solutions to corporate and political leaders worldwide. To date, 179 solutions have already received the Solar Impulse Efficient Solution label, including biodegradable packaging made from milk protein, a solar-powered water purification plant, an enzyme-based plastic recycling technology and a zero-waste construction process.

“The successful companies of tomorrow are those who understand the need to act in energy efficiency today and have seized all the opportunities offered by the protection of the environment,” said Bertrand Piccard, Chairman of the Solar Impulse Foundation. “Through this partnership with the Solar Impulse Foundation, Schneider Electric is again showing a pioneering spirit and proves that it is fully aware of its role in the ecological transition. Together, we will make every effort to accelerate the selection of profitable solutions that can protect the environment and we will work towards their large-scale deployment.”

## **A dedicated ecosystem of experts**

The Solar Impulse Efficient Solution label is awarded to solutions after the assessment of a six-part application file, including an evaluation of their lifecycle (carbon emissions, recyclability, etc.), business model and the target country for implementation.

These applications are submitted by innovators and analyzed through an online platform developed by the Solar Impulse Foundation to guarantee the anonymity of the projects and experts involved. This process can take several days or even weeks, requiring input from numerous volunteer experts specialized in at least one of the five goals mentioned earlier.

# CIMdata PLM Industry Summary

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The Schneider Electric Foundation will promote the project within Schneider Electric to mobilize experts, such as Nicolas Plain, a research engineer working on renewable energy mini-grids for Africa.

In addition, through its VolunteerIn program, the Foundation will do everything possible internally to ensure the success of this project. A steering committee of teams from all over the world will be set up to select Group solutions that protect the environment and enable access to electricity. These include, for example, Homaya, a complete photovoltaic electrification system for isolated homes, and Mobyia, a solar-powered system for lighting and charging communications devices.

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## ***Supply & Demand Chain Executive Selects NGC as a 2019 SDCE 100 Award Winner***

9 July 2019

New Generation Computing, Inc. (“NGC”) today announced that it was selected as a recipient of Supply & Demand Chain Executive’s 2019 SDCE 100 Awards for the ninth consecutive year.

The SDCE 100 is an annual list of 100 great supply chain projects that serve as a map for supply chain executives who are looking for new opportunities to drive improvement in their own operations. The award spotlights successful and innovative transformation projects that deliver bottom-line value and achieve supply chain excellence.

This year, NGC was recognized for its work with [Jockey International, Inc.](#), a 143-year-old brand recognized around the world for its premium underwear and apparel. Jockey needed a common platform for all PLM-related elements, with one source of information for all departments and vendors. The brand sought to manage workflows in a global, collaborative environment to increase speed to market and manage lead times as effectively as possible. The company implemented NGC’s Andromeda PLM® to give users real-time visibility and control from product concept to customer availability.

Using Andromeda PLM, Jockey has decreased lead times by as much as two to eight weeks. Jockey has also seen significant operational improvements, thanks to process consolidation and streamlining, fewer clicks, and significant overall time savings with Andromeda PLM. Jockey can also evaluate, manage and report on vendor performance using the vendor management features in Andromeda®, which contributes to the company’s lead time reduction and allows it to quickly resolve any issues with vendors.

“NGC is proud to be recognized once again for our work in helping leading apparel brands and retailers like Jockey implement innovative solutions that improve product development and supply chain processes,” said Mark Burstein, president, NGC. “This is one of many examples of how Andromeda is helping companies streamline product development, reduce costs and quickly respond to customer demands.”

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## ***Vectorworks, Inc. Named a Finalist in 2019 Architizer A+Awards***

1 July 2019



# CIMdata PLM Industry Summary

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Global design and BIM software provider [Vectorworks, Inc.](#) announces its selection as a finalist for the [2019 Architizer A+Awards](#). Vectorworks Architect 2019 is one of four contenders in the Design Tools – Apps & Digital Tools category, competing for two of the most sought after awards: The Architizer A+ Jury Award and the Architizer A+ Popular Choice Award.

“It’s an incredible accomplishment to be a finalist in the highly-respected Architizer A+Awards, as the architecture market is filled with fierce competition,” said Jeremy Powell, vice president of marketing at Vectorworks. “Vectorworks Architect 2019 was created with a focus on increasing design efficiency through overall performance and quality, adding new innovations and enhancements to further improve 3D and BIM modeling, 2D documentation and presentation workflows. Designers will see a dramatic impact on productivity, thus making their day-to-day work faster and easier.”

The seventh annual awards are judged by a diverse jury from fields such as fashion, publishing, product design, real estate development and tech, including Denise Scott Brown and Tom Kundig, as well as personalities from beyond architecture like Tony Hsieh (CEO, Zappos), Yves Behar (Fuseproject), John Edelman (CEO, Design Within Reach), Cameron Sinclair (Architecture for Humanity) and Barry Bergdoll (MoMA).

The Architizer A+ Popular Choice Award is chosen through online public voting. Voting is open now until July 5. Winners for both awards will be announced on July 9.

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## ***World Economic Forum Selects Onshape as a 2019 “Technology Pioneer”***

1 July 2019

Onshape has been selected as one of the world’s 56 most promising “Technology Pioneers” by the World Economic Forum. Onshape speeds up product development with an all-in-one system combining CAD, release management, workflow, collaboration, analytics, admin tools, and an API with more than 50 engineering applications.

