



Seminário

Anexo 19 – Gestão de Segurança Operacional

SMS - Desafios de Implementação

2014/01/30

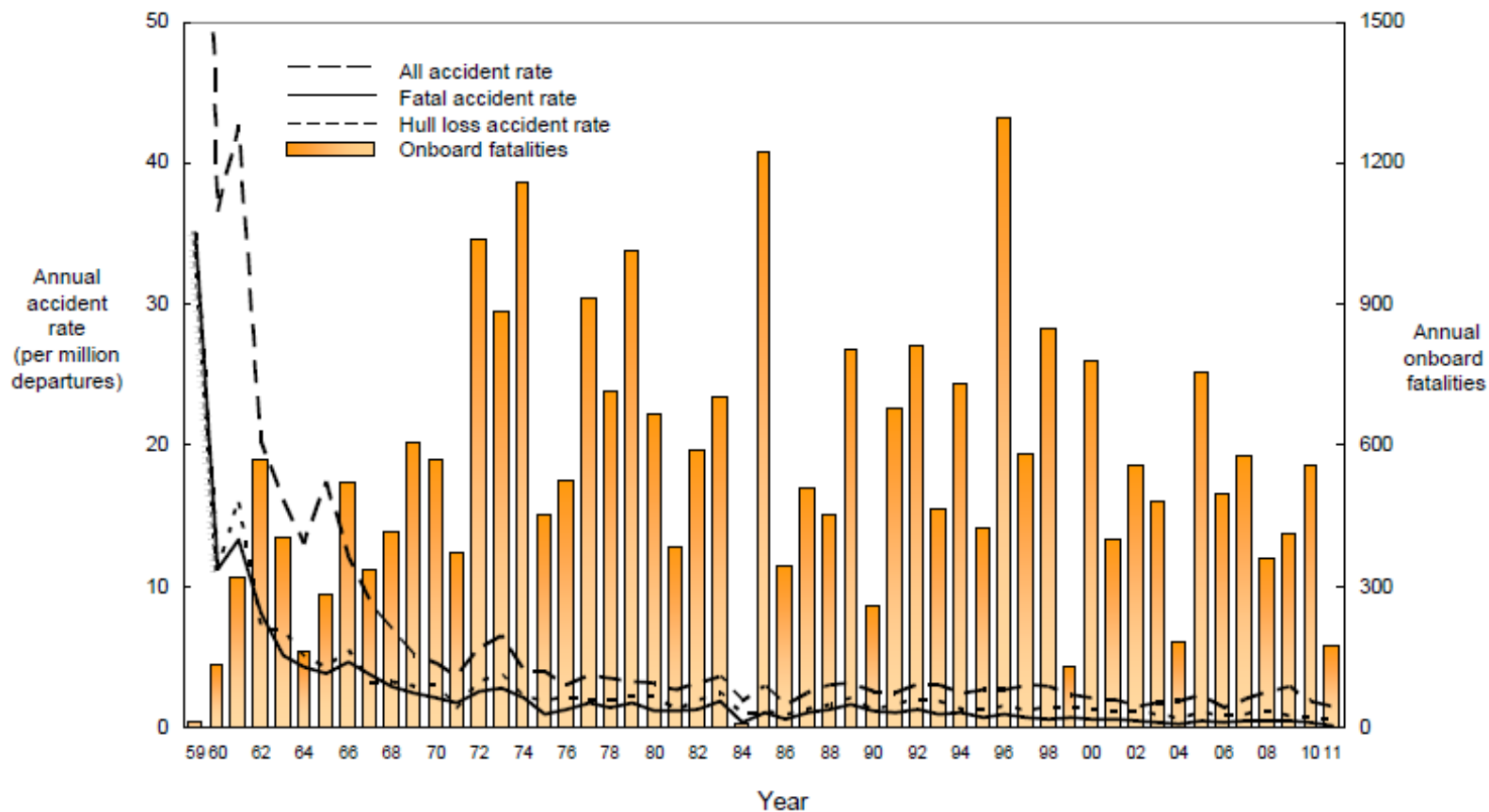


Conteúdos

- Origens
- Enquadramento Regulamentar
- “Safety Culture”
- Identificação de perigos
- Matriz de Risco
- “Safety Performance”

