



National Energy
Board

Office national
de l'énergie

Management Systems & NEB Regulation

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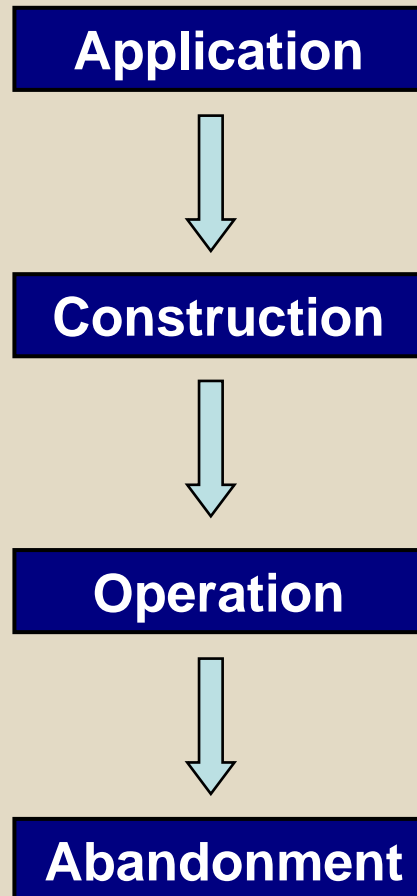
Canada

Role of NEB

“from Design to Abandonment”

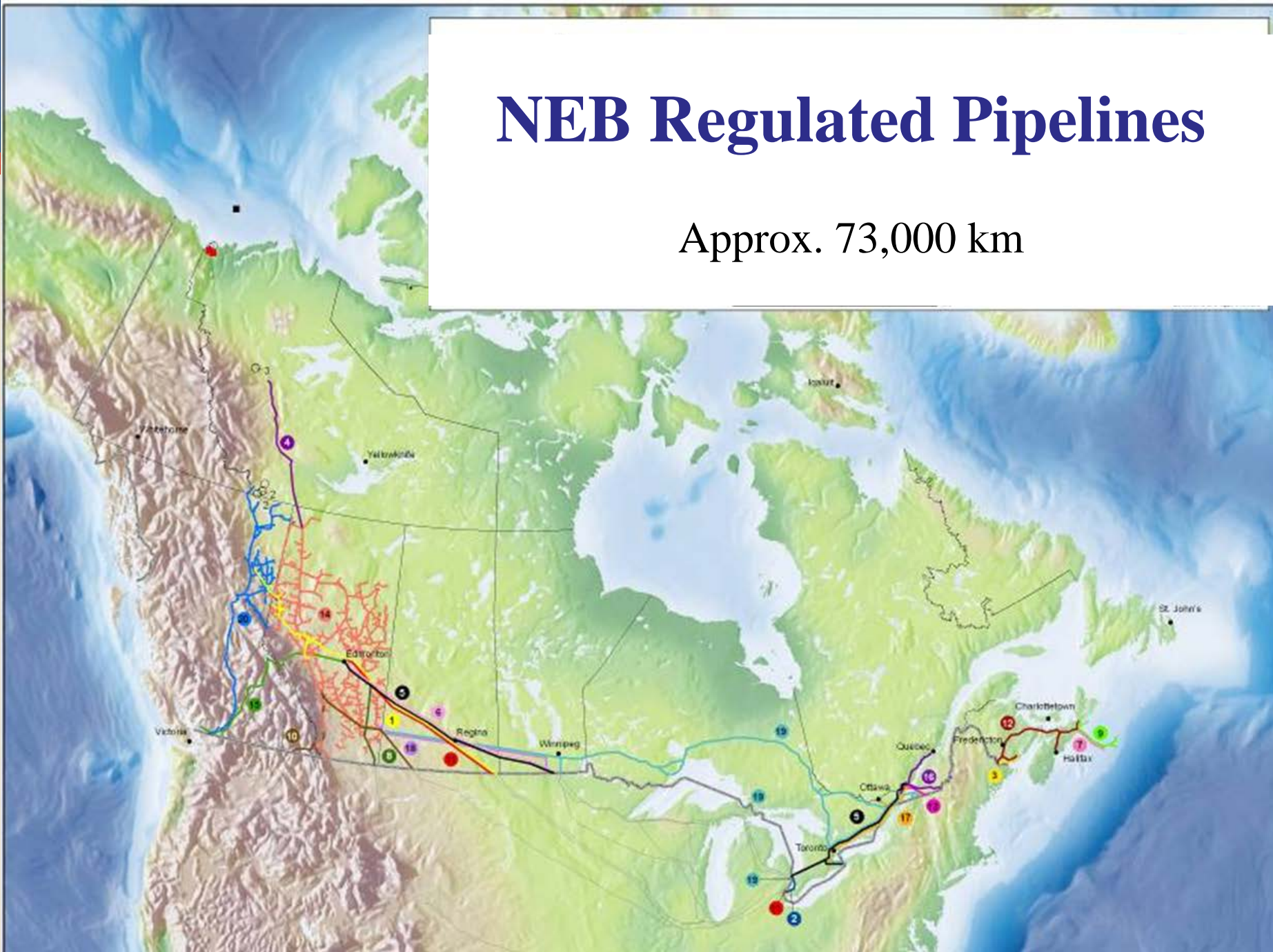
The NEB regulates:

- The construction and operation of
 - ❖ Inter-provincial and international pipelines
 - ❖ International and designated inter-provincial power lines
- Oil and gas exploration and production in Canada’s North and certain offshore areas
- The export and import of oil, gas, natural gas liquids, and electricity
- Pipeline traffic, tolls and tariffs



NEB Regulated Pipelines

Approx. 73,000 km



How the NEB Regulates

Acts, Regulations and Standards administered by the NEB for regulated pipeline companies

- *National Energy Board Act*
 - NEB Onshore Pipeline Regulations
 - NEB Pipeline Crossing Regulations, Part I and Part II
 - NEB Processing Plant Regulations

- *Canada Labour Code*
 - Occupational Health and Safety Regulations

- CSA Z662 – Oil and Gas Pipeline Systems



How the NEB Regulates

NEB Approach to the Design of Regulation



Management Systems in Regulation

- Most effective and advanced solution to manage risk in complex industries such as oil and gas
- Accomplished through various elements, including:
 - leadership commitment
 - communication with personnel at all levels
 - comprehensive identification of hazards
 - risk assessments
 - proactive reporting of near-misses and incidents
 - continual improvement



Minimize Risk by Using Deming's Cycle of Continual Improvement



Evolution of Safety in Major Hazard Industries

Blame the worker
FIRE THEM!

Understand
human
capabilities and
limitations.
**CREATE
SAFETY DEPTs.**

Still the workers.
**CAN'T FIRE
THEM ALL –
SUPERVISE
THEM.**



The Evolution Continued...

Understand that the organization sets the stage for human error.

SEEK ORGANIZATIONAL FACTORS THAT CREATE RISK.

Understand the cultural influences that affect organizational priorities and decision-making.

THE JOURNEY CONTINUES....

Understand that organizational risks are systemic.

IMPLEMENT MANAGEMENT SYSTEMS TO MINIMIZE POTENTIAL RISKS



Organizational Accidents

- Rare
- Widespread consequences
- Multiple causes
- Judgment and decisions
- Long “history”



The Evidence...

- *Ocean Ranger (1982)*
- *Chernobyl (1986)*
- *Piper Alpha (1988)*
- *Westray (1992)*
- *Longford (1998)*
- *Columbia (2003)*
- *Texas City (2005)*
- *Deepwater Horizon (2010)*



Accident	Management System Comparison			
	Policy and Commitment	Planning		
		Hazards identification	Risk Assessments	Control
Ocean Ranger	👍	X	X	👍
Chernobyl	👍	X	X	X
Piper Alpha	👍	👍	X	X
Westray	👍	X	X	X
Longford	👍	X	X	X
Columbia	👍	👍	X	👍
Texas City	👍	X	👍	X
Deepwater Horizon - Macondo	👍	X	X	X



