

Safety Training for Improved Performance

Safety Training for Improved Performance

October 1999



ECI International Workshop

Safety Training for Improved Performance

*Headquarters of Technip,
Paris, France*

30th October 1998

ACKNOWLEDGEMENTS

*This Workshop was organised by the Safety Health Executive Task Force of
the European Construction Institute*

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<i>Steve Pearson</i>	<i>BG Plc</i>
<i>Bill McGillivray</i>	<i>Brown and Root Aberdeen</i>
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<i>Jean Luc Dumas</i>	<i>Technip</i>

*The European Construction Institute would like to thank the speakers and all
participants of the Workshop*

Proceedings edited by Alistair G F Gibb
ISBN 1 873844 44 1

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"Safety Training for Improved Performance" Workshop

Friday 30th October
Headquarters of Technip, Paris, France

P R O G R A M M E

Introduction & Welcome

Michel Berthon	- Technip	- Vice President for Procurement, Construction & Start-up
Chris Marchant	- Interconnector UK Ltd	- Technical Director / Workshop Chair

Training for Safety Performance – Clients and Practitioners Perspectives

Alain Boyard	- ARCO Chimie
Herve Bracou	- TOTAL Raffinage Distribution
Diego Biondo	- Technip Italy
Carsten Mink	- Lurgi Ol Gas Chemie GmbH
Discussion	

How Training Can Improve Performance

Guido Simons	- Fluor Daniel
Michael Huvane	- JMJ
Discussion	

Establish Best Practice

Safety Induction
Training for Managers
Certification and Validations
Training Styles

Breakout Sessions

- Trevor Thompson	- Kvaerner
- Carsten Mink	- Lurgi
- Jean Luc Dumas	- Technip
- Guido Simons	- Fluor Daniel

The Way Ahead – Achieving World-Class Safety Training

Feedback, Forum and Conclusions	- Chris Marchant	- Interconnector UK Ltd
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Close

Lucien Sajus	- Technip, France	- Chief Executive Officer
		- Member of the Board

List of Attendees:-

Dirk Hessing	- ABB Lummus
Heinen Kristiaan	- Amoco Py Project
Roy Greenslade	- AMEC Process
Francois Cambacesdes	- Appryl
Alain Boyard	- Arco Chimie
Steve Pearson	- BG plc
John Cook	- Brown & Root
Guido Simons	- Fluor Daniel BV
John Roper	- Fluor Daniel Ltd
Paul Beaurats	- Foster Wheeler
Dave Stewart	- Foster Wheeler Energy Ltd
Christopher Fox	- Foster Wheeler Energy Ltd
Chris Marchant	- Gas Connections Ltd
Michael Huvane	- JMJ
Rick Bair	- JMJ (Austin,USA)
Trevor Thompson	- Kvaerner Process
Michel van der Kreeft	- Kvaerner Process
Alistair Gibb	- Loughborough Univ.
Carsten Mink	- Lurgi Ol Gas Chemie
Detlef Preuss	- Lurgi Ol Gas Chemie
Diego Biondo	- Technip, Italy
Jean-Luc Dumas	- Technip, France
Lieven de Baerdemaeker	- Sunvic
Herve Bracou	- Total Raffinage Distribution

MICHEL BERTHON
*Vice President for Procurement, Construction &
Start-up – Technip, France*

“Introduction”

“On behalf of the management board of the Technip Group, I am very pleased to host this workshop on safety training within the European construction industry in our main office. I hope it will be beneficial to all of us as well as to our Companies and will contribute significantly to developing across the industry and safety awareness and the contribution of training to that awareness.

Technip considers the safety of personnel, the safety of plant design and the safety of plant construction as essential objectives. For these reasons Technip conducts its construction activities with Clients and Partners with the goals of:-

- Provision of safe and healthy workplaces
- Fostering of an accident-free philosophy
- Monitoring of HSE policy objectives and implementation of remedial actions,
- Provision of instruction and training to enable work to be carried out safely.

This last point, which is the topic of the present workshop is, I am deeply convinced, a key point within the safety management of projects and a major concern to our companies in order to improve the safety performance as a whole – and not only of accident statistics – of our jobsites.

Consequently, I wish this workshop to provide us with a wide overview of ongoing practices within Clients and Partners organisation on that specific matter and the various methods of implementing safety training criteria and certification across our many different countries and organisations.

I also see this workshop as a golden opportunity to explore the way forward. It is our duty here to think about a common approach on this matter and we should investigate what could be the contents/management of a safety training system valid across the European Clients, Contractors, Countries and bridging the present differences in regulations and culture.”

CHRIS MARCHANT
Technical Director - Interconnector (UK) Ltd

“Workshop Chair”

Chris Marchant graduated as a Chemical Engineer from Imperial College, London. He is a fellow and past president of the Institution of Chemical engineers. He is also past President of the Institution of Gas Engineers.

Chris worked with British Gas for 35 years, leaving at the end of 1996 to become a consultant in engineering management.

He was Director of Engineering Projects for BG for six years, responsible for the company's Centre of Excellence for Engineering Projects world-wide. Prior to that he was Director of Engineering responsible for gas supplies in and around London and then Deputy Chairman of the company's South East Region.

Chris is Technical Director of Interconnector (UK) Ltd, who have just successfully completed putting in place a major natural gas pipeline and compression installation linking the UK and the continent of Europe. The project is designed and developed through two Alliances.

Chris focuses particularly on the processes of working, contract strategies and relationships that deliver exception results. He is the immediate past Chairman of the European Construction Institute, where he has taken a particular interest in Safety and broadening the Institute's members on the continent of Europe.

ALAIN BOYARD

Arco Chimie

*“Training for Safety Performance – Clients and
Practitioners Perspectives”*

Brief Biography

And

Speaker Notes

ALAIN BOYARD

Arco Chimie

Brief Biography

Alain Boyard started his career with Esso as Technical Engineer in Normandy (Port-Jérôme Refinery). He was then involved in internal auditing, project management and quality management.

He joined Arco Chimie Fos-sur-Mer in 1993 as Quality Supervisor. Since 1997, he has been in charge of Capital Projects, with Technip as Principal Engineering, Procurement and Construction Contractor on-site.

Contact Details:-

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ALAIN BOYARD
Arco Chimie

Speaker Notes

*“Training for Safety Performance – Clients and
Practitioners Perspectives”*

Safety : Our Expectations

No injuries or major risk situations:-

- *For Engineering and Subcontractors*
(Field safe during project implementation)
- *For our Personnel*
(Plant safe during project life)

Success implies EPC contractor integration:-
(during Engineering, Procurement and Construction)

- Similar policy and objectives
- Preventative thinking
- Similar operational procedures
(existing, adequate and strictly adhered)
- Knowledge of our site and processes
- Good communication

Safety in Detailed Engineering

Key Requirements

- *Expertise of Safety in Process Design (what contractors must offer):-*
(High graduate level, rotating jobs/sites, knowledge of key rules and regulations and reasoning behind them)
- *Knowledge of our Process Specific Risks:-*
(Internal training, participation to hazard reviews, communication with our process engineers, analysis of incidents).

Certification Systems

For Individuals: GIES and Certification (Imposed):-

GIES :	External system applicable to contractor and sub-contractors
GIES-1	Knowledge of basic field safety rules, minimum briefing complementing training also required
GIES-2	Ability to manage field safety as team leader (3 days). Copy available at workshop. Course given to people who already know their job
Certification	Internal system for ARC personnel only. Inspired from USA – focused on safety exposures. Recertification every 3 years

For Contractors : ISO-9002 and MASE (Encouraged):-

ISO-9002	Systems fully applicable to safety
MASE	Safety-specific certification (local). Not imposed but strongly recommended.

Safety in Procurement

Key Requirements

- *Adequate Subcontractor Selection by Contractor*
(Training to evaluate procedures and criteria)
- *Subcontractor Training by Contractor/Information*
(Communication Skills)

Philosophy in that Subcontractors should train their own personnel. But also contractor must get involved as well.

Safety in Construction

Key Requirements

- *Good Knowledge of our Work Practices*
(Internal training, certification systems for supervisors and safety agents, good knowledge of our site, equipment and people).
- *Practice of Key Techniques*
(Safety audits, incident investigation, industry near misses, behavioural observations at the worker level – between 2 people with no hierarchical links, ie, are operative with another – this is anonymous., reporting tools including computers)
- *Experience of Field Works*
(Various missions, rotating jobs/site, looking for good experiences from older sites)

Conclusions

- Training : Key tool to better performance
- Necessary at all stages
- Relates to technical and human skills
- Needs strong management implication
(but a lot of patience)
- Implies long-term relationship

And it works between Arco and Technip!

- No EPC contractor LTA since 1993 (300,000 man hours)
- No subcontractor LTA since 1993 (1 million man hours)
- No major process incidents since plant start-up (1988)
- These figures cover major works (ie not operations and maintenance aspects)

Safety training is part of the reasons for this success.

HERVE BRACOU
Total Raffinage Distribution

*“Training for Safety Performance – Clients and
Practitioners Perspectives”*

Brief Biography

And

Speaker Notes

HERVE BRACOU
Total Raffinage Distribution

Brief Biography

- 32 years
- Safety Engineer (CEA/INSTN)
- Dr in Chemical Engineering (INP Toulouse)
- 3 years in the TOTAL research centre on lub oil chains
- Safety Manager in Normandy refinery since November 1997

HERVE BRACOU
Total Raffinage Distribution

Speaker Notes

*“Training for safety Performance – Clients and
Practitioners Perspectives”*

Safety Training History

- 1987 - "Safety Training" developed by PL Le Signor
- 1989 - L'Institut Consulaire de Perfectionnement implemented training for industrial organisations around Le Havre.
- 1993 - Comité de Pilotage des Habilitations Sécurité de Haute Normandie
- 1998 - ANFAS

Safety Training Requirements

- *Safety Level*
(Comparison between refiners and contractors – large differences of performance.
- *Rule of Safety Supervisors*
(Difficult to be everywhere)
- *Needs to teach each contractor about the specific risks of our work.*
- *N1 (1 day)*
(Everyone who should work in the refinery, except managers – Equivalent to GIES 1)
- *N2 (2 days)*
(Everyone who should work in the refinery and manage people)

Safety Training Management

- ANFAS – Association Normande de Formation et d'Action Sécurité:-
 - Companies
 - Contractors
 - Regional administrators
 - Training partnership – which is audited monthly
- *Functions*
 - Programme, evaluation tests, audits, accreditations, etc.
- *Training required is 1 day every 3 years.*

Safety Training Content

- *N1 Habilitation (Content of Course)*
 - Accident/incident and their consequences
 - Industrial risks
 - Contractor's risks – depending on specific tasks
 - General safety
- *N2 Habilitation (Content of Course)*
 - N1
 - Legal responsibilities (French Law)
 - Application – permit to work

Safety Training Data Since 1987

- *Trained Population:-*
 - N1 = 7756
 - N2 = 1600
- *Normandy's Example:-*

1987	1988	
TF 60	16	Frequency Rate
TG 1.5	0.3	Gravity Rate/Severity Rate
- Zero accident is a clear goal, but we are not quite there yet. Some contractors do not yet understand the importance.
- The CRAM of Haute-Normandie required ANFAS to evaluate the benefit – this will measure proactive issues as well as reactive.

DIEGO BIONDO
Technip Italy

*“Training for Safety Performance – Clients and
Practitioners Perspectives”*

Brief Biography

And

Speaker Notes

DIEGO BIONDO

Technip Italy

Brief Biography

Born in 1946, Diego Biondo studied Chemical Engineering at the University "La Sapienza" in Rome – Italy.

In 1974 he joined TPL Spa (Technip Group – Technip Italy from 1998) where he is employed in the Construction Department where he covered functions connected with planning, estimating, supervision and quality assurance both in H.O and in construction sites.

From 1993 he was the Construction Department HO HSE co-ordinator for all the Company construction activity.

As HSE Manager he is responsible of all the HO activity finalised to construction HSE and of the world-wide implementation of the Construction HSE System. In this late capacity, in particular, he performs in-site assistance and audit activity.

DIEGO BIONDO
Technip Italy

Speaker Notes

*“Training for Safety Performance – Clients and
Practitioners Perspectives”*

Approach to : Construction HSE Training :

Highlights

This Covers both Training of Technip and of Subcontractors' Workers

Objectives:

*Train all company people entering a construction site
(According to Italian Law)*

Provide a site training programme

- *Orientation - For Everyone - covering site specific risks, important for giving initial impact/impression of safety commitment.*
- *Training of Company People*
- *Training Managed by Subcontractor - This is usually by toolbox talks for operatives and specific supervisor training on hazard analysis/emergency procedure/first aid, etc.*

Note :

- *Local reality has to include base education/language of the participants - on global projects this varies greatly.*
- *Speaker acknowledges the difficulties in real life training - especially of training managed by the subcontractor.*

Past Experience : 1 - Head Office

- *External qualified training for key people (Head Office).*
- *General training course (under way) for construction Department people on a regular basis, held by internal resources.*

Biggest problem: availability of personnel

Limit of the activity: directed only at construction Department personnel, rather than other personnel (e.g. Engineering Department)

Other Problems: covering speech issues for different client and countries.

