



Industry R&D for In-line Inspection Products and Services

Presented by:

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Agenda



1. Introduction
2. ILI R&D
3. Industry Sponsored R&D
4. Summary

Agenda



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1. Introduction



Who are we?

ILI Association – founded April 2002

inline inspection association

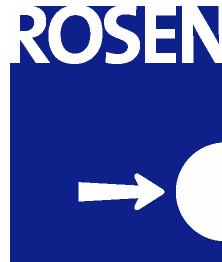


www.ILIAssociation.org

1. Introduction



Founding Members



Newest Members





1. Introduction

Main Goals

- **Support the Pipeline Industry in the need to enhance pipeline integrity.**
- Raise the awareness of the ILI industry
 - Overall Products & Services
 - Current Technologies
 - Capabilities & Limitations
 - Best Practices
 - R&D initiatives
- Liaise with industry associations and regulatory bodies.
- Participate in the Consensus development of the structures (e.g., API, ASNT, NACE “standards”) that ensure provision of high quality ILI services.

1. Introduction



- Global
 - Personnel: app. 2000 employees
 - Revenue¹: app. \$350 million/yr.

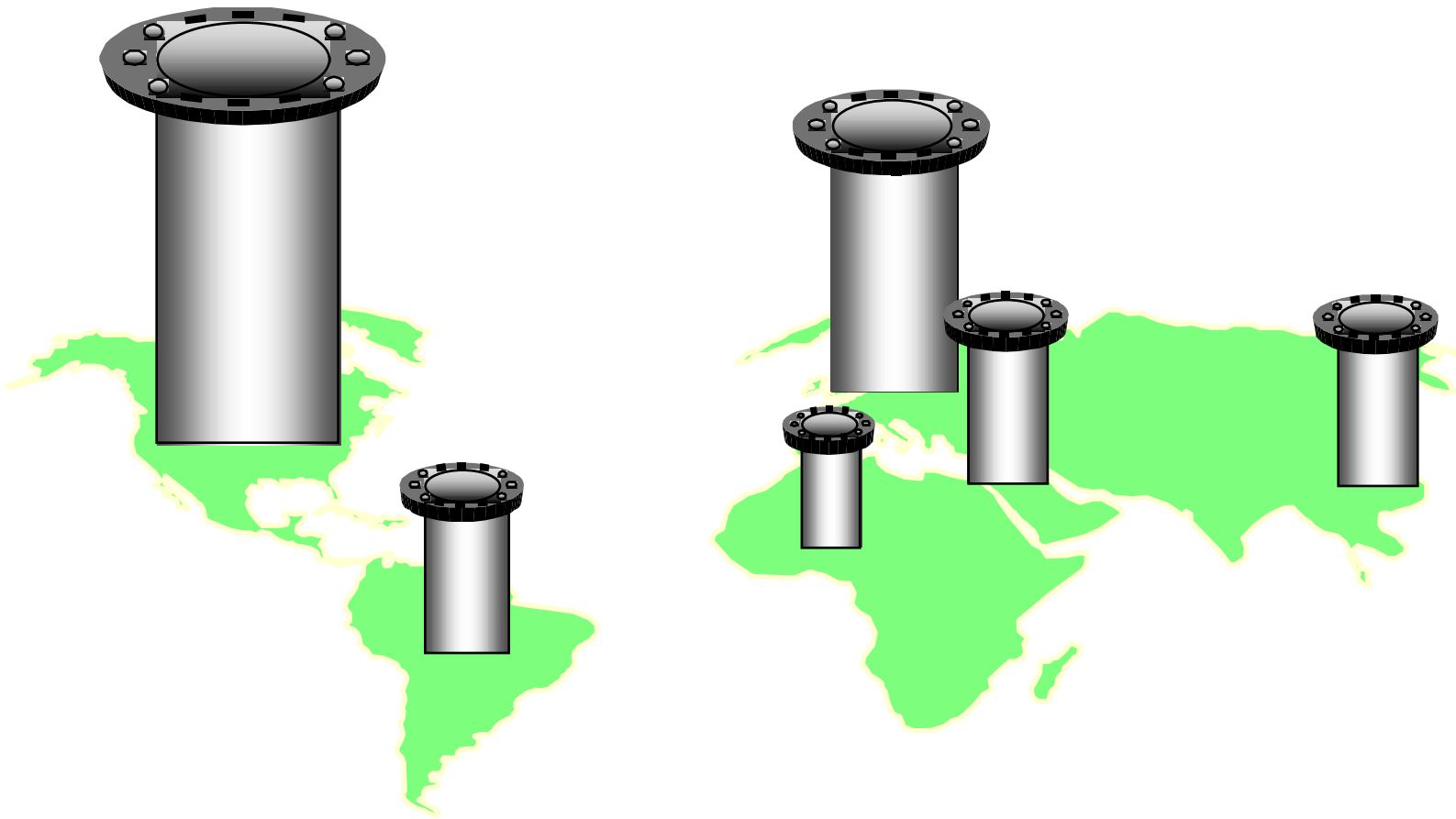
- U.S. Growth: app. 30% per yr.
since 1995

ILI growth capabilities can exceed estimates of U.S. demand.

