Safety Culture: A framework for improvement

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Workshop program

- Introduction and overview
- Culture and safety
- Safety culture dimensions
- Cultural maturity models
- Systems approach to safety culture
 - Vision
 - Responsibilities
 - Assessment
 - Audit
 - Review and refine
- Leadership and safety culture improvement



Timetable

- ▶ 8:30 Part I: Safety culture explained
 - Safety culture theory
- ▶ 9:00 Part 2: Safety culture models
 - Review of common frameworks
 - How safety culture impacts performance
- ▶ 9:45 Part 3: Integrated approach to safety culture
 - Systems approach to safety culture
 - Safety culture assessment
- ▶ 11:00 Part 4: Leadership
 - How leaders drive improvement
 - Workshop review
- ▶ 12:30 Workshop close



Aims and objectives

By the end of the workshop you should understand:

- the relationship between culture and safety
- the dimensions of a positive safety culture
- how to use safety culture assessment tools to drive improvement
- how the results can be used to drive improvement



Survey responses

- Learn about strategies to improve safety culture
- Increase knowledge of assessment practices, methods and tools
- Know what a good (mature) culture looks like
- Learn about leadership and safety culture
- Increase understanding about culture
- Learn from and share views with industry colleagues



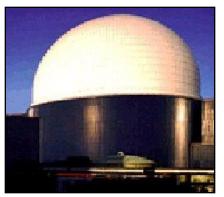
Cross industry experience





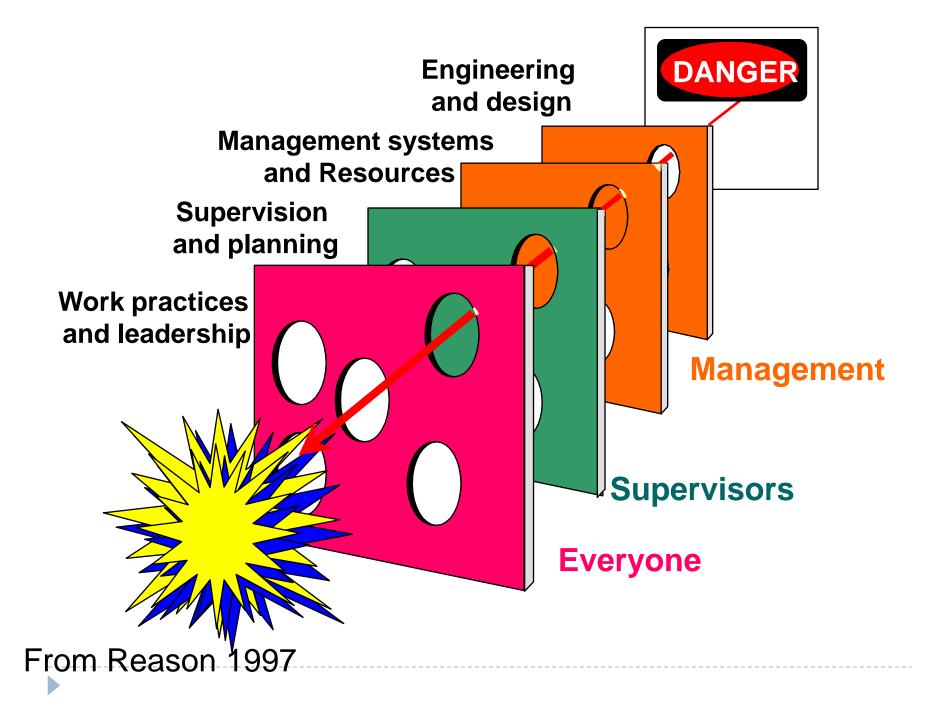












Part I: Safety culture explained

Ubiquitous cause of negative events

Coast Guard slams exploded Gulf rig's owner for 'poor safety culture'

A recent consultant's report found that the city's injury rate for the culture last few years is three times ... I suspect that a poor safety culture is to blame

Hospital's poor safety blamed for deaths of stomach patients

Government panel blasts lack of 'safety culture' in nuclear accident

LACK of a "health and safety" culture at Macclesfield Borough Council and an outdated water system at the Leisure Centre have been blamed

Report on Fatal Plane Crash Blames Safety Culture ... The report points to the airline's **poor safety** culture as responsible for many of the failures.



Why focus on culture?

- Safety management system not effective unless accompanied by a "good" safety culture
- Wish to stay alert to potential risk factors that increase the risk of a major disaster
- Pro-active approach involving self-assessment and feedback of less visible elements of safety management system
- Desire to win "hearts and minds" to improve safety
- Alternative, leading safety performance indicator



Safety Culture Definition

"Safety culture is the product of individual and group values, attitudes, competencies and patterns of behaviour that determine the commitment to, and the style and proficiency of an organization's health and safety programmes."