- *Preparation of materials to support the field activity.*

Past Experience: 2 - Construction site

- *Management of the Orientation Session
(Note : a very large number of people)*
- *Guidelines prepared by Technip and then delivered by Safety Committee - must be delivered in local language.*
- *Safety session for Company people (held by HSE field engineer / H.O. HSE Coordinator).*
- *Training held directly by subcontractors - Some subcontractors in some countries struggle to provide this training.*

Future - 1

The effort shall be particularly directed to H.O. activity.

- *Basic safety course directed to all people with access to a construction site.*

Contents:

HSE generally

- Legislation/ duties/ responsibilities
- Company construction safety system - documents
- Main norms for Company people at site:
 - general behaviour
 - housekeeping
 - office safety
 - personal protection equipment

Future - 2

- *Refresher courses for people participating in the basic safety courses (with no site activity in the period).*
- *Specialised training directed at specific site positions:*
 - Site Manager
 - Construction Superintendent
 - Construction Supervisor

Note :

Line Management Training is Key

CARSTEN MINK
Lurgi Öl Gas Chemie GmbH

*“Training for Safety Performance – Clients and
Practitioners Perspectives”*

Brief Biography

And

Speaker Notes

CARSTEN MINK
Lurgi Öl Gas Chemie GmbH

Brief Biography

Born in 1964, Carsten Mink studied Chemistry and Chemical Engineering at the University of Technology in Darmstadt, Germany, and was Representative of Occupational Safety, Health and Environmental Protection at the Chemical Department.

In 1993 he joined Lurgi AG and then in 1995 Lurgi Öl Gas Chemie GmbH, where he is a member of the Central Health, Safety and Environmental (HSE) Department. As Safety Manager he is responsible for the world-wide development and implementation of the Lurgi HSE Management System and he is also in charge of basic questions and cross-sectional tasks.

CARSTEN MINK
Lurgi Öl Gas Chemie GmbH

Speaker Notes

*“Training for Safety Performance – Clients and
Practitioners Perspectives”*

What we do as Operating Company of Lurgi AG

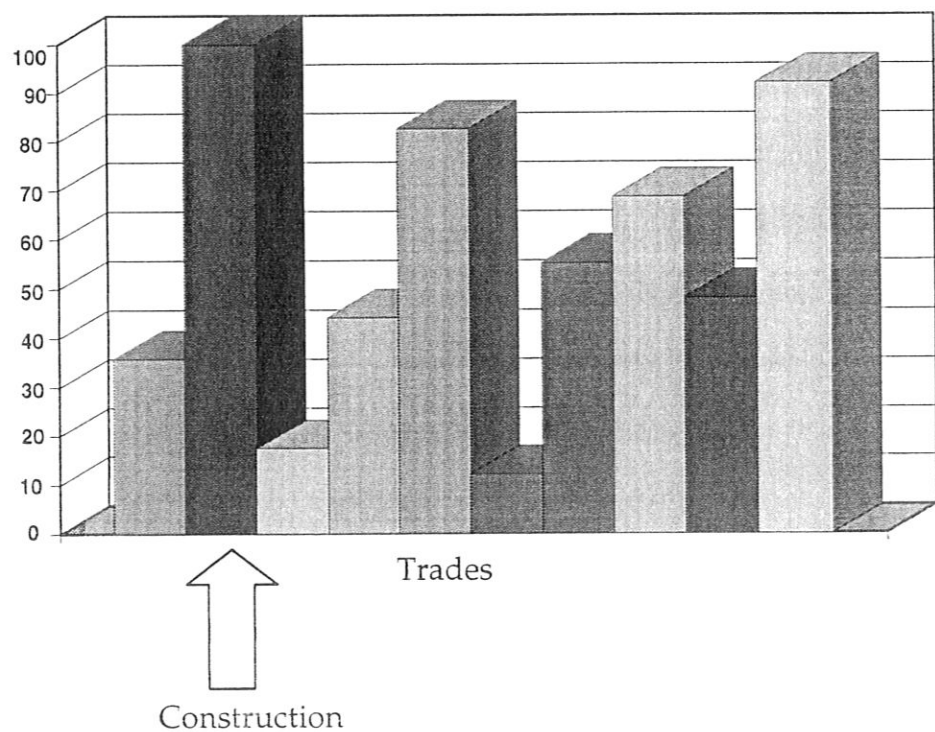
- *Hydrocarbon Technology*
- *Petrochemistry and Inorganic Chemistry*
- *Gas Technology*
- *Fine Chemicals*
- *Life Sciences*

Key activities are:-

Engineering, Contracting, Project Management

Construction Sites are one of the most dangerous environments in all of industry.

The rates of injury and death are unacceptably high



Legislation:

- *Broad variety of laws, codes, regulations, standards,...*
- *Few general training requirements*
(Employee has to be instructed before taking on a job and then once a year by line management)
- *Additional training recommended for some jobs*
(e.g. operation of heavy equipment, confined space, ...)
- *Periodical training for safety and health professionals*
- *Training for Management ??? – This is not covered in legislation*

Nevertheless:

University programs in Civil Engineering, Construction Engineering and Construction Management seldom focus on safety education in their curriculum.

Therefore:

Special training within Engineering/Construction Companies is extremely important.

The Lurgi Approach

Target Group:

- Construction Managers
- Lead Engineers
- Discipline Supervisors
- Construction Safety Coordinators

Difficulties:

- Construction Management Teams are spread all over the world
- Within a project, individual disciplines start site activities at different times
- For flexibility reasons teams include members from subsidiaries or from outside

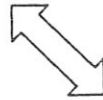
Redundancy in the training programs is required

Basic HSE Management Training and Instruction
(Internal, as deemed necessary, 2 - 4 h)

- *Lurgi HSE Management, Policy and Strategy*
- *Organization and Responsibilities*
- *Engineering and Construction Site HSE Plans*
- *Procedures and Working Documents*
- *Feedback from other projects*
(“What went wrong?” - This is an important point)
- *Management of Subcontractors*

Safety Training on specific topics

(external - “Berufsgenossenschaft” -, twice a year, 3 h)



Responsible for Accident Safety Standards – mandatory safety insurance organisation
--

- *Safety coordination on construction sites*
- *Statutory Industrial Accident Insurance*
- *Accident Prevention Regulations*
- *Scaffolding, Fall Protection, Excavations, ...*
- *Other subjects as deemed necessary*

*In-house HSE Newspaper for
Permanent Information*

(Internal, about 6 issues per year)

- Lurgi HSE Management News
- Updates of Codes, Standards, Regulations,...
- News of external Safety Expert Organisations
- Abstracts of Safety Publications
- Reports of accidents, Lurgi Safety Performance
- Special topics

Construction Site Main Gate HSE Introduction

(internal, project-related, 25 min)

- *Interactive Video-CD-ROM-Program in 5 languages with multiple choice questionnaire*
- *Client Program, if available – Management Team will take part*

Site Safety Standards

- Updated pack of safety standards as reference on each construction site
- HSE Newspaper
- "Hotline" to Central HSE Department, Frankfurt

HSE for Construction Management

(External, project-related, 15 h)

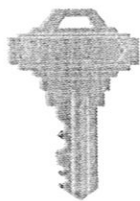
- Occupational Safety Legislation
- Construction Site Organization
- Promotion of HSE on Construction Sites
- Hazard Inventory and Analysis
- Hazardous Materials, Waste Management, Spill Control
- Emergency Planning
- Other specific subjects (e.g. Health Issues, ...)

New Programme due to Start 1999

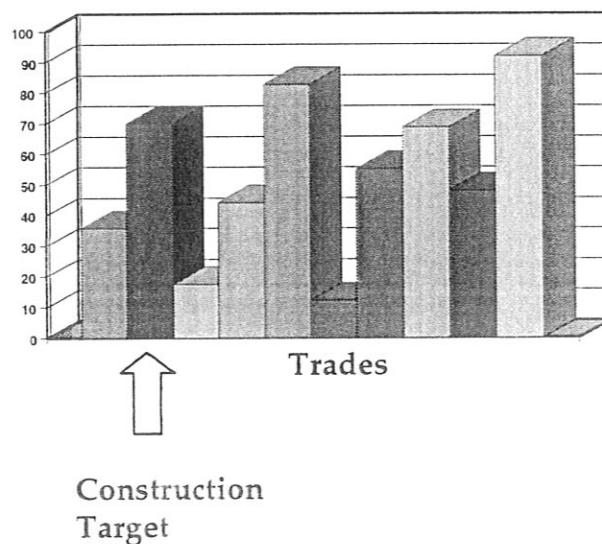
- *Construction Site HSE Observation Training*

(Internal, project-related, 7 h) – Trains the Management Team to identify unsafe behaviours and actions.

Safety Training =



to



DISCUSSION FORUM
Summary Notes

*“Training for Safety Performance – Clients and
Practitioners Perspectives”*

*Discussion Forum –
Training for Safety Performance – Clients and Practitioners Perspectives*

Various comments were made and questions asked during the discussion after each session. Where several points were made on the same theme they have been grouped together. The key points are recorded here.

Opening Remarks

Chris Marchant

Workshop should have been entitled TRANSFORMED performance not just IMPROVED performance – The target being to eliminate accidents.
The key element is people.
Training is about people.

Training for safety performance – Clients and Practitioners Perspectives - Discussion

- *What about training sub and sub-sub contractors?*

Alain Boyard

This is very difficult

We try to apply the same rules as for contractors

We are very careful about using 'casual' labour – we aim to keep it below 15%

- *How have Technip integrated their safety staff into ARCO?*

Alain Boyard

The team is 'totally integrated' – adjacent buildings – interact daily – joint safety meetings – treat as our own people – access to all ARCO systems

Are the Northern and Southern France systems the same?

Alain Boyard

Basically yes – The main aim is to formally merge the two systems and then to extend them to other areas (e.g. Lyon)

Is the training mandatory?

Alain Boyard

GIES is compulsory for workers and first line managers.

MASE is preferred but not yet compulsory for company certification

Near Miss Reporting

- *What other performance indicators do ARCO use?*

Alain Boyard

We do record other figures – including near misses

1 LTA >>>> 10 significant incidents >>>> 100 near misses

If we don't see near misses then we believe that the contractors are not recording properly.

The number of near misses reported should be as high as possible – This indicates good safety culture

- *How do ARCO review the near-miss reports?*

Alain Boyard

The aim is that each subcontractor has an ARCO/Technip 'expert' responsible for them, and this expert reviews the reports – In practice this has proved difficult, but we are still working on it.

We are trying to 'glorify' the near-miss reporting system – there is a reward system in place with annual financial rewards.

The problem remains that many people still feel guilty about reporting near-misses, rather than seeing them as opportunities to improve.

How can we promote the announcement of near misses?

Remove blame culture

Listen to what the operatives say

Feeding back to every report

Move to look at potential hazards with the workforce.... then MUST feedback

Feedback good points – what went well

Feedback bad points – what can we improve on (rather than -ve points)

GUIDO SIMONS
Fluor Daniel

“How Training Can Improve Performance”

*(The Fluor Daniel World-Wide Strategy and Approach and also
Practical Experiences)*

Brief Biography

And

Speaker Notes

GUIDO SIMONS
Fluor Daniel

Brief Biography

Guido Simons studied at the University of Antwerp, Belgium, gaining a Safety Engineer Degree in 1972.

With more than 20 years, experience in construction safety, on several projects all over Europe, he is now working at Fluor Daniel as Safety Health and Environment Manager for Europe/Central Asia Region.

GUIDO SIMONS
Fluor Daniel

Speaker Notes

“How Training Can Improve Performance”

*(The Fluor Daniel World-Wide Strategy and Approach and also
Practical Experiences)*

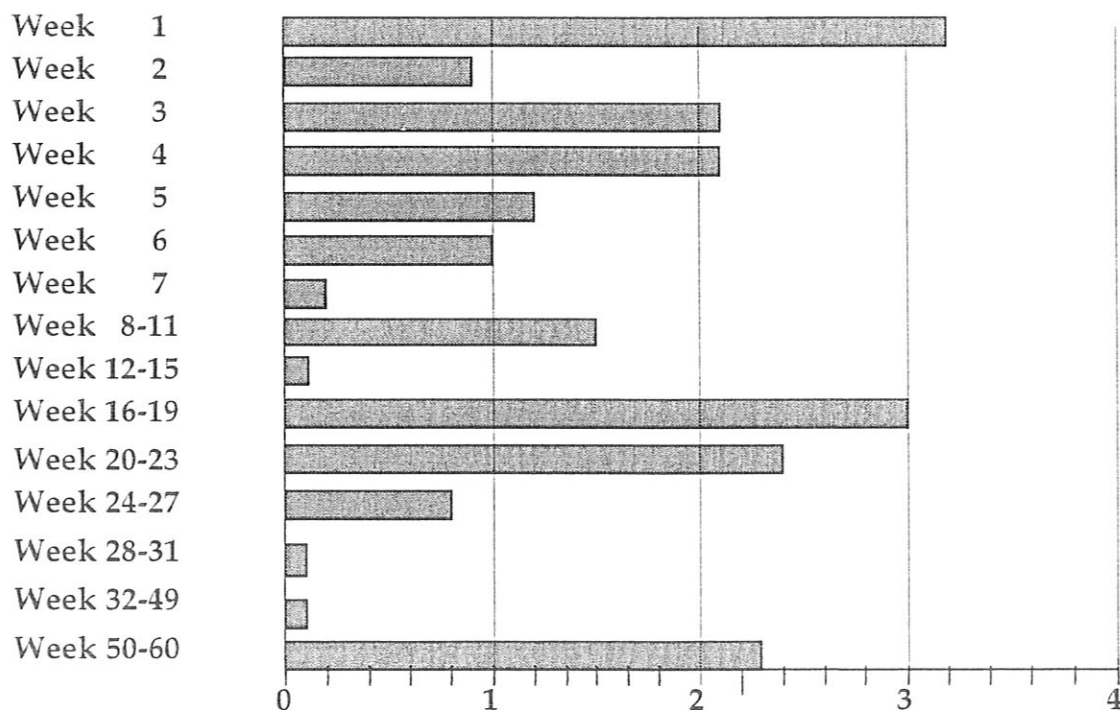
Training/Improvement/Performances

- The first duty of Business is to survive!

