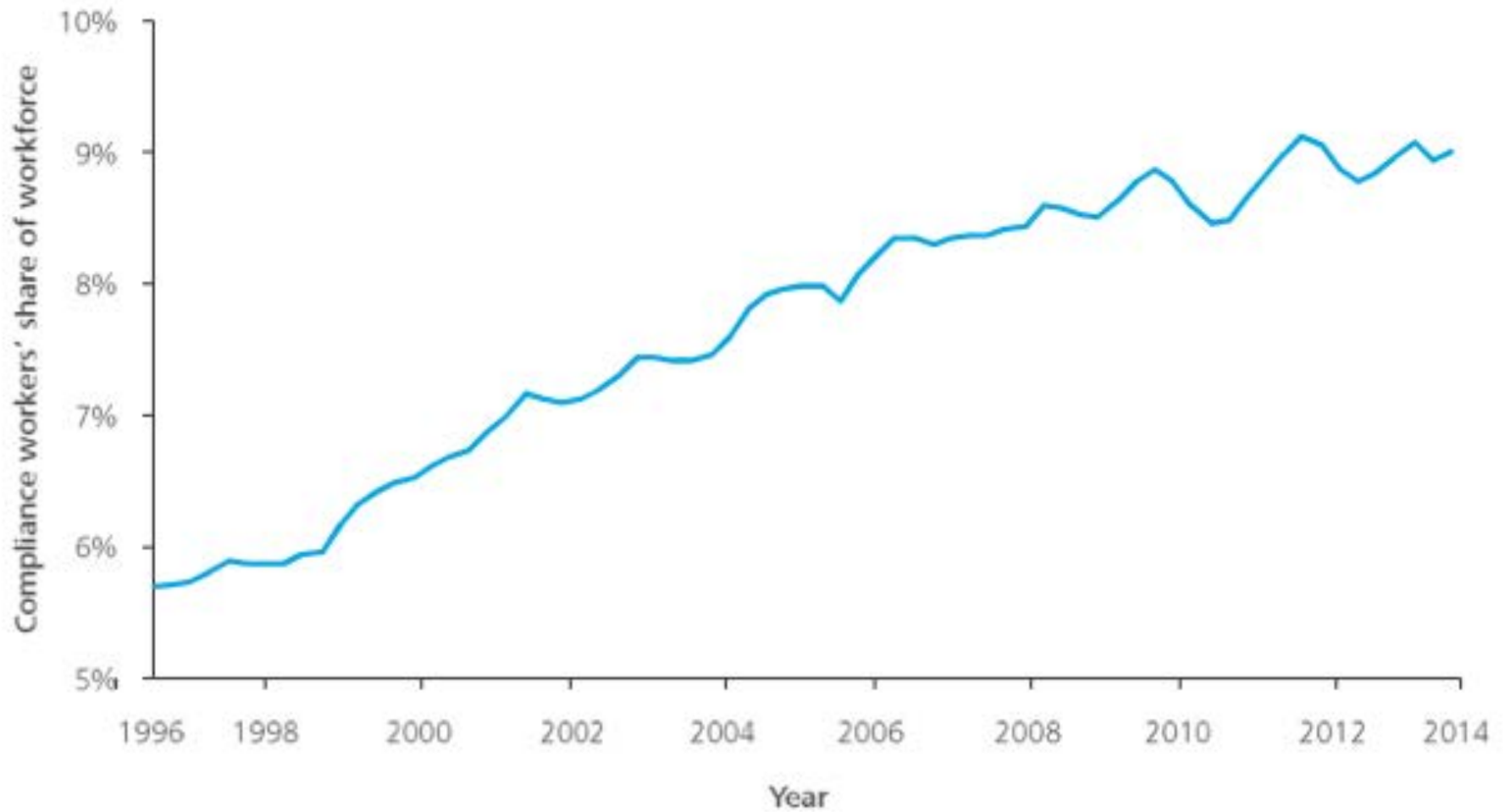


[sidneydekker.com](http://sidneydekker.com)

Chart 9: The rise and rise of Australia's compliance culture – and workers



Source: Australian Bureau of Statistics

HOME » NEWS » WORLD NEWS » EUROPE » SPAIN

## Spanish prostitutes ordered to wear reflective vests for their own safety

Prostitutes working on the street outside a town northern Spain have been ordered to wear reflective vests to make them visible to passing traffic and reduce the risk of accidents.



Prostitutes wearing high visibility vests in Els Alamus Photo: REX

Print this article

### Spain

News » World News »  
Europe »  
Fiona Govan »

### Related Partners

The best way to transfer money overseas

### In Spain





Photo By Marie D. De Jesus/Houston Chronicle

Randall Clements, left, plant manager of DuPont facility in LaPorte and DuPont spokesman Aaron Woods, right, walk out the plant to speak to the media about the a gas release that killed four employees. Saturday, Nov. 15, 2014.











# Safety as bureaucratic accountability



**THIS IS A  
VELOCIRAPTOR-FREE  
WORKPLACE**



IT HAS PROUDLY BEEN

23,740,703,486

DAYS SINCE THE LAST  
**INCIDENT**

This is a velociraptor-free workplace



It has proudly been

days since the last  
velociraptor related  
incident!





# Jail for Safety Manager for Lying About Injuries

**AP** Associated Press CHATTANOOGA, Tenn. April 12, 2013 (AP)



+ Share



Email



Comment



Print



Text Size - / +

A Louisiana man will spend time in prison for lying about worker injuries at Tennessee Valley Authority nuclear facilities, allowing his company to collect \$2.5 million in safety bonuses.

A federal court news release says 55-year-old Walter Cardin, of Metairie, has been sentenced to serve 6½ years in prison followed by two years of supervised release.

Cardin was the safety manager for the Shaw Group, a construction contractor. He was convicted in November of not reporting injuries at the Sequoyah (see-KWOY'-uh) and Watts Bar plants in Tennessee and Brown's Ferry in Alabama between 2004 and 2006.

At his federal trial, jurors heard evidence of more than 80 injuries not properly recorded, including broken bones, torn ligaments, hernias, lacerations and injuries to shoulders, backs and knees. Shaw Group paid back double the bonuses.

Table 1

Annual data from the study period and correlations between both fatality rate and accident frequency and explanatory variables

	Fatality rate and number of fatal accidents	Accident frequency	Number of wage earners (1000 persons)	Working hours (millions)	Unemployment rate (%)	Cubic metres under construction (millions)
<i>Construction</i>						
1977	11.9 (20)	62.4	168	334	12.2	48.12
1978	15.2 (25)	55.6	164	325	14.4	42.78
1979	14.7 (24)	57.7	163	322	11.4	47.62
1980	14.4 (23)	65.6	160	316	8.3	49.83
1981	14.2 (24)	62.6	169	322	6.6	47.17
1982	10.8 (18)	61.9	166	326	8.0	50.32
1983	7.4 (12)	70.0	163	308	9.4	51.44
1984	10.4 (17)	71.3	163	310	9.6	52.13
1985	10.1 (16)	71.3	159	298	10.0	49.64
1986	9.8 (16)	67.9	164	295	10.9	52.27
1987	10.6 (16)	71.3	159	300	10.7	52.64
1988	7.5 (12)	72.7	160	304	9.2	59.95
1989	7.1 (12)	70.7	169	319	6.1	72.79
1990	10.5 (18)	70.1	171	318	7.0	65.52
1991	12.5 (19)	64.5	149	271	17.3	57.99
Correlation with:						
fatality rate		$r = -0.82$ $p < 0.001$	$r = -0.08$ $p = 0.77$	$r = 0.23$ $p = 0.41$	$r = 0.38$ $p = 0.17$	$r = -0.63$ $p = 0.01$
accident frequency			$r = -0.09$ $p = 0.73$	$r = -0.42$ $p = 0.11$	$r = -0.41$ $p = 0.13$	$r = 0.59$ $p = 0.02$