(Advisory Committee for Safety in Nuclear Installations, 1993; p. 23)



Regulator definitions

IRF Member	Definition
NOPSEMA	The shared basic assumptions, held by most members of an organisation, which create and reinforce group norms of thoughts, language and behaviour in relation to major accident event prevention.
C-NLOPB	Safety culture is defined as the attitudes, values, norms and beliefs which a particular group of people share with respect to risk and safety
PSA	A culture can be defined as the knowledge, values, norms, ideas and attitudes which characterise a group of people. A sound HSE culture can be observed in an enterprise which facilitates continuous, critical and thorough efforts to improve health, safety and the environment.
BSEE	The BSEE defines safety culture as the core values and behaviors resulting from a collective commitment by leaders and individuals to emphasize safety, over competing goals, to ensure protection of people and the environment.



Survey results

- Wide range of definitions proposed so categorized into four groups:
 - Behavioral outcome: The way we do things around here
 - Description of positive culture: A culture in which safety is a top priority and ingrained in every aspect of the company
 - Values and attitudes: The shared values and beliefs that drive decisions and behavior
 - Literature: e.g. ASCINI or Uttal

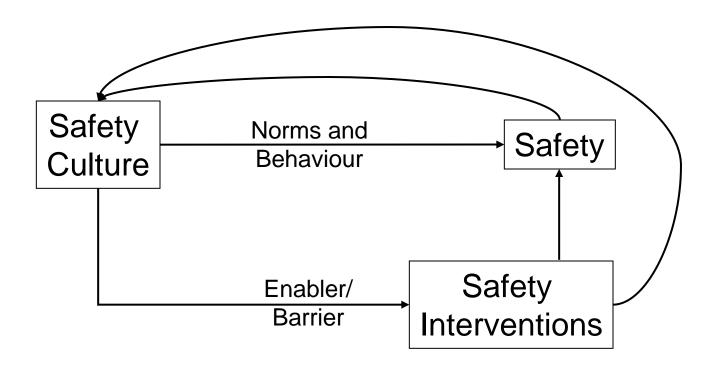


Attributes of good definition

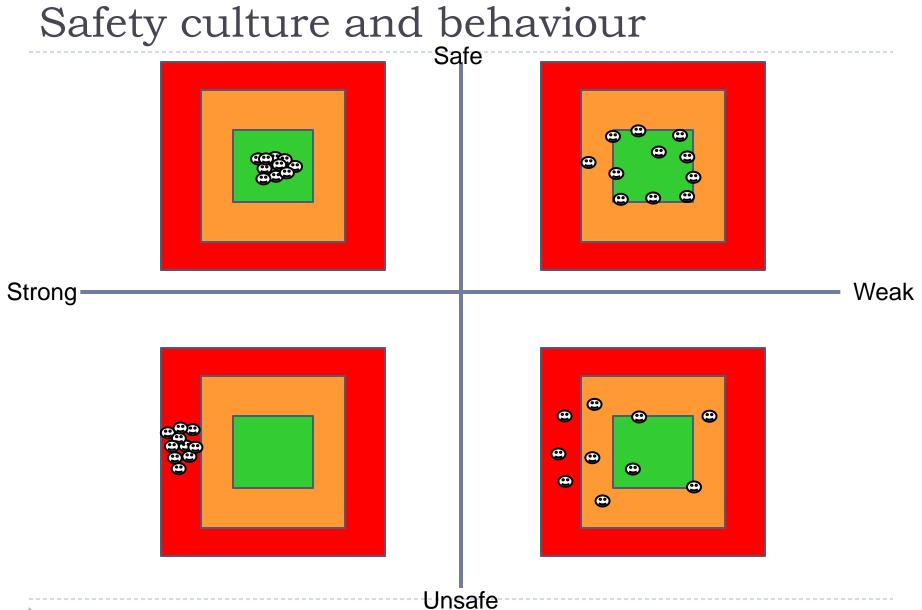
- Joyce (1916) argues identified four rules of definition. A definition should:
 - be adequate to the concept, therefore not too narrow or too wide, (i.e. should include all aspects of the concept and distinguish it from other concepts)
 - 2. not be obscure or confusing
 - 3. not be circular
 - 4. not be negative if possible



