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## CIMdata News

### *Autodesk University 2016: The Future is Near*

22 November 2016

#### *Key takeaways:*

- *Autodesk is establishing itself as a pioneer in cloud services by aggressively deploying a web services platform, building new cloud-based applications, creating new business models, and establishing a modern developer network*
- *Autodesk is driving to host a “Common Data Environment” for customers across its industry verticals, and to establish a growing portfolio of branded web services, third-party solutions, and independent integrations which use this data*

# CIMdata PLM Industry Summary

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- *Artificial intelligence (machine learning) was prominent, with examples ranging from product design optimization to construction risk reduction, and customer service improvement for Autodesk subscribers*
- *The challenge for Autodesk will be to successfully bridge to the future for the millions of customers using its established applications, while simultaneously winning out over its competition as it expands into new disciplines and markets*

The mythological Roman deity Janus had two faces—one looking to the past and the other to the future. Janus is a fitting metaphor for Autodesk at its annual Autodesk University (AU) customer event in Las Vegas. Autodesk has grown over the past 34 years by serving a diverse range of customers with tools for product design, manufacturing, architecture, engineering, construction, digital entertainment, and more. While Autodesk receives much of the attention, its success has both fostered and depended upon an extensive ecosystem of third-party developers that have extended its products to meet the needs of customers. Autodesk is rapidly pivoting to the future, introducing new cloud applications at an accelerating rate, while expanding the web services platform on which those applications are built. The company is also inviting developers to participate in this transformation through Forge, an innovative platform based upon open application programming interfaces (APIs) that enables customers and third parties alike to participate in the Autodesk ecosystem.

## **Keynote Presentations and Analyst Sessions**

CTO Jeff Kowalski spoke about the duality of technological progress in the past—innovations have enabled new possibilities, but have also imposed constraints driven by implementing those technologies. Some of the latest technologies hold promise to break those constraints. Mr. Kowalski envisioned a future in which tools no longer constrain expression, but create the potential for unlimited expression. In this future, which Autodesk promises to deliver on very soon, the design, fabrication, and ongoing experience of products and buildings will be the result of close collaboration among people and machines. Artificial intelligence (AI, also referred to as machine learning) is the keystone technology for this future, enabling humans to focus on outcomes and constraints, while machines explore potential solution spaces and present their human masters with optimal alternatives. Autodesk is using AI in Project Dreamcatcher, a generative design solution that will be commercially available in 2017. The company used AI and generative design to develop the layout for its new Toronto office, using optimization criteria such as team interactions and exposure to natural light. Continuing the design theme, Mr. Kowalski explained how Autodesk is using Virtual Reality (VR) to provide a richer, more immersive design and collaboration experience. He showed how Autodesk is connecting design and fabrication for a bridge that was designed using generative solutions, and is being constructed in Amsterdam using robotics combined with additive manufacturing.

# CIMdata PLM Industry Summary

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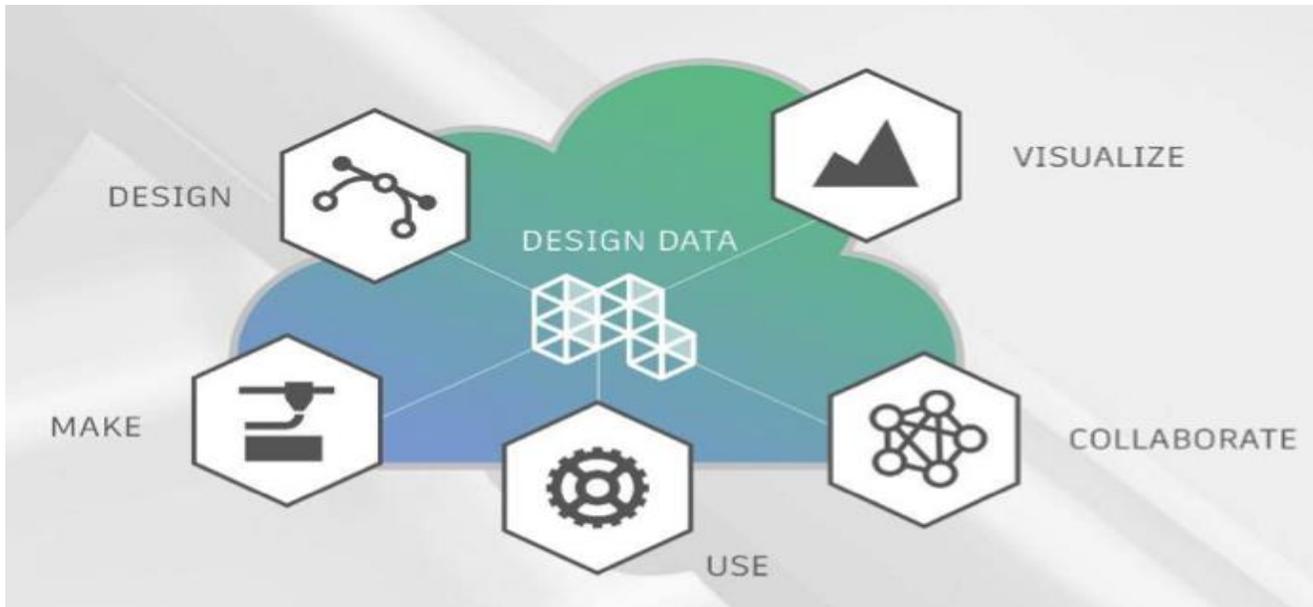


**Figure 1—Generatively Designed Bridge in Partnership with MX3D for Robotic Fabrication**  
*(Courtesy of Autodesk)*

CEO Carl Bass continued the theme, stating that it is essential for companies to experiment with new technologies, and to run toward disruption rather than shy away from it. In Mr. Bass' words, "disruption can be the source of true value," and companies who fail to embrace disruption will be outpaced by those who do. He also expressed his opinion that the next generation of professionals is much more open to experimentation and innovation. Mr. Bass invited Ms. Anna Nixon, a 16-year-old high school junior, to the stage to prove that point. Ms. Nixon has been participating in FIRST Robotics since second grade, and has used technologies such as computer vision and machine learning combined with fabrication techniques as part of award-winning robotics teams. In her very impressive presentation, she expressed how important collaboration is—everything she has done in FIRST Robotics has been part of a team.

Later that afternoon, Autodesk held an analyst and media briefing that began with a panel exploring the societal implications of this disruption, such as future employment prospects for truck drivers in an era of autonomous vehicles. It is clear that no one knows the answers to the challenges. Mr. Bass and Mr. Kowalski then took questions from the audience. Mr. Kowalski expressed that Autodesk is committed to open innovation, even if new solutions come from companies other than Autodesk. Mr. Bass acknowledged that Autodesk will need to work to bring customers into the future, and in some industries such as construction this will involve updating traditional risk-averse business practices. He also expressed that Autodesk wants to enable customers to create a complete definition of a product, and to be able to "turn on" that product virtually.