**Sample size: 15**

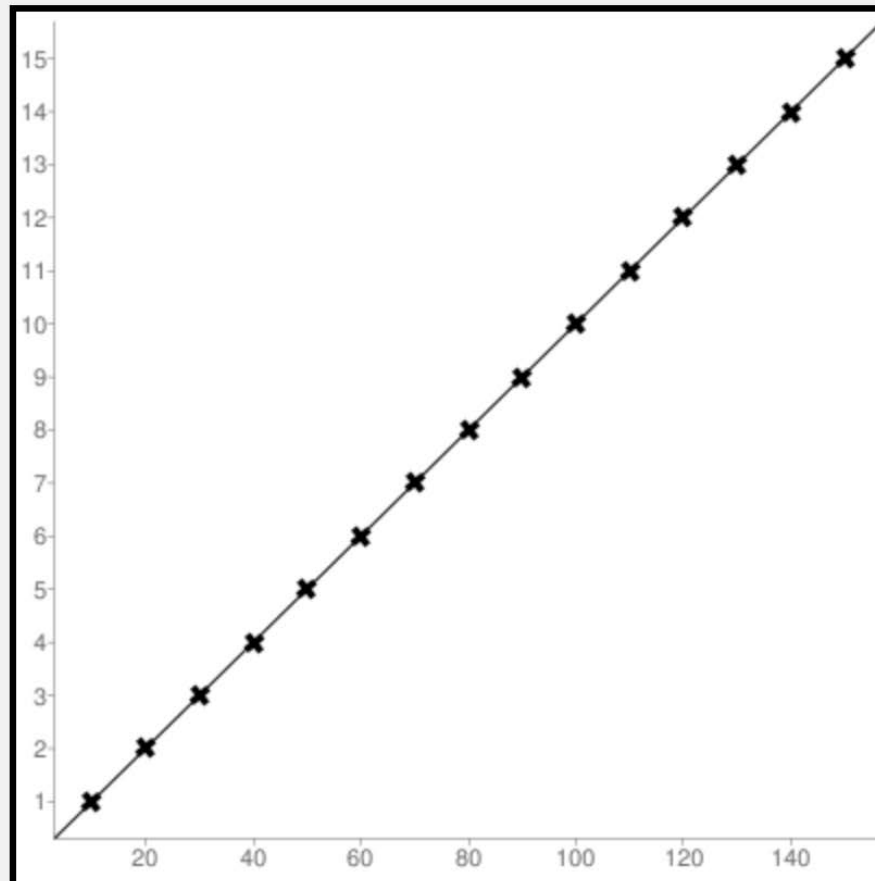
**Mean  $x$  ( $\bar{x}$ ): 80**

**Mean  $y$  ( $\bar{y}$ ): 8**

**Intercept ( $a$ ): 0**

**Slope ( $b$ ): 0.1**

**Regression line equation:  $y=0.1x$**



**Sample size: 15**

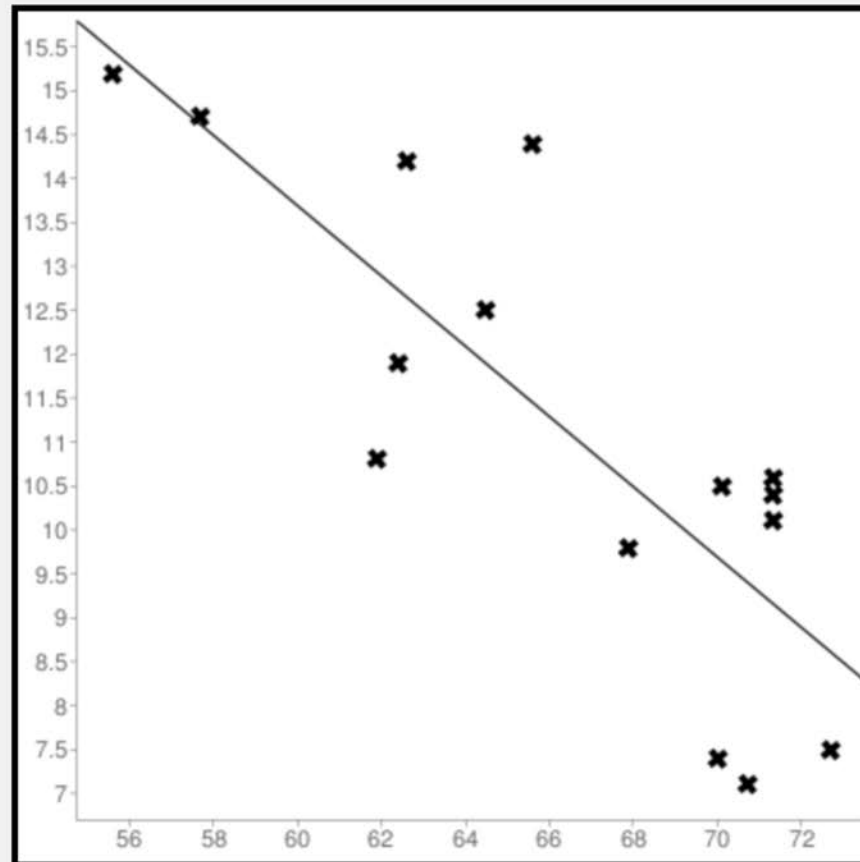
**Mean  $x$  ( $\bar{x}$ ): 66.373333333333**

**Mean  $y$  ( $\bar{y}$ ): 11.14**

**Intercept (a): 37.708323462728**

**Slope (b): -0.40028611082857**

**Regression line equation:  $y=37.708323462728-0.40028611082857x$**





**Table 1**  
**Correlation of Major U.S. Jet**  
**Air Carrier<sup>1</sup> Nonfatal Accident/Incident**  
**Rates and Passenger-mortality Risk,**  
**Jan. 1, 1990–March 31, 1996**

Type of Nonfatal Event	Correlation <sup>2</sup>
Incidents Only	-0.10
Incidents and Accidents <sup>3</sup>	-0.21
Accidents Only	-0.29
Serious Accidents Only <sup>4</sup>	-0.34

<sup>1</sup> The U.S. Federal Aviation Administration defines "major air carrier" as an air carrier certified under U.S. Federal Aviation Regulations Part 121 or Part 127 and with annual operating revenues greater than US\$1 billion.

<sup>2</sup> Values shown are the coefficients of correlation between the accident/incident rate per 100,000 departures and the mortality risk per randomly chosen nonstop flight (i.e., the Q-statistic).

<sup>3</sup> The U.S. National Transportation Safety Board (NTSB) in 1996 defined "accident" as "an event involving serious injury, loss of life or substantial aircraft damage."

<sup>4</sup> NTSB in 1996 said that accidents in the "serious accident" category "exclude turbulence[-related accidents and] other minor accidents in flight, and gate or ramp accidents."

Sources: Arnold Barnett and Alexander Wang

Table 1 shows correlations of nonfatal accidents/incidents per 100,000 departures for individual major carriers with their passenger-mortality risks, as measured by Q-statistics.

