

Cultural Aspects of Error Management

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– Detection, Measurement and Mitigation

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Management of Error

(Supervisory Perspective)

HUMAN ERROR

v.

SYSTEMS FAILURE



* This is not a discussion of blatant incompetence or intentional mischief or fraud

EXAMPLE 1

A worker cut his fingertips on a paper cutting machine and sued his employer.

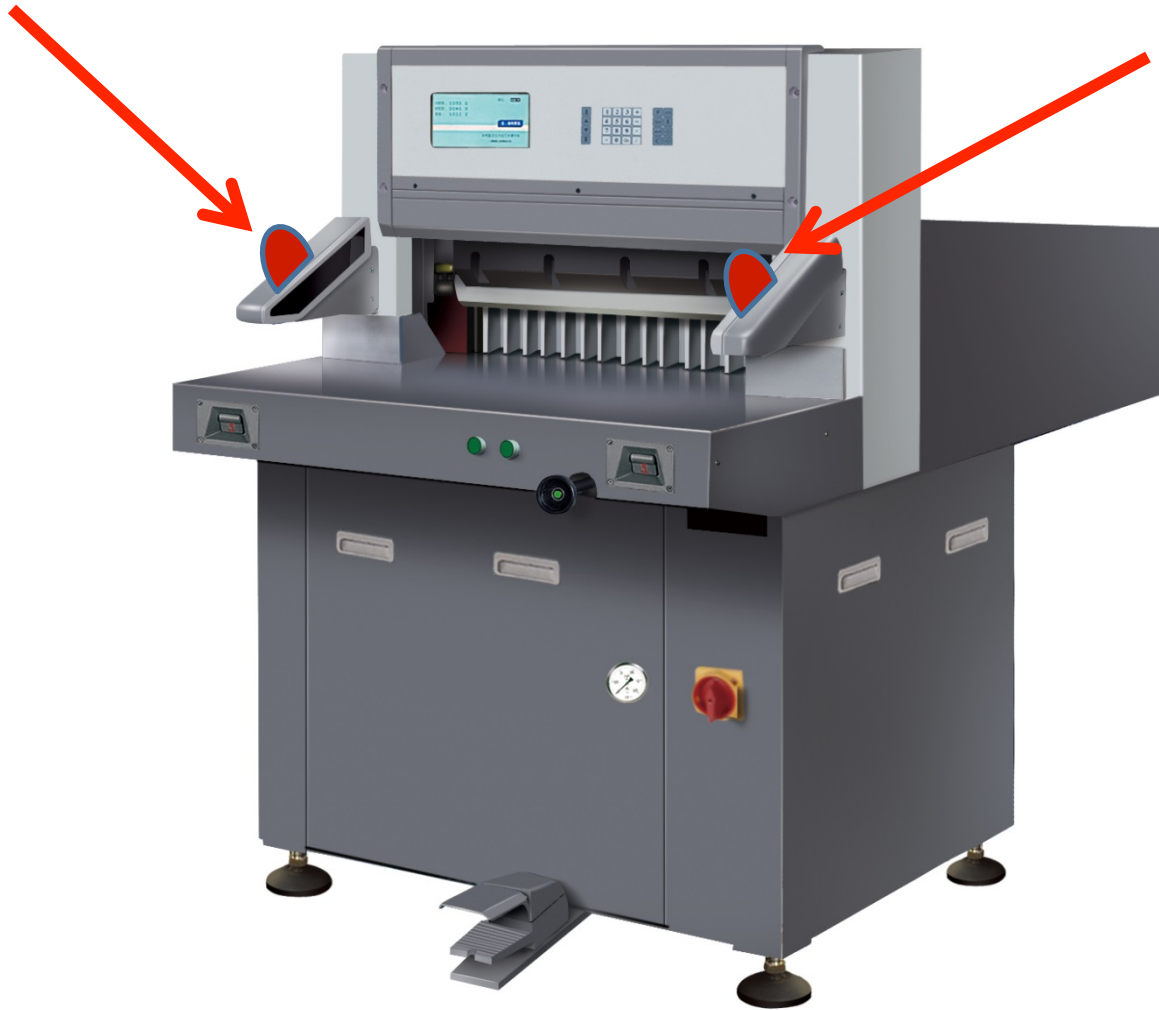


EXAMPLE 1

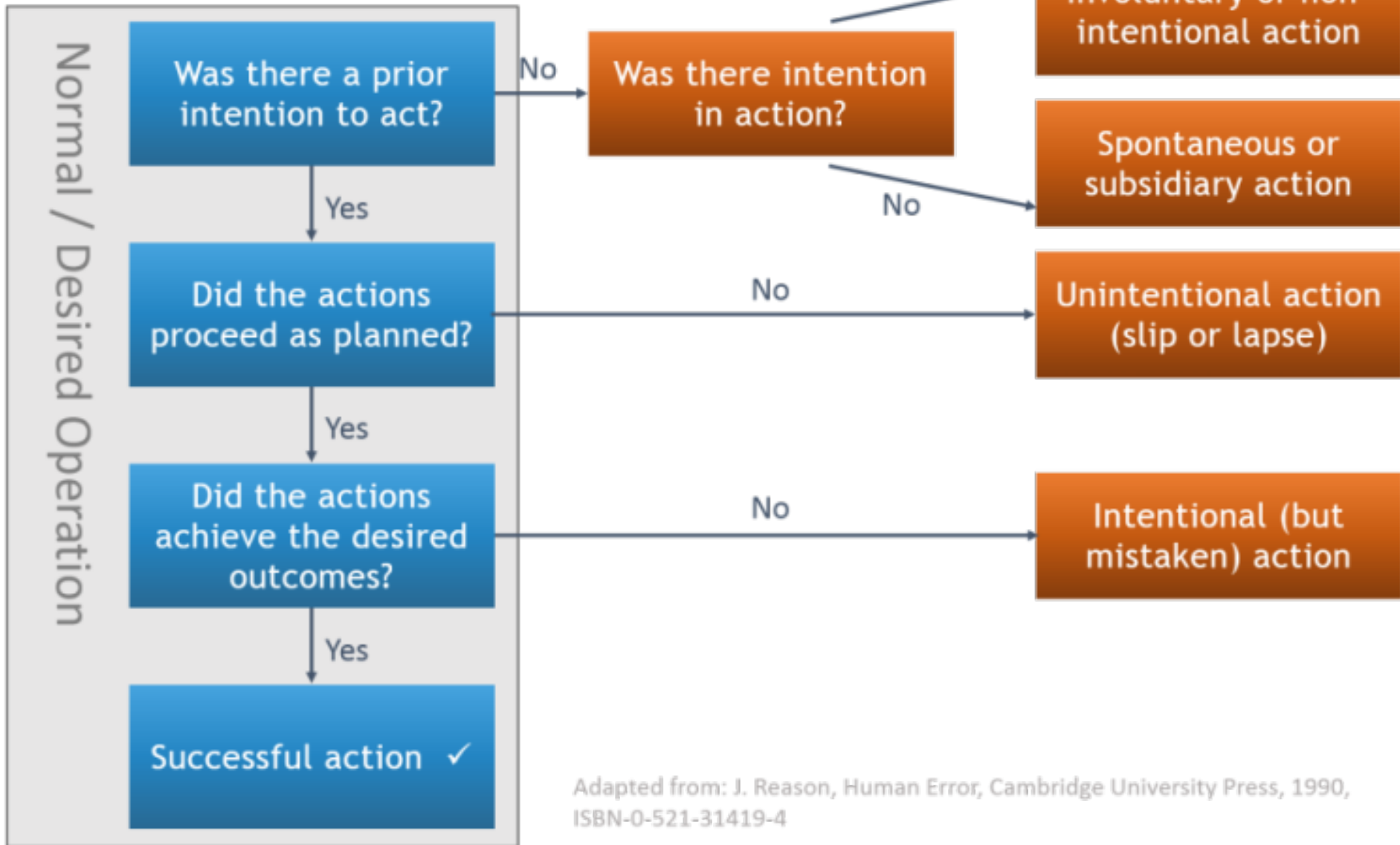
A worker cut his fingertips on a paper cutting machine and sued his employer.

The court held in favor of the plaintiff

EXAMPLE 1



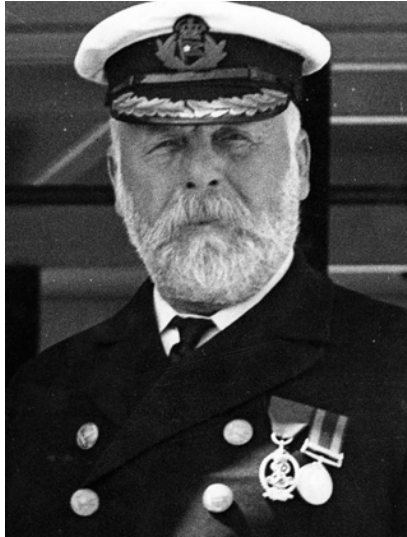
What is human error?



