

CREW RESOURCE MANAGEMENT



CRM

“It is the family of instructional strategies with which it is sought to improve work teams by applying training tools already tested and aimed at specific contents”- SALAS

“Behavioral training to recognize security threats, avoid and manage mistakes made”
HELMERICH

“CRM management is the effective use of all available resources, i.e. equipment, procedures and people, in order to achieve safe and efficient flight operations.” –ICAO.



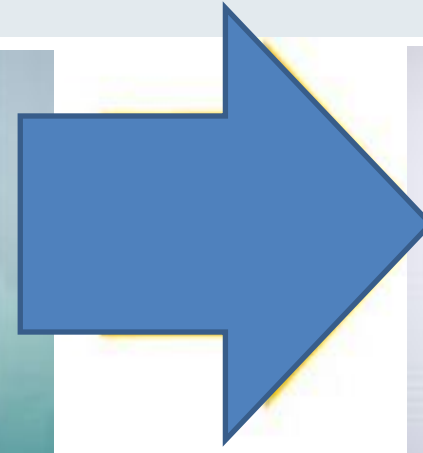
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1st CRM generation

- Develop from a workshop conducted by NASA in 1979.
- 1st training was initiated by United Airlines in 1981.
- Initially the term was **Cockpit Resource Management (CRM)**.
- 1st CRM generation concerns are
 - Need to use the right people
 - Need to use right materials.
 - Need to use right equipments.
 - Need to use right technology.



2nd CRM generation

- In 1986, NASA developed another CRM workshop.
- Change in name from "Cockpit" to **'Crew Resource Management'**.
- Realized that better outcomes could be produced if the entire crew was involved.
- Name change in order to acknowledge the roll of **cabin crews** along with **ground handling, maintenance, and dispatching crews.**

3rd CRM generation

- The so-called, CRM 3rd generation evolved during the early 1990s.
- Efforts began to integrate CRM with **TECHINICAL TRAINING**.
- Also to focus on **specific skills and behaviors** that pilots could use to function more effectively.
- Almost courses focus on the need to improve flight crew.
- Several airlines began to include modules addressing CRM issues **in the use of 'FLIGHT DECK AUTOMATION'**



4th CRM generation

- 4th generation saw the change of CRM training to organisations themselves.
- The first move to recognise that **CRM training has to be tailored to the organisation.**
- Aim is to solve the problems of human error by **making CRM an integral part of all flight training.**