All the correlation coefficients shown in Table 1 are negative, which means that carriers with higher rates of nonfatal accidents/incidents had lower mortality risks. Furthermore, the correlations shown become increasingly negative as the events become more severe — from -0.10 for incidents only to -0.34 for serious accidents only.<sup>15</sup>

# Funeral goers hear that Airport Link worker Sam Beveridge was a devoted family man

BROOKE BASKIN THE COURIER-MAIL OCTOBER 07, 2011 2:41PM

SHARE



SAVE THIS STORY

Ads By Google

[Advertise on Google™](#) Official Free Support from Google™. Start Today and Save \$100! [www.google.com](http://www.google.com)

**HUNDREDS gathered to remember Airport Link worker Sam Beveridge at a funeral in Kenmore on Friday morning.**

The 40-year-old diesel fitter died in hospital on Saturday, October 1, two days after he was struck in the head with a falling beam in the southbound tunnel at Lutwyche.

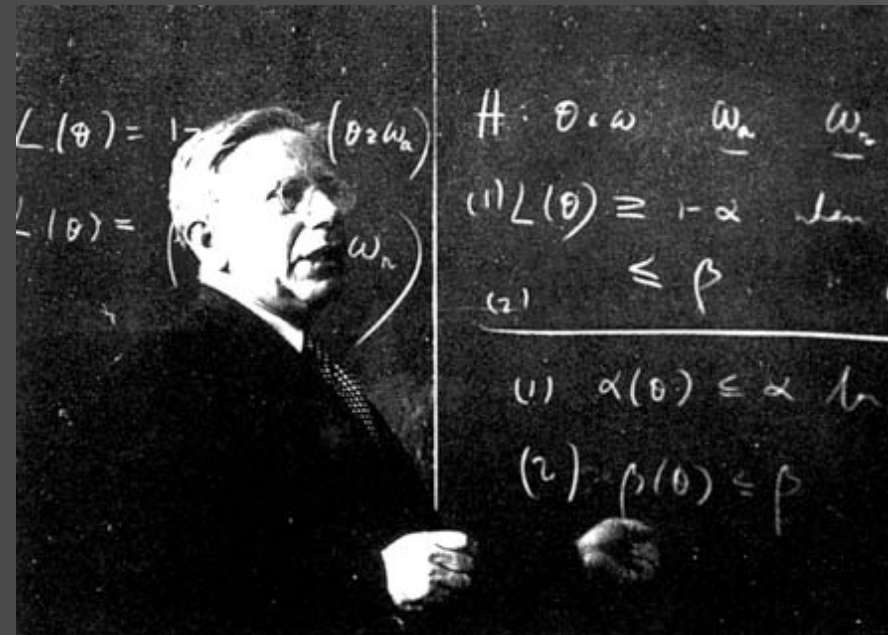
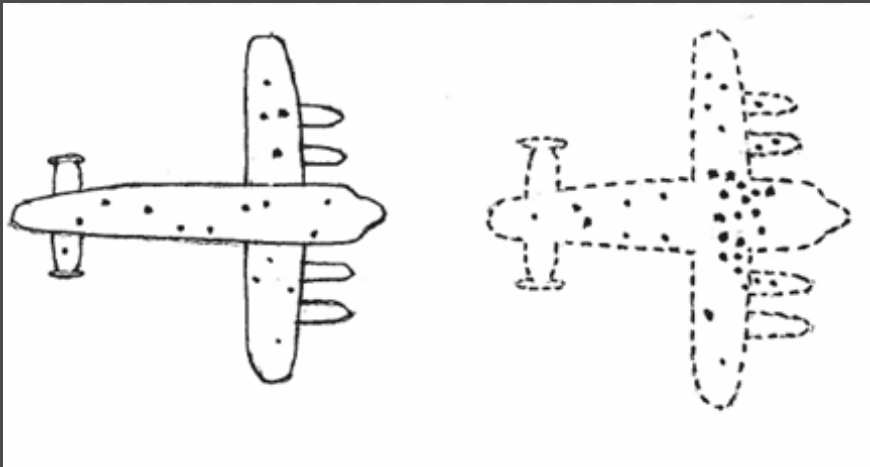
He leaves behind a nine-year-old son, Lachlan, and his wife of 13 years, Jennifer.

Mr Beveridge, who only celebrated his 40th birthday late last month, was remembered as a "lovable larrikin", a devoted family man and as a hard worker with a passion for adventure.

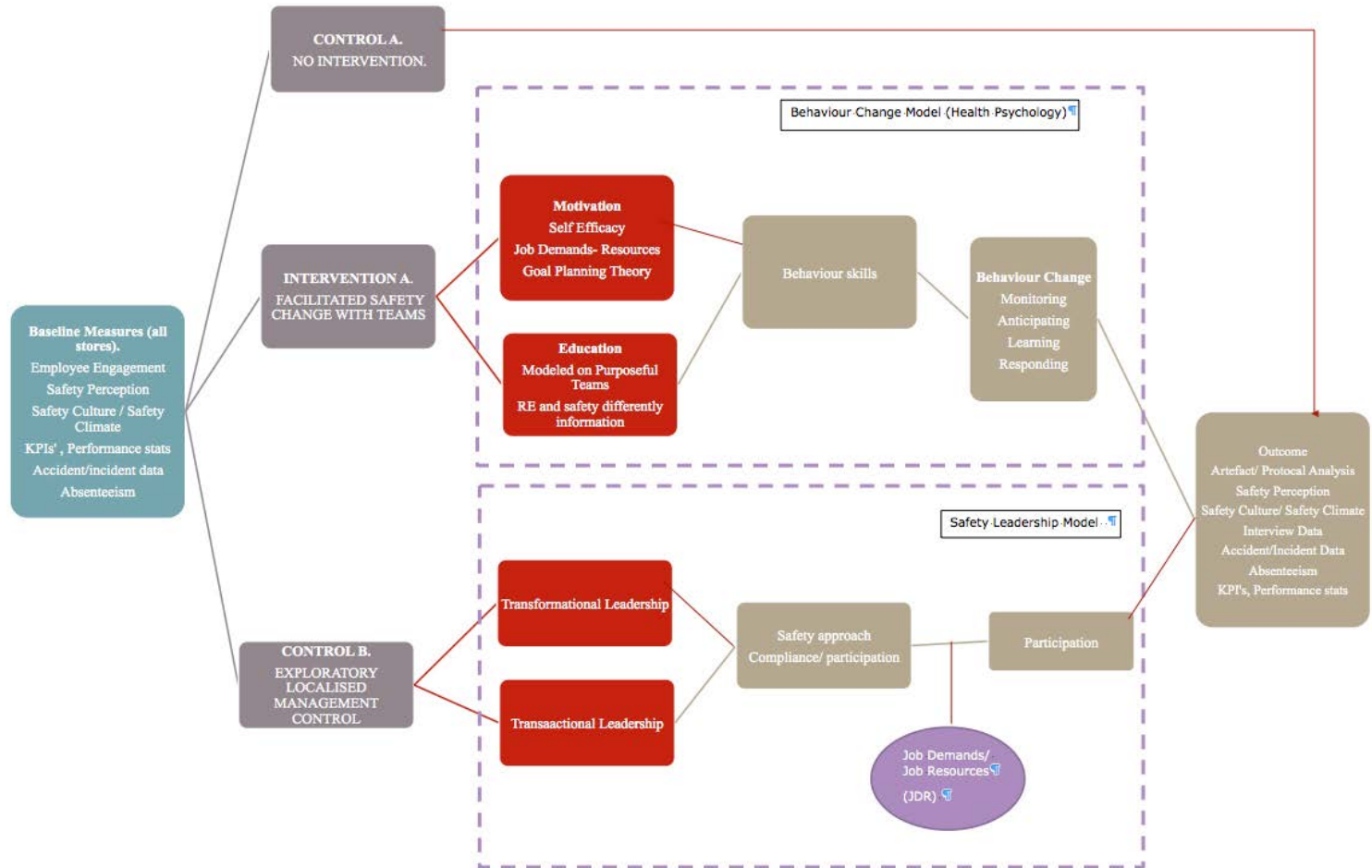
His brothers sang Cold Chisel songs to remember their older brother and a slideshow prepared by the family showed countless photos of Mr Beveridge and his young family camping, skiing, riding his beloved motorbikes and enjoying the great outdoors.

