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CIMdata News

CIMdata to Host Free Webinar on Transforming AEC – Obstacles and Opportunities

6 September 2016

CIMdata PLM Industry Summary

CIMdata, Inc., the leading global PLM strategic management consulting and research firm, announces an upcoming free educational webinar, “Transforming AEC – Obstacles and Opportunities.” The webinar will take place on October 13, 2016 at 11:00 a.m. (EDT).

Despite the wide adoption of BIM in AEC, the industry remains fragmented, and the benefits of new technologies and processes have not yet been fully realized in construction, operations, and maintenance. During this webinar CIMdata will review findings from a recent research survey of AEC professionals and provide attendees with a perspective on how to transform current practices to address the challenges.

According to the webinar host, CIMdata’s Director for AEC/Manufacturing Convergence, Ed Martin, “CIMdata’s research and consulting shows that the AEC industry suffers from fragmentation across different disciplines, and that the industry is paying the price in the form of economic inefficiencies and project delays. Although solutions are available to help solve these problems, making the case for change can be challenging. This webinar aims to help attendees identify where they can achieve practical improvement, and how to start on the road to improvement.”

Mr. Martin has over 35 years of PLM and manufacturing industry experience in the disciplines of product development, manufacturing automation, lean manufacturing, and systems engineering. During his career he has held engineering and management roles in the manufacturing industry, including positions at General Motors and Delphi. Prior to joining CIMdata, Mr. Martin was with a leading PLM solution provider where he applied his engineering and manufacturing knowledge to build an automotive industry practice and then to lead a product team focused on production and fabrication technologies including the integration of BIM and manufacturing information for greenfield and brownfield facility projects.

The webinar will be an hour long and will share: the characteristics of top performers in the AEC industry; the obstacles to change and how to overcome them; how to take advantage of new technologies; areas where the potential benefits are greatest; how to justify process change; and CIMdata’s analysis of industry trends.

The webinar will be useful to BIM managers, project delivery managers, VDC managers, digital engineering managers, construction managers, facilities managers, sales engineers, IT leadership, PLM team leaders, PLM team members, product managers, solution providers, and anyone who wants to learn more about the opportunity to improve AEC technologies and processes.

During the webinar attendees will have the opportunity to ask questions about the topics discussed. To find out more, visit: <http://www.cimdata.com/en/education/educational-webinars/webinar-transforming-aec-obstacles-and-opportunities>. To register for this webinar, please visit: <https://attendee.gotowebinar.com/register/8592280221535295489>

About CIMdata

CIMdata, a leading independent worldwide firm, provides strategic management consulting to maximize an enterprise’s ability to design and deliver innovative products and services through the application of Product Lifecycle Management (PLM) solutions. Since its founding in 1983, CIMdata has delivered world-class knowledge, expertise, and best-practice methods on PLM solutions. These solutions incorporate both business processes and a wide-ranging set of PLM-enabling technologies.

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

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provides PLM-focused subscription services, and produces several commercial publications. The company also provides industry education through PLM certificate programs, seminars, and conferences worldwide. CIMdata serves clients around the world from offices in North America, Europe, and Asia-Pacific. To learn more about CIMdata's services, visit our website at www.CIMdata.com, follow us on Twitter: <http://twitter.com/CIMdataPLMNews>, or contact CIMdata at: 3909 Research Park Drive, Ann Arbor, MI 48108, USA, Tel: +1 734.668.9922. Fax: +1 734.668.1957; or at Oogststraat 20, 6004 CV Weert, The Netherlands, Tel: +31 (0) 495.533.666.

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Dr. Venkatesh Agaram, CIMdata's Director of Quality & Reliability Engineering, to be Featured in Upcoming Webinar on Connecting All Parts of the Product Lifecycle

6 September 2016

CIMdata, Inc., the leading global PLM strategic management consulting and research firm, announces that Dr. Venkatesh Agaram, Director of Quality & Reliability Engineering, will take part in a webinar to discuss different approaches for connecting PLM to all parts of the lifecycle.

In this webcast, "Connect All Parts of the Product Lifecycle," Dr. Agaram will share his insights on two facets of product development that have emerged due to the increasing introduction of connectivity and artificial intelligence in products and product systems, namely analytics-driven connected product development and knowledge systems-based Design for Reliability.

The webinar, which is hosted by PTC, will take place on Tuesday, September 20, 2016 at 14:00 CEDT. To register, visit <http://bit.ly/Webinar-Avec-CIMdata>.

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Simulation-Driven Product Development Enables Breakthrough Sustainable Energy Innovation (CIMdata Commentary)

7 September 2016

CIMdata PLM Industry Summary

Key takeaways:

- Industry thought leaders have identified pursuit of global sustainability as not only good for the environment, but also good for business because new product innovation drives growth and minimizes total lifecycle costs
- Wall Street has also recognized the positive correlation between financial performance (expanding market share, earnings growth and market leadership) and breakthroughs in sustainable energy innovation
- The complexity of products is exponentially increasing due to software and electronics content which requires that companies evolve to a simulation-driven product development process to achieve energy sustainability goals, speed time to market, minimize product costs, and reduce warranty costs
- Market leaders are increasingly adopting systems-based, multi-physics modeling and simulation technology to rapidly evaluate many more innovative systems concepts early in the design cycle and optimize product performance for energy sustainability throughout the lifecycle of products

Introduction

Although global initiatives such as reduction of greenhouse gas (GHG) emissions and the Circular Economy for resource conservation can appear to be purely a cost-burden, industry leaders have begun addressing these environmental issues in ways that create real business value.^{1 2} Over the past two decades, the concept of corporate sustainability has become part of mainstream business for many corporations—both large and small. Sustainability drives companies to explore new product innovations that use fewer resources and meet specific social needs as well as lead to increased market share and business value.

This paper will address some of the capabilities needed by companies who are pursuing leadership in sustainability and related energy conservation issues.

Political Drivers: Global Initiatives for Energy Sustainability

At the 21st Conference of Parties (COP21) meeting in Paris in late 2015, ministers from 195 countries adopted an agreement to fight climate change that included a commitment to limit global temperature rise to no more than 2°C above pre-industrial levels. A more aggressive goal of no more than 1.5°C is also actively being pushed for by countries who are potentially more vulnerable to climate change—called the “one point five to survive” initiative. The ongoing, complex debate on climate change is attempting to balance multiple social perspectives and business constraints, including achieving environmental commitments while ensuring access to energy as a precondition for sustainable economic growth and global social development.

Bridge Strategy for Greenhouse Gas Control

The International Energy Agency (IEA) subsequently proposed a bridge strategy for countries to achieve their intended nationally determined contributions (INDCs) to the 2°C goal while maintaining the same level of currently planned gross domestic product growth. As shown in Figure 1, this bridge strategy

¹ Bonini, Shiela and Anne-Titia Bové. Sustainability’s strategic worth: McKinsey Global Survey results. McKinsey & Company. July 2014.

² Bonini, Shiela and Steven Swartz. Profits with purpose: How organizing for sustainability can benefit the bottom line. McKinsey & Company. 2014.

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identified that two-thirds of the GHG goal could be achieved through two macro technology areas: energy efficiency (49%) and investment in renewable energy sources (17%).

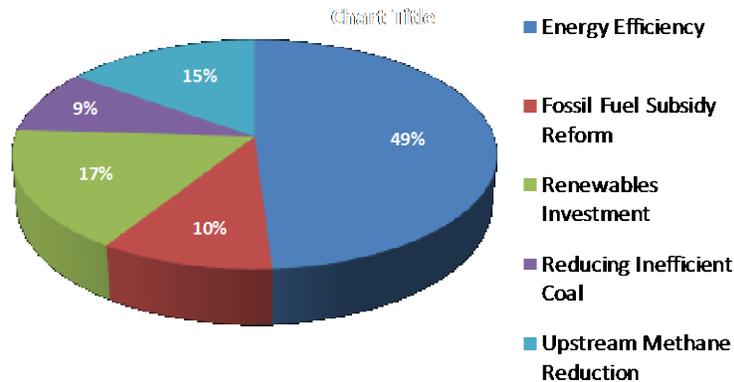


Figure 1—66% of Target GHG Emissions Deduction for the Bridge Scenario Would Come from Energy Efficiency (49%) and Investment in Renewables (17%)³

Business Driver: Achieving Profits with Sustainable Energy Innovation

The new business challenges and constraints imposed by sustainability foster cross-company, multi-disciplinary problem solving and innovation in products, processes, and business models to the extent that these positively impact stock performance. For example, annual analysis of companies that have

³ Data extracted from: Energy and Climate Change. International Energy Agency. 2015

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Figure 9: CPLI [2010 - 2013] returns against overall Global 500

