



EASA GA Safety Workshop

5-6 Oct 2016

Julian Scarfe

Your safety is our mission.

An agency of the European Union 



Topics

- The 'S' in EASA
- The regulator's dilemma
- The Safety Chain
- The 3 eras of aviation safety
- Human perception of risk



EASA

European Aviation Safety Agency

Putting the 'S' back in EASA

Your safety is our mission.

An agency of the European Union

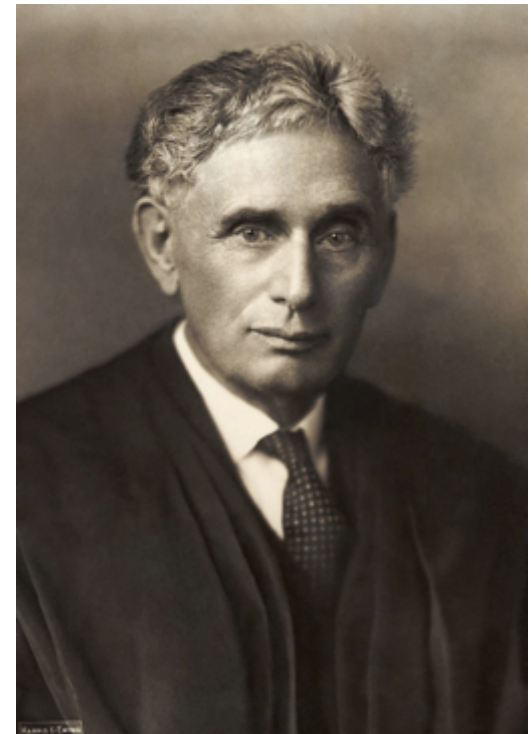




The 'S' in EASA Rulemaker or Safety Manager?

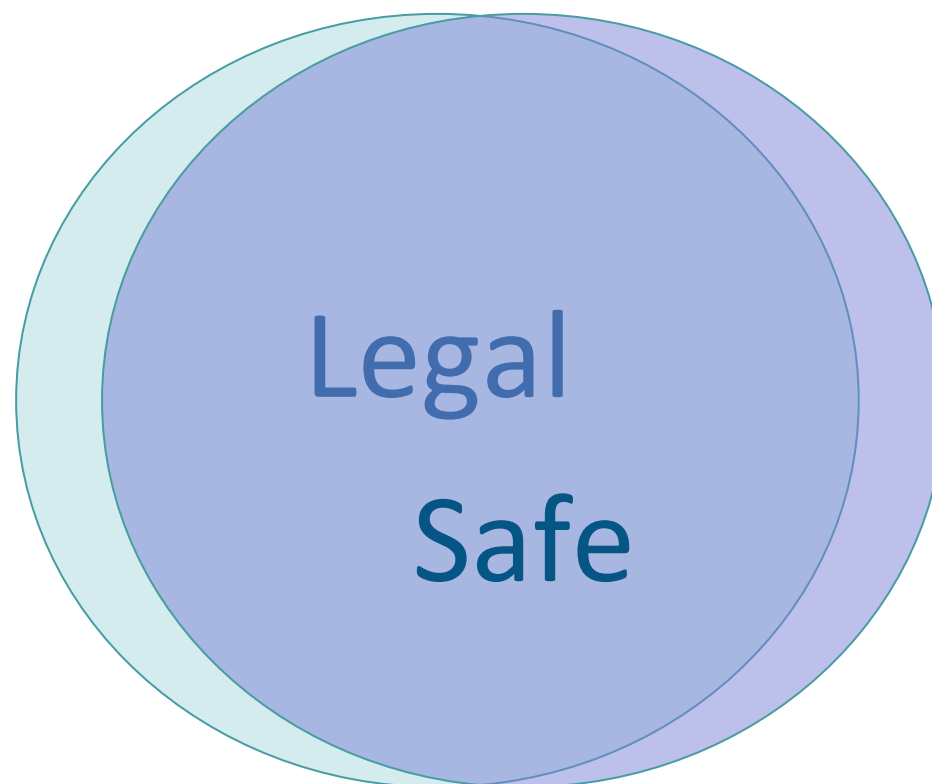
➤ “If we desire respect for the law,
we must first make the law
respectable.”