His family and scores of friends celebrated his life at a funeral at the Kenmore Baptist Church from 11am.

He was buried at Brookfield on Friday afternoon.



# The Woolworths experiment



\*\*\*\*Stats: Mediation and Moderation pathways identified. Multi-level Modelling: level 1: Time (Baseline, time 1, time 2); level 2: Stores, Level 3: Condition.





[sidneydekker.com](http://sidneydekker.com)

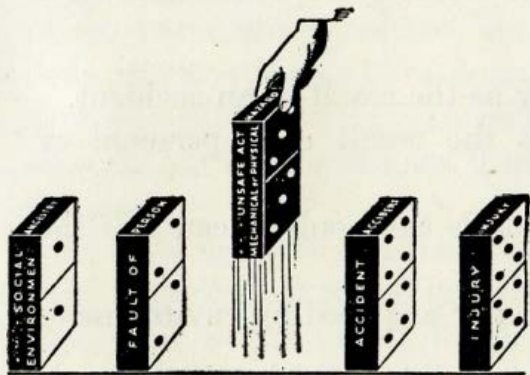


FIG. 4. The unsafe act and mechanical hazard constitute the central factor in the accident sequence.

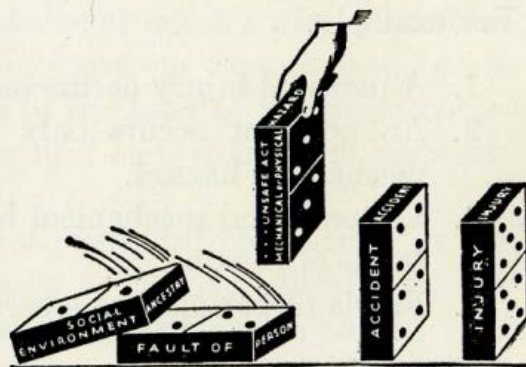
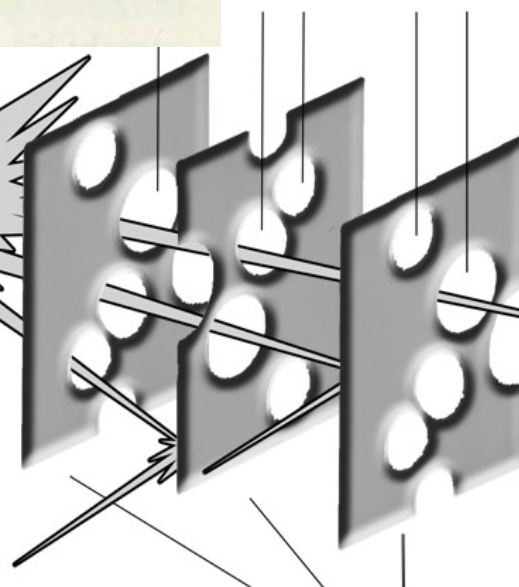


FIG. 5. The removal of the central factor makes the action of preceding factors ineffective.



The World



LATENT FAILURES



ACCIDENT

DEFENSE LAYERS

(Institution, Organization, Profession, Team, Individual, Technical, etc.)

Modified from Reason, 1991

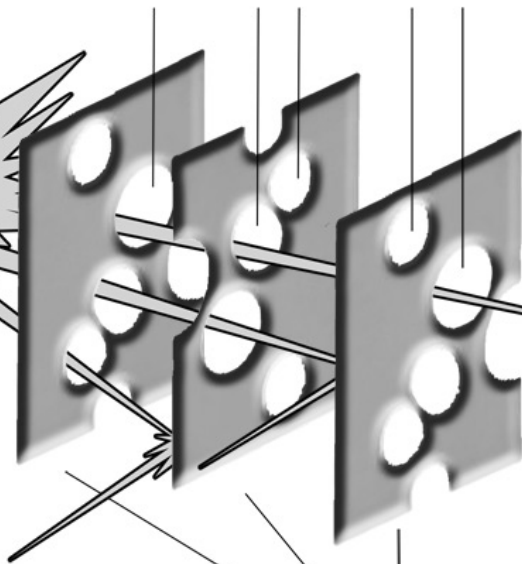


inadequate training, Attention distractions, etc.)

### TRIGGERS



The World



### DEFENSE LAYERS

(Institution, Organization, Profession, Team, Individual, Technical, etc.)

LATENT FAILURES



ACCIDENT

Modified from Reason, 1991

# What is ALFA?

**ALFA**  
ASK · LISTEN · FIND OUT · ACT

ALFA STANDS FOR **ASK & LISTEN, FIND OUT AND ACT.**

## **ASK & LISTEN**

Operational employees are invited to take part in focus groups where they can talk about their work and potential challenges. The focus groups will be recorded and transcribed with any identifying information removed to ensure the participants' anonymity.

## **FIND OUT**

Using the information gathered in the focus groups, a working group of 25 people from all levels of the project will identify the main areas for improvement.

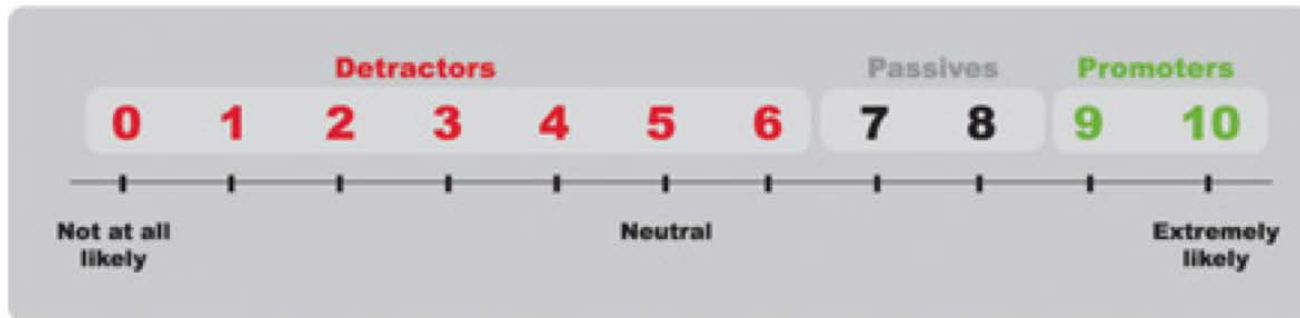
## **ACT**

The working group will then develop interventions to improve safety, productivity and efficiency. The improvements are intended to be site-specific and practical.