# CIMdata PLM Industry Summary



**Figure 2—Common Data Environment at Center of Cloud Applications and Web Services**  
(Courtesy of Autodesk)

The keynote presentation on the second day of AU began with Senior VP of Products Amar Hanspal, who covered continuing improvements to current products as well as the investment into new cloud offerings. Mr. Hanspal promised that Autodesk will continue to fulfill customer needs for existing products to deliver value to subscribers—an important point now that Autodesk has transitioned to a business model based upon term subscriptions for all new sales. He reinforced Autodesk’s strategy to provide a common data environment at the center of a collection of applications and web services, supported by the Autodesk Forge platform. Mr. Stephen Hooper, Senior Director for the Fusion product line, revealed the progress Autodesk has made with Fusion 360 with the integration of Fusion Lifecycle and Fusion Connect. He unveiled several new capabilities that are either available now or will be soon—notably including a zero-client version of Fusion 360 that will run in any compatible browser. This capability is clearly targeted at eliminating a differentiator for the competitor Onshape.

Mr. Don Parker, Senior Director for Shotgun, discussed major new capabilities in the Shotgun product for managing creative workflows for film and games. Autodesk is expanding the coverage of Shotgun to include multi-site and multi-company collaboration with role-based interactions for creative artists, managers, and editors alike. Ms. Sarah Hodges, Director of the BIM 360 business line, discussed progress over the past year since BIM 360 Docs was revealed at AU 2015. More than 100 of the largest global contractors are now using BIM 360, and she invited the CEO of one of those companies, Mr. J.E. Dunn, to discuss how his company built a sophisticated internal application (Lens) that includes an ERP integration using the BIM 360 API on the Forge platform. She also unveiled Project IQ, which leverages AI and historical construction data to proactively reduce risk for construction projects. The session concluded with Mr. Hanspal revealing Project Quantum, an initiative inside Autodesk to deliver architectural design, engineering, structural analysis, fabrication, and construction as part of BIM 360. In effect, this will provide Revit and more functionality on the cloud. Autodesk is leveraging a common platform for its new cloud applications, and extending access to these through the Forge platform and its

# CIMdata PLM Industry Summary

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open APIs.

Later that afternoon, another analyst and media briefing was led by Mr. Andrew Anagnost, Senior VP for Business Strategy and Marketing. Mr. Anagnost discussed new partnerships and how many of Autodesk's innovations are being used by customers, and revealed some interesting numbers on Forge adoption. At the time of his presentation, more than 7,000 developers had created Forge accounts and had created more than 4,000 applications (this may represent apps under development in addition to completed apps). More than 1,000 developers attended the first Forge DevCon in June 2016, and more are expected at the next DevCon event in 2017.

A panel consisting of Mr. Amar Hanspal, Mr. Don Parker, Ms. Sarah Hodges, and Mr. Stephen Hooper took questions from the audience. One question dealt with how Autodesk will fulfill customer expectations to capture all aspects of product definition, especially given the growing importance of controls and software. Mr. Hooper explained that the Fusion 360 platform is more than just a collection of features, and gave the example of the rapid integration of the EAGLE ECAD acquisition to provide PCB design and simulation within Fusion. Mr. Hooper said that we should expect to see greater integration of electronics, controls, and software within Fusion. He also emphasized the role of Fusion Connect to address sensors for both development and predictive maintenance. Another question focused on Project Quantum and whether it will be "Revit on the cloud". Mr. Hanspal answered that Revit functionality will be part of Quantum, and that customers will expect compatibility, but that Quantum will be more than just what Revit is today. He emphasized the importance of looking at BIM 360 as a platform, enabling new integrated capabilities such as quantity takeoff and estimating. A question about the Forge platform delved into openness—will Autodesk be open to competitive integrations? Mr. Hanspal answered that the extensibility of the Forge platform is important to its success, and that Autodesk is working closely with enterprise customers, system integrators, and third parties to build applications. He said that Autodesk will be open to "about 95%" of applications, but will take exception in cases where a competitive product closely duplicates functionality of an Autodesk offering. Expanding Forge, including the addition of new and nontraditional partners, will be a key part of Autodesk's strategy.

## **CIMdata Perspective**

Autodesk deserves credit for its success so far in managing a blizzard of transformations. In addition to its highly visible cloud platform initiative, the company has been the most aggressive among its peers in the PLM market in moving toward a term subscription business model. It has established several initiatives to promote more direct interaction with customers, while continuing to support its extensive reseller channel. Challenges remain, notably driving longer-term adoption of new solutions by its millions of existing customers, successfully entering new markets (some with established competition) as it expands its offerings, and minimizing subscriber churn. Still, considering its performance to date, the company deserves recognition for delivering on its aggressive plans.

To fulfill its ambitions and the needs of future customers, Autodesk will need to build out its solutions or establish partnerships in areas such as systems modeling and simulation, controls and software integration, and deeper construction and facilities management capabilities. Although in the short term the Forge platform requires considerable investment, in the medium term it could help Autodesk deliver these additional capabilities much more rapidly. Forge applications can also be a powerful tool to help existing customers transition to Autodesk's modern platform. One key factor will be Autodesk's commitment to openness with Forge. Comments by Autodesk are encouraging in this regard, as is Autodesk's history with the Autodesk Developer Network, which has been a positive model of openness

# CIMdata PLM Industry Summary

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and flexibility in the industry for many, many years. Autodesk will also need to continue transforming its go-to-market processes and footprint to support growth with new customers and in select new markets.

In summary, CIMdata considers Autodesk University 2016 a very successful event. The company once again attracted a large audience—more than 10,000 people—and demonstrated to them that it is delivering on its promises. It continues to raise the bar with an expansive vision built upon a modern technology foundation, while continuing to advance the existing desktop applications that provide the bulk of its revenue today. While Autodesk continues to learn from its past success and support its current customers, it is increasingly delivering on a future which represents a radical transformation from the company it was only a few years ago.

## 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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## ***Solid Edge University: The Indy 500***

23 November 2016

*Key takeaways:*

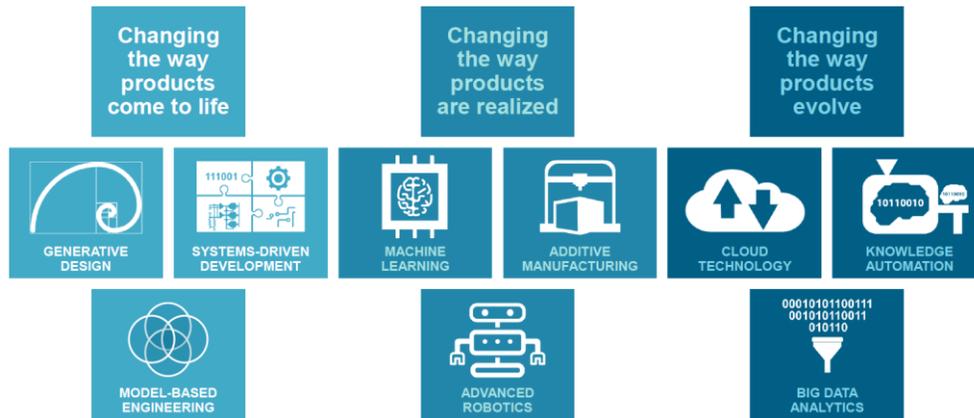
- *Siemens PLM Software's Solid Edge team delivered more than 75 hands-on training and end user presentations to help educate and inspire their user base*
- *Siemens PLM Software announced the "Solid Edge for Startups" program which offers qualifying businesses one year of free access to Solid Edge software*

On October 26, 2016, Mr. John Hayes, CEO of Engineering.com, the digital media publishing company, played host of Siemens PLM Software's Solid Edge University 2016 in Indianapolis, Indiana. Mr. Hayes directed his welcome to the approximately 500 attendees in the city famous for the Indianapolis 500 automobile race. The annual Solid Edge University brings together Solid Edge users, partners, and staff in a two-day educational atmosphere of over 75 presentation and hands-on sessions to present new product capabilities and best practices under the theme "Expand Your Horizons."