Adapted from: J. Reason, Human Error, Cambridge University Press, 1990, ISBN-0-521-31419-4

Captain of the Ship

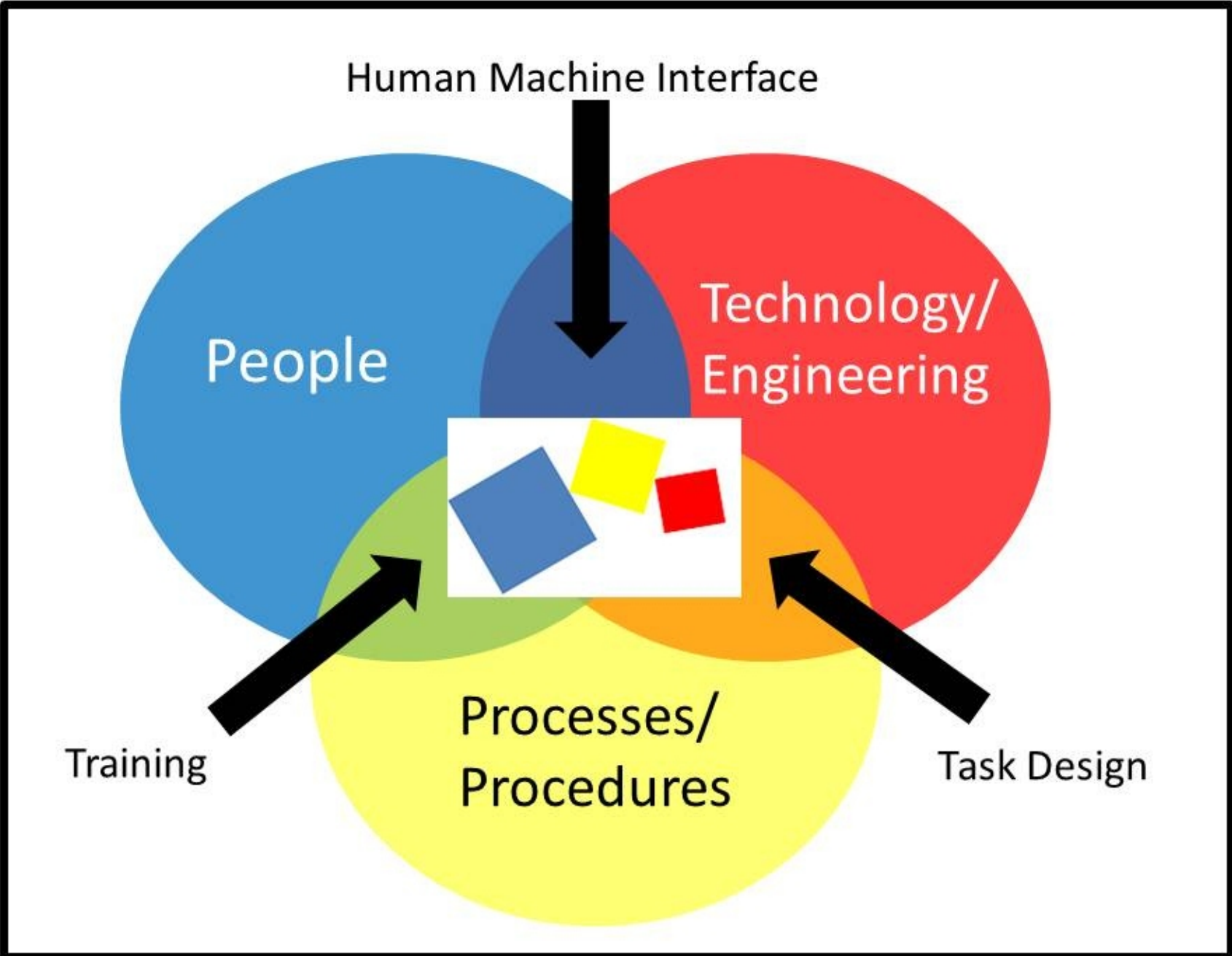
After ship was lost,
the captain was held responsible.