# Measure success: Net promoter score



$$\text{NPS} = \% \text{ of PROMOTERS (9s and 10s)} - \% \text{ of DETRACTORS (0 through 6)}$$

Image credit: Net Promoter

# Safety as ethical responsibility





# Safety currently

- ⦿ People are problem to control
- ⦿ Intervene in behavior
- ⦿ Measure success by absence of negatives
- ⦿ Safety as bureaucratic accountability



# Safety differently

- ⦿ People are resource to harness
- ⦿ Intervene in conditions of work
- ⦿ Measure success by presence of positives
- ⦿ Safety as ethical responsibility

# People as problem to control

## Probable Cause

The National Transportation Safety Board determines that the probable cause of this accident was the flight crew's continuation of an unstabilized approach and their failure to monitor the aircraft's altitude during the approach, which led to an inadvertent descent below the minimum approach altitude and subsequently into terrain. Contributing to the accident were (1) the flight crew's failure to properly configure and verify the flight management computer for the profile approach; (2) the captain's failure to communicate his intentions to the first officer once it became apparent the vertical profile was not captured; (3) the flight crew's expectation that they would break out of the clouds at 1,000 feet above ground level due to incomplete weather information; (4) the first officer's failure to make the required minimums callouts; (5) the captain's performance deficiencies likely due to factors including, but not limited to, fatigue, distraction, or confusion, consistent with performance deficiencies exhibited during training; and (6) the first officer's fatigue due to acute sleep loss resulting from her ineffective off-duty time management and circadian factors.



“It is now generally acknowledged that human frailties lie behind the majority of accidents. Although many of these causes have been anticipated in safety rules, prescriptive procedures and management treatises, *people don't always do what they are supposed to do*. Some employees have negative attitudes to safety which adversely affect their behaviors. This undermines the system of multiple defences”

(Lee & Harrison, 2000, p. 62)

# People as resource to harness



People are the solution



# Intervene in behavior



# Measure absence of negatives

## Esso Longford (1998 -2 Fatalities)

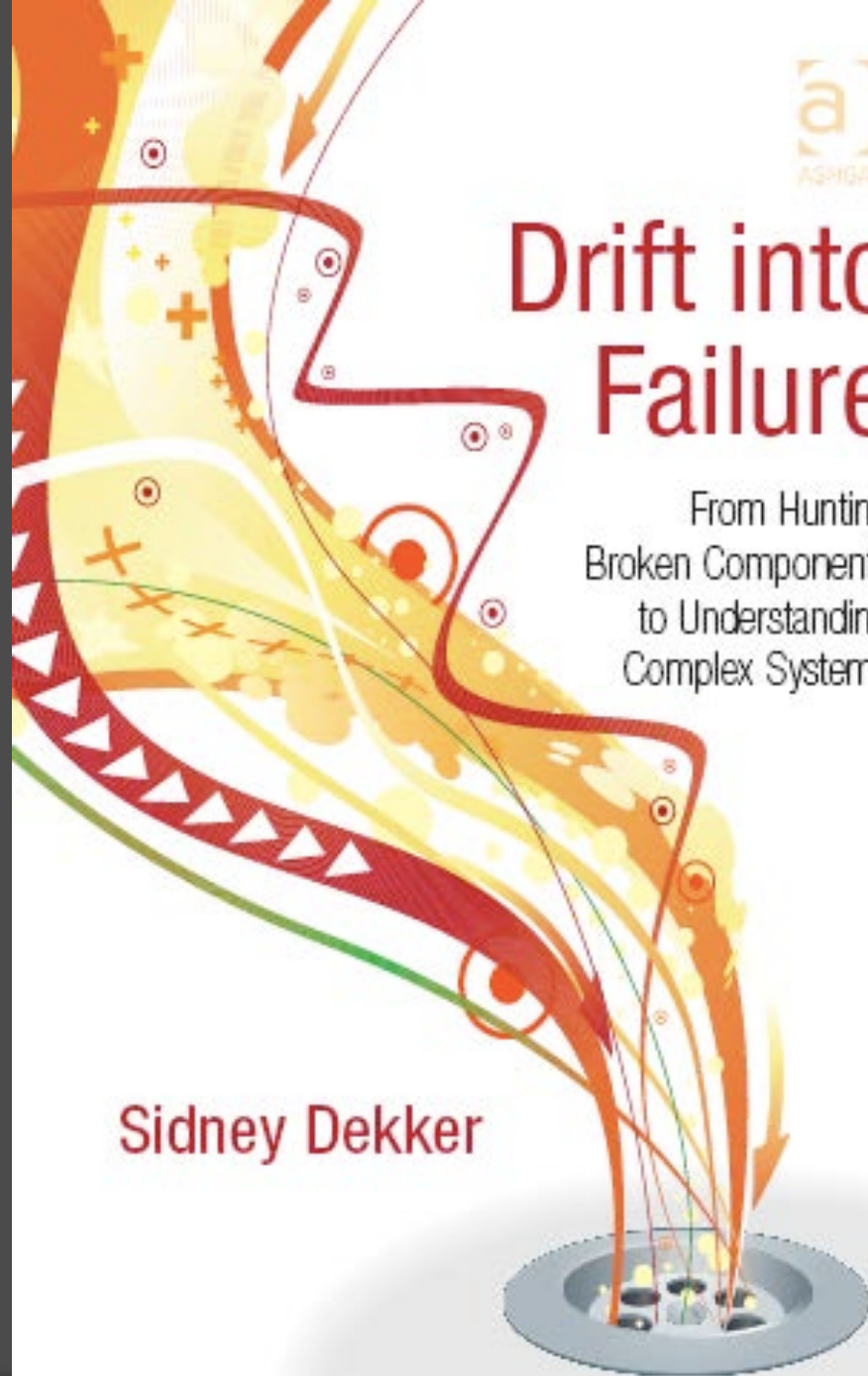
*'Ironically Esso's safety performance at the time, as measured by its Lost Time injury Frequency Rate, was enviable. The previous year, 1997, had passed without a single lost time injury and Esso Australia had won an industry award for this performance. It had completed five million work hours without a lost time injury to either an employee or contractor. LTI data are thus a measure of how well a company is managing the minor hazards which result in routine injuries; they tell us nothing about how well major hazards are being managed. Moreover, firms normally attend to what is being measured, at the expense of what is not. Thus a focus on LTIs can lead companies to become complacent about their management of major hazards. This is exactly what seems to have happened at Esso.'* (Andrew Hopkins, 2001)



# Drift into Failure

From Hunting  
Broken Components  
to Understanding  
Complex Systems

Sidney Dekker







# Resilience

- ⦿ Capacity to recognize, adapt to and absorb situations
- ⦿ ...that push you outside of what is designed, proceduralized or trained

# Implications for procedures

## How Are Pilots Expected to/Actual Deal With Abnormal and Emergency Situations?

Expected	Actual
Assess the Situation Before Act	Diagnose the Problem Occurs Before, During and After Troubleshooting
CAS message is the main source of information	CAS message mainly alerts pilots to a problem
Secondary sources (primary and supporting instrumentation, EICAS indications, and messages, MFD system synoptic pages, switch/lights)	All kind of sources of information are used, including MEL, TLB, MCC, Flight Attendants, previous experiences, colleagues previous experience, acting/meaning over the systems
Select appropriated QRH checklist	QRH/QRC checklist content is one of the sources of information
Take corrective actions prescribed by QRH checklist or memory items	Make sense of the meaning of the written actions and use all or partially of the actions
Captain accomplish QRH/QRC (strongly recommended)	QRH/QRC accomplished by PM (preferably)