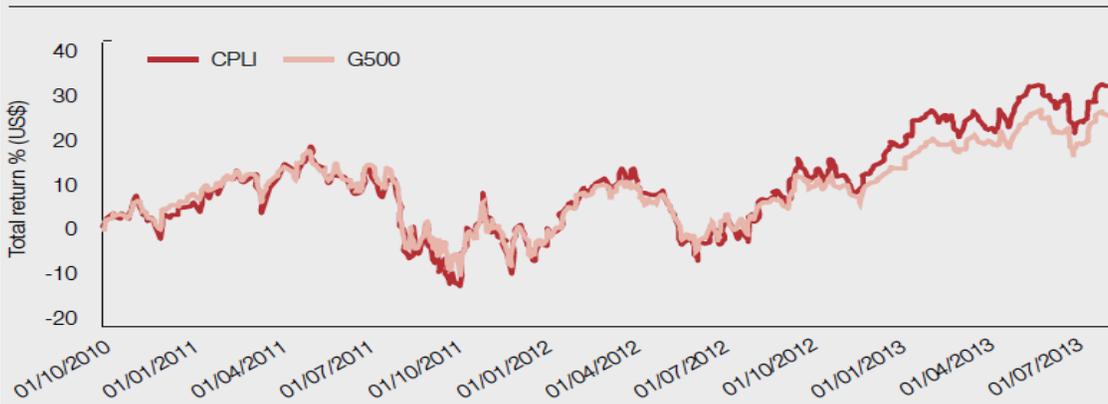


Figure 10: CDLI [2005 - 2013] returns against overall Global 500

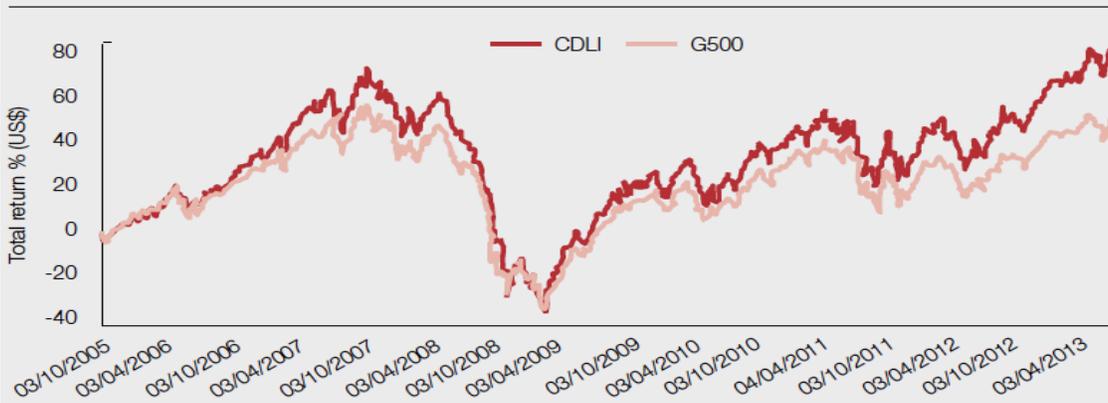


Figure 2—Stock Performance of Carbon Disclosure Project Leaders¹

achieved leadership positions on climate performance indices (CPLI) or disclosure indices (CDLI)

suggests that companies that achieve leadership positions in climate change generate superior stock performance (see Figure 2). Since 2005, CDLI companies delivered total returns of 82.8%, outperforming the Global 500 (delivering 49.6%) by more than two-thirds. Moreover, CPLI companies generated average total returns of 31.9% since 2010, outperforming the Global 500 (at 24.8%) by more than a quarter.

The paradigm change triggered by energy sustainability and the Circular-Economy demands considerable rethinking of traditional engineering, design and manufacturing processes, and associated best practices to deal with greater product complexity and tighter design constraints. As such, breakthrough energy innovation demands a much larger amount of experimentation than usual to gain new insights into key product performance parameters. Such design iterations are much more efficiently and rapidly performed using computer simulations versus traditional “build and test” processes.

Further, the faster that new engineering technologies for energy sustainability can be brought to market in innovative new products, the quicker the time to business profits and return on capital. Achieving the targeted energy sustainability goals will not only result in near term energy savings but also will mitigate

the future need for more extreme measures.

Simulation-Driven Engineering for Sustainable Energy Innovation

The engineering solutions to support breakthrough energy-related innovation will come from several key technology areas. These include: electrification, fuel efficiency, machine efficiency, thermal management, aerodynamics, light-weighting, new materials, and resource conservation. Energy efficiency can be increased through improved electrical motors, refrigeration, household appliances, building insulation, and vehicle fuel-economy, as well as through the application of variable speed drives, low temperature heat pumps, LED lighting, compact fluorescent lamps, etc. Existing products need to be even further optimized or, in most cases, significantly re-designed to meet new market competitive requirements, as well as global energy efficiency and sustainability goals. Increasing energy efficiency in diverse industries demands considerable engineering innovation and “out of the box” thinking.

This is where multiple levels of digital “physics-based prototypes” can be employed to simulate, analyze, and optimize the performance of new systems and components at all stages of the design cycle, especially during early concept development. Additionally, the added product complexity now introduced by cyber-physical systems that include hardware, electronics, software, and controls can be most effectively dealt with by addressing these multiple engineering domains and multiple physics phenomena using systems modeling and simulation solutions based on an integrated product innovation platform.⁴

Today’s simulation-driven product development platforms are designed to enable engineers to optimize product designs to achieve these market requirements for competitive performance and reduced risk of product failures, while also achieving societal goals for energy sustainability, conservation, and re-use of scarce resources such as water, energy, and materials. In fact, recent studies have shown that best-in-class companies are 53% more likely than their peers to use multi-physics simulation technology to achieve competitive advantage by meeting design targets for product launch dates, product cost, and quality; as well as financial metrics such as product revenues and profit margins. The contrast is indeed substantial and compelling between companies that have successfully leveraged simulation technology as a strategic part of their product development process versus those companies that have not adopted a simulation-driven product development approach.⁵

In short, profitable product innovation demands the creative use of physics-based modeling and simulation technology that enables engineers to rapidly analyze and solve real world issues related to breakthrough sustainable energy innovation.

Three industry applications are profiled below that highlight the engineering complexity that needs to be dealt with to create such energy-related design breakthroughs:

- Electric propulsion for on-road vehicles
- Combustion efficiency for off-road vehicle diesel engines

⁴ The Next Step in PLM’s Evolution: Its Platformization. CIMdata Position Paper. March 2015.

<http://www.cimdata.com/en/resources/complimentary-reports-research/position-papers>

⁵ Why Engineering Simulation is Critical to Your Smart Products Success in the Internet of Things. The Aberdeen Group. 2016.

<http://resource.ansys.com/Resource%20Library/White%20Papers/Why+Engineering+Simulation+is+Critical+to+Your+Smart+Products+Success+in+the+Internet+of+Things>

- Water conservation in residential shower use

These applications highlight large, well established, publicly traded, global companies, as well as a new venture-backed U.S. start-up company with fewer than ten employees. All demonstrate that the business drivers and related engineering technologies required to achieve sustainable energy innovation are relevant and realizable for all types of enterprises.

Application 1: Enabling Electric Propulsion for Automobiles

The transportation sector today is the second-largest emitter of CO₂ after the power sector, accounting for more than 20% of global energy-related CO₂ emissions.⁶ Passenger and freight road vehicles are the primary cause of the increase, accounting for over 80% of the growth, due primarily to a heavy reliance on fossil fuels.

Under the long-term “450 Scenario,” the proportion of electric and plug-in hybrid electric vehicles (BEVs, PHEVs) is expected to be ~40% of all on-road vehicles, reducing global oil demand by six million barrels per day in 2040. BEVs and PHEVs will need to become comparable with today’s gasoline vehicles in terms of drive range and lifetime costs to attain much higher sales volumes.

Battery performance is a critical design element of an electric vehicle. Smaller and lighter batteries will significantly reduce the weight of the vehicle and improve its fuel economy, as well as reduce operational costs. Unfortunately, today’s state-of-the-art rechargeable battery technology (i.e., lithium-ion batteries) has much lower performance in terms of expected operating range for all-electric vehicles versus gasoline powered or hybrid vehicles. Further, in electric vehicles, many hundreds of individual battery cells need to be connected together as part of a much larger battery pack system to power the vehicle. Major automakers and their suppliers have been working together, along with the U.S. Department of Energy (DOE), to meet the ambitious goal of reducing energy costs to US\$125/kWh by 2022.⁷

⁶ Bonini, Shiela and Steven Swartz. Profits with purpose: How organizing for sustainability can benefit the bottom line. McKinsey & Company. 2014.

⁷ Ye, E., T. Han, T. and S. Kher. Automating Battery Pack Design. ANSYS Advantage, Vol. IX, Issue 2. 2015.

