



The National Transportation Systems Center

# Stimulating Safety Culture Change in Four Field Demonstration Pilots

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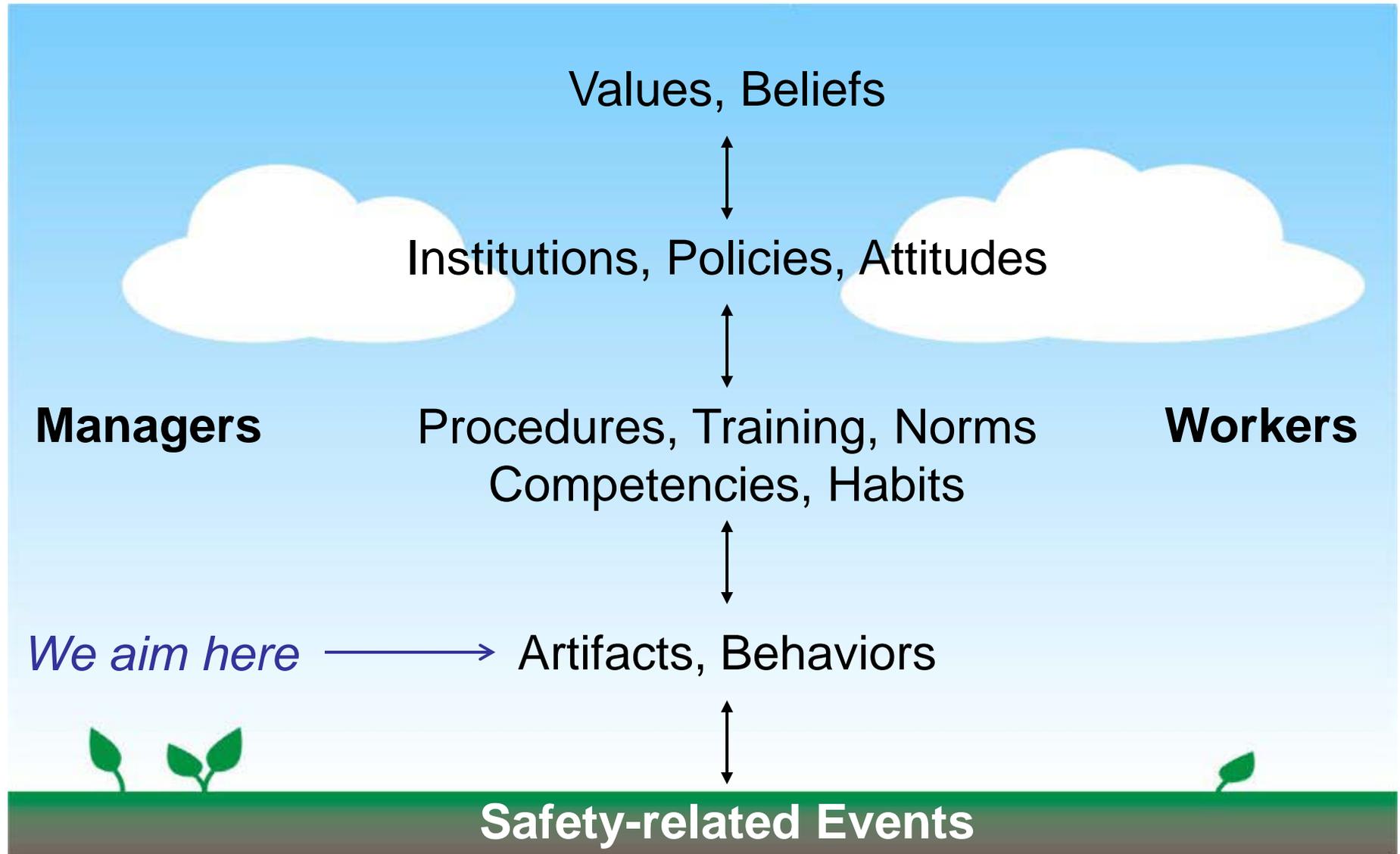


U.S. Department of Transportation  
Research and Innovative Technology Administration

The work is being performed under an interagency agreement between FRA's Human Factors R&D Program and the Volpe National Transportation Systems Center's Human Factors Division.