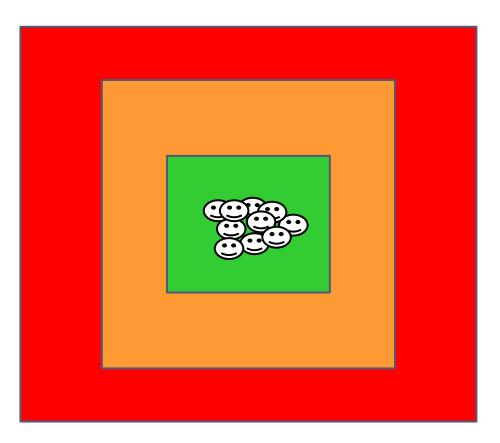
Culture and Safety





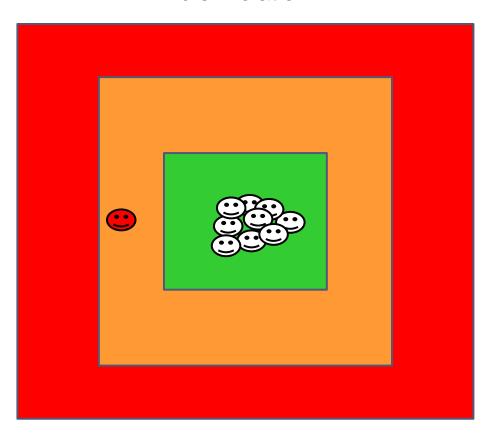


Safe Norm



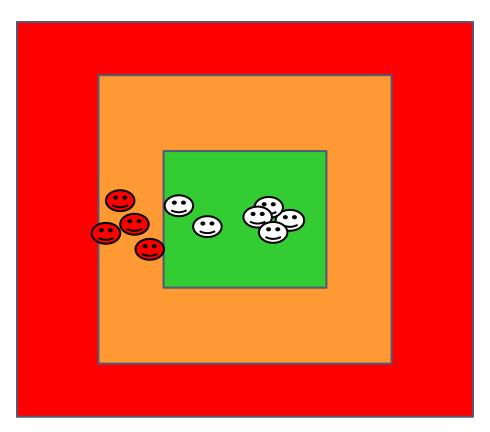


Rule Violation



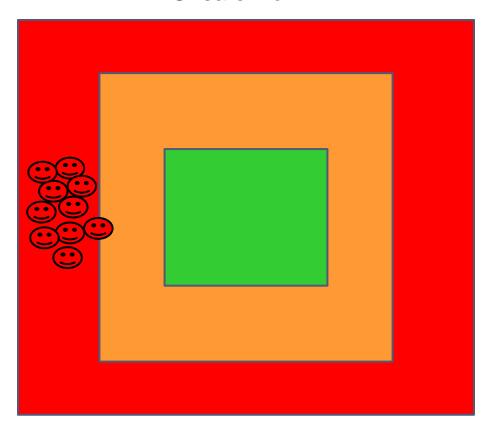


Violation contagion



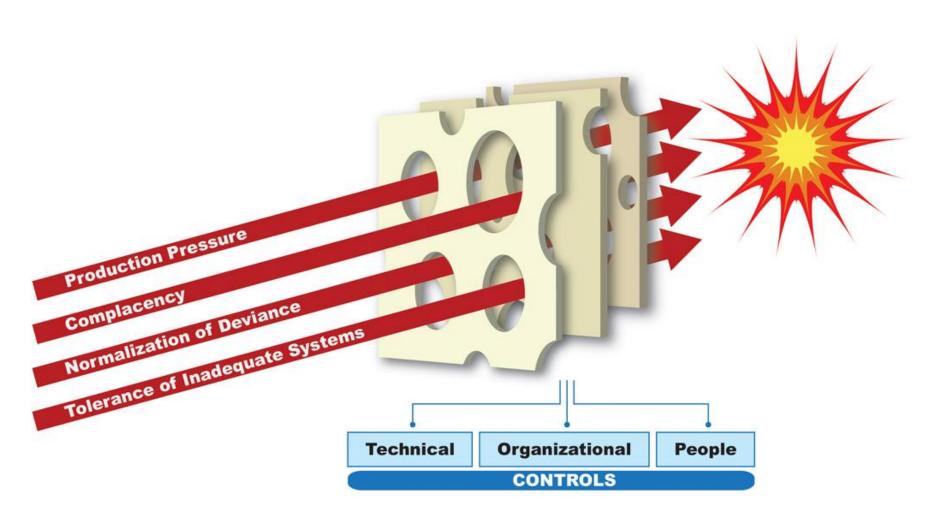


Unsafe Norm





Safety culture threats



Graphic courtesy of the NEB

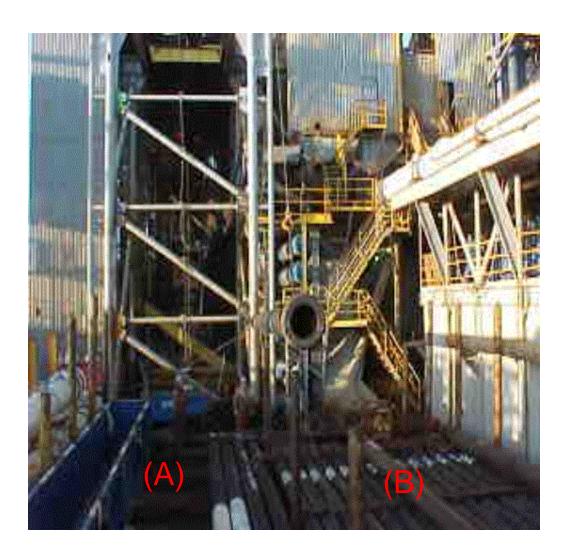
Pipe Handling Fatality

Operations

- The rig was running 13 3/8" casing
- The man that died was slinging casing on the pipedeck, ready for lifting to the elevated catwalk. (The drill crew handle the casing from there).
- •The lifting slings were incorrectly installed on the pipe. Single wrapped slings were used instead of a double wrapped sling which should have been used.
- When the joint had been picked up by the crane, one of the slings slipped along the joint from one end to the other.
- The joint moved down and swung outwards
