Maximizing ROI on Utility Work Management Systems

A look at a low total cost of ownership WMS by SSP Innovations
Why we’re here
About me

- Over 10 years in Utility Enterprise Systems
- Consultant / Solution Architect
- SSP Innovations
- Previous: Schneider Electric / Telvent / GeoFields
- GIS and Work Management
- Many large projects for utilities and energy companies
About SSP Innovations

- Utility Work Management Product: WFM aka Workforce Management
- 12-year old Utility technology consulting company (GIS and WMS)
- Work exclusively in the U.S. utility/telecom/pipeline industries
- Began as a services company – now perform services and offer a line of software products
Clients – Referral Network Started with 2 Clients
... Now with 80+, Still 100% Reference-able

- Alabama Power (Southern Co)
- Alliant Energy
- Ameren
- Belmont Light
- Benton PUD
- City of Beverly Hills, CA
- Black & Veatch
- Black Hills Corporation
- Burbank Water & Power
- Burlington Electric Dept
- CenterPoint Energy
- Central Lincoln PUD
- Town of Chapel Hill, NC
- Clallam County PUD
- Colorado DOT
- Connexus Energy
- Consolidated Electric
- CoServ Electric
- Cowlitz County PUD
- CPS Energy
- CSpire Telecom
- Denton Municipal Energy
- Digital Globe
- Digital West Networks
- Douglas County PUD
- Energy United
- Town of Estes Park, CO
- Eugene Water & Electric Board
- Fayetteville PWC
- Garland Power & Light
- Georgia Power (Southern Co)
- Glendale Water & Power
- Green Mountain Power
- Greenville Utilities Commission
- Hart EMC
- Holyoke Gas & Electric
- City of Houston, TX
- Hydro One
- Intermountain REA
- Jackson Energy Authority
- Kissimmee Utility Authority
- Lansing Board of Water and Light
- Kissimmee Utility Authority
- Lansing Board of Water and Light
- City of Leesburg, FL
- Lincoln Electric System
- City of Longmont, CO
- Memphis Light Gas & Water
- Midcontinent Communications
- Middle Tennessee Electric
- Midwest Energy
- Navajo Tribal Utility Authority
- New Braunfels Utilities
- NIPSCO
- NiSource
- Northwest Natural Gas
- Norwich Public Utilities
- Nsight Telecom
- NSTAR
- Oconee County, SC
- Pacific Gas & Electric
- Pasadena Water & Power
- Pend Oreille PUD
- PLA Detroit
- Portland General Electric
- POWER Engineers
- Public Services of New Mexico
- Redding Electric Utility
- City of Roseville, CA
- Sam Houston Electric
- SCANA
- Schneider Electric
- SMECO
- Swova
- Texas-New Mexico Power
- TOA Technologies
- Tri-County Electric
- Tri-State G&T
- UniSource
- Utility Data Contractors
- Vectren
- Verizon
- Westar Energy
- Zia Natural Gas
Agenda

- Utility Work Management Systems
- Evaluation Points for Acquisition:
  - Initial considerations
  - Functional characteristics of low cost WMS
  - Implementation considerations
- Summary
- Questions
“Work management is a set of software products and services that apply workflow structure to the movement of information as well as to the interaction of business processes and human worker processes that generate the information. Work management streamlines and transforms crucial business processes and thus can improve results and performance.”
Utility Work Management Systems?

- Capital Work Management
- Work Order Management
- Workforce Management
- Work Management
- Work Order Asset Management
- Service Request Management
- Asset Management
Utility Work Management Systems

- Construction Jobs for Assets
- Engineering Department
Asset Construction (and Maintenance)
WMS History: Construction jobs managed with paper
WMS History: Construction jobs in Excel

[Excel spreadsheet image]

- Master of Cost Estimate Spreadsheet (Rev Feb 12, 2015).xsm
- Excel

[Excel spreadsheet details]

- **Plastic Materials**
  - **Item ID**
  - **Material**
  - **Group**
  - **Trans**
  - **Sub-Total**

- **WORK ORDER ESTIMATE - 04/22/2015**
  - **Region**
  - **Work Area**
  - **Work Request No.**
  - **Work Order No.**
  - **Start Date**
  - **Project Title**
  - **Drawing No.**
  - **Nature of Request**

- **Cost Breakdown**
  - **Material**
  - **Capital**
  - **Retirement**
  - **Lighting**
  - **Assoc. Capital**
  - **O/M Costs**