# A Bottom-up Approach to Change



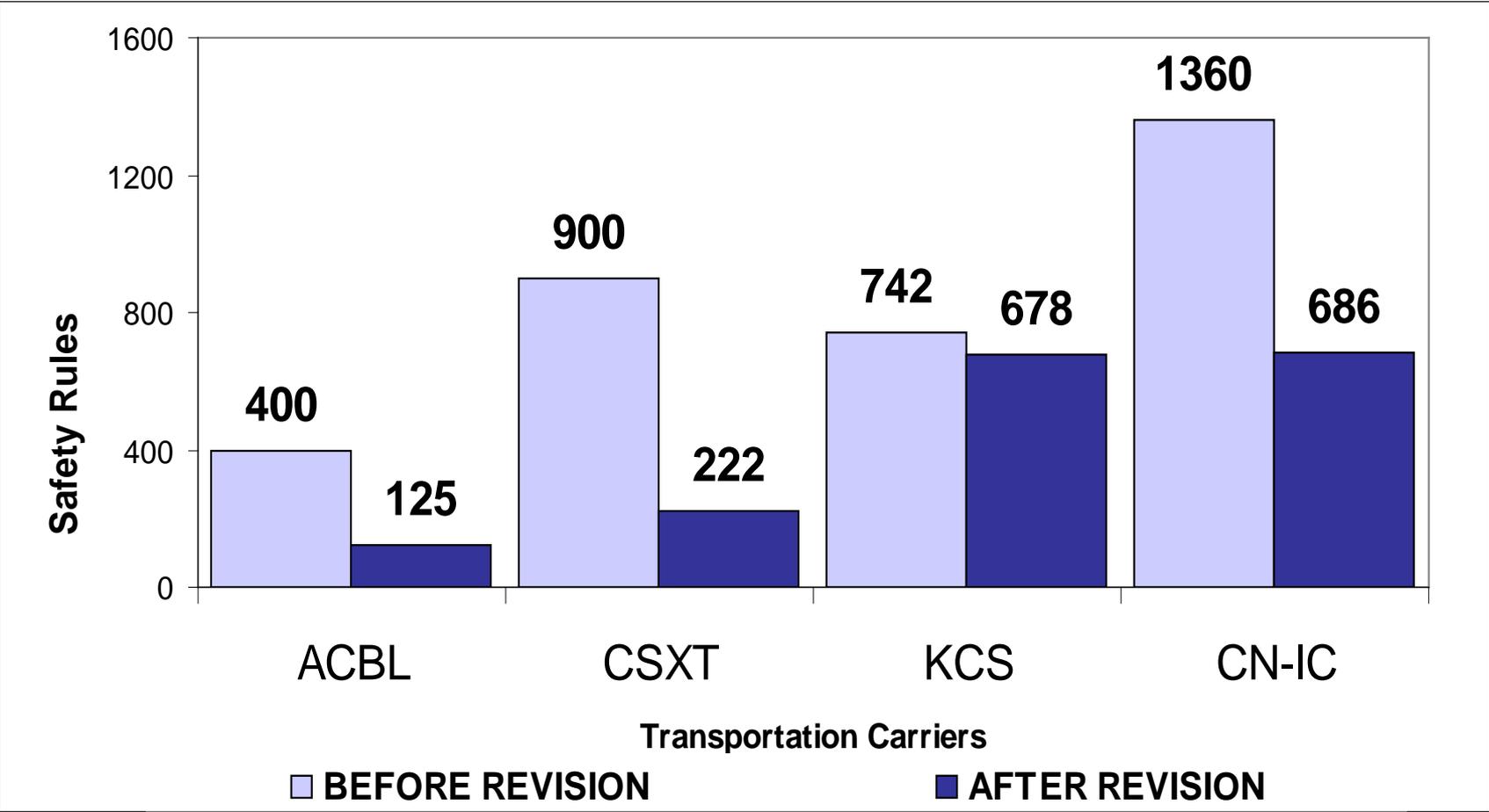
# New Safety Approaches / New Safety Culture

- Labor & management cooperation and commitment
- Systematic, objective risk data collection and reporting
- Preventative corrective actions
- Problem-solving non-punitive confidential process

