Evolution of Utility Workflow

Serguei Sokolov
Solution Architect

Julia Martin
Utilities and Telecom
Delivery Manager
Class Summary

In this class you will explore how Utilities workflows may evolve by utilizing modern technologies and leveraging CAD design data in business processes.
Learning Objectives

At the end of this class, you will be able to:

- Recognize business and technology challenges facing Utilities today and understand reference solutions addressing challenges
- Understand how information is created in the design process can be made accessible to all users when and where they need it
- Learn how to streamline existing processes gaining productivity & efficiency while minimizing the change management
Utilities workflow: challenges and needs
GOAL: Maintain integrity of CAD design and engineering data throughout the asset lifecycle (data quality, currency, completeness)

PRESENT: When CAD design data is imported/transformed, important data/details and CAD accuracy are lost during transition.

Transfer CAD Drawings to Construction

In-field info captured

Transfer to As-built system

Convert to asset management system
Data Issues
- Siloed data storage
- Duplicate data entry and data loss
- Low quality data
- Unreliable links between systems
- Large volumes of data
- Design data is not updated and maintained
Workflow Scenario To-Be

Work Management
- Initiate WO
- Estimate Cost
- Approve Design
- Material & Labor
- Update As-built
- Close WO & Publish

Design
- Draft Design
- Eng. Analysis
- Order Material
- Post Design
- Archive Design

Facilities Mapping
- Create Version Mapping
- Update Version
- Post to As-built & Publish

Field Construction
- Construct Design
- As-built Redlines
Solution Architecture
Enterprise Design Environment

Autodesk Approach

- Establish a seamless workflow supporting Design, Build, Operate, & Maintain business processes
- Implement design data management
- Ensure that information created in the Design process and information about as-built assets is easily accessible to all users when and where they need it (right information, right people, right time)
- Minimize change management when establishing Enterprise Design Environment
Autodesk Solution Enabling Technologies

- Enterprise Data Management:
  - Autodesk Vault

- Web publishing and mobile viewers:
  - AutoCAD WS
  - Autodesk Design Review
  - Autodesk Infrastructure Map Server

- Collaboration:
  - AutoCAD WS
  - Autodesk Buzzsaw
Enabling Enterprise Design Environment
Isolated Silos of data
- Different tools to manage data
- No central repository
- Hard to share and enforce standards
- Difficult to exchange data and make compositions
- Focused on specific design deliverable
Design Data Management To-Be

- Protection Control
- Physical Layout
- Civil Site Planning
- Fiber Comm
- OH/UG Design
- Building Facilities
- Real Property
- Construction Standards
- Autodesk Vault

PROJECT SITE

Autodesk Vault
Integration with Enterprise Systems

**As-Is:**
- CAD
- Work order Management
- Estimation Materials
- Projects

Custom P2P interfaces

**To-Be:**
- CAD
- Autodesk Vault Pro
- Work order Management
- Estimation Materials
- Projects
- SharePoint Portal

COTS interfaces

**Take full advantage of Autodesk Vault extensions to**
- Manage Bills of Materials (BOMs)
- Integrate with ERP and other enterprise business systems
- Publish CAD metadata to Microsoft SharePoint portal
Maintenance and Inspections - Data Mining

As Is:
- Need to use 3+ systems to find a drawing (e.g. query Assets Management System to get ID, query GIS using asset ID to find the feature and associated link to design drawing, click on the link to launch a viewer to display the drawing).

To Be:
- Submit Google like query in the Utility’s Web portal
- Design drawing is displayed in a Web browser
Data Validation at Design Stage

As-Is:
- Import design data (re-digitize) into GIS and create maps
- Export facilities data to Analysis system from GIS

To-Be:
- Export facilities data to Analysis system directly from CAD design application
Collaboration

Publishing project data to the Cloud

- Support field maintenance & construction (viewing of design drawings, 3D visualization, training & simulation)
- Buzzsaw to share construction package, provide workflow management
- Buzzsaw mobile, AutoCAD WS for web based visualization & collaborative editing, markups
Conclusions
Enterprise Design Environment

Benefits

- Streamlines existing processes gaining productivity & efficiency
- Provides infrastructure services to manage design data & constructions prints within enterprise workflow
- Allows all CAD teams to work against ONE project in ONE model repository using common set of standards
- Simplifies access to the information “right information, right people, right time”
- Maintain CAD Teams’ focus on their specific deliverables to the benefit of the Utility
Key Concepts and Best Practices

- **Best-of-Class systems** leveraging investments
- **CAD Enabling Enterprise** using Model-based design and data management tools
- **Spatial Data Warehouse** centralized “Single Point of Truth”
Autodesk University Session Feedback

Your feedback is very important to Autodesk.

✓ You can complete the session survey on your mobile device, PC, or at a survey station.
✓ Each completed session survey enters you in that day’s drawing for a free AU 2012 pass.
✓ You can help make AU 2012 better!

Complete the AU Conference Survey at a survey station and receive an AU 2011 T-Shirt.