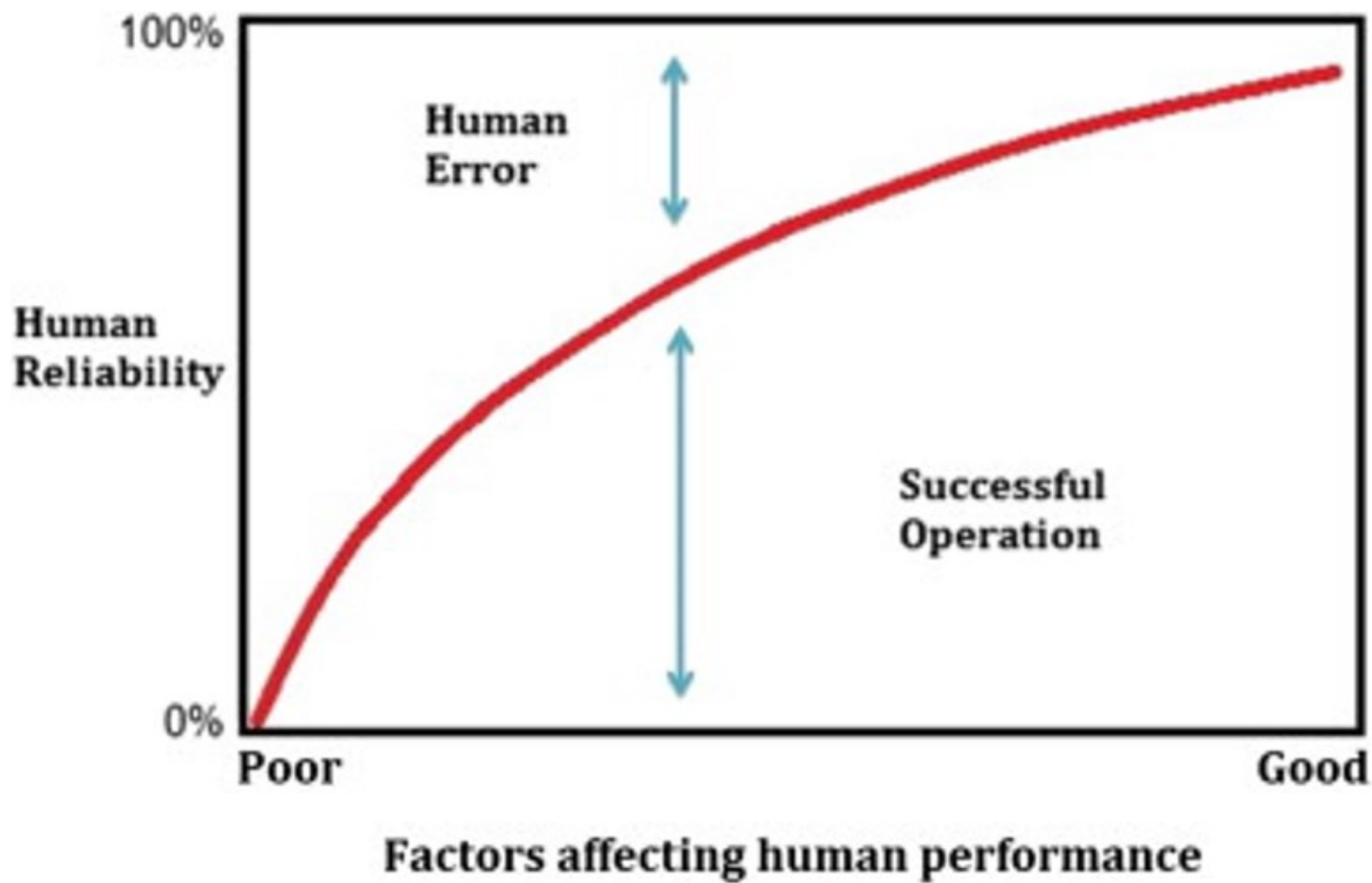


Captain Edward Smith



The buck stops here. Punish bad behavior and set example for others.