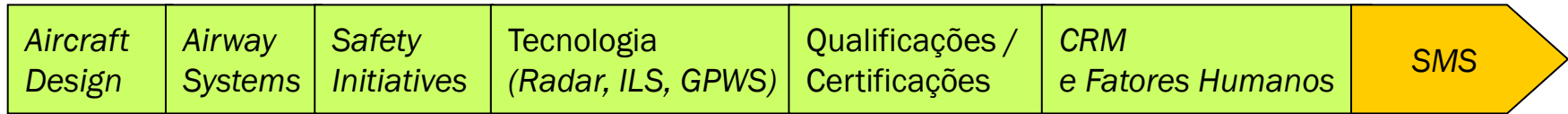
Origens

➤ Acidentes e Fatalidades a Bordo por Ano

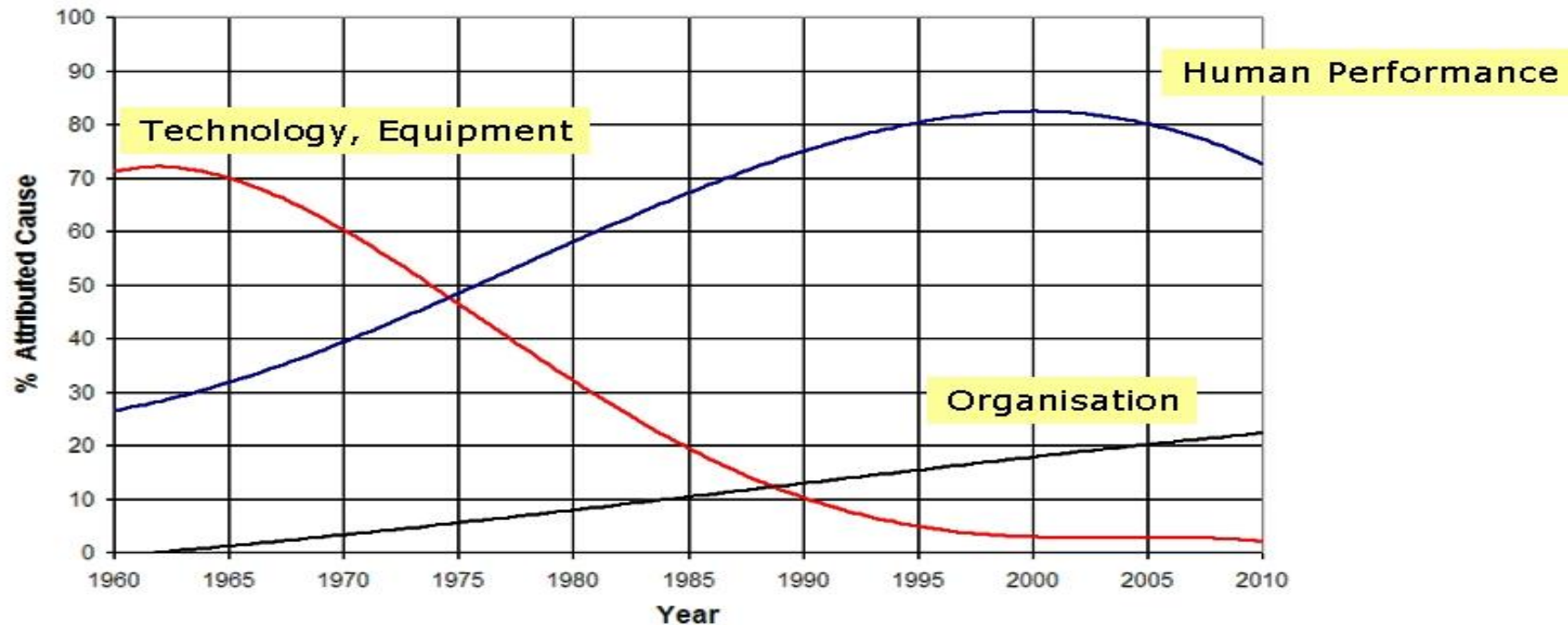


Fonte: Boeing 2011 Statistical Summary

Origens



Trends in Attributed Accident Causes



Source: E. Hollnagel, „Barriers and Accident Prevention”, Ashgate, 2006

Origens

Organização

Fatores
Humanos

Tecnologia

Sinergia



Identidade *Safety*

➤ ICAO:

- Anexo 19 (14 Novembro 2013) – Anexo ICAO sobre SMS (*Safety*);
- DOC. 9859 (AN/474) – *Safety Management Manual (SMM)* - Third Edition 2012;

➤ EASA:

- Regulamento UE 290/2012;
 - ED Decision 2012/007-R-Part ORA
- Regulamento UE 965/2012;
 - ED Decision 2012/017-R-Part ORO
- NPA 2013-01 (Manutenção);

➤ INAC:

- CIA 06/2009 – Sistema de Gestão de Segurança de Voo - SMS;

Enquadramento Regulamentar

The four components, combined with the twelve elements comprise the ICAO SMS framework, are as follows:

1. Safety policy and objectives

- 1.1 Management commitment and responsibility
- 1.2 Safety accountabilities
- 1.3 Appointment of key safety personnel
- 1.4 Coordination of emergency response planning
- 1.5 SMS documentation

2. Safety risk management

- 2.1 Hazard identification
- 2.2 Risk assessment and mitigation

3. Safety assurance

- 3.1 Safety performance monitoring and measurement
- 3.2 The management of change
- 3.3 Continuous improvement of the SMS

4. Safety promotion

- 4.1 Training and education
- 4.2 Safety communication.

The contents of the EASA safety management manual should include all of the following:

- (1) scope of the safety management system;
- (2) safety policy and objectives;
- (3) safety accountability of the accountable manager;
- (4) safety responsibilities of key safety personnel;
- (5) documentation control procedures;
- (6) hazard identification and risk management schemes;
- (7) safety action planning;
- (8) safety performance monitoring;
- (9) incident investigation and reporting;
- (10) emergency response planning;
- (11) management of change (including organisational changes with regard to safety responsibilities);
- (12) safety promotion.

Uma **Safety Culture** é:

➤ Uma Cultura INFORMADA:

- As pessoas compreendem os perigos (*hazards*) e os riscos (*risks*) envolvidos na operação;
- As pessoas trabalham continuamente para identificar e neutralizar *hazards*;

➤ Uma Cultura COMUNICATIVA (Reporting Culture):

- As pessoas são encorajadas a comunicar preocupações sobre *Safety*;
- As preocupações são analisadas e as ações corretivas são implementadas;
- O resultado da análise é comunicado às pessoas (*feedback*);

➤ Uma Cultura INSTRUÍDA:

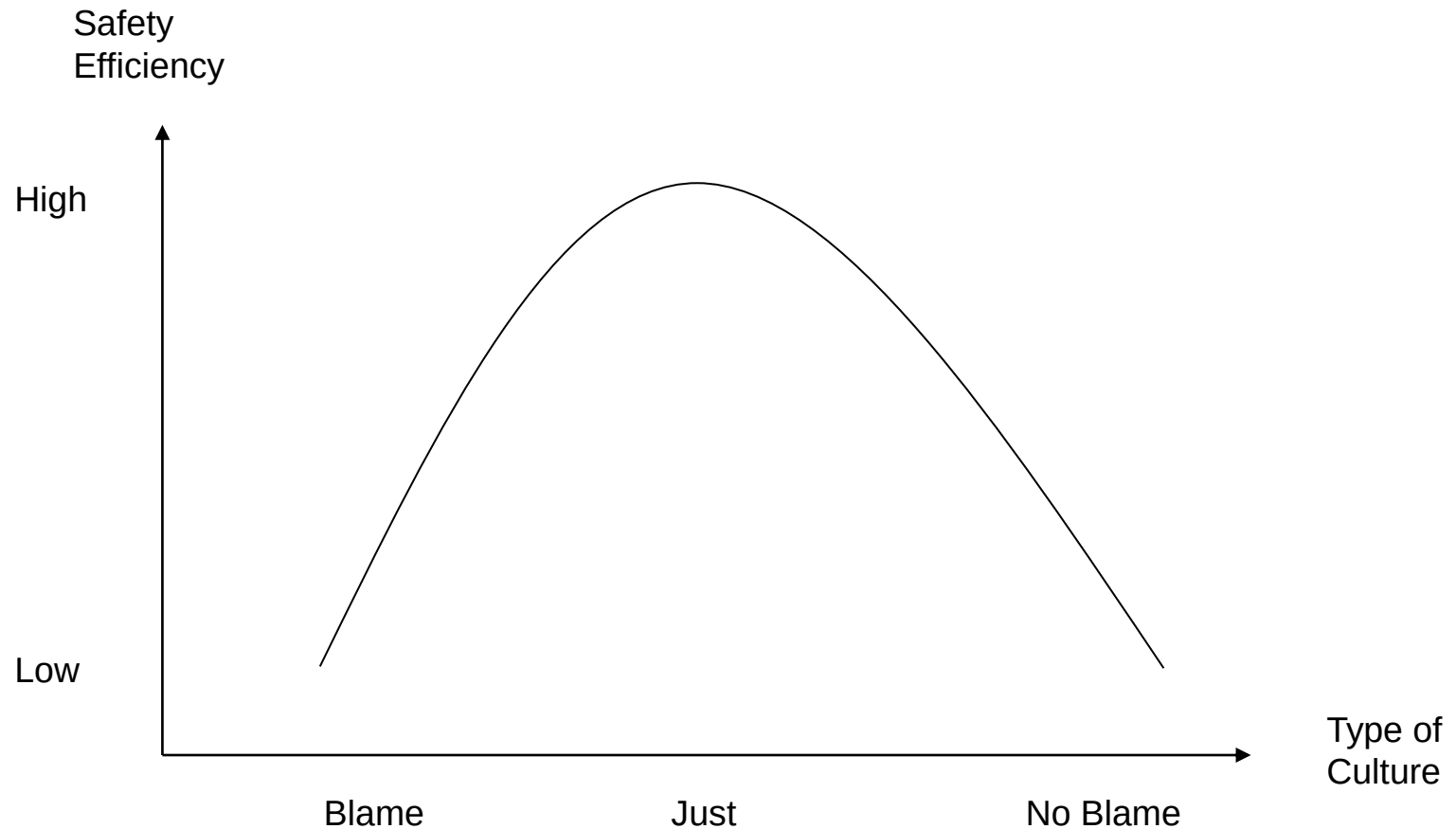
- As pessoas são encorajadas a desenvolver e aplicar as suas competências na melhoria do *Safety*;
- As pessoas são formadas e atualizadas periodicamente sobre os assuntos de *Safety*;
- As conclusões das análises de *Safety* são disseminadas para efeitos de aprendizagem;

➤ Uma Cultura JUSTA (Just Culture):

- Os erros são entendidos, mas atos premeditados nunca poderão ser tolerados;
- O *staff* conhece e concorda com aquilo que é aceitável e inaceitável;

“Safety Culture”

“Just Culture” vs. “No Blame”



“Safety Culture”

Modelos tomada de decisão – “Just Culture”