- provided that we have a Shared Vision approach.

1. Estimated from 2001

1. Introduction



Global Pipeline Infrastructure

1. Introduction



The U.S. View

- The New Regulations are anticipated to increase the demand for ILI products and services.
- Industry Recommended Practices are essential.
- Market demand issues;
 - Capital Equipment
 - Trained Personnel
 - Robust Systems
 - Quality Assurance
- Clarity and Commitment to the future are required to manage growth.

1. Introduction



What is required of us?

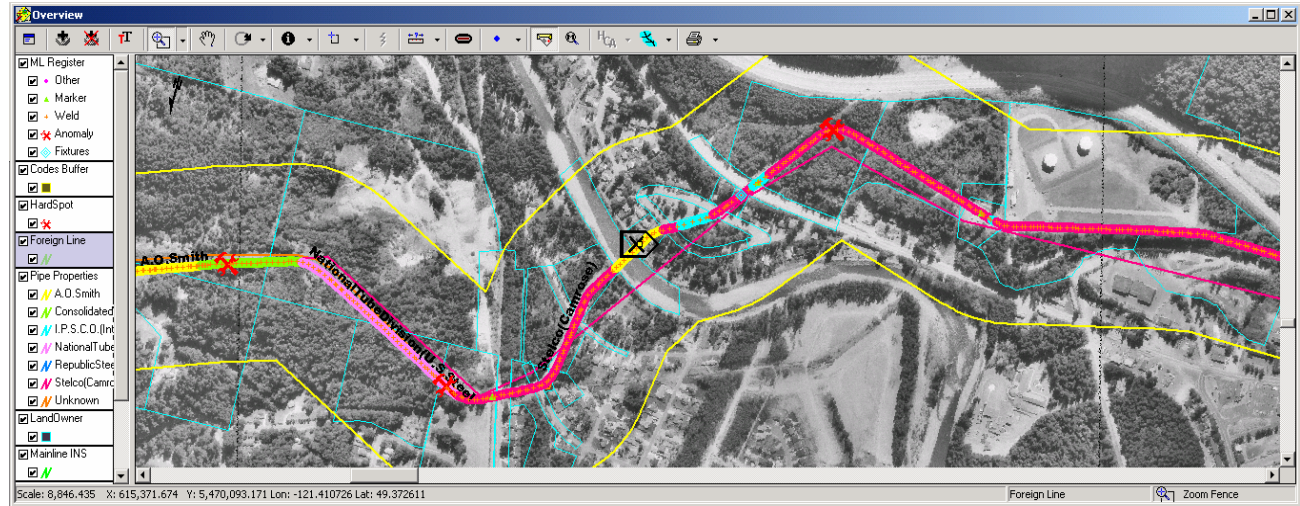
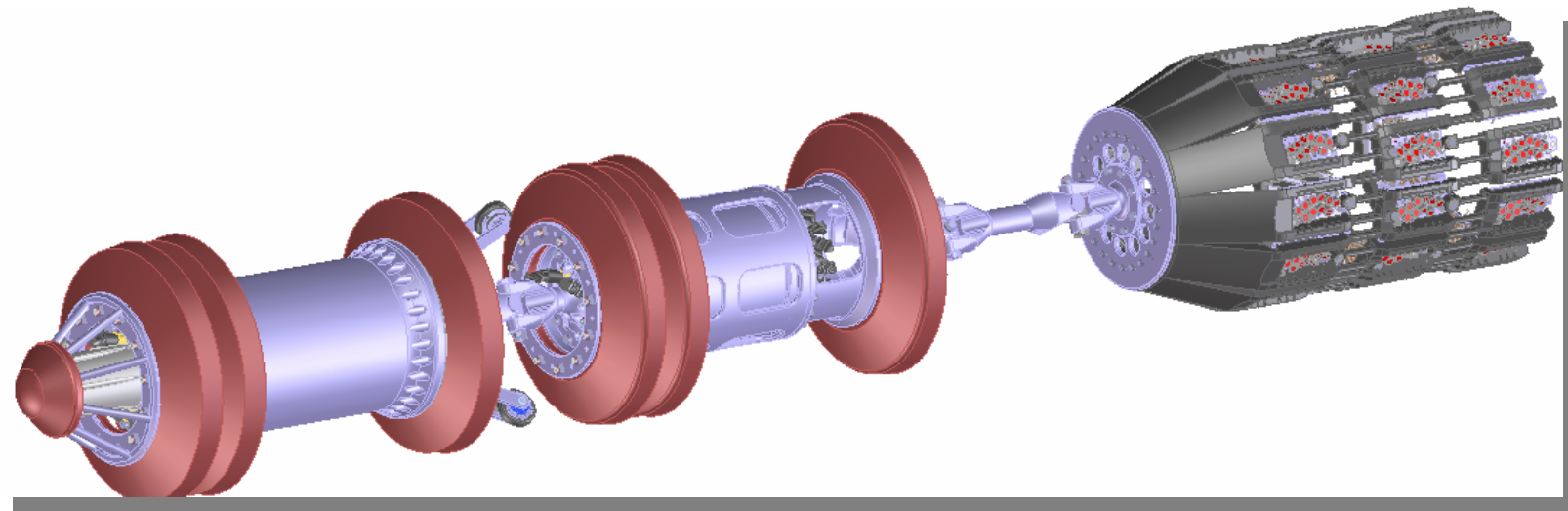
- Our initiatives;
 - Overall, improve transparency,
 - Engage in the generation of Consensus recommended practices or standards,
 - Continue to provide Next Generation technologies,
 - Provide New Solutions to meet the requirements of the industry,
 - Improve & Maintain Quality in a growth market.
- Respond to Industry expectations
 - Pipeline Operator
 - Public