Louis Brandeis
US Supreme Court Justice 1918-39



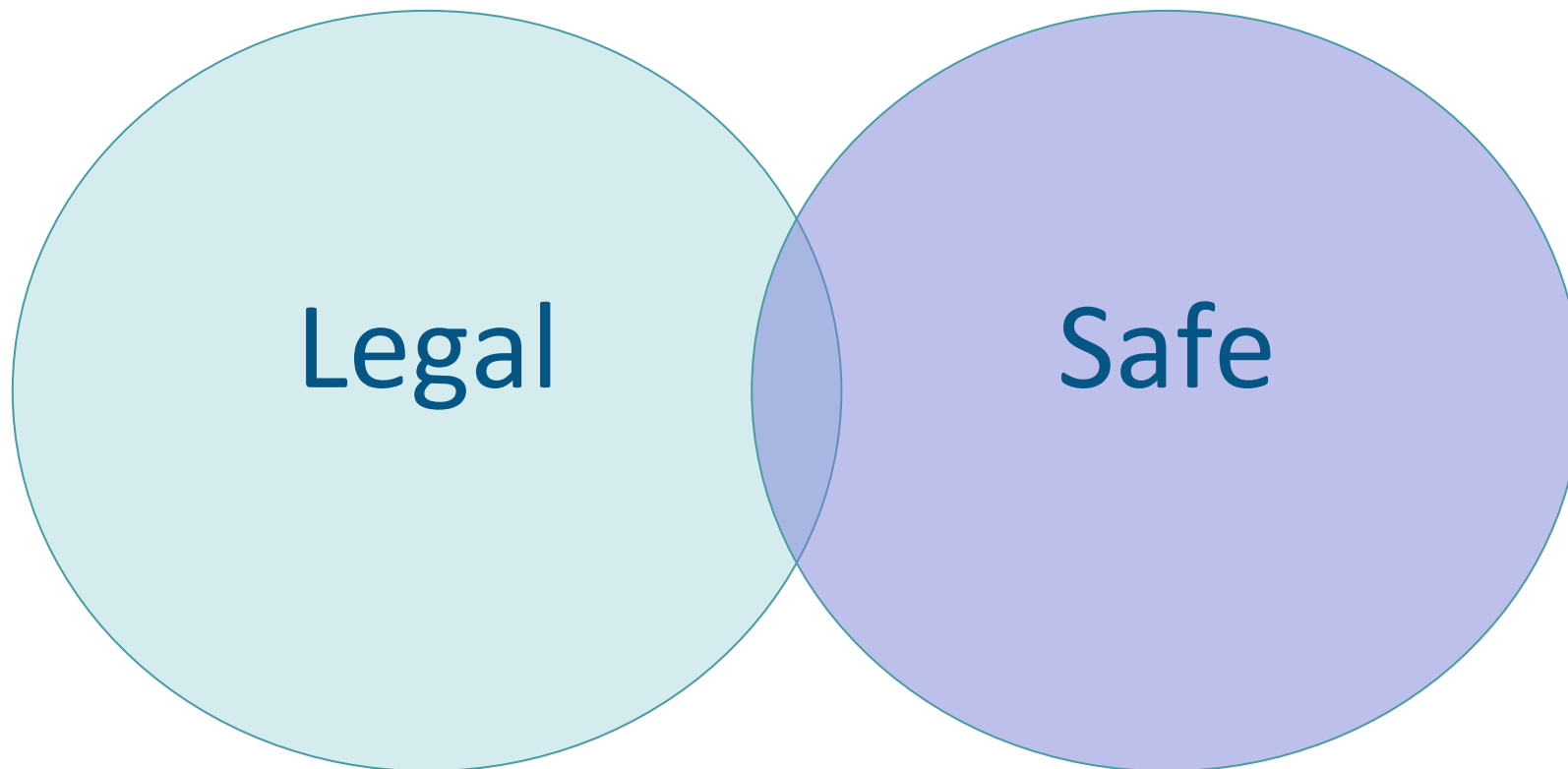


Legal = Safe (1990)





Legal = Safe ?? (2016)





Example: Fix Substitution

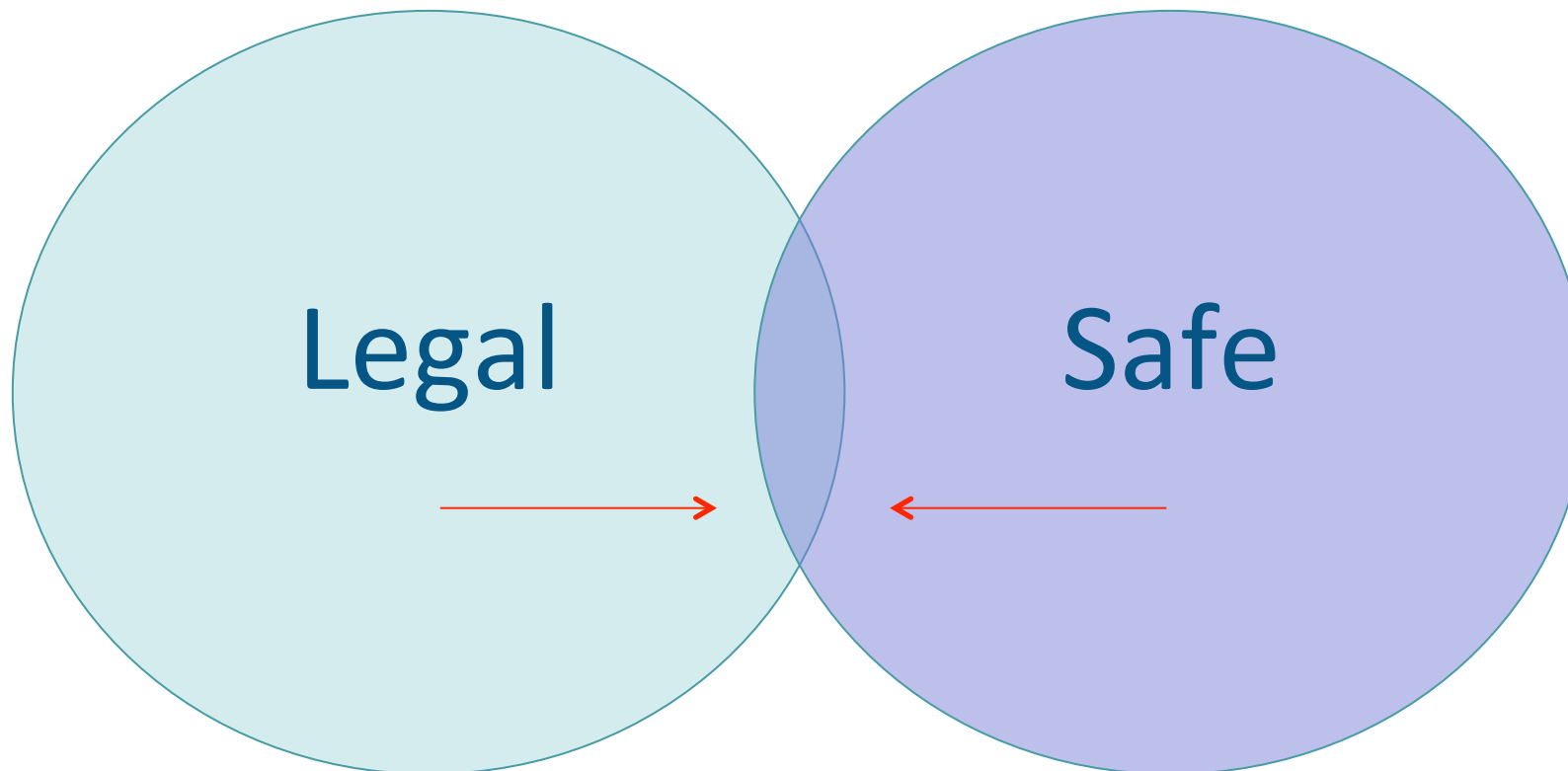


“The display in the ADF in the Mooney has just failed so we were wondering if you had heard anything recently about allowing GPS substitution so that we don't need to set fire to another £1K getting it fixed.”