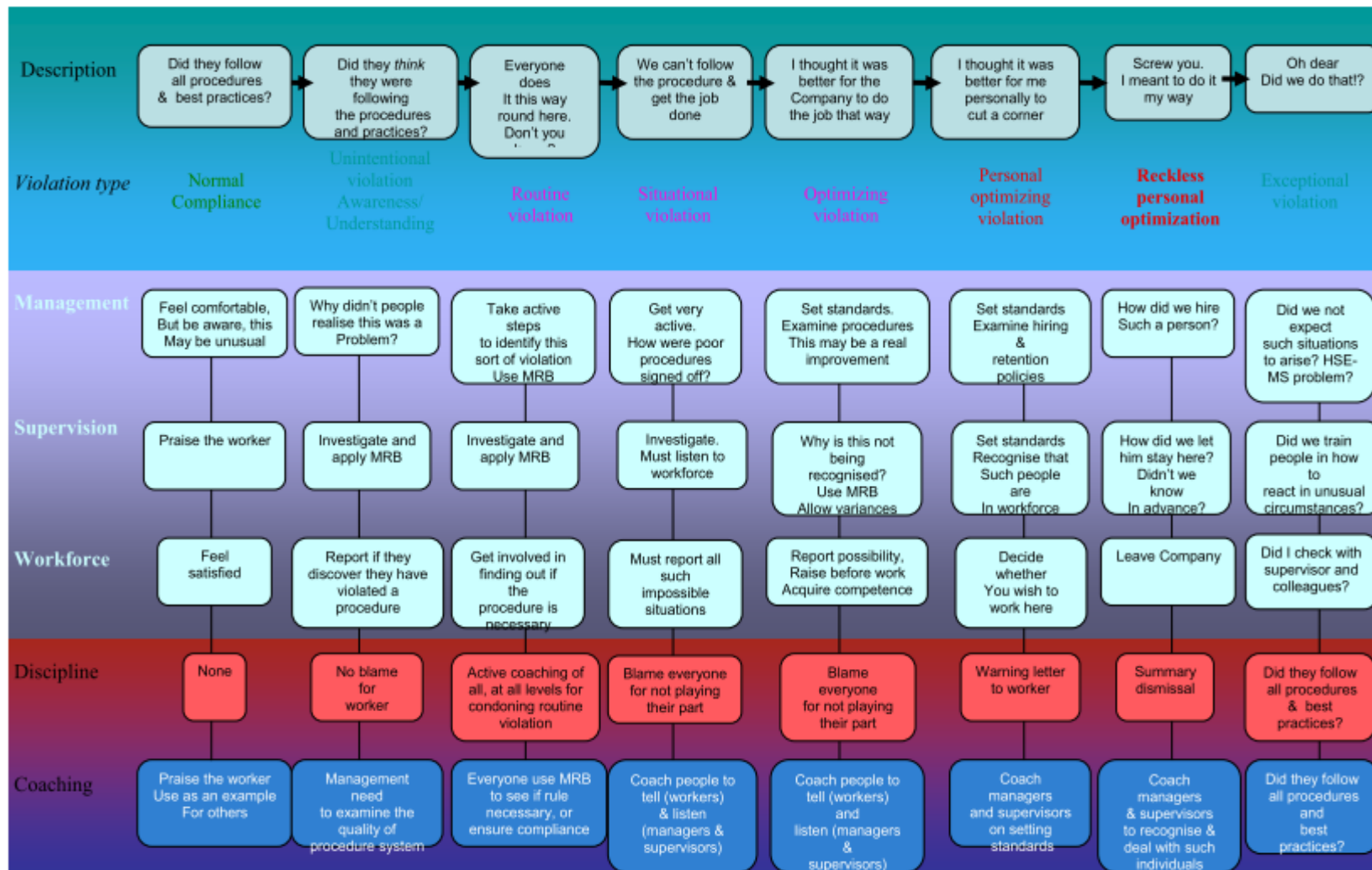


Figure 4. Hudson's refined Just Culture Model (From the Shell “Hearts and Minds” Project, 2004)

