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Reality Modeling Goes Mainstream!

Accelerating ContextCapture *Adoption Spurs* Conceptioneering, Constructioneering*, and* Inspectioneering; *Hybrid Inputs Now Embrace Scans as well as Photos*

LONDON – The *Year in Infrastructure 2016* Conference – 2 November 2016 – At this annual conference for infrastructure thought leaders, CEO Greg Bentley made the case in his Keynote that since Bentley Systems' acquisition and assimilation of *ContextCapture* software in 2015, the proliferation of *reality modeling* across users' projects—and across Bentley's software portfolio—assures that it will become a mainstream contributor to infrastructure project delivery and asset performance. *Reality modeling* describes the potentially continuous capture of infrastructure assets' as-operated conditions for processing into engineering-ready reality meshes, and their "enlivening" for immersive interaction.

To date, *reality modeling* has processed digital photos acquired from ground-level and/or aerial photography, and in particular from the burgeoning industrial use of unmanned aerial vehicles (UAVs). At the Conference, Bentley announced a significant breakthrough in *ContextCapture* planned to be available next month: available point-clouds from laser scanning can now be combined with available photos, as "hybrid inputs," for reconstruction into a reality mesh. The advantages of *reality modeling*—in the case of laser scanning, the superior engineering-ready mesh result, compared to the bulky and unintelligent point-clouds themselves—are now compelling in every circumstance, across the range of scanner or camera devices, of asset characteristics, and of capture conditions.

Cited by Bentley for the mainstream embrace of *reality modeling* were the following observations:

- *reality modeling* was credited by fully 15 (of 60+) finalists and awardees (selected by independent expert juries) at the *Be Inspired* Awards, presenting at the Conference. In the category of *Reality Modeling*, the three finalists represent the diverse scope and phases of infrastructure already taking advantage, ranging from:

    o *campus* (*construction*): Kano Laboratory, Waseda University, Technical Research Institute, Obayashi Corporation, Automated Recognition of Work Progress at a Construction Site;

    o *corridor* (*design*): CH2M Fairhurst Joint Venture, A9 Dualling Programme, Transport Scotland; and

    o *city* (*operations*): City of Helsinki, Helsinki 3D+.

- submission categories of the other finalists crediting *reality modeling* likewise substantiate the diversity of adoption: *Building*, *Government*, *Rail and Transit*, *Roads*, *Utilities and Communications*, and *Water Treatment Plants*;

- *ContextCapture* processing has been reported in 68 countries year to date, and as intensively in Asia and developing countries as in Western countries; and

- "embedded" *ContextCapture* software licensing is rapidly expanding from the specialized processing centers of leading 3D city mapping specialists to leading vendors of industrial UAVs.

Bentley Systems' software developments to broaden *reality modeling* workflows that were demonstrated at the Conference include:

- Bentley's new *OpenRoads Designer* intrinsically incorporates *Descartes*' new capabilities to (semi-automatically) process pertinent ground-level features from reality meshes, for instance to classify vegetation, terrain, and breaklines;

- The Conference Technology Keynote highlighted spectacular new performance in immersive viewing of reality meshes, including geocoordinated digital engineering model information, from any browser-ready device;

- Bentley Institute research activities reported in the Conference's Visions of the Future Forum, and from the September, 2016 Digital Rail Symposium, which included academic collaborators, showed advancements in automated classification from reality meshes and geocoordination;

- Bentley's subsidiary Real World Capture, Inc. continues its mission of proof-of-benefits in new use cases for increasingly diverse and challenging facilities, and their project work for owners, incorporating geocoordinated digital engineering models through ProjectWise, was shown; and

- Bentley's forthcoming *OpenRail ConceptStation* was previewed, leveraging *reality modeling* for *conceptioneering*.

Finally, new joint opportunities spurred by *reality modeling* were demonstrated by executives of other major technology companies serving infrastructure engineering organizations:

- Ray O'Connor, CEO of *Topcon Positioning Systems*, joined Greg Bentley in the Conference Keynote to introduce *constructioneering*, which leverages *reality modeling* through joint cloud services to converge surveying, engineering, and construction;

- Jacques Lubetzki, *Bureau Veritas* Executive Vice President, Europe, joined Greg Bentley in the Conference Keynote to introduce *inspectioneering,* which leverages *reality modeling* to converge engineering and inspection; and

- Eckard Eberle, CEO *Siemens Process Automation*, during his Keynote in the Oil and Gas and Chemicals Forum will demonstrate, in Siemens *COMOS Walkinside* software, leveraging *reality modeling* to train a process plant's operators in emergency response.

Greg Bentley said, "I thank the many constituents among users and our industry partners who have demonstrated here at The *Year in Infrastructure 2016* the benefits they have realized so far, and their auspicious expectations, as *reality modeling* goes mainstream. I believe we will go on to see *reality modeling* answering the question as to how drones, mixed reality devices, the industrial Internet of Things—and in fact, "digital natives"—will converge to advance infrastructure engineers, project delivery, and asset performance."

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[Image 1](#)

Image 1 Caption: Descartes CONNECT Edition simplifies the extraction of existing ground surfaces from both point clouds and reality meshes to make them suitable for use in engineering workflows.

About Bentley Systems

Bentley Systems is a global leader in providing architects, engineers, geospatial professionals, constructors, and owner-operators with comprehensive software solutions for advancing the design, construction, and operations of infrastructure. Bentley users leverage information mobility across disciplines and throughout the infrastructure lifecycle to deliver better-performing projects and assets. Bentley solutions encompass *MicroStation* applications for *information modeling*, *ProjectWise* collaboration services to deliver *integrated projects*, and *AssetWise* operations services to achieve *intelligent infrastructure* – complemented by worldwide professional services and comprehensive managed services.

Founded in 1984, Bentley has more than 3,000 colleagues in over 50 countries, more than $600 million in annual revenues, and since 2009 has invested more than $1 billion in research, development, and acquisitions.

Additional information about Bentley is available at www.bentley.com. For Bentley news as it happens, subscribe to an RSS feed of Bentley press releases and news alerts. Visit The *Year in Infrastructure* Conference website for information on Bentley's premier thought-leadership event. To view a searchable collection of innovative infrastructure projects from the annual *Be Inspired* Awards, access Bentley's Infrastructure Yearbooks. To access a professional networking site that enables members of the infrastructure community to connect, communicate, and learn from each other, visit Bentley Communities.

To download the *Bentley Infrastructure 500* Top Owners ranking, a unique global compendium of the top public- and private-sector owners of infrastructure based on the value of their cumulative infrastructure investments, visit BI 500.

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