The opening keynote address was delivered by Mr. John Miller, General Manager and Senior Vice President, of Mainstream Engineering Software at Siemens PLM Software. Mr. Miller highlighted the many challenges design engineers face today. Based on their research in speaking with their user base, he noted 49% voiced that the need to rapidly create initial product designs was a significant concern. In addition the users reported that working with CAD data from vendor solutions other than Solid Edge was their number one challenge. Further, 95% reported that dealing with late changes was an issue in their company. CIMdata can concur having heard these same problems voiced by design engineers across the industry.

# CIMdata PLM Industry Summary

Mr. Miller noted that Solid Edge University offered users the opportunity to attend more than 75 presentation and training sessions to learn from both Solid Edge staff and key end user companies. He then took a few moments to introduce Mr. Tony Hemmelgarn, the new President and CEO of Siemens PLM Software. Mr. Hemmelgarn used the opportunity to present Siemens PLM Software's high level product strategy, the technological forces transforming the industry (Figure 1), and how Solid Edge fit into the Siemens suite of product development tools.



**Figure 1—Technological Forces Transforming the Industry**  
(Courtesy of Siemens PLM Software)

Three short end user keynotes focused on a transportation theme. First on stage was Mr. David Cullimore, a young twenty-three year old Design Engineer at motorsport company Prodrive,<sup>1</sup> whose dream was to become a race car designer, but did not have the math grades to get into engineering school.<sup>2</sup> His career path led him to become an industrial designer. Following a dream to expand his horizons, he founded Cullimore Racing in 2012, to compete in the F24+ category of Greenpower Education Trust races.<sup>3</sup> With their car "Jet" (designed in Solid Edge), Cullimore Racing won the F24+ National Championship in both 2013 and 2014.

Next up was Mr. Jerry Zaiden, President of Camburg Engineering, Inc.<sup>4</sup> and off-road driver at Camburg Racing with the story of his company's rise from a start-up in a California garage.<sup>5</sup> Today Camburg Engineering is a leader in off-road suspension systems and is at the forefront in technology and design. Underlying their journey has been the use of Solid Edge. See Figure 2.

<sup>1</sup> See: <http://www.prodrive.com/>.

<sup>2</sup> See: [https://www.youtube.com/watch?v=JkXWKNIPjNA&index=1&list=PL1m1vu8\\_quoDiEEiF1jMmr\\_YbW7N7Tre4](https://www.youtube.com/watch?v=JkXWKNIPjNA&index=1&list=PL1m1vu8_quoDiEEiF1jMmr_YbW7N7Tre4) for the full presentation.

<sup>3</sup> The Greenpower Education Trust's objective is to advance education in the subjects of sustainable engineering and technology to young people. For more information, see <http://www.greenpower.co.uk/>.

<sup>4</sup> See: <https://camburg.com/>

<sup>5</sup> See: [https://www.youtube.com/watch?v=GIQj3pcwsok&list=PL1m1vu8\\_quoDiEEiF1jMmr\\_YbW7N7Tre4&index=2](https://www.youtube.com/watch?v=GIQj3pcwsok&list=PL1m1vu8_quoDiEEiF1jMmr_YbW7N7Tre4&index=2) for the full presentation.



**Figure 2—Camburg Design Using Solid Edge**  
(Courtesy of Camburg Engineering, Inc.)

Rounding out the end user keynotes was Mr. Justin Fishkin, Chief Strategy Officer at Local Motors.<sup>6</sup> Mr. Fishkin presented several examples of how Local Motors has decentralized the development, production, and commercialization of vehicles, combining open co-creation with local micro-manufacturing to bring hardware innovations to market including olli, a neighborhood mobility solution (Figure 3).<sup>7</sup>



**Figure 3—Local Motor’s olli**  
(Courtesy of Local Motors)

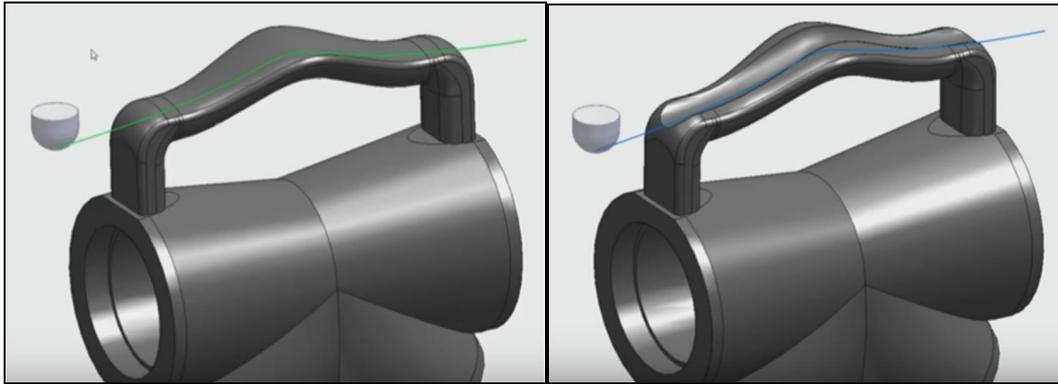
Mr. Dan Staples, Vice President, Mainstream Engineering Software, then took center stage to present a number of important enhancements found in the current Solid Edge ST9 release made available in July 2016. He highlighted what Siemens calls “cloud-enabled design” which is manifested by a floating cloud Solid Edge license and personal settings that allow a design engineer to work with their product model “on their own terms” from any web enabled location. The capability, however, is still file based and requires the user to move the product design database using a cloud-based data storage tool such as Dropbox or Google Drive.

<sup>6</sup> See: <https://localmotors.com/>.

<sup>7</sup> See: [https://www.youtube.com/watch?v=cu7DvDOq8FY&list=PL1m1vu8\\_quoDiEEiF1jMmr\\_YbW7N7Tre4&index=3](https://www.youtube.com/watch?v=cu7DvDOq8FY&list=PL1m1vu8_quoDiEEiF1jMmr_YbW7N7Tre4&index=3) for the full presentation.

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Mr. Staples outlined a number of Solid Edge enhancement in the category of “fast and flexible 3D modeling.” He referenced an improved user interface and high resolution monitor support. The enhancements list included improved multi-body support and creating threaded hole features from threaded shaft Booleans. One new capability that impressed CIMdata was “Solid Sweep”—the ability to take a solid body and sweep it. The user defines a tool body and a sweep path and the tool body rotates as it sweeps. (Figure 4) Siemens notes that the operation can be used to simulate milling.