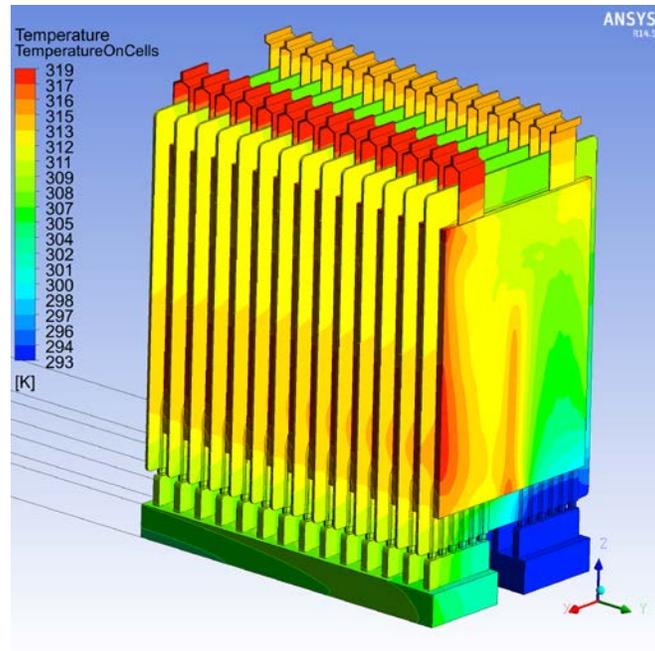


Figure 3—System Level Thermal Model of a 24-Cell Reference Battery Module
(Courtesy of ANSYS)

One excellent example of such collaboration is between General Motors (GM), DOE's National Energy Laboratory (NREL), ANSYS Inc., and ESim LLC, which is focused on Computer-Aided Engineering for Electric Vehicle Batteries. The main objective of the project is to develop design tools for battery packs by leveraging and extending the capabilities of systems-level thermal performance simulation packages. One major challenge related to electric vehicle battery packs is the maintenance of optimum system operating conditions for avoiding material degradation and loss of capacity given the strongly coupled electrochemical and thermal behavior of its hundreds or even thousands of cells. For electric vehicle makers, designing an efficient and robust cooling system for the battery pack is a key technology goal required to achieve affordable energy production.

In the longer term, further enhancements to this battery performance simulation technology will include the addition of battery-life modeling to predict the capacity fade of cells over an extended period of use, and expanding the capability to examine individual cells in more detail by replacing selected units in the system model with full 3D cell models, as well as reduced-order models. The design insights provided by this systems-level simulation approach will be especially critical for trade-off studies regarding key performance parameters, such as air cooling versus liquid cooling, battery form factor or effects of battery management system control logic. These types of critical design issues must be answered before auto manufacturers commit to building costly prototypes and production tooling.

Application 2: Improving Diesel Engine Efficiency

Medium- and heavy-duty vehicles currently account for about 20% of greenhouse gas emissions and oil use in the U.S. transportation sector, but only account for about 5% of the vehicles on the road.⁸

⁸ Benink, C. Push to Cut Diesel Exhaust Emissions Is Far From Over for Heavy-duty Trucks. For Construction Pros, February 2016.
<http://www.forconstructionpros.com/article/12161711/heavy-duty-diesel-trucks-face-greenhouse-gas-ghg-emissions-challenge>

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Globally, GHG emissions from heavy-duty vehicles are growing rapidly and are expected to surpass emissions from passenger vehicles by 2030.

The EPA and National Highway Traffic Safety Administration (NHTSA) estimate that Phase 1 GHG emission rules will save 530 million barrels of oil over the life of vehicles built for the 2014 to 2018 model years. Certain combination tractors (also known as semis) will be required to achieve approximately a 20% reduction in fuel consumption and GHG emissions by model year 2018. This could save up to 4 gallons of fuel for every 100 miles driven.

The proposed Phase 2 program would cut GHG emissions by approximately 1 billion metric tons and conserve about 1.8 billion barrels of oil. The standards phase is beginning in model year 2021 and will culminate in model year 2027. The biggest impact will be in combination tractors designed to haul freight. The target is to reduce carbon dioxide emissions and fuel use by 24% compared to Phase 1 standards. Technologies being explored include combustion optimization, improved air handling, reduced friction loss within the engine components, improved emissions after-treatment technologies, and waste heat recovery.

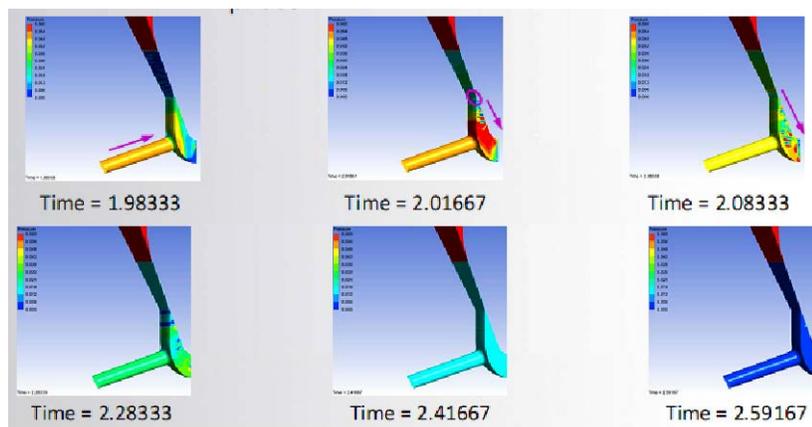


Figure 4—Conditions in the Injector Sac and Spray Hole During the Fuel Injection Cycle
(Courtesy of ANSYS)

The internal fluid dynamics of diesel engine fuel injectors can have a major impact on engine performance. The flow inside the fuel injector influences the pattern with which fuel is sprayed into the combustion chamber (Figure 4), that in turn, can impact combustion performance and emissions. Likewise, internal flow patterns affect fuel injector losses so optimizing these can improve fuel economy and engine performance.⁹

Cummins Inc., a global leader in the production of diesel engines for both on-road and off-road vehicles, as well as for power generation sets, makes extensive use of computational fluid dynamics (CFD) technology to simulate internal fluid dynamics of fuel injectors, paying particular attention to cavitation behavior, sac filling and pressure, and spray-hole velocity and momentum. Application of the CFD software enables Cummins engineers to evaluate many design alternatives and iterate to an optimized fuel injector design with lower losses and a superior spray pattern, resulting in significant improvements in engine performance.

Cummins states it has reduced engine emissions for their North American on road vehicle class diesel

⁹ Husmeier, F. Cummins Uses Simulation to Reduce Injector Losses and Improve Spray Pattern for Performance. ANSYS Journal. 2013.

engines by an amazing 99% over the past 15 years through fuel injector optimization and other innovations such as combustion thermal modeling, piston lubrication modeling, electronic control systems software modeling “in the loop,” turbocharging, and exhaust gas recirculation techniques. In less advanced parts of the world, Cummins engines now actually clean up and improve the ambient air quality as they are operating in the environment. Based on these major virtual prototyping successes within its core engine application areas, Cummins simulation-driven product development strategy called Analysis-led Design is now a core element of their corporate-wide engineering process and is seen as a significant competitive differentiator for all of their business units in the power generation domain—vehicles, rail, standby power, and aftermarket engine treatment systems.

Application 3: A Water Conserving Showerhead Design

Saving water not only reduces stress on natural water systems, but it also produces substantial energy savings and greenhouse gas reductions. Treating and pumping water through cities appears to contribute as much as 2 to 3% of global GHG emissions and municipalities spend 25 to 60% of their budgets to supply energy to their water infrastructure.¹⁰

In the United States, the energy needed for collection, distribution, and treatment of drinking water and wastewater is estimated to result in approximately 116 billion pounds of carbon dioxide (CO₂) per year, which is the equivalent of the global warming produced by 10 million cars.¹¹ The energy-water connection is particularly strong in the driest regions of the world, such as the U.S. Southwest, where significant amounts of energy are used to import water.

Nebia, an innovative Kickstarter-funded start-up founded in August 2015, is addressing the challenge of water conservation and GHG emissions reduction through the design and development of an innovative showerhead that achieves a 70% reduction in water usage while delivering an improved personal showering experience.¹² Nebia’s showerhead design reduces water usage in the typical 8-minute shower from 20 gallons (76 liters) of water to just 6 gallons with an improved user experience that is a result of optimum thermal design.

While developing its innovative new showerhead (see Figure 5), the company’s engineers prioritized the thermal performance characteristics to ensure that while using much less water than normal; the Nebia shower experience will still be warm and comforting to the consumer.¹³ Nebia engineers used advanced CFD solutions to analyze the thermal effects of hundreds of thousands of variables in the showerhead design to predict the relative performance of many different showerhead designs and achieve the right balance of water temperature, flow rates and directions, droplet patterns and sizes, and other characteristics to create the ideal shower experience. Using the simulation models, Nebia engineers studied the thermal performance of 12 design iterations per day, instead of spending a week on one physical test of a single physical prototype. Eliminating the need to build and test numerous early-stage prototypes significantly compressed the research and development time and engineering costs. In fact, research activities that previously took nine months were accelerated to just one month.

¹⁰ Zhou Y, B. Zhang, H. Wang and J. Bi. Drops of Energy: Conserving Urban Water to Reduce Greenhouse Gas Emissions. *Environmental Science & Technology*. 47(19). 2013.

¹¹ Ibid.

¹² Water Efficiency Saves Energy: Reducing Global Warming Pollution Through Water Use Strategies. *Water Facts*. www.nrdc.org. March 2009.

¹³ Parisi-Amon, G. and C. L. Murphey. Full Steam Ahead. *ANSYS Advantage*. Vol. X, Issue 1. 2016.



Figure 5—Nebia’s New Shower Head Design
(Courtesy of Nebia)

As a result of implementing a simulation-driven product development process from the outset, Nebia will now begin shipping its initial showerhead products to customers starting in the fall of 2016, approximately 14 months after incorporation of the company.

Conclusions

The corporate executive suite should no longer see achieving global energy sustainability and green and conservation goals as obstacles to business competitiveness, but rather as enablers of growth and operational efficiency as well as a superior way to generate return on capital and build brand equity. In other words, thinking green means money as well as sustainability.