The guiding principle of business economics is not the maximisation of profit, it is the avoidance of loss.

<i>Incident Costs Per Year</i> ▲			<i>Margin of Profit</i>
	1%	3%	5%
1,000	100,000	33,000	20,000
10,000	1,000,000	333,000	200,000
100,000	10,000,000	3,333,000	2,000,000
200,000	20,000,000	6,666,000	4,000,00
	Needed Sales To Cover Losses	▲	

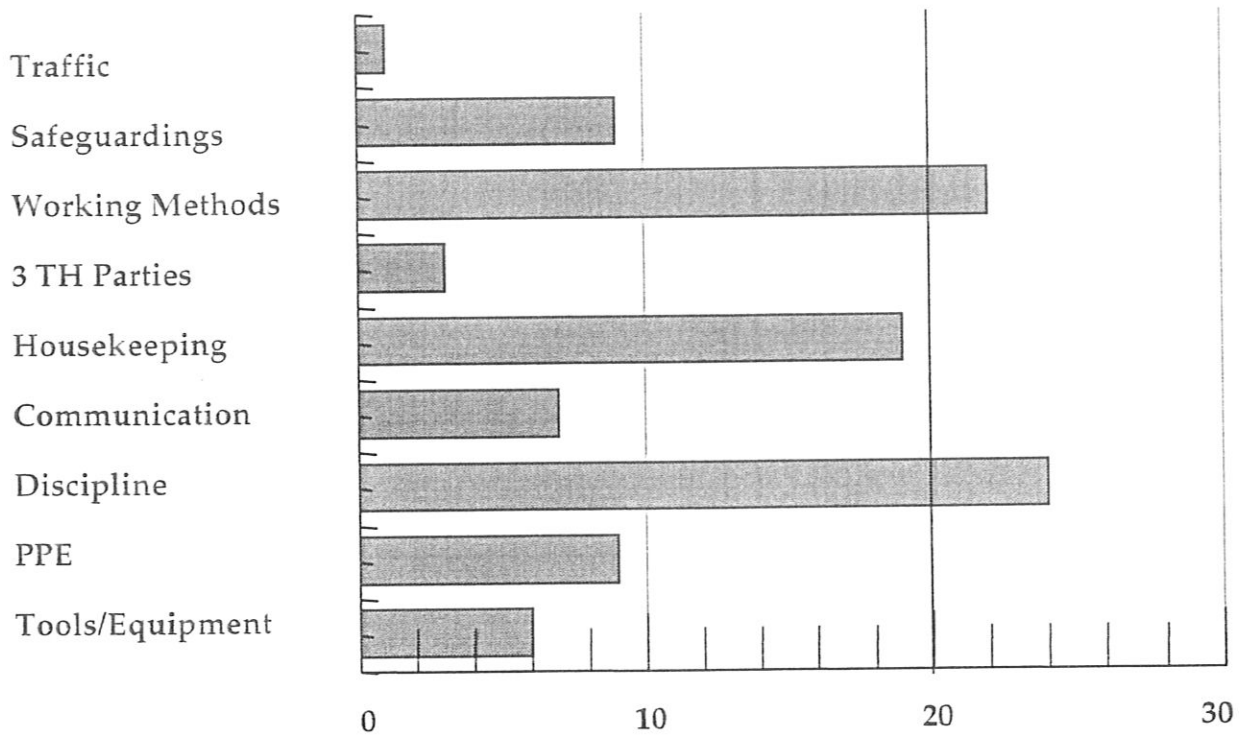
Employee Accident Probability



In spite of all the training in week one, we still have the highest accident rate!
Training obviously not working properly.

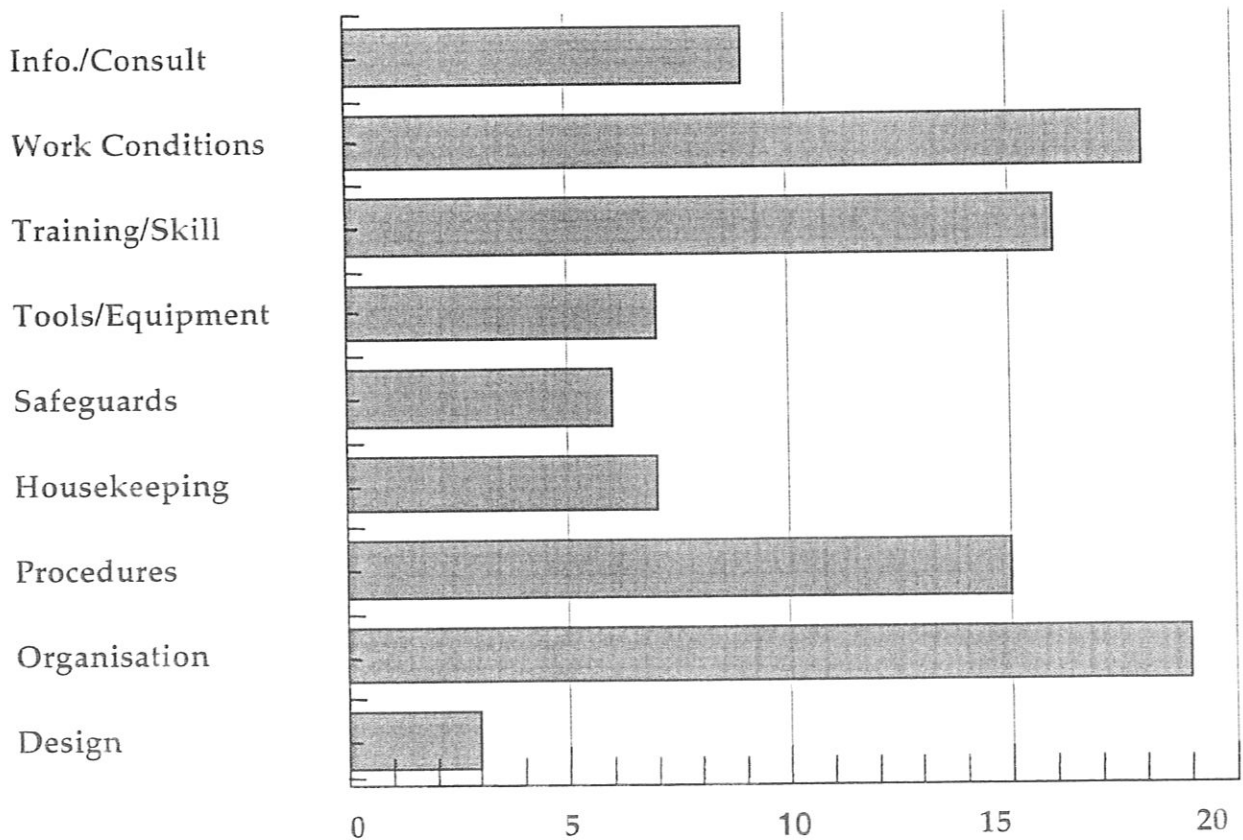
Incidents

% Direct Causes



Incidents

% Indirect Cause



Why Subordinates do not do what they are supposed to do:-

- They do not know what to do.
- They do not know how to do it.
- They do not know they should.
- There are obstacles beyond their control
- They do not think it will work.
- They think their way is better
- Not motivated > poor attitude
- Not enough time for them to do it
- Personally incapable of doing it.
- They are working on the wrong priority items
- They think they are doing it.
- Poor supervision/management
- Personal problems.

Why Training?

- > increasing efficiency
- > reducing accidents/losses
- > improve moral and job satisfaction
- > team building
- > decrease mistakes
- > less supervision
- > higher flexibility
- > job rotation
- > meet legal requirements

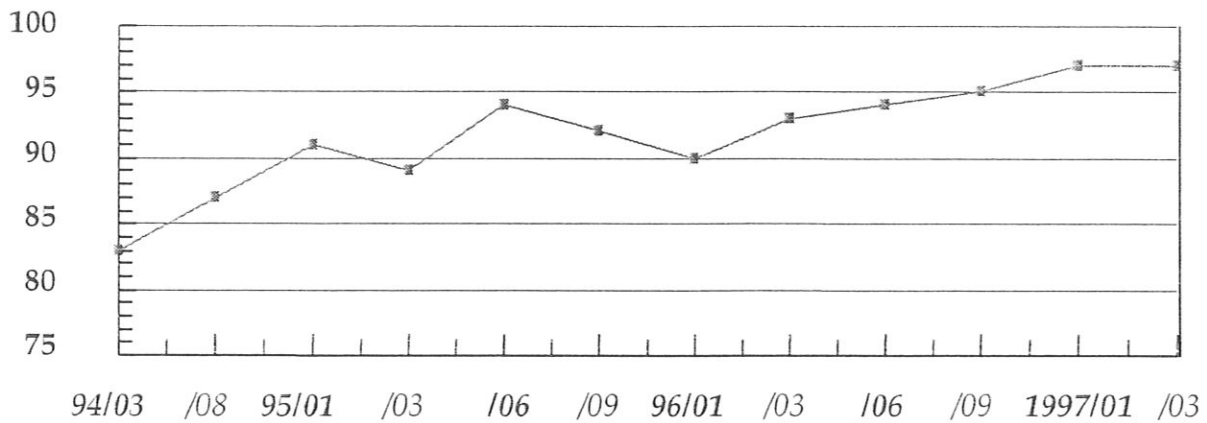
Training System Management

- > Pinpoint training needs
- > Set training objectives
- > Examine training methods
- > Secure/develop training programme
- > Conduct the training
- > Evaluate and follow up

Training Strategy

Induction video/slides/questionnaires
Toolbox talks
Safety leadership training
Supervisor safety development training
Management liability and awareness
Managing employee safety & health
Observation/inspection techniques
Job risk analysis
First aid training.

% Score Overview



Employees Learn, One Way or Another!

- By making mistakes and being corrected
- By catching on to what they hear/see
- Through a planned education process

MICHAEL HUVANE
JMJ Associates

"How Training Can Improve Performance"

Brief Biography

And

Speaker Notes

MICHAEL HUVANE

JMJ Associates

Brief Biography

Michael Huvane is the European Director of Safety for JMJ Associates. JMJ is an international management consulting company with offices in London, Austin, Melbourne, and Mexico City. JMJ specialises in coaching its client organisations to produce breakthrough results. It works in four distinct business areas:

- * large scale capital project execution
- * alliancing
- * safety
- * leadership.

Michael brings a rich and varied background to his work. He has been a student of the methodology used by JMJ for over 20 years, received 2 Master Degrees, successfully owned and/or operated a number of small business. He has been doing consulting work since 1986 and has worked with over 500 companies.

Michael has been one of the initiators within JMJ of its Incident and Injury-Free approach and its High Performance Safety process. In this capacity, Michael has led safety consulting engagements on construction and manufacturing projects throughout the United States, Europe and the Middle East with such companies as Intel Corporation (at most of its world-wide sites), Mobil, DSM, Pfizer Chemicals and Johnson Controls World-wide Services.