**Figure 4—Sweeping a Solid Shape Across the Handle—Before and After**  
(Courtesy of Siemens PLM Software)

Mr. Staples third topic was “Scalable data management” covering the range of data management tools: from those embedded within Solid Edge up to the full use of Teamcenter, Siemens PLM Software’s premier data management solution.<sup>8</sup> He also presented the new, official “Move to Solid Edge” data migration tool for past users of their competitor SolidWorks. It includes the migration of 2D drawings fully associative to the 3D model. While an obvious leverage tool to entice SolidWorks users to move, CIMdata recognizes the benefit such a tool provides those transitioning end users. Too often, a CAD solution provider fails to offer assistance to their users in moving to a new application.

Over the course of the two-day conference, two end user presentations stood out in CIMdata’s view. The first was from Mr. Ryan M. Spoering, Ph.D., of Lab Machinist Solutions,<sup>9</sup> who spoke on the topic of “Bringing CAD to Life Science Innovators.” Dr. Spoering’s stated premise is that innovation-minded scientists lack the necessary custom tools to advance their research and lack the knowledge to design those tools. The goal of Lab Machinist Solutions is to promote custom toolmaking in the life sciences. He noted that the most fun tasks were working on cutting edge problems that required creative new tools; the most common tasks, however, were simple process optimization problems requiring simple new custom tools. The second end user presentation that impressed CIMdata was from The Musculoskeletal Transplant Foundation (MTF), a non-profit service organization dedicated to providing clinically sound, safe allograft tissue.<sup>10</sup> Representatives presented the process they follow to take donated human bone, cut, and then machine it to fit custom requirements for surgical bone replacements using Solid Edge to guide the progression.

On the final day of Solid Edge University, Siemens PLM Software announced the “Solid Edge for Startups” program which offers qualifying businesses one year of free access to Solid Edge software. The program is initially available in the US and the UK. Mr. Ian Henderson, COO of SkyBridge UAS,

<sup>8</sup> See: CIMdata White Paper “Solid Edge Data Management: Increasing Productivity with Teamcenter Integration” at [www.CIMdata.com](http://www.CIMdata.com).

<sup>9</sup> See: [www.labmachinist.com](http://www.labmachinist.com).

<sup>10</sup> See: [www.mtf.org](http://www.mtf.org).

# CIMdata PLM Industry Summary

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one of the Solid Edge Startup program participants, said, "One of the largest struggles of a startup is obtaining adequate funding—and engineering, specifically enabled by a CAD tool, is the cornerstone of bringing the concept to reality. What Siemens has done with their Solid Edge product is revolutionary." CIMdata applauds programs such as this which encourage innovation in the industry.

In CIMdata's view the Solid Edge University 2016 conference served the purpose of both educating and inspiring the Solid Edge users in attendance. The range of hands-on training sessions and innovative, thought provoking end user presentations combined to raise the awareness of the attendees to "Expand their Horizons."

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## Acquisitions

### *Oracle Buys Dyn*

21 November 2016

Oracle today announced that it has signed an agreement to acquire Dyn, the leading cloud-based Internet Performance and DNS provider that monitors, controls, and optimizes Internet applications and cloud services to deliver faster access, reduced page load times, and higher end-user satisfaction.

Dyn's solution is powered by a global network that drives 40 billion traffic optimization decisions daily for more than 3,500 enterprise customers, including preeminent digital brands such as Netflix, Twitter, Pfizer and CNBC. Adding Dyn's best-in-class DNS solution extends the Oracle cloud computing platform and provides enterprise customers with a one-stop shop for Infrastructure-as-a-Service (IaaS) and Platform-as-a-Service (PaaS).

"Oracle already offers enterprise-class IaaS and PaaS for companies building and running Internet applications and cloud services," said Thomas Kurian, President, Product Development, Oracle. "Dyn's immensely scalable and global DNS is a critical core component and a natural extension to our cloud computing platform."

"Oracle cloud customers will have unique access to Internet performance information that will help them optimize infrastructure costs, maximize application and website-driven revenue, and manage risk," said Kyle York, Chief Strategy Officer, Dyn. "We are excited to join Oracle and bring even more value to our customers as part of Oracle's cloud computing platform."

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## Company News

### ***Flex and RIB Software Join Forces to Transform Building and Housing Industry***

22 November 2016

Flex and RIB Software AG have formed a joint venture (JV) that will transform the \$9 trillion building and housing industry.

The joint venture will operate under the name Y TWO Formative, providing an open platform, cloud-based software solution that combines the strength of RIB's iTWO 5D BIM software capabilities with Flex's manufacturing, supply chain management and logistics expertise. By combining the two companies' strengths, Y TWO Formative offers a fully integrated enterprise software platform that will take a project all the way from full virtualization which includes time, cost, materials and a complete 3D model to supply chain execution and projection completion.

Y TWO Formative is an integrated, intelligent platform that eliminates the need for investment in expensive IT systems and software licenses and allows customers to create accurate, detailed construction project plans, facilitated by a catalog of home and modular construction products, providing critical intelligence on pricing and lead times. The JV aims to modernize practices in the fields of architecture, engineering and construction.

"RIB provides the best enterprise solution available for construction planning and management in this \$9 trillion<sup>1</sup> and growing industry, and Flex is the leader in global supply chain solutions. With our combined expertise in Y TWO Formative, we are building a smarter, more connected system, using modern software architecture and real-time information, which will reduce costs by up to 50 percent, shorten cycle times, improve efficiency and help complete projects on schedule," said Mike McNamara, CEO at Flex. "Y TWO Formative fits perfectly with our strategy of creating Sketch-to-Scale solutions by leveraging our expansive platform. This industry represents a massive opportunity as we open up a completely new market for Flex."

Thomas Wolf, CEO at RIB, 30-year veteran of the construction industry and a pioneer in BIM software said, "Over 60 percent of major projects are over budget or behind schedule<sup>2</sup>, underscoring the need for improved efficiencies. Together with Flex, we are delivering a fully integrated solution on a single platform that addresses this need with state-of-the-art technology, design-to-project-completion solutions, synchronized supply chain planning with direct access, and more."

Flex and RIB have each contributed approximately \$60 million for a non-controlling interest in the joint venture, which has received regulatory clearance.

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### ***Huawei Partners with ANSYS to Build Industrial CAE Solutions***

17 November 2016

At Supercomputing Conference 2016, Huawei announced its partnership with ANSYS to build industrial computer aided engineering (CAE) solutions.

Huawei and ANSYS will further their cooperation in high-performance computing (HPC) and cloud computing domains to deliver joint customer optimized performances and the best financial return on their software and hardware investments. Starting this year, the two parties will collaborate to build joint

system testing and industrial CAE solution capabilities.

Also during SC16, the two organizations jointly released their Fluent Benchmarking white paper based on the Huawei FusionServer X6800. The Fluent Benchmarking white paper provides optimized system configurations for fluid simulation scenarios in the industry domain, which enables customers to focus on product design and manufacturing, and improve efficiency.

