CIMdata

# PLM Industry Summary

Sara Vos, Editor

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# CIMdata News

***The Aerospace & Defense PLM Action Group Launches New Website***

29 November 2017

CIMdata, Inc., the leading global PLM strategic management consulting and research firm, announces the creation of a new website to promote the work being undertaken by the Aerospace & Defense PLM Action Group.

The Aerospace & Defense PLM Action Group (A&D PAG) is an association of aerospace & defense companies that functions as an advocacy group to sponsor research and set the direction for the industry on PLM-related topics such as; obsolescence management, product lifecycle integration, and global collaboration. Since its founding in February 2014, by four leading airframe OEMs, the group's membership has expanded to 10, including several leading aircraft engine providers. As an outcome of the group's sponsored research and jointly staffed projects, the members have determined to communicate and promote within the PLM industrial user community the perspectives, objectives, and requirements documented in their direction statements and position papers.

James Roche, CIMdata's Director for Aerospace & Defense stated, "After three years of progress the A&D PAG members thought it was time to share their work in the public domain. This move is aligned with the group's mission to promote consensus within the industry on PLM-related topics."

The new website offers visitors information about the members of the A&D PAG, the work they are undertaking, and includes access to direction statements, position papers, and other publications produced by the group.

For more information and to download documents of interest to the Aerospace & Defense industry visit the site at www.ad-pag.com/.

**About the Aerospace & Defense PLM Action Group**

The Aerospace & Defense PLM Action Group is an association of aerospace OEMs and aircraft engine providers, within CIMdata's globally recognized PLM Community Program, which functions as a PLM advocacy group to:

- Set the direction for the aerospace & defense industry on PLM-related topics that matter to members (including promoting, not duplicating, the work of standards bodies)
- Define requirements for common interest PLM-related capabilities
- Communicate with a unified voice to PLM solution providers
- Promote common industry PLM processes and practices
- Sponsor collaborative PLM research on prioritized industry and technology topics

CIMdata administers group operations, coordinates research, and manages the progression of policy formulation.

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***Machine Learning Driven Parts Classification (CIMdata Commentary)***

29 November 2017

*Key takeaways:*

- *Wipro's application of machine learning to parts classification has opened the door for large scale parts classification while reducing subject matter expert effort to reasonable levels.*
- *Wipro's machine learning driven parts classification retains flexibility by leveraging reference standards such as UNSPSC, e-class, and IPC.*
- *Wipro's machine learning driven parts classification can be applied beyond the realm of engineering, for example, into purchasing for supply chain spend analysis and optimization.*
- *Wipro's intelligent parts classification solution can be extended to resolve multi-lingual product development issues such as parts description translation, conversational interfaces (chatbots and voice commands), labels, etc.*

**Efficiency of Large-Scale Parts Classification**

The growing engineering complexity of products and product systems, coupled with the prevalent global product development and global supply chain strategies, has resulted in undue parts proliferation, which negatively impacts the cost and quality of products. In contrast, effective parts reuse, while delivering on product innovation, is key to competitiveness in the global market place. Though parts reuse may hinder clean-sheet innovation, it helps strike a balance between product innovation and product risk, which is crucial for long-term success.

The effectiveness of parts reuse depends on efficiently capturing and storing all pertinent parts information, coupled with easy and quick search capabilities when and where needed. This, however, has proven to be such a challenge that engineers and product designers often prefer to create new parts instead of searching, thereby wasting time and adding undue cost. Additionally, product performance risk could be elevated due to newly created parts whose behavior is not fully understood. Essentially, the inability to search existing parts quickly leads to increased parts cost, bloated parts inventory, and higher product performance risk, while worsening the search problem further due to the sheer number of parts that need to be searched.

Parts information is needed in several functional organizations within a business. In engineering, the impact is felt in early stages of the product lifecycle where answers to questions about parts availability for reuse, supplier approval status and quality, functional capabilities, cost targets, and compliance are

all sought. In sourcing, the questions usually are about alternative suppliers for parts, low cost alternatives, supplier technologies, and supplier prices. In quality and compliance, questions that come up are about consistent poor performance of suppliers, significant changes to manufacturing processes, status of test plans, and exposure to directives such as RoHS and regulations such as REACH, for example.

Lack of availability of consistent parts information across organizational boundaries leads to less than optimal performance at many points along the product lifecycle, and could result in lost productivity, product-launch delays, lost intellectual property, increased warranty costs, slow volume ramp up, missed cost targets, and other negative and costly results.

CIMdata believes that the challenge of reuse is mainly due to inefficient parts libraries, which become worse with every merger or acquisition. CIMdata finds that usually, existing parts are found in PDM and PLM solutions and are identified with a part number and a small number of part attributes. As a result, designers and engineers need to have prior knowledge of the parts of interest to be able to find them. When parts need to be searched across organizational and geographic boundaries, searches based on a small number of attributes prove inefficient, creating disconnects with far reaching consequences for the business.

To improve the efficiency of classification associated with parts libraries, the following are often mentioned as desirable:[1]

- Category management should allow quick changes to the class structure to support an iterative convergence to a robust structure.
- Ability to manage attributes at the category level should be possible so that adding and modifying attributes across multiple categories is possible.
- Tools should be available for automatic cleansing of data at large scales across multiple parts and categories.
- Data quality validation tools should be available for performing initial checks to ensure the whole dataset meets the basic requirements.
- Identification of duplicates and trends in the data should be possible using analytical tools.
- It should be possible to implement workflows so that multiple users can review and approve attributes, items, and categories associated with large volumes of data.

Assuming that such a flexible and robust classification system for parts libraries can be set up, CIMdata is convinced that it would still be a daunting task for a business to undertake parts classification for the first time. The manual classification of parts could stretch over three to four years, involving subject matter experts in the process. The OEMs and suppliers in automotive, aerospace, heavy equipment, and other industries have several million parts in their PDM/PLM solutions, and the task of manually classifying all those parts, while checking for and eliminating duplicates, is challenging. Additionally, the outcome would still be error prone, potentially making the entire effort irrelevant.

CIMdata believes that application of computer-based analytics to such large-scale parts classification appears imperative for timely and error-free completion. The algorithms used in machine learning and predictive analytics appear very appropriate for application to parts classification with reference to standards such as UNSPSC, eClass, and IPC.

**Wipro's Machine Learning Applied to Large-Scale Parts Classification**

Wipro has recently applied the machine learning capabilities available in its Artificial Intelligence platform, HOLMES, to address the challenges of large-scale parts classification. The application involves parts classification based on the reference standard UNSPSC, and can use other standards such as eClass or IPC.

Wipro HOLMES leverages elements of machine learning, natural language processing, genetic and deep learning algorithms, semantic ontologies, pattern recognition, and knowledge modelling technologies provide solutions that are meant to support cognitive enhancement to experience and productivity, accelerate processes through automation, and potentially enable autonomous abilities.
The following are some of the relevant applications of Wipro HOLMES:

- Digital virtual agents for enhancing user experience with capabilities like speech recognition and natural language understanding.
- Predictive systems for extracting meaning from different forms of data, i.e., using tools and techniques for discovering patterns and predicting future outcomes and trends.
- Cognitive process automation that is defined and executed based on a loose set of instructions or logic. The instructions are largely machine-learnt, evolve continuously, and can be user-defined as well.
- Robotic automation powered by a repetitive set of instructions. These instructions are mostly defined by the user and sometimes machine-learnt.

In leveraging the machine learning capabilities of Wipro's HOLMES for parts classification, a random sample of the population of all parts is clustered using an unsupervised KMeans based learning algorithm. In each cluster, the subject matter experts manually classify a few parts. This manually classified set is the starting point for the supervised learning model that uses the Multinomial Naive Bayes algorithm for training.

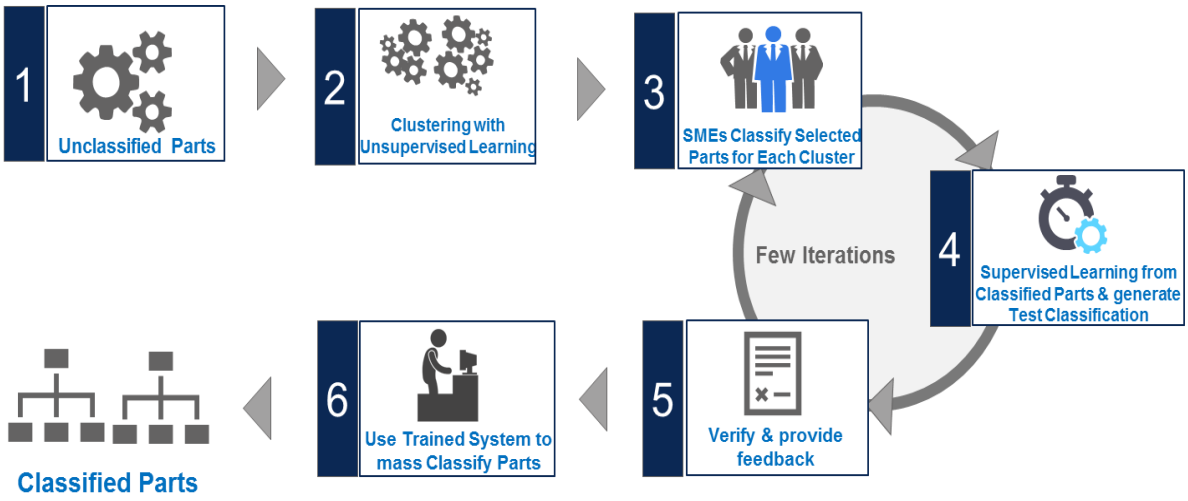


**Figure 1—Wipro's Machine Learning Driven Parts Classification**

The trained model predicts classifications of the remaining parts. The predictions are validated by the SME, and the errors are identified for correction. The corrected classifications are then used for further fine-tuning of the model. Within a few iterations, Wipro's machine learning based parts classification solution can classify parts to 85% to 90% accuracy. The SMEs then only need to carry out manual classification for 1% to 5% of the parts, which in CIMdata's opinion is a reasonable effort.
Even with multilingual parts descriptions in the mix, Wipro's parts classification solution can classify parts to a high level of accuracy, so long as sufficient training data is provided. When parts attributes are more precise, high accuracy of parts classification can be achieved with a relatively low volume of training data.

In applying its machine learning driven parts classification, Wipro typically has observed a 50% to 60% reduction in time taken to classify the parts, which translates into a proportionate savings in the cost of parts classification.
Additionally, the natural language processing and the recurrent neural network capabilities in Wipro's machine learning offering can help resolve issues related to multiple languages and conversational interfaces, which often create challenges for global product development. Product labelling and packaging art work is another area of application in which the Wipro solution can address translation problems faced by Process/CPG industries.

**Summary**

Over the years, CIMdata has kept track of several different methods of parts classification that have been proposed. In general, CIMdata has found that parts classification remains a challenging endeavor that progresses slowly while requiring considerable dedicated resources. CIMdata believes that any form of automation that can help the speed and the ease of parts classification will be beneficial to the cost and quality of products.
CIMdata finds that Wipro's machine learning based parts classification solution is a very effective way of resolving the issue of slowness and manpower intensiveness of classifying parts, especially in cases of mergers and acquisitions.
CIMdata has looked at Wipro's machine learning based parts classification solution and the time and effort required of the SMEs for training the model is reasonably small and consequently it is not likely to demand undue time away from their regular occupation for SMEs.
Finally, CIMdata is convinced that Wipro's machine learning driven parts classification solution offers a very effective tool supporting a fast and economic way of classifying parts and expects that Wipro will be helping its customers and prospects very frequently in this effort.

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# Company News

***Accenture Invests in and Forms Strategic Alliance with Leading Quantum Computing Firm 1QBit***

28 November 2017

Accenture has made a minority investment in 1QBit, a leading quantum computing firm based in Vancouver, British Columbia, through Accenture Ventures. The move will help Accenture expand its capabilities in quantum computing analytics, heralding a new era of intelligence for businesses and organizations. Terms of the transaction were not disclosed.
In addition, the two companies have formed a strategic alliance under which Accenture will be 1QBit's preferred systems integrator. Accenture has also been granted a license to use the 1QBit platform for demonstration, training, and the development and testing of Accenture tools and assets. Accenture will leverage its alliance with 1QBit to develop a quantum-inspired analytics capability through Accenture Analytics and scale pilot opportunities identified through the Accenture Labs.
Quantum-inspired analytics harnesses the power and properties of quantum computing to tackle business problems by orders of magnitude faster than traditional computing.
1QBit builds quantum and quantum-inspired software to help organizations solve their most demanding computational challenges. Its interdisciplinary team comprises mathematicians, physicists, chemists, software developers and quantum computing experts who develop novel solutions to problems, from research through to commercial application development.

"By strengthening our relationship with 1QBit, Accenture has a significant opportunity to extend our first-mover advantage in applying quantum computing to create breakthrough innovations that help clients solve their most complex business challenges," said Paul Daugherty, Accenture's chief technology & innovation officer. "The potential applications and benefits of quantum-inspired analytics is generating strong interest across numerous industries including financial services, life sciences, and oil & gas."

Andrew Fursman, 1QBit's CEO and co-founder, said, "Establishing a strategic relationship with Accenture enables us to tap their vast capabilities, and bring 1QBit's expertise in quantum computing to a much broader base of clients. We are incredibly excited about the opportunities that our new relationship provides to help organizations take advantage of the benefits created by quantum-inspired analytics."

"Quantum computing is a turbocharger for analytics and the creation of new intelligence," said Narendra Mulani, chief analytics officer, Accenture Analytics. "We see massive potential for using the 1QBit platform on behalf of our clients to pursue quantum-inspired analytics, which will help us unlock even more value trapped in their data and find new opportunities to transform their businesses."

Earlier this year, Accenture and 1QBit announced that they collaborated with Biogen to develop a first-of-its-kind quantum-enabled molecular-comparison application that could speed up drug discovery for complex neurological conditions such as multiple sclerosis, Alzheimer's, Parkinson's and Lou Gehrig's disease.

Striving to be an innovator in the development of quantum-inspired enterprise solutions and applications, Accenture has already filed multiple patent applications. Examples include a multi-state quantum optimization engine that solves complex optimization problems by using nested calls to multiple quantum computing devices, and quantum computing methods to improve transportation systems, for example, to optimize the flight path of a drone system.

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### *Altair's Dr. C. J. Reddy Named 2018 IEEE Fellow*

30 November 2017

Dr. C. J. Reddy, Vice President of Business Development-Electromagnetics, Americas, of Altair has been named an IEEE Fellow by the Institute of Electrical and Electronics Engineers (IEEE). He is being recognized for leadership in simulation methods for antenna placement and co-site analysis. Dr. Reddy's technical leadership in antenna placement and co-site analysis will continue to have a lasting impact on society as antennas for wireless technology become ubiquitous.

The IEEE Grade of Fellow is conferred by the IEEE Board of Directors upon a person with an outstanding record of accomplishments in any of the IEEE fields of interest. The total number selected in any one year cannot exceed one-tenth of one- percent of the total voting membership. IEEE Fellow is the highest grade of membership and is recognized by the technical community as a prestigious honor and an important career achievement.