MICHAEL HUVANE
JMJ Associates

Speaker Notes

"How Training Can Improve Performance"

Creating an Integrated Safety Approach

*Speech given by Michael Huvane
at the
European Construction Institute's
"Safety Training for Improved Performance"
workshop*

Paris, 30 October 1998

JMJ ASSOCIATES

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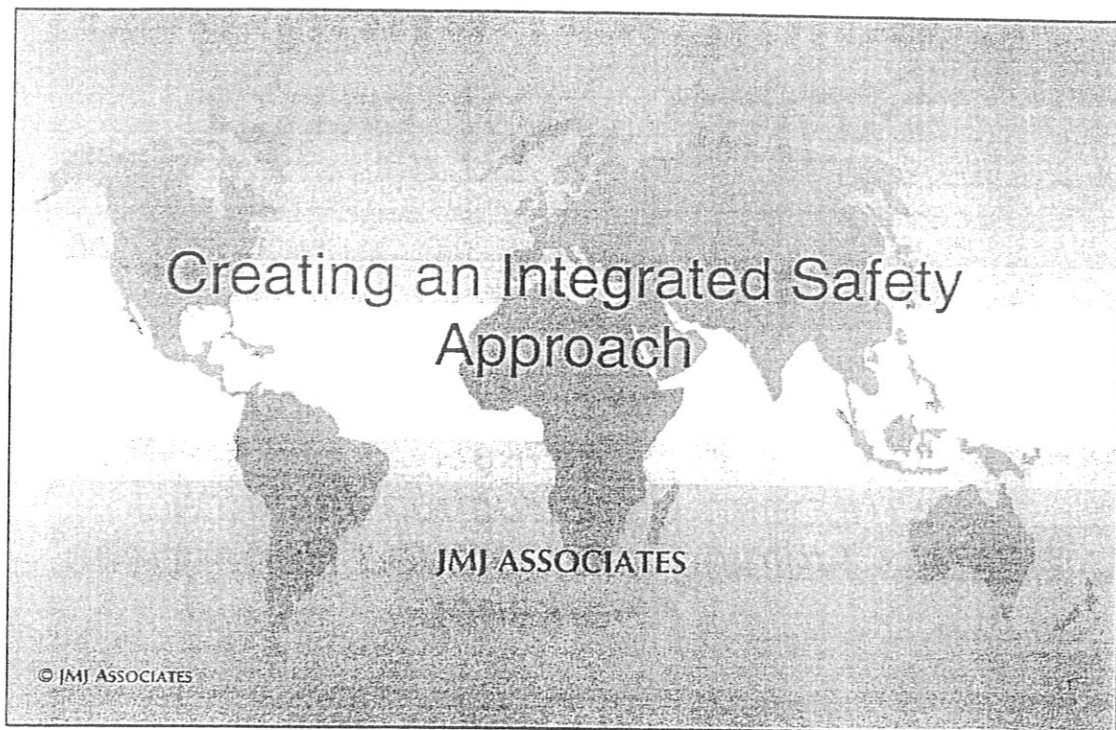
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- ❖ *Creating an Integrated Safety Approach* refers to two things:
 - Creative: moving beyond the familiar strengths of reaction and prevention
 - Integrated: refers to the integration of the internal perspectives of people (the subjective) with the external view of people (the objective)
- ❖ Safety is so vitally important that it calls for us
 - to be *creative*
 - to evolve
 - to develop
 - to go beyond where we are now
 - to go beyond good reactions and strong prevention
- ❖ You and I are very good with objective things.
- ❖ We're not so effective with the subjective side.
- ❖ We've got to get good with the subjective side of safety.
- ❖ Then we must *integrate* the world of objects with the world of subjects.

Intent of the Conversation

To examine and appreciate the commitments, behaviours, culture, and system requirements of any honest intent to eliminate injury.

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- ❖ There are really two things I want to point out about the intent of this conversation.
- ❖ First: we are talking about an honest intent to eliminate injury
 - honest here means that you believe it's the right commitment, and
 - that you believe that it is actually possible to eliminate incidents and injuries
- ❖ Second: look at those four words:
 - commitment
 - behaviour
 - culture
 - systems
- ❖ Which describe the objective components of our safety approach?
- ❖ Which describe the subjective components?
- ❖ Which are the ones that you and I feel the most competent, the most effective at creating and managing?
- ❖ The least developed area determines the performance we can sustain.

Overview of the Conversation

- ❶ The Evolution of Safety Management
- ❷ Eliminating Worker Injury
- ❸ Safety Leadership, Behaviour and Culture
- ❹ Integration: Putting People In The Picture
- ❺ Implementation Challenges

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- ❖ Our discussion will follow this path.
- ❖ First, let's look at how safety management has evolved - is evolving still.
- ❖ Second, let's pause and examine the nature of an authentic commitment to the elimination of injury.
- ❖ Third, let's look at leadership, behaviour, and a project environment.
 - > What might the subjective side of each look like?
 - > What does the objective side of each encompass?
- ❖ Fourth, let's return to examining the subjective and objective side of safety approaches and performance.
 - > We will look at this at the level of the individual (employee).
 - > We will also look from the group level (organisation).
- ❖ Putting people back in the picture is our way of saying that we need to get effective with the subjective side of individuals and groups.
- ❖ Last, let's discuss some of the challenges of implementing this approach.

Evolution of Safety Management

- ◆ The industry's historical relationship to safety is recapitulated in individuals, jobsites, and organizations.
- ◆ The evolution of our relationship to safety has *directionality*.
- ◆ You are on the cusp of a new possibility: the opportunity for a truly *creative* and *integrative* approach.

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- ❖ There's an old saying that goes:
 - Ontogeny recapitulates phylogeny
 - all of evolution (the development of the species) is repeated in the development of the individual (between conception and birth)
- ❖ Much the same with the evolution of safety management: the history is repeated over and over again in our approach and in our jobsites.
- ❖ This just says that the evolution of safety, the historical development of our safety approach (the macro level), is repeated, is re-enacted (on the micro level) in individuals and in jobsites and organisations.
- ❖ This also says that without going beyond where we have gone before, we will not evolve as an industry to a new era of safety performance.
- ❖ Let's look at that evolution.

Evolution of Safety Management



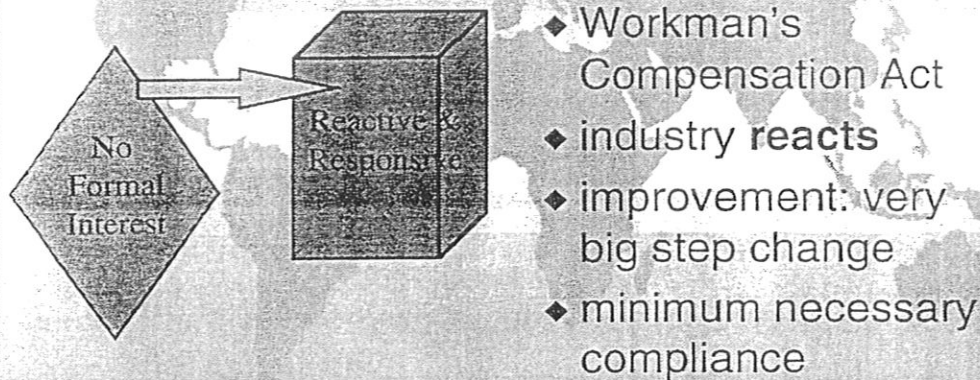
- ◆ no industry consistency
- ◆ minimal efforts
- ◆ no formal compensation
- ◆ production is paramount
- ◆ individual purely instrumental

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- ❖ In the United States we've got to go back prior to 1941, when there were no formal standards or requirements.
- ❖ Nor was industry financially liable for injury on the job.
- ❖ Production was paramount.
- ❖ Individuals were viewed purely for their instrumental worth.
- ❖ At this time there was no real safety approach.

Evolution of Safety Management

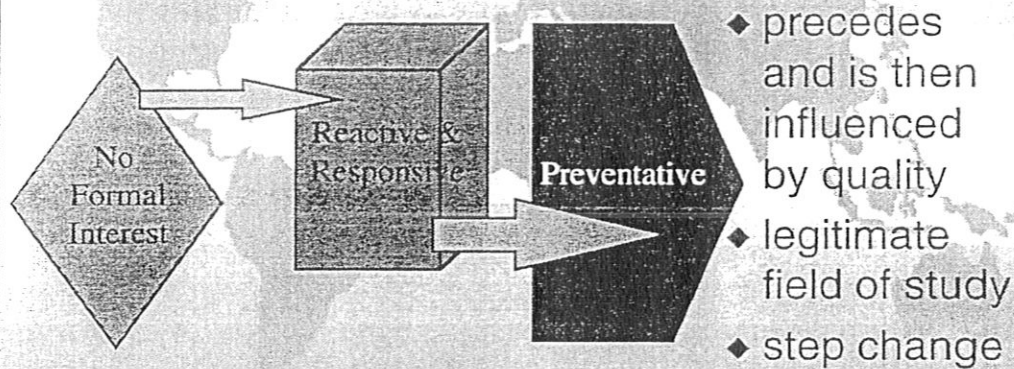


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- ❖ In 1941, the Workers Compensation Act was passed and the first era of safety management was born.
- ❖ Industry reacts and responds to being financially liable for injuries on the job.
- ❖ The approach in this era can be called the Reactive approach.
- ❖ And we see a very big step change in performance.
- ❖ We see, on average, companies doing that which they considered minimally necessary to protect themselves and thereby their people.
- ❖ During this phase, industry improvement is confined to more, better, and different forms of responsiveness.
- ❖ The defining quality of our safety approach in the reactive phase - historically or when we are in that mode today - the defining quality is that it is incident-focused.

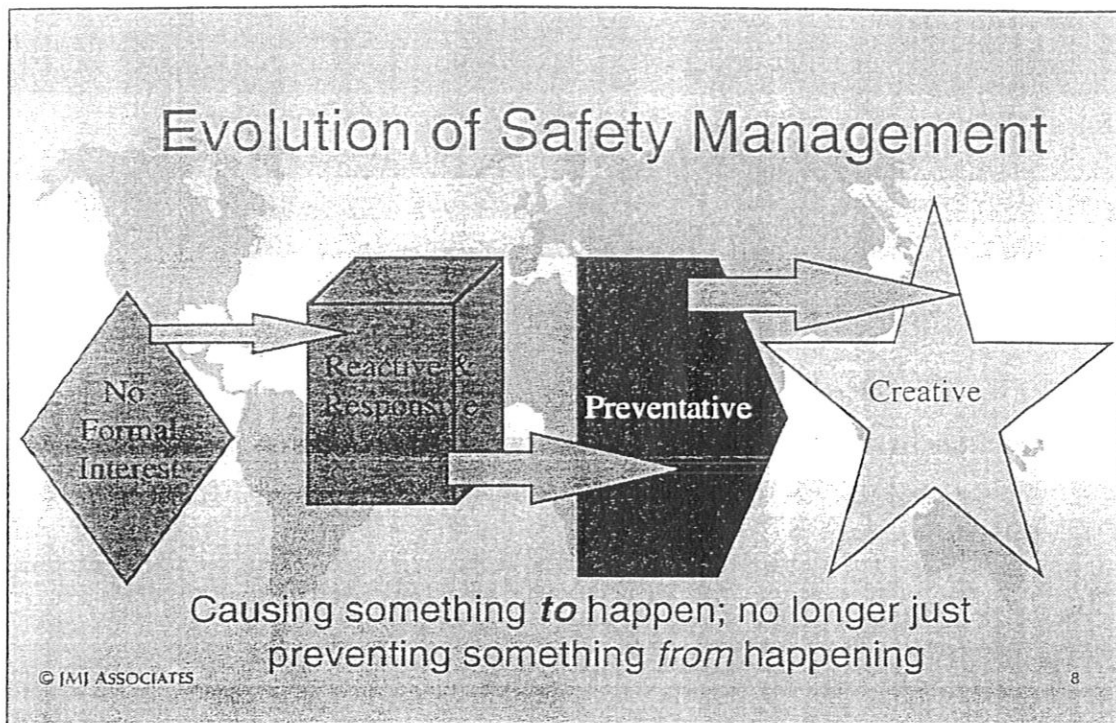
Evolution of Safety Management



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- ❖ The next era is the preventative era.
- ❖ Industry moves from responsiveness to organising around prevention.
- ❖ This is catapulted forward by the quality of movement.
- ❖ Safety is seen, in fact, by many organisations as a quality issue.
- ❖ Safety is seen as a legitimate field of study.
- ❖ Many of the processes and procedures that were created in this period are with us today.
- ❖ In fact, the defining quality of our safety approach in this phase - or when we are in that mode today - is that it is process-focused.
- ❖ We see another very big step change.
- ❖ Improvement during this phase is confined to more, better, and different forms of prevention.
- ❖ The notion that all accidents are preventable is considered seriously for the first time during this era.
- ❖ And this is where the industry stands today, poised for the next breakthrough in our safety approach.



- ❖ The phase in front of us now is the creative phase.
 - We need to react and respond to what happens.
 - But we cannot eliminate injury by reacting.
 - We need to prevent what could happen.
 - But we cannot eliminate injury by prevention.

You can only prevent what you can predict.
- ❖ The task is to create an environment where we work without injury, where it is possible to work without injury.
- ❖ The defining quality of our safety approach in the creative phase - historically or when we are in that mode today - is that it is vision-focused.
- ❖ The ticket is an authentic commitment to the elimination of incidents and injury.