The World Economic Forum’s Technology Pioneers are early-to-growth-stage companies that are involved in the design, development and deployment of new technologies and innovations, and are poised to have a significant impact on business and society. Technology Pioneers are chosen by a [selection committee](#) of academics, entrepreneurs, venture capitalists and corporate executives. Past recipients include Airbnb, Google, Kickstarter, Mozilla, Palantir Technologies, Spotify, TransferWise, Twitter and Wikimedia.

“We’re excited to welcome Onshape to this year’s innovative class of technology pioneers,” says Fulvia Montesor, Head of Technology Pioneers at the World Economic Forum. “Onshape and its fellow pioneers are leaders in using novel technologies to transform their industries. We see great potential for these next-generation companies to shape solutions to global challenges and improve society for years to come.”

This year’s Tech Pioneers are emerging innovators from a diverse set of industries, including: . agtech, smart cities, cleantech, supply chain, manufacturing, cybersecurity, autonomous vehicles and drones. The diverse 2019 class of honorees represent every continent except Antarctica and 25% of the companies are female led.

“It’s gratifying to be recognized as a technology pioneer by the World Economic Forum,” says Jon

Hirschtick, Onshape co-founder and CEO. “We’re extremely proud of our role in helping international product development teams speed up communication, improve collaboration and expand their talent pools to develop better medical devices, machinery, robotics and countless other products that are making a better world.”

The full list of the World Economic Forum’s 2019 Technology Pioneers is available at <http://wef.ch/techpioneers19>.

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## Events News

### ***3DEXPERIENCE Modeling and Simulation Conference***

10 July 2019

We are excited to bring together the Dassault Systèmes design, modeling and simulation communities. Our goal is to enable collaboration and synergy so you can grow your skills, accelerate your career and become more valuable to your organization.

Connect to a wider community of users! By providing more presentations, more product and technology information, more networking opportunities and an expanded partner exhibition, this conference will inspire you to design and innovate the next generation of products.

**Date:** September 18-19 2019

**Location:** Novi, MI – USA

For more information, please visit [https://events.3ds.com/3dexperience-modeling-and-simulation-conference#\\_ga=2.152728507.301920323.1562761870-2cd30540-8c75-11e9-b5e8-01798d248483](https://events.3ds.com/3dexperience-modeling-and-simulation-conference#_ga=2.152728507.301920323.1562761870-2cd30540-8c75-11e9-b5e8-01798d248483)

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### ***PLM ReInvented MeetUp: PLM & ALM Integration – What’s the Best Automotive Integration Scenario?***

10 July 2019

What product management functions will be performed in ALM and PLM systems for Connected and Automated Vehicles? Will automotive software developers have their ALM system, and the MCAD/ECAD engineers have their PLM system or will there be tighter integration between these two systems?

**Join us** to explore these questions and others surrounding ALM & PLM integration at our upcoming meetup at the Microsoft Technology Center (MTC) at Campus Martius in downtown Detroit. Technical experts from Intland Software, maker of the codeBeamer ALM platform, and Aras, maker of the Innovator PLM platform, will share automotive challenges, opportunities, and customer input regarding the integration of these two platforms. Bring your ALM & PLM integration questions and concerns to

# CIMdata PLM Industry Summary

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the meeting for an open discussion. We will provide food, drinks, and a chance to win a door prize.

**Date:** July 25, 2019

**Time:** 5:30 PM - 8:00 PM EDT

**Location:** Detroit, MI – USA

For more information, please visit

[https://events.aras.com/PLMReInventedMeetUp\\_07252019?utm\\_source=Automation%20Alley](https://events.aras.com/PLMReInventedMeetUp_07252019?utm_source=Automation%20Alley)

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## *Simulation in the Automotive Industry: Creating the Next Generation Vehicle*

10 July 2019

The automotive engineering community is now confronting the largest technology transformation since its inception. This includes the electrification of powertrains for more efficient consumption and cleaner emissions, the reinvention of the battery with fast wireless charging capabilities and finally the advent of a fully autonomous vehicle. Compounding to these technology changes, the automotive companies design verification process is moving away from a major reliance on physical testing to almost a full virtual simulation product verification process.

Hence, the challenges to the automotive engineers are enormous and require a significant increase in the upfront use of numerical simulation capabilities, methods and processes such they're able to efficiently design, manufacture and deliver these very innovative technologies to the market in greater speeds than ever before.

Topics presented and discussed at this conference will address various questions, such as

- What CAE techniques are being used to drive various powertrain electrification design alternatives (i.e., HEVs, PHEVs, EBVs)
- How can I democratize engineering analysis & simulation through automation, embedded intelligence and smart processes?
- How do I overcome technical challenges to enable faster & smoother transition from physical to virtual Design Validation testing?
- What are the latest simulation solutions/techniques applied to deliver current and future sustainability requirements (e.g., light weighting, alternative-propulsion, fuel economy, ultra-low emissions)?
- What are some pragmatic simulation case studies applicable to the design & development of level-4 & level-5 autonomous vehicles?
- What steps should I take when exploring the widening technology landscape (i.e., application of AI, generative-design, etc.)?
- How can I better leverage systems modeling & simulation to improve the safety, reliability, NVH and functional performance of next-generation vehicles?

