

Data Acquisition/Data Creation

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Solutions snapshot

Company	Aerial, Surface, UG (subsurface)	Data Acquisition	Data Attribution	Data Validation	What problem is it solving?	Autodesk technology
Pictometry	Aerial	High-Resolution Metric Aerial Oblique and Ortho-Rectified Aerial Imagery	Nation-wide (NA) Image Database with 3D Measurement Capability	Multiple perspective views Current and historical imagery On-going capture of new imagery	Access to infrastructure that would typically require site visits Centralized enterprise access to accurate and consistent field imagery & data	AutoCAD Map 3D AutoCAD Civil 3D AutoCAD Utility Design Autodesk Infrastructure Map Server
earthmine	Surface	High-resolution, stereo-panoramic imagery Collected at a standard distance based interval Data acquisition on a per project basis	Immersive 3D street-level imagery Measurement capability Guaranteed global accuracy Optimized and formatted for web-based delivery	Multiple perspective views of right-of-way in single pass Regularly scheduled collection of new imagery Current and historical imagery available	Infrastructure asset management Asset inventory and condition assessment Seamless web, desktop, and mobile GIS integration Advanced visualization, measuring, and mapping Reduce or eliminate site visits needed to gather asset information	AutoCAD Map 3D Autodesk Infrastructure Map Server

Company	Aerial, Surface, UG (subsurface)	Data Acquisition	Data Attribution	Data Validation	What problem is it solving?	Autodesk technology
LandRay	Subsurface	Real-time imaging of Sub-surface assets	High definition 3D imaging of subsurface objects, with the ability to view or manage extremely large datasets in a CAD environment	3D Spatial data allowing the customer to use data in various engineering, review and construction work processes.	The ability to view and measure subsurface data within 5cm to a depth of 3 meters, providing location, detection and integration of collected data	AutoCAD, AutoCAD Map3D, Autodesk Navisworks

Details: Pictometry

Company	Overview	Solution w/Autodesk	Customer references
Pictometry	Pictometry brings a new dimension to improving workflows. In seconds, you can access a database of over 145 million images covering 85% of the US' populated area from five or more directions; see multiple views in each direction – including historical data spanning the past 10 years – and seamlessly deploy them through our system or yours. And since each object is geographically referenced and accurately captured, you can confidently measure, plan, and analyze everything – right from your desktop. We'll even do the calculations for you and summarize it in a credible and complete report. Now that makes complex work simple.	Pictometry Integrations for Autodesk give infrastructure professionals the ability to apply highly accurate, real-world visual context to critical infrastructure assets and networks - directly within select Autodesk® Infrastructure Design Suite solutions. Autodesk drawings are seamlessly overlaid onto high-resolution, data-rich aerial imagery that enables typical field based activities to be performed directly from your desktop – saving time, reducing cost and empowering the enterprise with consistent, accurate and easily accessible imagery.	National Grid (TBD)

Details: earthmine

Company	Overview	Solution w/Autodesk	Customer references
<p>earthmine</p>	<p>earthmine is a mobile mapping company providing data, software, and services that streamline the complex process of collecting, processing, managing, hosting, and integrating street level 3D imagery into a wide variety of professional and consumer facing applications. The earthmine Partner Program, MARS System, and Processing Service allows for geographies of any size to be mapped quickly and efficiently; from cities to entire countries depending on the project need. Data is then hosted on the earthmine Cloud service or earthmine Server software, making it easy for large and small organizations to securely access data online or over a local network. earthmine's software Developer Tools and client applications make it easy to integrate earthmine data into popular web, desktop, and mobile applications.</p>	<p>earthmine for AutoCAD® Map 3D 2012 gives real world visual context to infrastructure assets, such as utility networks, by integrating high resolution and immersive 3D street level imagery directly with AutoCAD Map 3D. With earthmine, Map 3D features, such as pipes, manholes, electric utility lines, and road centerlines can be accurately displayed on top of the 3D panoramic imagery providing a powerful way to visualize spatial data. The earthmine imagery also contains a 3D point for each pixel allowing users to interact with Map 3D content, including creating new content and editing and attributing existing content, leading to a much more intuitive customer experience.</p>	<p>“The earthmine technologies have allowed the City of Greater Geelong to undertake an extensive capture exercise of critical assets, including 25,000 road signs, and provide a platform for the asset capture of 90,000 street trees. This was delivered quicker than traditional field capture practices and saved the City hundreds of thousands of dollars in the process.”</p> <p>- Andrew Downie, Information Services Manager at the City of Greater Geelong, Australia</p> <p>(Geelong Case Study Link) https://earthmine.box.com/s/0ae67f81e712b47c9387</p>