“The ANSYS fluent benchmarking results not only shows the performance and reliability of Huawei’s HPC platform, but also confirms its exceptional system scalability and acceleration capabilities in building large-scale clusters,” said Stig Panduro, Director, Partner Ecosystems at ANSYS. “With supplementary service platforms and capabilities for each other, ANSYS and Huawei can build a strong partnership and provide customers with more competitive industry solutions to better address customers’ service challenges.”

Qiu Long, President of the Huawei Server Product Line, said, “Huawei has successfully deployed HPC systems for a large number of customers in the global manufacturing and education sectors. We see that digital transformation poses new service challenges to enterprise customers. Huawei will focus on the development of outstanding simulation computing platforms. We are committed to a win-win vision of openness, and Huawei would like to collaborate with ANSYS and other industry application solution providers in building industrial CAE solutions with higher efficiency and usability to help customers achieve business success.”

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## ***International TechneGroup (ITI) Working with DMDII on Intelligent 3D Model Research Project “Supply Chain MBE/TDP Improvement”***

22 November 2016

ITI announces its participation in a new Digital Manufacturing and Design Innovation Institute (DMDII) project, a UI LABS collaboration. The “Supply Chain MBE/TDP Improvement” project aims to push [Model Based Enterprise \(MBE\)](#) technologies forward by streamlining the design stage of the manufacturing process.

DMDII has issued a contract research award to a group of partners. ITI is working with the project’s lead organization, Rolls Royce, along with a team of industry organizations including 3rd Dimension, Anark Corporation, Lockheed Martin, Microsoft, and Purdue University, toward the goal of using the intelligent 3D models and accompanying information, the technical data package (TDP), to improve usability and reliability of product data shared across the supply chain.

Model Based Definition (MBD) is the next revolution in CAD/CAM/CAE, where annotated 3D models and 3D TDPs are used as the single source for all design information, eliminating the need for 2D Drawings. When MBD is implemented at the beginning of the product lifecycle and re-used throughout an enterprise and its supply chain, it enables rapid, seamless and affordable development and deployment of products from concept to disposal. This environment is referred to as a Model Based Enterprise (MBE).

Achieving MBE requires adopting new rapidly evolving technology. The goal of the DMDII project is to demonstrate how various technology solutions can be utilized together effectively. With MBD models including more complete information, securing the Intellectual Property in these models through the supply chain is more important than ever.

# CIMdata PLM Industry Summary

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ITI's contributions to the program include the [CADIQ](#) and [DEXcenter](#) solutions. CADIQ is the leading [CAD model quality](#) and validation solution. DEXcenter provides collaboration capabilities with managed secure file transfer and CAD process automation for multi-CAD and MBE scenarios. DEXcenter can be integrated with PLM or other enterprise applications.

“In 2010 ITI participated in the [Customer Supplier Interoperability \(CSI\) project](#) with the AFRL and DoD, which created new technologies to facilitate MBD”, stated John Gray, ITI DEXcenter Program Manager. “This DMDII project builds upon the CSI technology along with industry advances. The DMDII project shows the MBE TDP technology in process, from the OEM clear through to the supplier.”

DEXcenter provides an overall [automation framework](#) in which to utilize the new technology, for functions such as:

- Evaluating completeness of MBD models
- Translating MBD models into compatible derivative formats, such as STEP, JT and 3D PDF
- Validating derivative formats using CADIQ
- Documenting Engineering Changes in MBD models
- Accumulating relevant MBD information into a TDP and then securely distributing it through the supply chain

“We did MBD in CSI and now we are doing MBE with DMDII,” stated Tom Gregory, ITI CEO. “ITI is committed to providing leadership in the emerging MBE effort. It is a critical initiative being adopted throughout industry, and we are pleased to be working with our partners to offer viable and reliable solutions to help drive broader adoption of MBE.”

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## ***Materialise and PTC Partner to Offer Cloud-Based, 3D Printing Solution for PTC's Creo 4.0 through i.materialise***

16 November 2016

Materialise NV is proud to announce an alliance with PTC, which sees PTC tapping into Materialise's backbone of 3D printing software and solutions to enable users of PTC's highly-anticipated Creo® 4.0 software to 3D print designs directly through the cloud-based i.materialise platform. Powered by the Materialise Magics 3D Print Suite and connected to one of the world's largest and most complete factories for 3D printing, the i.materialise platform offers high-quality 3D prints in 19 different materials and 100+ possible color and finish combinations.

“When we launched the i.materialise platform in 2009, we did so with the aim of giving more consumers, home professionals, and small businesses access to the best that professional-quality 3D printing had to offer, giving physical form to creative ideas in a variety of materials and finishes to match our customers' functional, aesthetic, and budgetary needs,” stated Materialise CTO, Bart Van der Schueren. “Today, we are excited to be partnering with PTC to expand the reach of these benefits to an even greater audience through a planned integration with Creo 4.0, and we look forward to working together with their team to even further improve the experience of their users.”

Paul Sagar, Vice President of Product Management at PTC, stated, “For more than 20 years, people have

been using 3D printing to manufacture rapid prototypes. However, in recent years, the technology has proven increasingly useful for final production parts, in part because 3D printing makes it possible to manufacture ultra-light components by enabling lattice structures that provide all of the strength, with a fraction of the material. Therefore, in Creo 4.0, we're adding capabilities to design, analyze and optimize these highly complex lattice structures directly inside the model. In addition, the planned integration with i.materialise will allow Creo 4.0 users to directly order professional-grade 3D prints in the material and finishing required.”

As a partner of PTC, Materialise looks forward to giving Creo 4.0 users direct access to a comprehensive range of 3D printing technologies and finishes, and to working further with the PTC team to help their customers successfully design and manufacture end-use parts.

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## ***Praeses Business Technology Joins the Aras Partner Program***

21 November 2016

Aras® today announced that Praeses Business Technologies, an experienced provider of software development and services, has joined the Aras Partner Program. Praeses helps clients transform processes and leverage new technologies in shipbuilding, manufacturing, energy and other major industries.

With over two decades of experience, Praeses offers a proven approach and innovative solutions with business process re-engineering, software development, mobile application development, enterprise services, and web development for customers in both the public and private sectors.

“The world’s leading shipbuilders require exceptional technology and services to more effectively manage increasingly demanding programs and complex lifecycle processes. This partnership combines the expertise and PLM technology necessary to enable the digital shipyard of tomorrow,” said Peter Schroer, CEO of Aras.

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## ***SAP Drives IoT Innovation with Partners in SAP Asset Intelligence Network***

22 November 2016

SAP today announced that it is co-innovating with participants in SAP Asset Intelligence Network and SAP HANA Cloud Platform to enable new levels of process and factory automation for Internet of Things (IoT) solutions.

“We are activating the network to provide the collaboration platform and the business context for new IoT innovations that will transform asset management and process automation,” said Tanja Rueckert, executive vice president, LoB Digital Assets and IoT, SAP. “We are growing the powerful ecosystem of technology companies that will enable new levels of business outcomes from smarter factories and production processes.”