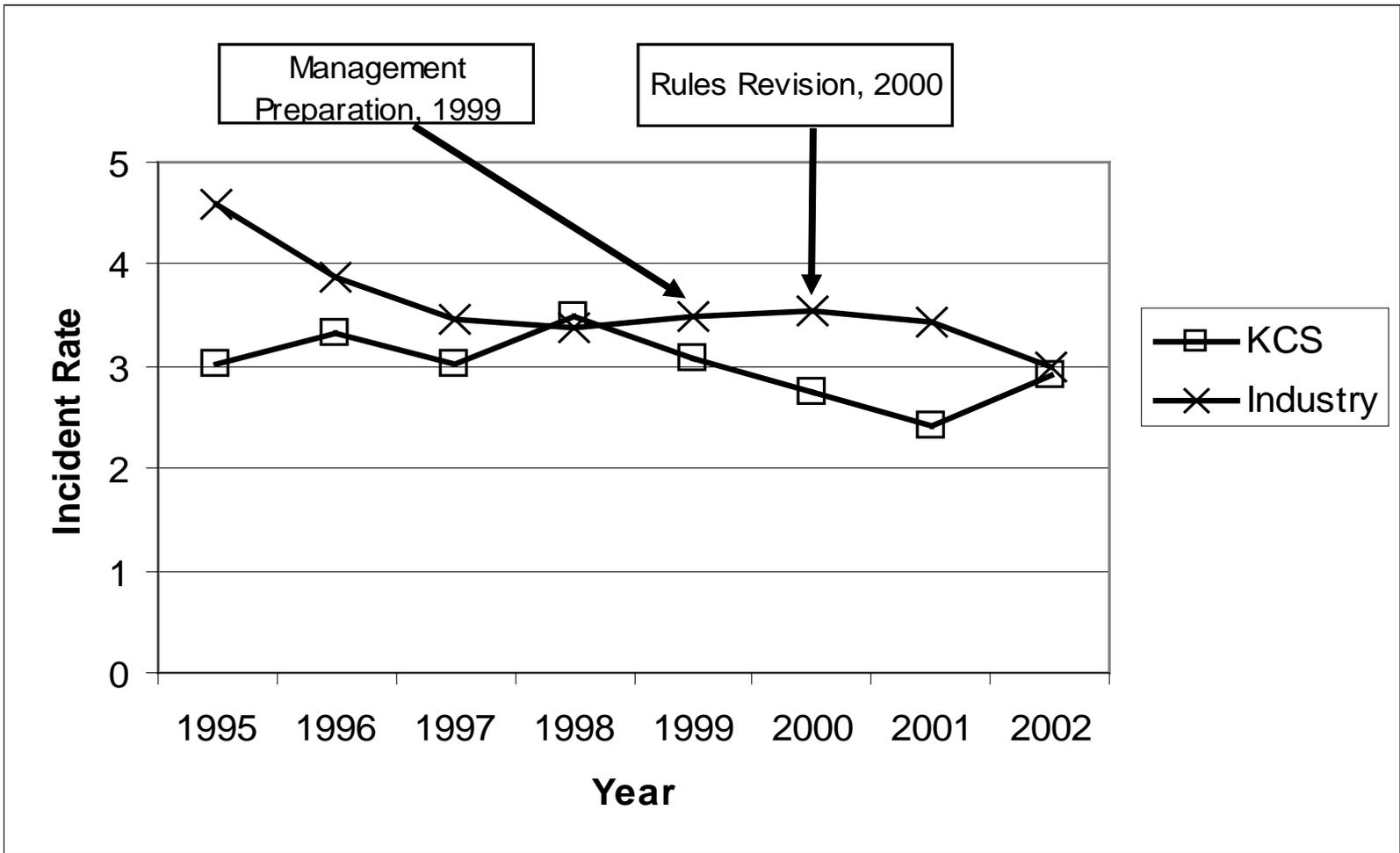
# Pilot Demonstrations of Safety Approaches

<b>Approach</b>	<b>Carriers</b>	<b>Start</b>
Participative Safety Rules Revision	ACBL, CSXT, KCS, CN-IC	1999
Investigation of Safety Related Occurrences Protocol (ISROP)	Canadian Pacific	2003
Clear Signal for Action (CSA)	Amtrak, Union Pacific	2001
Confidential Close Call Reporting System (C3RS)	Union Pacific, Canadian Pacific	2007