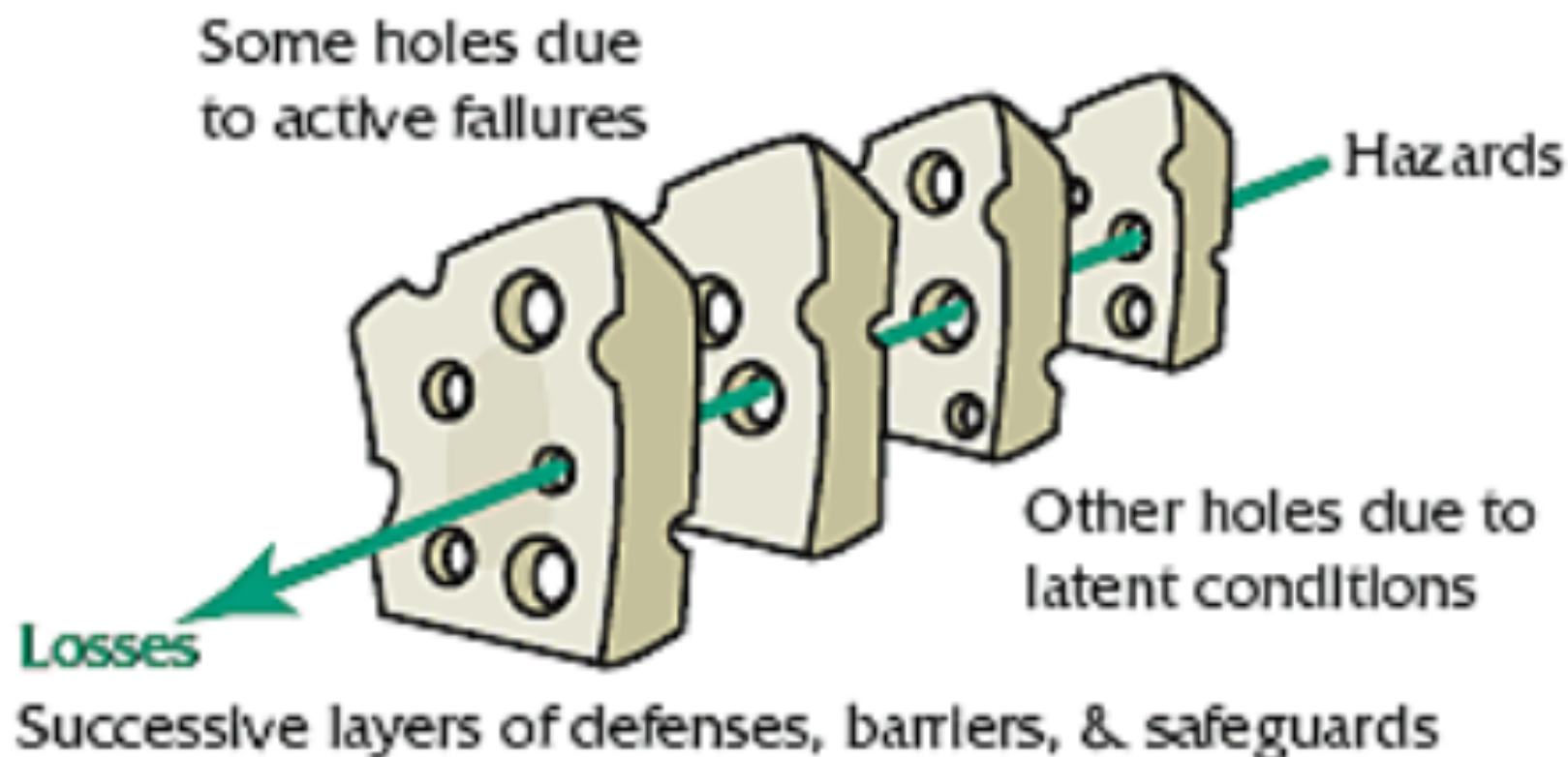
Air Force Aircraft Investigation

Safety Investigation Board (SIB) –
safety/prevention focus, avoids blame

Accident Investigation Board (AIB) –
legal focus, assesses blame.



The Swiss Cheese Model of Accident Causation



Root Cause Analysis

- ❖ Looks beyond the individual blame for an underlying systems issue.

EXAMPLE:

Car won't start,
because battery is dead,
because alternator is bad.

BLAME

Criminal Justice Root Cause Analysis



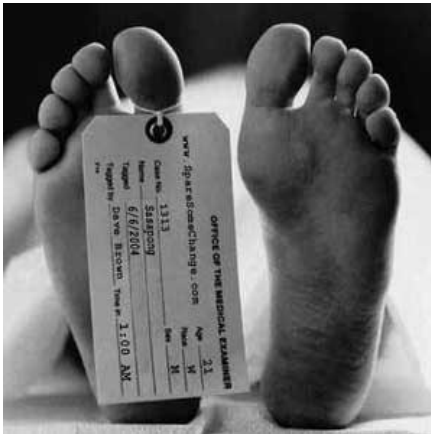
Blame
Individual Responsibility



Avoid Blame
Systemic Failure

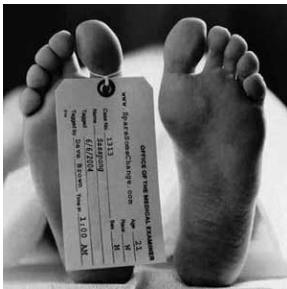
EXAMPLE 2

Bodies were accidentally switched from the medical examiner's office and went to the wrong funeral homes. One body was cremated and then the mistake was caught.