## Description

NAFEMS Americas and invited speakers will cover these topics, and more, at, "Engineering Analysis & Simulation in the Automotive Industry: Creating the Next Generation Vehicle." Located at the MEC in Troy, MI, attendees from the major automotive manufacturers and suppliers will gather at this annual event, in a pre-competitive manner, to exchange ideas, identify best practices, and drive the near-future direction of technology.

This event aims to deliver information and insights on critical topic areas in a manner that maximizes the "take-away" value for attendees. An event agenda and concept championed by several leading figures in the automotive industry will provide the opportunity to learn about the latest technologies and practices, which attendees can later share and apply within their own organizations.

## Call for Abstracts

We invite you to submit an abstract for presentation at "Simulation in the Automotive Industry: Creating the Next Generation Vehicle." The abstract submission deadline is **Friday, July 26th, 2019**. For more information, visit "[Call for Abstracts](#)."

**Date:** November 14th, 2019

**Location:** Troy, MI (USA)

For more info, please visit <https://www.nafems.org/events/nafeMS/2019/simulation-in-the-automotive-industry-creating-the-next-generation-vehicle-2019/>

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## Financial News

### ***Dassault Systemes to Publish its Second Quarter 2019 Results, Webcast and Conference Call on July 24th 2019***

11 July 2019

[Dassault Systèmes](#) will publish its operating performance for the second quarter 2019 ended June 30th, 2019 on Wednesday, July 24th, 2019.

The management of Dassault Systèmes will host a webcast at 10.00 am Paris time – 9.00am London time, and will then also host a conference call at 9:00am New York time - 3:00pm Paris time - 2:00pm London time.

Both the webcast and the conference call will be available live on Dassault Systèmes' website at <https://investor.3ds.com>.

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### ***PTC to Announce Fiscal Q3'19 Results on Wednesday, July 24th***

10 July 2019

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PTC will release its fiscal 2019 third quarter results on Wednesday, July 24<sup>th</sup> after the stock market closes. Senior management will host a live webcast and conference call to review the results on Wednesday, July 24<sup>th</sup> at 5pm Eastern Time. The earnings press release and accompanying prepared remarks will be accessible prior to the conference call and webcast on the Investor Relations section of the Company's web site at [PTC Investor Relations](#).

Dial-in: 1-773-799-3757 or 1-800-857-5592

Call Leader: James Heppelmann

Passcode: PTC

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### ***SAP to Announce Results for Second Quarter of 2019***

11 July 2019

SAP will release its results for the second quarter of 2019 on Thursday, July 18.

SAP CEO Bill McDermott and CFO Luka Mucic will host an analyst conference call to present second quarter financial figures.

Media representatives may also listen in on the call via Webcast at 2:00 p.m. CET, accessible at <https://broadcast.co.sap.com/go/QReport>.

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### ***Stratasys Conference Call to Discuss Second Quarter 2019 Financial Results***

10 July 2019

[Stratasys Ltd.](#) will release financial results for the second quarter ended June 30, 2019 on Wednesday, July 31, 2019. The Company plans to hold the conference call to discuss its second quarter 2019 financial results on Wednesday, July 31, 2019 at 8:30 a.m. (ET).

The investor conference call will be available via live webcast on the Stratasys Web site at [investors.stratasys.com](http://investors.stratasys.com); or directly at the following web address: <https://edge.media-server.com/mmc/p/o8gp8wcb>.

To participate by telephone, the domestic dial-in number is (866) 394-5776 and the international dial-in is (409) 350-3596. The access code is 9771494.

Investors are advised to dial into the call at least ten minutes prior to the call to register. The webcast will be available for 90 days at [investors.stratasys.com](http://investors.stratasys.com), or by accessing the provided web address.

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## Implementation Investments

### *boohoo Goes Live with Visual Next End2End Suite*

9 July 2019

[Visual Next](#) is thrilled to announce that boohoo, leading UK online retailer, has successfully gone live with **Visual Next's End2End** suite of tools for the Wholesale arm of their business.

Boohoo elected to implement the **Visual Next** suite in order to harmonise the Wholesale/3rd party business. The boohoo team is currently utilizing **Visual Next's PLM, ERP, VIS** and **BI** tools to gain wider access and visibility of business processes, as well as to centralize procedures onto one platform.

Boohoo's business processes are now completely streamlined; many of their manual processes eliminated thanks to the implementation of the **Visual Next's End2End** Omnichannel Solution.

**Visual PLM** grants boohoo's commercial operation total control of the product development process and workflow, while **Visual ERP** and **Visual BI** grants them access to real-time reporting and statistics giving boohoo a platform they can build on and utilise in various areas of the boohoo domain.

Dudley George, Director of Wholesale at boohoo is confident that this will offer the business a single standardised model and the ability to operate effectively while protecting the bottom-line. "Introducing the **Visual Next** system will foster greater productivity, giving the entire team the appropriate tools needed to deliver on the overall business direction." He continues to explain that **Visual Next** was selected because of their strong and established reputation with twenty plus years of industry expertise. "**Visual Next** has a controlled and quick deployment process, their clear understanding of the needs of our business meant we could hit the road running with a dedicated team and resources from the UK."

