Data Mining / Threat Assessment Track

PHMSA R&D Forum

February 7-8, 2007

Data Mining and Threat Assessment

☑ What if:

- Information was secure, seamlessly integrated, real-time and on-demand in a fit for use format

- Information was readily available across the organization for informed decision making and preventive / proactive action.

- Work processes always run efficiently with effortless facilitation by and populating of the necessary data management systems

Data Mining and Threat Assessment

☑ Imagine…

☑ A pipeline operating along the Gulf Coast when NOAA begins tracking a hurricane predicted to make landfall.

☑ Landfall prediction models are auto integrated into the pipeline operators critical infrastructure system, identifying potential impacts to operations.

☑ Based on probabilistic modeling of potential impacts, the following things occur:

☑ A company wide warning of the threat is communicated and updated as conditions change.

☑ An emergency response plan tailored to the most likely impact scenario is distributed to the necessary personnel.

☑ Evacuation plans and maps are generated and distributed to affected individuals.

☑ The procurement system generates PO's for humanitarian aid supplies and repair equipment and pre-stages the gear along the impact area.

☑ The movement of people and equipment is constantly tracked to ensure the optimum distribution of resources and the successful evacuation of employees and families.

☑ The work management system dispatches technicians to secure sites

☑ While the SCADA and automation systems shut own and isolate appropriate segments of the system.

☑ In a reliable and efficient manner that optimizes business continuity…

Where We Are

☑ Information is everywhere and the quantity is growing exponentially

- Operations, inspections, incidents, historical records, outside sources, all with increasingly complex data growth

Where We Are

☑ Technologies are advancing, but often independent of one another

☑ Better data collection tools
  ▪ ILI, Survey, Remote Monitoring, etc.

☑ Better Analysis Tools
  ▪ Threat/Risk Mgmt, Eng Critical Assessment, etc.

☑ Better Communication Tools
  ▪ Web technologies, mapping tools, wireless, etc.

☑ Each limited by the efficiency with which we can pull the information together and get independent systems to work as one.

Where We Are Going

☑ Ongoing Data Overload

☑ Continuing to react to the introduction of new technologies just to catch up with data systems that facilitate and leverage the information.

☑ Redundant, inefficient, data management overload in lieu of analysis and response.

☑ Or…

Where We Are Going

☑ Development of a shared vision of how things can/should work

☑ Recognition that data systems and processes are an integral part of new technology

Our Charge

☑ Identify the gaps that need to be filled

☑ Explore the opportunities that we have

☑ Develop a common course

☑ To get us headed towards the most effective and efficient systems for managing and leveraging information

Our Agenda

7-Feb-07		
Intro	1-1:30	**Chad Zamarin's** Introduction / Scope, Where we are, Where we're going, Major Issues and Opportunities
Extracting Value from Existing Data	1:30-2:00	**Chris Ziolkowsk - GTI -** Data Security
	2:00-2:30	**Cheryl Trench - Allegro -** PPTS, IMP Tracking, annual reporting
	2:30-2:45	**Group Discussion** - Extracting Value from Data
	2:45-3:00	**Break**
Integrating and Increasing the Value of New Data	3:00-3:30	**Roger Little & Piyali Tulakdar** - PHMSA - Future Integrity / PHMSA Initatives, Gaps, Reporting
	3:30 - 4:00	**David Nemeth** – SUG Data Integration Processes, Issues and Opportunities
	4:00-4:30	**Chad Zamarin** - Threat Identification and Response Selection (DA, ILI, CIS, etc.)
	4:30-5:00	**Group Discussion** - Integrating and Increasing the Value of New Data
8-Feb-07		
Technology to Better Leverage Data	8:00-8:15	**Welcome Day 2**
	8:15-8:45	**Steve Biagotti** - GPS Data Collection and utilization. Technology, limitations, issues, opportunities
	8:45-9:15	**Ed Wiegele** - GE - Data Visualization and analysis tools
	9:15-9:45	**Craig Wilder** – BP - Coordinating Multiple Data Systems Across the Enterprise - Enterprise Integration: SCADA/ops, GIS, CAD, EAM
	9:45-10:15	**Group Discussion** - Technology to Better Leverage Data
	10:15-10:30	Break
Top 3 Challenges (Opportunities)	10:30-11:45	**Group Work Session - Top 3 Challenges**
	11:45-1:00	**Lunch**
	1:00-2:30	**Group Work Session - Top 3 Challenges Report Out Preparation**

Facilitators: **Mick Collins (GE)**

Jerry Rau (SUG)

Sheila Wilson (PODS)

The Deliverables

☑ Develop a consensus of technical gaps and opportunities for future R&D development

☑ Identify short and long term objectives

☑ Basic road maps on technical gaps to ensure solicited research addresses the gap

☑ Provide details of the ultimate research goals so appropriate end users are factored into project scopes

The Process

☑ Utilize presentations to stimulate discussion

☑ Throughout the track, document identified gaps and opportunities

☑ Rank the gaps to highlight the "Top 3"

☑ Clearly define the "Top 3"

☑ Perform road mapping of the "Top 3"

☑ Develop a report out for the entire audience

☑ Enable DOT/PHMSA to solicit proposals for filling the gaps

Ground Rules

☑ Participation is needed

☑ Respect everyone's input

☑ One conversation at a time

☑ Facilitators will assist in engaging participation and keeping us on track

Some things to keep in mind…

☑ This is the first time Data mgmt has been identified as a key focus area for R&D.

☑ Emerging recognition that the value of new technology is dependent on complementary introduction of data management systems, tools and/or processes.

☑ Unlike inventing the next new thing, much of the information is already out there, and much of the technology to leverage it already exists.

☑ Therefore the payback from investing in this area may be significant relative to others.