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***Over my objection,
DCJ fired the autopsy technician***



The police have a culture



The police have a culture

. . . So do hippies



The police have a culture

. . . So do scientists

Geert Hofstede



National Cultural Dimensions

- 1. Power Distance (PDI)**
- 2. Individualism (IDV)**
- 3. Masculinity (MAS)**
- 4. Uncertainty Avoidance (UAI)**
- 5. Long Term Orientation (LTO)**
- 6. Indulgence (IND)**

Geert Hofstede



National Cultural Dimensions

Power Distance

v. Egalitarianism

Individualism (IDV)

v. Collectivism

Masculinity (MAS)

v. Femininity

Uncertainty Avoidance (UAI) v. Uncertainty Tolerance

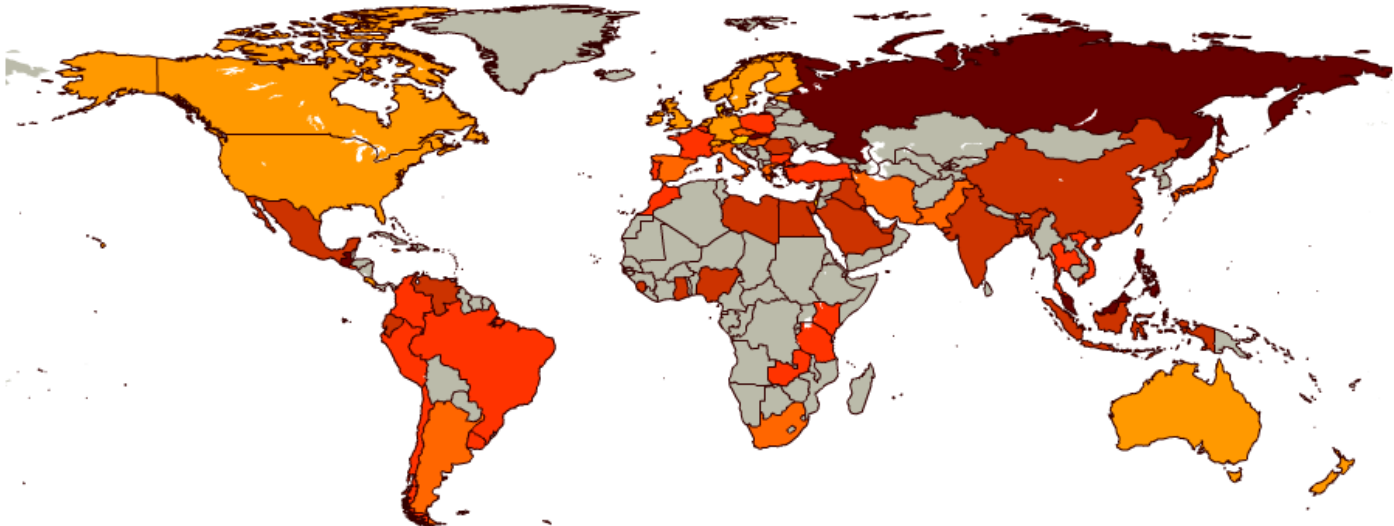
Long Term Orientation (LTO) v. Short Term

