Ron Bisio - Senior Vice President, Geospatial

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The increasingly important role of the surveying and geospatial professional in BIM

We'll look at the role of the surveyor and geospatial professional from concept…

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… to (just about) ready to move in

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Construction industry challenges

10%
of materials are wasted

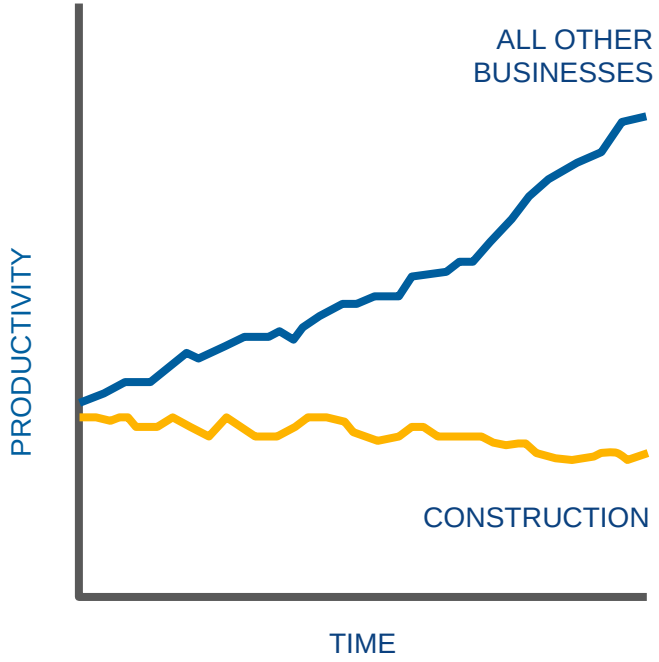
40%
of projects are over budget

30%
of construction is rework

90%
of projects are late

40%
of occupied buildings are utilized

40%
of jobsite work is unproductive



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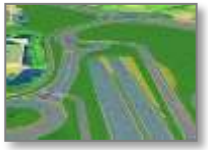
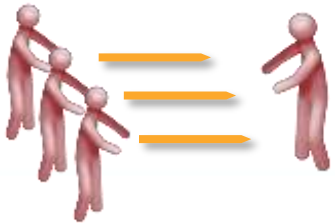
Building Information Modeling (BIM) evolution

CURRENT → **FUTURE**

2D Drawings	3D Models	3D Collaboration Models	BIM for Infrastructure
			
Single discipline Manual & CAD Discipline approach	Single discipline Limited intelligence Discipline approach	Multi-discipline VR visualization Project collaboration	Multi-discipline & workflow support Intelligent object model Lifecycle value

ISOLATED → **COLLABORATIVE** → **INTEGRATED**



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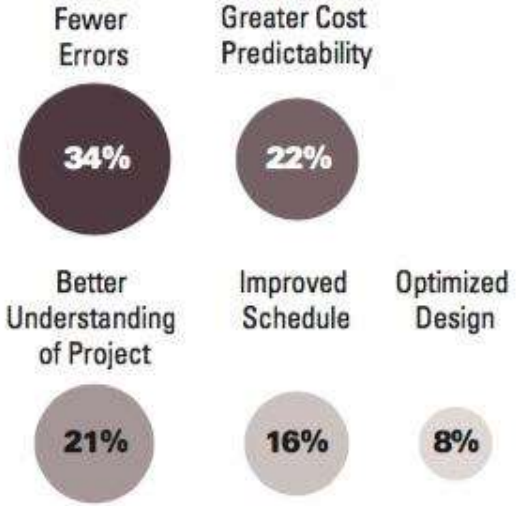
Industry data - BIM for infrastructure construction

Top Ways BIM Improves Process and Project Outcomes (Average of 13 Different Process and Outcome Benefits Ranked in the Top 3 by All Respondents and Assigned to 5 Categories)

Dodge Data & Analytics, 2017



Business Benefits of BIM (Rated High/Very High by BIM Users)

Dodge Data & Analytics, 2017

https://www2.deloitte.com/content/dam/Deloitte/us/Documents/finance/us-fas-bim-infrastructure.pdf

Surveyors and geospatial professionals are supporting all stages of the construction lifecycle

