

# *Pipeline Research Council International, Inc.*

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## **Using Data to Create a Sharing Culture**

**Cliff Johnson**  
**President, PRCI**

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**Pipeline Research  
Council International**

**LEADING PIPELINE RESEARCH**

# WHO IS PRCI?

Introduction to the organization

# Our Mission

**To collaboratively deliver relevant and innovative applied research to continually improve the global energy pipeline systems.**



# Our Members

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- **33 Energy Pipeline Operating Companies**

- 15 Natural Gas Transmission; 10 Liquid
- 8 Liquid/Natural Gas

- **4 Pipeline Industry Organization (PIO) Members**

- American Petroleum Institute (API)
- Association of Oil Pipe Lines (AOPL)
- Canadian Energy Pipeline Association (CEPA)
- Operations Technology Development (OTD)

- **34 Associate Members & Technical Program Associate Members**

- Australia, Canada, China, Europe, Japan, U.S.

- **Worldwide Research Organization**

- 45 North American Companies (U.S. & Canada)
- 25 Non-NA (Australia, Brazil, China, Europe, India & Japan)



AUSTRALIA  
AUSTRIA  
BRAZIL  
CANADA  
CHINA  
FRANCE  
GERMANY  
INDIA  
IRELAND  
JAPAN  
NETHERLANDS  
NORWAY  
UNITED KINGDOM  
URUGUAY  
USA



## PIPELINE

Natural gas  
Crude oil & petroleum  
products  
Biofuels  
CO2  
Related facilities

## RESEARCH

Knowledge  
Technology  
Deployment & transfer  
Innovation

The logo for PRCI (Petroleum Research Council of India) is centered in a white hexagonal shape. It features the letters "PRCI" in a bold, dark blue, sans-serif font. To the right of the letters is a stylized graphic consisting of a series of small, light blue circles arranged in a curved path, resembling a molecular structure or a pipeline. A small "TM" trademark symbol is located to the right of the "I".

PRCI™

## COUNCIL

Forum for ideas &  
opportunities  
Peer-based  
Industry-driven  
Source of research  
inventory

## INTERNATIONAL

Asia  
Australia  
Europe  
Middle East  
North America  
South America



# TECHNICAL COMMITTEES & FOCUS



## CORROSION

Detection, assessment, prevention, and management of galvanic corrosion and SCC; coatings; quantitative risk assessment; improvement & enhancement of CP systems



## DESIGN, MATERIALS & CONSTRUCTION

Assessment & repairs; construction; design; fracture; geohazard management; materials; welding & welding inspection; structural integrity assessment



## INTEGRITY & INSPECTION

NDE technology development & inspection methods; mechanical damage; pipeline integrity



## SUBSEA

Offshore pipeline design; inspection & repair; integrity management

# TECHNICAL COMMITTEES & FOCUS



## SURVEILLANCE, OPERATIONS & MONITORING

Threat analysis & damage prevention; ROW management - environmental & third party damage; ROW protection & monitoring; leak detection



## COMPRESSOR & PUMP STATION

Cost-effective emissions reduction & emissions monitoring; equipment reliability, availability & life extension; improve fuel efficiency & greenhouse gas emissions mitigation & reporting



## MEASUREMENT

Improve custody transfer accuracy & reduce metering errors; support technical underpinnings of measurement standards ; reduce lost & unaccounted for gas; expand the operating range of existing equipment



## UNDERGROUND STORAGE

Storage reservoirs, bedded salt structures & caverns; wellbore & cavern integrity & inspection; field deliverability & facility integrity & reliability





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# TECHNOLOGY DEVELOPMENT CENTER

# Technology Development Center

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# Technology Development Center