- It hit the pipedeck, deck, bounced and then hit the man.
- The incident happened at midday. He was taken to hospital but died during the afternoon.



Handling Casing



(A) Casing is stored on the pipedeck

(B) Casing is rolled to this area and secured while lifting slings are installed



Slinging Casing



Single wrapped - incorrectly slung



Double wrapped - correctly slung



Handling Casing

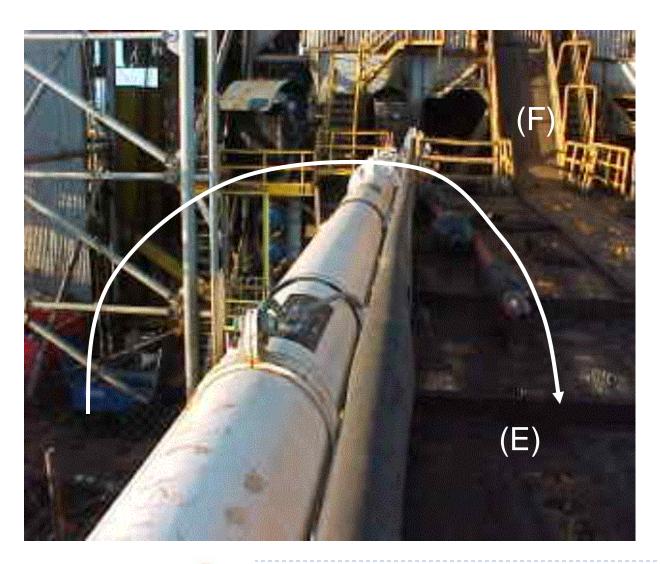


(C) Casing joint is lifted from the pipedeck to the catwalk area

(D) Shows a casing joint (with removable protector) being lifted in a similar manner



Handling Casing

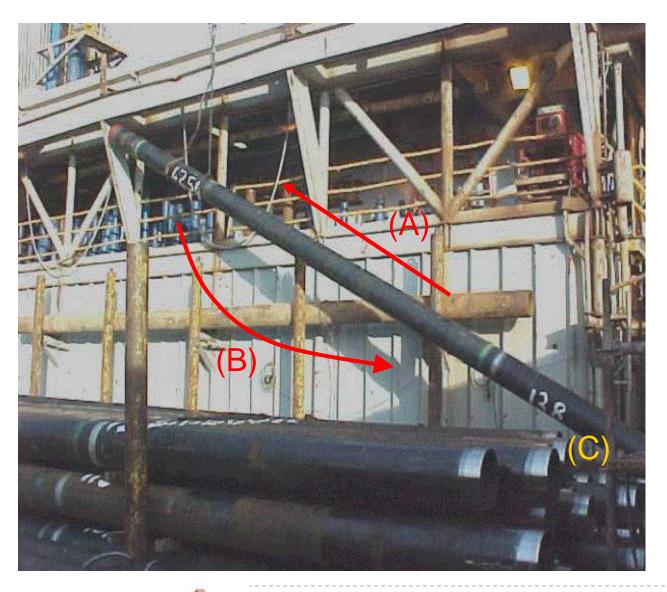


(E) Casing is landed on the catwalk and secured, slings are removed

(F) The drill crew handle the casing from here, taking it up the ramp to the drill floor



What Happened



- (A) The sling slipped up the pipe
- (B) The casing swung downwards and outwards. It hit the pipedeck and bounced