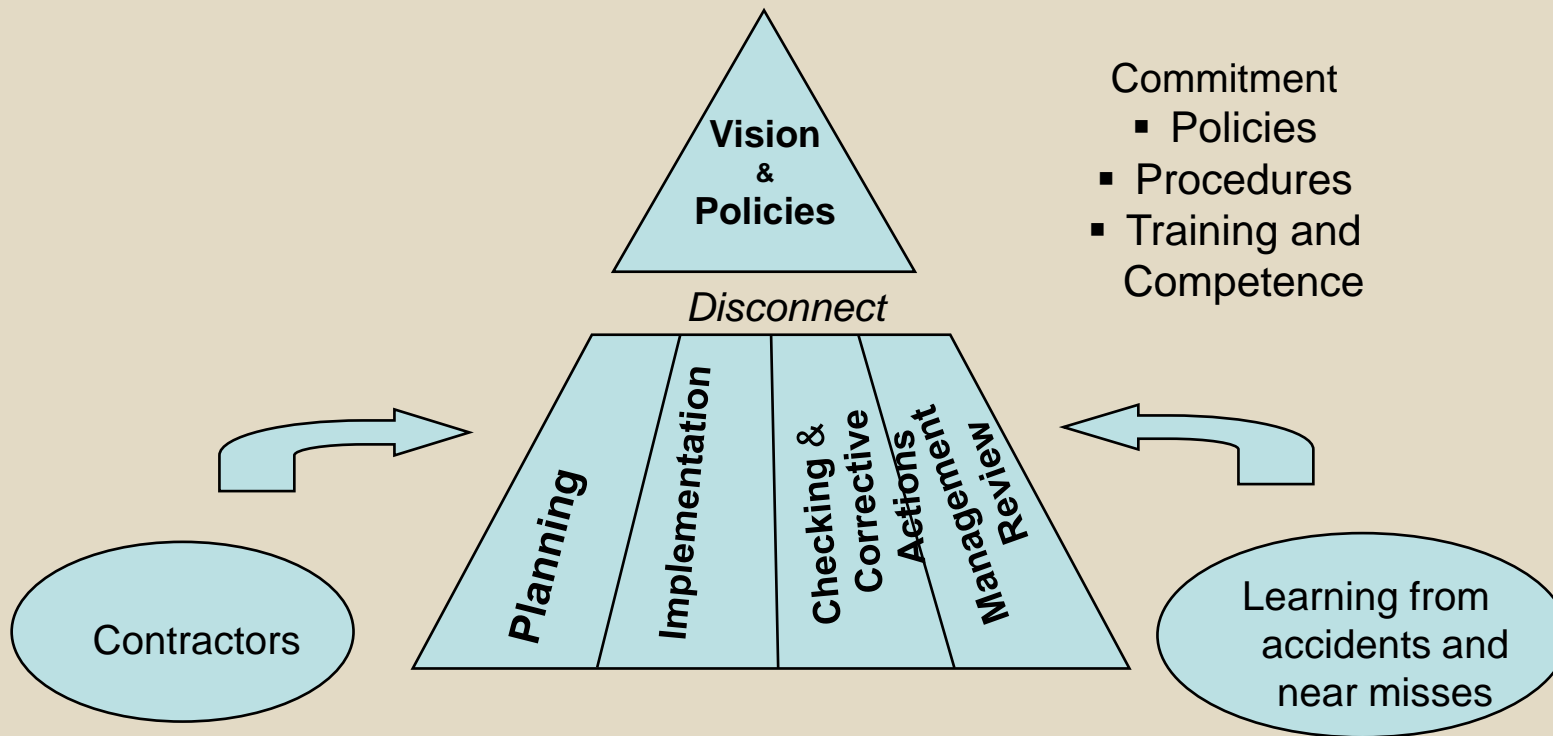
Accident	Management System Comparison						
	Implementation						
	Org. Structures	Roles and Resp.	Mgt. of Change	Training	Communication	Document. & Doc. Control	Op. Contr.
Ocean Ranger	👍	👍	Not addressed	X	X	X	X
Chernobyl	👍	👍	Not addressed	X	X	X	X
Piper Alpha	X	X	X	X	X	X	X
Westray	X	X	X	X	X	X	X
Longford	X	X	X	X	X	X	X
Columbia	👍	X	X	👍	X	X	X
Texas City	X	👍	X	X	X	X	X
Deepwater Horizon - Macondo	Not addressed	X	X	X	X	X	X