"I have personally known Dr. Reddy for over 17 years and have thus had the opportunity to observe his highly exceptional technical leadership qualities, and his successful and nurturing mentorship of young antenna and electromagnetics engineers over the years," said nominating Professor Prabhakar Pathak of the Ohio State University. "Indeed, the IEEE has recognized his distinctive contributions to the

professional antenna community by recently electing Dr. C. J. Reddy to the highest membership grade of an IEEE Fellow. More specifically, the citation for this honor of IEEE Fellow conferred on C. J. Reddy by the IEEE reads as follows "for leadership in simulation methods for antenna placement and co-site analysis." I heartily congratulate Dr. Reddy for his receiving this well-deserved rank of IEEE Fellow" he said.

"It is my great pleasure to congratulate Dr. C.J. Reddy for this exceptional achievement of being named 2018 IEEE Fellow," said Dr. Ulrich Jakobus, Vice President of Electromagnetic Solutions at Altair and also Fellow of the IEEE. "It underlines his dedication and leadership in the computational electromagnetics (CEM) domain applied to antenna analysis and co-site studies. I met Dr. Reddy for the first time in 2002, and since then he was (in addition to the CEM project work) supporting our CEM simulation tool FEKO for our customer base in North America. I am looking forward to count on the exceptional knowledge and expertise of Dr. Reddy for many years to come", he added.

Dr. C. J. Reddy received his Ph.D. in 1988 in Electrical Engineering from the Indian Institute of Technology (IIT), Kharagpur, India. He graduated with a Bachelor's degree in Electronics and Communication Engineering, from the National Institute of Technology (NIT), Warangal in 1983 and a Master's degree in Microwave and Optical Communications from IIT, Kharagpur in 1986. Dr. Reddy was a National Research Council (NRC) research associate at NASA Langley Research Center, and previously a research fellow at the Natural Sciences and Engineering Research Council (NSERC) of Canada. While conducting research at NASA Langley, he developed various computational codes for electromagnetics and received a Certificate of Recognition from NASA for development of a hybrid Finite Element Method/Method of Moments/Geometrical Theory of Diffraction code for cavity backed aperture antenna analysis. Dr. Reddy was also the President of Applied EM Inc. (2000-2017). At Applied EM, Dr. Reddy successfully led many Small Business Innovative Research (SBIR) projects from the US Department of Defense (DoD) to develop innovative antenna technologies. He is a Senior Member of Antenna Measurement Techniques Association (AMTA) and has been elected Fellow of the Applied Computational Electromagnetic Society (ACES) in 2012. Dr. Reddy is a member of IEEE APS - Industry Initiatives Committee (IIC) and RFID Technical Committee (TC-24) of the IEEE MTT-S. He serves on Industry Advisory Boards (IAB) of Department Electrical Engineering of the Old Dominion University and the Virginia Commonwealth University. Dr. Reddy received 2015 Distinguished Alumni Professional Achievement Award from NIT, Warangal.

He has published 39 journal papers, 83 conference articles to-date and a book chapter on computational electromagnetics. Dr. Reddy is a co-author of the book, "Antenna Analysis and Design Using FEKO Electromagnetic Simulation Software," published in June 2014 by SciTech Publishing (An Imprint of IET).

The IEEE is the world's leading professional association for advancing technology for humanity. Through its 400,000 plus members in 160 countries, the association is a leading authority on a wide variety of areas ranging from aerospace systems, computers and telecommunications to biomedical engineering, electric power and consumer electronics.

Dedicated to the advancement of technology, the IEEE publishes 30 percent of the world's literature in the electrical and electronics engineering and computer science fields, and has developed more than 1300 active industry standards. The association also sponsors or co-sponsors nearly 1700 international

technical conferences each year. If you would like to learn more about IEEE or the IEEE Fellow Program, please visit www.ieee.org.

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***AVL Adds Multi-Disciplinary System Simulation Software to the Altair Partner Alliance***

29 November 2016

The Altair Partner Alliance (APA) is pleased to announce the addition of AVL CRUISE™ M to its current software offering of AVL FIRE™ M and AVL EXCITE™ Acoustics. AVL CRUISE™ M is a multi-disciplinary system simulation solution designed for model-based development using high quality real-time models from different domains (engine, flow, after-treatment, driveline, electrics, hydraulics, etc). A state-of-the-art graphical user interface enables setup and execution of the entire modelling workflow from building the model to the post-processing of the simulation results.

"With specific solutions for powertrain and thermal management, AVL CRUISE™ M offers HyperWorks users the ability to not only calibrate ECUs with a virtual engine at an early stage but also to help support the control system development in the validation phase, said Keshav Sundaresh, Global Director of Business Development for Math and Systems at Altair. "HyperWorks currently offers fully integrated and automated 1D-3D CAE solutions for powertrain simulation and optimization including a single solver format for analysis of NVH, structures and durability, multi-physics coupling and system simulation. We're very excited to add AVL CRUISE™ M to the APA ecosystem and further enhance the toolset for holistic engine and powertrain development."

The AVL CRUISE™ M numerical solver is tailored for efficient multi-physics system simulation and is combined with a highly flexible, multi-level modeling approach open to 3rd party tools offering FMI as a standard model exchange interface. The software seamlessly supports control function and strategy development tasks, xCU calibration on HiL systems and component testing on test systems. This highly versatile tool is applicable through the entire development process, making the advantages of multi-physics system simulation more accessible than ever.

"We are delighted to add AVL CRUISE™ M to our APA offering," said Robert Strasser, Lead Engineer Real Time & System Simulation, Development Large Engines, Engineering and Technology Powertrain Systems at AVL List GmbH. "AVL CRUISE™ M is a valuable tool within the entire development process supporting customer and R&D projects in the field of large engine system simulation applications as well as in engine control development and calibration reducing development time and costs for HyperWorks users."

AVL CRUISE™ M is typically used in design and assessment of powertrain concepts, system layout analysis, balancing energy flow and energy management system optimization. An integrated scalable model fidelity approach enables the utilization of the AVL CRUISE™ M subsystem and overall vehicle models anywhere in the powertrain development process from concept phase to testing.

An introductory webinar for AVL CRUISE™ M will be held on December 14th at 10 a.m. ET with a focus on using CRUISE™ M for model-based control function development. For more information about the software, please visit the product page for AVL CRUISE™ M.

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### *C3D Labs Technology Presented at IntelliCAD World Conference 2017*

27 November 2017

IntelliCAD Technology Consortium (ITC) held its conference November 6-8 in Auckland, New Zealand, attended by C3D Labs. The IntelliCAD World Conference brings representatives from member companies that develop engineering software based on the IntelliCAD platform.

C3D Labs CEO Oleg Zykov and lead developer Alexander Spivakov presented the C3D portfolio to the conference, describing its features and licensing terms. Consortium members showed their interest in C3D's software components, particularly the C3D Modeler for Teigha. While IntelliCAD uses Teigha Platform from the Open Design Alliance, the built-in ODA Modeler cannot provide all functions necessary for 3D modeling.

Also of interest to ITC members was the C3D Solver for performing 2D and 3D parametric constraints, and the C3D Converter for file translation. These components promise to improve software products developed and sold by ITC members.

At the conference, ITC and C3D Labs signed an evaluation agreement for the C3D Toolkit. Following testing, a decision will be made whether to use C3D components in the IntelliCAD product provided by ITC and by individual members. ITC develops the base IntelliCAD program, which members then enhance and promote in geographic and vertical markets.

"ITC members are always looking for new components that provide additional value to their customers," said David Lorenzo, ITC President. "At our conference, C3D Labs demonstrated several high-value CAD components, and we look forward to exploring further collaboration."

"The conference was very productive for us," said Oleg Zykov, CEO of C3D Labs. "In our discussions with the Consortium's developers and participants, we clarified their expectations regarding our tools, and identified promising areas for future collaboration. This is a good start."

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### *Capgemini Named Backbase Growth Partner of the Year*

29 November 2017

Capgemini today announced that it has been named the "Growth Partner of the Year" by Backbase, the fastest-growing FinTech software company. Presented at the annual Backbase Connect conference, the award recognizes Capgemini as the alliance partner with the largest number of Backbase implementations in 2017. With more than a dozen implementations completed or underway, Capgemini is deploying the innovative Backbase platform to deliver personalized, omni-channel banking customer journeys that provide exceptional brand experiences across all digital touchpoints.

Patrick Rood, Global Head of Alliances and Partner Business at Backbase, said, "We have worked closely with Capgemini for the past few years and it has been very rewarding to see Capgemini's team fully embrace all the capabilities of our platform and demonstrate this through so many successful

implementations globally. This award exemplifies our collaboration as we reach the next level and create a global force of digital banking implementation experts that help our joint clients to successfully accelerate their digital transformation."

Backbase is a single platform for building, running, managing and optimizing digital banking apps. Capgemini's implementation of Backbase offers a highly innovative, end-to-end digital solution for banks, from digital design and business consulting to implementation, test automation and support. All of this is enhanced by both companies' deep financial services knowledge base, IT acceleration, and agility. Capgemini now has more than 230 certified Backbase consultants to support the strong demand for the combined solution.

Anirban Bose, Head of Global Banking and Capital Markets for Capgemini, said, "The sheer number of client engagements that we have implemented in one year is testimony to the value that we place on both the Backbase software and our relationship. We see a bright future working together with Backbase to give our clients access to innovative solutions for their end-to-end digital transformation and appreciate being recognized for our work together through this award."

Backbase Connect, held on November 27th through November 29th in Amsterdam, brought together more than 500 customers, partners and industry thought leaders to discuss how Backbase is enabling them to meet their digital transformation goals.

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***FIDM, the Fashion Institute of Design & Merchandising, to teach NGC's Andromeda Cloud Platform to Tomorrow's Fashion Leaders***

28 November 2017

NGC® Software today announced that FIDM (Fashion Institute of Design & Merchandising), one of the top fashion and design schools in the U.S., will teach NGC's next-generation AndromedaTM Cloud Platform as an integral part of its educational curriculum.

"FIDM is excited to bring Andromeda into the classroom, and our students are looking forward to learning this new technology," said Barbara Bundy, Vice President, Education, FIDM. "Our leadership team at the college is impressed by NGC's deep knowledge of the fashion industry, their long-time presence in Los Angeles and their impressive base of West Coast customers. NGC is very passionate about the role that technology plays in the fashion industry, and Andromeda will give FIDM students invaluable training to prepare for leadership roles in our industry."

NGC's Andromeda cloud platform powers the digital supply chain. Andromeda brings together all departments – Merchandising, Product Development, Sourcing, Compliance, Purchasing, Production, Quality, Logistics, Marketing and Sales – in a single cloud-based solution that connects vendors, suppliers and other providers. In today's new era of retail, brands and retailers must react faster than ever to the latest data and trends, in order to give consumers what they want, when and where they want it.

FIDM is offering instruction in NGC Andromeda solutions in the areas of Merchandise Product Development, Apparel Industry Management, Menswear and Apparel Technical Design. The courses will provide FIDM's students with hands-on training in real-world solutions for product development; merchandising costing and specification; collection design; sourcing and inventory management; quality

control management; production control and planning; market analysis and presentation; and marketing and collection analysis.

“NGC is very supportive of FIDM’s decision to include Andromeda in a variety of courses offered to their students,” said Mark Burstein, president, NGC Software. “The fashion industry is going through unprecedented disruption and innovation, and technologies such as Andromeda are critical to helping companies succeed in the new world of retail and fashion. Bringing Andromeda into the classroom prepares FIDM’s students for their new careers and enables companies to hire individuals that can become productive more quickly because of that early exposure.”

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***Infosys Partners with HPE to Help Customers with Mainframe Modernization***

27 November 2017

Infosys today announced a partnership with Hewlett Packard Enterprise (HPE) to offer a joint end-to-end mainframe modernization solution, which will provide global enterprise customers robust hardware and advanced software architecture.

Infosys' Mainframe Modernization Solution powered by HPE's Mission Critical Computing Systems is aimed at fueling innovation and obtaining cost efficiencies while maintaining security and scale. The joint solution by Infosys and HPE will offer customers an integrated platform that will transform their legacy applications to the latest hardware and software architecture, enable cloud and mobile ready applications, and simultaneously reduce cost and enhance customer experiences.

This solution facilitates development of new business models supported by new technologies such as Artificial Intelligence (AI), Automation, and newer classes of middleware and database architecture which will enable companies to transform seamlessly from mainframe platforms.

Ravi Kumar, President & Deputy Chief Operating Officer, Infosys, said "Digital transformation is being embraced by enterprises across various industries. Infosys, through this partnership with HPE, aims at co-creating and enabling clients to simplify their IT landscape by redeploying existing mainframes on modern architecture. Customers will be able to re-host and re-engineer their business critical enterprise applications on modern hardware and software architecture to scale and accelerate the business impact in a secure manner. This will lead to enhanced productivity for customers across industry segments. This partnership with HPE will help clients modernize their mission-critical infrastructure with confidence."

Paul Hunter, Global Channel Chief, HPE, said, "We have a strong line-up of robust and secure systems helping organizations successfully migrate their mainframe environments with a wide range of complexities and mission critical requirements, towards a secure hybrid IT environment. Our partnership with Infosys will help enterprises transformation and generate significant value in today's competitive business landscape."

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***Infosys to Partner with the State of Rhode Island to Open Design and Innovation Hub and Create 500 New Jobs in Five Years***

27 November 2017

Infosys today announced a multi-year partnership with the State of Rhode Islandto establish an Infosys Design and Innovation Hub. Infosys will also hire 500 American workers in Rhode Island over the next five years.

"We are excited to welcome Infosys to Rhode Island," said Governor Raimondo. "Because of our investments in higher education and job training at CCRI and other institutions across the state, Rhode Islanders are well-equipped and well-prepared to compete for these good paying jobs. Infosys joins a growing local market of innovative, advanced industry companies that have chosen to plant a flag in Rhode Island."

"Today's partnership with Rhode Island marks another important step forward for Infosys in the United States. The state's educational institutions, design-rich environment, and economic development tools, positioned Rhode Island competitively for this type of specialist partnership," said Ravi Kumar, President, Infosys. "This will enhance our ability to provide design-driven, digital technologies across the country and enable breakthrough innovations at the intersection of industry and design for our clients."

Earlier this year, Infosys committed to hiring 10,000 American workers over the next two years. The company has been making rapid progress and is on target to hire towards that commitment, and is investing in Technology and Innovation Hubs in Indianapolis, Indiana and Raleigh, North Carolina.

Today's announcement is a continuation of Infosys' campaign to boost innovation in the United States. These new hires in Rhode Island will include experienced designers, design architects, specialists in information design and technical experts to accelerate the digital transformation of Infosys' clients in Rhode Island and beyond. This partnership also offers a unique platform to nurture specialist design talent at scale to serve the growing demand for design-driven digital skills across industries.

The Design and Innovation Hub, which intends to apply for Qualified Jobs and Rebuild Rhode Island incentives, will help close the gap for design and human-centric skills in technology fields. The Hub will offer early-career designers and design graduates unique training opportunities with in-demand digital skills including exposure to systems, platforms, strategy and organization domains to make them more employable in today's digital world. By studying everything from user-experience to how people interact with systems, these design-focused hires will be equipped to create fully realized, 360-degree solutions to business challenges. Built on a model of interdisciplinary collaboration, the Hub will facilitate interactions between early-career designers and working professionals and technical experts in such fields as architecture, engineering, data science and business consulting. Infosys' clients and industry partners will likewise benefit from increased access to top-tier designers and subject matter experts.