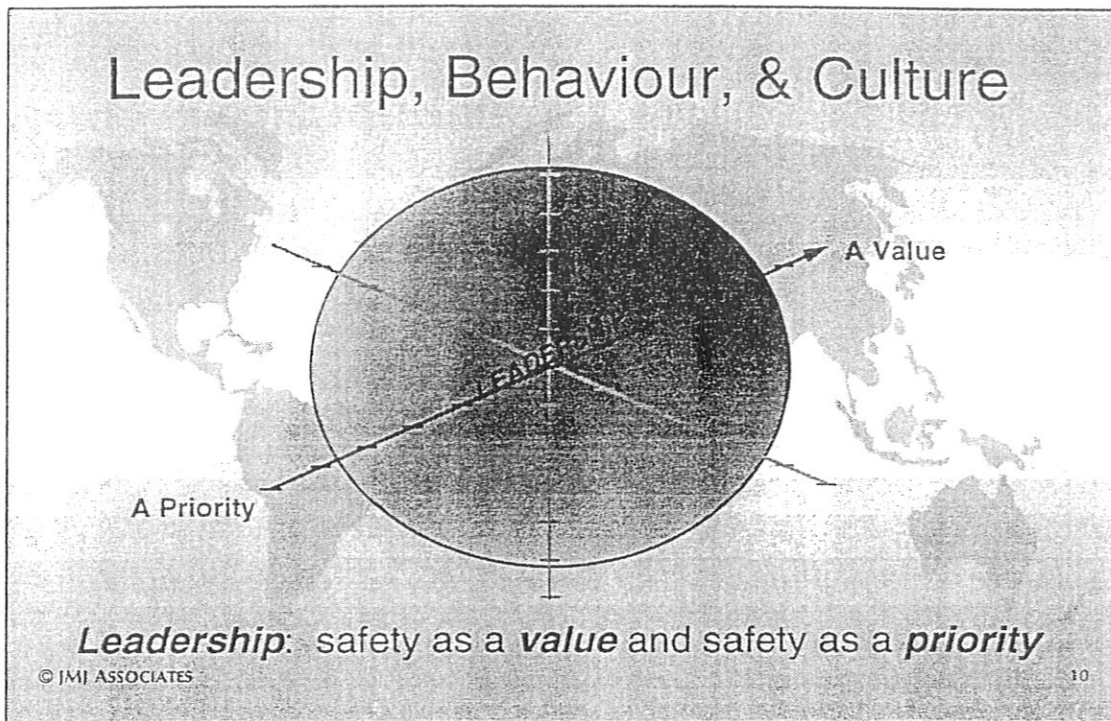
The Elimination of Worker Injury

- ◆ Saying it.
- ◆ Believing it.
- ◆ Meaning it.
- ◆ Is your company's Zero Injury focus really code for "Doing the best we can?"

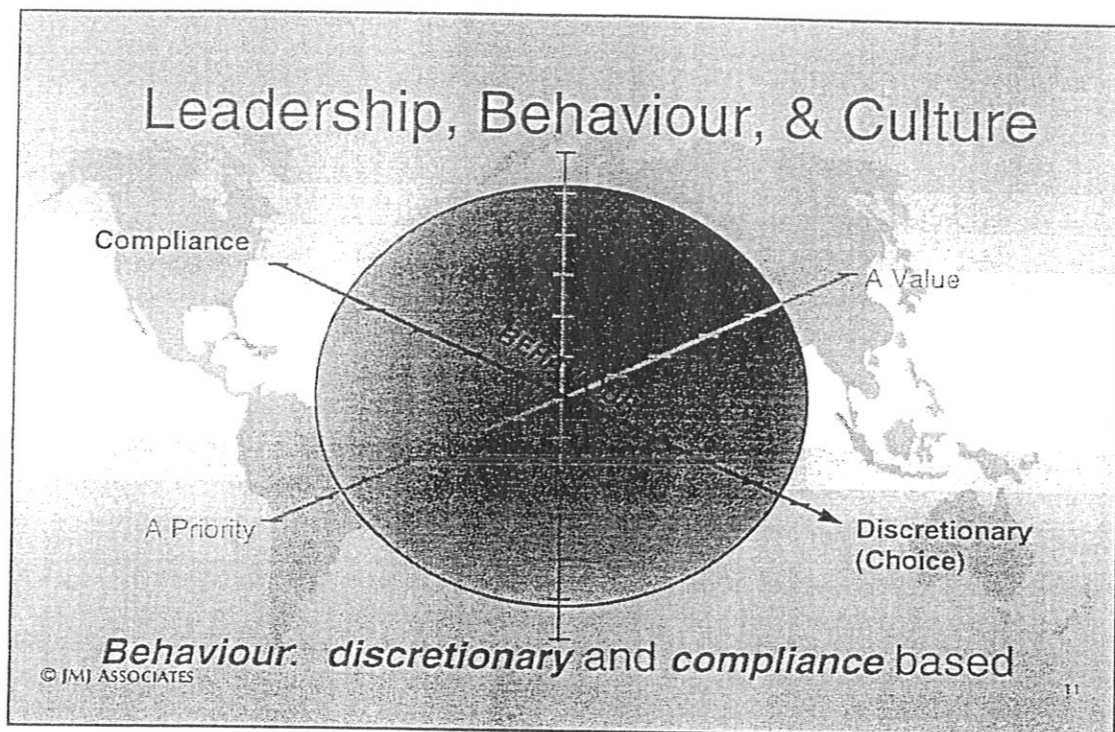
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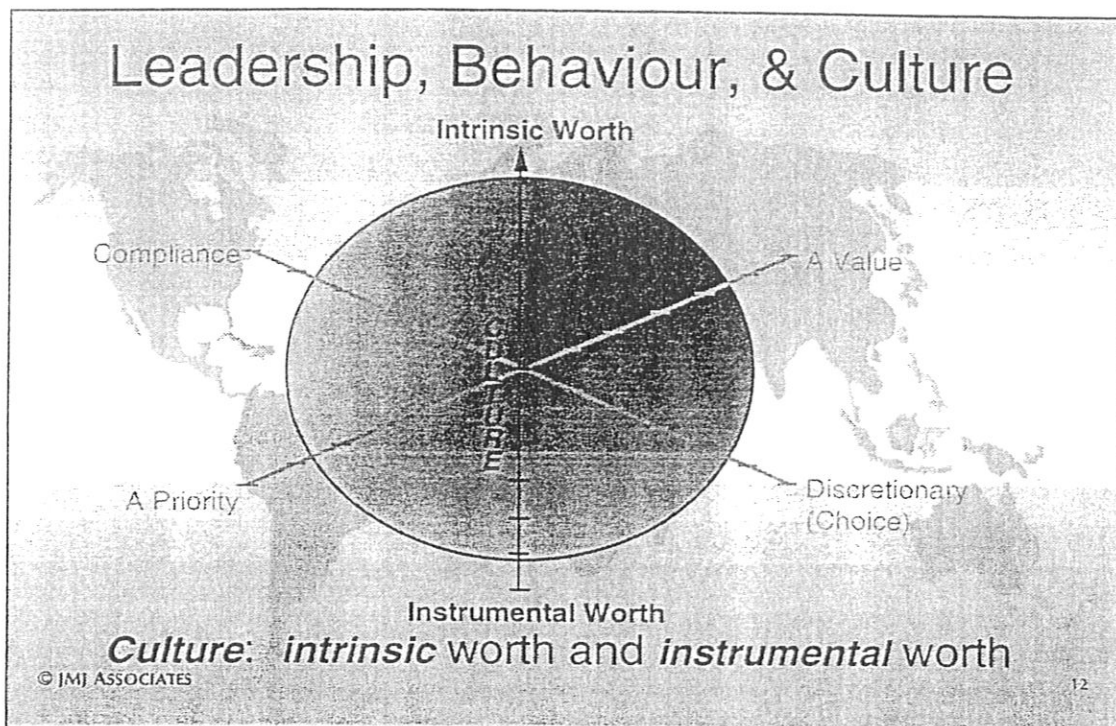
- ❖ Saying it:
 - > Most companies today have a zero injury focus.
- ❖ Believing it:
 - > However, most individuals in these organisations do not believe it is actually possible to accomplish these goals.
 - > They want their project, or organisation, to complete injury free year after injury free year.
 - > But they cannot see it going on indefinitely.
 - > Something, they believe, will eventually happen.
- ❖ Meaning it:
 - > An "injury free workplace", "zero accidents", or "all injuries are preventable" then becomes a slogan.
 - > The discrepancy between what is spoken and what is believed remains un-addressed (it is a subjective issue).
 - > The company's safety performance is then forged in the discrepancy.
- ❖ We can ask ourselves: Has our company's Zero Injury focus really become code for "Doing the best we can?"



- ❖ Now I want to turn to Leadership, Behaviour and Culture.
- ❖ The first axis is the leadership axis.
- ❖ At one end of this axis safety exists as a priority, and at the other end safety exists as a value.
- ❖ Priorities are objective; values are subjective.
 - > The first problem is that priorities have rank.
 - > The second is that priorities change. When is safety usually the biggest priority?
 - > The third is that people know it is not the first priority.
- ❖ When safety exists as a value, it is unchanging; it has no rank.
- ❖ Safety is a value with which we execute everything we do.
- ❖ How safety exists on a project is a function of leadership.
- ❖ What we need is safety as a priority and as a value.
- ❖ The objective and subjective aspects of safety must be integrated.

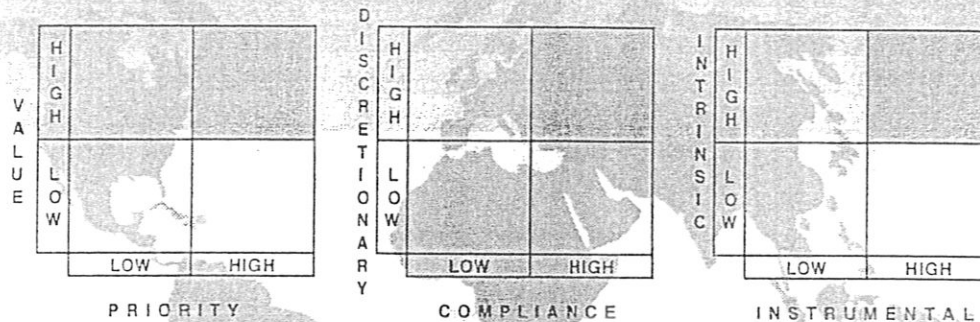


- ❖ The second axis is a behaviour axis.
- ❖ At one end, behaviour is compliance-based; at the other it is based on individual choice (discretion).
- ❖ Compliance is an objective phenomenon.
- ❖ Choice and discretion are subjective phenomena.
- ❖ Compliance-based behaviour does not produce high performance.
- ❖ Compliance-based behaviour is organised around the appearance of being safe - being legally safe, not really being safe.
- ❖ Clearly, we cannot eliminate injury through compliance.
- ❖ Nor can we disregard it, we want people to comply.
- ❖ We can be effective at the compliance end.
- ❖ But we also want people to do the right thing.
- ❖ Good judgement is the proper partner to compliance.
- ❖ We're not as effective at building good judgement and people's capacity to choose to do it safely because they want to.
- ❖ You and I are after an integration of compliance and discretion, an integration of the objective and the subjective.



- ❖ This third axis is the axis of work culture or the work environment.
- ❖ This area indirectly but powerfully impacts safety performance.
- ❖ At one end, people are viewed primarily for their instrumental worth; at the other for their intrinsic worth.
- ❖ At one end, we recognise the objective value of the individual, and at the other we recognise their subjective value.
- ❖ When we have an environment only of instrumental worth, we see:
 - people who don't feel cared for, and begin not to care
 - low dignity and respect
 - low quality of life at work
 - and low morale.
- ❖ When we have an environment that integrates instrumental worth with intrinsic worth, we see:
 - people that are cared for and that care
 - high dignity and respect
 - high quality of life at work
 - high morale.
- ❖ People want to be valued instrumentally and intrinsically.

Leadership, Behaviour, & Culture



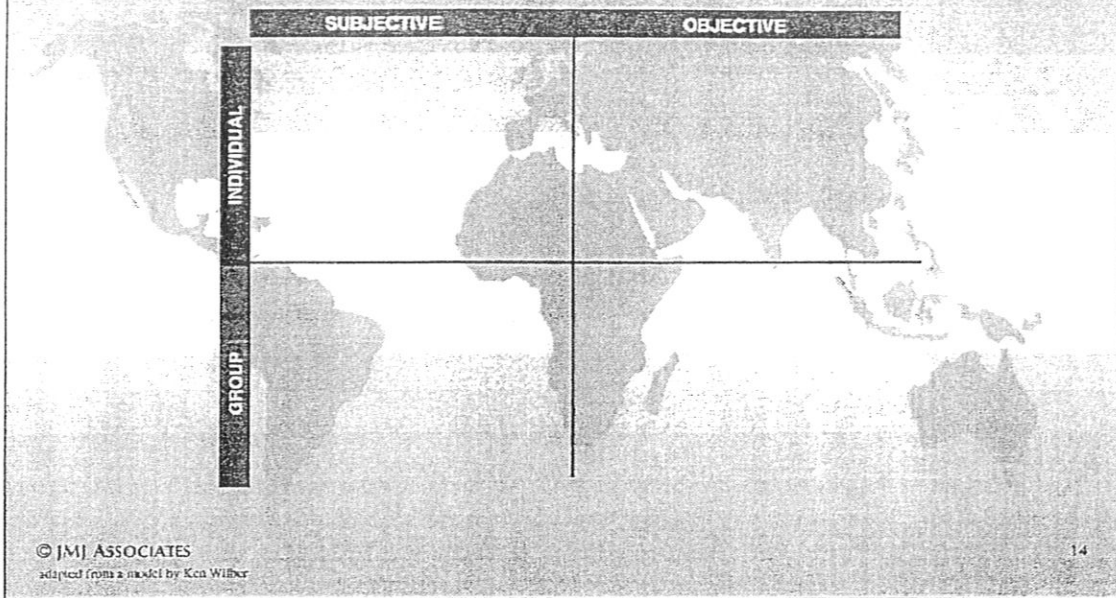
High Performance Safety *Integrates*

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- ❖ We want to stress that it is the integration of both that we are talking about.
- ❖ This is up here to underline that we are not suggesting replacing our effectiveness with the objective world in the subjective world.
- ❖ We need both. High performance requires both cheeks.
- ❖ We need the world of value integrated with the world of priority.
- ❖ We need the world of compliance integrated with the world of discretion and choice.
- ❖ We need the world of compliance integrated with the world of intrinsic choice.
- ❖ We need to understand and appreciate individuals and groups objectively and subjectively.
- ❖ We need to differentiate between them so that we can grow strong where we notice we are not very strong.

