Convergence of the Physical and Digital AEC Worlds

Steve Berglund, CEO
Spatial data is being deeply integrated into real time model-centric solutions

Enablers
- Spatial precision
- Connectivity
- Data access
Spatial data is integral to work flow transformation

**Construction**
- 3D model at anchor bolt level detail drives pinpoint construction accuracy during fabrication and construction.
- Construction verification against the model.
- Progress monitoring enables schedule optimization.

**Agriculture**
- Real-time field conditions update and inform optimal farm management plan.
- 3D design model imported to the machine control and guidance equipment in the field.

**Transportation**
- Real time road, vehicle, and driver conditions aligned, managed and optimized to meet customer needs.
- Farm/crop management plans flawlessly executed in the field.

**Trimble**
Open solutions touch all constituencies and all elements of the work flow

Among Stakeholders
- Owners
- General Contractors
- Sub-Contractors

In the Office
- Procurement
- Reporting
- Job Cost
- Scheduling
- Fabrication

In the Field
- Tablet
- Instrument
- Equipment
- Labor
- Material
Digital data supports the entire lifecycle - Pre-construction - Site layout - Post-construction

The Constructible Model is enabled by precision spatial data
The machine or the tool becomes an extension of the model.
The integration of the digital and physical worlds enable enables physical actions to be fully integrated with the model.
Precision maps and geospatial models are enabling significant progress on the path to autonomy.
Transformative technology poses existential questions to multiple industries’ work flows

<table>
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<tr>
<th>Office</th>
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Convergence impacts expectations placed on the geospatial practitioner

**Traditional Comfort Zone**

"Data Collection"

- **Key Skills:** Instrumental precision, Meticulous calculations
- **Key Values:** Accuracy, Credibility, Reliability

**Roles to Be Defined**

"Data Management"

- **Key Skills:** Establishing context, Managing complexity, Data management
- **Key Values:** Accuracy, Credibility, Reliability, Collaboration
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