## **Situations in which QRH IS useful**

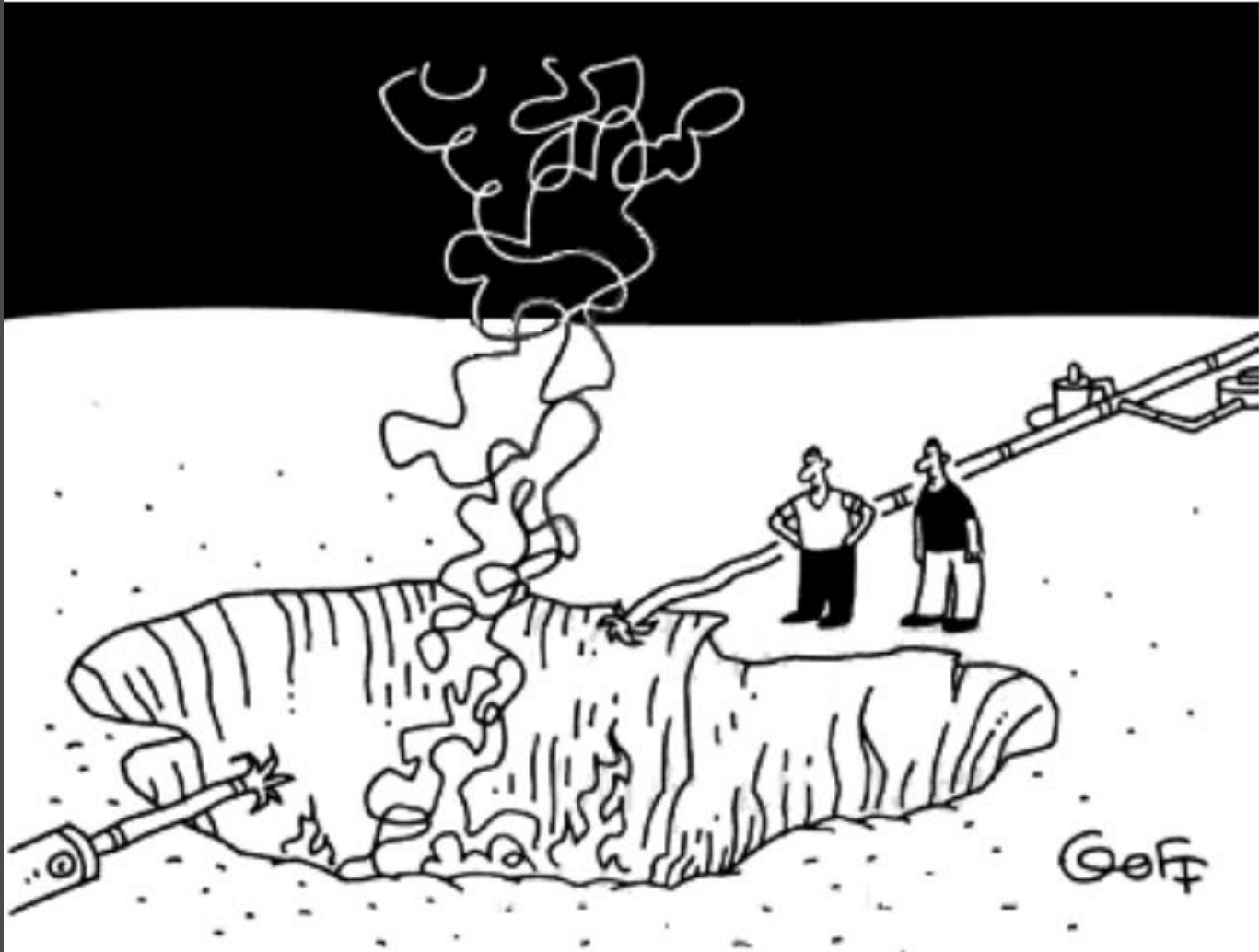
- ✓ Clearly identifiable and distinguishable failure
- ✓ Only one message presented
- ✓ The same as trained on initial or recurrent training

## **Situations in which QRH IS NOT Useful**

- ✓ Aircraft dispatched with inoperative items
- ✓ Non announced or unclear failures
- ✓ More than one message
- ✓ Common and routine failures
- ✓ When checklists don't bring new information or don't solve the problem