TODAY

FIFTH GENERATION

COMPLETE RESOURCE
MANAGEMENT
ORGANIZATION RESOURCE
MANAGEMENT

PILOTS

+ DISPATCHERS

+ CONTROLLERS

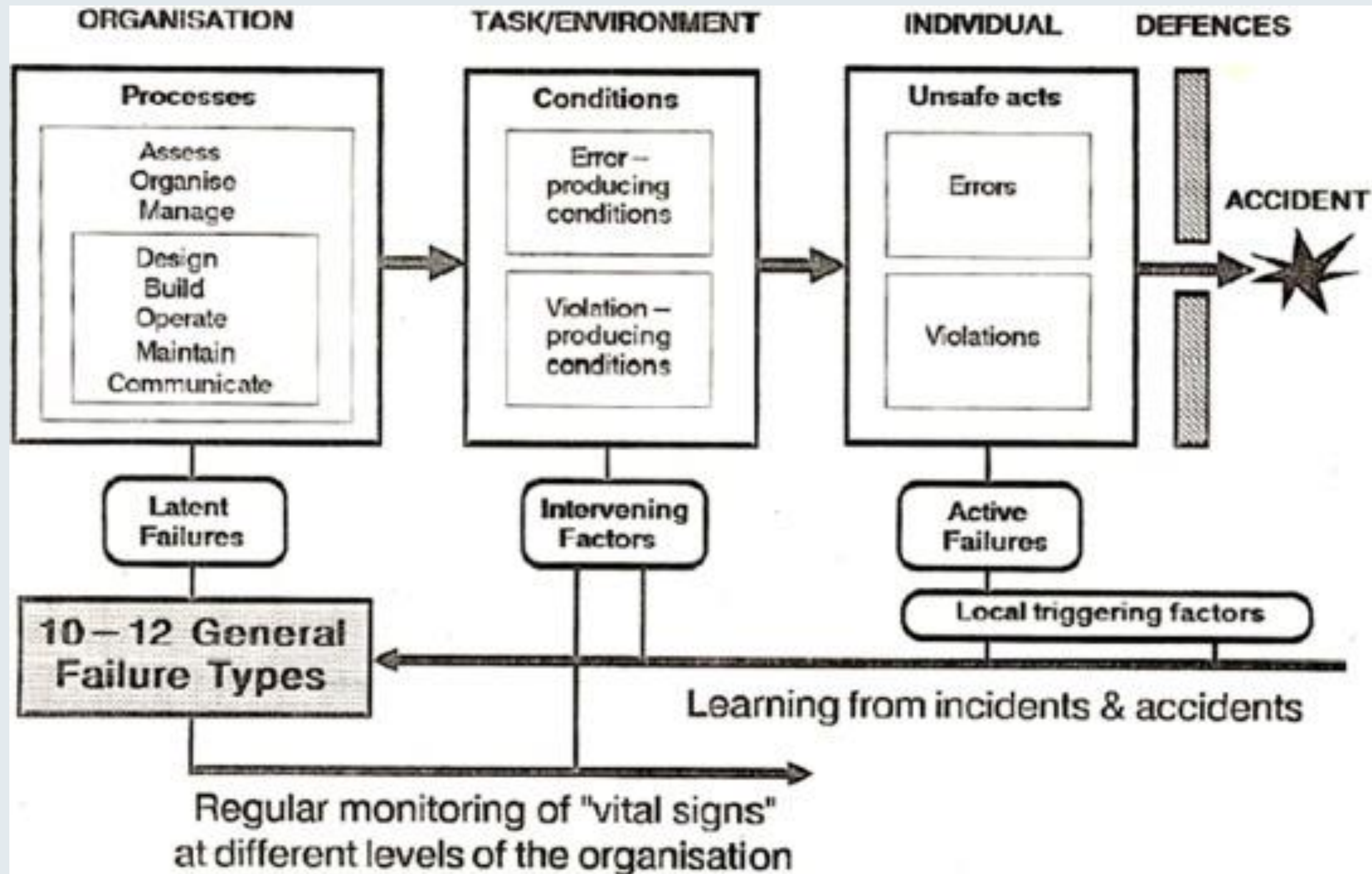
+ CABIN CREW

+ MAINTENANCE STAFF

+ COMMITMENT OF THE MANAGEMENT

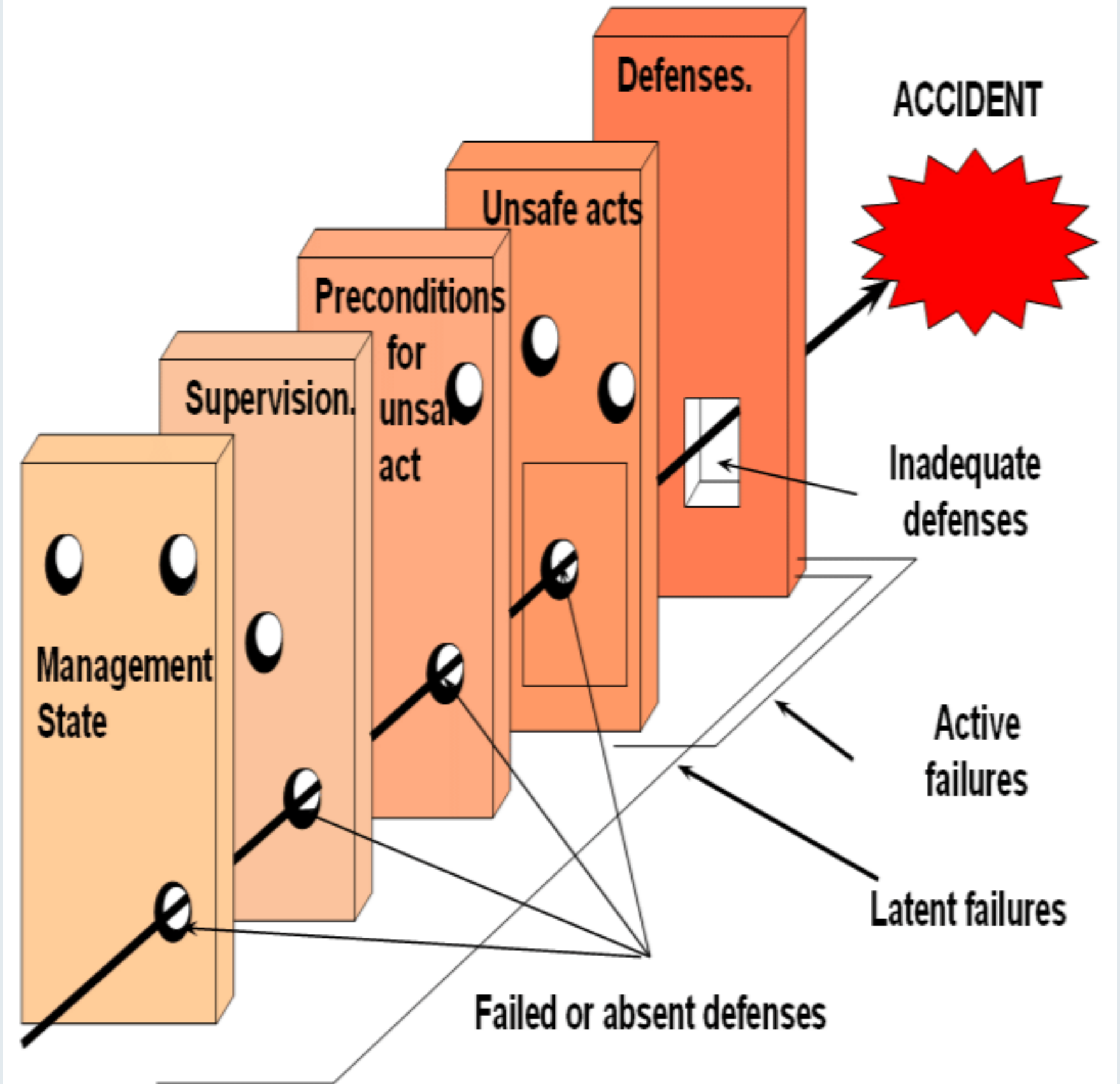
+ AERONAUTICAL AUTHORITIES

*COMPLETE RESOURCE MANAGEMENT
ORGANIZATION RESOURCE MANAGMENT*





JAMES REASON CUASATION MODEL



- **ERROR**

“The mistakes are already there, we must prevent them from happening”

- **DEFENSES**

These defenses are those that, interposed between the different elements that threaten safety, can prevent and avoid accidents.