Fontes de identificação

- **Internas:**

- FDM (F100 & EMB145)

- Relatório Voluntario

- Auditorias de safety

- Inquéritos

- **Externas:**

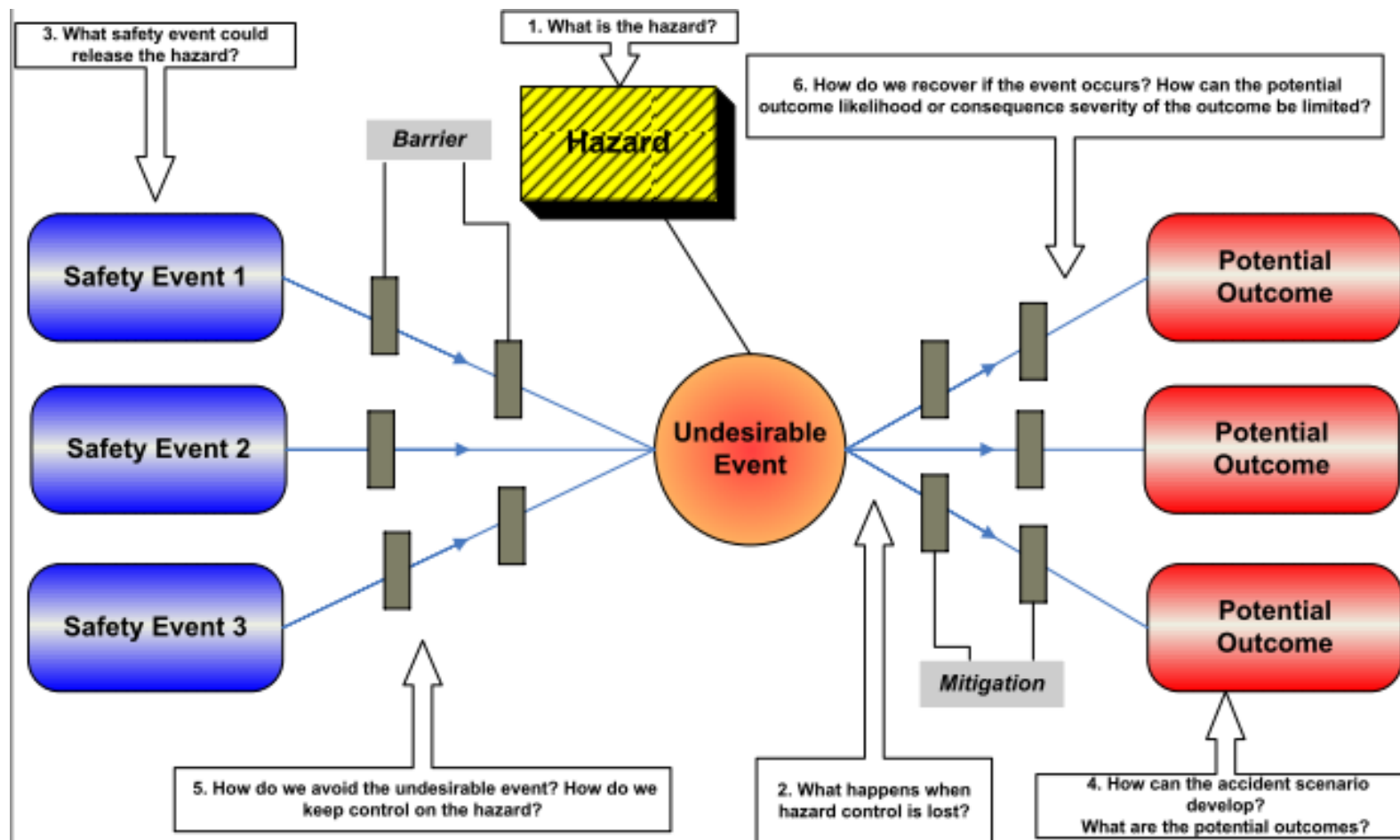
- Notificação obrigatória

- Information exchange systems* (STEADES, Luxair)