Accident	Management System Comparison				
	Checking and Corrective Actions				Management Review
	Inspection; Measurement & Monitoring	Corrective & Preventive Actions	Record Management	Internal Audit	
Ocean Ranger	X	X	X	Not addressed	X
Chernobyl	X	X	X	X	X
Piper Alpha	X	X	X	X	X
Westray	X	X	X	Not addressed	X
Longford	X	X	X	X	X
Columbia	X	X	X	👍	X
Texas City	X	X	X	X	X
Deepwater Horizon - Macondo	Not addressed	X	Not addressed	Not addressed	Not addressed



Lessons Learned



Management Systems in NEB Regulations

Under the *Canada Oil and Gas Operations Act (COGOA)*

- **Drilling and Production Regulations**
- Promulgated in 2009
 - Consolidation of several regulations
 - Performance-based and technical requirements
- Regulations require operators applying for authorization for oil and gas drilling and production activities to have:
 - a management system in order to apply for an authorization
 - a safety plan and an environmental protection plan that reference the management system and demonstrate how it will be applied to the proposed work or activity



Management Systems in NEB Regulations

Under the *National Energy Board Act (NEBA)*

- **Onshore Pipeline Regulations, 1999 (OPR-99)**
- Regulations for certificate holders
- 1999: removal of many prescriptive requirements; shift to goal oriented, with reference to standards
- Includes outcome based provisions for safety, integrity and environmental protection programs
- Guidance Notes include details on management system elements for these programs
 - <http://www.neb-one.gc.ca/clf-nsi/rpblctn/ctsndrgltn/rrggngmpnb/nshrppln/gdncntsftrthnshrpplnrgltn-eng.html>
- CSA Z662 - Oil and Gas Pipeline Systems
 - Incorporated by reference in the OPR
 - Requirement for Safety and Loss Management System, with non-mandatory guidance in Annex A



Regulatory Development – Challenges

- Clarity: regulations require clear articulation of management system requirements
 - Jan 2011: NEB issued Proposed Regulatory Change re Management Systems, for public comment
 - July 2011: NEB issued Proposed Regulatory Change re Management Systems, with guidance
 - https://www.neb-one.gc.ca/l-eng/livelink.exe/fetch/2000/90463/662438/704897/A2A9K0_-_Letter.pdf?nodeid=704898&vernum=0



