



# HUMAN FACTORS



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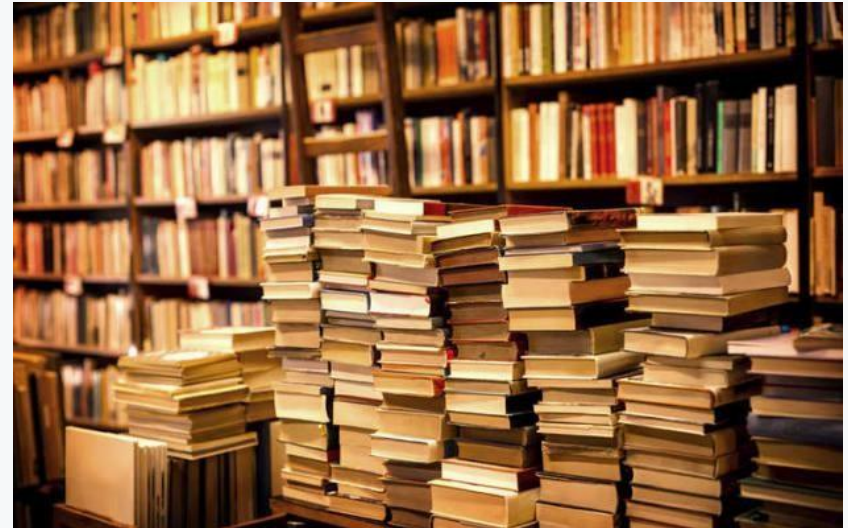
# HUMAN FACTORS IN **IN AVIATION**

*"The understanding of foreseeable human capacities and limitations and the application of this understanding is the fundamental theme of the study of human factors"*

**ICAO**

# BIBLIOGRAPHY

- **Human Factors Instruction Manual – ICAO**
- **Human Error – JAMES REASON**
- <http://www.sociedad aeronautica.org> - **Spanish Aeronautical Society**
- **Human Factors in Aviation – Dr OCTAVIO AMÉZCUA PACHECO**



# REGULATORY FRAMEWORK

- **ICAO Circular 216 and 217 AN/131 of 1990.**
- **ICAO Circular 227 AN/136 of 1991.**
- **ICAO Circulars 241 and 243 - AN/146 of 1993.**



# OBJECTIVES

- That the student knows the importance of the existence of human factors in aviation.
- That the student evaluates the benefits of this field to improve the operational safety and effectiveness of the different organizations.



# SYLLABUS

- **Dryden accident.**
- **History.**
- **Definitions.**
- **Human Factors or Human Relations.**
- **Regulatory framework.**
- **Shell model.**
- **Other models**
- **Why Human Factors Training?**
- **Conclusion.**



# DRYDEN ACCIDENT

- **Mar 10, 1989 - Dryden, Ontario, Canada.**
- **Fokker f-28 fellowship – Air Ontario flight 1363.**
- **24 people died, 45 survivors.**
- **After take-off.**
- **Accumulation of snow on the wings.**
- **Failure of the APU, lack of equipment at the airport, delay of one hour, pressure from the company.**



# HISTORY

"Human performance is attributed to being the causative factor in most aviation accidents. If the accident rate is to be reduced, there is a need for a better understanding of the issue of human factors and to apply this knowledge more widely and actively."

ICAO

1st W.W.

2nd W.W.

1949/57/59

1976/79

1995

Mejorar la producción y asignación tripulaciones.  
of Complexity of Equipment.

Institutionalization of the concept. Ergonomics and FFHH

FAA-NASA Settlements, Due to Succession of Major Accidents

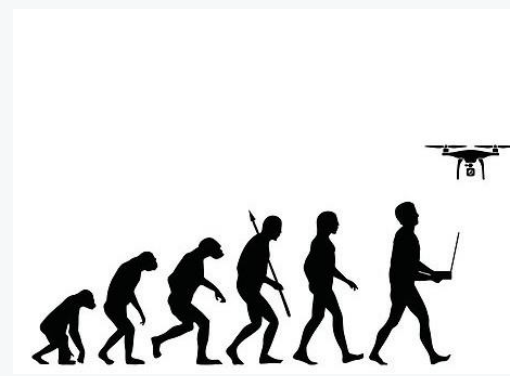
Based on industry and accident investigation, ICAO stresses the importance of FFHH training in aviation.