The financial markets are now rewarding companies that excel in leveraging energy sustainability and Circular Economy principles in driving their businesses. In fact, companies that have sustainability as a significant part of their corporate strategy now account for more than 11% of all assets under management in the U.S.

While this paper highlights a very small sample of how physics-based modeling and simulation is being used today, the three applications herein demonstrate that engineers can now explore and better understand a wide variety of complex multi-physics design characteristics to develop innovative new concepts for many future “green” products—faster and much more efficiently with simulation-based engineering tools and processes.

The implementation of a simulation-driven product development platform as offered by engineering technology providers, such as ANSYS, is able to make a significant impact on producing breakthrough energy innovations to address the world’s concerns about the long-term sustainment of energy, resources, and human life, as we now know it on this planet.

For more information on the customer application use cases highlighted in this paper and the ANSYS solutions for Simulation-Driven Product Development, please see www.ansys.com.

About CIMdata

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Company News

Altair, RUAG, and Morf3D Introduce Unique Metal Additive Manufacturing Design Course for AM
8 September 2016

[Altair](#), [RUAG](#), and [Morf3D](#) are introducing a practical additive manufacturing course which will cover the entire end to end process from design to certification. The course covers a broad range of topics including basic design considerations, details of design, design validation, topology optimization, build constraints, post-processing, destructive and non-destructive testing, virtual and physical validation and verification.

The course is taught at two levels by Dr. Melissa Orme, Morf3D, Dr. Robert Yancey, Altair and Mr. Michael Gschweiti, RUAG Space; experts who have successfully designed, built, and certified Aerospace parts made by AM. Combined, this team has over 50 years of experience in Aerospace applications, with additive manufacturing and 3D printing. The Intermediate and Advanced Courses are 4.5 days and cover a lecture and hands on exercises from Design to Build using Direct Metal Laser Sintering (DMLS) process. The Intermediate Course is intended for people with a basic design and analysis background and the Advanced Course is for experienced engineers in design and analysis methods.

"We have seen a great interest from companies to learn how to best utilize additive manufacturing," says Dr. Yancey. "This course will provide participants a very practical view of 3D printing technology and how it can best be utilized."

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Capgemini and SAP Enhance Partnership to Jointly Address Needs of Discrete Manufacturing
8 September 2016

[Capgemini](#) and SAP today announced the broadening of their strategic partnership with the launch of "Fast Digital 4 Discrete Industries by SAP and Capgemini," a joint initiative to help clients in the discrete manufacturing industries to manage their digital transformation as they seek to maximize the potential of Industry 4.0, the Internet-of-Things and innovative manufacturing techniques.

With manufacturers in a global race to maintain and grow their competitive advantage, the potential benefits of organizational transformation by using the latest digital technologies such as real-time tracking, 3D modeling and visualization, the Internet-of-Things or connected objects are widely recognized. However, these technologies are not easy to put in place and deploy on a large scale in order

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to deliver expected benefits.

The initiative aims to address these challenges by combining SAP's market-leading suite of digital solutions with Capgemini's global expertise in consulting, insights and data, cloud and digital manufacturing. Capgemini will also utilize an agile model for business transformation based on its renowned [Digital Transformation Framework](#) specifically tailored for the manufacturing industry and spanning the exploration, design and development of specific solutions to enable new business models and scenarios.

Olivier Sevilla, Member of the Group Executive Board and Group Head of Digital Services, Capgemini said: "Across industries, clients are facing their greatest organizational challenge yet as they seek to digitally transform. Nowhere is this truer than in manufacturing, where the dazzling promise of Industry 4.0 is now being offset by the growing appreciation of the complexities involved in making digital manufacturing a reality. Through our extensive experience supporting some of the world's leading organizations to digitally transform we're deeply familiar with the challenges they face and how to meet them. SAP is a natural partner, not only because of our long history together, but because their suite of solutions offers an ideal platform to power this change."

Rob Enslin, Member of the Executive Board of SAP SE and President of Global Customer Operations, SAP, said: "Today's announcement is another example of how we are exploring new ways to co-innovate around SAP S/4HANA and SAP HANA Cloud Platform in order to help our customers gain a competitive advantage in the digital economy. We look forward to taking our partnership with Capgemini to new heights in order to help manufacturers around the world solve their business challenges and run better."

As part of the initiative, the solution suite to support this model includes SAP S/4HANA® as the digital core, with SAP® Hybris® solutions and SAP HANA® Cloud Platform, providing data in real-time across both the front-end and back-end applications. Capgemini and SAP plan to co-innovate and invest jointly in order to develop new applications and extensions on SAP HANA Cloud Platform, as well as engage with an ecosystem of start-ups and vendors in the manufacturing space to provide clients with end-to-end solutions.

Further, this initiative intends to help manufacturers create smart, connected products, assets and operations that offer the potential for time-to-market reduction, productivity gains, cost savings, new revenue streams and new business models.

Today's news follows the announcement of Capgemini's [Digital Manufacturing Services](#) offer launched earlier in 2016, to support manufacturing clients in building smart connected plants and products, and adopting new business models for the digital age.

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GE Plans to Invest \$1.4B to Acquire Additive Manufacturing Companies Arcam and SLM; Accelerates Efforts in Important Digital Industrial Space

6 September 2016

General Electric today announced plans to acquire two suppliers of additive manufacturing equipment, Arcam AB and SLM Solutions Group AG for \$1.4 billion. Both companies will report into David Joyce, President & CEO of GE Aviation. Joyce will lead the growth of these businesses in the additive manufacturing equipment and services industry. In addition, he will lead the integration effort and the

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GE Store initiative to drive additive manufacturing applications across GE.

“Additive manufacturing is a key part of GE’s evolution into a digital industrial company. We are creating a more productive world with our innovative world-class machines, materials and software. We are poised to not only benefit from this movement as a customer, but spearhead it as a leading supplier,” said Jeff Immelt, Chairman and CEO of GE. “Additive manufacturing will drive new levels of productivity for GE, our customers, including a wide array of additive manufacturing customers, and for the industrial world.”

GE expects to grow the new additive business to \$1 billion by 2020 at attractive returns and also expects \$3-5 billion of product cost-out across the company over the next ten years.

- Arcam AB, based in Mölndal, Sweden, invented the electron beam melting machine for metal-based additive manufacturing, and also produces advanced metal powders. Its customers are in the aerospace and healthcare industries. Arcam generated \$68 million in revenues in 2015 with approximately 285 employees. In addition to its Sweden site, Arcam operates AP&C, a metal powders operation in Canada, and DiSanto Technology, a medical additive manufacturing firm in Connecticut, as well as sales and application sites worldwide.
- SLM Solutions Group, based in Lübeck, Germany, produces laser machines for metal-based additive manufacturing with customers in the aerospace, energy, healthcare, and automotive industries. SLM generated \$74 million in revenues in 2015 with 260 employees. In addition to its operations in Germany, SLM has sales and application sites worldwide.

“Additive manufacturing fits GE’s business model to lead in technologies that leverage systems integration, material science, services and digital productivity,” said Joyce. “It will benefit from the GE Store and our core engineering capability.”

Arcam and SLM will bolster GE’s existing material science and additive manufacturing capabilities. GE has invested approximately \$1.5 billion in manufacturing and additive technologies since 2010. The investment has enabled the company to develop additive applications across six GE businesses, create new services applications across the company, and earn 346 patents in powder metals alone. In addition, the additive manufacturing equipment will leverage Predix and be a part of our Brilliant Factory initiative.

“We chose these two companies for a reason,” said Joyce. “We love the technologies and leadership of Arcam AB and SLM Solutions. They each bring two different, complementary additive technology modalities as individual anchors for a new GE additive equipment business to be plugged into GE’s resources and experience as leading practitioners of additive manufacturing. Over time, we plan to extend the line of additive manufacturing equipment and products.”

The additive effort will utilize GE’s global ecosystem, but be centered in Europe. GE will maintain the headquarters locations and key operating locations of Arcam and SLM, as well as retain their management teams and employees. These locations will collaborate with the broader GE additive ecosystem including the manufacturing and materials research center in Niskayuna, New York, and the additive design and production lab in Pittsburgh, Pennsylvania. They will also complement the technologies brought on by other key acquisitions such as Morris Technologies and Rapid Quality Manufacturing.

Each acquisition is structured as a public tender offer for all of the outstanding shares of stock of each company. The closing of each public tender offer is subject to various conditions, including minimum

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acceptance thresholds and regulatory approvals. GE is in the process of making the necessary filings with authorities with respect to such tender offers, and, upon approval, the documents will be made publicly available.

Additive manufacturing (also called 3D printing) involves taking digital designs from computer aided design (CAD) software, and laying horizontal cross-sections to manufacture the part. Additive components are typically lighter and more durable than traditionally-manufactured parts because they require less welding and machining. Because additive parts are essentially “grown” from the ground up, they generate far less scrap material. Freed of traditional manufacturing restrictions, additive manufacturing dramatically expands the design possibilities for engineers. “Additive provides a new palette for engineers to create. Parts are also being designed in GE Power, Oil & Gas, Healthcare and across GE’s services businesses,” said Joyce. “We see value potential to reduce product cost and improve NPI spend. Ultimately, as we develop more productive machines, we can build additive manufacturing ‘as a service’ for our customers.”