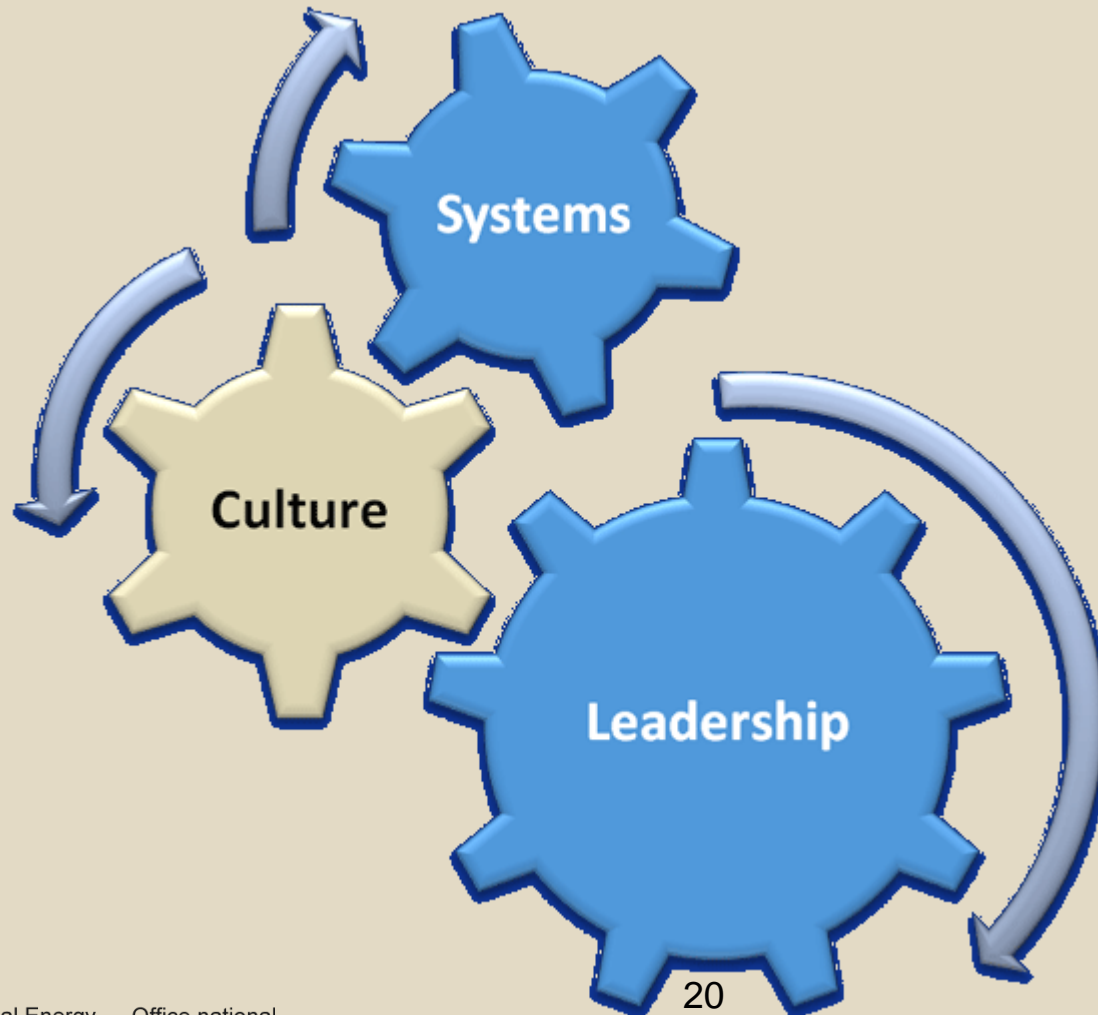
Regulatory Development – OPR Amendments

NEB Onshore Pipeline Regulation, 2013

- Contains full spectrum of Plan – Do – Check – Act processes
- Tailored to NEB mandate for pipeline regulation
- Ensures linkage between a company's policies and their planning, implementation, monitoring and review
- Applies to all OPR program areas: integrity, safety, security, environmental protection, emergency management
- Includes safety culture provisions:
 - Accountable officer, responsible for the management system
 - Annual report on performance of the management system
 - Policy and process for internal reporting of hazards



How it all works together



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Safety Culture - Background

Joint North America Regulators meeting identified shared interest in:

- 1) Building a shared understanding of the term *safety culture* among regulators and regulated companies;
- 2) Articulating clear regulatory expectations as they relate to safety culture; and
- 3) Collaborating on the development of reference and resource material for industry in order to provide clarity and consistency in terminology, and safety culture dimensions and attributes.