Orientation

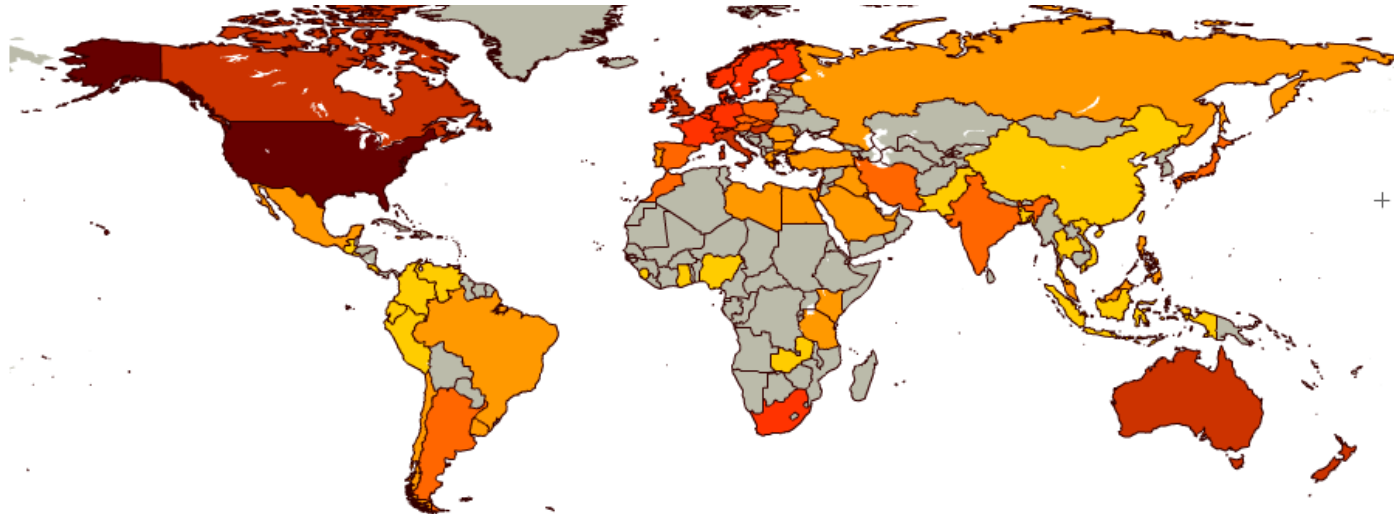
Indulgence (IND)