3 Missed Approach Procedure uses conventional navigation aids and is not available without NDB(L) CAM.



Putting the 'S' back into EASA





EASA

European Aviation Safety Agency

The Regulator's Dilemma

Your safety is our mission.

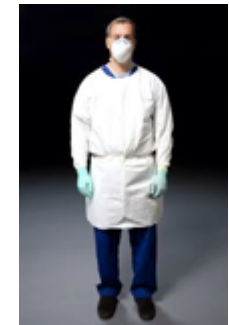
An agency of the European Union





The regulator's dilemma

- The population can be characterised as groups:
 - The risk-takers, who ignore risks or even enjoy them
 - The risk-averse, who avoid taking risks
- Safety rules are intended to modify the behaviour of the risk-takers, not the risk-averse
 - But breaking a rule itself brings risk of punishment
- Consequence
 - The risk-averse don't need rules for their own protection
 - The risk-takers will ignore rules!
- Inflexible rules hinder good safety management





EASA

European Aviation Safety Agency

Building a safety chain

Your safety is our mission.

An agency of the European Union





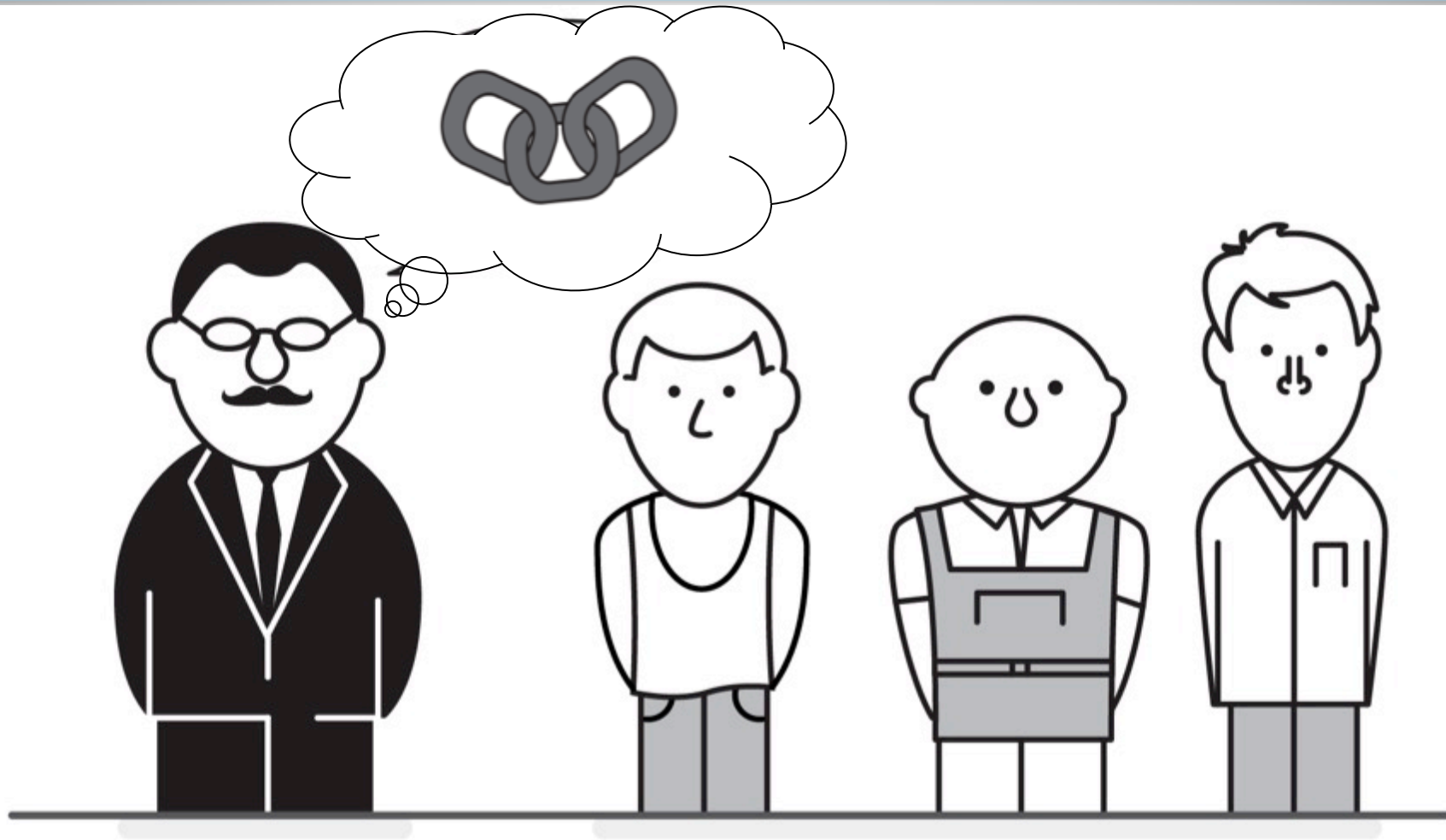
The Safety Chain

- The principal objective of the Basic Regulation is “to establish and maintain a high uniform level of civil aviation safety in Europe”
- But safety involves multiple domains
 - Initial Airworthiness
 - Continuing Airworthiness
 - Pilot Competence
 - Operations
 - ATM ...





The Safety Chain





Making link 1...



