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

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We’ll look at the role of the surveyor and geospatial professional from concept...
... to (just about) ready to move in
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

All other businesses have:
- 90% of projects are late
- 30% of construction is rework

Productivity over time: Construction lags behind all other businesses.
Building Information Modeling (BIM) evolution

**CURRENT**
- 2D Drawings
  - Single discipline
  - Manual & CAD Discipline approach
- 3D Models
  - Single discipline
  - Limited intelligence Discipline approach
- 3D Collaboration Models
  - Multi-discipline
  - VR visualization Project collaboration

**FUTURE**
- BIM for Infrastructure
  - Multi-discipline & workflow support
  - Intelligent object model
  - Lifecycle value

**ISOLATED**

**COLLABORATIVE**

**INTEGRATED**
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

- Fewer Errors: 34%
- Greater Cost Predictability: 22%
- Better Understanding of Project: 21%
- Improved Schedule: 16%
- Optimized Design: 8%

Business Benefits of BIM (Rated High/Very High by BIM Users)
Dodge Data & Analytics, 2017

- Establishing Consistent and Repeatable Project Delivery Process: 33% (Medium), 36% (High), 19% (Very High)
- Improving Ability to Show Younger Staff How Projects Go Together: 28% (Medium), 42% (High), 17% (Very High)
- Offering Services: 28% (Medium), 38% (High), 19% (Very High)
- Increasing Win Rates for Work: 35% (Medium), 31% (High), 16% (Very High)
- Maintaining Business With Past Clients: 29% (Medium), 37% (High), 15% (Very High)
- Increasing Profits: 38% (Medium), 26% (High), 16% (Very High)
- Less Time Documenting, More Time Designing: 29% (Medium), 35% (High), 15% (Very High)
- Fewer Claims/Litigation: 33% (Medium), 26% (High), 15% (Very High)
- Improving Staff Recruitment and Retention: 30% (Medium), 33% (High), 10% (Very High)

Surveyors and geospatial professionals are supporting all stages of the construction lifecycle.
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
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
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
Vizualization
HoloLens for Collaboration
Mixed Reality
Surveyors and geospatial professionals are supporting all stages of the construction lifecycle.