(C) It struck the man who was standing in this area



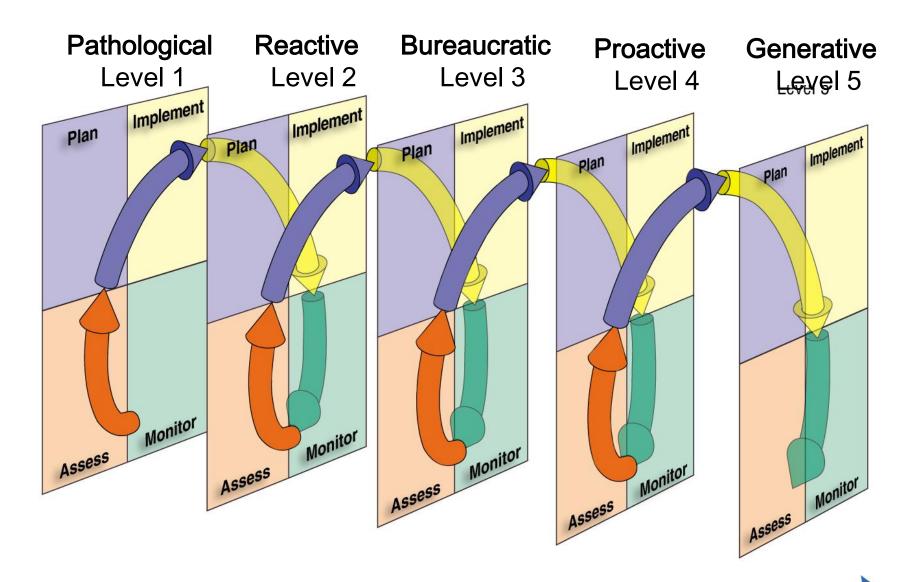
Part II: Safety Culture Models

Cultural typology

Westrum (1998) identified three types of cultures for dealing with information:

Pathological	Bureaucratic	Generative
Do not want to know	May not find out	Actively seek information
Messengers are shot	Listened to if they arrive	Messengers are trained
New ideas are actively crushed	New ideas present problems	New ideas are welcomed





IMPROVING SAFETY CULTURE



Cultural Maturity Elements

- Leadership
- Production pressures
- Training
- Trust levels
- Resources

- > Communication
- Organizational learning
- > Rules and procedures
- Supervisor involvement
- Workforce involvement



Low accident companies

- High level of communication
- Good organisational learning
- Strong focus on safety
- Senior management commitment
- Participative style of leadership
- Skills training emphasis safety aspects
- Good working conditions
- High job satisfaction
- Promotion / selection based on safety



Safety climate dimensions (Flin et al 2000)

- Level of Risk
- Safety systems
- Management/ Supervision commitment to safety
- Competence
- Work pressure



High Reliability Organizations

- Attentive to frontline employee concerns
- Seek to develop deep understanding of issues
- Encourage employees to report error
- Preoccupation with failure (investigate all lapses);
- Decentralized decision making to those with most expertise



Reason's model of culture

Positive

- Informed
- Reporting
- Just
- Learning
- Flexible

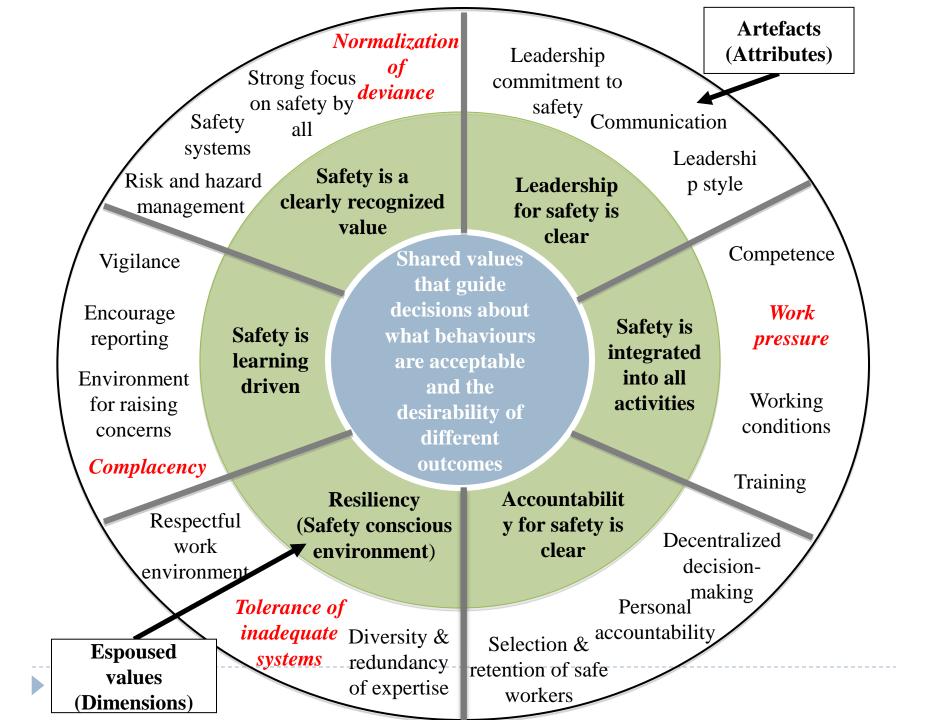
Negative

- Normalization of deviance
- Complacency
- Tolerance of inadequate systems



IAEA five characteristics of a strong safety culture





Safety culture and disasters

- Reviewed 17 offshore disasters to identify cultural causal factors
- 14 disasters contained cultural causes
 - Tolerance of inadequate systems and resources (identified 10 times)
 - Normalization of deviance, (identified 9 times)
 - Complacency, (identified 8 times)
 - Work pressure/ cost (identified 4 times)