Infosys' ongoing commitment to training and upskilling a new generation of American technology professionals extends to the work of its charitable foundation, Infosys Foundation USA. More than 4.7 million students, over 13,000 teachers, and 21,000 schools across America have benefited from computer science training and equipment funded through the foundation. The Foundation has provided multiple grants to teachers and schools across Rhode Island - to date, grants made by the foundation have reached 930 students, 20 teachers and 18 schools across the state.

For more information, please visit: http://www.infosys.com/american-innovation/nc

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***Innovation in Packaging Development: Altair and PTIS, LLC Join Forces to Bring the Future of Packaging Solutions to Reality***

28 November 2017

Altair and PTIS, LLC have begun collaborating to transform the packaging industry. Operating on a global scale, the two companies possess unparalleled expertise in the engineering software and packaging industries respectively, and are aligned to deliver actionable winning results for clients. Modeling and simulation technologies are critical drivers of innovation in the packaging field, and will help to create enhanced systems for productivity to improve the industry's future, as well as the business aspects it affects.

"The search for new innovation plays a central role for companies with plans to stay at the forefront of packaging design," said Anthony Norton, Executive Vice President, Altair Product Design, Americas. "We work with companies across the world to help achieve their product development objectives through a blend of design creativity and in-depth engineering expertise. Our collaboration with PTIS will increase opportunities to enhance customer and consumer experiences, drive technology integration, and identify sustainable improvements across the value chain."

The joint solution offered by Altair and PTIS leverages modeling and simulation in the packaging industry in four main areas:

- Developing package design to anticipate the users' needs as opposed to reacting to them
- Optimizing the manufacturing process for more efficient production
- Mapping out the distribution environment and supply chain to improve product delivery
- Assessing user experiences in augmented, virtual and authentic realities

PTIS and its Integrated Packaging Value Model (IPVM) is the result of 20 years' worth of foresight driven programs. IPVM looks at where the packaging industry is headed and provides insight into the many ways that packaging connects to broader trends and drivers impacting business. Altair's consulting group has a great level of expertise to address a large portion of this model by applying the HyperWorks software suite to problems concerning technology, design, research and development and automation, and the recent acquisition of Carriots brings a new level of understanding to the Internet of Things (IoT) as well. All of this together creates a joint process that will contribute to business growth for both companies.

"We see an opportunity to deliver a joint offering with Altair through our consulting programs, which inevitably expose customers to the HyperWorks platform. Altair can work with our clients to train them on the software, or take on the package development project entirely, to help us all achieve a common goal," said Brian Wagner, Co-Founder and Principle at PTIS, LLC. "We believe that leveraging these capabilities will deliver a greater range of options, efficiency and speed to market."

For more information about PTIS, its IPVM and the services they offer, please visit www.ptisglobal.com/services. For more information about Altair's packaging solutions, go to www.packaging.altairpd.com.

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***Materialise and Siemens Healthineers syngo.via Partner to Bring 3D Printing to Hospitals Worldwide***

27 November 2017

Materialise NV and Siemens Healthineers company announced today that they are joining forces to bring Materialise Mimics inPrint software to hospitals around the world. 3D printing technology is growing rapidly in the medical field, and soon it will be even more mainstream as 3D printing software becomes more accessible in hospitals. The partnership, announced at the 2017 Radiological Society of North America (RSNA) Annual Meeting, makes Materialise Mimics inPrint software, a dedicated solution for printing anatomical models in hospitals, available to radiologists through the Siemens Healthineers syngo.via open app platform.

Adopting virtual 3D anatomical models facilitates surgical planning and collaboration between radiologists and surgical teams. 3D-printed anatomical models improve patient communication, training and education surrounding anatomically complex pathologies.

"We believe 3D printing is going to revolutionize the medical industry and we are always looking for ways to improve accessibility of our 3D printing software to more patients and hospitals," said Brigitte de Vet, Vice President of Medical at Materialise. "By partnering with other global healthcare leaders like Siemens Healthineers, we can do just that, and more importantly, we can further contribute to a better and healthier world."

By integrating the software into syngo.via, Mimics inPrint is directly incorporated into the standard hospital workflow. This allows for safe and easy access to in-house and Materialise-powered 3D printing services. This will facilitate the integration of 3D printing within clinical environments, contributing to higher quality, cost-efficient care for patients and hospitals. Each patient will now have access to more personalized care through Materialise's patient-specific anatomical models.

"By incorporating 3D technology into syngo.via, we jointly support the entire workflow from patient diagnosis to therapy planning," said Valentin Ziebandt, Head of Marketing at the Syngo Business Line at Siemens Healthineers. "This is a cost-effective way to increase the clinical capabilities of syngo.via and an important step towards achieving personalized care and precision medicine."

For more information on this partnership and the Materialise Mimics inPrint software visit www.materialise.com/en/medical/3d-printing-introduced-into-your-workflow or stop by the Materialise booth, #7932 in the North - Hall B, during the 2017 RSNA Annual Meeting at McCormick Place in Chicago from November 26 – December 1.

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***Mentor announces 2017 FloEFD Frontloading Computational Fluid Dynamics (CFD) Award winners***

29 November 2017

Mentor, a Siemens business, today announced the winners of its second annual FloEFD Frontloading Computational Fluid Dynamics (CFD) Award. This award recognizes individuals who have successfully implemented the practice of moving CFD simulation early into their design process using the Mentor® award-winning FloEFD™ technology. This methodology reduces the overall simulation time by as much as 65-75 percent and offers x2 to x40 user productivity enhancement relative to traditional CFD approaches.

A panel of judges selected the finalists based on submission criteria. Entrants were required to demonstrate the application of frontloading CFD with quantifiable results through published or publicly presented documentation. This included published technical and conference papers, PowerPoint presentations, articles, videos and/or website content that is accessible to the public. All winners were presented with their awards at the 2017 FloEFD Simulation Conference held in Berlin, Germany.

The First Place Award winner is Paul-Henri Matha from Renault in France for his presentation, Why Is Thermal Management Important for Automotive Lighting Systems, which was delivered at the 2016 FloEFD Simulation Conference in Frankfurt, Germany. Mr. Matha received a trophy and a $1,000 (USA) Amazon gift card.

Two runners-up were also selected. Koen Beyers, Voxdale, received his award for an article published in Engineering Edge titled, Bike Valley Builds a Wind Tunnel Using FloEFD. The article was based on his presentation at the 2016 FloEFD Simulation Conference as well. The other runner-up was Enrico Lorenz from Dr. Schneider Unternehmensgruppe GmbH for his article FloEFD Helps Dr. Schneider's Mission: To Make the Car the Best Place in the World published in Engineering Edge.

"Mentor's FloEFD award-winning frontloading CFD solution provides our customers with the ability to conduct simulation early in the design process for optimum design success," stated Roland Feldhinkel, general manager of the Mentor Mechanical Analysis Division. "We congratulate our 2017 award recipients who have demonstrated the value of FloEFD by optimizing the performance of their products while saving critical design time."

For additional information on the FloEFD Frontloading Award please visit https://www.mentor.com/products/mechanical/awards-publications/floefd-frontloading-cfd

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***Microsoft and Attunity announce strategic partnership for data migration***

1 November 2017

Attunity Ltd. and Microsoft Corp. announced an expanded strategic partnership for enabling data migration and replication initiatives. With this partnership, Attunity is working with Microsoft to offer a new product, Attunity Replicate for Microsoft Migrations, which is designed to facilitate and accelerate migrations from various database systems to the Microsoft data platform. Microsoft and Attunity have been business partners for over 20 years, and with this new enhanced collaboration the two companies will build on the history with new scenarios for data replication to accommodate a broad

range of data integration requirements including migration, analytics, Data Lake and Big Data initiatives.

“Our expanded strategic partnership with Microsoft enables us to jointly engage customers worldwide to drive large-scale migrations to Azure and the Microsoft data platform,” said Shimon Alon, chairman and chief executive officer at Attunity. “Microsoft and Attunity share a vision to help users get value from their data leveraging the platform of their choice. Together we can unlock incredible opportunities for innovation, providing our customers with a universal platform for high-speed data replication to support many important business initiatives.”

“Microsoft is committed to meeting our customers’ needs today, while helping them bridge to the future. Attunity Replicate for Microsoft Migrations offers a robust solution for our customers to replicate their data to the Microsoft data platform, including SQL Server 2017 and Azure data services,” said John “JG” Chirapurath, general manager, Data Platform Marketing at Microsoft. “This expedites and simplifies near-zero downtime data migrations with ongoing replication so that our customers can maximize the value of their data.”

Businesses globally will be able to use Attunity Replicate for Microsoft Migrations to facilitate and simplify migrations from a broad range of commercial and open-source databases, including Oracle, Amazon Redshift, Teradata, IBM Netezza and PostgreSQL to a broad range of Microsoft data platform targets, across on-premises and Azure. Endpoints include SQL Server 2017, now available on Linux, Docker containers and Windows, as well as Azure SQL Database, SQL Server on a VM in Azure, Azure SQL Database Managed Instance, Azure SQL Data Warehouse, Azure Database for MySQL, and Azure Database for PostgreSQL.

A free license of Attunity Replicate for Microsoft Migrations is provided for 12 months, to allow each migration. Customers requiring extended migration periods and additional data sources can purchase such licenses directly from Attunity.

By collaborating on database migrations, the two companies enable and simplify a number of other in-demand data scenarios.

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***New report from Wipro and Forum for the Future envisions the connected IOT future of 2030 and barriers to adoption***

14 November 2017

Wipro Digital, the digital business unit of Wipro Limited, released a new report titled “Vision 2030: A connected future” that highlights the opportunities that experts and business leaders see for data and connectivity in creating a sustainable future. The report, jointly developed with Forum for the Future, an international sustainability non-profit organization, outlines a future vision for Internet of Things (IoT) driven connectivity and highlights the barriers that need to be overcome to realize this vision.

One of the findings of the report is that while 98% of business leaders surveyed see great potential in data and connectivity and strongly believe it will contribute to a sustainable future, only half use data and connectivity to support such efforts. Vision 2030: A connected future recommends actions to close the gap between awareness and action.

Jayraj Nair, Vice President and Global Head of IoT, Wipro Limited said, "IoT, data and connectivity are changing the way we live and work – disrupting industries and reshaping the social landscape. To ensure these advances have a positive impact on the future, grow our economies and drive sustainable efforts, we must successfully and efficiently harness these technologies. The Vision 2030 report imagines a world where we can do just that, and offers suggestions on how to make those visions a reality."

Concrete examples of where business leaders and industry experts imagine IoT, data and connectivity driving a sustainable future include:

- **Open data infrastructures:** platforms that offer access to various kinds of data are essential for enabling better data flows and collaboration, data integration and the meaningful analysis of data.
- **Cross-department collaboration:** encourage collaboration and sharing of projects as well as budgets across departments such as Operations, Supply Chain, Marketing, Research & development, etc.
- **Data integration:** information generated through the connection of various data sources offers the incentive to link silos and drive exponential innovation.
- **Digital citizenship:** a public movement that uses data to inform and empower citizens, and enable them to express their voices and ideas to shape the future they want.
- **Tracking for transparency:** new data monitoring technologies and distributed databases can increase the reliability of data flows, leading to increased digital trust, robust decision-making and transparent supply chains.
- **Globalizing empathy:** New technologies such as Augmented Reality (AR) and Virtual Reality (VR) may enable people to better understand global challenges, and engage more deeply in situations that before felt far away in terms of location and lifestyle.

According to the report, in order to achieve this future, business leaders must see beyond operational efficiency and overcome the significant barriers impeding IoT, data and connectivity from enacting a positive impact, some of which include:

- **Security risks:** digital security and privacy issues are inhibiting people, businesses and governments from releasing their data.
- **The digital divide:** access to technology and data skills are not being shared equally between demographics and geographies.
- **Potential for a rebound effect:** as the availability of data-enabled products and services grow exponentially, so too does the corresponding energy demand and electronic waste production.
- **Lack of common tech standards:** since advances in technology often happen faster than legislation can keep up, there is a lack of necessary governance for technologies such as artificial intelligence and IoT.

Jonathon Porritt, Founder Director, Forum for the Future said, "A brighter, fairer and more prosperous future for all is within reach if we can unleash the system change potential of IoT, data and connectivity. It is up to every business and government body to decide whether they want to work within systems that are open, transparent, democratic, connected and collaborative - or stick to more isolated, closed ways of working that definitely do not help any forward momentum towards a more sustainable society. Our aim

is to provoke thoughts and provide ways for companies to achieve a not-too-distant future that is connected, sustainable and prosperous."

**Methodology:**

The research was made up of qualitative interviews carried out by Forum for the Future with industry experts, and a quantitative survey.

The interviews were held with external opinion formers, including designers, data experts, entrepreneurs and think tanks, to explore the opportunities for – and the barriers to – driving a more sustainable future through data and connectivity. The experts also provided additional contextual understanding of future impacts and challenges, as well as offered some provocative and forward-thinking insights.

The survey looked at how business leaders perceive IoT, data and connectivity's potential for helping to create a more sustainable future. During the research, 250 C-suite executives and Vice Presidents, who were responsible for data and connectivity/IoT, data analytics, innovation and sustainability, were asked about the opportunities and barriers they see for IoT, data and connectivity to drive sustainability. The respondents were based in the UK or the US and represented the following five sectors: consumer packaged goods (43 respondents), manufacturing (55), utilities (30), agribusiness (30), multinational tech industries (57), and local/central government (35).

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***Nokia collaborates with StarHub to spearhead IoT ecosystem development in Singapore***

27 November 2017

Nokia today signed a Memorandum of Understanding (MoU) with StarHub to jointly drive IoT momentum in Singapore.

The two companies plan to develop new IoT use cases and applications in the areas of connected living, connected vehicles and connected buildings, with plans to offer commercial services to customers the first quarter of 2018. The alliance between Nokia and StarHub to enable easier and more rapid development of IoT services will help enterprises discover and capitalize on Smart Nation opportunities and capabilities to propel their business.

Nokia will support StarHub and its partners in the development of use cases such as for smart parking, environmental sensors and video analytics. Nokia will also help StarHub promote the benefits of IoT technology through various activities, including developer outreach programs and participation in IoT-related events. Nokia Bell Labs will provide added consultancy services to StarHub and its enterprise customers to accelerate Singapore's IoT market momentum.

Dr Chong Yoke Sin, Chief, Enterprise Business Group at StarHub, said: "A large component of Singapore's Smart Nation initiative involves the deployment of IoT devices in the environment, including in the home, along streets and in parks, and in offices. The granular data derived from these sensors will allow enterprise customers to understand and gain insights from their customers, improving operational efficiencies and aid in long-term planning. We will leverage Nokia's IoT technology to help address urban challenges faced by our government and commercial customers. We also look forward to building viable business models on this nascent technology."

Nicolas Bouverot, head of Asia South Market Unit at Nokia, said: "We are honored to be working with StarHub to help maximize the gains from the vast potential of IoT. We are committed to supporting service providers in IoT to gain new customers and add new revenue streams. Nokia is at the forefront of the evolution of IoT, and our insights will enable StarHub to build and deploy high-value services and business models."

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***PTC CEO Jim Heppelmann Continues Thought Leadership Collaboration with Harvard Business School Professor Michael Porter***

1 November 2017

PTC announced that its CEO Jim Heppelmann has co-authored with Harvard Business School Professor Michael Porter an article that defines the business implications of augmented reality (AR) and explores how AR is creating value in industrial settings today. Content from the new article will be featured at an Executive Forum hosted today by the National Association of Manufacturers.