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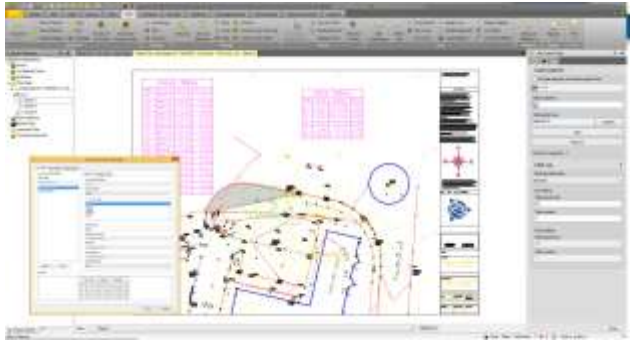
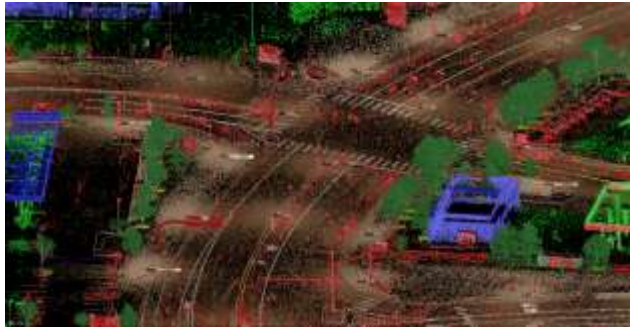
As-built for BIM

- Traditional deliverables (Level 0)
  - Topographic surveys, DTM
  - Building surveys (floor plans, elevations)
- Intelligent data and models (Level 2+)
  - Point Clouds, imagery
  - 3D models, intelligent models
- Visualization and sharing





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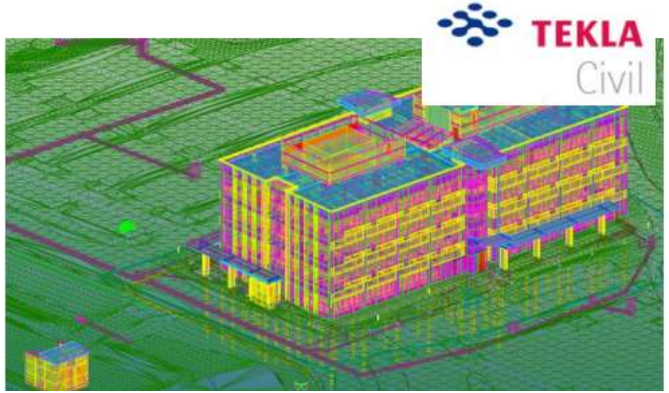
Surveying Site Layout

- Traditional
  - Property corners and lines, building corners, topo's …
  - Offsets and pins for changes in direction/intersections
- Additional with BIM
  - Fencing, trailers, stockpiles, laydown area, control point, stormwater mgmt, mock up areas, crane pads
  - As-builts for all utilities including temporary gas, electrical, plumbing, low-volt, irrigation lines



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Design to As-built Verification

High Density Point Cloud

- Quickly and accurately capture as-built information
- Compare with constructable model via Connect Desktop/Navisworks

BIM tools - cloud-based collaboration

Collaborate across
40+ tools & **Integrations** + **16 Languages**

Communicate and manage data across
3D Models, **2D Drawings** & **Geospatial Data**