Tony Mather, **Visual Next**, Managing Director for Europe has exclaimed that the overall goal of this implementation was met with great success. "The Professional Services team would like to thank the boohoo group for their dedication and drive to deliver this project effectively."

Founded 14 years ago in Manchester, northern England, boohoo has expanded quickly, listing its shares in 2014 and buying the Pretty Little Thing and Nasty Gal brands in 2017. Boohoo is tapping-in to a generation of younger consumers who shop on their mobile phones and share fashion tips through social media.

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### *Kovair Announces Partnership with PTC*

11 July 2019

Kovair Software announced the signing of a strategic partnership agreement with PTC as a Regional Service Provider out of its ALM-PLM Center of Excellence based in Bangalore, India headed by Mr. Murugan Krishnaswamy who brings over two decades of experience in the PLM domain.

Kovair, with its significant experience in the ALM domain with its own ALM Studio product as well as robust integrations with several third party products in ALM, DevOps, as well as PLM product domains like PTC Windchill and ARAS Innovator, is entering the growing domain of ALM PLM integrations and implementations.

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Major PLM vendors like PTC can obtain significant benefits from their partnerships with Kovair and its vast Omnibus integration portfolio of 90+ software Requirements, Development, Test, SCM, Release and Deployment Management as well as CRM and ITSM tools. As more and more systems in automotive, medical and industrial markets are becoming a combination of both software and hardware components including IOT, the collaboration and integrations between ALM and PLM products are taking on much more significance.

Through this strategic partnership with PTC, Kovair will be providing PLM consulting and implementation services to Companies, using PTC's flagship Windchill PLM platform, from the Kovair Center of Excellence in Bangalore. This partnership entitles Kovair to provide a suite of PLM services to the discrete manufacturing companies including Assessment Consulting, Green & Brown Field Implementations, Turn-key Integrations with a host of enterprise applications, Upgrades, Migrations, Customization and Support Services using PTC's Windchill PLM product suite.

Speaking about this partnership Kovair's Chairman and CEO Bipin Shah stated, "With a collective experience of more than 50+ years at the CoE in PLM domain and in-depth functional expertise and knowhow in lifecycle collaboration makes Kovair a unique partner to PTC for a successful application of model based systems engineering approach starting from Requirement to Release."

Acknowledging this point, Vice President & Country Head for PTC India, Mr. Kalyan Sridhar stated, "Today, collaboration complexity is one of the biggest challenges with the need to handle multi-disciplinary product structures including Software, Mechanical, Electrical and Electronics components constituting a heterogeneous Bill of Materials of a Smart Connected Product. Hence an efficient and holistic solution needs to accommodate a federated architecture to enhance the power of Model Based Systems Engineering tools & processes. Kovair, with its deep PLM domain experience coupled with a strong background in areas like Integration technologies is indeed uniquely positioned to offer a connected solution to address model-based systems engineering processes with PTC's Windchill playing a key role.

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## ***Paragon VTOL Aerospace leverages Siemens' Startup Program to streamline next-generation design***

9 July 2019

The need for increased performance and reduced time-to-market has led Paragon VTOL Aerospace, a global vertical take-off and landing (VTOL) aircraft provider for numerous industries, to adopt solutions from Siemens Digital Industries Software for its product development process. Paragon produces industry-specific drone hardware ranging from security applications for agricultural theft and commuter law adherence to human passenger drones. Paragon is also partnering with Aerotropolis Jamaica, a national project spearheaded by the Hon. L. Michael Henry in the Office of the Prime Minister, to build an ecosystem for Urban Air Mobility (UAM). The company plans to reduce the time and cost of its product development and testing through implementation of key technology from Siemens.

"Our vision is to provide a portfolio of intellectual property, industry specific drones, human passenger drones, and virtual highway platforms in Jamaica," said Paragon VTOL founder and oil executive Dwight Smith, a native Jamaican and American citizen. "We currently have plans to implement software and hardware programs in 2019 and begin testing their two to four passenger drones by year-end 2019."

# CIMdata PLM Industry Summary

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Paragon has been developing their platform and much of the technology through collaboration with Siemens Digital Industries Software, major American universities, Silicon Valley experts, and ex-military personnel. Siemens Digital Industries Software is providing an integrated set of software solutions for Paragon to design, test, produce, and monitor its extensive range of drone systems, as part of Siemens' new Aerospace Startup Program. The goal of this new program is for Siemens to partner with new businesses in Aerospace emerging technology markets, provide market-leading CAD and CAE software solutions, and help startups embrace digitalization in product development. This can ultimately help disruptive startups bring products to market faster, with less cost and decreased risk, while leveraging the Siemens ecosystem.

"The Aerospace industry is changing rapidly," said Bobby Blackmon, Director of Aerospace & Defense at Siemens Digital Industries. "Companies like Paragon are bringing new, emerging technology to market and changing the way we view the world. Siemens is proud to provide solutions from our market-leading Digital Innovation Platform to Paragon as part of our Aerospace Start-up Program."

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*World's largest fleet of mobile robotics moves ROVs into operation 20% faster with Vortex Studio*  
8 July 2019

CM Labs Simulations Inc. announced today that leading subsea engineering and applied technology company, Oceaneering Inc., has successfully integrated Vortex Studio into their planning and prototyping workflows for offshore tools.