Technology

Training

Regulations

- *Safety is carrying out a risk-free activity*

M

MOST COMMON MISTAKES

S

SLIPS / MISTAKES

M

MISTAKES / FAULTS

I

INTERRUPTIONS

C

COMPLACENCY

V

VIOLATIONS/TRANSGRESSIONS

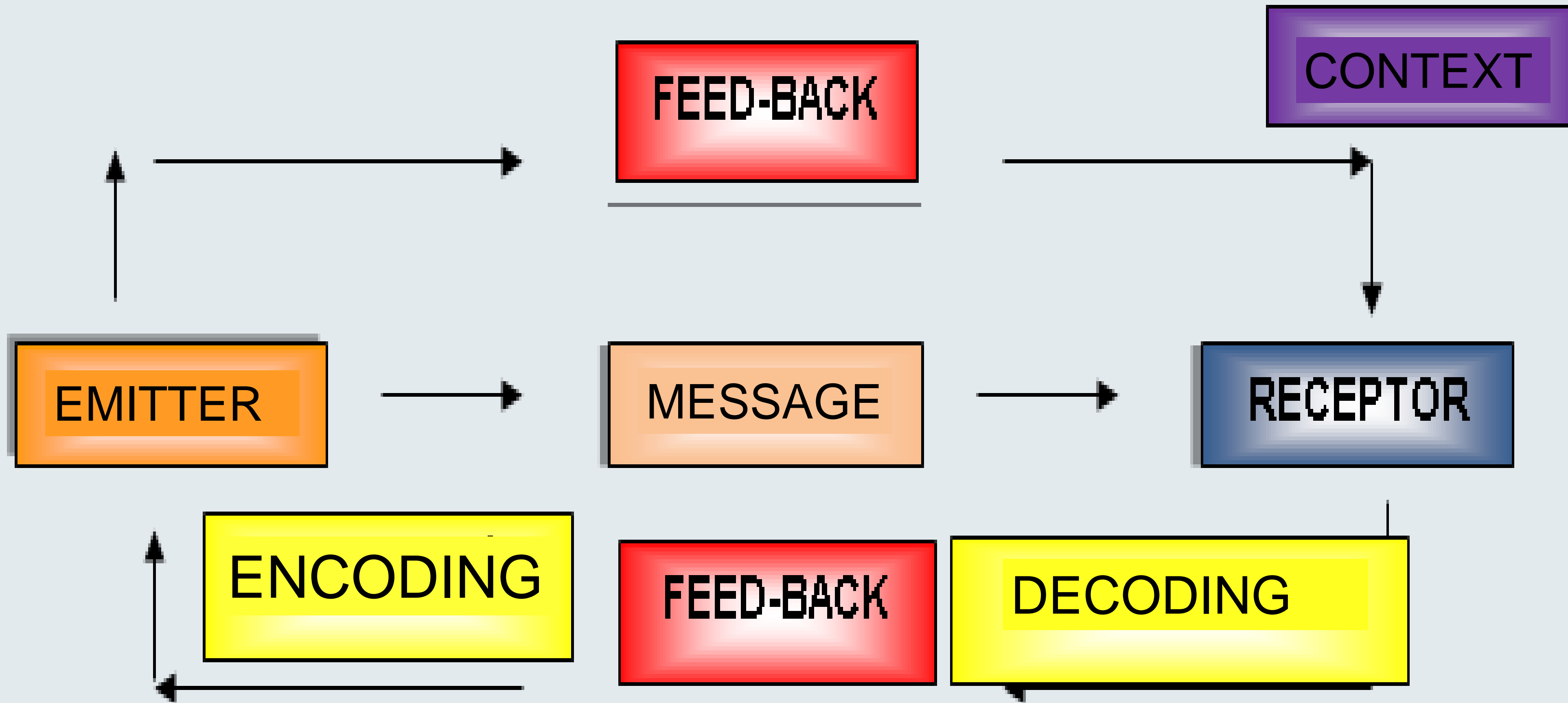
AREAS OF INSTRUCTION OF THE CRM

- Communication.
- Situational awareness.
- Problem solving/Decision making/Judgment.
- Leadership
- Teamwork
- Criticism.
- Interpersonal skills.

Effective communication



Communication is the process in human relationships by which information and understanding are transmitted from one person to another.



EMITTER

EXPERIENCES
VALUES

EXPERIENCES
VALUES

RECEPTOR

A Content Aspect
(what is transmitted)

Un aspect de relacion (los
factores emocionales)



Communication is much more than the words we emit

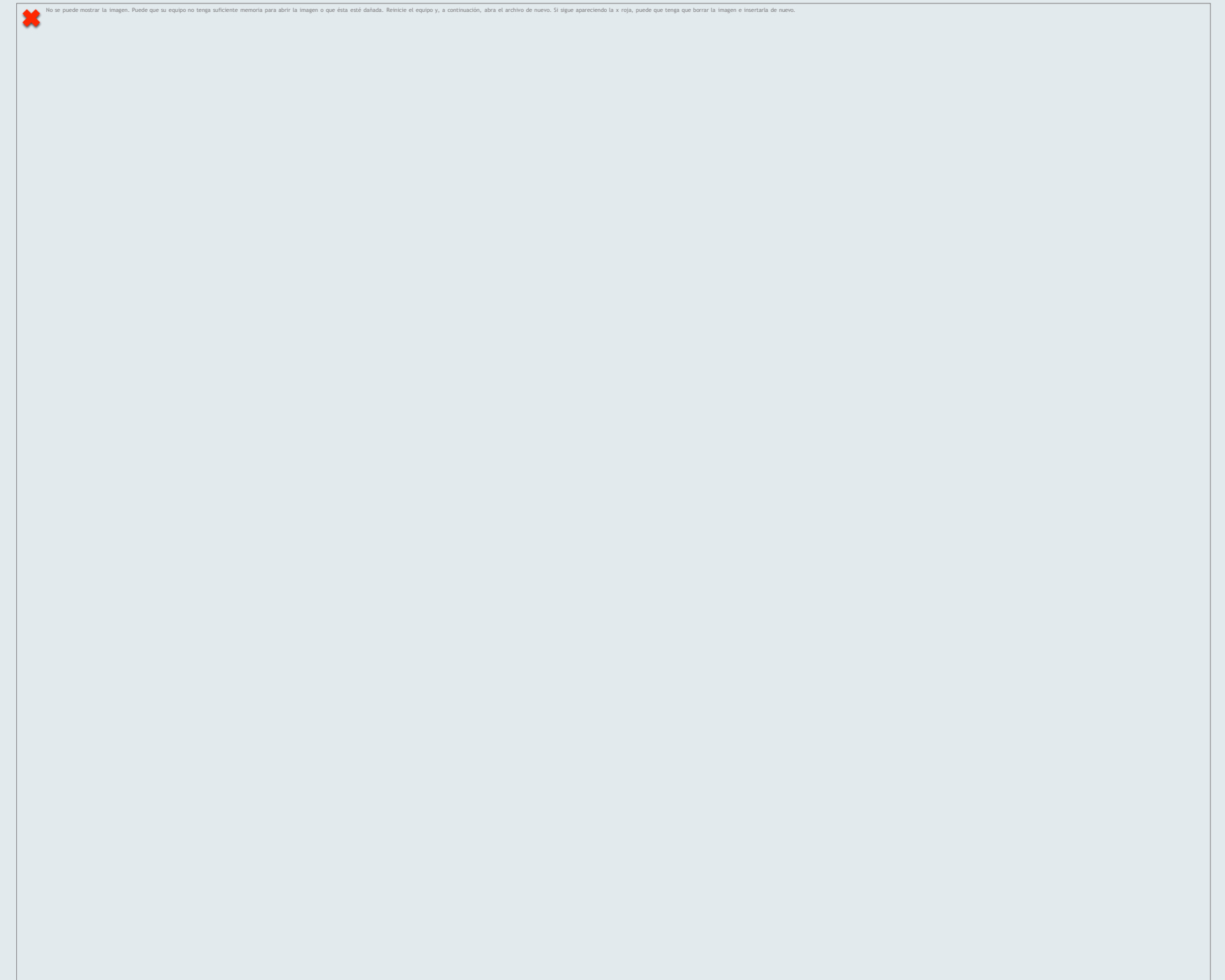
Nonverbal language involves actions and body language. It encompasses the way the face and body express themselves. (postures, gestures, movements)