In July, GE Aviation introduced into airline service its first additive jet engine component – complex fuel nozzle interiors – with the LEAP jet engine. The LEAP engine is the new, best-selling engine from CFM International, a 50/50 joint company of GE and Safran Aircraft Engines of France. More than 11,000 LEAP engines are on order with up to 20 fuel nozzles in every engine, thus setting the stage for sustainably high and long-term additive production at GE Aviation’s Auburn, Alabama, manufacturing plant. Production will ramp up to more than 40,000 fuel nozzles using additive by 2020. GE Aviation is also using additive manufacturing to produce components in its most advanced military engines. In the general aviation world, GE is developing the Advanced Turboprop Engine (ATP) for a new Cessna aircraft with a significant portion of the entire engine produced using additive manufacturing.

“GE’s aspirations in additive fits our long-term business model. We have world-class industrial businesses that leverage systems integration, material sciences, services and Predix,” said Immelt. “We want all of our businesses to leverage the GE Store, promote digital differentiation, and drive productivity for GE and our customers. We are excited about the opportunity.”

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Historic Dell and EMC Merger Complete; Forms World’s Largest Privately-Controlled Tech Company

7 September 2016

Dell Technologies today announced completion of the acquisition of EMC Corporation, creating a unique family of businesses that provides the essential infrastructure for organizations to build their digital future, transform IT and protect their most important asset, information. This combination creates a \$74 billion¹ market leader with an expansive technology portfolio that solves complex problems for customers in the industry’s fast-growing areas of hybrid cloud, software-defined data center, converged infrastructure, platform-as-a-service, data analytics, mobility and cybersecurity.

Michael Dell, chairman and CEO of Dell Technologies, said, "We are at the dawn of the next industrial revolution. Our world is becoming more intelligent and more connected by the minute, and ultimately will become intertwined with a vast Internet of Things, paving the way for our customers to do incredible things. This is why we created Dell Technologies. We have the products, services, talent and global scale to be a catalyst for change and guide customers, large and small, on their digital journey."

Dell Technologies blends Dell’s go-to-market strength with small business and mid-market customers

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and EMC's strength with large enterprises and stands as a market leader in many of the most important and high-growth areas of the \$2 trillion information technology market, including positions as a "Leader" in 20 Gartner Magic Quadrants and a portfolio of more than 20,000 patents and applications.

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HPE Plans to Spin-Off & Merge Non-Core Software Assets With Micro Focus

7 September 2016

Today HPE announced plans for the spin-merge of non-core software assets with Micro Focus. The combination of HPE's Application Delivery Management, Big Data, Enterprise Security, Information Management & Governance and IT Operations Management businesses with Micro Focus will create one of the world's largest pure-play software companies.

Micro Focus' approach to managing both growing and mature software assets will ensure higher levels of investment in growth areas like big data analytics and security, while maintaining a stable platform for mission-critical software products that customers rely on.

[Read the full release here.](#)

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Huawei and ESI Sign a Memorandum of Understanding to Foster Solutions to Accelerate Industrial Manufacturing

8 September 2016

[ESI Group](#) signed a Memorandum of Understanding (MoU) with [Huawei](#), a global information and communications technology (ICT) solutions provider. The signature ceremony took place during the event HUAWEI CONNECT 2016 in Shanghai, China on September 1, 2016. The two parties will collaborate on High-Performance Computing (HPC) and cloud computing to provide innovative industrial manufacturing solutions for customers in China and worldwide. They also jointly released a white paper on the Huawei HPC platform-based ESI [Virtual Performance Solution \(VPS\)](#), a leading software solution used by industrial OEMs and their suppliers in order to test virtually all aspects of their product performance, including crash and safety. Often demanding large simulation models to achieve high levels of precision and predictive capabilities, VPS users greatly benefit from Huawei's robust and efficient IT platforms, and the work done by Huawei and ESI to optimize the way their products work together.

Also a focus at [HUAWEI CONNECT 2016](#) and important to the collaboration between Huawei and ESI, ESI's virtual reality solution, [IC.IDO](#), enables the Huawei HPC platform to provide customers with digital equipment room layouts that are of a 1:1 proportion to those of the physical environments. Leveraging the virtual reality technology, designers can keep improving virtual prototypes during product R&D to reduce the need for physical prototypes, which results in a dramatic reduction in design costs and shorter product development cycles.

The MoU signed by the two parties includes multiple cooperation plans. One is to build a joint innovation center in Munich, Germany to enable the two parties to validate innovative cloud computing and HPC solutions based on ESI's industrial simulation test applications and Huawei's leading IT products and platforms. Another is to build a global experience center in Hangzhou, China that will

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allow customers to experience the latest products and service training sessions. The two parties also agreed to initiate a series of cooperation projects worldwide to jointly promote and deliver innovative cloud computing, HPC product R&D, simulation, and data analytics solutions. All these cooperative efforts will provide global customers with innovative R&D technologies to help them address challenges brought by the ongoing exponential growth of ICT technology.

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PTC and ThingWorx Partners Showcase Industry Leadership in Internet of Things Analytics

7 September 2016

PTC today announced an industry initiative to highlight the increasing importance of data collection and analysis in today's Internet of Things strategies. To promote awareness and thought leadership around IoT analytics, PTC will host a series of webcasts throughout September and October, including ones with ThingWorx partner Glassbeam and PTC ServiceAdvantage, and ThingWorx partner Kalypso. PTC intends also to make available to the industry a series of thought-leadership materials on how to get started with and, ultimately, derive ongoing value from an analytics operation. This initiative comes at a time when there is great potential to capitalize on [the intelligence of connected products](#) and operations. The full calendar of IoT analytics webcasts is available on [ThingWorx.com](#).

The promise of the Internet of Things is based on the collection and analysis of data – and translating that data into business value. Connected products, services, and systems now emit billions of operational and situational data points that, when harnessed and interpreted correctly, enable a company to optimize its products, enhance product performance, improve customer satisfaction, and save valuable time and money. The challenge is that many companies – even the ones that are aggressively pursuing an IoT strategy – either don't understand how to get started with analytics or don't know how to turn the data from connected products into actionable intelligence.

PTC has built out a robust and diversified ThingWorx® IoT platform partner ecosystem to address the core challenges and opportunities that the IoT presents, including data analytics. These partners use ThingWorx as the IoT platform on which they build IoT solutions for their customers. PTC is collaborating with two leading partners – [Glassbeam](#) and [Kalypso](#) – to help companies understand how they can explore, adopt, and optimize analytics capabilities as they seek to transform their businesses through the IoT. PTC will host a series of webcasts, including ones with Glassbeam and Kalypso, and co-produce thought-leadership materials to explain and demonstrate best practices in analytics. The webcast schedule is as follows:

- Tips for Starting Small While Building Your Business Case for IoT: September 23, 2016
- How Retailers Gain Actionable Insights from Data: September 27, 2016
- How Partnerships Are Changing the Face of Analytics: October 11, 2016
- Examining an Edge Analytics Strategy: October 19, 2016

“Analytics is one of the most compelling components of an Internet of Things strategy, but understanding how to develop and implement an analytics strategy can often be a complex, sophisticated process,” said Andrew Timm, chief technology officer, PTC. “ThingWorx Analytics enables customers to vastly lower the barrier to entry to analytics and empowers them to turn their connected product data into meaningful insights that translate to business value.”

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Siemens and BSH Working Closely to Tailor Next Generation PLM Software to Industry

7 September 2016

Siemens' product lifecycle management (PLM) software business and BSH Hausgeräte GmbH, the largest home appliance manufacturer in Europe, have agreed to further strengthen their long-term relationship to help enhance PLM software for specific industry needs. The two companies decided on a closer working relationship due to a shared vision of Industrie 4.0 and the Industrial Internet of Things (IIoT). Their close cooperation is expected to help Siemens gain deeper insights into the special requirements of the home appliance product lifecycle process while reducing costs, saving time and maintaining quality and innovation for BSH and the entire industry.

“The challenges we as a company are facing in the course of the digital transition make a new approach towards development and production processes necessary. Optimized PLM processes are essential to achieve this,” says Joachim Reichel, CIO, BSH Hausgeräte GmbH. “The common developments with our long standing PLM software partner make these new processes real. Software solutions from Siemens are an integral part of our IT strategy. So this agreement upon a strategic partnership strengthens our commitment to a common future.”

The Siemens partnership with BSH should help both companies drive their respective strategies regarding the coming fourth generation of the industrial revolution, Industry 4.0, and the IIoT. BSH is expanding its offering of connected home appliances and aims to integrate its products into smart home environments. BSH expects to benefit from PLM software that can continue to support its future product lifecycle process. Siemens could also benefit by aligning with leading customers like BSH to validate its strategic approach in this industry. Both companies see the alliance as a further anchor point for their relationship and a commitment to long-term cooperation.

“Our program PLM 2.0 creates a process framework that helps to design the BSH strategy, especially for the development processes in the years to come. Many of these processes are implemented with the help of Siemens' software”, says Reichel. “This future strategy is based to a large extent on the perfect adaption of these processes to new requirements. The strategic partnership and the common developments that come with it are key in putting these changes into practice swiftly. I am looking forward to shaping the future together.”

“Working closely with our clients gives us deep insight into their processes and their industry-specific requirements,” says Urban August, Senior Vice President and Managing Director, Germany, Siemens PLM Software. “This enables us to continuously develop our industry solutions with an open, future-proof architecture that remains flexible. As a result, our clients can gain a decisive competitive edge thanks to innovative technology that can be adapted according to best practices.”