The article, entitled “Why Every Organization Needs an AR Strategy,” appears in the November/December issue of Harvard Business Review (HBR), and extends the ongoing collaboration between Heppelmann and Porter, which resulted in two previous HBR articles on the business impact of the rise of smart, connected products. The latest article provides a research-driven road map for how companies should deploy AR, as well as discusses the critical choices they will face integrating it into business strategy and operations.

Augmented reality is poised to impact companies in every industry and transform how we learn, make decisions, interact with the physical world – and, ultimately, compete. As IoT data continues to grow exponentially, so too does the power of AR, as it allows us to leverage and interpret that information. AR serves as the bridge between the physical and digital worlds, opening up our ability to take advantage of the torrent of information and insights produced by billions of smart, connected products worldwide.

An early believer in the potential of AR for industrial use cases, PTC has leveraged its acquisition of the Vuforia® augmented reality platform to expand the capabilities of its market-leading ThingWorx® Industrial Innovation Platform. Building on its proven history in product design, manufacturing, and service, PTC is helping to bring the power of AR technology to these traditional business activities with the ability to visualize, instruct, guide, and improve interactions with physical things.

“AR addresses the fundamental disconnect between the wealth of digital data generated by the Internet of Things and the ability of human beings to capitalize on it in the physical world in which we live,” said Jim Heppelmann, president and CEO, PTC. “There are countless ways AR will change businesses – including how they serve customers, train employees, design and create products, manage their value chains, and how they compete. AR also represents a powerful new interface that enhances the way humans interact with an increasingly digital world.”

To help business leaders understand the implications of AR, Heppelmann and Porter will present their research findings at an Executive Forum hosted by the National Association of Manufacturers (NAM) today in Boston’s Innovation District.

The NAM and its member companies annually host such meetings and manufacturing events to provide opportunities for members to connect with their peers and legislators to network, learn, and obtain information on the latest policy issues related to manufacturing and government.

To download a copy of the full HBR article, please visit: https://www.ptc.com/en/industry-insights/harvard-business-review/pre-register.

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### *Rize Inc. Appoints Andy Kalambi President and CEO*

30 November 2017

Rize Inc., a Boston-based additive manufacturing company, announced today that Andy Kalambi has been named President and Chief Executive Officer.

Andy comes to Rize with more than 25 years' experience in executive and general management, sales and business development across industries and global geographies. Most recently, he built a distinguished career at Dassault Systèmes, where he served in multiple roles, including CEO of the ENOVIA brand and the global executive of the 3DEXPERIENCE® platform driving digital transformation initiatives within global enterprises. Prior to Dassault Systèmes, Andy also played a pioneering role in the introduction of ERP and SCM applications through SAP Asia. A qualified Mechanical Engineer, Andy is a passionate advocate for inclusive business practices, based on respecting the environment, as well as social and gender equality.

"We are thrilled that Andy has joined the Rize team," said Nilanjana Bhowmik, Partner at Longworth Venture Partners. "Andy has the strategic vision and proven leadership experience to make Rize the undisputed leader in additive manufacturing, and his appointment reflects Rize's growing traction in the industry."

"Additive Manufacturing is getting ready for prime time and Rize technology represents a breakthrough approach to achieving Additive at Scale," said Andy. "I was most impressed by the incredibly innovative and committed team at Rize which created the industry's first ever hybrid 3D printer. It is an honor and privilege for me to join this great team and bring my global experience to serve the increasing needs in the world for inclusive and sustainable innovation."

"This is an exciting time for us at Rize," said Eugene Giller, Founder and CTO of Rize. "We continue to strengthen our management team and Rize One, the very first printer incorporating our patented and breakthrough APD (Augmented Polymer Deposition) process, is being selected by prestigious customers like the US Army, US Navy, NASA and Merck. Andy's leadership will help us scale the business globally and enable enterprises worldwide to deliver innovative products and services never before possible."

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### *SAP Survey Finds 80 Percent of SMEs Value Trust Over Cost When Choosing a Technology Partner*

16 November 2017

A study released by SAP SE shows that three out of four small and midsize enterprises (SMEs) see IT and technology vendors not just as an external resource but as vital to their business.

More and more technology vendors are being used by business leaders for consultation (76 percent), for insight and advice (79 percent) and to anticipate needs and risks (76 percent).

The SAP Business Partnership Study*, which polled 300 SMEs in the United States and 300 in Germany, explored the emotional and intellectual factors that drive these partnerships. The traits were similar to what one would expect in a personal relationship: more than three-fourths (80 percent) of business leaders surveyed said trust and cultural fit were significantly more important than cost savings.

"We are in the midst of unprecedented societal change, which poses both tremendous opportunity and challenges for today's business leaders," said Rodolpho Cardenuto, president, Global Channels & General Business, SAP. "In this environment, trust and mutual respect for culture have never been more important. They are the bedrock of all successful business relationships. We've seen what amazing things can happen when these qualities are nurtured and developed."

Other key highlights of the study include:

- Almost three-fourths (74 percent) of U.S. respondents say their business aims to maintain their most important IT and technology partnership long term. They say that investment in a reliable partner is more vital to business growth than investing in the technology itself.
- Participants cite collaboration (70 percent), honesty (81 percent) and open communication (78 percent) about what is and isn't working as crucial factors in selecting an IT or technology partner to do business with.
- More than three-fourths (United States 81 percent; Germany 77 percent) of respondents felt that successful business relationships helped facilitate knowledge exchange and learning.

"The results of this survey demonstrate that today's SMEs are changing how they measure return on investment," said Dr. Avan Jassawalla, professor of management, State University of New York at Geneseo. "They are now looking for technology partners rather than simply providers of technology services. To ensure these long-term relationships lead to growth both technologically and culturally, vendors must become as savvy in interpersonal skills as they are in technology."

An infographic of the study can be downloaded here.

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### *Swarm Technology to Be Awarded Its Second Patent for IoT and Robotics Applications*

28 November 2017

Swarm Technology LLC is pleased to announce that the United States Patent and Trademark Office has issued a Notice of Allowance in connection with U.S. Patent Application 14/340,332 relating to Intent-Based Automation within the fields of IoT, Networking and Robotics.

"We are thrilled to receive this Notice of Allowance from the USPTO," said Alfonso Iniguez, the company's founder and CEO. "With respect to robotics, our technology enables adaptive collective behavior. We are currently developing swarm robots for autonomous landmine detection. Upon obtaining our first investor, we intend to integrate swarm intelligence into drones for use in autonomous

oil and gas inspection."

With respect to Internet of Things (IoT) applications, this strategically important patent involves intent-based plug-and-play edge processing, which is fundamental for scalable artificial intelligence. "Swarm's Solidarity Cell Architecture provides seamless heterogeneous interoperability, which DARPA refers to as dispersed computing," said Iniguez.

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# Events News

***Bestronics to Host the Silicon Valley Surface Mount Technology Association (SMTA) Technical Conference and Expo***

27 November 2017

Bestronics will host the Silicon Valley SMTA technical conference and expo in its manufacturing facility in San Jose, on Nov. 29, 2017. SMTA is a non-profit association of international companies and individuals dedicated to the advancement of the electronics industry through member education and interaction. The conference is free to pre-registered attendees and features a keynote by Microsoft executive Brian Toleno, technical presentations, and over 50 exhibitions by local electronics manufacturers and suppliers.

“As manufacturing activity declined in the valley, so did interest in hosting technical forums here,” said Robert Boguski, SMTA Silicon Valley Chapter President and President of Datest. “With the resurgence in onshore high technology manufacturing, we’re very proud that the annual SMTA conference will be located here in Silicon Valley for the first time in nearly a decade. Bestronics has generously supported our organization by hosting regular SMTA chapter meetings in their San Jose headquarters, and this year made the tech expo possible by opening their expansive manufacturing facility to not only host the conference, but expose attendees to the latest technology and equipment available for electronic manufacturing.”

“Silicon Valley offers such a rich variety of talent and resources,” said Nat Mani, Bestronics President and CEO. "We are very pleased to support this dynamic conference and encourage the synergy that such events foster. In addition to the sessions and new product and service demonstrations, conference attendees will have the opportunity to view state-of-the-art manufacturing technology in action. Specifically, attendees can view sophisticated SMT placement, X-Ray and selective soldering, clean room packaging, box-build, system integration, high temperature testing and full product lifecycle management capabilities all within our campus.”

For more information or to register for the conference, go to https://www.smta.org/expos/#siliconvalley.

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***Tech Mahindra Initiates Annual CME Summit 2017***

29 November 2017

Tech Mahindra announced the launch of its first CME (Communications, Media & Entertainment) Summit.

Held at The Venetian in Las Vegas on December 4 and 5th, Tech Mahindra's Annual CME Summit 2017 - In The Future, is a forum where the most influential and insightful industry leaders come together to highlight the future of the Communications, Media and Entertainment industries. The conversations will focus on the disruption and transformation that these industries are undergoing and insights about how to shift businesses for better performance in a connected world.

Summit speakers include top executives from the entertainment and technology community including Jeff Hughes, President of Technology and Innovation, Fox; Angie Barrick, Head of Industry, Media & Entertainment, Google; Thomas Hughes, Executive Vice President, Worldwide Digital Distribution, Lionsgate and Ira Rubenstein, Chief Digital and Marketing Officer, PBS.

The 2-day summit would focus on themes such as AI and Software, IoT and Smart Cities, Video Experience and Customer Experience, Networks, Cloud and Ad Tech. Variety's Co-Editor-in-Chief Andrew Wallenstein and Sr. Silicon Valley Correspondent Janko Roettgers will moderate the panels and sessions.

"The Communication, Media and Entertainment Industries top leaders and influencers are gathering together at the 'Tech Mahindra CME Summit 2017 – In The Future' to deliberate the disruption that these industries are undergoing," said Manish Vyas, President Communications Business and Chief Executive, Network Services. "Providing the most panoramic view of the future of AI, IoT, Smart Cities, Networks, Cloud, among other topics, the Summit is the most awaited industry forum for insights into transforming businesses in a connected world, to better prepare for what is coming in the future."

Tech Mahindra is singularly focused on unlocking experiences for a connected future. This philosophy is underpinned by some key experience drivers that empower people to harness the possibilities of a pervasively connected world by transforming how they interact and transact, learn and cure, make and move, thus enabling enterprises to run better, change faster, and grow greater.

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# Financial News

***Altair Announces Third Quarter 2017 Financial Results***

30 November 2017

Altair Engineering Inc. today announced its financial results for the third quarter ended September 30, 2017.

"We delivered a strong performance in the third quarter with software product revenue increasing 13% from a year ago to $63.2 million and total revenue increasing 9% to $84.9 million," said James Scapa, Founder, Chairman, and CEO. "Equally important, we continue to shift our revenue mix toward software products where we achieve our highest gross margins, ultimately driving higher operating margins for the overall enterprise.

"During the third quarter we expanded our relationships with existing customers and broadened our

reach with enhanced and new technology, including technologies from our acquisition of Runtime on September 28, which expands our market opportunity in the dynamic high-performance computing market.

"We reached another milestone for the company with the completion of our initial public offering. By further strengthening our balance sheet and providing additional resources to pursue our growth strategy, we believe we are well positioned to capture share and enhance our leadership in simulation-driven design, while further driving new opportunities in high-performance computing, as well as IoT and analytics. We believe this combination positions us to continue executing on our long-term goal of further scaling our software revenue while leveraging our business model to increase profitability in the years ahead."

**Third Quarter 2017 Financial Highlights**

- Software product revenue was $63.2 million, an increase of 13% from $55.8 million for the third quarter of 2016.
- Total revenue was $84.9 million, an increase of 9% compared to $78.1 million for the third quarter of 2016.
- Including the impact of $25.3 million in non-cash stock-based compensation expenses in the third quarter of 2017, GAAP net loss was $29.6 million, compared to GAAP net income of $0.3 million for the third quarter of 2016. GAAP net loss per share was $(0.59), based on 50.6 million basic and diluted weighted average common shares outstanding, compared to $0.01 for the third quarter of 2016, based on 59.3 million diluted weighted average common shares outstanding.
- Adjusted EBITDA was $7.0 million, compared to $7.3 million for the third quarter of 2016. Adjusted EBITDA represents net income (loss) adjusted for income tax expense (benefit), interest expense, interest income and other, depreciation and amortization, stock-based compensation expense, restructuring charges, asset impairment charges and other special items as determined by management.
- Cash flow from operations was an outflow of $(8.7) million, compared to an outflow of $(0.6) million for the third quarter of 2016. For the first nine months of 2017, cash flow from operations was $17.5 million, compared to $21.4 million for the same period in 2016. This change in cash flow for the quarter relates to the recognition of tax expense for income generated outside of the U.S. without a corresponding benefit for the losses in the U.S. resulting from stock compensation charges in the quarter.
- Free cash flow, which consists of cash flow from operations less capital expenditures, was $(10.7) million compared to $(1.7) million for the third quarter of 2016. For the first nine months of 2017, free cash flow was $11.1 million, compared to $16.7 million for the first nine months of 2016 with the difference reflecting changes in operating cash flow and $2.0 million in cash used to acquire MODELiiS in the second quarter.

**Non-GAAP Financial Measures**

This press release contains the following non-GAAP financial measures: Adjusted EBITDA and Free Cash Flow. Altair believes that providing a reconciliation of Adjusted EBITDA guidance to the comparable GAAP measure of Net Income would require unreasonable efforts as the Company cannot reasonably estimate income tax expense in the fourth quarter. Fourth quarter income tax expense will be

significantly impacted by the expected valuation allowance and by the year-end results of our global organization. Altair expects fourth quarter stock-based compensation to be approximately $7.6 million and depreciation and amortization to be $2.8 million to $3.0 million.

Altair believes that these non-GAAP measures of financial results provide useful information to management and investors regarding certain financial and business trends relating to its financial condition and results of operations. The Company's management uses these non-GAAP measures to compare the Company's performance to that of prior periods for trend analysis, for purposes of determining executive and senior management incentive compensation and for budgeting and planning purposes. The Company also believes that the use of these non-GAAP financial measures provides an additional tool for investors to use in evaluating ongoing operating results and trends and in comparing the Company's financial measures with other software companies, many of which present similar non-GAAP financial measures to investors.

Management of the Company does not consider these non-GAAP measures in isolation or as an alternative to financial measures determined in accordance with GAAP. The principal limitation of these non-GAAP financial measures is that they exclude significant expenses and income that are required by GAAP to be recorded in the Company's financial statements. In addition, they are subject to inherent limitations as they reflect the exercise of judgment by management about which expenses and income are excluded or included in determining these non-GAAP financial measures. Altair urges investors to review the reconciliation of its non-GAAP financial measures to the comparable GAAP financial measures, which it includes in press releases announcing quarterly financial results, including this press release, and not to rely on any single financial measure to evaluate the Company's business.
Click here to view full results with tables.

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***Strong ARR Growth Highlights Autodesk Third Quarter Results***

28 November 2017

Autodesk, Inc. today reported financial results for the third quarter of fiscal 2018.

Third Quarter Fiscal 2018

Subscription plan (formerly known as new model) annualized recurring revenue (ARR) was $924 million and increased 106 percent compared to the third quarter last year as reported, and 108 percent on a constant currency basis.