# Participative Safety Rules Revision – Overview

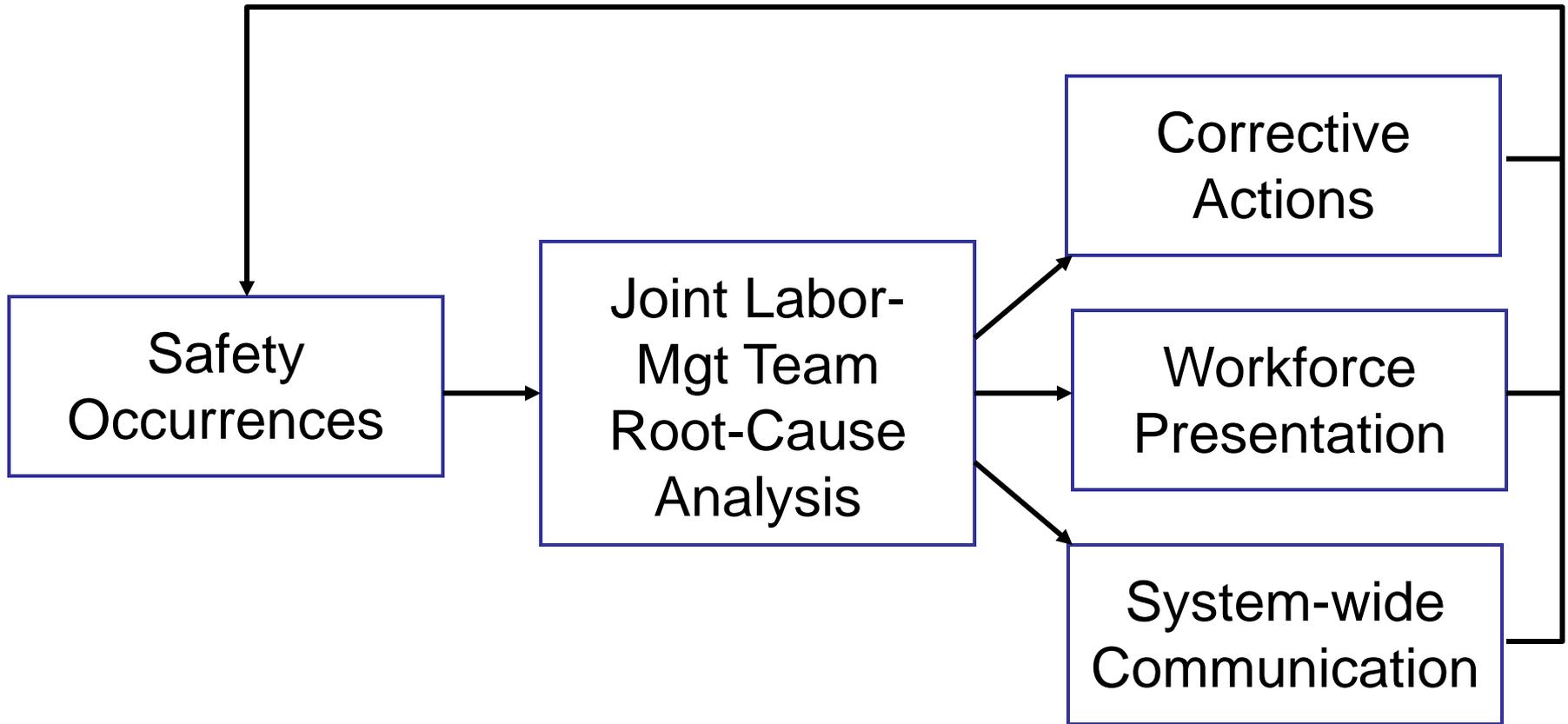


# Participative Safety Rules Revision – Significant Incident Rate Reduction at One Railroad



# ISROP – Overview

ISROP: Investigation of Safety Related Occurrences Protocol



# ISROP – Injuries Reduced as Substantial Numbers of ISROPs Accumulate

	Total Number of ISROPs	Correlation w/ Work between Injuries	Reduction of Injury Rate
Site 1	142	0.21 *	50%
Site 2	114	0.20 *	43%
Site 3	7	0.03	10%