Safety culture and injury rates

- Safety culture questionnaire responses have been linked with accident rates in the following industries:
 - Nuclear power (Lee, 1998)
 - Offshore oil (Mearns, Flin, Fleming & Gordon 1997)
 - Road construction (Niskanen, 1994)
 - Chemical industry, (Donald & Canter, 1994)
 - Manufacturing, (Brown & Holmes 1986), (Zohar, 2000)



Part III:

Integrated Approach to Safety Culture

Systems approach





Safety culture improvement system



Safety culture vision

- Similar to general health and safety policy
- States the desire to continuously strive to improve the safety culture in pursuit of perfection
- May include a definition of a positive (ideal) safety culture



Responsibilities

- Defines responsibility and accountability for key groups in creating and maintaining a positive safety culture
 - Managers
 - Supervisors
 - Contractor management
 - Non managerial staff
- Presents a safety culture framework



Plans and actions

- Review current practices (e.g. using safety culture planning tool)
- Sets short and long term safety culture improvement objectives
- Specifies processes to promote a positive safety culture
- Links with other aspects of the SMS (e.g. training, incident reporting)



Creating plans and strategies

- Change management systems to support the desired culture
- For example perceived management commitment can be improved by:
 - Providing managers with the skills to be effective safety leaders
 - Motivating managers to change by monitoring performance (leading indicators)
 - Rewarding effective performance



Safety culture planning tool (SCPT)

- SCPT developed to enable organisations to identify safety culture improvement strategies
- Based on extensive literature review and practice
- Rational for SCPT:
 - Employee perceptions are based in reality
 i.e. perceptions of management commitment reflect their interactions with managers
 - Organisations with different cultures have different practices
 - Safety culture improvement involves system change e.g. perceptions of management commitment is improved through training and evaluating leadership practices



Sample: Commitment to safety

Managers Visiting the Worksite	Select level
Managers do not visit worksite to specifically discuss safety	0
Managers visit worksite regularly to discuss safety as specified by a formal policy/ program (e.g. STOP)	1
There is a formal manager worksite visit program that specifies the number of visits to be conducted by each manager and tracks completion.	2
There is a comprehensive program that specifies how to perform a worksite visit, trains managers how to conduct a visit, evaluates managers to ensure they are competent and tracks frequency of visits and close out of actions.	3
There is a comprehensive program described above plus the quality of the managers' visits is evaluated by workers and anonymous feedback is provided.	4



Sample: Supervisor Training

Front line Supervisor Safety Training	Select level
Supervisors do not receive health and safety training	0
Supervisor safety training is limited to informing supervisors about their responsibilities as specified by legislation and safety program	1
Supervisors are offered fundamentals of safety course (which covers more than just system or legal responsibilities).	2
Supervisors are trained to be effective safety leaders, through skill based training and development (course must include leadership practice e.g. role play or leadership demonstration based on real life scenario by senior leader)	3
Supervisor safety leadership training and development tailored to individual needs, as identified through 360 degree evaluation. Ongoing coaching is provided Training varies between supervisors based on individually identified needs	4



How to use SCPT

- Self assessment of systems supporting the safety culture
 - Completed by safety department to assist in annual planning
 - Completed by senior management team to form basis for improvement workshop
 - Self assessment



Assessment

- Episodic (biannual)
 - Multi method safety culture assessment (e.g. questionnaire, interviews, document review)
- Continuous
 - Safety culture metrics
 - Capturing the markers left by safety culture on daily operations (e.g. the quality of safety reports)



Episodic assessment

- Perceptual indicators
 - Questionnaire
 - Workshops
- Organisational level indicators
 - Safety culture audit
 - > Self assessment by senior administrator responsible
 - Independent audit via document analysis, interview and observation



Safety climate questionnaires

- UK HSE
 - Health and Safety Climate Survey Tool (71 items)
- Multi-level Safety Climate Survey
 - > 34 items (Zohar & Luria, 2005)
- Safety Management Questionnaire
 - ▶ 38 items (Fleming, 2000)
- ► IAEA Safety Culture Perception survey



Cultural Maturity

- Safety culture development is broken down into five stages or levels of maturity, from poor to good
- A number of similar models currently in use (e.g. Hearts and Minds, Shell)
- Once the level has been established sites identify the actions required to move to the next level