Total ARR was $1.90 billion, an increase of 24 percent compared to the third quarter last year as reported, and 25 percent on a constant currency basis.

Subscription plan subscriptions increased 307,000 from the second quarter of fiscal 2018 to 1.9 million at the end of the third quarter. Subscription plan subscriptions benefited from 110,000 maintenance subscribers that converted to product subscription under the maintenance-to-subscription program.

Total subscriptions increased 146,000 from the second quarter of fiscal 2018 to 3.6 million at the end of the third quarter.

Deferred revenue increased 15 percent to $1.76 billion, compared to $1.53 billion in the third quarter last year. Unbilled deferred revenue at the end of the third quarter was $148 million.

Revenue was $515 million, an increase of 5 percent compared to the third quarter last year as reported, and 6 percent on a constant currency basis.

Total GAAP spend (cost of revenue plus operating expenses) was $615 million, an increase of 1 percent compared to the third quarter last year.

Total non-GAAP spend was $542 million, an increase of 2 percent compared to the third quarter last year. A reconciliation of GAAP to non-GAAP results is provided in the accompanying tables.

GAAP diluted net loss per share was $(0.55), compared to GAAP diluted net loss per share of $(0.64) in the third quarter last year.

Non-GAAP diluted net loss per share was $(0.12), compared to non-GAAP diluted net loss per share of $(0.18) in the third quarter last year.

"We are pleased with another solid quarter of execution and progress on our business model transition," said Andrew Anagnost, Autodesk president and CEO. "We're experiencing healthy trends in several key transition metrics, including ARR and deferred revenue growth, as customers continue to embrace our new subscription offerings. As we enter the growth phase of our model transition, we need to re-balance investments to focus on our strategic priorities. This includes divesting from some areas and increasing our investment in others. We're taking this restructuring action from a position of strength. This is not a cost reduction activity as we maintain our commitment to keep total non-GAAP spend flat this year and next."

"Our third quarter results mark our return to revenue growth as we reached the one year mark of subscription-only sales," said Scott Herren, Autodesk CFO. "We are excited to have reached a significant milestone where the base of subscription plan subscriptions has surpassed the base of maintenance plan subscriptions for the first time. We are also experiencing early success with the maintenance-to-subscription program, which is a winning combination for both our customers and Autodesk. Our solid third quarter results and stable macro operating environment keep us confident in our near-term and long-term goals."

Third Quarter Operational Overview

Subscription plan ARR was $924 million and increased 106 percent compared to the third quarter last year as reported, and 108 percent on a constant currency basis. Subscription plan ARR includes $70 million related to the maintenance-to-subscription program. Maintenance plan ARR was $978 million and decreased 10 percent compared to the third quarter last year as reported, and on a constant currency basis. Total ARR for the third quarter increased 24 percent to $1.90 billion compared to the third quarter last year as reported, and 25 percent on a constant currency basis.

Subscription plan subscriptions (product, EBA, and cloud) were 1.90 million, a net increase of 307,000 from the second quarter of fiscal 2018, led by new product subscriptions and 110,000 product subscriptions that migrated from maintenance plan subscriptions. Maintenance plan subscriptions were 1.69 million, a net decrease of 161,000 from the second quarter of fiscal 2018, which includes the 110,000 that migrated to product subscription. Total subscriptions were 3.59 million, a net increase of 146,000 from the second quarter of fiscal 2018.

Total recurring revenue in the third quarter was 92 percent of total revenue compared to 78 percent of total revenue in the third quarter last year.

Revenue in the Americas was $215 million, an increase of 1 percent compared to the third quarter last

year. Revenue in EMEA was $205 million, an increase of 8 percent compared to the third quarter last year as reported, and 10 percent on a constant currency basis. Revenue in APAC was $95 million, an increase of 12 percent compared to the third quarter last year as reported, and 10 percent on a constant currency basis.

Restructuring

Autodesk today announced a restructuring plan to focus on the company's strategic priorities of completing the subscription transition; digitizing the company; and re-imagining manufacturing, construction, and production. Through the restructuring, Autodesk seeks to streamline the organization and re-balance resources to better align with the company's priorities. By realigning its investments, Autodesk is positioning itself to meet its long-term goals, including keeping non-GAAP spend flat in fiscal 2019.

The company anticipates taking a pre-tax restructuring charge in the range of $135 million to $149 million. Approximately $91 million to $100 million in pre-tax charges will be taken in the fourth quarter of fiscal 2018. The remaining charge will be taken in fiscal 2019.

Business Outlook

The following are forward-looking statements based on current expectations and assumptions, and involve risks and uncertainties some of which are set forth below under "Safe Harbor Statement." Autodesk's business outlook for the fourth quarter and full year fiscal 2018 assumes, among other things, a continuation of the current economic environment and foreign exchange currency rate environment. A reconciliation between the fiscal 2018 GAAP and non-GAAP estimates is provided below or in the tables following this press release.

Please click here to view tables associated with the press release.

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# Implementation Investments

***ECam chooses ModuleWorks 2-Axis technology***

27 November 2017

ECam is a 2D CNC programming system for fast and efficient g-code generation for lathe and vertical mill applications. To improve the performance and quality of its toolpath strategies, ECam has integrated ModuleWorks software components for 2-Axis toolpath generation and cutting simulation.

The ModuleWorks 2-Axis component provides powerful, efficient and safe toolpaths for milling and drilling applications. The versatile and easy-to-use component includes a broad range of basic and advanced features for roughing, finishing, engraving, face milling and drilling operations. The ModuleWorks Cutting Simulation component delivers high accuracy verification of stock removal for mill, turn and combined mill/turn applications and offers a full range of toolpath analysis tools to enable users to quickly identify and correct any potential problems.

The 2-Axis and cutting simulation components are designed for fast and seamless integration into existing CAD/CAM software to accelerate product development and time to market.

“The ModuleWorks components have brought huge improvements to the ECam toolpath strategies, leading to longer tool life and shorter machining cycles”, explains Alessandro Cogo, Managing Director

of ECam. “Fast and easy integration means ECam users benefit from the latest technology in a cost-effective 2D solution.”

“It’s great to see how our 2-Axis and cutting simulation components boost the quality and performance of ECam”, says David Plater, Technical Director at ModuleWorks. “We look forward to a continued and successful cooperation that advances the 2-Axis technology of both companies.”

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***Engility to maintain and enhance Navy's radar and air traffic control systems***

29 November 2017

Engility Holdings, Inc. secured a $20 million task order with the Naval Air Warfare Center, Aircraft Division to maintain the AN/SPN-43 Radar and associated air traffic control systems and develop upgrades that will extend the lifetime of the systems. Engility engineers will support the NAWCAD ATC system used on all aircraft carriers and amphibious assault ships.

"Enhancing the Navy's air traffic control capabilities expands upon the long relationship we've enjoyed with NAWCAD," said Lynn Dugle, CEO of Engility. "Our team can now partner with NAWCAD's Engineering and Integration Department to perform critical work in rapid prototyping, design and development of ATC systems to equip our warfighters with the best possible tools."

This contract leverages Engility's full-life-cycle-development expertise, which includes engineering, design, fabrication and system architecture services. The company will also install and integrate system components for testing and analysis. The contract continues a chain of ATC-related successes in 2017: Members of Engility's NASA team received the agency's Software of the Year award for work on ATC enhancements; and the company continues to win awards with the Department of Transportation.

The cost-plus-fixed-fee, third quarter win, awarded under the 4.11.7 Multiple Award Contract (MAC), represents new work and has a base year with three option years. For more information about Engility, please visit www.engility.com.

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***MORE & MORE to Go Faster & Faster with Centric PLM***

28 November 2017

MORE & MORE, a German womenswear fashion brand, has selected Centric Software to provide its Product Lifecycle Management (PLM) solution.

MORE & MORE wanted a technology partner to provide innovative enterprise solutions to restructure their supply chain process with the goal of improving competitiveness and efficiency.

The company chose Centric PLM for its reliability, ease of use and deep knowledge in the fashion industry.

“We selected Centric because we were impressed by their adaptable and flexible Product Lifecycle Management platform,” explains Franziska von Becker, Global Brand Director of MORE & MORE. “Centric is a customer oriented company with great experience in helping apparel companies improve

their product development process to deliver new products in a shorter time period with reliable quality."

Centric Software PLM will help MORE & MORE leverage best practices, streamline and align processes between internal teams and unlock greater external collaboration.

"Centric PLM will help us harmonize our process between our product development teams at MORE & MORE in Germany and our sourcing and manufacturing teams at Cemsel in Turkey. Our goal is to enhance visibility into product status and transparency with a unique information sharing platform. With Centric PLM we will be able to improve our product development and costing processes, better define product volumes and communicate accurate tech packs," Franziska von Becker emphasizes.

"We are delighted to have been selected by MORE & MORE as their partner," says Chris Groves, President and CEO of Centric Software. "With MORE & MORE's mix of active fashion and timeless clothing, we are confident that they will continue to be successful and we are looking forward to partnering with them to help drive their business growth."

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***REHAU Automotive to deploy Siemens software exclusively across all 15 plants***

28 November 2017

REHAU Automotive, German automotive supplier and polymer specialist, will exclusively deploy Siemens software products to replace several legacy systems in engineering, manufacturing and quality management. With this decision REHAU becomes one of the first automotive suppliers to implement a company-wide manufacturing execution system (MES) and quality management system (QMS) integrated into a product lifecycle management (PLM) system for product and process digitalization and closed loop manufacturing. REHAU will replace all of its legacy software systems in 15 plants worldwide with the full scope of Siemens' Manufacturing Operations Management (MOM) portfolio in order to maintain a competitive edge for the on-coming fourth industrial revolution, or Industry 4.0.

"This is the lighthouse project for REHAU Automotive and is unique in our company's history," said Helmut Ansorge, member of the REHAU Automotive executive board. "Over the last decade, we developed homegrown, individual solutions for every site. As time went on, the complexity of these legacy systems made it difficult for us to keep growing and maintain our competitive edge. This new integrated software system will give us the ability to standardize all processes and logistics in a lean way in order to develop and deliver the highest quality products across a network of 15 plants. Siemens' highly integrated portfolio, deep industry experience and market leadership will be a real differentiator for us. They are exactly the right partner to help us achieve digitalization and automation across our entire engineering and manufacturing processes."

Siemens created a special template for the REHAU integrated solution that leverages its full MOM portfolio, including Simatic IT UADM (MES solution), IBS QMS Professional software. The solution also includes Simatic IT Preactor APS, the leading advanced planning and scheduling system for manufacturing, as well as Simatic WinCC, the Siemens standard SCADA / HMI solution which is seamlessly connected to the shop floor. The solution is then closely integrated into Siemens' Teamcenter® software, the world's most widely used digital lifecycle management solution, as well as into the ERP system in use at REHAU. This allows for all engineering changes to be immediately

available on the shop floor, and for engineering to be integrated into the nonconformance management system through the Active Workspace Client for Teamcenter. This saves time and improves quality by providing engineers with direct, contextualized access to reported deviations and the as-built documentation.

"By eliminating the major part of its legacy solutions, REHAU made a bold move that could set them apart in their industry," said Urban August, senior vice president and managing director, Germany, Siemens PLM Software. "Industry 4.0 is a pressing topic for a lot of discrete manufacturers. This is especially true for automotive suppliers who deliver just in time or sometimes even just in sequence. Lean and reliable processes throughout manufacturing are an absolute must. Our comprehensive software portfolio and the deep integration we can provide can help companies like REHAU keep ahead of the competition in their respective markets."

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***The Swedish Armed Forces chooses Capgemini to develop and manage its SAP® solutions***

30 November 2017

Capgemini Sverige AB, part of Capgemini, has been chosen as the exclusive consulting provider to develop and manage the Swedish Armed Forces' SAP® solutions. The contract has a duration of three years, with the option to extend for another four years.

Following a comprehensive selection process, Försvarets Materielverk (FMV), on behalf of Swedish Armed Forces, selected Capgemini as its exclusive partner through a new co-sourcing frame agreement[1], to provide consulting services for the management and operation of the Swedish Armed Forces' SAP® solutions in the areas of economics, logistics and technology. The system is called PRIO, and is part of the Armed Forces' total IT platform; it is integrated with 80 support systems and applications. PRIO is based on the SAP for Defense & Public Security solution portfolio, and is built and adjusted for more than 20,000 users, making it one of the most comprehensive SAP software installations in Europe. Capgemini's in-depth knowledge of application landscapes, long experience with SAP and high delivery capacity are some of the criteria as to why the Armed Forces selected Capgemini as its vendor.

"We see the Swedish Armed Forces as a strategic client, and are very proud that they have chosen us to be their provider. With help from our competence and delivery centers in Stockholm and Mälardalen, we will assume responsibility for their future IT capacity needs," says Leendert Venema, Head of Capgemini in the Nordics.

The Armed Forces has ultimate responsibility for the management of the PRIO system, and, in cooperation with Capgemini, it will call for services within the frame agreement. The services will include strategic, tactical and operational support on the SAP solutions in the areas within economics, logistics and technology. The exclusive co-sourcing agreement for PRIO has a duration of three years plus a four-year extension option.

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***University of Tokyo Turns to Dassault Systèmes to Nurture Students for Digital Manufacturing Careers***

23 November 2017

Dassault Systèmes announced that the University of Tokyo selected the 3DEXPERIENCE platform on the cloud to provide its engineering students with new learning experiences in digital manufacturing. This education strategy aims at nurturing future engineers as Japan seeks to stimulate value creation, innovation and sustainable growth in a new era of industry.

The University of Tokyo's School of Engineering is in the process of revamping its manufacturing education toward the future. Using the 3DEXPERIENCE platform, students in the Department of Systems Innovation, the Department of Machinery Engineering and the Department of Precision Engineering can better understand the connected business processes, collaboration and open innovation that are essential to the digital transformation of industrial processes. In those digital production environments, companies have the agility and flexibility to improve efficiencies and productivity, as well as to usher in new business models to deliver the products and services that end users want.

The 3DEXPERIENCE platform on the cloud offers digital design, simulation and manufacturing applications for a hands-on, cross-discipline curriculum that will nurture students' project management and problem-solving capabilities. In just a few clicks, 300 students and professors can easily engage in a collaborative digital environment that supports a range of learning activities both inside and outside the classroom. Features such as chat, project management and monitoring, grade calculation and feedback all accelerate the learning process, with secure access anytime, anywhere, including on tablets.

"Manufacturing businesses have advanced the growth of Japan for decades, whereas today, they are about to change drastically, facing trends such as IoT, a network with unprecedented scalability, and artificial intelligence that are edging into workplaces," said Shuichi Rokugawa, Professor, University of Tokyo's School of Engineering. "For that, the University of Tokyo's School of Engineering established the 'Advanced Craft Center for Industry-Academia Collaboration' in 2017, where students can experience cutting-edge systems and build knowledge and hands-on skills. Our adoption of the 3DEXPERIENCE platform paves the way for educational innovation for the future. Our aim is to produce students who can boost our society toward next-level manufacturing, experience engineering and, eventually, an era of technology-driven culture."