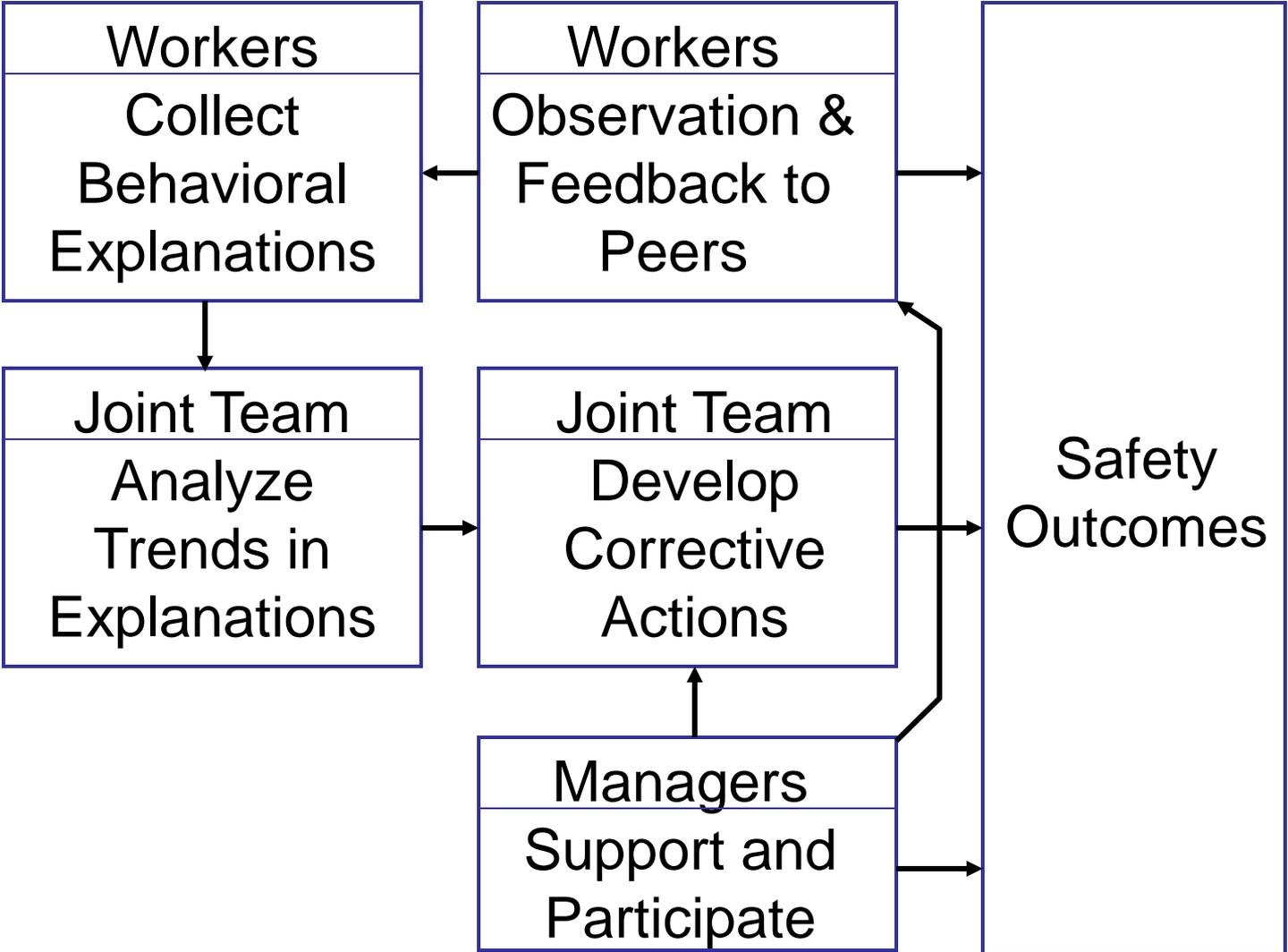
\* $p < 0.05$

# Clear Signal for Action (CSA) – Overview

**Behavior-based Safety**

**Continuous Improvement**

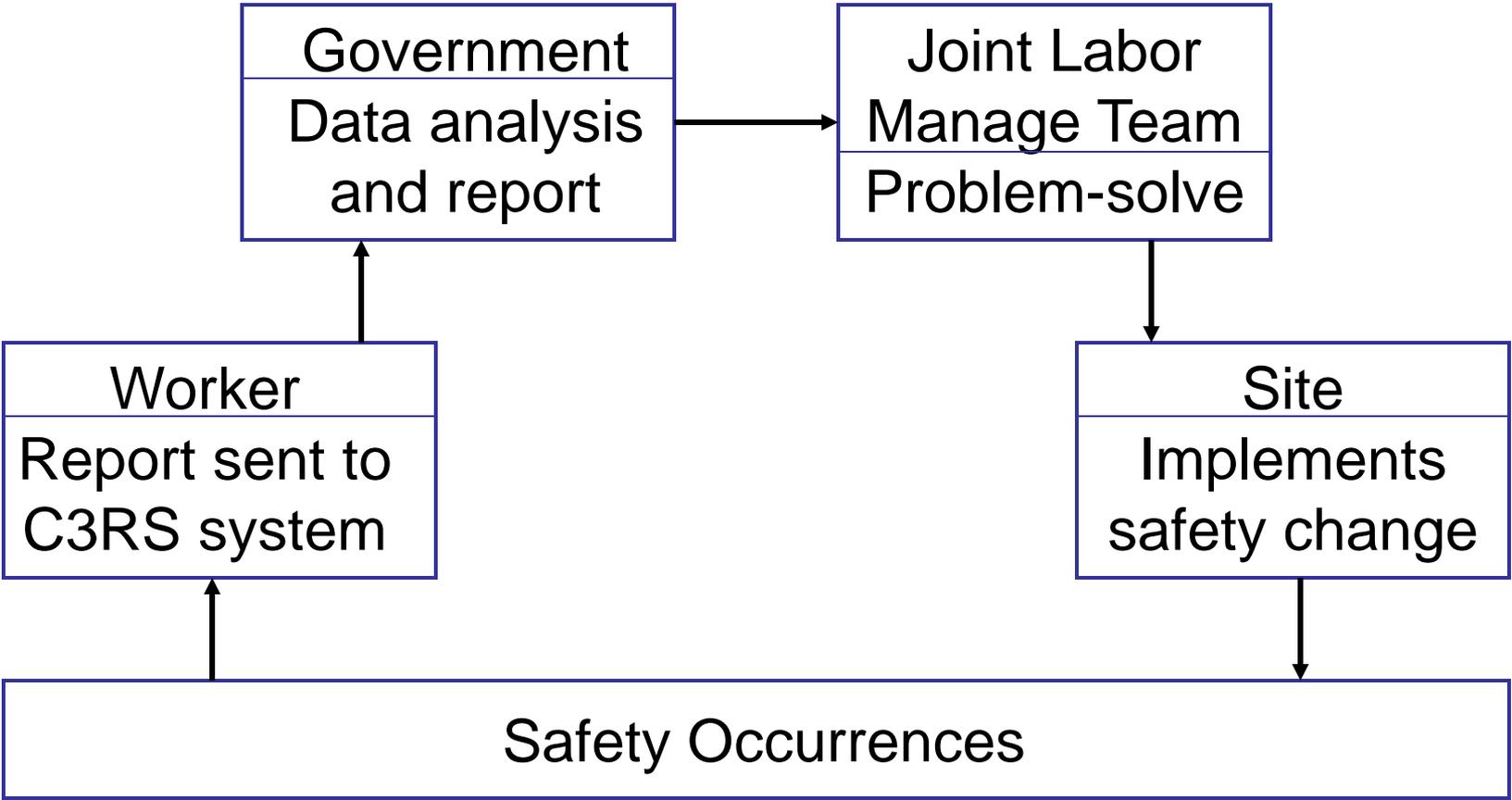
**Safety Leadership Development**



# Clear Signal for Action – Safety-related Events Cut to a Fraction of Prior Rates

<b>Site</b>	<b>Department</b>	<b>Outcomes</b>
Amtrak – Chicago	Station Services (High Supervision)	80% drop in injury rates
Union Pacific – Louisiana	Switching (Moderate Supervision)	62% drop in human-factors yard derailments
Union Pacific – San Antonio	Road (Low Supervision)	72% drop in locomotive engineer decertification rates

# Confidential Close Call Reporting System (C3RS) – Overview



# Safety Culture Going Forward

<b>Organization</b>	<b>Policy Changes</b>
FRA	RSA, 2008. New Risk Reduction division 6 new Risk Reduction pilots so far
Union Pacific	System-wide safety culture change
Toronto Transit	System-wide safety culture change
Amtrak	System-wide safety culture change Joining C3RS
Canadian Pacific	Re-committed to ISROP
New Jersey	Joining C3RS

# Next Steps for FRA R&D

- Complete cross-site evaluations
- Develop communications plan
- Disseminate evaluation results

# Acknowledgments

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CSX

Kansas City Southern

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and Trainmen

Transportation Communication Union

Canadian Auto Workers

Teamsters

Brotherhood of Railway Carmen

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