- Auditoria externas (INAC, IATA)

- Relatório de acidentes (NTSB, The Aviation herald, JACDEC)

Bow Tie



Bow Tie

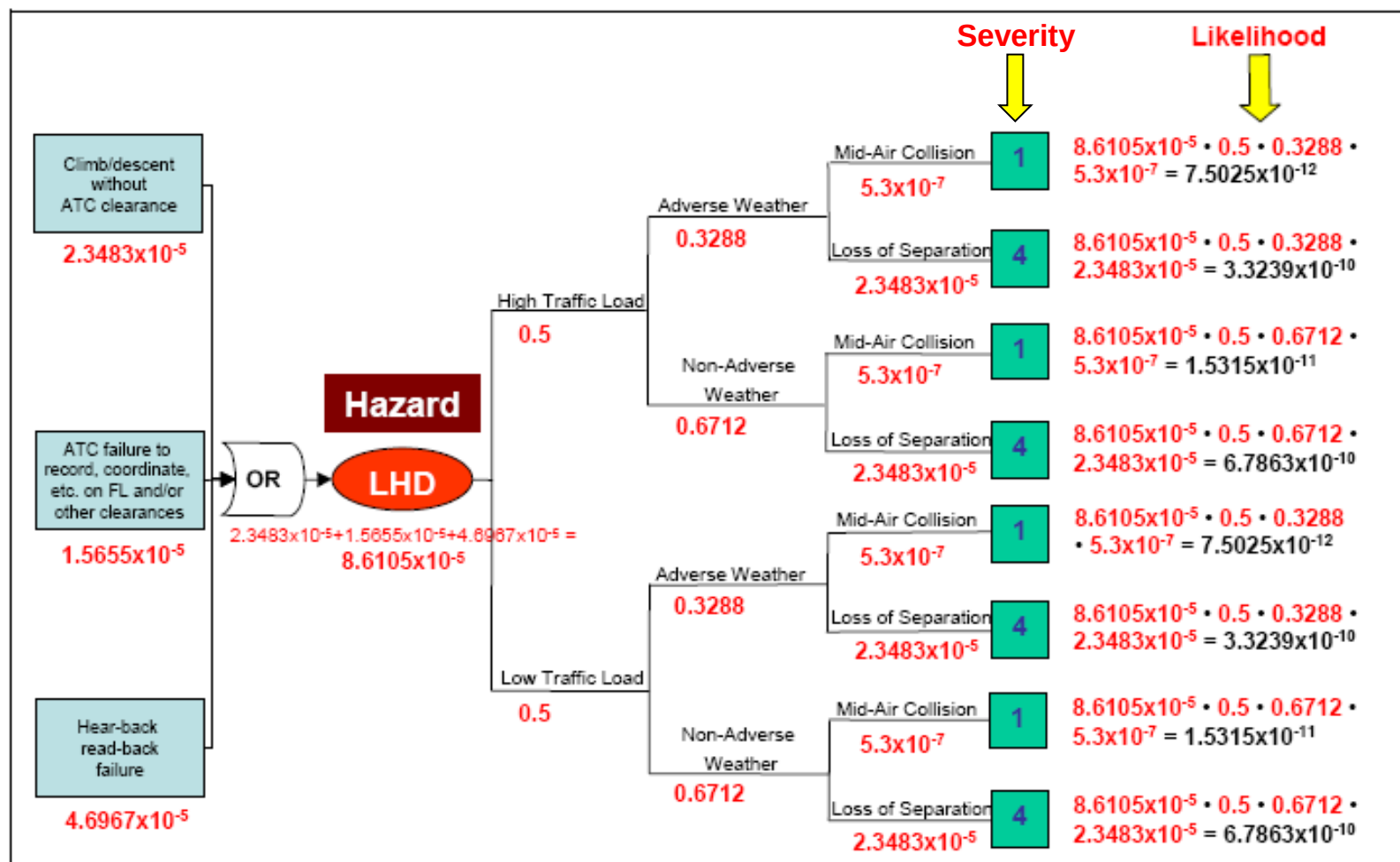


Figure E.5 - Bow-Tie Model: Large Height Deviation

Fonte: Mitre

Severidade & “probabilidade”