Based in Houston, Texas, Oceaneering is a global player in engineered services and products for the offshore energy industry. With clients looking for a long-term partner to deliver safe and stable maintenance operations for multiple-years to decades at a time, Oceaneering's Digital Innovation Design Team was tasked with reassuring potential customers through simulation-based demos.

"Our artists excel at creating 3D models, but the systems in place did not let us move to the next level where we could simulate unique scenarios or make changes on the fly," said Stevens. "Even the smallest change required the scene to be re-rendered, easily taking five days or more."

As CM Labs' advanced suite of real-time simulation and visualization software, Vortex Studio offered Oceaneering the platform they were looking for; a fast-paced, user-centric prototyping tool, streamlined for the deployment testing, training, and customer engagement simulations.

Offering high-fidelity dynamics, cable-systems and hydrodynamics, Vortex Studio presented a robust feature set, perfect for the marine focused company.

"With increasingly complex projects, the Oceaneering team wanted to refocus their resources," explained Lisa Barbieri, CM Labs VP of Marketing & Customer Experience. "Vortex Studio allowed them to leverage their existing 3D artists in completely new ways."

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## Product News

### ***ANZ, Commonwealth Bank, IBM, Scentre Group, and Westpac Commence Live Pilot for Lygon, A Blockchain-based Platform to Transform the Bank Guarantee Process***

3 July 2019

ANZ, Commonwealth Bank, IBM, Scentre Group, and Westpac have jointly launched a live pilot for Lygon, a new digital platform using blockchain technology to transform the way businesses obtain and manage bank guarantees that are often required as part of a retail property lease.

The launch marks a significant milestone in the global development of blockchain solutions. Lygon represents an industry solution that the participants could not have individually implemented. The founding members have brought together their deep understanding of industry processes to navigate from proof of concept to a live platform that will directly benefit customers and address their feedback on the way in which bank guarantees have been issued to date.

Historically, bank guarantees have been issued manually and on paper. Digitising this process reduces the risk of fraud for all parties involved, decreases the potential for errors and significantly increases the speed of execution.

Initial findings suggest that the Lygon platform has the potential to reduce the time it takes to issue a bank guarantee from up to a month to on or around the same day. Lygon has the potential to benefit many sectors and to reduce the risk of fraud across billions of dollars guaranteed by the banks.

This new, digital process increases transparency and security through the use of blockchain technology while maintaining the privacy required in such a business process.

The pilot will run for eight weeks with live data and transactions for a test group of retail property leasing customers from 3 July. In subsequent phases, Lygon plans to expand the range of digitised bank guarantees that it supports across other industries as well as offering its services to other customers in the retail property sector.

Thousands of retailers around Australia - from single store operators to national and international brands - need bank guarantees from their banks to secure a lease over a retail tenancy.

The pilot will involve lease holders with retail outlets in some of Scentre Group's Westfield living centres across Australia. After the pilot, Lygon intends to offer access to the platform to all issuers, applicants, and beneficiaries and support broader use cases over time.

The Lygon platform will be operated by Lygon 1B Pty Ltd, a company jointly owned by the five founding members.

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### ***Bamboo Rose Launches Solutions for SMBs and Manufacturing***

27 June 2019

# CIMdata PLM Industry Summary

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[Bamboo Rose](#) announces today the launch of Bamboo Rose for Small and Medium-Sized Business (SMB), and Bamboo Rose for Manufacturing, two new offerings from the Bamboo Rose platform. Bamboo Rose for SMB is tailored for the innovative, high-growth SMB industry, and Bamboo Rose for Manufacturing provides manufacturers with a platform to connect directly to their customers and community, in a seamless way.

Finding success in the new digital economy for SMBs means companies need to have the ability to leverage product development, global trade management (GTM), and supply chain solutions without requiring a large IT department for deployment. Benefits include:

- Award-winning software for Tier-1 enterprises modeled for the SMB market
- Rapid implementation that drives down 80 percent of the implementation cost
- A one-stop shop platform, supporting growth and global expansion, for product development innovation, sourcing, GTM and supply chain
- Access to business services for supply chain, including customs house clearance, freight forwarding, as well as product and factory inspection at better than market rates

Faced with new market imperatives to differentiate and modernize, Bamboo Rose for Manufacturing offers firms the ability to transform their go-to-market strategies with new advancements for complex product configuration and collaborative product development. The solution provides:

- Full support for all business needs from ideation through production, sales and delivery
- A single B2B marketplace for collaboration with customers and global markets to extend their sales reach
- Access to new sources for components and services to reduce product costs

“With vast digital offerings available to companies of all sizes, SMBs need a digital platform to compete. But the options and scale can be overwhelming,” said Sue Welch, chief executive officer, Bamboo Rose. “Bamboo Rose for SMB is easily rolled out and implemented with a streamlined user interface, allowing easy navigation without the need for a large IT department. Bamboo Rose for Manufacturing helps manufacturers directly connect with their customers, suppliers and the rest of their community. By giving them a platform to collaborate with suppliers and partners, as well as display their products, we give them the power to sell directly to their customers in a unified way.”

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## ***Centric Software PLM Enhances Adobe® Illustrator Integration with Adobe® Connect Update***

9 July 2019

Centric Software is proud to announce that version 6 of Adobe® Connect, the Centric innovation that integrates Adobe®Illustrator within Centric Product Lifecycle Management (PLM) is now available.