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Vizualization

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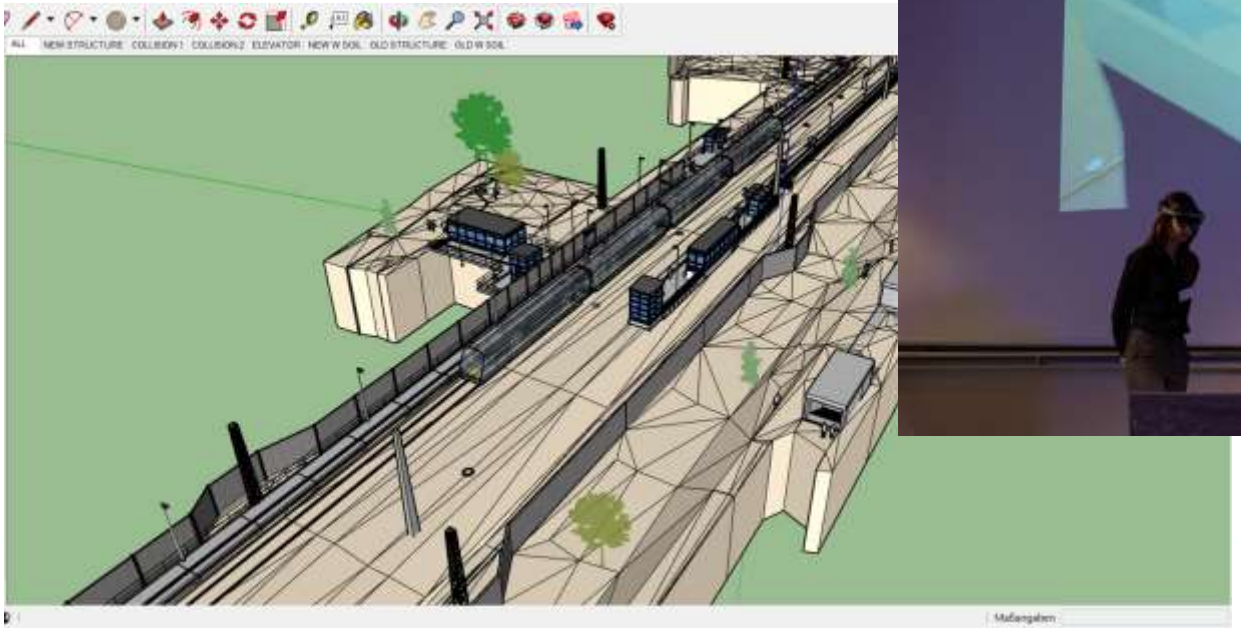
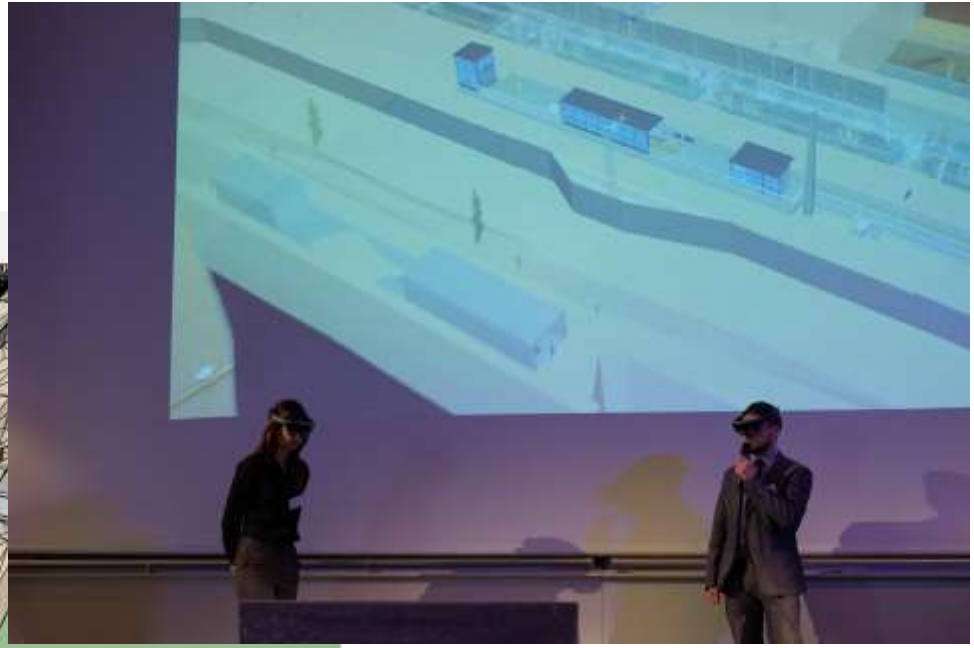
HoloLens for Collaboration





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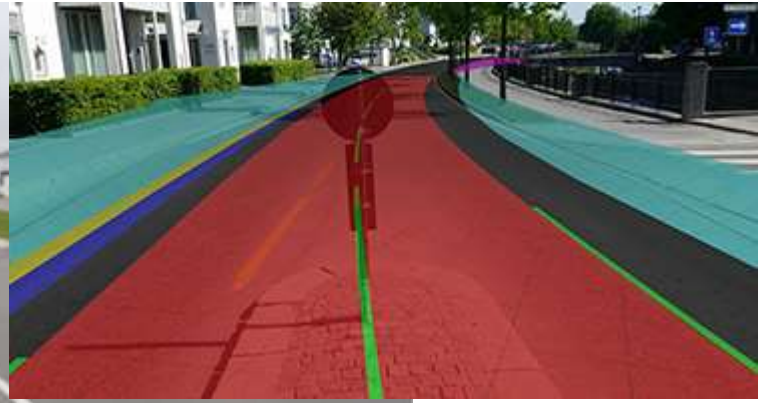
Mixed Reality