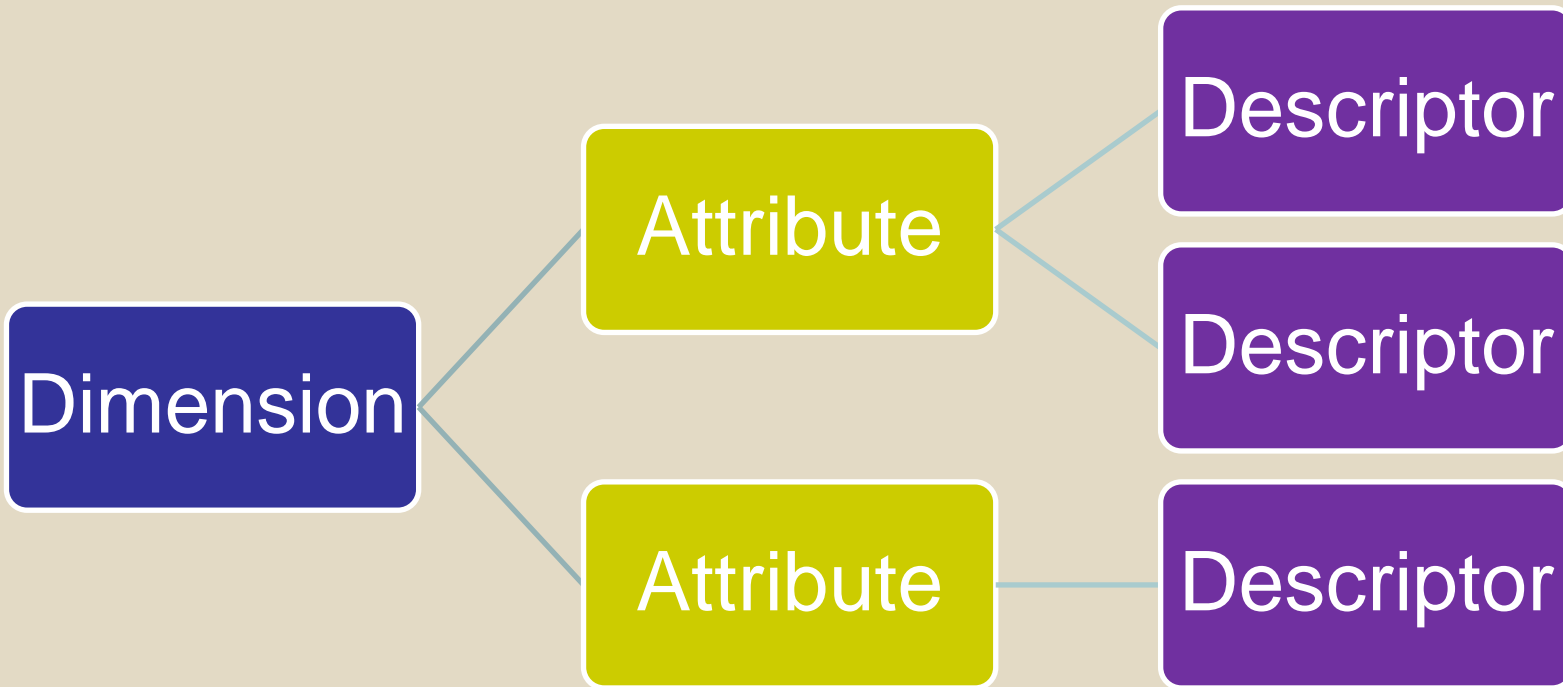
Safety Culture – Draft Definition

*Safety culture means “the attitudes, values, norms and beliefs, which a particular group of people shares with respect to risk and safety”.**

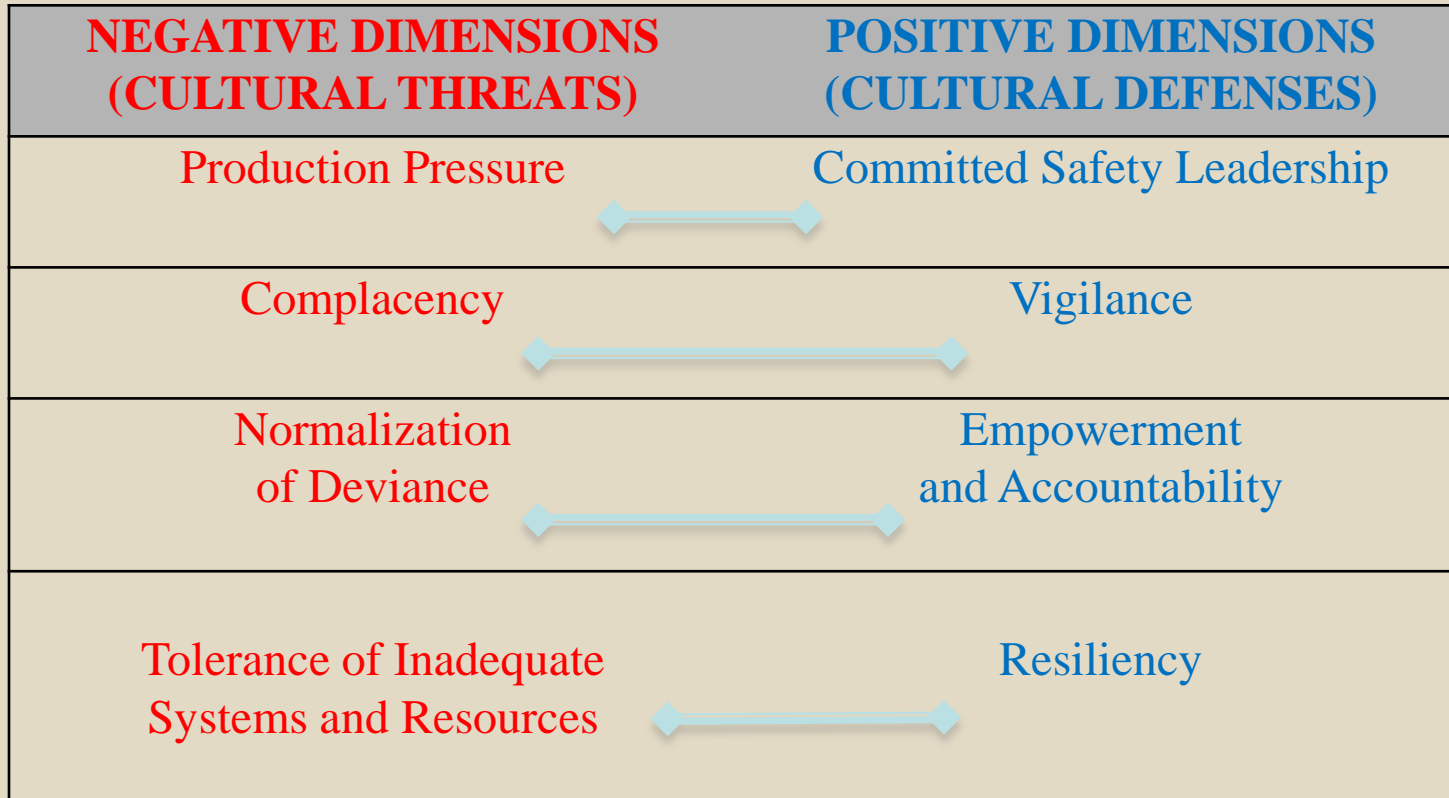
* Mearns, K., Flin, R., Gordon, R. & Fleming, M. (1998). Measuring safety culture in the offshore oil industry. *Work and Stress*, 12(3), 238-254. “Safety” includes safety of workers and the public, process safety, operational safety, facility integrity, security and environmental protection.