SAP Asset Intelligence Network offers a single, global register of model and equipment information and a secure cloud platform to connect multiple business partners for inter- and intracompany collaboration. At the core of the network is SAP HANA Cloud Platform with IoT application services to help customers and partners achieve fast time to value and develop IoT solutions efficiently. SAP and

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partners within the network are collaborating on solutions for connected asset lifecycle management, track and trace, and IoT for the process industry. New offerings are intended to address self-registration, onboarding of devices and automatic creation of digital twins. This will enable more cost-effective asset performance and strategy management for SAP customers.

For process industries, companies including Endress+Hauser, Hilscher, Pepperl+Fuchs and SAMSON are collaborating with SAP to provide best-in-class IoT solutions from field devices to the enterprise level, through connectivity to SAP Asset Intelligence Network and SAP HANA Cloud Platform with specific applications. Participants and their focus areas include:

[Endress+Hauser](#): A global leader in measurement instrumentation, services and solutions for industrial process engineering, Endress+Hauser is driving innovation with IoT solutions to unlock new value by transforming data from IoT-enabled devices into valuable insights for process monitoring and predictive maintenance (Heartbeat Technology) to help optimize technology assets and increase operational performance.

[Hilscher Gesellschaft für Systemautomation mbH](#): With core competency in the development and production of industrial communication solutions for modern factory automation and plant automation, Hilscher is providing connectors and edge gateway technology to enable track and trace and out-of-the-box connectivity to SAP Asset Intelligence Network.

[Pepperl+Fuchs International](#): A pioneer and innovator in electrical explosion protection and sensor technology for factory and process automation, Pepperl+Fuchs is providing sensors and accessories for connected asset lifecycle management and system integration components for IoT process automation.

[SAMSON](#): A leader in the development and production of process control devices, services and solutions for application with all kinds of media, SAMSON is contributing smart control valve technology including predictive diagnostics and digital twin development and dashboard definition for IoT for process industries.

For factory automation, Hilscher, Pepperl+Fuchs and SAP are collaborating to increase information technology (IT) and IoT integration. This includes tracking the machine lifecycle from the supplier, manufacturer and plant operator, and also condition monitoring and predictive maintenance to automatically detect malfunctions and failures and recommend corrective and preventive actions. Additionally, SAP is collaborating with Beckhoff Automation GmbH in factory automation for out-of-the-box IT/OT connectivity:

[Beckhoff Automation GmbH](#): Specializing in implementation of open automation systems based on PC control technology, Beckhoff is contributing to robot cell technology to be used in track and trace systems.

SAP and network participants will showcase IoT innovation for process and factory automation at the [SPS IPC Drives 2016](#) being held Nov. 22–24 in Nuremberg, Germany.

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## ***Siemens, Atos Further Extend Five-Year Alliance with Additional Joint Investments***

22 November 2016

Siemens and Atos have decided to further strengthen their strategic alliance. The companies will further increase the funding of their joint innovation investment program by an additional €80 million to €230

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million. On the fifth anniversary of the Siemens-Atos Alliance in late October, the Alliance Board expressed their satisfaction about the performance of the business collaboration, which continues over-achieving the expectations by far. Since 2011 Siemens and Atos have achieved a joint order intake of more than €1.7 billion.

The Atos-Siemens alliance was founded in 2011 and it is said to be one of the largest strategic relationships ever between a global engineering company and a global IT provider. Currently this successful collaboration covers key topics of the Siemens Digitalization strategy.

Leveraging on the increased funding the two companies have the ambition to further accelerate their joint business until 2020. The new funding will be focused to explore further opportunities for joint collaborations in the fields of Industrial Security, Industrial Data Analytics, Machine Intelligence, Service Enhancing Technologies and Web of Systems.

“The strategic alliance between Atos and Siemens that we decided to create five years ago is unprecedented. In those five years, we have built a unique partnership, a joint vision and extensive business and technology collaboration that are benefiting both customers of our two groups. Through our joint investment fund, we have enhanced our R&D programs in areas such as business analytics, cyber security, Internet of Things and digitalization services worldwide. We are now entering the next level of our digital cooperation, and I am convinced that our customers will even more benefit from our strategic alliance in the years to come,” said Thierry Breton, Chairman and CEO of Atos SE.

“We are very happy with the development of the Alliance over the past five years,” said Roland Busch, member of the Managing Board of Siemens AG and member of the Board of Atos SE. “The Alliance has driven additional joint order intake for both companies, it has sparked many new innovations and it has contributed to improved shareholder returns. I am also pleased that Atos is a key ecosystem partner for our MindSphere industrial cloud platform,” said Busch.

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## ***T-Systems and Eaton Join Forces to Develop Secure IoT Solutions for Machine and System Builders***

23 November 2016

T-Systems and Eaton have collaborated to develop secure Internet of Things (IoT) solutions that allow machine and system builders to network their applications in the Cloud. The new offering kicks off in Germany where Eaton’s electrical and industrial control components will provide easy connection, based on the OPC UA standard, to the multi-IoT platform of Deutsche Telekom's subsidiary, T-Systems, before rolling it out to the rest of EMEA. This new solution will enable machine builders to monitor and carry out predictive maintenance of complete systems directly from the Cloud, as well as optimising control of wear and tear, operating costs and productivity of the machinery by using intelligent data analysis.

The new IoT solutions provide manufacturers with a major advantage. Thanks to the analysis capabilities of extensive machine data throughout the entire life cycle of one or more machines, irrespective of their location, vast and diverse possibilities for productivity and efficiency gains have been opened up.

Together with pilot customers, the companies are developing IoT service packages that address different use cases based on live data from ongoing production. These will enable machine builders to better

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manage their operations. Users would, for example, be able to determine when worn parts need replacing. They could also analyse the relationship between production output or individual consumption data and components used, such as filters and raw materials, and/or process data, such as temperatures and pressures, in ongoing production processes.

“Small and medium-sized machine and system builders don't usually have the opportunity and the means to invest in secure, high-performance IoT and Cloud technology. It is a great opportunity for them to join forces with trusted partners who can offer them a simple, holistic and safe way to get their machines IoT ready and help them take advantage of the possibilities related to cloud services,” said Stefan Selke, MOEM Segment Marketing Manager EMEA at Eaton.

Wilfried Bauer, Head of System Integration, Digital Solutions, Cloud, Internet of Things at T-Systems added: “We want to supply engineering companies with the technology and components to network their equipment via the Cloud. In addition, we want to support them on their way to Industry 4.0 with digital solutions that can be precisely tailored to their needs.”

Today, only five per cent of the potential of IoT is being used (source: Pierre Audoin Consultants). Reasons for this include the complexity and security of the IoT. T-Systems' multi-IoT platform makes it easy and safe for mechanical engineers to enter the IoT because it combines and connects all the IoT components that the customer wants – whether platforms, IoT devices or software solutions. The multi-IoT platform is hosted and operated in T-Systems' German high-security Cloud computer centre, and meets the strict standards of the German data protection act.

At SPS IPC Drives in Nuremberg, Europe's leading trade fair for electrical automation, the two companies will present their offering to the market for the first time. From 22nd to 24th November 2016 visitors to the Eaton booth (9-371) can learn more about the customer benefits and see live demonstrations of how machines and systems can efficiently and affordably be made 'IoT ready' with Eaton technology and linked directly to Cloud infrastructure with T-Systems.