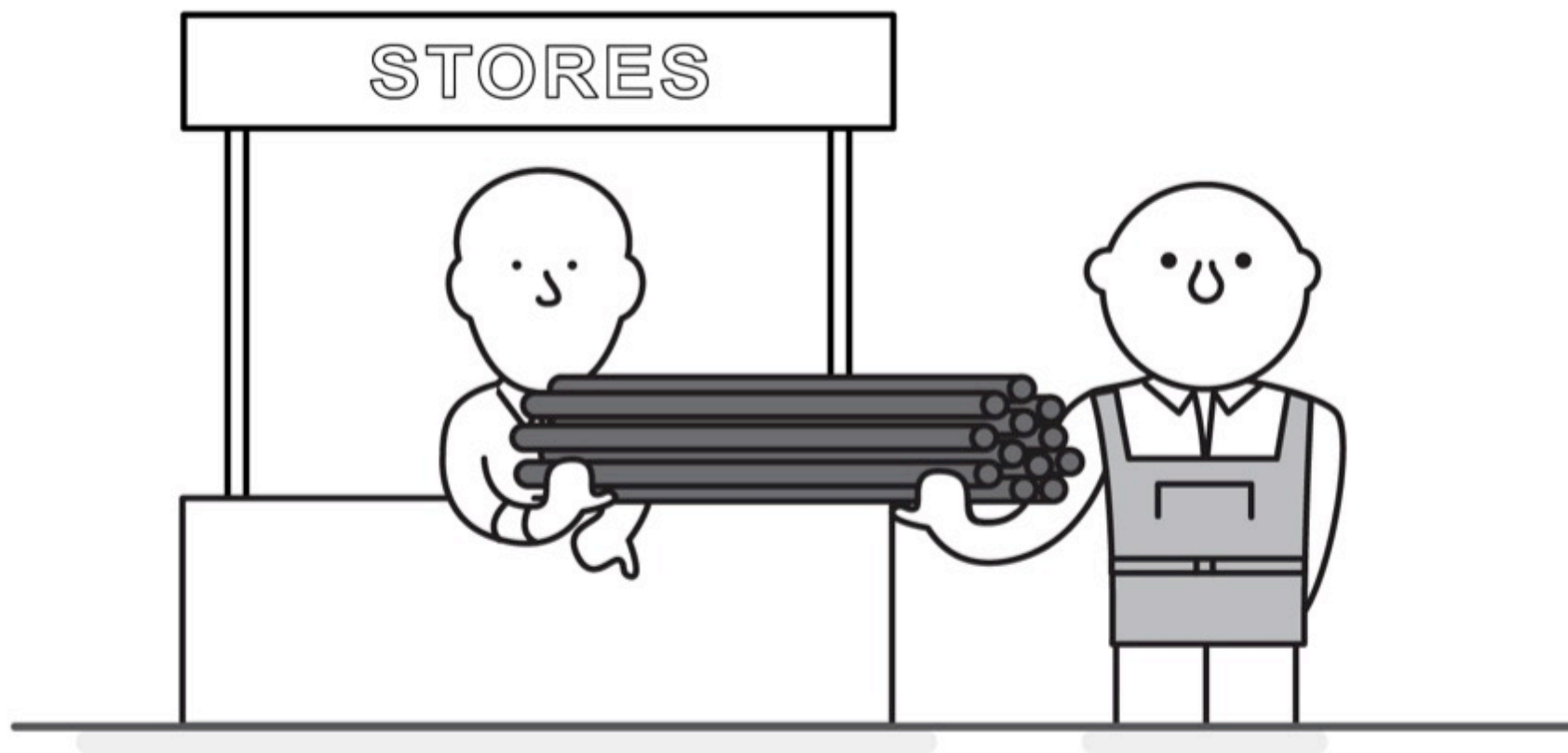


Making link 2...





Making link 2... “Maybe a little stronger...”



