Granted, this innovation can make a difference in what we do, but what’s the ROI?
What is CIM?

“CIM is the technology-enabled collection, organization, and managed accessibility and use of accurate data and information related to a transportation asset. The concept may be used by all affected parties for a wide range of purposes, including planning, environmental assessment, surveying, construction, maintenance, asset management, and risk assessment.”

NCHRP Project 20-68A, Scan 13-02 Advances in CIM
CIM Enabling Technologies

- GIS
- 3D Engineered Models
- Geospatial Data Acquisition Tools
- AMG or AMC
- Mobile Devices
- Common Data Environments (CDE)

Evolution of CIM

- 3D Visualization
- 3D for AMG
- 3/4D for Risk Management
- 3D for CEAI and mobility
- 3D for Bridges
- 3D for Constructability Reviews
- 3D for Asset Management

Source (top row from left to right): CTDOT and WSP, FHWA, NYSDOT and Skanska-Kiewit Joint Venture, FHWA
Source (bottom row from left to right): ?, InEight, TDOT
How Do We Get There?

Set Vision  Executive Support  Start a Plan

Developing the Business Case

- Does it make us safer?
- Does make us more transparent?
- Does make us more efficient?
- Does make our jobs easier?
- Does it save us money?
- Do we already own the enabling technology?
- Do we have access to the technology?
- Why not?
Developing the Business Case

- Define High Level Objectives
- Select a Champion and Provide Resources
- Assess Your Current Practices
- Assess Enabling Technology
- Investigate Costs and Benefits
- Prioritize Based on Low Hanging Fruit

Benefit-Cost Analysis and ROI

**Costs**
- Acquisition of geospatial data (in-house versus outsourced)
- Processing of geospatial data (in-house versus outsourced)
- Storage, accessibility, and integration of geospatial data
- 3D modeling tools (hardware, software, CDE, collaboration tools)
- Construction tools (surveying equipment, mobile devices, software)
- Technical support and training
Geospatial Technologies

Unmanned Aircraft Systems  Stereo-Photogrammetry  Structure from Motion
Lidar – mobile and other platforms  GNSS

Source: Oregon State University

Benefit-Cost Analysis and ROI

Benefits

• Increased safety through reduced exposure
• Improved efficiencies
• Increased workforce utilization
• Reduced risk
• Better as-built records
• Savings through cost-share of data acquisition
• Savings through cost-share of data storage and IT resources
• Savings through statewide technology procurement
Increased Safety through Reducing Exposure

Improved Efficiency and Workforce Utilization

Manage Risk to Deliver on Time and under Budget

- Review team proposal
- Conduct constructability reviews
- Tracking progress
- Real-time verification and quantity measurements
- Issuing payments via construction management system

“We can use this technology to streamline and improve a lot of the things we do. I see the models improve the constructability of the plans, so we get better bids from the contractors. We can also finish projects quicker and with fewer problems, which saves money.”

Craig Ruyle, P.E. – NYSDOT Region 10 Regional Construction Engineer

Better As-Built Records

Benefit-Cost Analysis and ROI

Key Success Factor to Realizing the Benefits

- Data as a new asset to manage
- Unified vision to break the silos
- Data governance policies to meet the business needs
- Data standards to share, access, and consume digital data during design and after design and construction to support asset management.
- Take advantage of the technology you already own to produce and consume CIM data
- Invest in technology that will increase your benefits

Incorporating ROI in Your Business Case

Change management
Stakeholder involvement
Communication management

Incorporating ROI in Your Business Case

Plan Cost and Benefit Categories Aligned to KPIs and Mission
Identify Pilot Projects for Baseline and Comparison
Execute Pilot Projects and Capture Data
Compute ROI

Analyzing the Data and Computing ROI


Summary

• ROI is only one component of your business case
• Create the need and urgency for the technology
• Create a culture of innovation
• Do your homework
• Cost-sharing results in maximum benefits
Questions?

Let’s chat some more:
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