Communication is much more than the words we emit



COMMUNICATION SHOULD NOT BE ONE-WAY

- Effective communication is not unilateral, but requires feedback from the receiver.
- Feedback is the reaction that the receiver manifests to the message he received and serves to clarify and/or verify understanding.



SITUATIONAL AWARENESS

SITUACIONAL AWARENESS

WHERE AND HOW AM I?

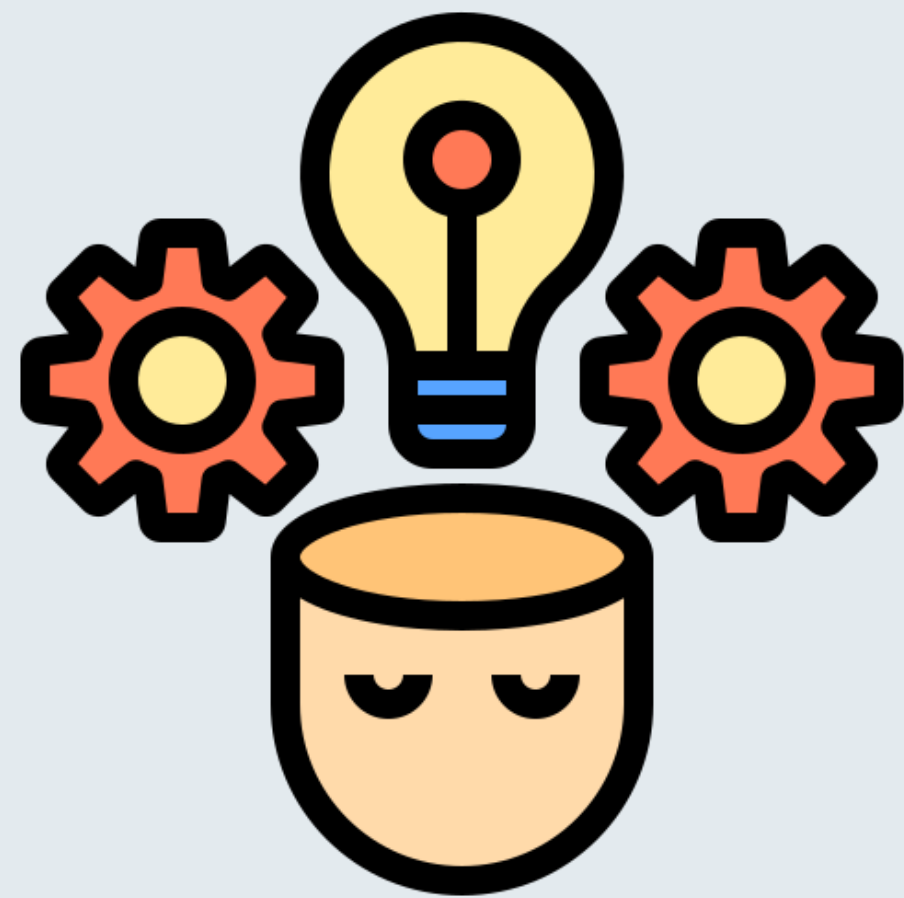
WHAT DO I WANT TO DO?