Safety culture workshops

- Organize workshops with a cross section of the workforce
 - Give presentation about safety culture and purpose of the session
 - Conduct card sorting exercise (optional)
 - Get them to record their selections
 - Record group results



Safety Culture Perceptions Profile

	LED	SCV	PP	WFI	COM
*					
^					
•					
•					
•					



Safety Culture Perceptions Profile

	LED	SCV	PP	WFI	COM
*		//		1	///
^	///	/////	1	///////	////
•	////	///	//////	1	1
•	//		//		1
•					



Safety Culture Workshop (cont)

- Workshops (cont)
 - Describe current situation
 - Discussion of level of culture maturity
 - Identify actions to improve level of maturity
- Collate data
- Analyse results
- Develop action plan
- Feedback to workforce



Assessing safety culture via indicators

- Indirect 'assessment' of safety culture by determining the presence of systems that promote a positive culture
- Systematically determine the presence or absence of processes to promote a positive safety culture
 - Use a valid safety culture framework (e.g. IAEA)
 - Review documents and interview key informants
- Systematically seek evidence of the outcomes of a positive safety culture
 - Review documents (e.g. safety reports)
 - Observe meetings
 - Interview managers and employees



Continuous assessment

Safety culture metrics

- Continuous safety culture improvement indicator
- Tracks the output of safety culture
- Provides a simple indication of change over time
- Focuses on the key aspects of safety culture



Metrics assess 4 dimensions

- Leadership commitment to safety
 - Words, actions and decisions
- Employee empowerment and accountability
 - Active engagement of employees
- Resiliency
 - Capacity to manage risk and change
- Vigilance
 - Learning from events, encourage reporting



Sample metrics

	Dimension	Metric criteria	Metric data collection	Rating			
Number				Dis- improvement	No change	Improvement	Metric score
ı	Leadership	integration of safety discussion in operational meetings is a reflection of leader priority for safety. Ideally safety will be	Review minutes/ notes/ action items from daily operational meetings. Select 10 meetings at random and review the minutes or notes and compare to previous reporting period.	Less discussion of safety	No change	More integrated discussion of safety	
	Presence of sa	fety in daily meetings		-1			-1.00
9	and	reflection of employee commitment to safety. The higher the degree of compliance the	Review records of management inspections and count the number of observed procedural noncompliance during the reporting period and compare to previous reporting period.	Less compliance (greater number of observed non compliance)	No change	Increased compliance (fewer observations of non compliance)	
	Compliance w	ith rules and procedures			0		0.00



Summary statistics

Tota
Leadership
Empowerment and
accountability
Resiliency
Vigilance

	Total dis-improved	Total no change	Total improved	Average
al	7	9	4	-0.15
	2	2	2	0.00
	0	4	0	0.00
	4	1	2	-0.29
	1	2	0	-0.33



Survey results

- Wide range of descriptions so grouped into broad headings:
 - Safety outcomes: Good safety statistics or high safety standards
 - Worksite observations: Watching worksite behavior including safety discussions and interventions
 - Results of SC assessments: Responses on safety culture surveys
 - Management action: Managers walking the talk and providing resources and being open to hearing bad news
 - Reporting: Quality and degree of near miss reporting



Audit

- Assessing the implementation of safety culture improvement processes:
 - Compliance with specified plan (e.g. leadership training plan)
- Assessing the effectiveness of the processes
 - Extent to which process met desired objective (e.g. change leader behavior)



Review and refine

- Review
 - Safety culture assessment
 - Audit
 - Other safety performance information (e.g. incident reviews)
 - External (e.g. research, other organisations)
- Refine safety culture management system



Part IV: Leadership and safety culture improvement

Culture and leadership

"organisational cultures are created by leaders and one of the most decisive functions of leadership may well be the creation, the management and – if and when that may become necessary - the destruction of culture" (Schein, 1985, p2).



Leadership definitions

- The ability to influence a group toward the achievement of goals.
- Leadership is a social process whereby intentional influence is exerted by one person over other people to guide, structure and facilitate activities in pursuit of goal achievement.

e.g. Yukl, 1998p.2



Its all about leadership

Leadership values

- Leaders promote shared values, beliefs and norms
- Openness about problems and errors
- Organisational learning is valued
- Leadership prioritisation
 - Organisation provides necessary resources
- Leadership action
 - Effective and open communication
 - Monitoring compliance with agreed standards



Leadership

- Perceptions are more influential than 'reality'
- Judged on perceived values/ priorities
- More than knowing the 'script'
- Require demonstrations of commitment
- Highlighted to attract attention



How Do Leaders Get it Wrong?