Details: Land Ray Technology

Company	Overview	Solution w/Autodesk	Customer references
<p>LandRay Technology, Inc.</p>	<p>LandRay develops and markets ground penetrating radar (GPR) products to fill the unmet needs of various subsurface object detection markets. LandRay serves the Oil & Gas and Electric utilities; both Transmission and Distribution, civil engineers, underground construction contractors, data and communication companies, pipeline transmission operators, pipeline service companies, and municipalities. Solutions include the following:</p> <ul style="list-style-type: none"> ▪ Radar technology (DLFM) targets subsurface infrastructure identification and mapping. PRODUCT1 will provide users significant value: user friendly, highly automated, unparalleled accuracy, unparalleled processing speed and reliable imaging and mapping capability. ▪ Made Ready Data™ makes possible your development of reliable three dimensional characterizations of subsurface built objects <i>AutoCAD, and their suite of tools for managing civil and roadway projects.</i> ▪ LandRay’s technology allows for the noninvasive detection of buried objects in real-time ▪ The underground target object can be either metallic or non-metallic; the LandRay Viewer “sees” <ul style="list-style-type: none"> ○ Metal, HDPE, PVC conduits and pipes 	<p>LandRay provides users with a multitier configuration of software tools to manage and visualize below-grade asset information on Autodesk platforms.</p> <p>LandRay’s Made Ready Data™ process provides designers with the ability to begin work directly in the design environment, without weeks or months of delay, waiting for captured data to be analyzed, interpreted, or re-modeled.</p> <p>Using LandRay’s proprietary 3D sub-surface data collection technology, LandRay is able to capture and manage hundreds of millions of data points per second, enabling the designer’s reliable characterization of subsurface objects.</p> <p>LandRay’s software dramatically reduces project timescales and costs. In addition to the EPC user community, owner-operators are increasingly aware the benefits of this rapid, non-invasive solution for subsurface data collection, and adding this work process to their asset management strategy.</p> <ul style="list-style-type: none"> ▪ By utilizing this powerful technology, the design team is able to dramatically the amount of site work required to capture reliable as-built information. There is no need to dig holes to establish the location of subsurface infrastructure, or to add extra days to your project schedule for this exercise. ▪ Project timescales for the design and constructions phases can also be reduced, by up to 80% and 20% respectively. ▪ By providing the designer with detailed, reliable “as-built” knowledge of subsurface built conditions, LandRay’s 3D subsurface imager reduces project expense by reducing the possibility and cost of design-rework 	

Company	Overview	Solution w/Autodesk	Customer references
	<ul style="list-style-type: none"> ○ Fiberglass, ceramic, and fiber-optic cable ▪ The ability to eliminate project delays caused by unforeseen utilities in path of new construction ▪ The ability to eliminate cost of re-designs caused by unforeseen buried utilities ▪ The ability to reduce the unknown, thereby lowering project costs ▪ The ability to reduce costs of utility relocations ▪ The ability to reduce costs of utility damages ▪ The ability to reduce downtime caused by utility damage 		

Abstract

Title: Data Acquisition - Make smarter and safer planning, design, operations, and maintenance decisions with more efficiently accurate aerial, surface and subsurface data.

Moderator: Alan Saunders

Panelists:

David Peterson, Pictometry

Anthony Fassero, earthmine

TBD: Mark Klusza, LandRay Technologies, Inc.

Adam Jonasson, City of Grand Forks, ND

(TBD) Jason Emery, National Grid

Keith Warren, VTN Consulting

Abstract:

With the advent of the smart grid, accuracy and timeliness of data occupies a position of paramount importance. More than in the past, you need fast access to information in order to better manage facilities; ensure safety of crews and the public; and plan capital improvements. As more data is available, visualization and analytics are at the forefront of most technology plans. With a variety of types available—LiDAR, street level, aerial, subsurface imagery—the question arises how do you select the best data types to support your distribution, transmission or substation needs? Finally, how do you acquire it, process it and deliver it?

This panel will discuss functional and strategic benefits of recent trends including multiple modes of data acquisition and model creation technologies- aerial, surface and subsurface. This panel will present thought provoking ideas for IT and T&D on how to use the resources available while creating a more user-friendly work environment.

Topics covered will include the following:

- Right-of-way data capture —understand and mitigate encroachments and create maintenance plans
- 3D street level data capture —connect to geospatial data stores and enable collection of entire metropolitan areas, states or countries.

- Ground Penetrating Radar (GPR) —access and understand underground utilities, facilities to mitigate risk of digging up or damaging someone else's utilities and better coordinate across multiple organizations for projects such as road widening or overhead-to-underground.
- Smarter LiDAR —processing all types of LiDAR from Airborne, Low Altitude Corridor, and Mobile & Static
- Current, accurate documentation —Reduce time to create documentation of a proposed project site, and manage in real-time existing conditions data, reducing un-documented objects or changes from the original project scope
- Data maintenance — includes maintenance, refresh options and integration to maximize benefit of data and software investment