Seamlessly connected to Centric 8 PLM and Centric SMB PLM, Adobe®Connect enables designers and product developers to sketch, create colors and build out other details for design briefs and product specifications within Adobe® Illustrator, the industry-standard vector graphics app for sketching, illustration, logo, icon and typography design. Designers and product developers access product related information shared by other teams in Centric PLM such as details about colors, fabrics, trims and other

## CIMdata PLM Industry Summary

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materials but work completely from within the Illustrator interface. Creative and technical teams can seamlessly collaborate using the two platforms, using whichever user experience they prefer, empowering designers, merchandisers, product developers, sourcing and retail teams to work harmoniously.

In version 6 of Adobe® Connect, designers initiate styles and materials from within the Illustrator environment by working from templates or creating new items, speeding up and streamlining the process of beginning a new design.

"Adobe® Connect minimizes non-value-added work for designers so that they can focus on the creative and technical aspects of products," explains Ron Watson, VP Product at Centric Software. "Designers upload files to Centric PLM to share across carryovers or similar products, eliminating the need to manage a separate file for each individual style. They don't need to go into Centric PLM when they start working on a new concept. They can begin immediately in Illustrator while their work is seamlessly updated in PLM, enabling closer collaboration with other teams."

"Centric Software's Adobe® Connect makes it easier for our designers to focus on their creative work while staying in their preferred environment. By seamlessly accessing textiles, fabrics and colors from within Centric PLM, our design teams have eliminated re-work and time spent searching for data resulting in shorter product development times for all of our collections. The deep integration with Centric PLM offers a more streamlined experience while allowing increased collaboration across our teams," says Jorge Mario Serrate, Chief of Solutions at Studio F, a leading Colombian womenswear brand.

The latest release includes many automations such as accelerating the development of carryovers, localization to meet translation needs, re-sizing images, colorway development and handy time saving improvements such as type ahead functionality.

"We are committed to creating market-leading, innovative solutions that meet the evolving needs of our customers," says Chris Groves, President and CEO of Centric Software. "The latest release of Adobe® Connect builds a seamless bridge between Adobe® Illustrator and Centric PLM that empowers designers without disrupting creative flow and ultimately shortens the product development lifecycle."

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### ***Gerber Technology Software Suite is Now Available as Subscription***

25 June 2019

As a leader in innovation for 50 years, Gerber Technology has always been dedicated to improving the way their customers work. Gerber has been a leader in productivity tools such as [AccuMark®](#) and the subscription-based [YuniquePLM®](#). As the need for speed and agility increases, Gerber continues to listen to their customer base and is now expanding the options to purchase and adopt their tools. Through their **new subscription-based bundles**, Gerber will enable companies of all sizes, and across various markets, to keep up with the ever changing trends by providing affordable access to the latest versions of AccuMark®, the industry-leading pattern design, grading, marker making, production planning and 3D simulation software. Gerber's PLM offering has been available on a subscription basis for the last 3 years, and has been hugely successful. The addition of AccuMark subscriptions underscores Gerber's leadership in business model innovation in its industries.

# CIMdata PLM Industry Summary

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“We are continuously looking for ways to help our customers win and that means providing them with the most innovative technology and new ways of engaging with us,” said Gerber’s Chief Strategy and Digital Officer Karsten Newbury. “Our subscription-based model is not only going to address the needs of our current customers, it will also empower the next generation of great innovators and disruptors to enter the market.”

Gerber’s subscription model provides the flexibility and speed that companies need to flourish in today’s on-demand world. The new business model will:

- Allow customers to pay for the AccuMark software suite through a subscription.
- Make the software more affordable, lowering the cost of entry for newcomers.
- Pair Gerber’s best-in-class software solutions together through bundling options, enabling users to more easily connect their workflows.
- Offer more flexibility through keyless licensing.
- Provide easy access to extensive online and phone support, as well as Gerber’s online community of users and experts.

Gerber’s subscription offering will begin with AccuMark 2D and two bundling options, the TechDesign bundle and the TechDesign Premium bundle. The bundles will feature AccuMark 2D and AccuMark 3D as well as YuniquePLM or the brand new [Yunique Sample Manager](#), depending on your selection. The TechDesign bundle allows users to accelerate their product development process by reducing physical samples and facilitating collaboration. In the future, more bundles will be released.

“We depend on the suite of AccuMark products to quickly serve the uniform needs of our customers and having a subscription helps us greatly in balancing our workflow by allowing us to bring in temporary contract help when needed,” said Jeanne Ottenwell, Production Pattern Design Manager at Cintas Corporation. “It also helps bolster our bottom line because we do not have to make the long term financial commitment for a permanent key.”

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## ***New C3D B-Shaper Edits/Converts Polygonal Models in CAD***

8 July 2019

C3D Labs announced that its brand-new [C3D B-Shaper](#) module is now available. C3D B-Shaper lets AEC/BIM/CAE/MCAD developers work with polygonal mesh models by converting them to b-rep (boundary representation) bodies.