# Implications for incidents

- ⦿ Reactions to failure
- ⦿ Understand why it made sense
- ⦿ Just response



**“Figure out what happened to the last crew here, and tell the next crew not to do that.”**

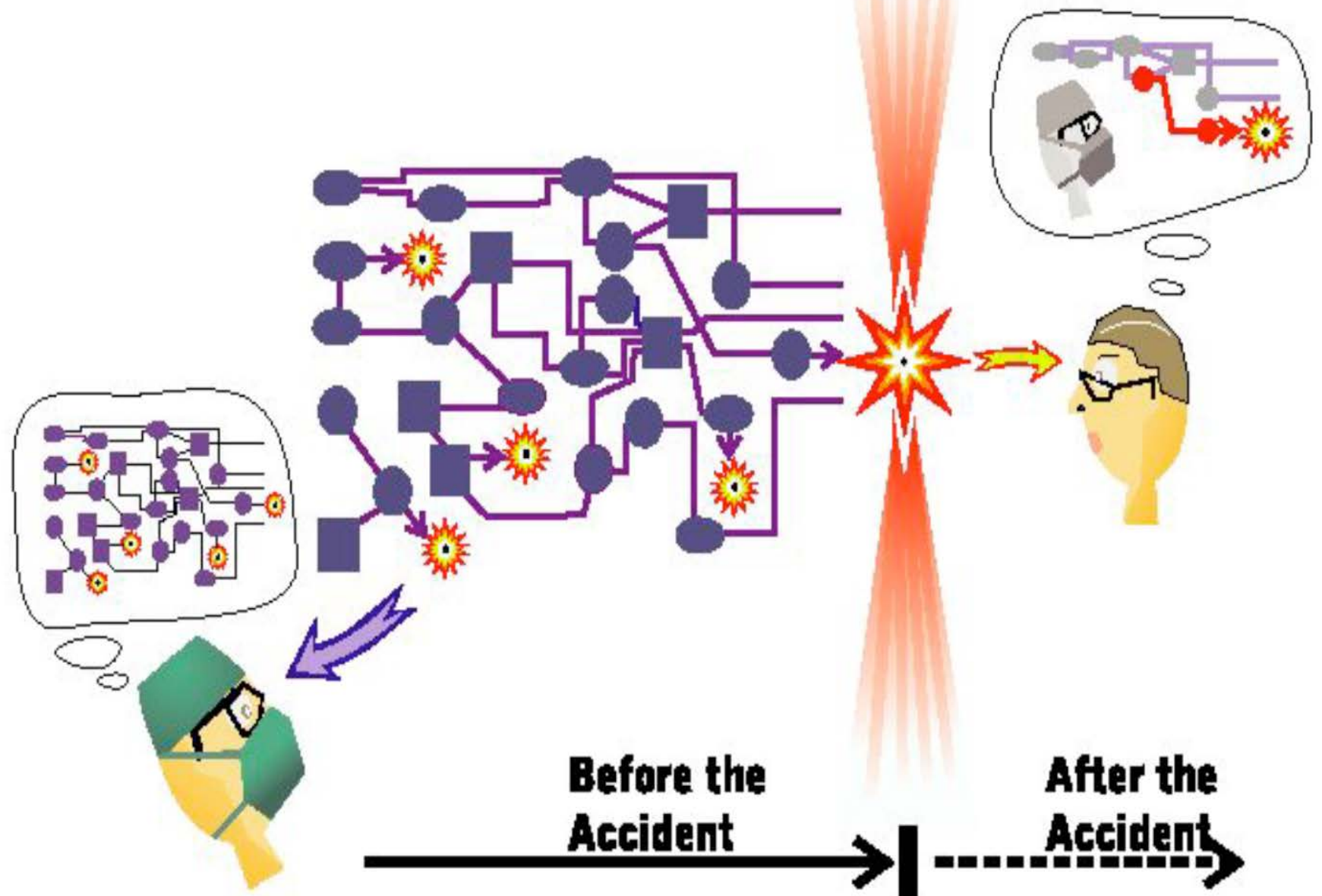


# Reactions to failure

- ⦿ Retrospective
- ⦿ Proximal
- ⦿ Judgmental and counterfactual



# HINDSIGHT BIAS





Inside



Outside



Hindsight



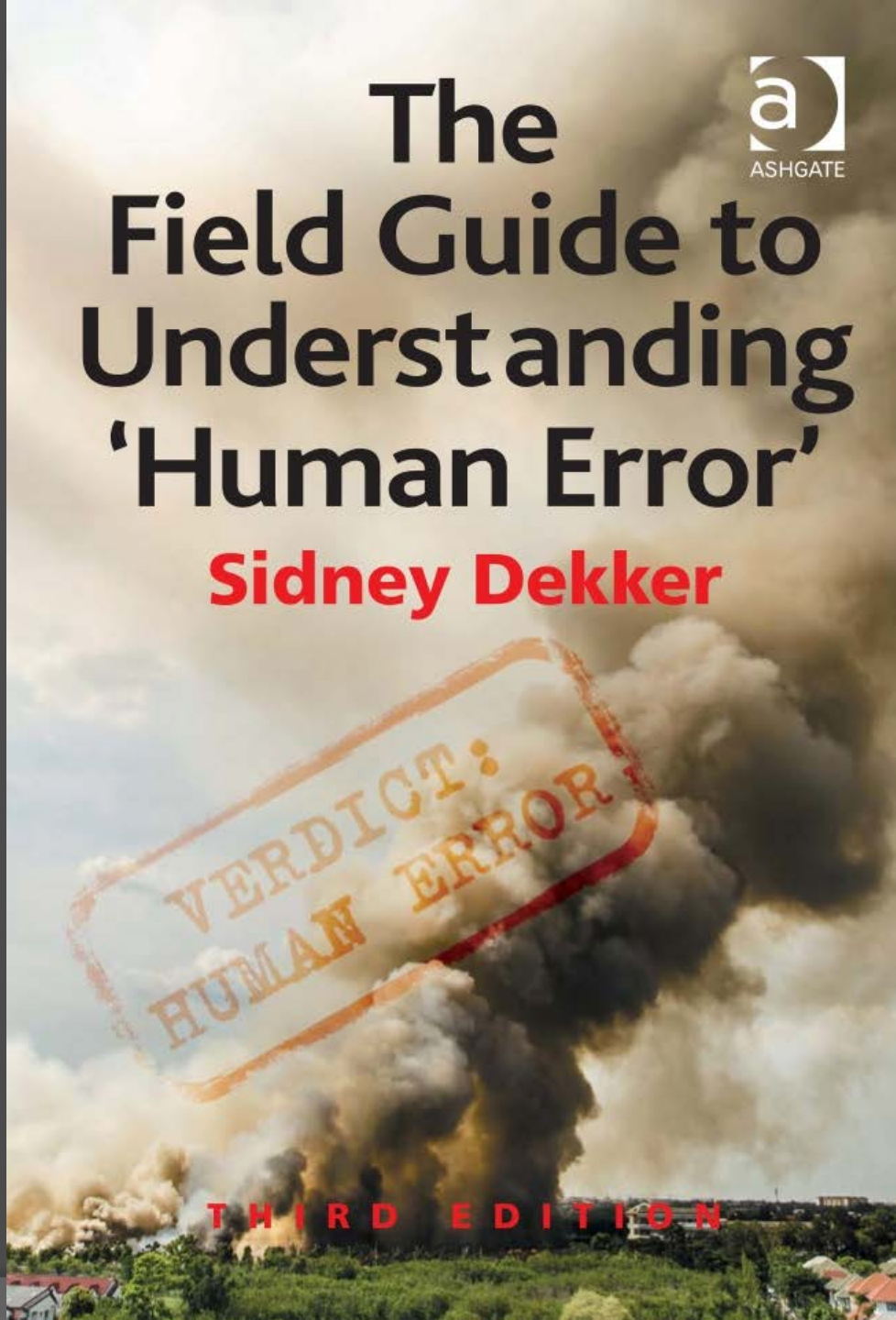
# The Field Guide to Understanding 'Human Error'



**Sidney Dekker**

VERDICT:  
HUMAN ERROR

THIRD EDITION



# “Learning Review”



## Saddleback Fire Learning Review



### CONTENTS:

- Introduction
- Purpose of the Learning Review
- Field Perspective
  - Typical Mission Flow
  - Saddleback Fire Narrative
  - Organizational Narrative
- Synthesis, Analysis and Sensemaking
  - Key Concepts and Techniques
  - Building Context
  - Analysis
  - Sensemaking Discussion
- Using this Information to Learn
  - Margin of Maneuver
  - Hazard Tree Awareness
  - Proposed IWI Study
  - Organizational Learning
- Glossary of Terms
- List of Appendices
- Supporting Information

## Introduction

*We have a tendency to believe that post-accident reports will answer all our questions - They don't. We want to believe that they can be written for all audiences - They can't. This is why we have developed multiple products. This Review will answer some questions, but it is likely to raise others. It is designed to do just that, which makes it different from traditional reports. Look inside the cover of this Review for answers, but more importantly, look inside yourself.*







**NO SMOKING  
STOP ENGINE**

BE CAREFUL TO REMEMBER TO  
TURN OFF THE ENGINE AND  
LOCK THE DOORS WHEN YOU  
LEAVE THE VEHICLE.