- Sending the wrong signals by their:
 - language
 - behaviour
 - priorities
 - time allocation



What leaders need to know

Information

- Current state of safety
- Future direction

Information

Potential threats

Information

What is being done to manage threats



Effective safety leadership behaviours

- Visiting the worksite frequently to monitor safety
- Providing positive feedback (safety specific)
- Addressing safety violations
- Containing pressure to get the job done
- Communicating about safety frequently
- Creating high quality relationships with team through participation, respect and valuing each team member
- Showing awareness of how subordinates think and feel
- Responding quickly to safety concerns raised



Leaders promote compliance by:

- Visiting the worksite frequently to:
 - Monitor performance and discuss safety aspects of the job
 - Provide specific feedback on safety performance, focusing on positive
 - Address observed safety violations
 - Communicate about safety
- Involving subordinates in planning job, especially safety arrangements to:
 - Increase understanding of rational behind the safety arrangements



Leaders promote proactive safety behaviour

- Creating high quality relationships with team through participation, respect and valuing each team member.
 - Involvement in decision making promotes ownership for decisions
 - Team climate of respect encourages team members to look out for their colleagues
 - Promoting respect and value within workgroup makes it easier for team members to raise a concern with a colleague



Leaders promote speaking up about safety

- Creating high quality relationships with team through participation, respect and valuing each team member.
- Responding quickly to safety concerns raised
- Show awareness of how subordinates think and feel
 - Know their team



Safety coaching process

- Assess current performance
 - Identify strengths and weaknesses
- Meet with subordinate individually
 - Provide feedback
 - Discuss performance and agree goals
 - Record goals and agree next meeting date
- Track change
 - Follow up with employee



Effective leader behaviours

Safety leadership self assessment and improvement

Review each statement and indicate the extent to which you should change your current behaviour to promote **compliance**, **proactive safety behaviours** and **speaking up** about safety. Be honest in your evaluations, as this exercise is designed to assist you in action planning.

COMPLIANCE	DO A LOT LESS	Do Less	No change	Do more	Do a lot more
Encouraging safe working by setting a good example	-2	-1	0	1	2
Providing positive feedback to employees about their safety behaviour	-2	-1	0	1	2
Visiting worksites to observe safety challenges encountered by employees	-2	-1	0	1	2
Performing safety inspections with my direct reports	-2	-1	0	1	2
Visiting worksites to monitor safety performance	-2	-1	0	1	2
Setting clear safety expectations for my direct reports	-2	-1	0	1	2
Spending time ensuring that safety paperwork is completed accurately	-2	-1	0	1	2
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Coaching employees

Safety Coaching Meeting

Supervisor:	Employee:
Meeting date:	

Improvement opportunities

	DO A LOT LESS	Do Less	No change	Do more	Do a lot more
Speaking up at safety meetings	-2	-1	0	1	2
Identifying hazards	-2	-1	0	1	2
Needing reminders to wear PPE	-2	-1	0	1	2
Encouraging others to work safely	-2	-1	0	1	2
Taking short cuts	-2	-1	0	1	2
Reporting safety concerns	-2	-1	0	1	2
Making safety improvement suggestions	-2	-1	0	1	2
Breaking safety rules and procedures	-2	-1	0	1	2
Watching out for co-workers	-2	-1	0	1	2
Following supervisor's instructions	-2	-1	0	1	2
Reporting close calls	-2	-1	0	1	2

Safety improvement plan:

	Behaviour	Agreed improvement goal	Review date	
1				
			- 1	

On the job coaching

- Systematically observe subordinates
- Praise the positive things they are doing:
 - Being complimentary (e.g., "You've done a great job cordoning off this area!")
 - Being appreciative (e.g., "It's a messy job. Thanks for taking the time to keep on top of the clean-up")
- Provide praise even if some AT RISK behaviors present



Addressing at risk behaviors

- Typically people will observe only I or perhaps 2-3 AT RISK issues
 - They MUST be addressed
- ▶ Focus on the facts and leave room for an explanation
 - "I notice that you aren't wearing gloves for this job. Why is that?"
- ▶ Be open to a reasonable explanation ...
 - "I just took my gloves off to thread the nut back on"
- Be clear about unacceptable excuses...
 - "I forgot them in the truck"



Agreeing change

Coach to correct the issue

- "There is still a significant cut hazard here. Can you get some gloves that will allow you to thread the nut easily?"
- "I'm not sure what I can do to help you remember your gloves, but our glove policy is clear for work like this."

Obtain agreement

"So, in the future, I trust you will wear gloves for jobs like this. Yes?"



Conclusions

- Safety culture research highlights the importance of organizational factors in determining human behaviour
- Safety culture improvement requires system change
- Employee surveys provide useful information about the safety culture and act as driver for change
- Self-report attitudes and behaviors can be used as an additional safety indicator.
- Leadership involvement and commitment are required for successful change



Safety Culture Change

"Peoples attitudes and opinions have been formed over decades of life and cannot be changed by having a few meetings or giving a few lectures"

(Mao Tse Tung)