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## ***TXT Retail Adds Viseo as an Implementation Partner in Asia-Pacific***

22 November 2016

TXT Retail has partnered with VISEO, a global IT consulting firm specialized in assisting companies with their IT and digital transformation, to support its continued growth in the AsiaPacific markets.

As part of the agreement, VISEO professionals will work with the TXT Retail team in implementing the TXT Retail suite of planning solutions to Asia-Pacific customers, further reinforcing TXT Retail's operations in the region.

“Both TXT Retail and VISEO are experiencing robust growth in Asia-Pacific and the tight collaboration we have established will be beneficial for both companies. We have selected VISEO for its consolidated local presence, sound knowledge of the retail market, top level services and technical expertise,” commented Simone Pozzi, CEO of TXT Retail.

TXT Retail is present in Asia-Pacific with its own subsidiaries in Hong Kong, Singapore and Sydney and a growing customer base including tier-1 retailers such as Auchan China, as recently announced.

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WISEO also has a growing client base in APAC, supported by its three hubs in Singapore, Hong Kong and Sydney, which allow flexible and rapid solution deployments across the region.

“We are excited to be working alongside the TXT Retail teams on delivering projects and solutions which are strategic to the rapidly maturing Asian market,” said Nicolas Commare, Executive Director at WISEO Asia. “The ability to cover the merchandise lifecycle from end to-end makes the TXT Retail solution unique in the marketplace and a perfect fit for Asian retailers who increasingly look at planning accuracy as a key lever to boost efficiency and profitability in a very dynamic competitive scenario.”

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## Events News

### ***ESD Alliance to Host Bob Smith, Lucio Lanza, Dan Rubin in Conversation During REUSE 2016***

22 November 2016

**WHO:** The [Electronic System Design Alliance](#) (ESD Alliance), an international association of companies providing goods and services throughout the semiconductor design ecosystem

**WHAT:** Will host Lucio Lanza, managing director of Lanza techVentures, Dan Rubin, general partner of Alloy Ventures, and Bob Smith, the ESD Alliance's executive director, in conversation about the semiconductor intellectual property (IP) market during REUSE 2016. The ESD Alliance will exhibit at REUSE, highlighting its programs, new initiatives and growing list of member companies.

**WHEN:** The discussion, "IoT: Poised to offer huge growth opportunities for the global IP Business," will be held from 4 p.m. to 4:30 p.m. Thursday, December 1. REUSE 2016 will run from 11 a.m. until 8 p.m. Admittance is free.

**WHERE:** Computer History Museum, Mountain View, Calif.

REUSE 2016 is the first of an annual conference and trade show to bring together the semiconductor intellectual property (IP) supply chain and its customers for a full day of everything to do with semiconductor IP.

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### ***Event 1 Software a Big Hit at Annual Viewpoint Users Conference***

22 November 2016

Liberty Reports, the latest generation of Event 1 Software's award-winning Excel-based reporting technology, was a big hit at the recently completed Collaborate 2016, the annual conference for users of Viewpoint Construction Software.

“We were delighted and a bit astonished with the excitement Liberty Reports generated at the Viewpoint conference,” says Mike Newland, President and CEO of Event 1 Software. “People were lined up deep at our booth after our session because they needed something easier to work with than Crystal Reports and their other Viewpoint options. Everyone wanted a robust reporting tool they could use on their own.”

The sense of excitement for Liberty Reports was captured well by Milena Urc, Staff Accountant at Miller-Valentine Group, who took in the Event 1 Software session on Liberty Reports.

“I was blown away by what I saw in the session,” Urc says. “I could immediately see that Liberty Reports was going to make end-of-the-month reporting, end-of-quarter, and end-of-year reporting so much easier for everyone companywide.” Urc’s colleagues were impressed as well.

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## Financial News

### ***HPE Reports Fiscal 2016 Full-Year and Q4 Results***

22 November 2016

Hewlett Packard Enterprise ([HPE](#)) today announced financial results for fiscal 2016 and the fourth quarter, ended October 31, 2016.

Fiscal 2016 net revenue of \$50.1 billion was down 4% from the prior-year period, up 2% when adjusted for divestitures and currency.

Fiscal 2016 GAAP diluted net earnings per share (EPS) was \$1.82, up from \$1.34 in the prior-year period, and below its previously provided outlook of \$2.09 to \$2.14. Fiscal 2016 non-GAAP diluted net EPS was \$1.92, up from adjusted non-GAAP diluted net EPS of \$1.84 in the prior-year period, and within its previously provided outlook of \$1.90 to \$1.95. Fiscal 2016 non-GAAP net earnings and non-GAAP diluted net EPS exclude after-tax costs of \$176 million and \$0.10 per diluted share, respectively, related to the gains on the divestitures of H3C and MphasiS, restructuring charges, amortization of intangible assets, separation costs, tax indemnification adjustments, tax settlements, acquisition and other related charges, and an adjustment to loss from equity interests.

Fourth quarter net revenue of \$12.5 billion was down 7% from the prior-year period, down 2% when adjusted for divestitures and currency.

Fourth quarter GAAP diluted net earnings per share (EPS) was \$0.18, down from \$0.75 in the prior-year period, and below its previously provided outlook of \$0.44 to \$0.49. Fourth quarter non-GAAP diluted net EPS was \$0.61, up from adjusted non-GAAP diluted net EPS of \$0.52 in the prior-year period, and within its previously provided outlook of \$0.58 to \$0.63. Fourth quarter non-GAAP net earnings and non-GAAP diluted net EPS exclude after-tax costs of \$733 million and \$0.43 per diluted share, respectively, related to tax settlements, restructuring charges, tax indemnification adjustments, separation costs, gains on the divestitures of H3C and MphasiS, amortization of intangible assets, acquisition and other related charges, and an adjustment to loss from equity interests.

"FY16 was a historic year for Hewlett Packard Enterprise," said Meg Whitman, President and CEO of Hewlett Packard Enterprise. "During our first year as a standalone company, HPE delivered the business performance we promised, fulfilled our commitment to introduce groundbreaking innovation, and began to transform the company through strategic changes designed to enable even better financial performance."

[Read the PDF here.](#)

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## Product News

### *Centric Software and Adobe Deepen PLM-to-Illustrator Integration*

22 November 2016

Building on its commitment to continuous innovation, Centric Software has released version 3.0 of its market-driven product lifecycle management (PLM) Connector for Adobe Illustrator CC, the industry-standard vector graphics app for sketching, illustration, logo, icon and typography design. Centric Software is the leading PLM solution for fashion, retail, footwear, outdoor, luxury and consumer goods companies. Centric's updated Adobe Illustrator Connector allows brands, retailers and manufacturers to centralize all information pertinent to the product development cycle such as creative, technical and production related details. This information can be accessed directly through Illustrator.

A great user experience has long been a priority for Centric; usability is a deciding factor in the adoption of Centric Software by some of fashion and retail's biggest names. Designers often lack the time to get accustomed to new software environments and do not accept tools that will weigh down their imagination.

