

by **Siemens and Bentley Systems**

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Siemens and Bentley Systems announce PlantSight digital twin cloud services

- **Solution enables up-to-date, as-operated digital twins – synchronizing the real plant and its engineering representations – for more efficient process plant operations**
- **Integration of different kinds of data sources to create holistic digital context for aligned digital components**

Siemens and Bentley Systems announced today the introduction of PlantSight, resulting from development together based on their highly complementary software portfolios. PlantSight is a digital solution to benefit customers through more efficient plant operations. PlantSight enables as-operated and up-to-date digital twins which synchronize with both physical reality and engineering data, creating a holistic digital context for consistently understood digital components across disparate data sources, for any operating plant. Plant operators benefit from high trustworthiness and quality of information for continuous operational readiness and more reliability.

Every real-world operating plant is characterized by cumulative evolution, both to its brownfield physical condition and to the varied types and formats of theoretically corresponding engineering data. Accordingly, as-operated digital twins must reliably synchronize reflections of both the physical reality and its virtual engineering representations, comprehensively and accurately. Moreover, further frequent changes are inevitable. With PlantSight, every process plant owner-operator can

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realize the benefits of as-operated digital twins – without disruption to their existing physical or virtual environment.

For process industries, characterized by ongoing capital projects, the effectiveness of digital twins depends upon the integrity and accessibility of as-operated information presented and continuously updated in trusted 2D schematic and 3D model formats. PlantSight provides all stakeholders with cloud/web-enabled visibility and access into existing data and tool interfaces, assuring that changes are timely and accurately captured and managed.

With PlantSight as-operated digital twin cloud services, operational and project-related engineering data is aligned seamlessly. All disciplines and stakeholders have immediate access to consistent representations. Especially for brownfield installations, the time and effort to federate and complete asset information will be significantly reduced, with plant documentation kept up-to-date, and its quality accordingly improved.

Greg Bentley, CEO for Bentley Systems, said, “From the start of Bentley Systems’ strategic alliance with Siemens, we have together seen our development of PlantSight as having perhaps the most significance for our marketplace. Siemens’ announced combination of its digital offerings for discrete and process plants enables our bringing together, through a cloud service, the complementary elements of Comos, OpenPlant, MindSphere, and Teamcenter. PlantSight can now realize the process industries’ top priority in ‘going digital’— the digital twin enablement of their operating plant engineering.”

“With PlantSight, we’re stepping up our cooperation with Bentley and extending the possibilities offered by data utilization for the process industry. This joint solution based on the complementary know-how of Bentley and Siemens represents a key step towards making digital twins even more efficient and creating a digitally integrated value chain which offers even greater consistency. In this way, we’re continuously enlarging our Digital Enterprise portfolio by embracing future technologies,” said Klaus Helmrich, Member of the Management Board of Siemens AG.

Valentijn de Leeuw, Vice President ARC Advisory Group, said, “I believe that Siemens' and Bentley's newly-developed PlantSight services will establish a foundation for next-generation asset information and performance management. For as-operated digital twins, this augments the actual plant by integrating operational data with operational intelligence dashboards, immersive operator training simulation, and links with applications such as process simulation, asset strategy, and reliability. The benefits of the environment will increase with the number of microservices provided.”

About the PlantSight Vision

PlantSight coalesces project digital twins, and control systems digital twins, and will soon extend to performance digital twins, and component product digital twins.

PlantSight mirrors the physical plant through “continuous” surveys and reality modeling cloud services. Overlapping photographs and (as needed) supplemental laser scans, from UAVs and ground-level imagery, are processed to generate spatially-classified and engineering-ready reality meshes—the plant's digital context, within which can be geospatially located each tagged component.

To synchronize with the plant's evolving engineering data, Bentley and Siemens Comos teams worked together to create PlantSight's Connected Data Environment (CDE). It includes information bridges from engineering models and an integration hub to accomplish the required semantic alignment for digital components (including their tag designations). PlantSight's CDE is also populated by pertinent data from other sources, such as project deliverables and control systems inputs, to the degree referenced through digital component tags.

For engineers in operating plants, the value of an as-operated digital twin is determined by the accessibility and integrity of information that can be presented, and edited, in trusted formats of schematics and 3D models. PlantSight, through its new cloud service and web interface, takes advantage of the complementarity, proven engineering robustness and intelligence of Comos and OpenPlant, fully integrating functional and spatial modeling. For the first time, engineers on site can have both accessible existing data, and accessible tool interfaces, to assure that as-operated changes are timely and accurately captured and managed through PlantSight's ledger of changes, for assured fidelity.

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Just as significantly, the as-operated digital twin, through the cloud accessibility and securely open architecture of its CDE, provides immersive visibility throughout the operating plant lifecycle, including mixed-reality visualization of all information, and even more importantly, digital visibility for machine learning and analytics.

PlantSight digital twin cloud services will be marketed separately by both Siemens and Bentley, and early adopters are now being selected. The companies are now working to add to PlantSight state-of-the-art asset performance modeling (APM) capabilities, to make the most of services based on Siemens' MindSphere IoT operating system. For manufactured digital components, Siemens' Teamcenter PLM will provide immersive access to product digital twins for simulation and remediation.



PlantSight brings together data from multiple sources including reality meshes in the one portal view, allowing rapid access to information that has previously been inaccessible.

This press release is available at

www.siemens.com/press/PR2018100023PDEN

For the ARC whitepaper, please see

<https://www.arcweb.com/sites/default/files/Documents/client-sponsored/bentley-and-siemens-vision-for-cloud-based-distributed-engineering-and-operations.pdf>

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For further information on Bentley Systems, please see

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About Bentley Systems

Bentley Systems is the leading global provider of comprehensive software solutions for advancing the design, construction, and operations of infrastructure. Employing more than 3,500 colleagues and generating annual revenues of \$700 million in 170 countries, Bentley Systems has since 2012 invested more than \$1 billion in research, development, and acquisitions. www.bentley.com