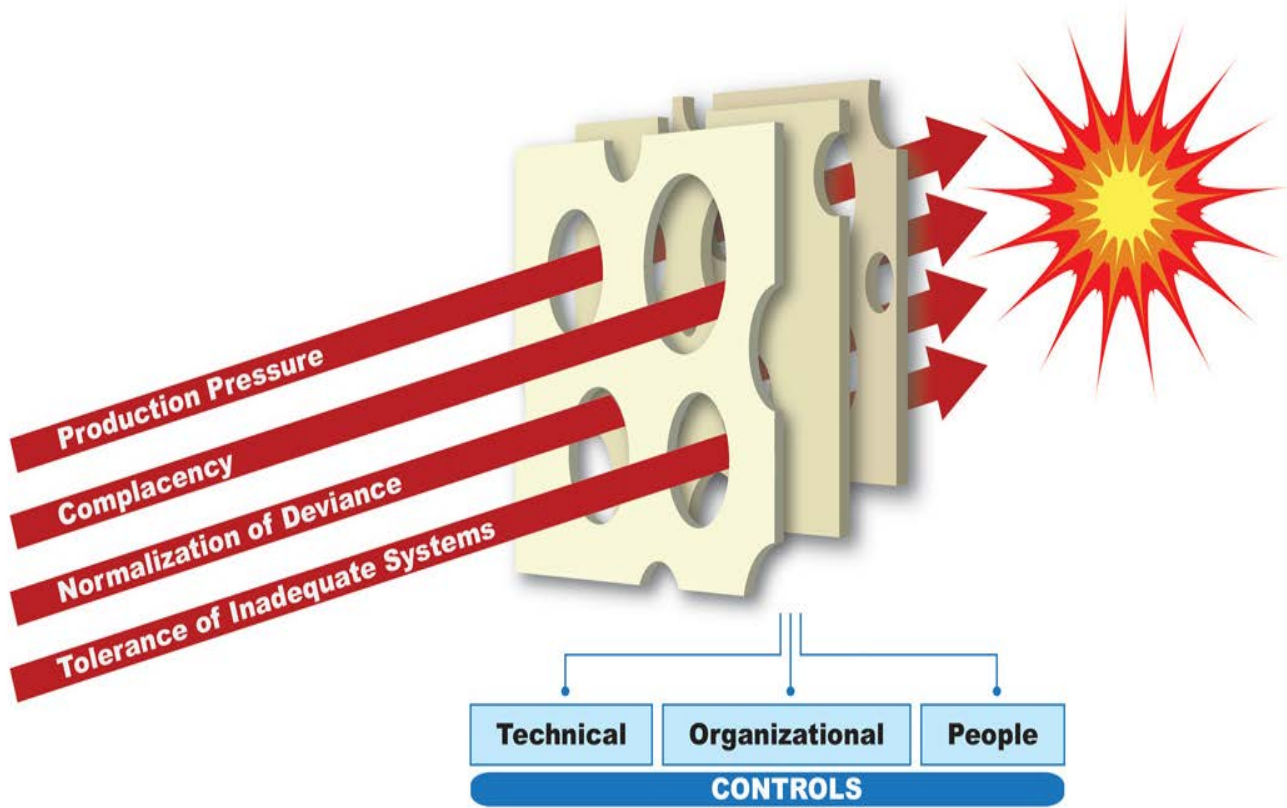


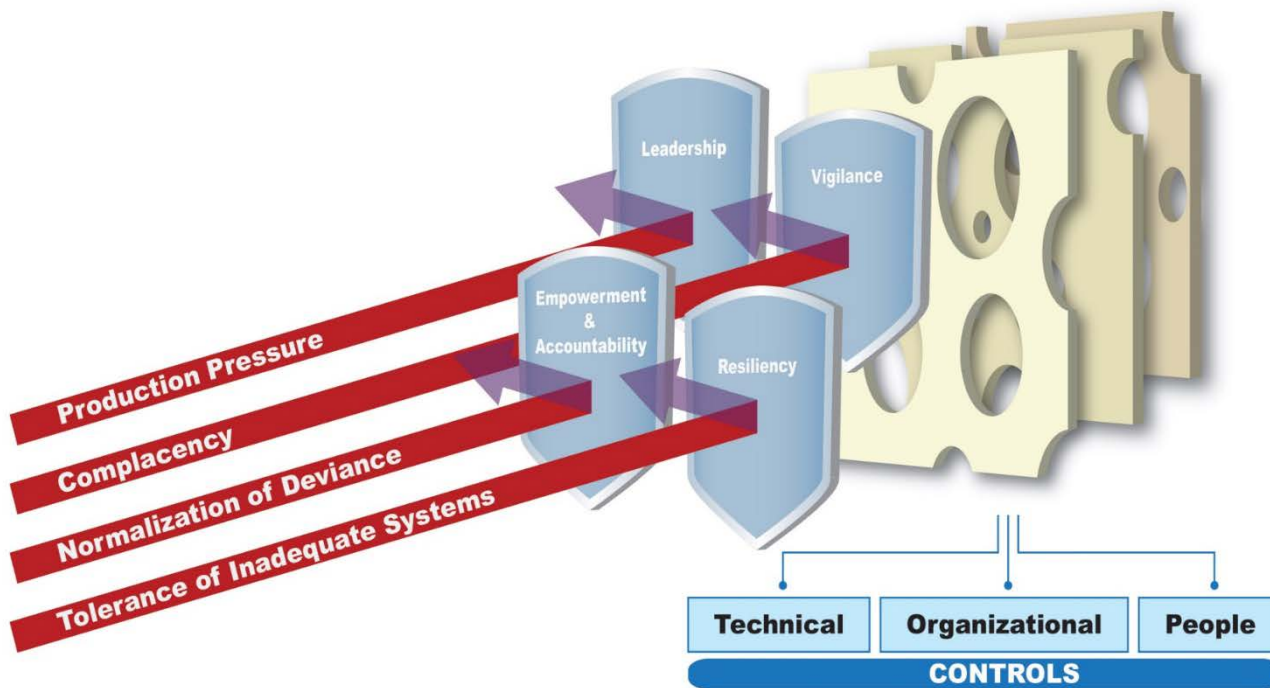
Developing the Framework



The Framework







Next Steps

- Consultation period concluded on 30 January 2014
- Consideration of comments and feedback received
- Following approval by the Board, a final version will be publicly released for information and awareness
- Additional tools will be developed based upon the final framework to support safety culture awareness and advancement
- In future, public reporting on outcomes and trends related to safety culture