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Simulation Technology Center Coming to UC College of Engineering and Applied Science

7 September 2016

Siemens and the University of Cincinnati today announced a partnership to establish an innovative simulation and modeling center enabled with Siemens product lifecycle management (PLM) software. Housed on UC's main campus in its College of Engineering and Applied Science (CEAS), the Siemens

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PLM Simulation Technology Center will be a hub for developing and applying new methodologies and technologies in engineering education and research in all aspects of PLM. Through a significant pledge from Siemens of up to \$1 million, as well as Siemens' staff support and additional PLM software, this partnership will enhance experiential learning opportunities for students in UC's CEAS.

"As manufacturing companies worldwide move closer to Industry 4.0, it is more important than ever for academic institutions and educators to move beyond only CAD software and embed digitalization into their curriculum," said Chuck Grindstaff, president and CEO, Siemens PLM Software. "The Siemens PLM Simulation Technology Center will help establish the connection between academia and industry to develop future employees for the digital enterprise."

CEAS faculty led by Dr. Jay Kim, Department Head of Mechanical and Materials Engineering, and Dr. Sam Anand, a professor of Mechanical Engineering who will also serve as the operational director of the Center, will work with Siemens PLM Software staff to educate and train up to 500 students over five years at the center. Through this close collaboration, a transformational change in undergraduate engineering and applied science curricula is expected, which will incorporate CAD, Digital Design & Manufacturing and Computer Aided Engineering (CAE) from early year courses to multi-year projects with global multi-disciplinary teams in upper-level courses.

In addition, Siemens PLM Software has entered into a long term talent development partnership with UC to employ co-ops on a strategic and programmatic basis. These co-op working students will be placed on important software development programs and related projects in Siemens PLM Software's Milford, Ohio office. This strategic co-op program includes additional training in the business and skill development programs to prepare these students for their careers upon graduation.

"UC, including our College of Engineering and Applied Science, is known for having one of the best co-op and experiential learning programs in the world," said Beverly J. Davenport, UC Interim President. "The new Siemens PLM Simulation Technology Center takes CEAS to new heights by giving our students the latest tools to enhance their hands-on experiences."

"It's like co-op 2.0," said CEAS Dean Teik Lim. "At the new center, students will have the opportunity to actively solve problems using Siemens' PLM software and gain valuable hands-on learning experience. We are committed to producing outstanding engineers and scientists; this center provides a vital tool in our workforce readiness efforts by training students on software used in the field by 140,000 companies globally. We are grateful to Siemens PLM Software for its partnership, which will enable us to produce even better engineers. In fact, part of the Siemens PLM Software business came from its acquisition of SDRC, a company that grew out from UC engineering about 50 years ago, making this partnership even more meaningful."

At the new Siemens PLM Simulation Technology Center students will have access to Siemens' full suite of PLM offerings including its recently announced [Simcenter™](#) portfolio, a robust suite of simulation software and test solutions based on predictive engineering analytics to more accurately predict product performance. Using these solutions, students will have the opportunity to perform state-of-the-art design, engineering analysis, product development and manufacturing simulations, and learn from industry experts. In addition, upper level undergraduate students and graduate students will be exposed to solving real life multi-physics, multi-domain engineering problems through simulations in the form of vertical industry specific template apps.

"With Simcenter, Siemens has one of the world's most comprehensive and robust simulation software portfolios," said Dr. Jan Leuridan, Senior Vice President, Simulation and Test Solutions, Siemens PLM

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Software. “We believe that simulation expertise will be a real differentiator for UC, and we are proud that together we are empowering the next generation of digital talent.”

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Xometry Names Tom Kurke as Chief Strategy Officer

8 September 2016

Xometry has appointed Tom Kurke as Chief Strategy Officer. In this newly created role, Kurke will lead and drive Xometry's nationwide partner network and will head the new Xometry office in Durham, North Carolina.

Kurke brings more than 20 years of experience in the 3D and technical software space to Xometry. He was the President and Chief Operating Officer of Geomagic, which was acquired by 3D Systems in 2013. Prior to leading Geomagic, Kurke played a key role in the growth of Bentley Systems, a leading provider of design and information management tools and solutions to the architecture, engineering, construction and operations industries. In his last role at Bentley, he was responsible for the company's global software subscriptions business, which represented nearly 70 percent of the company's \$500 million in annual revenues.

"Our customers want to manufacture parts and assemblies in the most efficient way possible, with consistently fast lead times, high quality and low prices," said Randy Altschuler, co-founder and CEO of Xometry. "Tom's extensive experience in building manufacturing and software partner relationships will be critical as we work to integrate Xometry further into our customer and partner workflows.

"Improving the velocity and efficiency of manufacturing represents a complex technical and business challenge, but, if done correctly, can drive significant returns through improved lead times, market efficient pricing and improved machine utilization," added Kurke. "I am excited to be joining a team of innovators with remarkable vision and an incredible passion for customer and partner support."

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Events News

Future of Manufacturing on Display with KUKA Robotics Corporation at IMTS 2016

8 September 2016

KUKA has curated automated live booth demonstrations to showcase the hot topics of today's manufacturing revolution. Industry 4.0 or Internet of Things “IoT” is no longer concept but a reality. Stop by the booth to see the latest in additive manufacturing, 3D Metal printing, 3D measurement inspection, collaborative robots, safe operations, vision-guided robotics, cloud-based automation monitoring, and CNC-based controls and KUKA KORE for next generation in STEM education.

Official KUKA Robotics System Partner Midwest Engineered Systems has partnered with several international industry leaders to develop a complete and scalable additive metal manufacturing solution. Additive manufacturing commonly referred to as Industrial “3D Metal Printing” is a digital process, which uses 3D design data to build components in layers by depositing material. This demonstration by an Official KUKA Robotics System Partner will showcase the strategy for manufacturing of a workpiece, preparation of the slicing program, translation into the robot path program, process

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development for the laser welding, laser delivery system, hot wire feed of material, and dynamic deposition measuring to compensate for adverse conditions.

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TCS at Oracle OpenWorld, Showcasing Agile Enterprise Solutions

6 September 2016

Tata Consultancy Services will present alongside seven key customers -- American Airlines, Flowserve Corporation, Glory Global Solutions, Hyatt, Knowles Corporation, McDermott International, and Vail Resorts -- to showcase how Oracle has helped their businesses create a competitive advantage through the latest Oracle technology at Oracle OpenWorld 2016.

TCS is a Premier sponsor of Oracle's flagship conference, Oracle OpenWorld 2016, and the co-sponsor of the Oracle Appreciation Event, featuring a live performance from GRAMMY Award-winner Billy Joel. TCS is also a program sponsor of the CX Central Commerce track.

WHEN: September 18 - 22, 2016 at the Moscone Center in San Francisco, CA.

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Implementation Investments

American Sportswear Brand GANT to Adopt Centric Product Lifecycle Management

7 September 2016

Major American sportswear lifestyle brand GANT, based in Sweden with a history in the USA, has selected Centric Software to provide its PLM (Product Lifecycle Management) solution.

Recognizing a serious need to improve information sharing and collaboration between different parts of the company, GANT recently decided to take a new digital approach to this challenge. They began the search for a PLM solution that would help them to streamline their information, make data more visible, and make better decisions.

“We are entering a stage of growth at GANT where we need to be more digital and intelligent about how we design and develop products towards our GANT consumer. We want to do this through improving our digital product development processes, and that is why we sought out a PLM solution. Centric lives and breathes lifestyle and therefore understand the GANT world. They recognize that PLM is not just about the tool – it is about the ability to organize and direct the creative aspects of design and production,” says Carl Borg, Global IT Director at GANT.

With ambitions to become the leading lifestyle brand in the world by 2020, GANT plans to use Centric 8 to improve communication across the sub-brands under House of Gant – GANT Rugger, GANT Diamond G and GANT Original. GANT will use the entire Centric 8 suite including mobile apps, across all of their departments.

Chris Groves, CEO of Centric Software, says, “We are honored to have been chosen by GANT to become their partner in PLM and to support their new digital strategy. GANT's brand represents a commitment to quality and attention to detail, and a spirit of pride in their work that goes all the way

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back to their origins. We are looking forward to working with GANT to help them to achieve their goal of doubling revenue growth by 2020, and we are excited that our PLM solution will be a crucial part of GANT's plans.”

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Bureau Veritas Selects Dassault Systèmes’ “Designed for Sea” Industry Solution Experience to Accelerate Ship Structure Calculations

6 September 2016

[Dassault Systèmes](#) today announced that [Bureau Veritas](#), a leader in testing, inspection and certification for industries including marine and offshore, has selected its “[Designed for Sea](#)” industry solution experience to accelerate ship structure modeling and calculations that help customers comply with new regulations and optimize their ship designs.

Based on the 3DEXPERIENCE platform, “Designed for Sea” combines powerful virtual design, modeling and collaboration applications that enable Bureau Veritas to quickly create a 3D structural model of a complex ship hull prior to its construction. Bureau Veritas can then use this to evaluate and precisely calculate a hull’s optimal structure in a shorter amount of time, which can then serve as a master geometric reference for other shipbuilding certification processes.