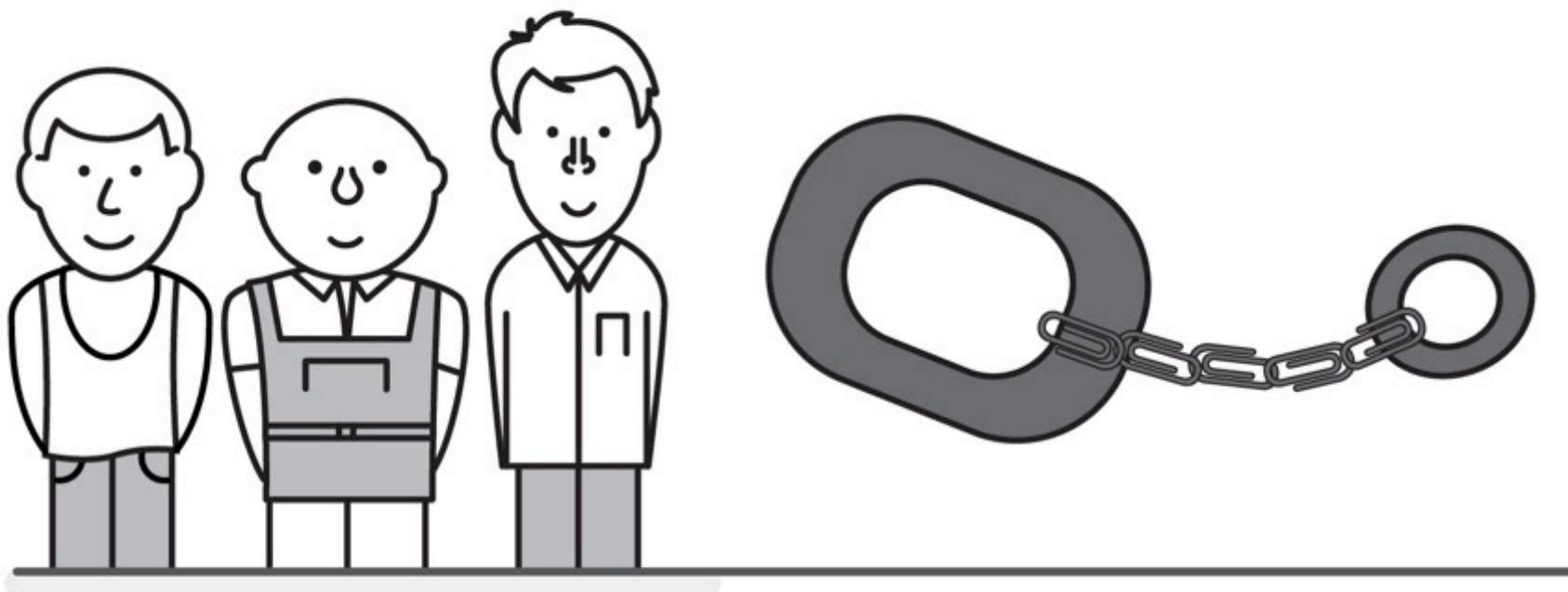


Making link 3



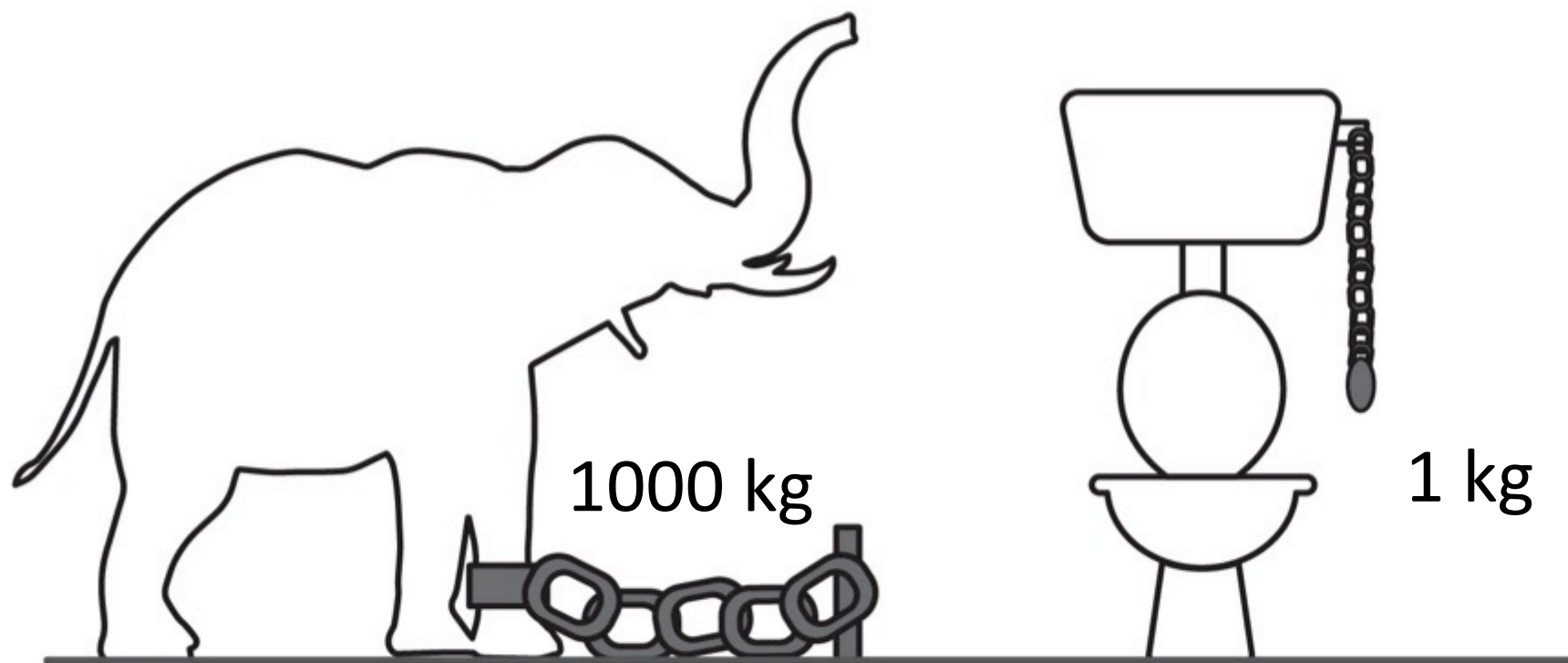


And the result...





Different chains for different operations





Different target levels of safety

➤ Part-CAT operations

- 1 fatal accident per 100 million flight hours



➤ Part-NCO operations

- 1 fatal accident per 100,000 flight hours





EASA

European Aviation Safety Agency

Three Eras of Aviation Safety

Your safety is our mission.

An agency of the European Union





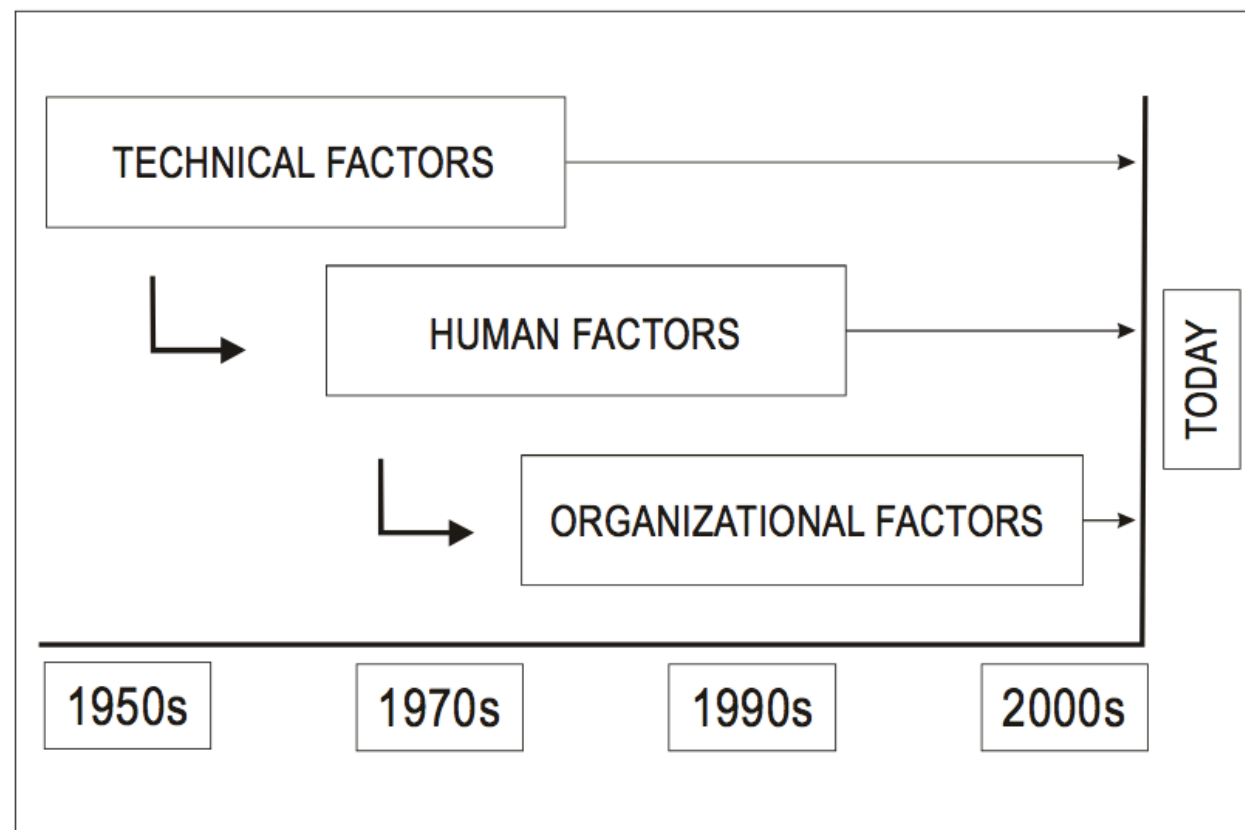
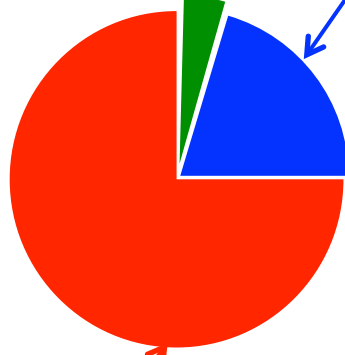
3 Eras of Aviation Safety