Agenda



1. Introduction
- 2. ILI R&D**
3. Industry Sponsored R&D
4. Summary

2. ILI R&D



2. ILI R&D



History

- First ILI tool run in mid 60's
- ILI Products and Services are a direct result of the Pipeline Industry's requirements and commitment.
- ILI R&D funded based on market need and assessing R.O.I.
 - Improving existing technology,
 - Customer needs, equivalent to Market Needs,
 - and **STAYING COMPETITIVE.**

2. ILI R&D



Current

- Global R&D Facilities
- In-house Experts with “Hundreds” of man years of experience in the necessary fields of activity
- Latest Technologies for design and modeling
- R&D relationships with Universities

- >100 years of inline inspection experience

- R&D Investment: >10% of annual revenue

2. ILI R&D



Current Advancements

- Key Technology Achievements include:
 - Multi-Channel (HR) Geometry (Caliper)
 - High Resolution Axial MFL
 - High Resolution Circumferential MFL
 - Ultrasonic: Metal Loss
 - Ultrasonic: Crack Detection
 - EMAT: Crack Detection
 - Inertial Navigation
 - Combination Technologies

2. ILI R&D



Current Operational Improvements

- Key Operational Improvements include:
 - Turnkey Services
 - GIS Mapping and Data Integration
 - 1.5D bend negotiation
 - Longer inspection runs
 - Faster Inspection Speeds
 - Speed Control
 - Dual Diameter

2. ILI R&D



Development Efforts

- Current development/R&D efforts include:
 - Continuous Improvements in Current Technologies
 - Unpiggable Pipelines - Robotic Inspection Vehicles
 - “Next Generation” Inspection Systems

Agenda



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4. Summary

3. Industry Sponsored R&D



Industry Drivers for R&D

- Demand
 - The demand for products and services is the main driver for R&D.
- Technology
 - Advances in electronics, hardware and software help drive capabilities for provision of innovative, sophisticated, robust and sensitive systems.

3. Industry Sponsored R&D



Industry Drivers for R&D (continued)

- Efficiency
 - New technologies or processes are improving the ability to reduce response time while improving data accuracy, reliability and QA/QC.
- Competitiveness
 - Market forces, including new players, are promoting new developments and enhanced efficiency.

3. Industry Sponsored R&D¹



- Industry Groups
 - DOE
 - DOT
 - PRCI
- Pipeline Operators - project specific
- ILI Vendors >10% of annual revenue

Balanced and Cooperative

3. Industry Sponsored R&D



- Committees for R&D guidance
 - Participation in R&D Committees has included representation from:
 - Pipeline Operators
 - Research groups
 - Engineering/Consulting groups
 - Service Providers
- ILI Service Provider Participation
 - Advisory
 - R&D partner on projects
 - Commercialization Partner

Agenda



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4. Summary



- The regulations have and will continue to increase the demand for a wider range of ILI-related products and services.
- Clarity and Commitment to the future are required to manage growth.
- ILI Service Providers have a significant R&D investment per year which is industry driven.
- Balanced and Cooperative R&D efforts are essential.



Future Challenge

Continued cooperative efforts between the ILI Service Providers, Operators, and Industry Regulators should strive to reform the way we do business.

Only then can real strides be made in improving the capabilities for growth and R&D in the Inline Inspection Industry.

Questions?

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