Putting People in the Picture



- ❖ Let's imagine a table that is divided into four quadrants by the following:
- ❖ We have two columns:
 - > the right column is the view from outside looking in
 - > this is the objective view; here we look at surfaces
 - > everything on the right side is observed, measured
 - > the left column is the view from inside looking out
 - > this is the subjective view; here we look at depths
 - > everything on the left side is interpreted
- ❖ We have two rows:
 - > the top row is the individual perspective
 - > the bottom row is the group perspective
- ❖ So: the upper right looks at the individual objectively, the lower right at a group or organisation objectively; the lower left looks at the group or organisation subjectively, and the upper left looks at the individual subjectively.
- ❖ Let's start with the upper right quadrant:

What This Could Mean

- ◆ Extraordinary results - not just safety
- ◆ Project learning that enculturates the corporation
- ◆ Intentional, behavioural, cultural and systems improvements

- ❖ What could this mean?
- ❖ What this breakthrough requires cannot be confined to safety.
- ❖ It literally touches everything, since when you work on safety in this manner you are working on everything that is important and fundamental to the organisation.
- ❖ You can have learning at the project level that begins to infect the projects' parent organisations.
- ❖ In fact, many organisations begin by using one project as the beginning
- ❖ Lastly, we are talking about improvements in all four domains.

In Closing

- ◆ You are not in the business of safety
- ◆ Not a strategy for production
- ◆ The Trojan Horse is a modern paradox

- ❖ You are not in the business of safety:
 - People in the field know this.
 - They know that safety is not your first priority - business is.
 - In fact, your own safety people are the most effective when they know this also.
 - But you must execute your business safely.
 - Your people want to know that you have an uncompromising stand and value for safety.
- ❖ Not a strategy for production:
 - This approach produces big productivity improvements.
 - But it can't be a strategy for increased productivity.
 - It has to be about eliminating injury.
- ❖ Values driven, results oriented:
 - Results driven, results oriented - one cheek missing.
 - Values driven, values oriented - the other cheek missing.
 - Values driven, results oriented integrates and opens the doors to a truly creative approach and high performance.

DISCUSSION FORUM
Summary Notes

*“How Training Can
Improve Performance”*

*Discussion Forum –
How Training Can Improve Performance*

JMJ's approach

How have JMJ started to implement their thinking on projects?

Michael Huvane

The process is:

- We do a set of interviews in all four quadrants (See talk notes for quadrant description)
- We feedback to senior management, asking them to take ownership of it
- We run a series of workshops starting with senior management
 'Will you be responsible for the site being incident / injury free?'
- We coach implementation from these workshops
- We form a site leadership team and coach them
- We ask them to take a stand for something that they want but don't really believe is possible!

We spend 9-12 months on each project – We are not a 'workshop' company

We need to coach skills and abilities as well – supervisors lack knowledge and skills

- *Does this approach work as well with operations & maintenance?*

Michael Huvane

The perception is that O&M is safer than construction – BUT – now the best major construction projects are out-performing O&M operations and so the O&M people are looking at how we do things.

This is a 'top-down approach' – Do you need 'bottom-up' as well?

Michael Huvane

We must work at all levels – but it's important to start at the top first!

Safety – Cost or benefit?

How have clients reacted?

Michael Huvane

Very well, once they realise that productivity will improve as well

If you focus on people you reap the benefits in many ways

Moving to take the stand that nobody gets hurt is difficult – Once you are there conceptually it becomes easier.

Dave Stewart

Foster Wheeler have found that safety indicates good performance and is actually MAKING money

Efficient sites are safe and safe sites are efficient

Anon

Concept is 'Investing in safety'

Safety is a leverage tool to encourage other issues

John Cook (Brown & Root)

As part of the deal we get the supervisor of a sub contractor to give a tool box talk to ALL the operatives about the risks of their particular work (e.g. asbestos)

Incentive schemes – Good or bad?

Trevor Thompson (Kvaerner)

We don't like incentives for lack of accidents as this encourages non-reporting – but they are good for near miss reporting (where more is better)

Guido Simons (Fluor Daniel)

We must recognise good performance – e.g. helmet stickers 'I work safe!'

This is not a substitute for a strong successful proactive safety culture – but it helps

The role of Legislation

Guido Simons (Fluor Daniel)

We need the 'big stick' as well

Alistair Gibb (Loughborough University)

Before car seat belts became law I didn't wear them – Then I did because the law said so – Then I started to feel 'wrong' if I didn't wear them – I started to feel safer..... But the key thing is that my children (who have known nothing else) will not let me drive off until everyone is 'belted-up'.

Thus legislation AND culture change is required

The influence of different national or ethnic cultures

Anon

EU member states have different cultures and these must be recognised in training approaches.

Some cultures have a fatalistic attitude towards events – 'It is the will of God' – This makes it hard to change the culture..... But 'no-one wants to get hurt', so there is still the basic human preservation instinct that can be mobilised.

The role of clients in driving change

Anon

Why are there so few clients here?

A client

Client arrogance???

Chris Marchant

Sadly a number of clients still value the arms length approach to relationships and involvement.

Client / Contractor mix that is unique to ECI (in Europe) is essential in driving through these issues.

BREAKOUT SESSIONS

Summary Notes

- Safety Inductions*
- Training for Managers*
- Certification and Validations*
- Training Styles*

Breakout Sessions

Safety Inductions Breakout Session

This group used the following emotive statement to stimulate discussion & debate:

"Safety inductions are a waste of time in their current format:

- Personnel go to sleep
- There is no added value from the courses
- Courses are repetitive and merely duplicate previously learned information

A step change is long overdue

The group summarised world-class performance as:

Each induction would be of consistent quality

Only understandable language would be used (appropriate translations and avoiding jargon)

Courses would not 're-invent the wheel'

Current technology should be used (e.g. interactive CD Rom)

There should be standardisation of training programmes

- UK Passport
- EBB Passport
- etc

Core modules would be covered on passport schemes therefore avoiding the need for repetition on each induction

Safety Training for Senior Management Breakout Session

This group emphasised the following basic premises:

Safety is a line management responsibility

Driving forces for training are:

Clients

Legislation

Competitors

Senior managers will listen to internal trainers but not really hear!

World-class senior management training would ensure:

- Active management involvement
- Safety must be included in project reporting to senior managers
- Safety resource budget is necessary
- Objectives, targets, priorities and standards are set and communicated

Courses should include:

- Awareness of the corporate policy statement
- Awareness of liability
- Role of example setters
- Regular interface with line management
- Understanding that poor safety leads to a loss of reputation
- Risk management must include safety issues

The group concluded that:

External training is better than internal

Sessions should be organised to debate with other EPC contractors

Clients should drive the process

ECI could act as a platform for improvement

Unions and industrial relations must be considered

Certification & Validation Breakout Session

The group identified a number of desirable key actions

- 1 ECI should support an integrated training scheme with:
 - Level 1 Workforce
 - Level 2 1st line supervision
- 2 ECI should facilitate meetings between clients and contractors to establish common recognition.
- 3 There should be MINIMUM requirements for recognition with 'top-ups' provided as necessary.
- 4 All courses should have similar contents, with assessments and audits agreed by local client/contractor groupings
- 5 Each local client/contractor group should identify specific local requirements for conversion from the 'standard' qualification.
- 6 ECI should encourage suitable courses for levels 3+ (Senior supervisors and management – for both clients and contractors)
- 7 Re-certification must be an upgrading of previous knowledge, not just repetition.

Training Styles Breakout Session

This group defined the aim of training as:

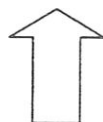
'to give knowledge and understanding for implementation'..... and.....

'to convince people to believe in the goal'

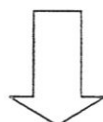
They codified various types of training:

People driven

1. One-to-one
2. Demonstration
3. Group meeting
 - Team building
 - Brainstorming
 - Involving



More
effective



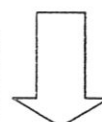
Less
effective

Technology driven

1. Computer interactive
2. Video / computer (non-interactive)
3. Slides
4. Newsletters / Handouts

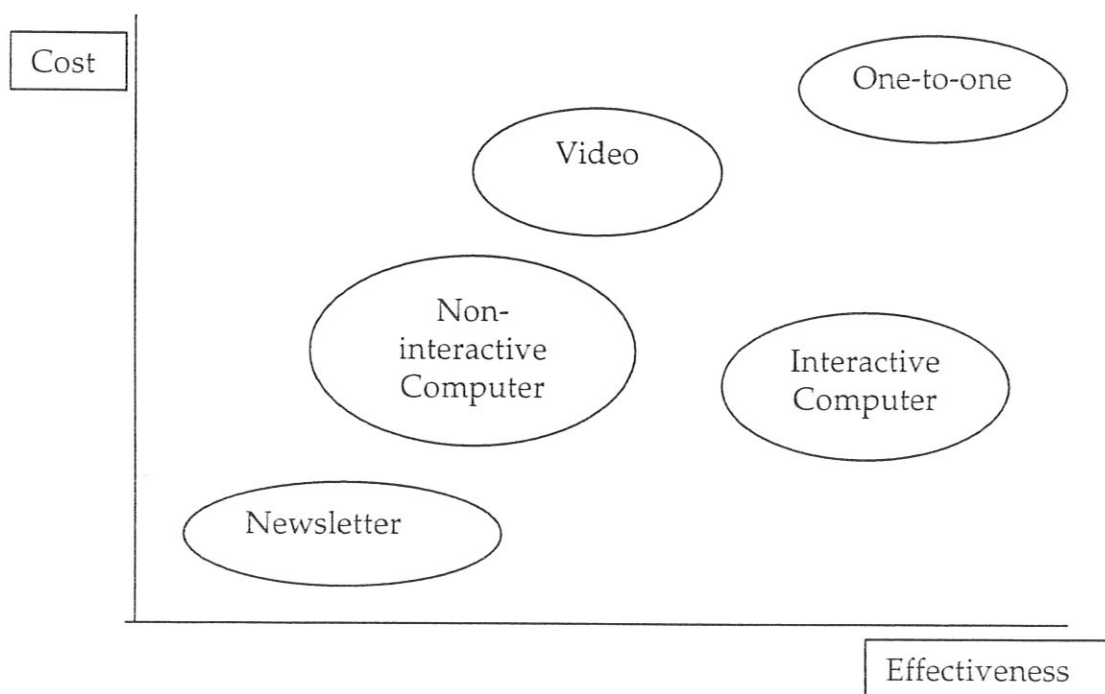


More
effective



Less
effective

They discussed and mapped out the following diagram:



They linked the following outcomes with appropriate methods:

- | | | |
|-----------|----------|----------------------------|
| Skill | >>>>>>>> | 'How to' via demonstration |
| Informing | >>>>>>>> | via communication |
| Belief | >>>>>>>> | via challenge and review |

CLOSING REMARKS

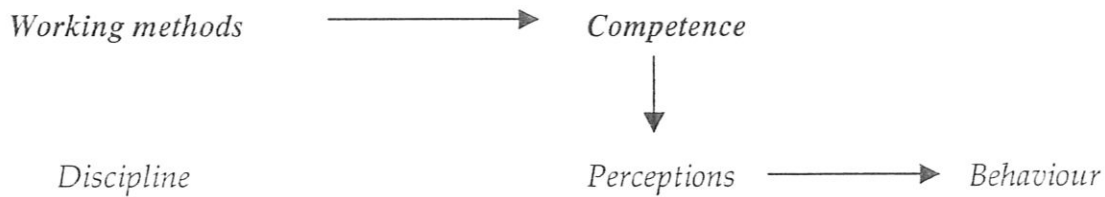
CHRIS MARCHANT
Interconnector UK Ltd

LUCIEN SAJUS
Technip, France

Closing Summary – Chris Marchant

Chris Marchant closed the workshop with the following summary points:

- *Integration and alignment of key players is required (especially more clients to be involved)*
- *Key causes of accidents:*



- *Assessing quality of contractors / subcontractors is essential*
- *Culture and language must be addressed*
- *Proactive measures of performance are best:*
 - Near-miss reporting*
 - Ideas for improvement*
 - Behavioural observations*
- *Academic institutions must play their part in training for the future*
- *Leadership is paramount – Taking a stand for safety (individually / collectively)*
- *Objective and subjective approaches are both required.*
- *We should work hard on the subjective – the hearts and the minds*

Conclusion – Lucien Sajus

"First of all, on behalf of all the management board of Technip, I would like to thank you for taking part in this workshop on safety training within the European construction industry and I am sure it was profitable to the whole assembly.

I think that the various presentations and the results of the breakout sessions have highlighted the necessary actions that Contractors and Subcontractors have to undertake to implement or to improve the requirements of the clients and Labour Regulations relating to the safety training planned for a better safety at work during construction operations.

