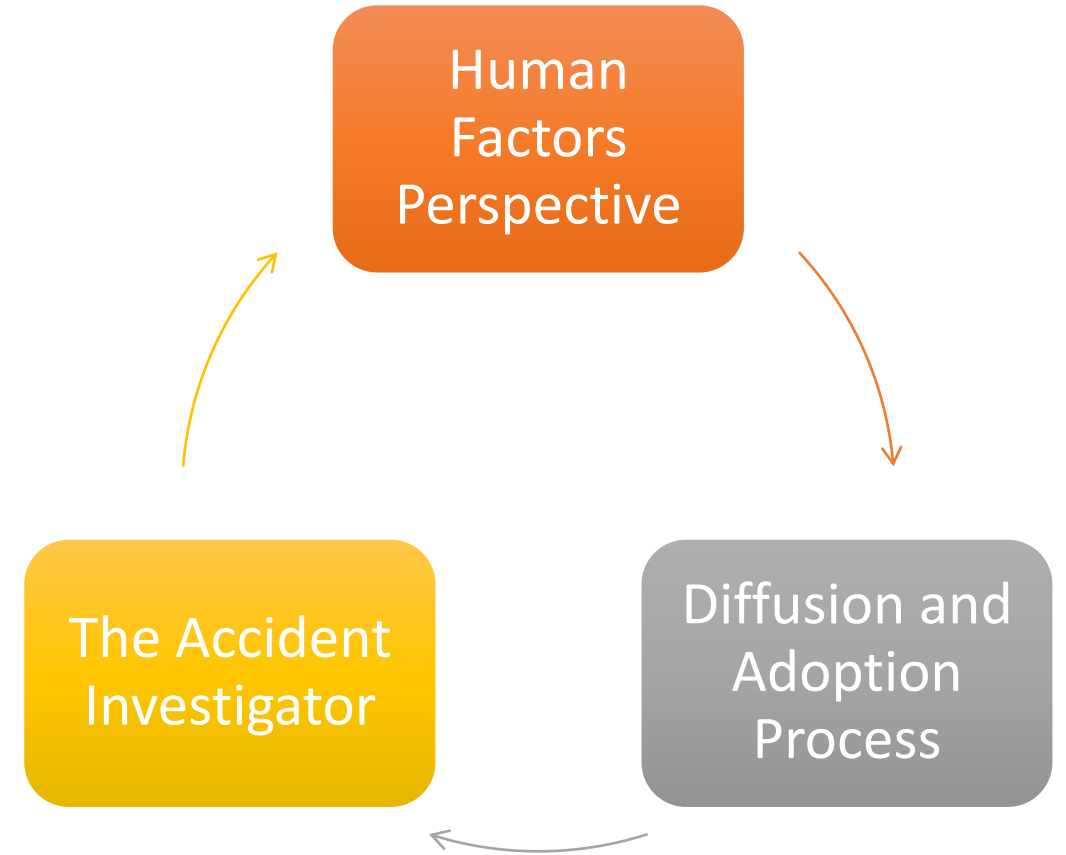


# 21'st century challenges in Accident Investigation and the Way forward

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# 1. Human Factor Perspectives



- a. From Human Factor to Human Factor
- b. Human Factor Integration



- Encompasses multi field Psychology, physiology and ergonomics
- Human factors is involved in almost all aircraft accidents or incidents in one-way or another

1970: Technical Development



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graph TD; A[1970: Technical Development] --> B[1980s: focused on the individual, understanding psychological processes and human behaviors]; B --> C[1990s: Organizational Factor]; C --> D[21'st Century: .....?];
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1980s: focused on the individual, understanding psychological processes and human behaviors

1990s: Organizational Factor

21'st Century: .....?

From Human Factor to Human Factor

# Good Apple Theory

Human Error  
is a symptom  
of the system



Human  
should not  
be consider  
without it's  
environment

Investigating HF- understanding what went wrong between each of the components or studying the pilot's behavior to understand 'what he did wrong'.

The human error was attributed to either a failure in technology or human error.



Human error should be considered the starting point of an investigation.

Findings should lead to “error tolerance and error recovery” rather than “error suppression” because error is human.