Accident causes

Organisational
Factors

Human
Factors

Technical
Factors



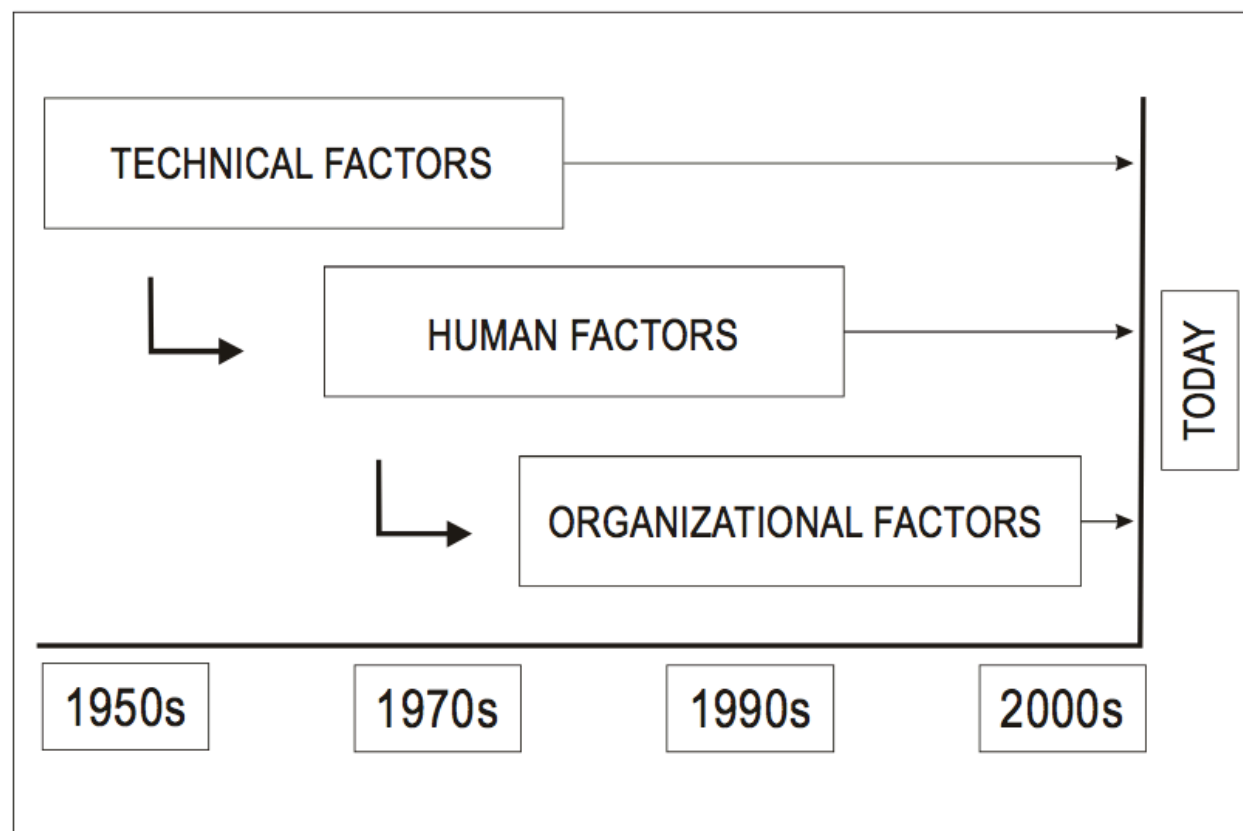


3 Links in the Aviation Safety Chain

Organisational Safety Technical Safety



Human Factors





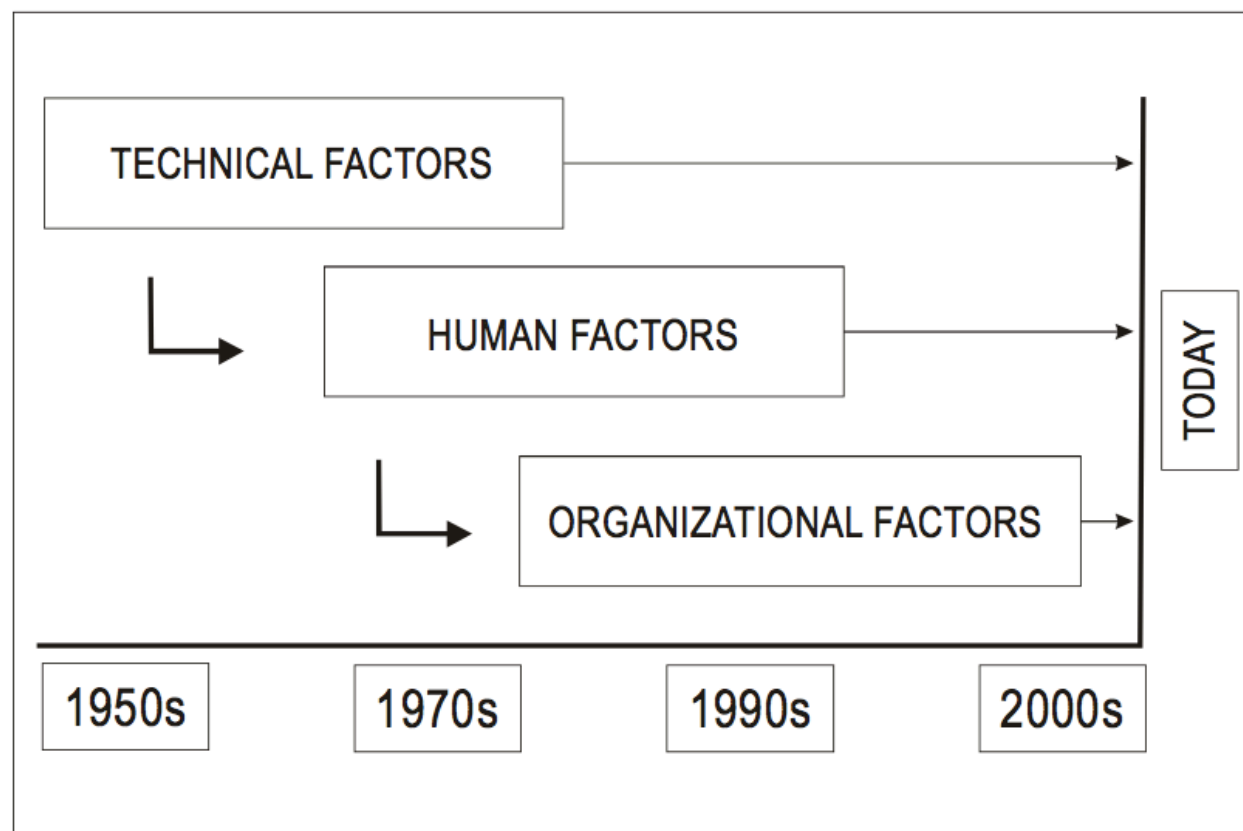