The necessary thickness of a hull depends on criteria such as a ship’s length, speed and navigational zone. It must also comply with the [International Association of Classification Societies’](#) new Common Structural Rules that went into effect in July 2015 to improve the safety and reliability of ship structures.

With “Designed for Sea,” requirements, regulations, project planning, design and engineering teams are connected with full traceability, throughout the design process. Real-time 3D simulation and analysis applications also let Bureau Veritas experiment with alternative design scenarios in the early design phase to reduce costly, time-consuming rework later on in the process.

“Following a rigorous selection process in which we assessed all market solutions covering marine design aspects, we chose ‘Designed for Sea’ because of its high level of marine structure design productivity, high quality and automation of structural mesh,” said Jean-François Segrétain, Marine Technical Director, Bureau Veritas. “The efficiency and capacity for customization and openness on the 3DEXPERIENCE platform exceed our expectations for performance and precision. We can now create complex hull structures and reduce this design cycle time from five to two weeks. This helps us quickly calculate the formulae and criteria needed to reassure future ship owners that their vessel will be compliant and present a high level of solidity in extreme weather conditions.”

“In an industry highly dependent on quality, safety and sustainability, the 3DEXPERIENCE platform addresses the design needs of traditional shipyards as well as marine specialists,” said Alain Houard, Vice President, Marine & Offshore Industry, Dassault Systèmes. “Prestigious classification societies like Bureau Veritas operate based on their combination of high-value services, worldwide agility, reputation and connected ecosystem. In a virtual environment, Bureau Veritas can enhance these business values and let customers experience the benefits.”

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ECG – The European Clothing Group – Will Simplify Collection Development Using PLM by TXT Retail

5 September 2016

TXT Retail has announced that ECG – The European Clothing Group, has selected TXT’s Product Lifecycle Management solution (TXTPLM) to unify and rationalize design activities for all brands and customers.

The project will adopt the entire collection lifecycle process set including Collection Design, Product Development and Sourcing, Supplier and Material Management, and Workflow Management. ECG will be guided by the TXT AgileFit deployment methodology which accelerates deployment and time to achieve benefits thanks to reference processes, a full set of documentation and a pre-configured optimized solution framework.

Part of the Shopinvest financial holding, ECG sources and develops multiple brands serving over 20 national and international fashion houses. The company works closely with manufacturing platforms in Europe and the Far East and offers multiple services in the areas of production and styling. ECG products are designed in-house by teams of dedicated designers and product managers, who channel their expertise into making each new collection a masterpiece.

Among ECG customers is e5 mode, also part of Shopinvest. The multichannel fashion retailer e5mode, elected Best Retail Chain in Belgium, will collaboratively access TXTPLM to obtain real-time product updates.

Collection development at ECG has been handled in the past via different tools, in the different departments and across the different brands. “We chose TXT Retail because of the track record of successful PLM implementations, expertise in the sector, advanced functionality and a pragmatic, clear approach to implementation with their AgileFit methodology,” commented Alexander Talpe, CEO at ECG. “We expect to achieve benefits in terms of faster time-to-market, improved collaboration and better visibility that will be strategic to our business.”

TXTPLM will help ECG establish a rationalized process and a common way of working for all departments including Merchandisers, Designers, Buyers and the Sourcing teams, Product developers, Quality teams. Internal functions and selected suppliers will access all product and process data from different brands in a single environment with dedicated views. The use of a centralized solution will help reduce redundant activities, such as re-keying information while increasing visibility throughout the process with end-to-end tracking.

“We are extremely glad to be working with a dynamic growing company such as ECG,” commented Simone Pozzi, CEO of TXT Retail. “The end-to-end coverage of our solution coupled with our AgileFit methodology is a superior match for fashion companies that face ever rapid innovation and development cycles and more than ever need to cover advanced PLM requirements with a solution offering best practices and smooth implementations.”

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Ferretti Group Selects Software from Siemens to Optimize Yacht Design and Production

7 September 2016

Ferretti Group has selected solutions from Siemens’ product lifecycle management (PLM) software business to help further optimize the design and production of its prestigious Ferretti Yachts and CRN

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brand. Established in Italy, Ferretti Group will deploy [Teamcenter®](#) and [NX™](#) software. Ferretti Group will also leverage the [Fibersim™](#) portfolio to further enhance its composites design and production processes.

"We have traditionally relied on our deep knowledge of yacht design coupled with the finest expertise in hand-crafted production," said Giuliano Capizzi, Ferretti Group Chief Information Officer. "We now need to digitally capture that knowledge and automate production to enhance global efficiency and data security. With Siemens' PLM solution for ship design, we can reduce time and costs by digitalizing our entire process, making product data instantly available through Teamcenter, not only within the production process, but also to the entire company. And using NX, we expect to significantly accelerate product design and construction for new ships and boats."

Ferretti Yachts and CRN, together with the other Ferretti Group brands Riva, Pershing, Itama, Mochi Craft and Custom Line, are on the cutting edge of the nautical sector due to their constant research of innovative products and process solutions. Ferretti Yachts produces fiberglass flybridge vessels from 45 to 96 feet, while CRN is specialized in the design and construction of fully-custom steel and aluminum yachts up to 100 meters in length.

"The boats created by Ferretti Group are characterized by high quality, high security and excellent performance at sea, as well as the exclusivity of the design and the timeless charm that make them highly recognizable in the nautical world," said Franco Megali, Managing Director Italy and MEA, Siemens PLM Software, Italy. "We are proud of this partnership, and Siemens PLM Software looks forward to seeing how its marine software solutions will help Ferretti Group realize innovation."

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NAOS Deploys Dassault Systèmes' 3DEXPERIENCE Platform to Virtually Develop Complex Superyachts

6 September 2016

[Dassault Systèmes](#) today announced that [NAOS Group](#), a leading company in the design of marine vehicles, is the first to deploy the 3DEXPERIENCE platform to virtually create and manage the master reference of a superyacht, from digital design to production documentation. With the "[Designed for Sea](#)" and "[Optimized Production for Sea](#)" industry solution experiences, NAOS integrates all design, engineering and manufacturing processes in a single virtual environment for efficient, real-time collaboration.

Ships are increasing in size and integrating more energy-efficient equipment as well as automated and connected systems. In parallel, safety and environmental regulations are impacting their architecture. NAOS, recognized internationally for highly flexible and fuel-efficient ship designs, wanted to facilitate the numerous design changes that are typically requested by shipyards and ship owners during the complex project development process.

With the "Designed for Sea" and "Optimized Production for Sea" industry solution experiences based on Dassault Systèmes' 3DEXPERIENCE platform, NAOS can virtually experience a superyacht throughout its development. Naval architecture and marine engineering services teams are connected to requirements, regulations and project planning, with full traceability. NAOS can capture and reuse existing data, handle design changes with high reactivity, start planning manufacturing early in the design process, and deliver high-quality documentation for hull structure scantling and fabrication as well as for systems design and installation.

“We have used various shipbuilding CAD systems in the past to develop superyacht projects for shipyards, but wanted a new, more efficient approach that a business platform provides,” said Roberto Prever, President, NAOS. “‘Designed for Sea’ and ‘Optimized Production for Sea’ make it possible to seamlessly decide on design changes related to stability, basic design, advanced structural design, or safety. Now, we can deliver a project’s entire design and engineering much more efficiently. In addition, the integration of manufacturing documentation gives our shipyard clients significant advantages to optimize their production and assembly costs.”

“Leading shipyards around the world strive to build high-value, high-performance ships that are tailored to specific customer requests, and the way in which they design and build can have huge business impacts,” said Alain Houard, Vice President, Marine & Offshore Industry, Dassault Systèmes. “The 3DEXPERIENCE platform enables NAOS to design and engineer ships with high quality and sustainability, while fulfilling budget and time requirements, enhancing their reputation in the marketplace.”

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Product News

3D Systems Releases New 3D Inspection Capabilities with Geomagic Control X Software

8 September 2016

[3D Systems](#) announced today the immediate availability of the newly released [Geomagic® Control™ X software](#) for 3D inspection and metrology.

"Geomagic Control X builds on our 20-year legacy of top-grade inspection software development to introduce the world’s best-in-class metrology software,” said Scott Green, Director of Product Management, Software Solutions, 3D Systems. “The outcome is an easy-to-use solution that answers the measurement analysis requirements of manufacturers worldwide.”

3D Systems Geomagic Control X enables precise, rapid, digital inspection for results-driven quality management and metrology workflows. This new and intuitive software delivers comprehensive and innovative toolsets for the professional metrology process. Geomagic Control X also includes traceable, accurate and customizable reporting and analysis tools to quickly assure and document quality measures.

“Geomagic Control X is by far the most intuitive and powerful inspection software we have ever used,” said James Earl, Managing Director, OR3D. “We are excited for the improvements this software will bring to our customers.”

This software update is available to all active customers of 3D Systems’ Maintenance Program.

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ModuleWorks Releases 2016.08 CAD/CAM Components

8 September 2016

ModuleWorks has announced the latest release of its CAM components, ModuleWorks 2016.08, the second major update of 2016. Each ModuleWorks release contains many new and enhanced features across the product range. This latest version includes new features for 5-Axis, 3-Axis and Simulation.

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ModuleWorks is at the forefront of 5-Axis machining and simulation technology, providing the toolpath and simulation technology that powers many of the leading CAM systems available around the world today.