Risk probability	Risk severity				
	Catastrophic A	Hazardous B	Major C	Minor D	Negligible E
Frequent 5	5A	5B	5C	5D	5E
Occasional 4	4A	PGA	4C	4D	4E
Remote 3	3A	3B	3C	3D	3E
Improbable 2	2A	2B	2C	2D	2E
Extremely improbable 1	1A	1B	1C	1D	1E

Edição 3

-Toda frota
7 occ. para “occasional”

- Frota
3 occ. para “occasional”

Frequent	Max 1000 FH
Occasional	Max 100 000 FH
Remote	Max 10 000 000 FH
Improbable	Max 1 000 000 000 FH
Extremely	...

Probabilidade do risco → “Also, it should be noted that organizations may include both qualitative and quantitative criteria that may include up to fifteen values.”

ICAO

Severidade do risco → “The severity assessment should consider all possible consequences related to an unsafe condition or object, taking into account the worst foreseeable situation.”

ICAO

The 2012 global accident rate (measured in hull losses per million flights of Western-built jet aircraft) was 0,2. That is equal to one accident for every 5 million flights.

The 2013 global accident rate (measured in hull losses per million flights of Western-built jet aircraft) was 0,3. That is equal to one accident for every 3,3 million flights.

IATA

SEVERITY LEVELS						LIKELIHOOD LEVELS				
RATING	PHYSICAL INJURY	DAMAGE TO THE ENVIRONMENT	DAMAGE TO ASSETS	POTENTIAL INCREASED COST OR REVENUE LOSS	DAMAGE TO CORPORATE REPUTATION	A UNKNOWN BUT POSSIBLE IN THE AVIATION INDUSTRY	B KNOWN IN THE AVIATION INDUSTRY	C OCCURRED IN THE COMPANY	D REPORTED >3X/YR WITHIN THE COMPANY	E REPORTED >3X/YR AT A PARTICULAR LOCATION OR A/C
0	No Injury	No Effect	No Damage	No Increased Cost Or Lost Revenue	No Implication	ACCEPTABLE				
1	Minor Injury	Minor Effect	Minor Damage < €25k	Minor Loss < €25k	Limited Localized Implication					
2	Serious Injury	Contained Effect	Substantial Damage < €250k	Substantial Loss < €250k	Regional Implication			ACCEPTABLE WITH MITIGATION		
3	Single Fatality	Major Effect	Major Damage < €1M	Major Loss < €1M	National Implication					
4	Multiple Fatalities	Massive Effect	Catastrophic Damage ≥ €1M	Massive Loss ≥ €1M	International Implication			UNACCEPTABLE		

“Safety Performance”



Specific

M easurable

Achievable

Realistic

Timeframe

The concrete objectives
of the level of safety

The parameters that
characterize and/or
typify the level of safety
of a system



Exemplo:
Redução “runway incursion”

Exemplo:
Eventos de “runway incursion”

➤ Compromisso da gestão



“The commitment to Safety must come down from the top like a waterfall. Safety begins in the minds, it is a mind state, an attitude, and must be a part of an organization’s Culture.”

Roberto Kobeh González, President of the Council, ICAO
3rd Annual FAA International Aviation Safety Forum, Nov 02, 2006

SAFETY - transversal à Companhia, cobrindo:



- ✓ Centro de Formação
- ✓ Manutenção e Engenharia
- ✓ Operações de Terra
- ✓ Operações de Voo
- ✓ Organização e Gestão



(incluindo serviços “*in-house*”, contratados e fornecedores)

Safety consiste essencialmente em Gestão do Risco