- **Approval Routing**
- **WOLST**
Historical Problems

- Disparate data scattered across the organization
- No enforcement of business process (silos)
- No standardization of estimation
- No opportunities for integrations with other departments / systems
- Difficulty understanding what was estimated vs. what was actually constructed
Construction Jobs in an Enterprise

WMS
Benefits of Enterprise WMS

- One central system of record
- Streamline business processes
- Improved project oversight
- Regulatory compliance
- Standardize design and estimation
- Audit tracking
Evaluation Points: Initial Considerations

- The ‘Fit’
- Configuration vs. Customizations vs. Product Enhancements/Modifications
- Technology Framework
  - Web
  - Mobile Support
- Integrations and Integration consciousness
Identify areas of need (WMS)
Identify areas of need (External)

- Work Origination
- Customer Payments
- Accounting
- Project Reporting
- Material Man.
- Field Crews
- GWD / GIS
- Asset Man.
Not all WMS are created equally
Configuration vs. Customization vs. Product Modifications

- Configuration: No coding required! Use out of the box tools / database values / updates to files to achieve desired outcome.

- Customizations: Required a code change to achieve desired results. Intentionally extensible aspect of the core product framework. Does not require a change to the core product. Less costly!

- Product Enhancement / Modifications – Requires a code change and a release. Impacts many customers.
  - Even longer testing cycles
  - May have to wait to prioritize functionality with the market
Priorities!

1. Configuration
2. Customization
3. Product Modification / Enhancement
Integration Consciousness

- Integration: Configuration vs. Customization vs. Product Modification
- Application Design
- Open data model
Integration Consciousness

- Potentially costly (but important!) integrations
  - GIS – Most expensive integration
    - Work area organization (i.e. points, spans, area)
  - Accounting
  - Materials Management

- 2 WFM Examples:
  - WFM Estimates and GWD Designs
  - WFM Estimates and Property Accounting
WMS Estimates and Graphic Work Design / GIS

- Service/Work, Request/Order
- Workflow – Status, Transitions, and Tasks
- Estimate/Design
- Work Locations
- Compatible Units / GWD objects or features
  - Resources: Material, Labor and Equipment
- As Built
WMS Estimates and Property Accounting
Integration Design
Technology Framework

- Web-based: Why?
- Are all web-based systems the same?
- Mobile considerations
Device Responsiveness UI / UX
Evaluation Points: Functional characteristics of low cost systems

- Adaptability to utility business processes
  - Handle job types / common tasks
  - What should be configurable?
- Efficiency of common data entry (Estimates!)
Adaptability to utility business process

- Lifecycle Management

- Initiation
- Planning
- Approval
- Construction
- Recording as Built
- Closeout
Adaptability to utility business process

- Job Scalability
- Out of the box can you?
  - Define Job Types
  - Define the project’s job requirements (checklist) by Job Type
  - Define statuses by Job Types
  - Define available tasks by status
  - Define available tasks by user roles/permissions
Important Configurations: adaptability

- Resources
- Compatible Units
- Macro Units
Data input efficiency

- Estimates! Estimates! Estimates!
Data Input: A WMS CU / MU Selector

Type ahead and categorization
Data Input: Estimates: Inline editing for CUs, MUs, and Misc Items

### No WL - Costs

<table>
<thead>
<tr>
<th>Action</th>
<th>Name</th>
<th>Description</th>
<th>Qty</th>
<th>Utility Account</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Install</td>
<td>valve ball</td>
<td>VALVE PLUG NORD F-525 2</td>
<td>1.00</td>
<td>4800 - Gas Service Distribution</td>
<td>$0.00</td>
</tr>
<tr>
<td></td>
<td>12597 == VALVE BALL NORDSTROM</td>
<td>SLEEVE REINF STY 220 14 ID 3/8 X 21-3/4</td>
<td>1</td>
<td>4800 - Gas Service Distribution</td>
<td>$610.19</td>
</tr>
<tr>
<td></td>
<td>FIG 69-1/2 W EXT 12</td>
<td>VALVE BALL NORDSTROM FIG 68-1/2 W EXT 12</td>
<td>1</td>
<td>4800 - Gas Service Distribution</td>
<td>$8,990.00</td>
</tr>
<tr>
<td></td>
<td>15395 == VALVE BALL GROVE B-5</td>
<td>VALVE PLUG NORD F-2245 4</td>
<td>1</td>
<td>4800 - Gas Service Distribution</td>
<td>$2,372.85</td>
</tr>
<tr>
<td></td>
<td>CL600 WF 6</td>
<td>VALVE PLUG NORD F-525 4</td>
<td>1</td>
<td>4800 - Gas Service Distribution</td>
<td>$624.00</td>
</tr>
<tr>
<td></td>
<td>22375 == VALVE BALL GROVE B-4C</td>
<td>VALVE RELIEF A/G SER 930203 HP 2X3</td>
<td>1</td>
<td>4800 - Gas Service Distribution</td>
<td>$0.00</td>
</tr>
<tr>
<td></td>
<td>CL600 WF 4</td>
<td>VALVE RELIEF A/G SER 930304FA LP 3X4</td>
<td>1</td>
<td>4800 - Gas Service Distribution</td>
<td>$1,938.62</td>
</tr>
</tbody>
</table>

