



Coordinating Multiple Data Systems Across the Enterprise PHMSA R&D Forum

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Introduction



- Consider different forms, locations, styles, levels of accuracy of different critical information and applications and how to leverage for decision making
- Pipeline Safety/IM spin
- Opportunities for technology to fill gaps
- Where is the industry heading?

Disclaimers



- “Always” and “Never” don’t apply to this presentation
- Different companies are at different stages
- There will be different interpretations of the stages of implementations based on business cases
- “Opinions and accounts of this technology do not necessarily reflect the conditions and opinions of any company with which I have been affiliated!”

Where have we been?



- Multiple disparate systems for handling data (spreadsheets, databases, drawings; redundancy)
- Little QC on data
- Poorly **documented** processes
- Processes are separate and disconnected
- Siloed data/applications with limited sharing and stakeholders
- Bleeding edge technology – high risk, high dollar
- Failed implementations
- Disillusionment with technology – especially for companies w/little technology vision
- Stagnant culture → Leadership

Current State



- Multiple facility data systems within the same company
- Systems do not connect – SCADA, CAD raster drawings, schematics, supply chain management, work management, corrosion, commercial, regulatory – **Key issue!**
- Dysfunctional organizations
- Data in various levels of accuracy and completeness
- Unclear champion for continuous improvement and technical development
- Unrealized cost benefit
- Shaken up culture
- Good news – Bleeding edge technology to mainstream

Where are we heading?



- Critical corporate system – versus noncritical – data is the backbone for critical pipeline facilities
- Enterprise GIS
 - Enterprise is the company itself
 - Gauge by what the CEO is measured by
- Process improvement AND more effective and usable analysis that eliminates incidents
- Applications across the corporations sing!
- Enhanced integrity management processes
- United industry support – bringing models closer together
- Progressive corporate culture

Phased Enterprise Implementation



Version 1 – Initial GIS

- Have developed basic mapping and engineering tools
- AM/FM
- Limited QA/QC to data
- Some enabling analysis/reporting
- Fragmented applications and data
- Disparate data sets
- Redundancy and lack of standards
- Not widely distribution of technology

Version 2 – Progressive GIS

- Incorporation of logical GIS functionality relative to respective organization
- Central repository
- Moving from AM/FM focus to AM/FM/GIS
- Engineering/Operations data alignment/integration
- Departmentally focused
- Increased data collection and QC
- Wide distribution of data/information
- Cost benefit is still fairly flat

Version 3 – Enterprise GIS

- Connecting/integrating corporate wide systems
- Reevaluation/redefinition of business processes as it relates to integration of new technology (culture progression)
- Enabling GIS for corporate level intelligent analysis
- Real time access of multi-directional data
- Integration of corporate wide processes Corporate wide distribution of data/information
- Interoperability between platforms and vendors
- Can't get to version 3 without 1 or 2
- Optimize cost benefit

Version 4 – Extra-prise

- External integration
- Beyond our imagination!

What are the gaps?



- Leadership within the operator community – operators must drive technology top down (champions) – must be top down driven – managing change and changing culture
- Executive competency
 - Understanding that data is an asset
 - Must invest research and resources as we do to protect the pipe
 - **Pipe and data are not mutually exclusive**
- Legacy data
- Communications
- Performance driven solutions – move at faster than a snail's pace – impacts user acceptance
- Accurate commercial data
- Gaps between the tabular world to the spatial world in the way we manage business process
 - Examples??

How do we get there?



- Commitment of vendors to consult, clarify need
- Education of executives and leaders regarding the value of the technology
- Commitment of Operators to lead and fund
- Cooperation within the industry
- Optimize industry standards – MOU, industry think tank, allow developers to focus – don't recreate the wheel
- Exploit the web
- Research in key areas – segue way...

Progressive Actions



- Consulting to understand state of the industry and best practices of data management, level of integration of enterprise wide data
- Consulting information management systems to best manage the integrity data being collected for the tools
- Framework for cost benefit, beyond compliance, for an operator to implement V3
- GIS data available for land owners along our ROW's – other shelf data
- Other data that could be accessed by all pipeline operators???
- Tools to assist in positional accuracy
 - Non intrusive pipe location tools
 - More user friendly applications for nontechnical users (“.PIPELINE”)
 - Better data collection tools – continuously improve data more quickly

Let's not miss the mark!



For a civil engineer, there's no such thing as a "little mistake."



Thanks!



Questions???