"The students of the University of Tokyo's School of Engineering will serve as a driving force to lead Japanese industries into the future," said Philippe Forestier, Executive Vice President, Global Affairs and Communities, Dassault Systèmes. "The academic world can play an important role in training employees before they ever set foot in an enterprise. We are pleased that these students will learn with the 3DEXPERIENCE platform. They can acquire new management experiences and participate in multidisciplinary collaborative projects using the same digital technologies that their future teams will use in a manufacturing environment."

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# Product News

### *Automated Cloud Management by T-Systems*

27 November 2017

T-Systems now offers the first comprehensive and scalable service for managing different cloud operating systems: the Managed Cloud Operating System (MCOS) manages different operating systems on customers' multiple infrastructures simultaneously – whether conventional in-house operations, private cloud, hybrid cloud or public cloud. This includes the company's own Open Telekom Cloud, as well as Microsoft Azure and Amazons Elastic Compute Cloud (EC2).

The cloud has become a very complex entity. Many companies have spread their applications and data among different clouds. While this makes sense from a security perspective, it also brings significant disadvantages: increased complexity and greater effort for maintaining the cloud infrastructure. In response, T-Systems experts have developed MCOS to manage virtual servers, e.g. Microsoft Windows server and SUSE Linux Enterprise, with different operating systems, along with their regular updates and patches. Customers can utilize the solution in all their cloud infrastructures: Not just the Open Telekom Cloud and T-Systems' private cloud offerings but also their Microsoft Azure and the Amazon cloud.

"As a cloud integrator, we have the expertise for managing different cloud platforms," says Francois Fleutiaux, Director of the IT Division at T-Systems. "With MCOS, we offer our customers an automated solution that lightens their workload in day-to-day operations, freeing up resources for strategic tasks."

MCOS standardizes the management of cloud environments independently of the technology employed by the respective cloud provider. As a result, users need less time and fewer resources to keep their various systems up to date. Freed from these rote tasks, the resources can be applied to enhancing the business applications and other, more useful tasks.

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### *Automation and Nesting Updates In Alphacam 2018 R1*

30 November 2017

The 2018 R1 release of Alphacam, from Vero Software, includes considerable enhancements to the automation and nesting functions.

There is now the ability in Automation Manager to have a connection between 'parent-child' parts, as job files can now be added to another job file as a sub-component. This enhances the management of parts that should be manufactured in groups.

The sub-components have similar properties to the main components, such as layer mapping, along with material and nesting properties. Alphacam Product Owner Felipe Ferrary says the sub-components will be loaded automatically with the main 'parent' component.

"When creating jobs, users can easily add files to a job, and as all sub-component parts will be loaded automatically it improves ease of use and productivity."

Also in Automation Manager, drawings and fittings can now be added to specified datum points. When processing a job the fittings will automatically be inserted at a pre-defined position, and can also be used

in parametric drawings. Alphacam also contains a small sample library of fitting types.

He says this new item of functionality allows parametric or constrained parts that require inserted fittings to be easily created.

And there is a new option in Automation Manager to avoid machine table collisions, with the ability to check Z levels on toolpaths. The new Tolerance Collision Check can be selected from the Machine Table Collision Method drop-down list, and a Z-level tolerance and material Z0 specified...for example, at the top or bottom of the part. Users will be warned if any toolpaths cutting deeper than the material thickness plus the tolerance are detected.

Another enhancement to the Automation Manager in Alphacam 2018 R1 is being able to preview job files and sub-components without having to process the job, speeding up productivity. And users can also access 13 additional nesting extension options.

Nesting itself has an important new feature allowing the nesting engine to automatically use the best available user-selected sheets. “Previously, the sheets would be used in the order picked, and therefore, the nest wasn’t always optimised for best sheet usage,” explains Felipe Ferrary. “But now, users can select multiple sheets, and the nesting function automatically picks the best combination, which can significantly reduce material usage.

Following customer requests, the TimeStudy function has now been reinstated as a 64-bit Addin, giving users their total machining time in a few seconds without any special settings or configuring reports. TimeStudy is a quick and easy way to report machining time, taking into account the units, Machine Tool Rapid Rate, Tool Change Time, Part Load/Unload Time and efficiency rate. It also displays the time specified to each operation, as well as the total machining time.

A new Geometry option creates the minimum 3D bounding rectangle to enclose solids and surfaces. The box can be aligned using feature extraction settings, and also defined by material. And additional stock can be specified in any of the bounding box faces. The new function means users can easily define the minimum amount of material needed to machine a solid or surface, and define the work volume required.

The Cylindrical Parallel strategy for 3D machining has been improved to give easier control over the start/end Angles and CW/CCW direction. The start angle can be less or greater than the end angle, and the CW checkbox now dynamically updates the on-screen cutting area, providing graphical feedback on the area to be cut, and the tool’s starting position.

“This simplifies toolpath creation by letting the user specify any combination of angles, and gives an appropriate graphical feedback on the machining area.”

## LATHES

Two items of enhanced functionality which are specifically for Alphacam’s Lathe module, are an update to machining dialogs, and new cycles added to C/L Drilling and Tapping.

On the machining dialogs update, turning dialogs now use the new machining dialogs style. Following the improvement in the milling C-Axis machining dialogs, the turning dialogs have all been updated and modernised, containing images and tooltips, which improve ease of use.

And with the C/L Drilling and Tapping, the commands have been combined and a new cycle added, for pecking, boring and chamfering. This brings the centre line drilling functionality close to matching the

C-Y Axis drilling functions, and means all drilling options are available, which, before, could only be used in C-Axis and C/L drilling.

STONE

And Alphacam 2018 R1 contains two major enhancements for stone companies.

Firstly, there is increased support for the Guard visualisation when creating the disk cutting toolpaths, improving the Geometry Disk Cutting and the Surface Disk Cutting cycles. The Guard can also be visualised when selecting elements in layer mapping, and changing tools during an operation, along with selecting toolpath elements from the layers tab.

Alphacam Product Owner Felipe Ferrary says this helps users to graphically see the disk guard when creating toolpaths, and how the guard will be orientated during cutting.

And the second enhancement is a new option for including extra passes at profile walls, when roughing in the Cut with Disk operation. “These extra passes can be set irrespective of the specified width of cut, and ensures excessive stock is removed from the profile walls for finishing.

“It means users no longer have to create an extra operation or define a small width of cut to remove unwanted stock at the walls.”

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***Cadence Announces Availability of Industry's First PCI Express 5.0 Verification IP***

28 November 2017

Cadence Design Systems, Inc. today announced the availability of the industry's first Verification IP (VIP) in support of the new PCI Express® (PCIe®) 5.0 architecture. The Cadence® VIP incorporates TripleCheck™ technology, which lets designers quickly and thoroughly complete functional verification of server and storage system-on-chip (SoC) designs based on the PCIe 5.0 specification, providing designers with added confidence that designs can function as originally intended.

For more information on Cadence VIP with TripleCheck technology for PCIe 5.0, please visit www.cadence.com/go/pcie5vip.

The differentiated, proven Cadence VIP has supported all recent PCIe standards and has been further optimized for the new 5.0 specification. Adopters of the PCIe 5.0 specification have access to the Cadence TripleCheck technology, which provides a verification plan with measurable objectives linked to the specification features and a comprehensive test suite with thousands of ready-to-run tests to ensure compliance with the specification. This enables designers to save time and deliver higher quality end-products. Additionally, designers have access to the Indago™ Protocol Debug App, which provides protocol-specific interactions between the design, the VIP and the testbench to find the root cause of any design bugs.

"Our team has successfully utilized the Cadence VIP for previous versions of the PCIe specification, which enabled us to deliver world-leading interconnect solutions for compute and storage infrastructures," said Shlomit Weiss, senior vice president, silicon engineering at Mellanox Technologies. "The Cadence solution for PCIe 5.0 is important to our development of the next generation of our products, to support the need for faster data speeds for high-performance, machine

learning, cloud, storage and more applications."

"By offering the first-to-market VIP for PCIe 5.0, enhanced with TripleCheck technology, we're enabling early adopters to ensure designs are compliant with the specification while achieving the fastest path to IP verification closure," said Michal Siwinski, vice president of product management and operations, System and Verification Group at Cadence. "Our support for the latest protocol demonstrates our commitment to the evolution of the PCIe specification, and customers can start using our solution for PCIe 5.0 immediately."

The Cadence VIP with TripleCheck technology is part of the Cadence Verification Suite and is optimized for Xcelium™ Parallel Logic Simulation, along with supported third-party simulators. The PCIe 5.0 VIP supports the company's System Design Enablement strategy, which enables system and semiconductor companies to create complete, differentiated end products more efficiently. The Verification Suite is comprised of best-in-class core engines, verification fabric technologies and solutions that increase design quality and throughput, fulfilling verification requirements for a wide variety of applications and vertical segments.

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***Dassault Systèmes and Capgemini partner to bring integrated home planning solutions to the consumer goods & retail industry***

22 November 2017

Capgemini and Dassault Systèmes today announced a technology and services partnership to deliver new cross-channel design solutions to the consumer goods and retail industry. With the systems integration and consulting support of Capgemini, companies in Germany, Sweden and France will now be able to create engaging home planning experiences for their consumers by deploying, operating and customizing Homebyme, Dassault Systèmes' immersive and interactive 3D experience application to imagine and manage the home environment.

Consumer goods and retail companies are seeking new ways to engage consumers in a competitive marketplace while navigating the disruptive changes that digitalization brings to the industry. Seamless, personalized experiences that leverage advanced technologies to appeal to individual tastes, preferences and shopping habits can differentiate a brand and fortify its relationship with consumers.

The partnership between Capgemini and Dassault Systèmes will enable furniture, appliance, home improvement, hardware, plus other brands and retailers to transform the way in which their customers design, plan and realize home furnishing and interior decoration projects.

Dassault Systèmes will provide Homebyme, which leverages 3DVIA applications powered by its 3DEXPERIENCE platform, to create the virtual mock-up of a home, while Capgemini will take on the integrator role with its extensive expertise in consumer goods and retail, systems integration, demand generation and sales planning, solution support, global and system architecture, modelling and simulation, complex system project management and connectivity.

"We are proud to partner with Dassault Systèmes to deliver new solutions to our clients in the Retail and Consumer Goods industry and beyond," said Anil Agarwal, COO of Capgemini in Sweden and Head of Capgemini in Norway. "Working together, we will offer our clients inspiring and innovative solutions in design and visualization that they can pass onto their customers."

"Customization transforms a house into a home. For many consumers, selecting the ideal flooring, the curtains that let in the most light, or the perfect table for a small corner are major decisions that can benefit from virtual exploration and experimentation," said Vincent Picou, CEO, 3DVIA, Dassault Systèmes. "Capgemini is a globally-recognized leader in retail transformation. Our partnership will extend and enhance the deployment of Homebyme across consumer goods and retail channels, and support the industry's efforts to bring new virtual experiences to a greater number of consumers."

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***Deloitte and DataStax Announce Alliance to Help Organizations Create Value from Data Through Graph Technology***

29 November 2017

Deloitte Consulting LLP today announced an alliance with DataStax, the leader in data management for cloud applications, to help organizations analyze and visualize their vast amounts of operational data.

The first go-to-market solution from the Deloitte alliance with DataStax is MissionGraph, an interactive, cloud-based tool that illuminates connections across large, disparate data sets to enable clients to uncover valuable real-time, actionable insights.

MissionGraph enables organizations to fuse innovative data, analytics and technologies to improve fraud detection, risk analysis, link analysis and business operations. MissionGraph has already been deployed for use by the federal government and is under implementation in a state government. It is now available for commercial application.

Deloitte developed MissionGraph on DataStax Enterprise (DSE) and DSE Graph. DSE Graph handles large, complex, relationship-heavy data sets at enterprise scale.

"Most of the problems facing our clients today involve a complex web of people, places and events," said Mark White, principal with Deloitte Consulting LLP. "MissionGraph helps discover the contextual relationships among these entities, and it enables users to explore and understand these relationships through an intuitive interface to evaluate their data and take action based on the results."

"DSE Graph is the first graph database powerful enough to scale to massive datasets, while offering advanced integrated tools capable of deep analytical queries," said Steve Rowland, president at DataStax. "We are thrilled to work with Deloitte to help organizations better understand and interpret their mission-critical data through our graph technology."

Deloitte and DataStax will showcase the power of Graph data analytics live Nov. 30 at the CEB Waterview Conference Center in Arlington, Virginia. The "Graph4Gov" summit will demonstrate recent advances in graph technology and the applications of the technology. The speakers and moderators include:

- Matthias Broecheler, inventor of the Titan graph database and founder of Aurelius, now chief technologist with DataStax
- Tom Mills, chief systems engineer, Office of Information and Technology (OIT), Customs and Border Protection (CBP)
- Arun Majumdar, chief technology officer, Kyndi

- David Waugh, SVP of market development, DataStax
- Mark White, principal, Deloitte Consulting LLP, and innovation office chief technologist
- Frank Strickland, managing director, Deloitte Consulting LLP, and federal S&O mission analytics leader

For more information, visit the event page.

To learn more about the Deloitte and DataStax alliance, please visit: https://www.datastax.com/partners/deloitte-and-datastax

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***Deloitte Expands Information Management, Evidence Management with ConvergeHEALTH Miner***

27 November 2017

Deloitte announced the expanded use of Amazon Web Services (AWS) for the award winning ConvergeHEALTH Miner product, adding AWS CloudFormation, Amazon Redshift, AWS Glue and AWS Lambda to expand its cloud-based solution for end-to-end evidence management for the life sciences industry.

Deloitte's 2017 Real World Evidence Benchmarking Survey found evidence management as a top priority for the industry driven by the shift to value-based, personalized health care. Greater than 90 percent of life sciences companies surveyed are seeking knowledge management solutions that will enable broad sharing of information around the organization about studies conducted, evidence generated and data available. Further, 60 percent indicated that they were planning on using the cloud for analytics to enable these initiatives in a secure and scalable way, as well as to take advantage of the fast-paced data science and machine learning innovation happening in the cloud.

Deloitte's ConvergeHEALTH Miner suite provides a flexible solution built on AWS, which enables clients to analyze data and to generate insights across the entire pharmaceutical value chain inclusive of translational research, clinical trials, real-world evidence, safety, market access and commercial products. Pharmaceutical companies are using the ConvergeHEALTH Miner suite, supported by new operating models and external data partnership strategies, to break down the traditional internal silos of evidence generation and think about an end-to-end evidence management strategy.

"In order to discover, optimize and demonstrate the value of real-world evidence, life sciences companies are embracing new strategies, innovative external partnerships, new operating models and innovative technology solutions," said Brett J. Davis, principal, Deloitte Consulting LLP and general manager of ConvergeHEALTH by Deloitte. "Deloitte's ConvergeHEALTH Miner suite on AWS is a solution that helps to break down the siloes for life sciences companies to thrive in a value-based, personalized medicine paradigm."

Recently, Celgene won the Cloudera Cloud Pioneer Data Impact Award for its use of the ConvergeHEALTH Miner solution on Cloudera and AWS to support its big data and real-world evidence initiatives. "It's a shift toward value-based and personalized care. There's a real need to better understand both the profiles of our medicines and the patients who are going to benefit from them—as early in the drug discovery process as possible," said Patrick Loerch, senior director of data science at Celgene. "With the ConvergeHEALTH Miner functionality, we now have a catalog of all available data

– both internal datasets as well as external datasets that we have access to through our partnerships."