### Miscellaneous Items - $10,000.00

<table>
<thead>
<tr>
<th>Action</th>
<th>Category</th>
<th>Cost</th>
<th>Description</th>
<th>Quantity</th>
<th>Unit Cost</th>
<th>UOM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Install</td>
<td>Contract Labor</td>
<td>$15,000.00</td>
<td>Contractor Installation of services</td>
<td>1.00</td>
<td>$15,000.00</td>
<td>EA</td>
</tr>
<tr>
<td>Install</td>
<td>Company Labor</td>
<td>$5,000.00</td>
<td>Installation of custom meter</td>
<td>1</td>
<td>$5,000.00</td>
<td>EA</td>
</tr>
</tbody>
</table>
Data Input: Estimate Worksheet - Work Locations and CU Selection Controls

<table>
<thead>
<tr>
<th>Action</th>
<th>Name</th>
<th>Description</th>
<th>Qty</th>
<th>Utility Account</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Install</td>
<td>12723</td>
<td>SLEEVE REINF STY 220 14 ID 3/8 X 21-3/4</td>
<td>1</td>
<td>4800 - Gas Service Distribution</td>
<td>$610.19</td>
</tr>
<tr>
<td>Install</td>
<td>12597</td>
<td>VALVE BALL NORDSTROM FIG 69-1/2 W EXT 12</td>
<td>1</td>
<td>4800 - Gas Service Distribution</td>
<td>$8,990.00</td>
</tr>
<tr>
<td>Install</td>
<td>101</td>
<td>VALVE PLUG NORD F-2245 4</td>
<td>1</td>
<td>4800 - Gas Service Distribution</td>
<td>$2,372.85</td>
</tr>
<tr>
<td>Install</td>
<td>1211</td>
<td>VALVE PLUG NORD F-525 4</td>
<td>1</td>
<td>4800 - Gas Service Distribution</td>
<td>$624.00</td>
</tr>
<tr>
<td>Install</td>
<td>12233</td>
<td>VALVE RELIEF A/G SER 930203 HP 2X3</td>
<td>1</td>
<td>4800 - Gas Service Distribution</td>
<td>$0.00</td>
</tr>
<tr>
<td>Install</td>
<td>12527</td>
<td>VALVE RELIEF A/G SER 930304FA LP 3X4</td>
<td>1</td>
<td>4800 - Gas Service Distribution</td>
<td>$1,938.62</td>
</tr>
</tbody>
</table>

Buttons: Move Selected, Copy Selected, Delete Selected
Important implementation considerations

- Implementation Project
- Change Management
Implementation Project

- Discovery (for internal and/or external team)!
- System Architecture
- System Integrators and/or Project Team Familiarity with:
  - Affected systems
  - Business processes
  - Technology implemented
  - All!
- Thorough design vetted by Users!
Change Management

- Involve Users, Users, and Users!
- From start to finish
Indications of Inflexible WMS

- Generic enterprise system that can be used for any purpose
  - Development required to do things you would expect all utilities to do
- Workflows are developed not configured
- No discussion of common hooks or extensibility
- No discussion of an API
- Little or no plans for integrations
Indications of Flexible WMS

- Efficient data entry
- Workflow Engine that can be configured
- Instant recognition for placement (extensible framework) of uncommon (company specific) modules
- ‘You can configure the system’ to do common things you’d expect utilities to do
Questions?
Thank You!

SSPIInnovations.com

Chris Sanders:
Chris.Sanders@SSPIInnovations.com