Based on C3D Labs own algorithms, C3D B-Shaper makes polygonal models accessible to a wide range of applications:

- Reverse engineering parts with 3D scanner files
- Converting models from online product catalogs
- Post-processing the output from CAE operations
- Enhancing polygonal models by smoothing their grids, decimating surfaces, and applying

compression algorithms

C3D B-Shaper is used standalone in CAD software, or together with the C3D Modeler geometry kernel and other modules in the company's C3D Toolkit.

## **ABOUT B-REP AND POLYGONAL MODELS**

More and more data is created not in CAD systems, but comes from external sources, such as online libraries, 3D scanners, and non-CAD 3D modeling software. This data frequently is provided as polygonal models in STL and VRML formats, for example. But the large size of polygonal meshes slows down engineering applications and, most critically, they cannot be edited with typical CAD tools. This makes it difficult to engage with polygonal models in the design process.

Yet, B-rep is the primary method of representing 3D models in geometric software such as CAD. This approach has proven the best way to accurately describe objects being modeled, in both mechanical and in architectural design.

## **WHAT B-SHAPER DOES**

C3D B-Shaper solves these problems by converting polygonal meshes to b-rep models. Once converted, users employ standard CAD tools to edit the formerly-inaccessible models, such as applying chamfers and performing Boolean operations, as well as generating additional representations like projections and sections.

For software programs working with many imported polygonal models, C3D B-Shaper accelerates calculations, simplifies visualization, ensures fast and high-quality formation of flat projections, and as a result increases overall program performance.

## **CASE STUDY: DEVELOPING A BIM APPLICATION WITH B-SHAPER**

ASCONE is a software developer (and parent company of C3D Labs) that has been working with C3D B-Shaper to develop Pilot-BIM, a new system for creating and updating a single, global building information model.

"We found that by using C3D B-Shaper we improved the readability of BIM elements, and so they look much smoother now," said Dmitry Poskrebyshev, head of the Pilot-BIM development team. "By reducing the number of edges, navigation through 3D models has become more fluent. This is especially important with large BIM models."

ASCONE continues to experiment with C3D B-Shaper by applying it to non-parametric BIM elements, such as plumbing, furniture, and fittings that are imported into Pilot-BIM in a tessellated IFC format.

## **HOW C3D B-SHAPER WORKS**

Through its API, B-Shaper operates in two modes: automatic and interactive. B-Shaper's unique algorithm first segments meshes by dividing sets of polygons into subsets (segments), which become prototypes for probable faces. In the next step, selected areas are recognized as elementary surfaces, such as planes, cylinders, cones, spheres, or tori.

Intersection curves are calculated between adjacent segments, and then these curves become the basis for constructing edges of the body's faces.

The operating accuracy of B-Shaper algorithm follows the maximum deviation allowed between the recognized surfaces and the vertices of the underlying polygonal meshes. Users can specify the accuracy they require, or else let B-Shaper determine a default value.

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In cases when the deviation of faces from meshes is not known in advance, users can employ a relative accuracy based on the dimensions of the original body. Should the result be unsatisfactory, users are free to change the value of recognition accuracy.

## PRICE AND AVAILABILITY

C3D B-Shaper is available for a free 90-day evaluation. Pricing is available upon request.

For more information about C3D B-Shaper, please visit <https://c3dlabs.com/en/products/b-shaper/>

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## ***Open Design Alliance Releases BimRv SDK 2020***

8 July 2019

Open Design Alliance (ODA) announced today the release of BimRv SDK 2020. BimRv SDK, formerly known as BIM SDK, is the leading stand-alone toolkit for interoperability with Autodesk Revit files.

“BimRv 2020 features the export of property and geometry data from Revit files, to JSON and OBJ, respectively,” commented Neil Peterson, ODA President. “These exports allow clients to access Revit file data from a wide range of applications, without the need to write complex code.

“In addition, significant progress was made toward our goal of parametric element creation. When completed, parametric element creation will allow clients to fully automate the generation of Revit models from any application.”

Sergey Vishnevetsky, ODA Development Director, said, “Version 2020 also features improvements to sectioning support, new parameter support for element sets, and new sweep and revolution elements. In addition, client applications can now add custom properties to elements, a useful feature for many types of applications.”

BimRv 2020 also contains fixes for several hundred member-reported issues. The SDK and release notes are available for download at [www.opendesign.com](http://www.opendesign.com).

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## ***Siemens accelerates electromagnetics simulation processes with latest release of Simcenter 3D***

9 July 2019

Siemens Digital Industries Software announces today the latest version of Simcenter™ 3D software, with major enhancements for low- and high-frequency electromagnetic solutions to help accelerate electromagnetics simulation processes. The latest version advances simulation capabilities with increased multidisciplinary integration capabilities, faster CAE process, increased openness and scalability, and enhanced capabilities to integrate with the digital thread.

As more electronics are included in products, it is extremely important for engineers to understand how electromagnetic performance can potentially affect and interfere with product performance. Electrical motors, sensors and antennas are all examples of common products or components where electromagnetic simulation plays a big part in the development process. The latest release of Simcenter

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3D introduces a new physics discipline for low- and high-frequency electromagnetics simulation to the Simcenter 3D environment. By including electromagnetic simulation into Simcenter 3D, engineers can take advantage of the integrated environment to perform electromagnetic simulation faster than with traditional simulation tools and streamline multiphysics workflows between electromagnetic and other physical simulations.