With these new integrations, Deloitte is continuing its investment in a cloud-based approach to evidence management. Deloitte has added automated platform deployment of the ConvergeHEALTH Miner product leveraging AWS CloudFormation. For many users, this has significantly reduced deployment time. The Cohort Insight and Research Trust modules extend support to Amazon Redshift, a fast, fully managed data warehouse service. Additionally, ConvergeHEALTH Miner has integrated a new data lake catalog and management accelerator built on top of AWS Glue. The product now supports an advanced analytics library built on the AWS Lambda and Amazon Machine Learning (Amazon ML).

"Many biopharmaceutical companies are using real-world evidence platforms on AWS to derive new insights from their many disparate datasets," said Aaron Friedman, Ph.D., partner solutions architect, AWS Partner Network, Amazon Web Services, Inc. "Solutions like the Deloitte ConvergeHEALTH solution, built on AWS, are already helping a wide variety of life sciences customers gain new knowledge from their datasets and advance human health."

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***ESI Presents Virtual Performance Solution, the Latest Version of its Flagship Software***

29 November 2017

ESI Group announces the latest release of ESI Virtual Performance Solution (VPS). ESI's flagship software uniquely addresses the needs of an automotive industry being reshaped by new paradigms. The new generation of thermal engine and electric/hybrid vehicles rely on light-weight multi-material assemblies, including light metals and composites. VPS offers innovative ways to accurately validate the performance of such structures in an expanding set of domains; including crash, durability, vibro-acoustics and exploiting the benefits of using a single core model. Furthermore, models can readily account for the effects of manufacturing processes and benefit from multi-scale solution schemes. VPS empowers design and simulation experts to rapidly test their innovations on virtual rather than real prototypes.

Today, the selection of advanced lightweight materials, such as high strength steel or composites, requires a precise understanding, and an early prediction, of material behavior once assembled. Lightweight programs are now pushing for the adoption of innovative steels, among them hot-formed and increasingly high-grade dual-phase (DP) steels. These stronger grades may exhibit degraded properties around welds due to hot joining, with consequent and important effect on crash performance and occupant safety.

Introducing new materials and new car designs also increases the need for enhanced approaches to durability assessment. To address that topic, interaction between road and tire is key to predicting loads on the structure and thus durability, VPS 2017 introduces new tire models through co-simulation with Cosin's flagship software, FTire (Flexible Structure Tire Model), a physics-based, 3D nonlinear tire simulation model.

The 2017 version of VPS offers a DMP scaling up to 256 processors. This opens the way to the crash simulation of most full car models, including the deployment of side and curtain airbags with a precise FPM method (Finite Pointset Method) for gas modeling, in less than 5 hours. This represents a reduction in CPU time up to 60% compared to last versions of VPS.

The extended scalability offered in VPS 2017 for efficient High-Performance Computing (HPC) is key

to investigating multiple design options, virtually testing the performance of the car around a single core model, and performing iterations before design freeze.

For Miloslav Pašek, ŠKODA AUTO Support Team Leader at MECAS ESI s.r.o:"Virtual Performance Solution (VPS) exhibits continuously improving performance in High-Performance Computing (HPC). Numerical robustness and outstanding stability are mandatory. Scalability and parallel processing techniques have been key items to speed-up solving complex computational problems, making it practical to run the thousands of structural crash and occupant safety simulations needed in car development to achieve best ratings in Euro NCAP test procedures". The story "ESI Virtual Performance Solution helped ŠKODA score 5 star rating from Euro NCAP", describes how such capability can support automotive engineers.

For more information about ESI Virtual Performance Solution, please visit: www.esi-group.com/VPS

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***HPE Expands "Pay-Per-Use IT" to Key Business Workloads***

27 November 2017

Today, Hewlett Packard Enterprise (HPE) announced the launch of HPE GreenLake, a suite of pay-per-use solutions available for top customer workloads. Those offerings include: big data, backup, open database, SAP HANA, and edge computing. As part of its continued focus on providing customers flexible consumption offerings, HPE is also rebranding and making enhancements to HPE GreenLake Flex Capacity, a market leading infrastructure consumption service.

IT teams are under more pressure than ever to deliver solutions fast, while minimizing company risk and cost. The shift to consumption and "everything-as-a-service" accelerates businesses, but often with the loss of control for IT. To answer this challenge, businesses require flexible infrastructure environments on-premises that offer cloud-like capabilities for workloads. HPE GreenLake simplifies the IT experience and offers customers choice in where workloads should live and how to flexibly consume them.

The outcome-based IT consumption solutions include:

- HPE GreenLake Big Data offers a Hadoop data lake, pre-integrated and tested on the latest HPE technology and Hortonworks or Cloudera software.
- HPE GreenLake Backup delivers on-premises backup capacity using Commvault software pre-integrated on the latest HPE technology with HPE metering technology and management services to run it.
- HPE GreenLake Database with EDB Postgres delivered on-premises and built on open source technology to help simplify operations and substantially reduce total cost of ownership for a customer's entire database platform.
- HPE GreenLake for SAP HANA offers an on-premises appliance operated by HPE with the right-sized, SAP-certified hardware, operating system, and services to meet workload performance and availability objectives.
- HPE GreenLake Edge Compute offers an end-to-end lifecycle framework to accelerate a

customer's Internet of Things (IoT) journey.

"Building on the leadership and success of consuming infrastructure with HPE GreenLake Flex Capacity, we are taking the next step in consumption," said Ana Pinczuk, SVP and GM of HPE Pointnext. "HPE GreenLake offers an experience that is the best of both worlds – a simple, pay-per-use technology model with the risk management of data that's under the customer's direct control."

HPE GreenLake is the next generation of on-premises consumption services that go beyond pay-per-use infrastructure to pay-per-use outcomes. Included in each HPE GreenLake outcome-driven solution is:

- Advisory and professional services from HPE Pointnext to help customers quickly define, deploy, and integrate your solution, as well as provide HPE recommendations for continual optimization of systems and processes.
- Purpose-built reference architectures, based on the latest technologies (hardware and software) and optimized for each solution, to help deliver results quickly.
- HPE's proven pay-per-use HPE GreenLake Flex Capacity model to consume a wide range of infrastructure from HPE using a unique business metric.
- Remote monitoring and management of the solution by HPE Pointnext, offloading routine infrastructure management tasks from the IT department and providing both skills and knowledge of the new technologies from day one.
- Enterprise-grade support along with an HPE Digital Learner subscription to e-learning content, providing the digital skills needed for IT to do its best work.

The foundation of new offering is HPE GreenLake Flex Capacity, an innovative service delivered by HPE Pointnext that brings on-premises infrastructure consumption to customers today. Depending on need, level of expertise required, and in-house IT resources, businesses can choose between HPE GreenLake complete solutions or HPE GreenLake Flex Capacity based infrastructure solutions.

As part of today's news, HPE is also announcing enhancements to HPE GreenLake Flex Capacity that include:

- New modular, pre-packaged infrastructure choices to help customers get started faster and stay ahead of demand with active capacity planning.
- Expanded technology choices – with high performance computing (HPC), Microsoft Azure Stack, and HPE SimpliVity – to help customers design their infrastructure solutions and consume them the way that they need.

These latest enhancements to HPE GreenLake Flex Capacity come on the heels of recent announcements with Rackspace and Wipro Limited that reflect the company's ongoing growth with consumption-based services through partnership and innovation.

For more information on HPE GreenLake, please visit: hpe.com/GreenLake

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***Microsoft and SAP join forces to give customers a trusted path to digital transformation in the cloud***

27 November 2017

Microsoft Corp. and SAP SE on Monday announced integrated offerings to provide enterprise customers with a clear road map to confidently drive more business innovation in the cloud. In a bold show of commitment, the two companies also announced they will be deploying each other's cloud solutions internally. Through their unique partnership, the companies will co-engineer, go to market together with premier solutions and provide joint support services to ensure the best cloud experience for customers.

SAP HANA® Enterprise Cloud — SAP's private managed cloud service — on Microsoft Azure will allow customers to run SAP S/4HANA in a secure, managed cloud. Additionally, Microsoft will deploy SAP S/4HANA® on Azure to help run its own internal finance processes, and SAP will move its key internal business critical systems to Azure. Finally, SAP Ariba is currently utilizing Azure and is exploring further use within its procurement applications. Together, SAP and Microsoft will help companies make the most of running SAP applications in the cloud.

"As technology transforms every business and every industry, organizations are looking for the right platforms and trusted partners to help accelerate their digital transformation," said Satya Nadella, CEO of Microsoft. "Building on our longtime partnership, Microsoft and SAP are harnessing each other's products to not only power our own organizations, but to empower our enterprise customers to run their most mission-critical applications and workloads with SAP S/4HANA on Azure."

Enterprise companies are increasingly moving business-critical systems to the cloud for the benefits digital transformation provides: better customer relationships, more empowered employees, streamlined operations, new business models, and new products and services. According to research firm Gartner Inc., two-thirds of all business leaders believe that their companies must pick up the pace of digitalization to remain competitive.* As leaders in enterprise software, SAP and Microsoft are aligning closely to provide customers with the safe and trusted path to digital transformation.

"We are taking our partnership to the next level with this new capability to run SAP S/4HANA in the Microsoft Azure environment," said SAP CEO Bill McDermott. "The world's significant businesses trust Microsoft and SAP. Together, we will help companies win the customer-driven growth revolution."

SAP and Microsoft both will run SAP S/4HANA on Azure for their internal operations. Microsoft is transforming its internal systems — which include legacy SAP finance applications — and will implement the SAP S/4HANA Finance solution running on Azure. Microsoft also plans to connect SAP S/4HANA to Azure AI and analytics services for more efficient financial reporting and more powerful decision-making. SAP is migrating more than a dozen business-critical systems to Azure for the optimal efficiencies, flexibility and innovation the platform offers. This includes the SAP S/4HANA software supporting Concur, an SAP company.

Both companies will document the internal projects to provide customers with guidance and enterprise architecture for deployment of SAP applications on Azure.

With SAP HANA Enterprise Cloud on Azure, customers get the best of both worlds: application management and product expertise from SAP and a global, trusted and intelligent cloud from Microsoft Azure, including the range of Microsoft cloud services.

Enterprise customers of all types, such as The Coca-Cola Company, Columbia Sportswear Company, Coats and Costco Wholesale Corp., count on SAP and Azure today for their businesses.

"The strategic partnership announced between Microsoft and SAP is an extremely important development for the Coca-Cola System," said Barry Simpson, senior vice president and chief information officer at The Coca-Cola Company. "The value of aligned engineering, sales and delivery

between these two strategic partners will allow our system to accelerate our digital agenda. This is a very positive and exciting development for us."

"SAP and Microsoft are key partners with Costco, and this alliance will help drive our cloud strategy and digital business forward," said Jim Rutherford, senior vice president of Information Systems at Costco Wholesale.

"Microsoft and SAP are strategic partners helping us grow our wholesale and direct-to-consumer businesses. Their close alignment is an integral part of advancing our technical architecture and cloud strategy to better serve our customers around the world," said Mike Hirt, vice president and chief information officer at Columbia Sportswear Company. "We produce innovative products that allow our customers to pursue and enjoy their outdoor passions. Our partnership with Microsoft and SAP is essential to us continuing to deliver on that commitment."

"With SAP HANA on Azure, we have the data intelligence to operate more efficiently across all aspects of our business and accelerate the delivery of finished goods to our customers," said Hizmy Hassen, chief digital and technology officer, Coats. "The Microsoft and SAP alliance provides us with the assurance we need for our innovation in the cloud."

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***New Oracle Cloud Infrastructure Innovations Deliver Unmatched Performance and Value for the Most Demanding Enterprise, AI and HPC Applications***

16 November 2017

Oracle today announced the general availability of a range of new Oracle Cloud Infrastructure compute options, providing customers with unparalleled compute performance based on Oracle's recently announced X7 hardware. Newly enhanced virtual machine (VM) and bare metal compute, and new bare metal graphical processing unit (GPU) instances enable customers to run even the most infrastructure-heavy workloads such as high-performance computing (HPC), big data, and artificial intelligence (AI) faster and more cost-effectively.

Unlike competitive offerings, Oracle Cloud Infrastructure is built to meet the unique requirements of enterprises, offering predictable performance for enterprise applications while bringing cost efficiency to HPC use cases. Oracle delivers 1,214 percent better storage performance at 88 percent lower cost per input/output operation (IO)1.

New Innovations Drive Unrivaled Performance at Scale

All of Oracle Cloud Infrastructure's new compute instances leverage Intel's latest Xeon processors based on the Skylake architecture. Oracle's accelerated bare metal shapes are also powered by NVIDIA Tesla P100 GPUs, based on the Pascal architecture. Providing 28 cores, dual 25Gb network interfaces for high-bandwidth requirements and over 18 TFLOPS of single-precision performance per instance, these GPU instances accelerate computation-heavy use cases such as reservoir modeling, AI, and Deep Learning.

Oracle also plans to soon release NVIDIA Volta architecture-powered instances with 8 NVIDIA Tesla V100 GPUs interconnected via NVIDIA NVLINK to generate over 125 TFLOPS of single-precision performance. Unlike the competition, Oracle will offer these GPUs as both virtual machines and bare metal instances.  Oracle will also provide pre-configured images for fast deployment of use cases such

as AI. Customers can also leverage TensorFlow or Caffe toolkits to accelerate HPC and Deep Learning use cases.

“Only Oracle Cloud Infrastructure provides the compute, storage, networking, and edge services necessary to deliver the end-to-end performance required of today’s modern enterprise,” said Kash Iftikhar, vice president of product management, Oracle. “With these latest enhancements, customers can avoid additional hardware investments on-premises and gain the agility of the cloud. Oracle Cloud Infrastructure offers them tremendous horsepower on-demand to drive competitive advantage.”

In addition, Oracle’s new VM standard shape is now available in 1, 2, 4, 8, 16, and 24 cores, while the bare metal standard shape offers 52 cores, the highest Intel Skylake-based CPU count per instance of any cloud vendor. Combined with its high-scale storage capacity, supporting up to 512 terabytes (TB) of non-volatile memory express (NVMe) solid state drive (SSD) remote block volumes, these instances are ideal for traditional enterprise applications that require predictable storage performance.

The Dense I/O shapes are also available in both VM and bare metal instances and are optimal for HPC, database applications, and big data workloads. The bare metal Dense I/O shape is capable of over 3.9 million input/output operations per second (IOPS) for write operations. It also includes 51 TB of local NVMe SSD storage, offering 237 percent more capacity than competing solutions1.

Furthermore, Oracle Cloud Infrastructure has simplified management of virtual machines by offering a Terraform provider for single-click deployment of single or multiple compute instances for clustering. In addition, a Terraform-based Kubernetes installer is available for deployment of highly available, containerized applications.

By delivering compute solutions that leverage NVIDIA’s latest technologies, Oracle can dramatically accelerate its customers’ HPC, analytics and AI workloads. “HPC, AI and advanced analytic workloads are defined by an almost insatiable hunger for compute,” said Ian Buck, general manager and vice president of Accelerated Computing at NVIDIA. “To run these compute-intensive workloads, customers require enterprise-class accelerated computing, a need Oracle is addressing by putting NVIDIA Tesla V100 GPU accelerators in the Oracle Cloud Infrastructure.”