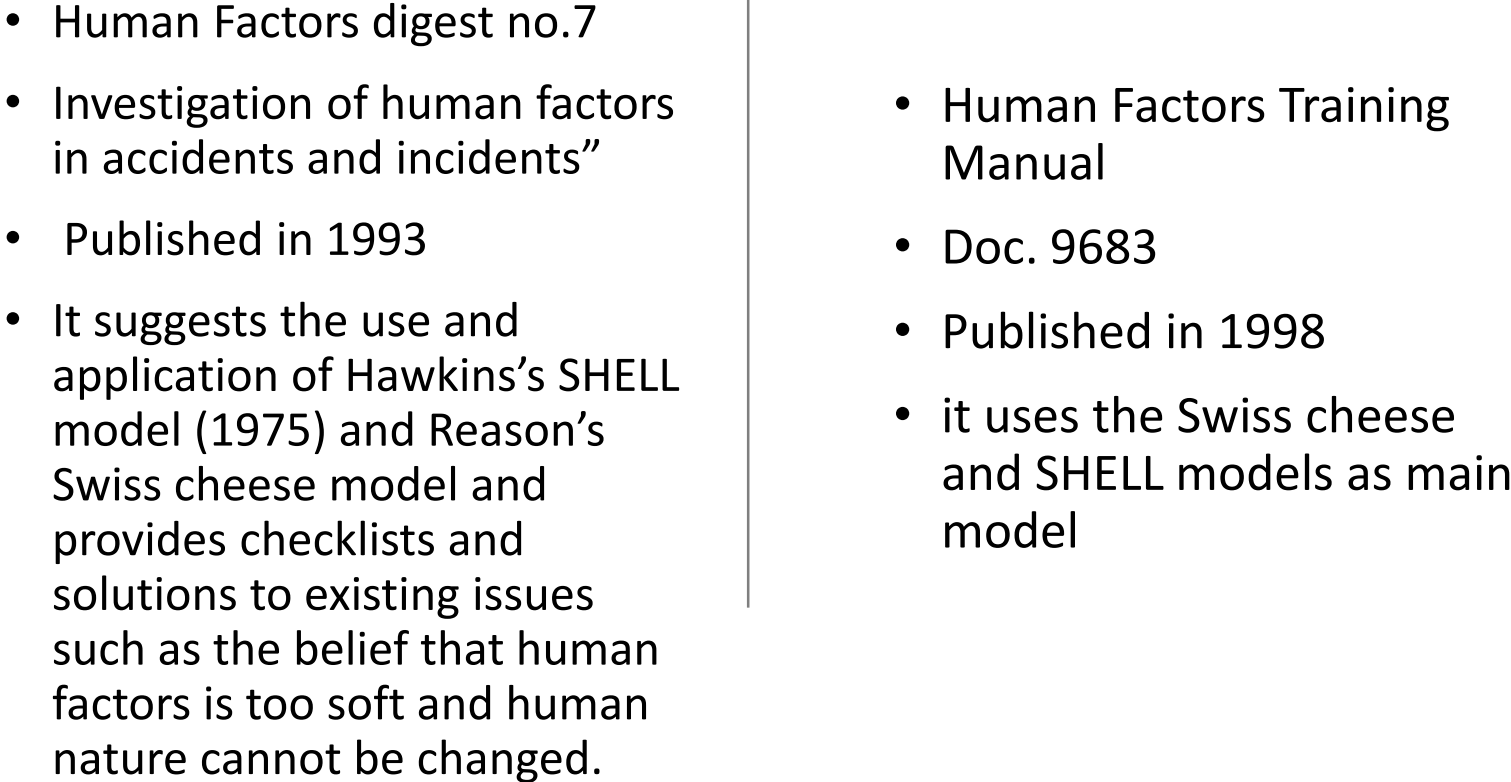
## Contemporary view of human factor

*“Humans are seen as a resource necessary for system flexibility and resilience”*

Error is normal to human performance although the field of human factors is increasingly considered,

“There is still a degree of apprehension” and it is still considered as “speculative” and not as credible as other disciplines.