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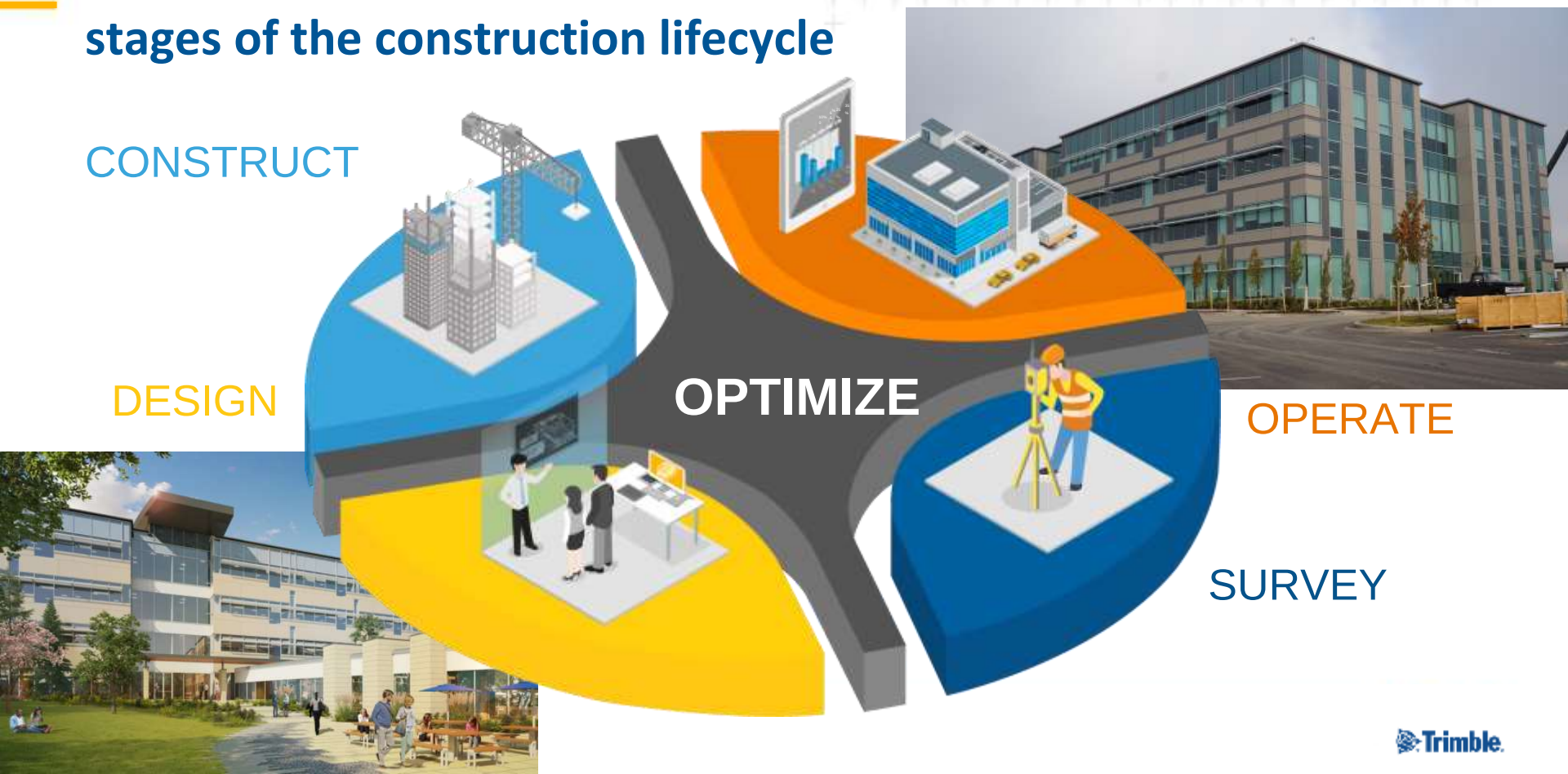
Surveyors and geospatial professionals are supporting all stages of the construction lifecycle



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