“Leading companies today realize the value simulation can bring to the product development process in terms of cost, speed, and impact to innovation,” said Jan Leuridan, Senior Vice President, Simulation and Test Solutions, Siemens Digital Industries Software. “The latest enhancements to Simcenter 3D continue to expand the capabilities for predicting product performance and simulating more complex solutions to offer expanded value to our customers.”

Additional enhancements to Simcenter 3D include:

- **Faster CAE Processes** : A new immersed boundary method helps engineers spend less time modeling for computational fluid dynamics (CFD) analysis. Engineers can also now instantaneously compute new configurations for flexible hoses and pipes after a design configuration change.
- **Open and Scalable Environment** : Engineers can now use calculated vibrations from common third-party finite element (FE) solvers, ANSYS and Abaqus, and apply those vibrations as loading in a structural or vibro-acoustic solution in Simcenter 3D, which can lead to a better understanding of how vibrations will impact perceived sound by end-customers.
- **Tied to the Digital Thread** : A new enhanced interface between Simcenter 3D and Simcenter™ Testlab™ software helps engineers better collaborate with colleagues in the test group, which can keep analyses correlated with physical test results. New capabilities available in Teamcenter Simulation help engineers quickly identify which simulations are impacted after a design change, which helps save time when working with large assemblies and projects.

For more information on the latest Simcenter 3D release, please see our related [community post](#).

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## ***Tungaloy Further Enhances Its T9200s Steel Turning Inserts with New Grades and Geometries***

5 July 2019

Tungaloy is expanding its T9200 CVD grade insert series to include T9205 and T9235 grades as well as the -TSF and -TM style chipbreakers to conquer steel turning markets.

Both T9205 and T9235 are designed to provide outstanding wear resistance in the P05 and P35 application ranges surpassing existing CVD grades. These capabilities are possible due to Tungaloy’s latest and most innovative coating technologies, including:

Extremely wear resistant Al<sub>2</sub>O<sub>3</sub> coating in a thick and uniformly aligned layer

Ultra-hard ceramics for the outermost layer

PremiumTec – Tungaloy’s exclusive post surface treatment technology

T9205 and T9235 provide long and stable tool life in various steel turning applications, allowing customers to achieve high productivity. Combined with the -TSF and -TM style chipbreakers, the latest

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line of the T9200 series can now meet the needs in a wider spectrum of steel turning applications. This expansion complements the preceding T9215 and T9225 grades of the T9200 series addressing customers' needs for high efficiency and high productivity machining. A total of 531 inserts are added in this expansion.

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## ***With Modaris® V8R2, Lectra redefines the realism of 3D virtual prototyping***

25 June 2019

Lectra launches Modaris® V8R2, the latest version of its patternmaking, grading and prototyping 2D/3D solution. This new version of Modaris, the most widely used modeling solution by leading brands in fashion and apparel, offers greater speed, efficiency and precision in product development. With its powerful 3D simulation and collaboration tools, patternmakers are developing patterns faster and speeding up their decision-making procedures. By reducing or eliminating physical prototyping, product development is less expensive and the time to market is as close as possible to trend detection.

To preserve and strengthen its position as a market leader of product development software, Lectra, with this upgrade of Modaris, is giving particular focus to 3D virtual prototyping. Patternmakers can now share with their partners, 360-degree videos, accessible on any device. Designers in response are able to visualize, comment, and approve the style and fit using the new 3D Style module.

New advances have made it possible to reduce the number of physical prototypes by up to 50%. Modaris V8R2 improves the quality of the solution's 3D simulations and expands its library with new assets (fabrics, 3D top-stitching effects, realistic scenes, lighting studios, Pantone® and Natural Color System®©,...). The solution is now compatible with Vizoo, a high-quality scanner that brings forth a heightened realism to the appearance of fabric swatches, and with other 3D solutions such as Maya, 3DS Max, Iray to make the digital renderings of the prototypes more true-to-life and accurate.

One of the innovative developments of Modaris V8R2 is a special dart feature to help patternmakers add dimension to their garments with ease. Thanks to this new feature, modifying a dart requires half the usual time, resulting in a 50-90% increase in overall patternmaking speed.

Another highlight of this solution, and important nod to the globalized workforce of the fashion industry, is its ability to manage different units of measurement. With Modaris V8R2, Lectra has made it possible for patternmakers and external suppliers the guarantee of size compliance, regardless of the measurement systems used in the countries where production occurs.

Modaris V8R2 is already gaining traction among its pilot customers. Italian womenswear company GGZ was the first to endorse Modaris V8R2. "GGZ is a fast-fashion company and time and quality are of the essence for us. Modaris's new dart feature helps us save up to 50% of pattern modification time. Additionally, 3D prototyping helps us ensure that pattern volumes and proportions correspond to our designers' expectations early on, dramatically reducing our lead times," attests Majla Gottardo, Patternmaker, GGZ.


"We are entering the information age, and we are catering to patternmakers who are dealing with consumers with different tastes, of all body shapes and sizes. Our patternmakers have hundreds of collections to deliver and no time to spare for errors. What we are aiming to do is making their everyday work environment easier for them, by providing the tools to streamline the development process and



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reduce the number of reworks to achieve the right fit the first-time,” states Céline Choussy, Chief Marketing & Communications Officer, Lectra. “All this is possible with Modaris V8R2.”

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