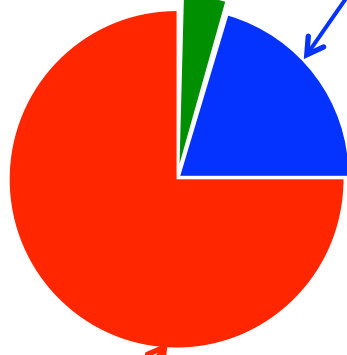
Eras of General Aviation Safety

Accident causes

Organisational
Factors

Human
Factors

Technical
Factors





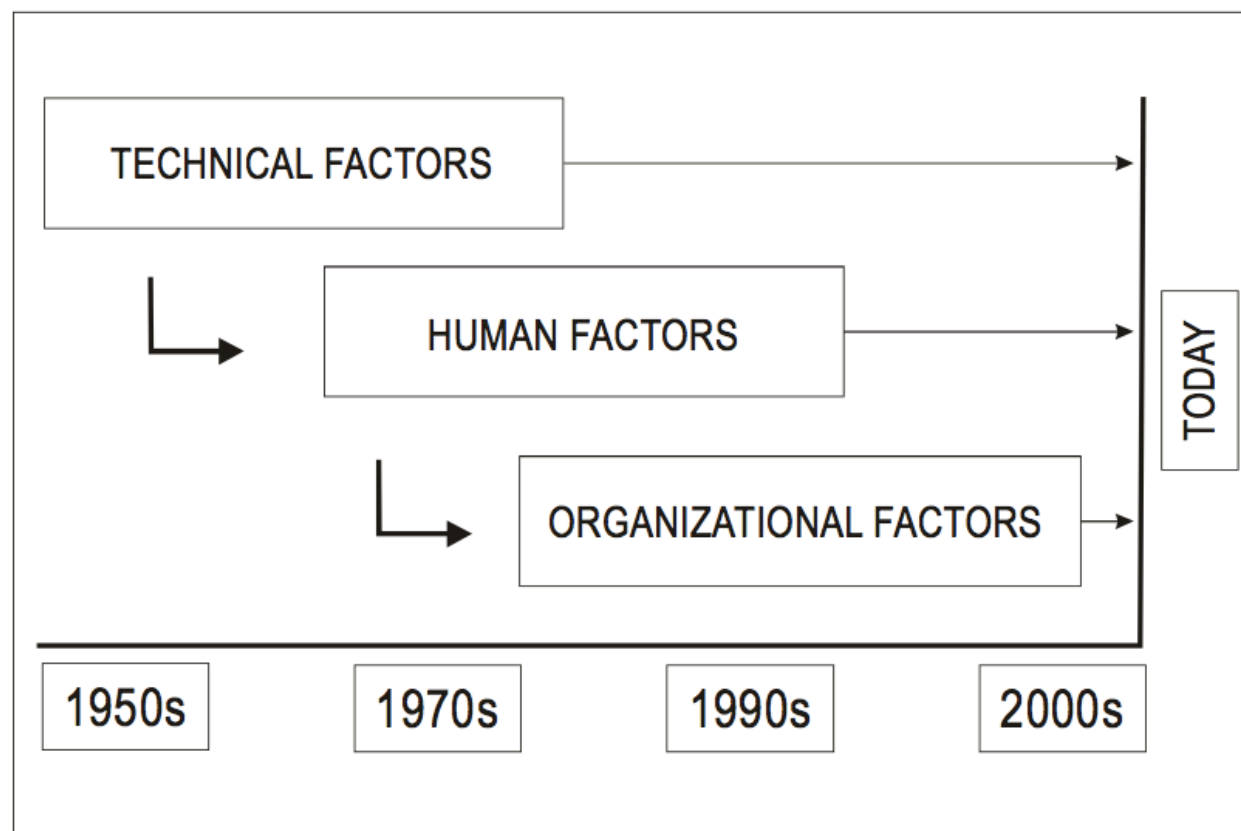
3 Links in the GA Safety Chain?