Human  
Factors  
and  
Ergonomics  
Society



# DEFINITIONS



*“Multidisciplinary field dedicated to the optimization of human performance and the reduction of error in air operations, in this case. It incorporates principles and knowledge provided by disciplines such as psychology, behavioral sciences, bioengineering and other social sciences. It is about the application of all this knowledge to the study of Man-Machine interaction. The concept is more aimed at teamwork than at the human being as an individual.”*

ICAROS-APSA

*“Human factors try to bring the relationship between people and their activities to its optimum level, through the systematic application of the human sciences, integrated within the framework of systems engineering.”*

Prof. Edwards

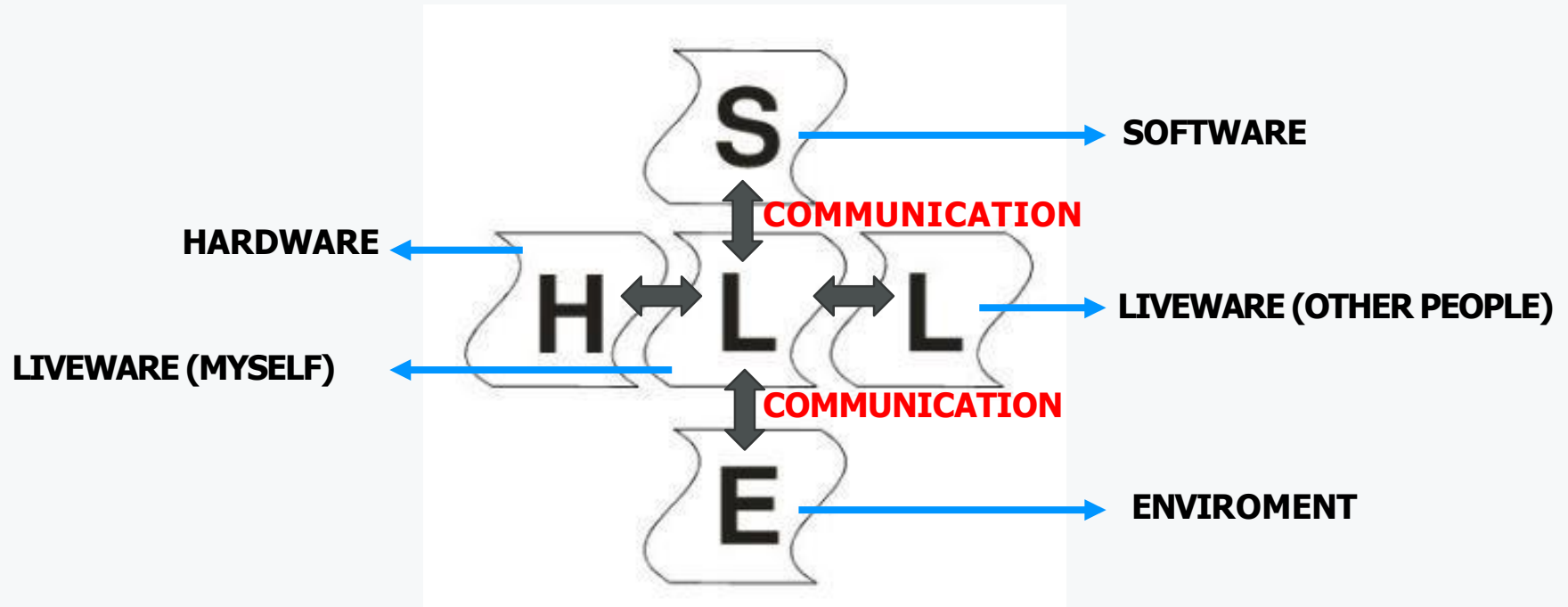
**HUMAN FACTORS**



**HUMAN RELATIONS**



# SHELL MODEL



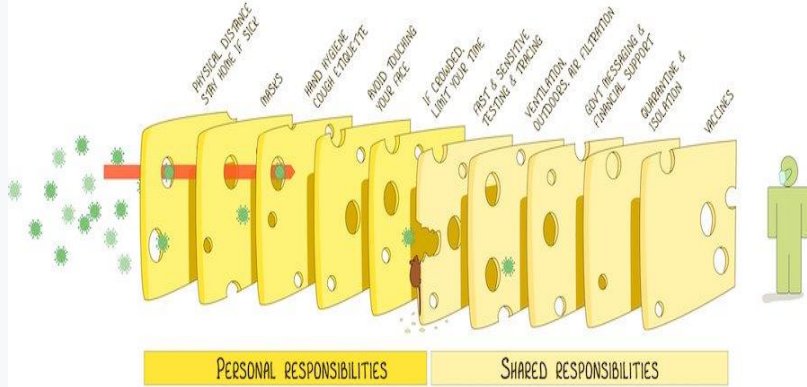