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**DATA IS KEY**



# Why Data

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- **“Without big data, you are blind and deaf and in the middle of a freeway.” – Geoffrey Moore**
- **“In God we trust, all others bring data.” — W Edwards Deming**
- **“Data is the new oil.” — Clive Humby**
- **“If we have data, let’s look at data. If all we have are opinions, let’s go with mine.” — Jim Barksdale**
- **“Without a systematic way to start and keep data clean, bad data will happen.” — Donato Diorio**
- **“You can have data without information, but you cannot have information without data.” — Daniel Keys Moran**

# Moneyball - 2011



# Moneyball

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- **Challenge:** Question the traditional methods of looking at problems and solutions
- **Strategize:** Identify hidden new data elements that will directly contribute to the desired outcome
- **Relate:** Use data mining technique to identify the correlation of these data elements
- **Innovate:** Apply quantitative creativity (Looking at same problems differently) through data exploration, visualization techniques
- **Act:** Perform necessary action to implement insights and Optimize your process accordingly

# Sharing Data to enhance Safety and Integrity

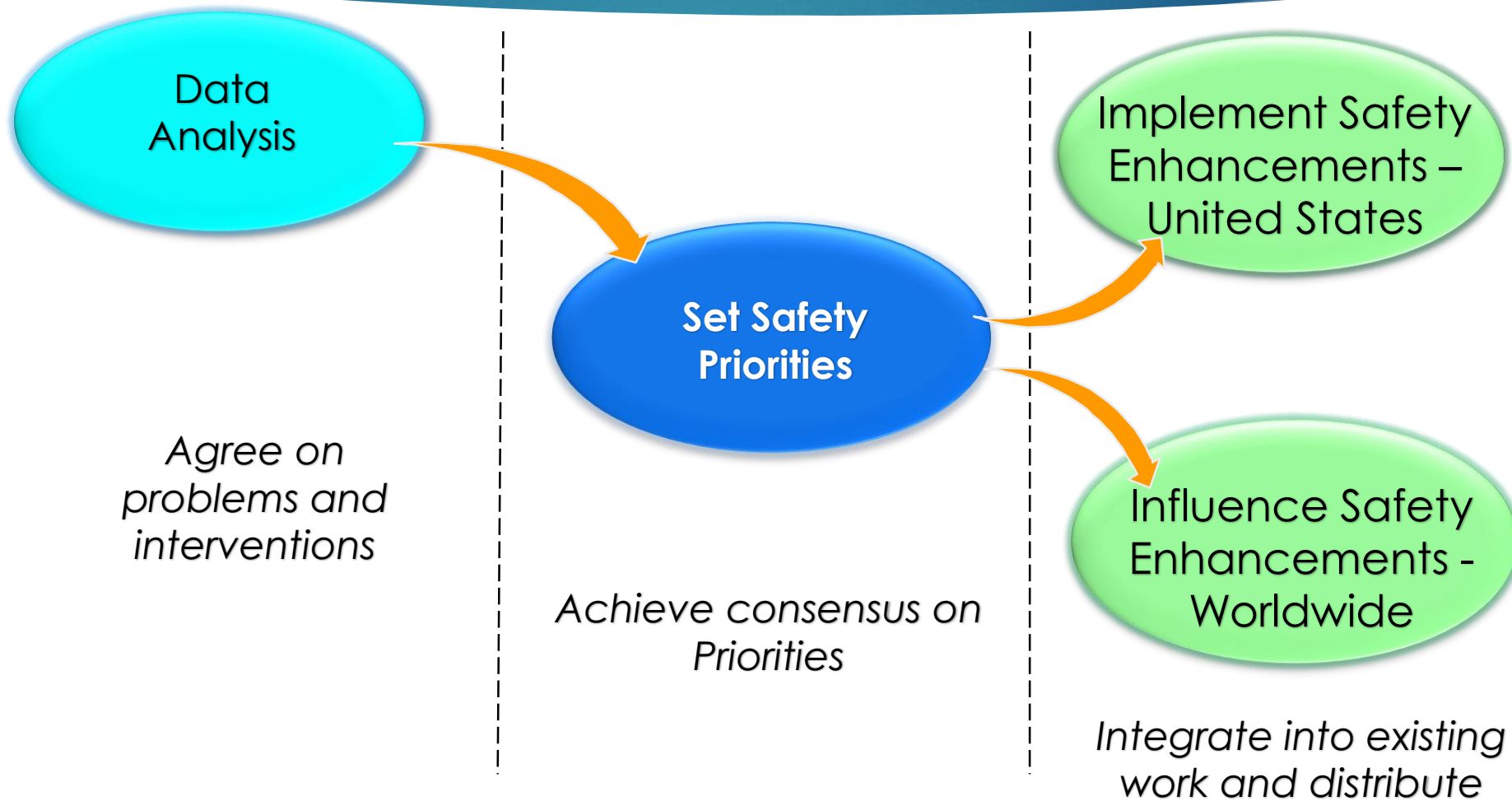


# ASIAS is a Key Component of Continuous Improvement in Aviation Safety

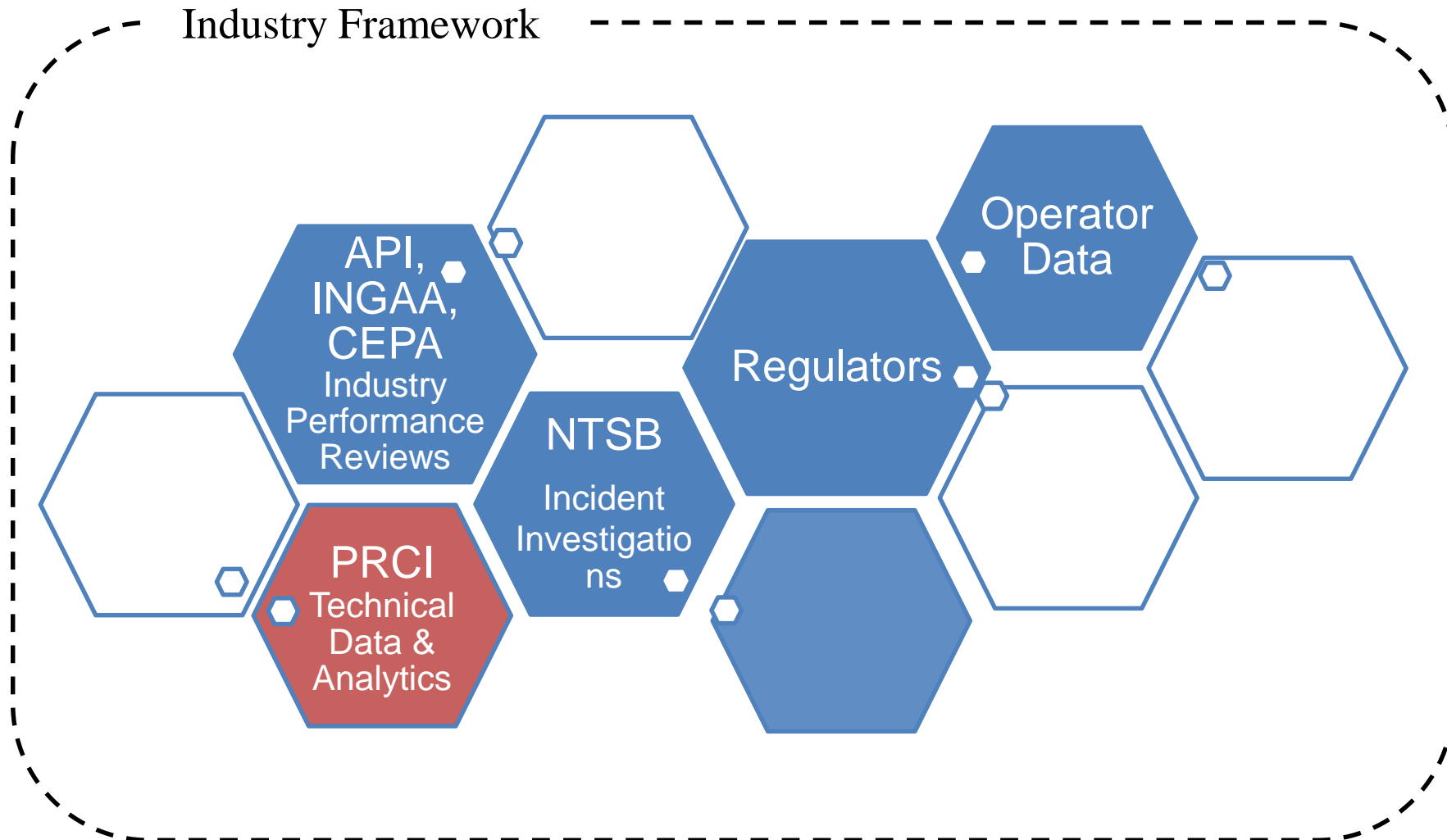




# CAST Safety Strategy

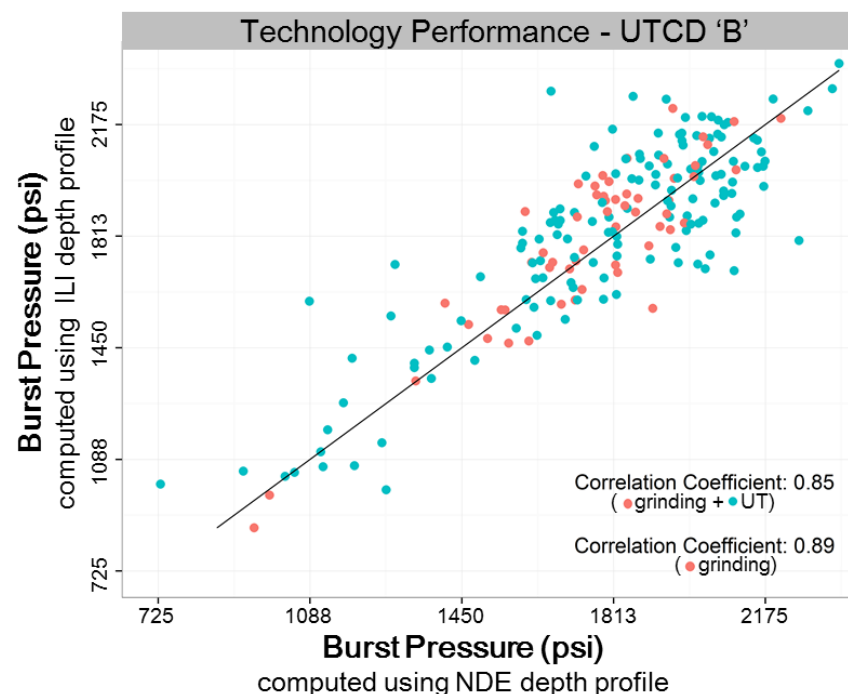


# Fabric of Info Sharing



# ILI & Field Data Project

- **Industry-wide database for modern crack ILI technology reliability**
  - *Answers NTSB Recommendation to PRCI (2010 Marshall Line 6B Incident)*
- **Broad operator collaboration**
  - *Resolved complexities around data collection, confidentiality, data integrity*
- **Analytics on >100,000 data points**
  - *Unprecedented and growing*
- **Results widely available**
  - *Directly driving change, critical topic*
- **Permanent process structure**
  - *Moving to other technologies*





## Pipeline Data Hub

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- **Developed in Stages**
  - Repository of current PRCI projects
  - Develop data centric research
  - Enable members to contribute data outside of projects
  - Implement Machine Learning/AI to create stronger tools, analytics, and personnel
  
- **Move towards a sharing culture to ensure pipeline integrity and safety**





**Cliff Johnson**  
**President**  
**PRCI**

[cjohnson@prci.org](mailto:cjohnson@prci.org)

703-205-1600 ext. 114

[www.prci.org](http://www.prci.org)