Technip was very pleased to host this event which will not doubt help promote the need for construction personnel, staff and workforce, to have adequate safety training corresponding to the position, the basic knowledge and the work of all personnel on the worksite.

There is also no doubt in our minds that such safety training enables improvement in the performance of the companies, by the Contractors, Subcontractors or Clients.

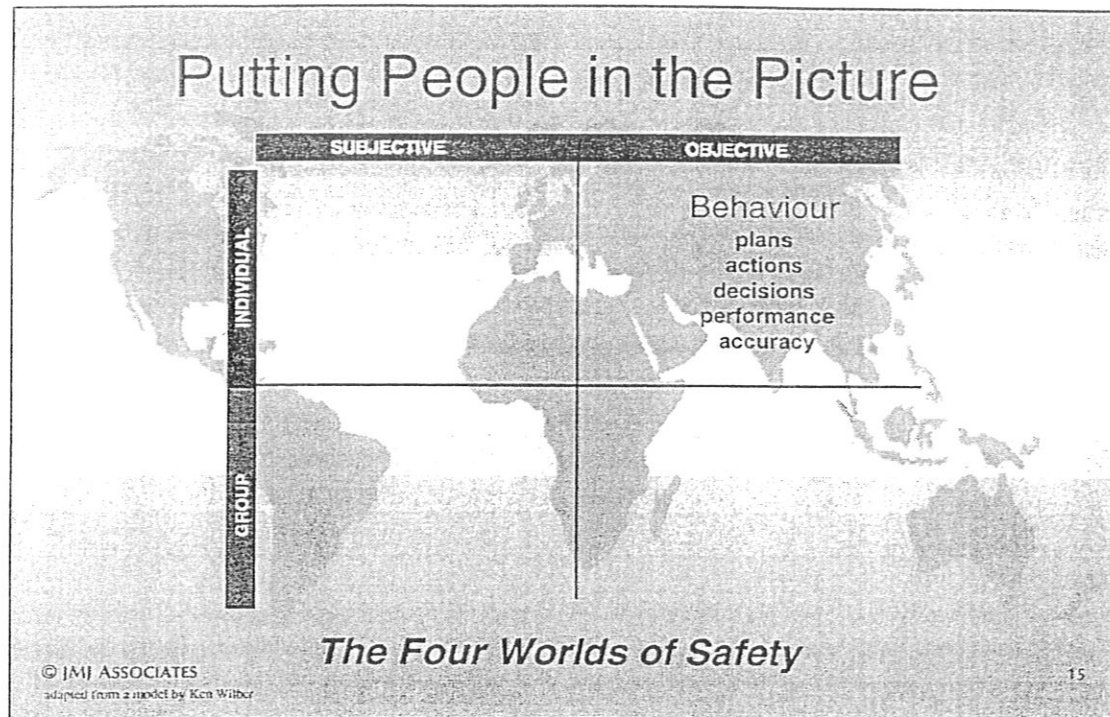
However, we all have to keep in mind that safety training programmes need to be defined with great care and will be successful if and only if the safety abilities resulting from those courses / training will be valid and valuable whatever the Client, the contractor and the country where they apply in Europe.

This is for us and I believe for all companies involved internationally across Europe a great concern. A lot of effort has already been put into harmonising laws, standards, policies and economies within the European Union. A lot has already been achieved which 10 or 15 years back no one would have placed a sure bet upon.

We believe in terms of safety and particularly safety training which is the focus of our attention today, we can achieve the same level of success. There will be great resistance and we will need to drive forward with the force of our convictions that this is the right way to go.

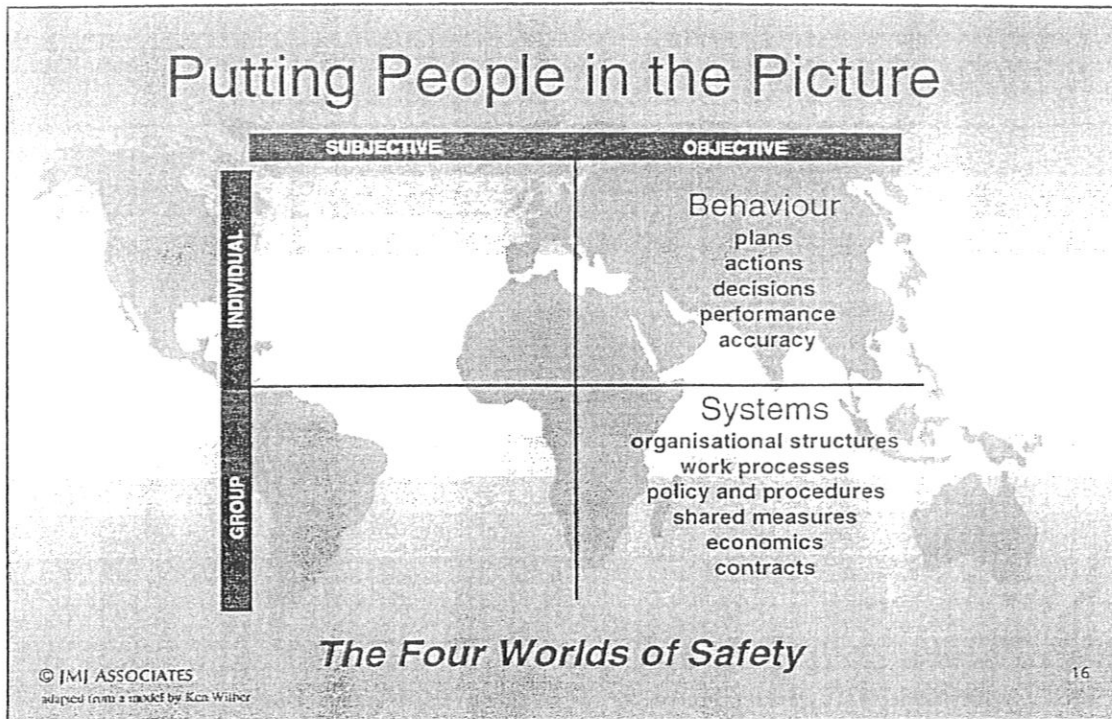
Practically, I would suggest here, as a contribution to the goal that the ECI's HSE Task Force should establish the content and the management rules of a Pan-European safety training valid, as a first step, across the oil and chemical industries of the EEC's countries.

I do sincerely hope that you will pick up this suggestion and bring it to fruition."

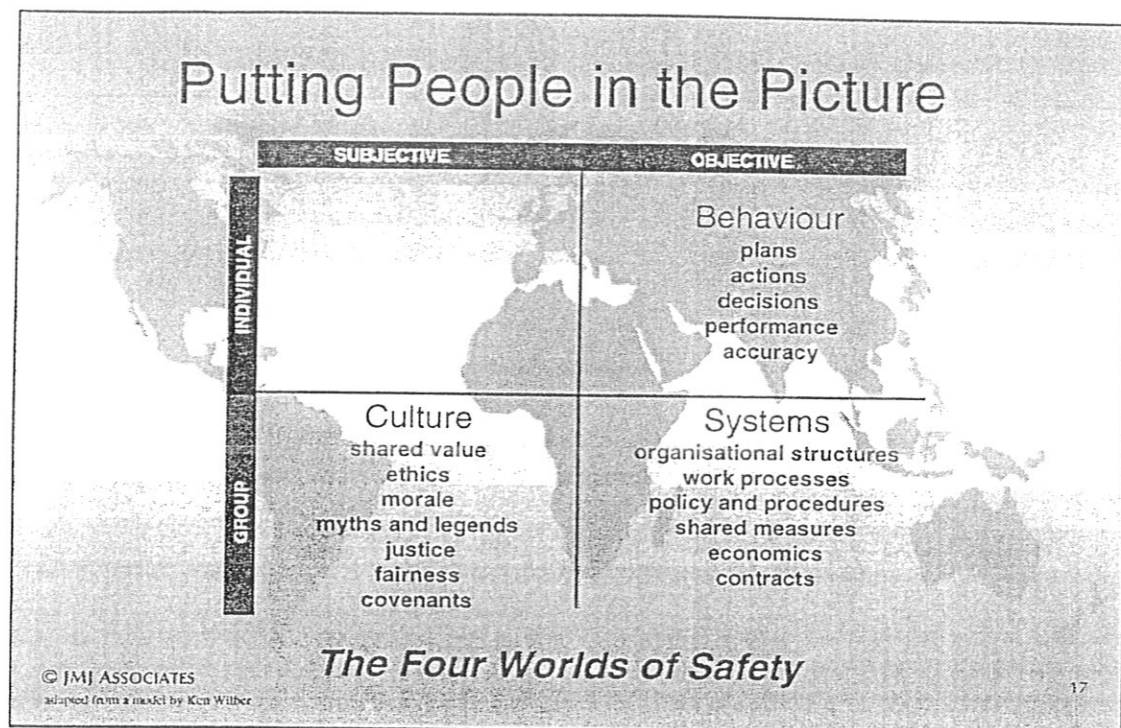


- ❖ The upper right quadrant is the individual viewed from the outside.
- ❖ This is the domain of behaviour; what we see when we observe an individual from the outside are their actions, their behaviour.
- ❖ This includes the plans one makes, the actions and decisions one takes; this is the domain of observable performance.
- ❖ 90% of accidents are happening in safe conditions, i.e. at risk behaviour is responsible.
- ❖ A behaviour-based approach to safety fits in this quadrant. This has put into management's hands powerful tools for managing safety from a prevention base.
- ❖ In the evolution of safety, we see incident-focused behaviour evolve to process-focused behaviour, which can then develop into vision or commitment-focused behaviour.
- ❖ Let's look at the lower right quadrant:

Putting People in the Picture

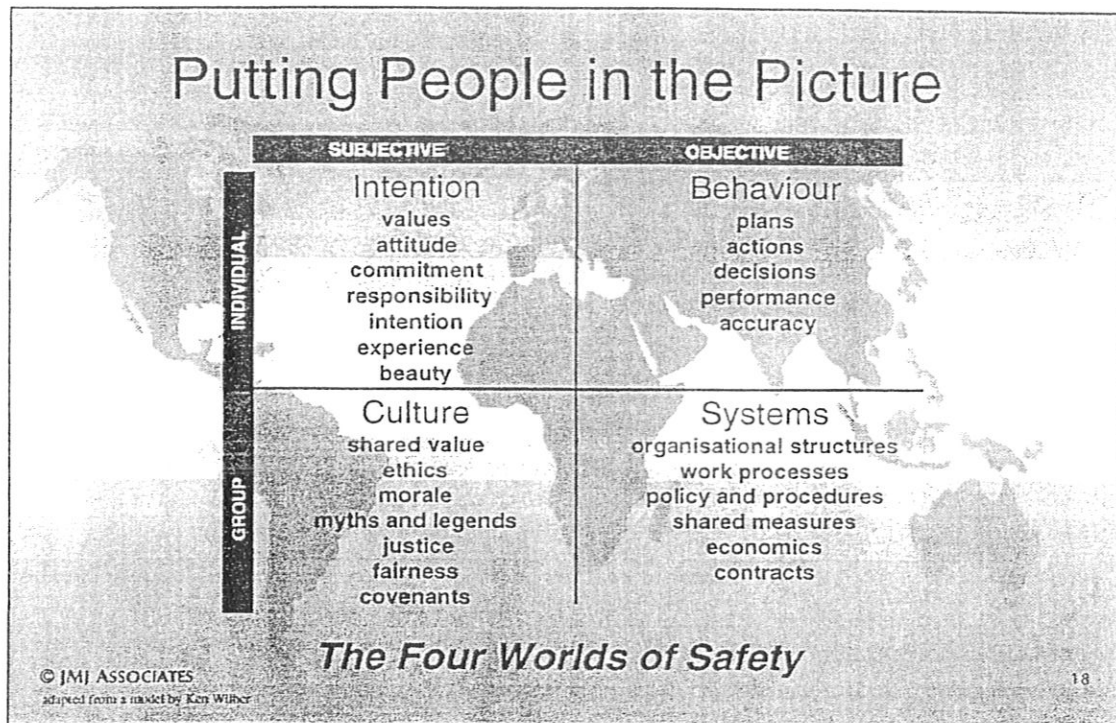


- ❖ The lower right quadrant is the group or organisation viewed from the outside.
- ❖ This is the domain of systems and this includes organisational structures for safety; the system of policies and procedures; the system of metrics and measures that are the most common register for safety results.
- ❖ This domain includes the overall management systems, of which safety management systems are a part.
- ❖ This domain includes the leadership system, which includes the formal and informal systems for dignity and respect, appreciation and value.
- ❖ In the evolution of safety, we see systems that begin always as incident-focused, evolve often into process focused, and sometimes develop into vision or commitment-focused systems.
- ❖ Let's look at the lower left quadrant:

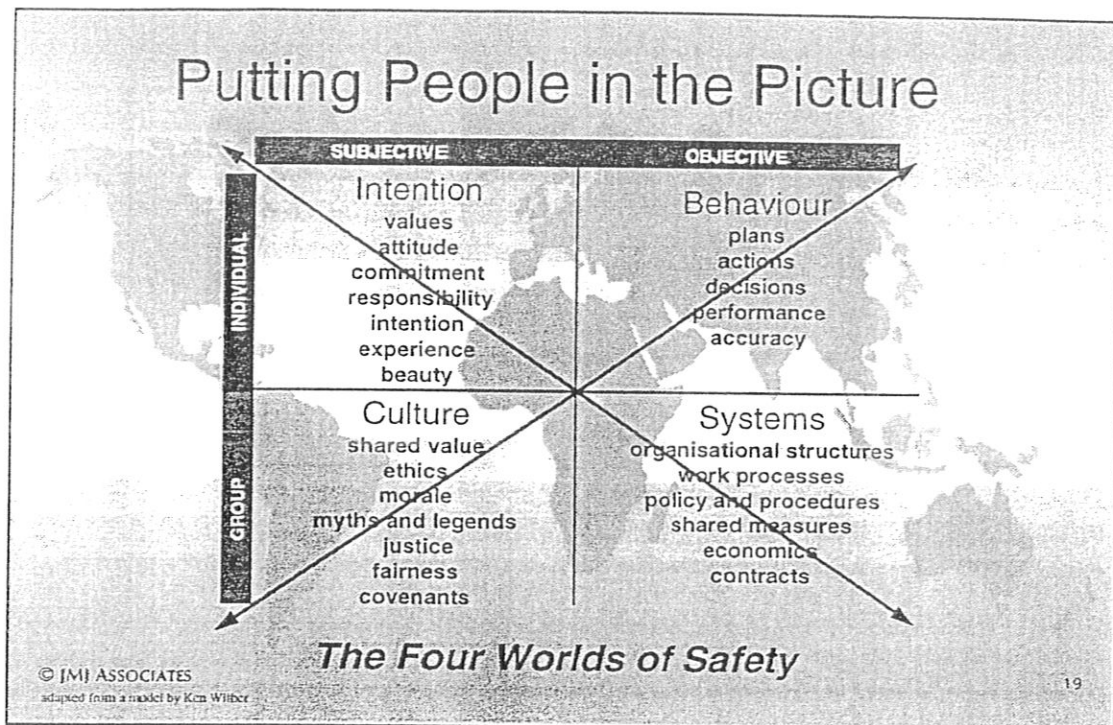


- ❖ The lower left quadrant is the organisation viewed from the inside.
- ❖ This is the domain of culture; the shared values, norms and standards of an organisation as they are in actuality.
- ❖ This domain includes:
 - > the ethic of an organisation or site
 - > the variations through time of the culture's mood: its morale
 - > the myths and legends as key indicators of the culture
 - > what people perceive to be the level of justice
- ❖ Culture is a subjective phenomenon.
- ❖ We can see that we are most effective at systems, next at behaviour, but culture seems different to us.
- ❖ In the evolution of safety, we see cultures that begin always as incident-focused, evolve often into process-focused, and sometimes develop into vision or commitment-focused cultures.
- ❖ Let's look at the upper left quadrant:

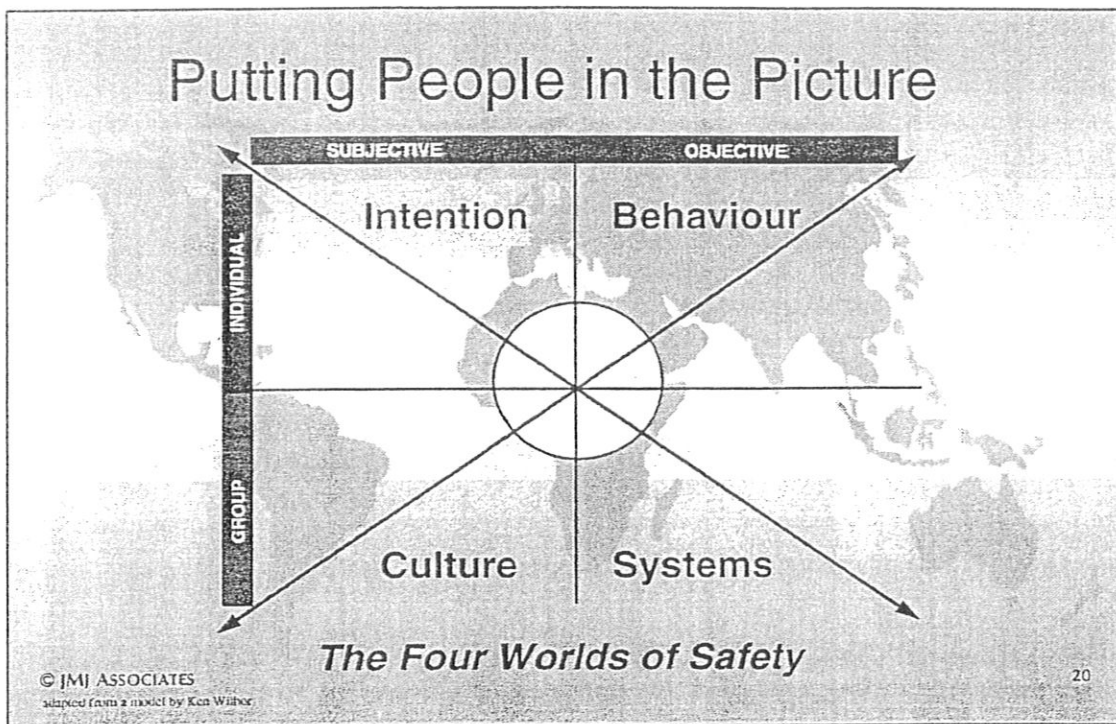
Putting People in the Picture



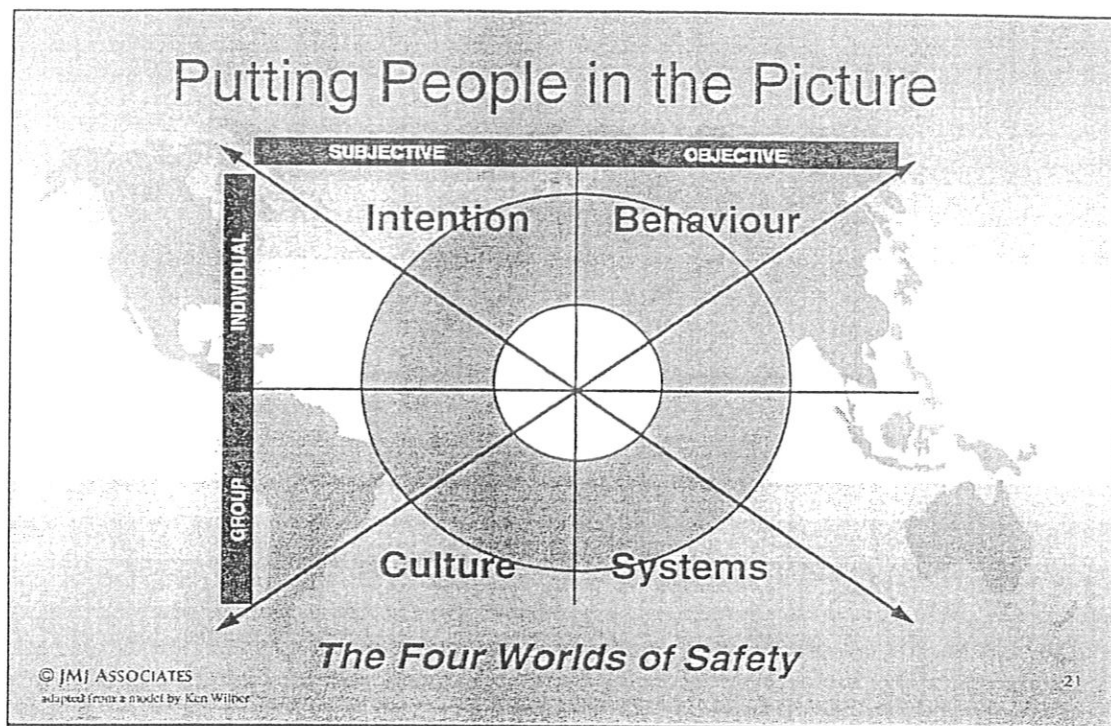
- ❖ The upper left quadrant is the individual viewed from the inside.
- ❖ This is the domain of the self: the subjective view of the individual; the individual from the inside.
- ❖ We are much more comfortable and capable in influencing behaviour than we are in influencing values, for this domain includes an individual's values, standards and attitudes.
- ❖ This is the domain in which commitment and responsibility occur; in fact, this is the only domain in which commitment and responsibility can occur.
- ❖ This domain includes an individual's psychology and ontology.
- ❖ In the evolution of safety, we see commitments that begin always as incident-focused, evolve often into process-focused, and sometimes develop into vision-focused commitments.
- ❖ Let's review what we are saying here:



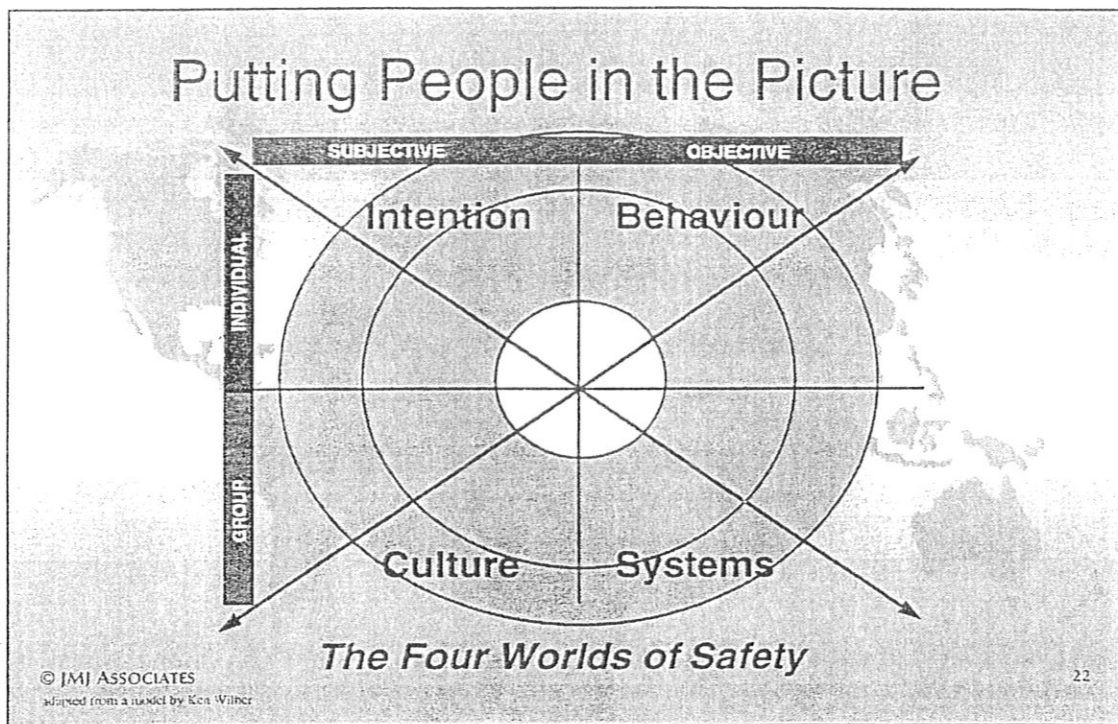
- ❖ There is an Evolution of Safety; and we are moving past reactive and preventative-based safety approaches to a creative approach.
- ❖ The foundation for a creative approach is an authentic commitment to the elimination of incidents and injuries.
- ❖ There are subjective and objective components of safety leadership, of safety behaviour, and of a safety environment.
- ❖ Our safety approach and our safety performance always occurs objectively and subjectively, individually and collectively.
- ❖ The four quadrants outline how our approach and performance occurs in each, the unique nature of each, and the unique focus of each.
- ❖ There is development in each quadrant, and an organisation develops or evolves differently in each quadrant; our systems can be ahead of our behaviour; our culture can be ahead of our systems, and so on.
- ❖ Which is to say:



- ❖ Development goes from reactive (in each quadrant) . . .



❖ ... to preventative in each quadrant, ...



- ❖ ... to Creative in each quadrant.
- ❖ But here's the clincher:
 - We are only as good as our least developed quadrant.
 - We can sustain no higher performance than that.
- ❖ In addition:
 - We are lopsided in what we see, what we do, and what we can influence.
 - We are limited by a prejudice toward the objective.
- ❖ We are saying that we can only sustain as high a performance as our least evolved quadrant.
- ❖ And we are saying that we are better with objects than we are with subjects.
- ❖ Putting the subject back in the picture is what we mean by putting people back in the picture.
- ❖ Let's look at some implementation changes:

Implementation Challenges

- ◆ **Honest** commitments to injury-free work
- ◆ Relationships of **generative responsibility** between owner and contractor
- ◆ **Authentic** project leadership engagement

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- ❖ These are just three of the most prevalent challenges to the executive and the manager both that we see on projects today.
- ❖ The first is the challenge of engendering, catalyzing honest and believed-in commitments to injury-free work.
- ❖ The second has to do with the relationship between owners and contractors.
- ❖ The third is also critical. How do we engage executives and managers with our project leadership teams so that they are authentically engaged in the approach, not just doing what is currently politically correct?
- ❖ As you can see, the key to all three of these is facility with the subjective component of safety.
- ❖ With each, executives and managers alike must first accept, and then act upon the validity of skills and abilities that are positively impacting people and culture.



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