**STATE FIRE MARSHAL**

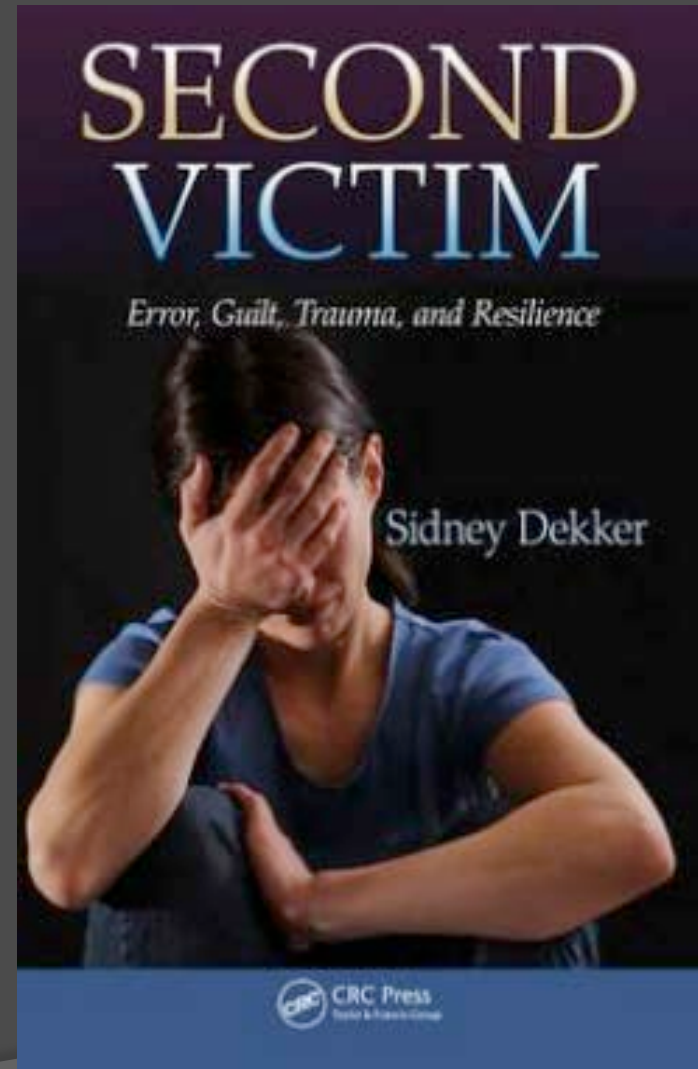
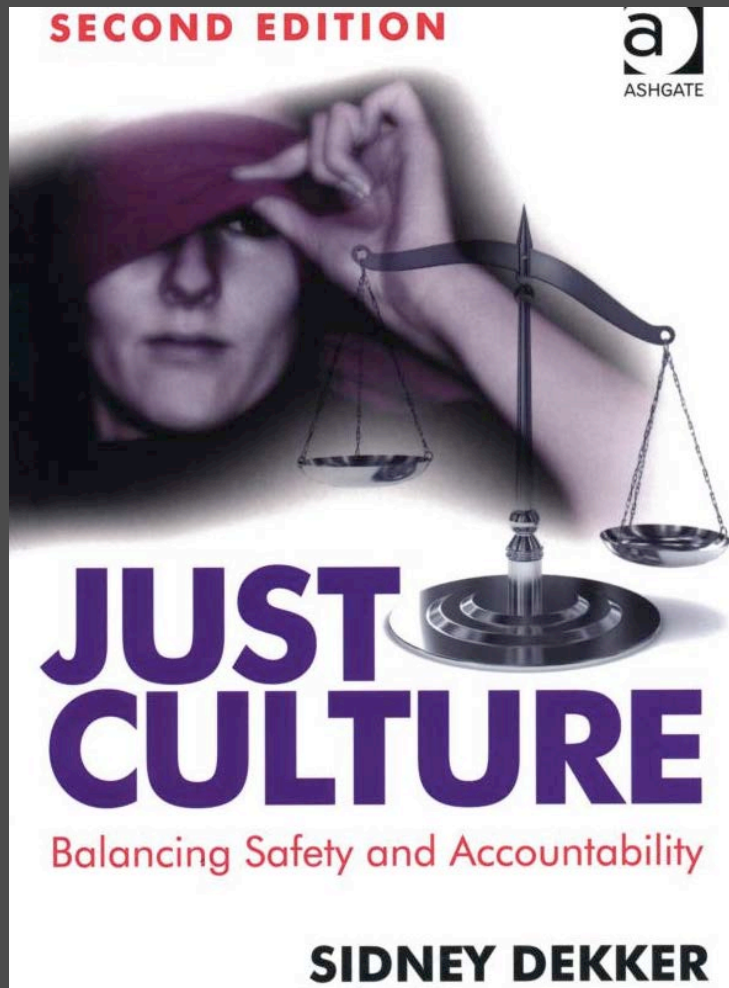








# Just response to failure



# Retributive justice

- “Front line operators or others are not punished for actions, omissions or decisions taken by them that are commensurate with their experience and training, but where gross negligence, willful violations and destructive acts are not tolerated.”

# Who draws the line?

- ⦿ Independent judge
- ⦿ Jury of peers
- ⦿ Right of appeal

# Restorative justice

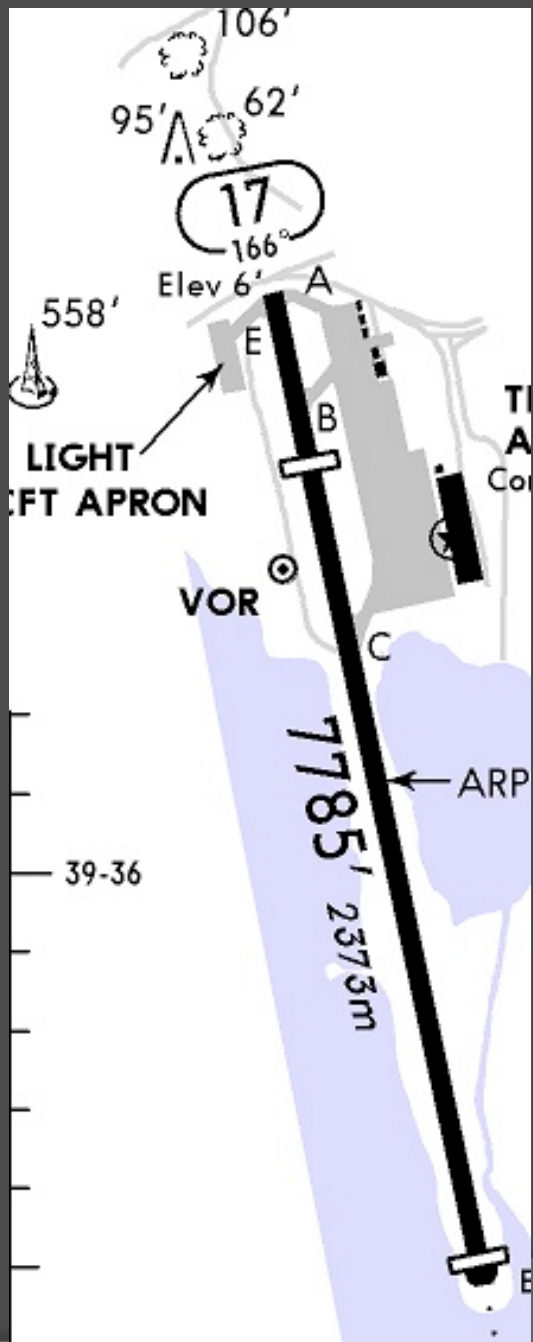
- Who got hurt
- What are their needs?
- Whose obligation is it to meet those needs?



50









Αερολιμένας  
Lefkimmi

Αχιλλείο  
Achilleio

Κέντρο  
Centre

YPZ 4543

***Email from president to all managers:***

**The success of our operation is to a large extent in the hands of the employees. The human factor will always be the deciding one. There is no doubt that our employees are working extremely hard. And, whenever they work, mistakes are made. It's part of the game.**

**However, I have to get this off my chest: Mistakes are sometimes brought about by carelessness, mistakes that could have been avoided.**

**During the last weekend of March, four serious incidents occurred, one of which involved a fire, another a trolley that hadn't been secured.**

**The consequences of incidents like these—operations stopped (creating losses, long delays, dissatisfied clients, extra costs) are often underestimated or don't even occur to some.**

**Relatively minor cases of carelessness can have a domino effect leading to losing money quicker than we are able to make it through hard work.**

**All employees must be aware of their responsibilities. I therefore strongly appeal to everyone to always treat our property with care, follow procedures in detail and be focused and vigilant.**