# **OTHER MODELS-** LINEAR OR SEQUENTIAL ACCIDENT MODEL



# OTHER MODELS- SWISS CHEESE OR REASON ACCIDENT MODEL

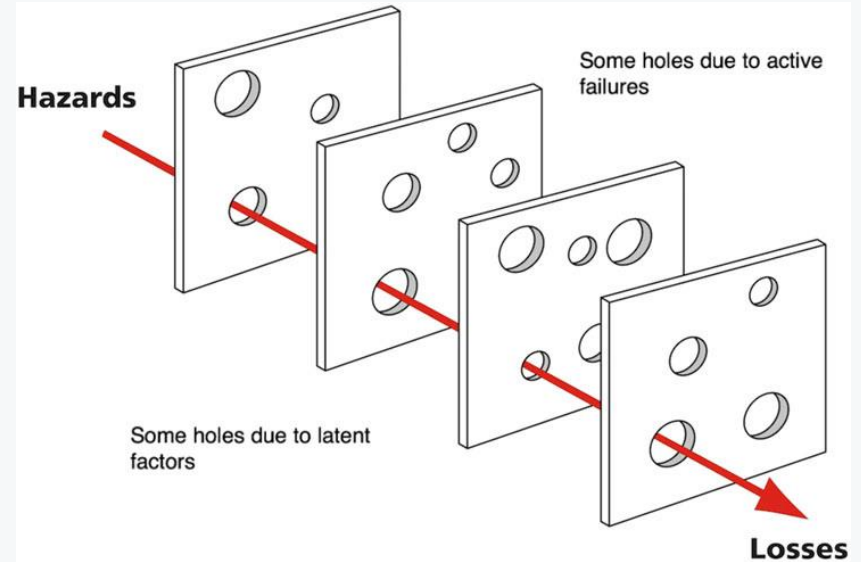
## THE SWISS CHEESE RESPIRATORY VIRUS PANDEMIC DEFENCE

RECOGNISING THAT NO SINGLE INTERVENTION IS PERFECT AT PREVENTING SPREAD

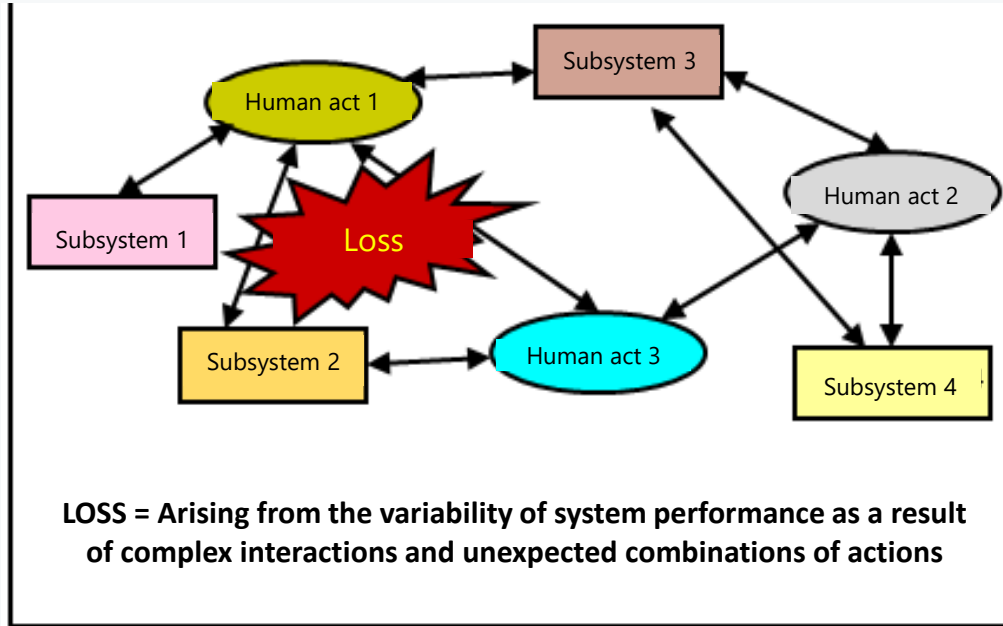


EACH INTERVENTION (LAYER) HAS IMPERFECTIONS (HOLES).  
 (MULTIPLE LAYERS IMPROVE SUCCESS.)

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 WWW.PEOPLESUNDER.COM  
 WITH THANKS TO JOEY LEMOND, VERTICONE REASON & THE LAM OF OLD  
 BASED ON THE SWISS CHEESE MODEL OF ACCIDENT CAUSATION BY SARLES T REASON, 1990  
 VERSION 3.0  
 UPDATED: 24oct2020



# OTHER MODELS- SYSTEMIC ACCIDENT MODEL



# WHY HUMAN FACTORS TRAINING?

- **System Effectiveness**

- Improve operational safety
- Reduce costs
- Improve times

} **EFFICIENCY**

- **People's well-being**



# CONCLUSION

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**THANK YOU VERY MUCH  
FOR YOUR ATTENTION!!**