Highlights of the new release are below:

5-Axis Machining

The new automatic clearance feature allows the system to automatically determine the type, position and dimension of the clearance area. An intelligent algorithm maintains the most suitable setting for each pattern. Automatic clearance can be used for port, multi-blade, multi-axis and rotary machining for cylinders planes and spheres, and for all surface-based, drilling and SWARF machining patterns.

Automatic clearance area

Multi-axis roughing now supports rotational or so called “periodic pocket” geometries, where the tool does not follow the pocket continuously, but ensures an overlap by returning to the seam after each rotation.

The tool axis control functionality has been extended to enable the generation of 4-Axis output only. It can be used with 4-Axis machines that do not have a tilting head but only a trunnion table.

3-Axis Machining

The new “multiple stock to leave” feature enables users to define uniform or independent stock to leave values for each machining surface.

Multiple stock to leave finishing cycles

The new 3D trimmer significantly improves the quality of rest finishing toolpaths and the accuracy of the steep shallow boundary calculation.

The Silhouette containment option has been extended to support Pencil & Project curves. This option is for limiting the machining area within the silhouette boundary of the machining surfaces.

Simulation

The new Remove Chips option automatically removes all small chips from the display area during the simulation run, which improves visualization and eliminates the need to manually remove the chips.

Volume based chunk removal

All pop-up notifications have been improved and now have different options for disabling their display during simulation runs. For example, users can disable pop-ups for all similar events in the simulation or for a specific pair in the simulation.

Machine Simulator displays a new pop-up message when a stop command is encountered during the simulation. This allows users to disable further stop command pop-ups according to criteria (for all stop commands and conditions, for similar events in the operation, for similar events in the simulation).

During mouse rotation in Machine Simulation, a dot is displayed to show end-users the selected rotation center point.

For Mill-Turn machines and Cut-Off / Pick-Off simulations, Machine Simulator now supports a new technology based on the real physical process. Clamping occurs directly on the existing stock, and by releasing it, the stock can be dropped.

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A new algorithm for 5-Axis machining improves the quality of tangential SWARF cuts by producing a higher precision on the tip of the tool or along the entire tool length.

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Siemens' NX Delivers Next Breakthrough in Product Design with Convergent Modeling

8 September 2016

The latest version of Siemens' NX™ software (NX 11) delivers the next big breakthrough in digital product development with Convergent Modeling, a brand new modeling paradigm which simplifies the ability to work with geometry consisting of a combination of facets, surfaces and solids, without the need for time-consuming data conversion. Convergent Modeling, the first technology of its kind, will help engineers optimize part design for 3D printing, speed up the overall design process and make reverse engineering a far more common and efficient practice in product design. In addition, NX 11 includes multiple enhancements throughout the integrated computer-aided design, manufacturing and engineering (CAD/CAM/CAE) solution, such as next generation 3D CAE, powered by the newly announced Simcenter 3D software, and improved CAM productivity with tools like robotics machining and hybrid additive manufacturing to help improve productivity.

“Siemens continues to invest in our core products to deliver innovative functionality such as Convergent Modeling, which we believe will be a game changer for digital product design,” said Joe Bohman, vice president, Product Engineering Software, Siemens PLM Software. “We anticipate Convergent Modeling will be a critical tool for efficiently working with facet geometry. This new one-of-a-kind technology is expected to provide huge savings in time and cost and help eliminate the error-prone rework phase, common when working with scanned geometry. It also removes the limitations associated with traditional CAD modeling when it comes to optimizing parts for 3D printing. NX11 simplifies the design process and supports the evolution of additive manufacturing to help companies realize a whole new level of creativity in product development.”

Product design is partially based on available materials and manufacturing approaches. New techniques like additive manufacturing open the door to create designs with forms and shapes that can provide higher levels of performance. Of course, traditional CAD technologies are built to support traditional manufacturing methods and have limitations when trying to optimize designs for additive manufacturing. Convergent Modeling removes these limitations by giving designers the flexibility to rapidly create new optimal shapes leveraging the materials and techniques made available through additive manufacturing.

Similarly, Convergent Modeling simplifies the process of working with scanned data. Users in various industries, including medical, auto and consumer goods, among others, are increasingly using scanned 3D data as part of the design process. This reverse engineering of existing designs has traditionally been an expensive and tedious process because the scanned data requires a time-consuming manual conversion of the faceted geometry into surface and solid form before it can be used for further modeling. Irregular shapes, in particular, require extensive rework so that they can be used for 3D printing, mold design, analysis, or other uses. The reverse engineering process can take days or weeks to complete. Convergent Modeling greatly reduces the need for this rework by bringing the scanned data in as facets that can be worked directly in NX 11, so there is no need to map surfaces, create solids, or do any other manual shape creation.

Convergent Modelling allows users to immediately begin using scanned data to create molds based on

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the shape, include it in an assembly, analyze it, or perform any other normal CAD operation. This, combined with the new 3D Print function in NX11 that enables users to 3D print designs directly from NX, significantly simplifies the additive manufacturing process. This new breakthrough scan, edit and print workflow uses the new Microsoft 3D print capabilities and supports the 3MF format to help ensure wide compatibility.

NX 11 also includes several other significant enhancements. Simcenter 3D now powers all simulation capabilities in NX for predicting product performance. Simcenter 3D, which is also available as a standalone application, provides NX users with a seamless experience as they move between design and simulation tasks. It speeds the simulation process by combining best-in-class geometry editing, associative simulation modeling and multi-discipline solutions embedded with industry expertise. Fast and accurate solvers power structural, acoustics, flow, thermal, motion, and composites analysis, as well as optimization and multi-physics simulation. For NX 11, Simcenter 3D introduces new capabilities for modeling and simulation of rotating machinery, a new environment for interior and exterior acoustics, and significant enhancements in damage analysis of composite structures.

Advanced technologies in NX 11 for manufacturing will help manufacturers expand machining flexibility and accuracy, reduce programming time, and improve part quality. New robotic programming capabilities in NX CAM extend the range of machining applications on the shop floor, enabling precise machining of large and complex parts using six-plus axis robots. Robotic machining automates manual operations, including polishing and deburring, improving repeatability to help deliver high quality parts. In addition, the enhanced feature-recognition capability automates NC programming of parts with many holes, to reduce programming time by up to 60 percent. NX CMM Inspection Programming's new high-speed cycle takes measurements by moving only the head, rather than the CMM linear axes. The new head-touches method improves accuracy and speeds up inspection cycles by up to three times.

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Synopsys' New Virtualizer Studio Integrated Development Environment Accelerates Virtual Prototyping Productivity

7 September 2016

Synopsys, Inc. today announced the latest release of its Virtualizer™ tool set for creating Virtualizer Development Kits (VDKs), software development kits that use virtual prototypes as the embedded target to enable the fastest time to quality software. This latest release includes the new Virtualizer Studio Eclipse-based Integrated Development Environment (IDE) with advanced modeling and debug tools for faster creation of higher-quality virtual prototypes. The new unified IDE provides developers with all the tools needed to accelerate development and debug of transaction-level models (TLMs) by more than 2X and speed VDK creation by more than 10X, compared to build-your-own methods.

"Using a VDK that we can easily extend with our own subsystems was a key benefit of working with our chip supplier," said Katsuyuki Sugita, lead engineer at Konica Minolta, Inc. "Because Virtualizer Studio efficiently supports the incremental refinement of the VDK, we can quickly discuss integration needs, accelerating our ability to jointly deliver updates to the software development team."

The Virtualizer Studio IDE integrates VDK and TLM creation features that enable modeling and virtual prototyping teams to create VDKs more efficiently compared to build-your-own SystemC-based modeling:

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- The new VDK creation feature delivers more than 10X higher productivity by enabling the VDK to be captured and assembled at a higher level of abstraction. Developers can directly enter memory/register map and connectivity information from their hardware specifications without having to create detailed block diagrams. Additionally, developers can start a VDK design using configurable reference VDKs that contain ARM Fast Models and Synopsys DesignWare TLM models. This enables developers to incrementally create full-scale VDKs using the provided reference VDKs with existing and newly developed SystemC models.
- The enhanced TLM creation features in the Virtualizer Studio IDE speed development of SystemC-based models by more than 2X. Browsing, editing and debug of SystemC source code are also directly integrated in the IDE. In addition, Virtualizer Studio integrates with code coverage and Coverity® static code analysis tools, enabling developers to improve model quality as part of their integrated development flow.
- Virtualizer Studio IDE also provides platform-level debugging capabilities that complement the user's embedded software development toolchain and enable software developers to perform efficient debug and root cause analysis to correlate hardware and software execution.

"Early software development using VDKs is critical in meeting the quality and time-to-market requirements for SoC designs," said Bill Neifert, director of models technology, ARM. "The configurable reference VDKs for ARM Fast Models, integrated with the ARM DS-5 Development Studio toolchain and Synopsys DesignWare TLM models, offer an extendable starting point that enables a significant acceleration in software development time."

"Semiconductor suppliers are increasingly relying on commercial virtual prototyping tools to efficiently create VDKs for their SoCs months before RTL is finalized," said John Koeter, vice president of marketing for IP and prototyping at Synopsys. "The new Virtualizer Studio IDE in Virtualizer significantly accelerates delivery of VDKs within the supply chain to enable early software bring-up, debug and test."

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