Organisational Safety

Technical Safety

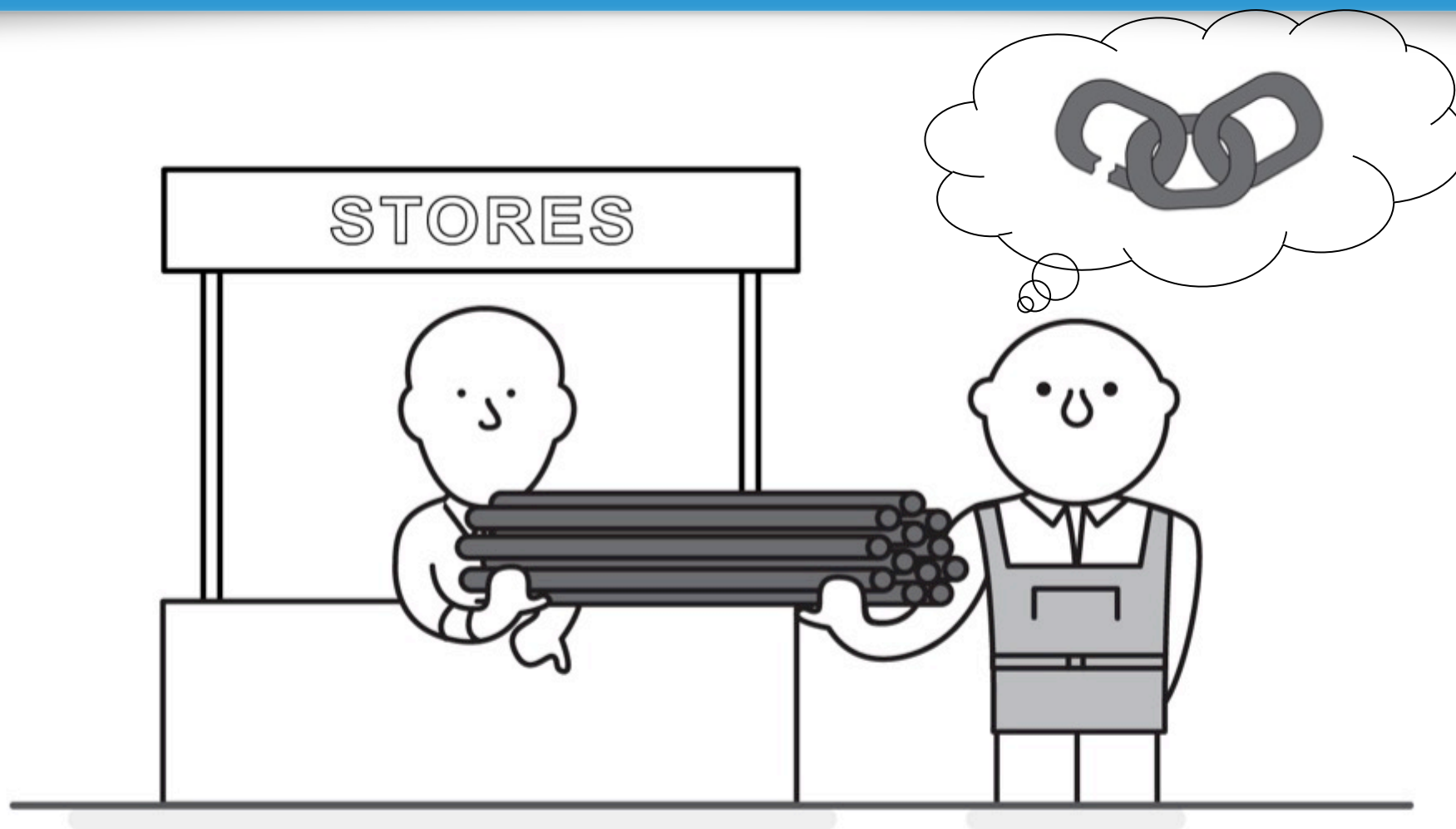


Human Factors





Human Factors in regulation





EASA

European Aviation Safety Agency

Human Perception of Risk

Your safety is our mission.

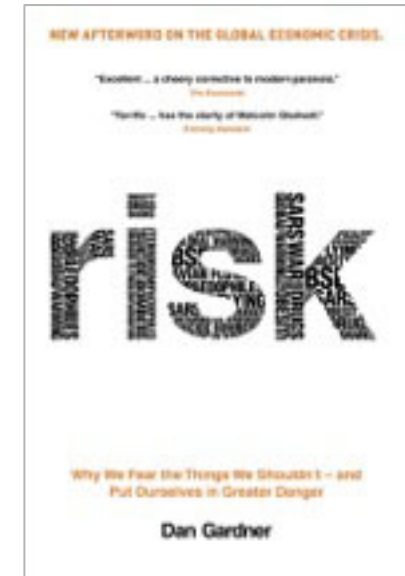
An agency of the European Union





Human Perception of Risk

- We don't have to reinvent the wheel
- Much is already known about the way humans make decisions
- And it's worrying...





Risk Analysis: System 1 vs System 2

➤ System 1



➤ System 2

➤ Risk assessment

- Hazards
- Probability
- Severity
- Risk

Impact	Probability				
	A	B	C	D	E
5					
4					
3					
2					
1					

Risk Probability and Impact Assessment

Probability: A – Rare; B – Unlikely; C – Possible; D – Likely; E – Frequent

Impact: 1= Up to \$100K; 2= up to \$1MM; 3= up to \$5MM; 4= up to \$10MM; 5 =>\$10MM



Human Perception of Risk: Insights

- We tend to make snap judgements and stick with them
- We extrapolate “safe” or “dangerous” from relatively few personal experiences of a situation
- Human perception of risk was not built for the information age



Topics

- The 'S' in EASA
- The regulator's dilemma
- The Safety Chain
- The 3 eras of aviation safety
- Human perception of risk