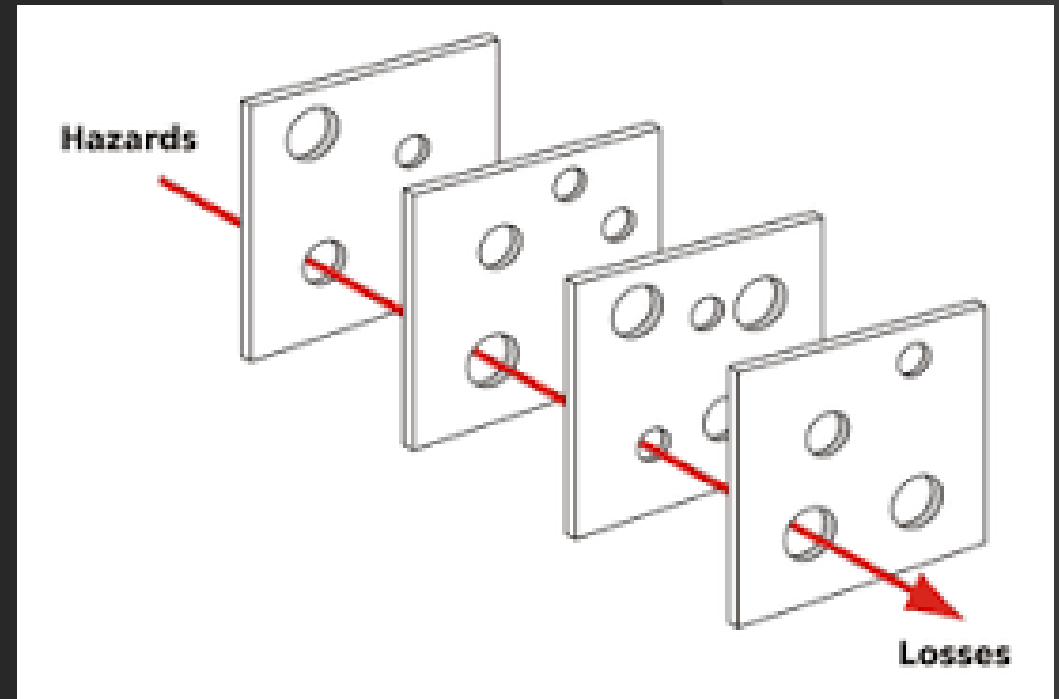


A horizontal strip of white paper with the word "GUIDELINES" printed in a black, serif, all-caps font. The strip is set against a background of brown, textured cardboard. The edges of the strip are irregular and torn, and the right end is curled up.



# Models

- Oversimplification of an accident. It focuses too much on the holes (failures) and does not allow the consideration of the whole system
- Moreover, it does not explain why a system failed nor allows an understanding of why the operator's decisions made sense at the time of the event and does not give any indications of what the failures are or how to identify them



## Benefits of human factors training for aviation accident investigators.

- Quality of Training
- Identification of the need for training accreditation
- courses is different in content, length and focus.