"Our goal is to make designers feel at home by bringing the essential elements of PLM, such as a BOM Builder for creating or modifying Bills of Material, into the familiar Adobe Illustrator workspace; the same workspace as flat and technical sketches, fabrics and colors," says Ron Watson, VP Product Development, Centric Software. "When designing Centric's Adobe Connector, we looked at many details including the time to install (a few minutes) and the number of clicks needed for common tasks (only two in many cases)."

Centric's integration with Adobe Illustrator CC allows designers to sketch new designs within the familiar app interface and access the same textile, fabric and color information that is also used by the rest of the product development team as well as suppliers. From Centric's Adobe Illustrator Connector, designers can share final sketches, line sheets and other designs directly in Centric PLM for better collaboration with brand managers and merchandisers. Centralized information create one actionable version of the truth and results in a faster time to market.

"Adobe is committed to providing seamless, collaborative experiences that address the needs of businesses today," said Anubhav Rohatgi, Group Product Manager for Illustrator and InDesign at Adobe. "The updated Illustrator CC integration with Centric Software gives designers full creative flexibility to manage ideas from concept to production, and collaborate with sales and production teams within Adobe Illustrator CC."

"A key part of our strategy is to provide best-in-class innovative solutions," says Chris Groves, President and CEO of Centric Software. "With version 3.0 of the Centric Adobe Connector, we have built a comprehensive, cohesive link between Centric PLM and Adobe Illustrator so that designers can contribute their expertise, both creative and technical, as it best suits them. We are very excited to be working so closely both with Adobe and our customers in order to develop solutions driven by the market."

Centric's Adobe Connector is compatible across all versions of Creative Cloud including the cutting-edge 2015.3.

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## ***Leica BLK360 Pro 3D Scanner Launched Alongside Autodesk ReCap 360 Pro App***

21 November 2016

Leica Geosystems has launched its BLK360 Imaging laser 3D scanner alongside Autodesk's ReCap 360 Pro app.

The BLK360 is one of the smallest and lightest of 3D scanners of its kind, but also, as a result of its single-button controls and mobile device app, offers a simple user experience.

The 3D scanner features a 60m measurement range for full dome scans, with a complete full-dome laser scan, 3D panoramic image capture and transfer to the iPad Pro taking a claimed three minutes.

Self-leveling, the miniaturised 3D imaging laser scanner weighs about 1kg and easily fits into a bag or large pocket.

Capable of capturing full-color panoramic images overlaid on a high accuracy point cloud, accurate at distances up to 60 meters, the device captures HDR images, as well as thermal images, has built in lights, so it can work in low light.

The device was described as waterproof and could be mounted on a tripod, on a ceiling or on its stand.

Using the ReCap Pro 360 mobile app, the BLK360 streams image and point cloud data to iPad, with the app filtering and registering scan data in real-time.

After capture, ReCap 360 Pro enables for point cloud data transfer to a number of CAD, BIM, VR and AR applications.

"When Autodesk first introduced ReCap, it was for one purpose: the democratisation of reality capture," said Aaron Morris, who oversees reality solutions at Autodesk.

"We saw the tremendous power of this technology for the AEC industry, but realized that the cost and portability of scanners combined with difficult-to-use data was limiting the adoption of reality capture. Autodesk's collaboration with Leica Geosystems helps solve these issues by giving just about anyone access to the amazing advantages of reality data."

A BLK360 and Autodesk ReCap 360 Pro Bundle will be available to order in March 2017.

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## ***Mastercam® 2017 for SOLIDWORKS®***

21 November 2016

Mastercam 2017 for SOLIDWORKS is a CAM application that is fully integrated into SOLIDWORKS. Users can program parts directly in SOLIDWORKS using Mastercam's industry-leading toolpaths and machining strategies. In addition to all the improvements to Mastercam Mill and Lathe, Mastercam 2017 for SOLIDWORKS features the Analyze Toolpath, improved Tplanes, and so much more.

### Analyze Toolpath

To make your job easier, Analyze Toolpath is used to display toolpath information such as coordinates, direction, operation number, and more when you hover over any part of the tool motion. Green and red arrows display at the start and end points of the entire path. When hovering over an element that is not an endpoint, a tooltip will display information that is specific to the entity.

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## Tplanes

To simplify your work, Tplanes are now associated to the SOLIDWORKS geometry that was used to create them. When a modification to the SOLIDWORKS geometry affects multiple planes, Mastercam for SOLIDWORKS displays a message asking you to confirm your changes.

## CAD Functions

The Mastercam 2017 tab now includes a CAD Functions menu which contains the Create Boundary and Create Letters functions. These will create SOLIDWORKS geometry. The Roll-Unroll function is used to wrap geometry about an axis, or to unwrap rolled entities to make them lie flat. Mastercam creates a sketch from the resulting geometry.

Also available in the Mastercam 2017 for SOLIDWORKS release is:

- To view real-time operation data about selected toolpaths, you can choose the Display toolpath statistics option.
- Category-specific icons are now included on the SOLIDWORKS ribbon bar. All drop-downs now have an icon that matches the first of the functions to make it easier to find what you are looking for.
- Those who purchase or update to Mastercam Mill 2017 or Mastercam Lathe 2017 will also be able to use the corresponding version of Mastercam for SOLIDWORKS.
- New Chip Break is available in Mastercam for SOLIDWORKS Lathe and is valuable when working with stringy materials, and allows you to set length and time conditions, retract, and dwell options.
- Code Expert enhancements including fonts and colors in NC Configuration and character coding.
- Mastercam Simulator Auto Start which allows Mastercam Simulator to immediately begin to play once a sufficient amount of data has been transferred.
- Custom Tool Display allows users to define a tool using parametric properties along with a custom profile that can be imported from a CAD file.

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## ***Vectorworks, Inc. Introduces Enhanced Collaboration Workflows with Bluebeam, Inc.'s Revu Software***

22 November 2016

Today, global design and BIM software developer Vectorworks, Inc. introduces the Service Pack 2 update for Vectorworks 2017, which includes a multitude of general improvements to the software along with enhanced compatibility with Bluebeam® Revu® PDF creation, editing and markup software from Bluebeam, Inc., a leading developer of technology solutions for the architectural, engineering and construction (AEC) industries. This improved functionality will appear in the 2017 product line, specifically Vectorworks® Architect, Landmark, Spotlight and Designer.

"Accessible open standards, flexible design processes and overall productivity gains are highly prioritized by the design community," said Steve Johnson, vice president of product development at Vectorworks. "With this in mind, we teamed up with our partner and sister company within the

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Nemetschek Group, Bluebeam, to provide an optimized PDF export between our robust BIM software and Bluebeam Revu."

As part of the new collaboration capabilities, Vectorworks 2017 has an improved PDF export functionality that now automatically includes Vectorworks space object data and attributes. Space objects can be used as dynamic, data-rich massing model components, supporting BIM workflows as part of the 2D/3D design process with parametric modeling. These data-rich PDF files can be readily imported by Revu users, saving time and increasing accuracy by eliminating the need to enter space object data manually every time an architect issues a revised set of construction drawings.

"When it comes to developing a seamless set of applications that work together, interoperability is everything," said Don Jacob, CTO at Bluebeam. "Vectorworks and Bluebeam worked together to tailor a solution for their users that streamlines data transfers, preserving valuable data in the process that Revu users can use to begin working with immediately."

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