“The integration of TidalScale's inverse hypervisor technology with Oracle Cloud Infrastructure enables organizations, for the first time, to run their largest workloads across dozens of Oracle Cloud bare metal systems as a single Software-Defined Server in a public cloud environment,” said Gary Smerdon, chief executive officer, TidalScale, Inc. “Oracle Cloud customers now have the flexibility to configure, deploy and right-size servers to fit their compute needs while paying only for what they use.”

“Cutting-edge hardware can make all the difference for companies we work with like Airbus, ARUP and Rolls Royce,” said Jamil Appa, co-founder and director of Zenotech. “We’ve seen significant improvements in performance with the X7 architecture. Oracle Cloud Infrastructure is a no-brainer for compute-intensive HPC workloads.”

1 Based on comparison to AWS i3.16XL using industry-standard CloudHarmony benchmark, a measure of storage performance across a range of workloads. For more information, see: https://blogs.oracle.com/cloud-infrastructure/high-performance-x7-compute-service-review-analysis


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***Semtech Announces Industry's First Disposable LoRa-enabled Nano-tag for Internet of Things (IoT) Applications***

28 November 2017

Semtech Corporation announced its new nano-tag reference design, a disposable, ultrathin and low-cost tag that can be integrated into disposable systems or attached to assets to communicate a specific trigger of an event. The LoRa®-based nano-tag can be deployed across numerous Internet of Things (IoT) verticals that utilize the event data to enable smarter decision making.
The nano-tag is equipped with an ultra-thin printed battery and is designed to be integrated into products or systems that send messages to the Cloud when a simple event is detected. The LoRa-enabled reference design will work with existing LoRaWAN™ networks and enable the proliferation of completely new types of IoT applications, requiring real-time, reliable feedback including logistics/shipping applications, healthcare and pharmaceutical applications, asset tracking applications, and general-purpose compliance applications.

MachineQ™, a Comcast enterprise IoT service, is the first company to pilot the LoRa-enabled nano-tag with interested third parties on its IoT network in Philadelphia.

"As we continue to work with customers across a wide range of use cases, the innovative service made possible by coupling Semtech's new nano-tag on machineQ's dense IoT network opens a whole new set of use cases, across multiple industries, that were not commercially or technically viable using existing technologies," said Alex Khorram, General Manager of machineQ.

"By offering a lower cost, disposable LoRa-enabled tag, we can expand the current landscape of use cases for Semtech's LoRa devices and wireless radio frequency technology and allow companies to integrate the technology to drive many more diverse IoT use cases. We believe the number of use cases should expand rapidly as our connectivity and Cloud partners start to leverage the disruptive nature of the LoRa-enabled tag," said Marc Pegulu, Vice President and General Manager for Semtech's Wireless and Sensing Products Group. "We continue to introduce leading edge solutions based on Semtech's LoRa Technology to fully leverage the differentiated capabilities and advantages of the technology's long-range, low-power and low-cost connectivity."

The low-cost disposable LoRa-enabled tag will be commercially available in both flexible tape and paper substrates in 2018 and are currently in trials by a number of LoRa Alliance™ members. For more information about the LoRa-enabled tag, please contact www.semtech.com/info.

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***Siemens launches MindSphere Partner Program***

29 November 2016

Siemens today announces the MindSphere Partner Program, the newest element of its open cloud-based Internet of Things (IoT) operating system. This program, launched globally, equips partners in both operational technology (OT) and informational technology (IT) areas with the tools needed to help solve real business and technical challenges faced by end customers through the transformational capabilities of MindSphere and IoT technology. It also marks the completion of the first phase of investments in a new global team to support partners at strategic and regional levels with a combination of business development and technical resources focused on helping partners build their own solutions on MindSphere technology.

"Siemens' open platform as a service approach, combined with its enhanced partner program, provides key resources to jointly solve problems for our customers," explained Paul Albada Jelgersma, EN-USEN-UScolor:black;mso-themecolor: text1senior vice president, Global Head of Atos Services for Siemens' MindSphere, Atos IoT Services. "We are already engaged in joint solutions for industrial customers and the incremental investments in this program only help accelerate success."

Through the MindSphere Partner Program, partners can gain greater opportunities to build IoT applications and solutions on the MindSphere operating system and provide professional services to solve real business problems. The program is built specifically to help partners who desire to leverage the open cloud-based nature of MindSphere to address a wide range of device and enterprise application connectivity protocol options, industry applications, advanced analytics and an innovative development environment that utilizes both Siemens' open Platform-as-a-Service (PaaS) capabilities along with access to native Amazon (AWS) cloud services. Through these capabilities, MindSphere connects real things to the digital world and provides powerful industry applications and digital services to drive business success. The open PaaS model will enables a rich partner ecosystem to develop and deliver new applications. Target partner business models for the MindSphere Partner Program include system integrators, application developers, consulting and strategy partners, technology partners, connectivity partners, and hybrid OT partners.

The new MindSphere Partner Program, based on a globally-consistent three-tier program structure (Platinum, Gold, and Silver), also includes clear business development benefits and requirements per tier. Partners in all tiers have the ability to access new business development benefits, and earn influencer fees by identifying and helping close new MindSphere opportunities via a deal registration tool. Gold and Platinum Partners are also eligible for business development funding to drive proof of concept, marketing, and technical activities that can accelerate their businesses and investments. A MindSphere partner manager will work with such partners to define a joint business plan to align resources for joint success.

"Partners have fully embraced the concept of building new applications and services around MindSphere as an open platform, making our partner program, that rewards and accelerates their investment, a key next step," said Paul Kaeley, senior vice president of Siemens' Partner Ecosystem. "Transforming how customers can leverage IOT requires a holistic end-to-end solution, which can only happen with partners."

"As an existing partner of Siemens PLM Software, we are thrilled to now have the opportunity to help both existing and new customers leverage IoT to solve key manufacturing business problems," says Ettore Soldi, CEO and managing director of Hyla Soft USA. "The new MindSphere Partner Program gives us the business development and technical tools we need to do so more quickly, and more effectively take advantage of the inherent strengths of the MindSphere platform to address those challenges."

For more information on MindSphere, please see www.siemens.com/mindsphere (or http://siemens.mindspere.io)

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***Siemens' MindSphere with industry-driven solutions now on Amazon Web Services (AWS)***

27 November 2017

Siemens today announced that the latest release of MindSphere, the company's open cloud-based Internet of Things (IoT) operating system, will be hosted for the first time on Amazon Web Services (AWS). This provides the ability to develop robust industrial IoT solutions on a shorter timeline for customers across various industries, especially aerospace and defense as well as energy and utilities.

"We are excited to be working with Siemens to host MindSphere on AWS," said Terry Wise, vice president of global alliances, ecosystem & channels for Amazon Web Services, Inc. "Siemens' deep industrial domain knowledge and experience, coupled with the global scalability and security available through AWS, provides its customers with increased capabilities to bring industrial IoT to businesses of all sizes."

MindSphere delivers a wide range of device and enterprise application connectivity protocol options, industry applications, advanced analytics and an innovative development environment that utilizes both Siemens' open Platform-as-a-Service (PaaS) capabilities along with access to AWS cloud services. Through these capabilities, MindSphere connects real things to the digital world and provides powerful industry applications and digital services to help drive business success. MindSphere's open PaaS enables a rich partner ecosystem to develop and deliver new applications. Siemens provides business-focused solutions to help drive closed-loop innovation through digital twins for products, production, and performance.

"We've listened to our customer's demand for high availability and global scale, and are embracing a new AWS first approach to MindSphere," said Steve Bashada, executive vice president of Siemens Cloud Application Services. "Thanks to our collaboration with AWS, Siemens customers and partners will have access to one of the best Industrial IoT Application Programming Interfaces from Siemens, coupled with direct access to AWS services for faster application development."

MindSphere provides an opportunity to participate in the digital transformation of companies regardless of industry or size. With Siemens' global base of millions of installed devices, Siemens and its' partners can develop valuable MindSphere applications through rich application programming interfaces (APIs) and deliver digital services in collaboration with AWS. These collaborations enable MindSphere to provide a holistic set of IoT solutions and services, matching the requirements of our customers, providing numerous opportunities to build and operate digital offerings around MindSphere on AWS.

"Siemens' open PaaS approach through rich industrial IoT APIs, while enabling partners like Atos to extend the functionality of MindSphere through integration services and application development, is a unique, powerful approach," explained Philippe Miltin, Atos senior vice president, global head of manufacturing, Retail & Transportation. "We are already delivering solutions and services using MindSphere in multiple industries."

MindSphere applications are being developed across multiple Siemens business units, with openness as a key cornerstone. At the recent EMO 2017 exhibition in Hannover, Germany, Siemens connected over 240 different machine tools from over 140 manufacturers across the entire exhibition site using its "Manage MyMachines" application on MindSphere.

"Our cloud-based IoT operating system offers machine manufacturers many different ways to gain a competitive advantage by using their extensive domain expertise and developing high-performance applications for machine operators," explained Dr. Wolfgang Heuring, CEO of the Siemens Motion Control Business Unit. "This forms the basis for new services and business models."

Early access to the latest version of MindSphere will be provided for select Siemens partners in November with general availability in January 2018.

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***Siemens strengthens its IoT operating system MindSphere through technology partnership with Software AG***

23 November 2017

Siemens AG and Software AG announced a partnership to strengthen the presence of the cloud-based open Internet of Things (IoT) operating system MindSphere across industries. MindSphere supports industrial companies in their digital transformation and offers a development platform to a broad customer base where companies can integrate their own applications and services to promote IoT innovations. Software AG brings the highly scalable components of its Digital Business Platform to MindSphere, which help customers to flexibly manage networks of millions of end devices.

"Working hand in hand with partners like Software AG, we are continuing to drive forward the expansion of our IoT operating system MindSphere, creating an ever more extensive global ecosystem. With MindSphere as a key component of our Digital Enterprise Suite we provide optimum support for manufacturing customers undergoing the digital transformation," says Dr. Jan Mrosik, CEO Digital Factory Division, Siemens AG.

Karl-Heinz Streibich, CEO of Software AG, adds: "Our goal is to intelligently combine Siemens' global industrial presence as an innovation leader with our software expertise in IoT to benefit our customers. Bringing our high-performance components of our Digital Business Platform to MindSphere, users will have new opportunities to exploit the full potential of their data to get a competitive edge. Thereby, we will strengthen the IoT operating system."

MindSphere is Siemens' cloud-based, open IoT operating system that connects real things to the digital world, and enables powerful industry applications and digital services to drive business success.

MindSphere's open Platform as a Service (PaaS) enables a rich partner ecosystem to develop and deliver new applications providing a basis for new business models, such as in the fields of preventive maintenance, energy data management or resource optimization. The open access of the operating system is particularly important here, such as the use of open interfaces (APIs) to produce OEM and customer specific apps as well as open standards for connectivity such as OPC UA. MindSphere thus forms the basis for new business models, for example for machine manufacturers. Siemens MindApps provide the basic functions for machine manufacturers to enter the digital world. Machine manufacturers can use these basic functions to apply their specific and comprehensive machine and process knowledge to developing and marketing innovative customized applications, solutions and services for their customers. This allows them, for example, to monitor machines scattered throughout the world, or whole machine fleets, and to reduce their downtime.

Software AG and Siemens AG's technology will provide comprehensive market-leading capabilities enabling users to acquire and comprehensive analyze raw data produced by plants, machines, systems and products even more easily. For this, Software AG application and device management technology enables both centralized networking of devices as well as cloud-based management, providing scalable and flexible management for a network of millions of end devices, also in the area of edge analytics in the future. Software AG application connectivity technology integrates a variety of different business applications (e.g., SaaS, Big Data, IoT, client-, partner- or shop-floor applications) along the entire value chain.

MindSphere is part of Siemens' comprehensive Digital Enterprise Suite solution. Companies that are designing, developing, and manufacturing products using the Digital Enterprise Suite for Product Lifecycle Management (PLM), Manufacturing Operations Management (MOM) and Totally Integrated Automation (TIA) are building products, like laptops, computers, televisions, cars, trucks, planes, heavy equipment, fitness devices, white goods, etc. Siemens envisions these products being connected to MindSphere so their data can be collected and analyzed in MindSphere applications and connected back to the complete Digital Twin to drive innovation. With this platform, the company enables smooth collaboration for all stakeholders along the entire industrial value chain, from individual product design to the delivery of associated services.

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***Wipro Launches Industry-Specific Solutions as Extentions to SAP Leonardo***

16 November 2017

Wipro Limited today announced the launch of industry-specific solutions on SAP® Leonardo. The first set of solutions will focus on the utilities industry, while the next will cover the consumer and manufacturing industries.

SAP Leonardo is a holistic digital innovation system that comprehensively integrates future-facing technologies and capabilities into SAP Cloud Platform. Wipro will leverage SAP Leonardo themes such as IoT, blockchain, machine learning, Big Data, insights and analytics to build solutions that will support insight-driven decision-making for customers. To begin with, Wipro and SAP are jointly developing use cases that leverage blockchain technology for the utilities industry.

Wipro plans to build micro-services as extensions to the SAP Leonardo portfolio on SAP Cloud Platform. These micro-services will be aligned with SAP's future product roadmap.

As part of the partnership, Wipro will develop industry-specific analytics "apps" on its insights-as-a-service solution, Data Discovery Platform, leveraging SAP Leonardo analytics, Big Data and data intelligence capabilities.

Bhanumurthy B.M., President and Chief Operating Officer, Wipro Limited said, "We are keen to leverage SAP Leonardo to drive innovation for our customers. Given our strengths in blockchain, IoT, machine learning and analytics, and our long-standing partnership with SAP, we believe that we are well positioned to build industry-specific digital solutions to power our customers' transformation journey."

"With SAP Leonardo, we support our customers in implementing differentiated digital solutions," added Bernd Leukert, member of the Executive Board of SAP SE, Products & Innovation. "An excellent technical foundation, integration into core business processes and a strong ecosystem are imperative to succeed in the digital economy. Joining forces with Wipro is a great example of collaboration to realize business value for our customers using technologies such as IoT, machine learning and blockchain."

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***ZW3D 2018: Integrated MISUMI to Speed Up Mold Design by 50%***

29 November 2017

ZW3D today announced that it has struck a partnership with MISUMI, a 3D CAD library for standard components of press die and plastic mold, to empower engineers with configurable components to speed up mold design.

Designers & engineers can benefit from this integration of MISUMI Mold EX-Press when ZW3D 2018 is released on December 5th, 2017. Empowered by this complete collection of MISUMI library, ZW3D users can quickly select and locate the parts from more than 10, 000 types of part models, reducing mold design time by 50% with high quality.

Mold EX-Press makes it much easier for users to quickly select parts with various search methods. Exporting CAD models only needs 3 steps. With a single click, quotation is automatically generated, eliminating order errors to zero. Making design more precise and easier is what ZW3D is pursuing.

“We see the cooperation as a key step towards ‘smart manufacturing’,” said Colin Lin, Director of ZW3D Overseas Business. “With the smart standard parts library, ZW3D frees designers from the complexity of selection, matching and maintenance. The successful collaboration between ZW3D and MISUMI will surely lead to a greater development.”

“As a leading CAD/CAM solution provider in China and abroad, ZW3D has built up a good reputation among customers with its powerful functions. Its goal of improving design efficiency through technical means is also consistent with the idea of MISUMI Mold EX-Press,” said Xu Xiaobing, Solution Development Team Manager of MISUMI. “We believe this win-win cooperation will play an active role in further module function improvement and user experience enhancement.”

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