# Human Factors Analysis Classification System (HFACS).

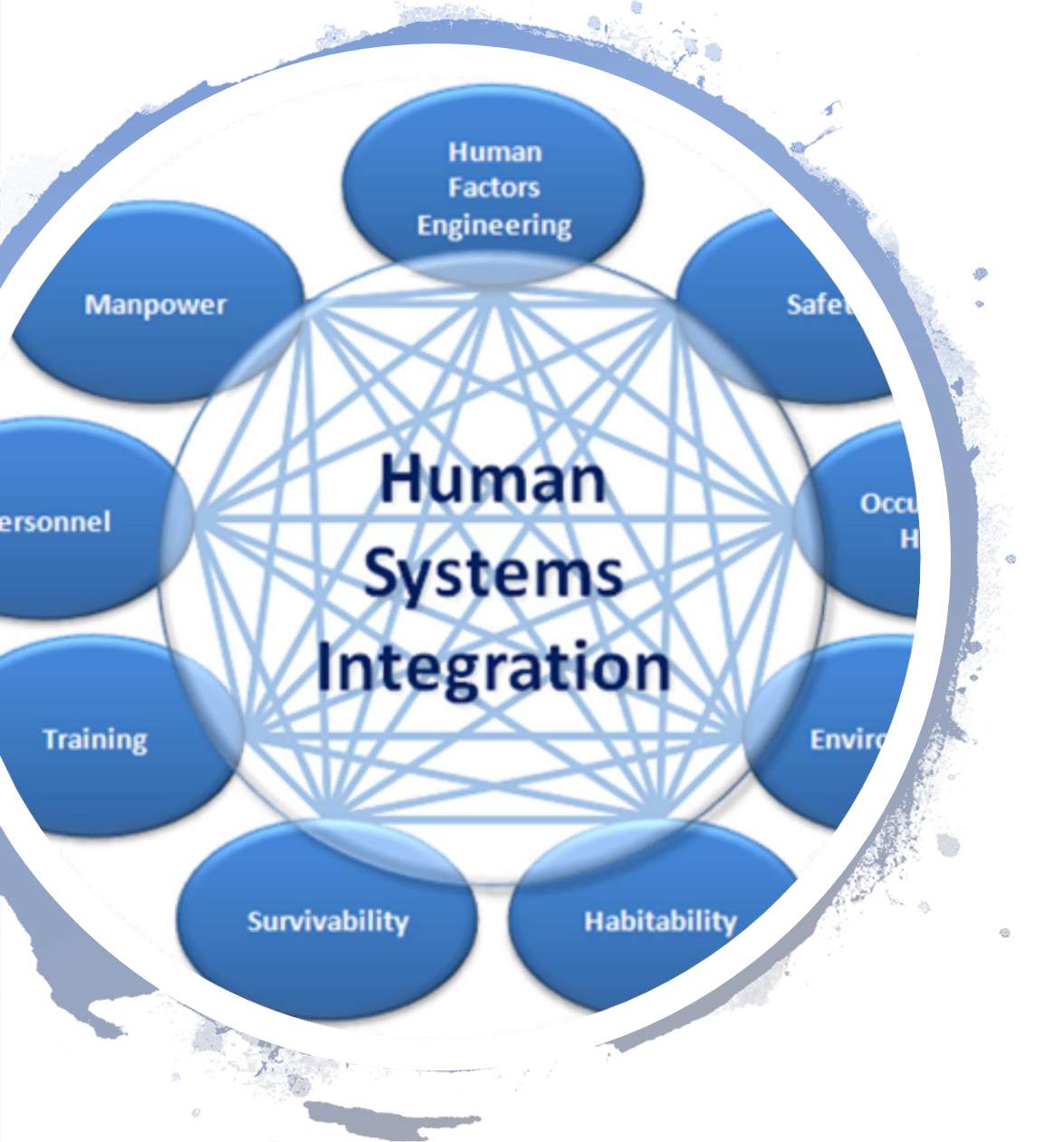


# Human factors expert.



- Being a human being does not make oneself a human factors expert.
- Anyone with training can conduct human factors investigations...?
- Lack of Human Factor Specialist..?





# Human Factors Integration

- The challenges faced by human factors in air accident investigation are also common to other industries
- Most of the people have lack of interest in Human factor because they consider human factor as common sense and being too abstract to be useful.
- Difficulty of HF acceptance to organizational issues

## 2. Diffusion and Adoption process

- Independence of investigation
- Regional Accident and investigation Org.
- New approach or any changes is perceived as complex task

### Probable factors

- Relative Advantage
- Compatibility
- Complexity and
- Communication gap/**silos**





# Investigator

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- Main actors in accident investigations –

## **Investigator Roles**

- to establish an environment of trust in the investigation process
- Exhibit professionalism
- Develop essential skills for accident investigation
  - 1) familiar with a broad range of disciplines and the ability to multi-task
  - 2) able to appreciate how human beings behave under stress

## **Organizational systems**

- Regarding HF skills, not all organisations look for human factors or psychological competence in their new recruits for Investigator
- Lack of Investigator ....?



# The Way Forward

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## 1.) Research on:

- ✓ Human Factor training for Investigator
- ✓ Indirect Method of integrity enforcement
- ✓ Region based compatible Approach

## 2.) Training

- ✓ Operator
- ✓ Regulator
- ✓ Investigator



# Thank You

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