v. Restraint

World Map of Power Distance Index - Hofstede

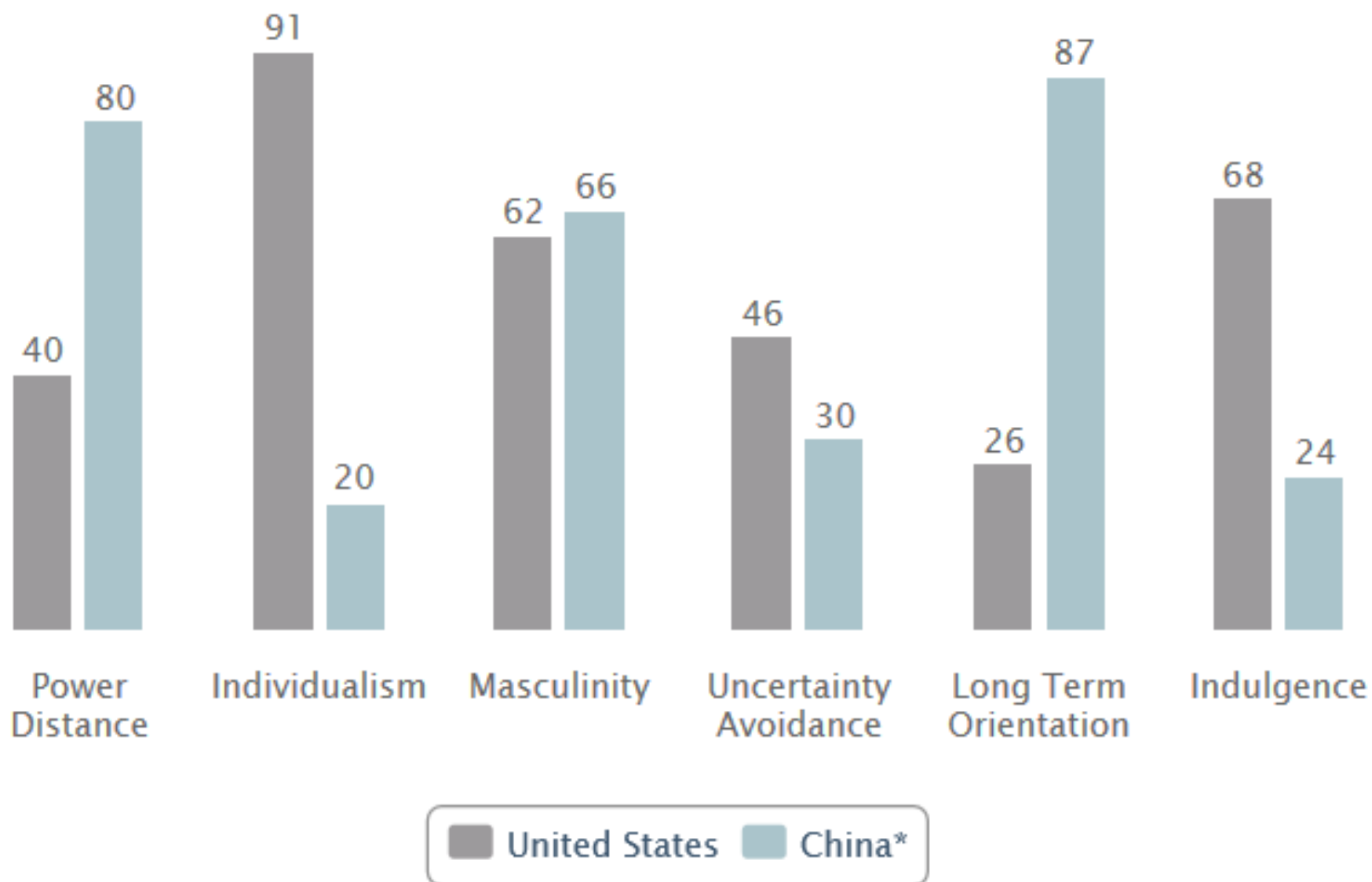


World Map of Individualism - Hofstede



United States

in comparison with China*



Geert Hofstede



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Orientation

v. Short Term

Indulgence (IND)

v. Restraint

Power Distance Index



Authoritarian Hierarchy

- High Power Distance
 - Relationship between bosses and subordinates is one of dependence
 - Power and authority are facts of life

Egalitarianism, Collegiality

- Low Power Distance
 - Relationship between bosses and subordinates is one of interdependence
 - Preference for consultation
 - Leaders encourage independent thought and contributions and expect (within reason) to be challenged

High vs. Low power distance

Features of high power distance cultures

Members accept power distance as part of social order, it determines what is right and wrong.

More powerful members of society perceive their subordinates as unequal.

Subordinates fear the more powerful members.

There is not much trust among co-workers

Majority of people are dependent on others.

Subordinates are blamed for mistakes.

There is a strong conflict between the strong and the weak members

Social inequalities are accepted; every person has a high or low place in the social order and is protected by law

Features of low power distance cultures

Power is exerted only where it is necessary.

People are equal, they consider social inequalities obsolete.

Cooperation should be based on the principle of solidarity.

Subordinates are considered as older, more experienced colleagues.

Co-workers are prone to trust one another.

The system is blamed for mistakes.

Everyone should have equal rights

Strong and weak members coexist in harmony

Uncertainty Avoidance Index



**Uncertainty
Avoidance**

**Uncertainty
Tolerance**

PROSECUTORS

Clear

Ambiguous



**Datum,
Populaton Sample**

Population Distribution

SCIENTISTS

It's not that simple!!!



Yes or No!!!

Juries cope with tolerance based on words; scientists cope with tolerance based on numbers.

Rule Strictness Index



**Deviation
Intolerant**

**Deviation
Tolerant**

PROSECUTORS

Prosecute infractions

Variation is bad



SCIENTISTS

Ignore outliers

Variation is normal

Criminal Law

- **Originally based on intention (mens rea)**
- **Increasingly intention is not required (statutory crimes)**

Personal blame seems more appropriate for intentional acts.

CLASH OF CULTURES

Legal system and scientists have world views in fundamental conflict

THE CRIMINAL JUSTICE SYSTEM

is fundamentally concerned with individual responsibility and blame

– thus they will manage error as human error.

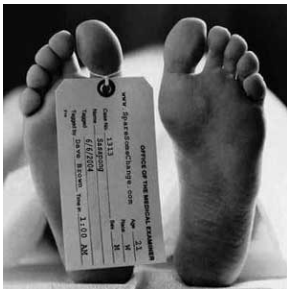
THE SCIENTIFIC COMMUNITY

recognizes uncertainty and error is fundamental

– thus they will manage error as a systems failure.

EXAMPLE 2

Bodies were accidentally switched from the medical examiner's office and went to the wrong funeral homes. One body was cremated and then the mistake was caught.



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Forensic Science

Embedded within law enforcement and caught between this culture clash

- ❖ **The forensic science community is increasingly asserting its scientific character**
- ❖ **The criminal justice system is begrudgingly accommodating this scientific orientation**

THE END

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