WHAT IS HAPPENING AROUND ME?



Situational awareness

For M. Endsley (1988), author of the concept, Situational Awareness is the perception of the elements in an environment, within a volume of space and time, the understanding of their meaning and the projection of their situation in the immediate future. ICAO sums it up by saying that Situational Awareness is an adequate perception of the factors and conditions that currently affect a safe operation of the aircraft and crew.



- Situational awareness is the correct perception of the elements in a given space-time envelope, then the correct understanding of the meaning of them, and finally, the correct projection of what the state of those elements will be in the operationally immediate future.
- Good situational awareness means analyzing the past and present to help you prepare for the future.

LEVELS:

- Perception
- Comprehension
- Projection

LEVEL 1:
PERCEPTION

LEVEL 2:
COMPREHENSION

LEVEL 3:
PROJECTION

Failures:

Ambiguity or discrepancy

Fixation or Concern

Confusion

Distancing from the S.O.P's

Failures to find targets

Failures to fly the plane

Failures to maintain care

Failures to communicate

Complacency

Loss of leadership

Requirements: geographical,
environmental temporal
spaces



Decision-making

It is the systematic approach to the mental processes used by a pilot to consistently determine the best course of action in response to a given set of circumstances.

It is a cognitive process, in a broad sense, highly dependent on the context, through which a choice is made between different alternatives or ways to solve certain situations

Situational awareness

PERCEPTION

Current
elements

LEVEL 1

COMPREHENSION

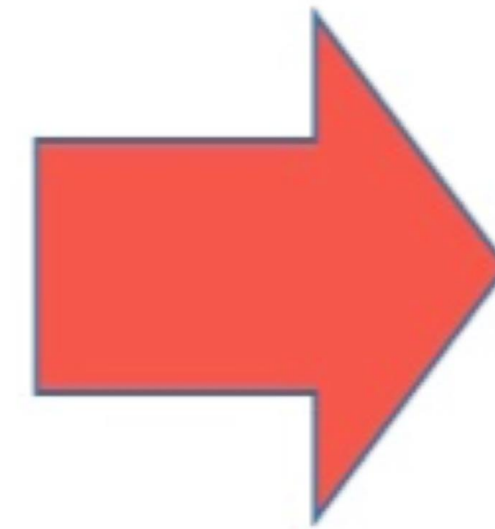
Current
situation

LEVEL 2

PROJECTION

Immediate
future

LEVEL 3



Decision-
making

The DECIDE model is widespread with its mnemonic rule that proposes:



D Detect that something happened that requires solution

E Estimate and collect as much information as possible

C Consider the best alternative solution

I Implement the best considered solution

D Determine Process Outcomes

E Evaluate the efficiency of the DECIDE model.



LEADERSHIP



"Ability to direct and coordinate the activities of the members in a group and encourage them to work together as a team

In any situation, where someone is trying to influence the behavior of another individual or group, there is leadership

There is no "best way" to influence
people

Situational Leadership The leader's style
depends on the level of maturity of the
people he wants to
influence.

How do you become a good leader?

- There are no recipes for good leadership
- Leadership is Situational
- One Function

- Leadership is NOT:
 - Attribute inherent to the person
 - Innate



When should you be participatory?

Personnel in need of encouragement.

Staff who know the task but are unmotivated.

When should you be persuasive?

Competent staff but with insufficient knowledge.

Staff who are not very motivated in the face of a complex task.

When should you be a delegator?

Motivated and experienced staff.

When should you be a manager?

Inexperienced but motivated staff.

In emergency situations. In stages of great change.



"Employment relationship between men that is based on the exercise of participation"



TEAM ≠ GROUP

The fact that there are roles and a leader, makes it different from a group. The team differs from the group in that it involves cooperation, coordination, shared procedures, which allow an increase in productivity and most importantly: **common objectives.**

Teamwork is...

The joint action of a group of people, by which each person subordinates his or her individual interests and opinions to the unity and efficiency of the team.

It is achieved with complementary and interdependent work. It is summoned by someone's management. That will be the leader (Formal). And its members will have to assume roles.

What makes up a team is not what you do, but the fact of doing things together."



THANKS

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