



“THE PILOT’S VISION”

31 May 2018, Bordeaux, FRA

BIG DATA & ARTIFICIAL INTELLIGENCE FOR MILITARY DECISION MAKING



1. An opportunity to improve in Strategy development

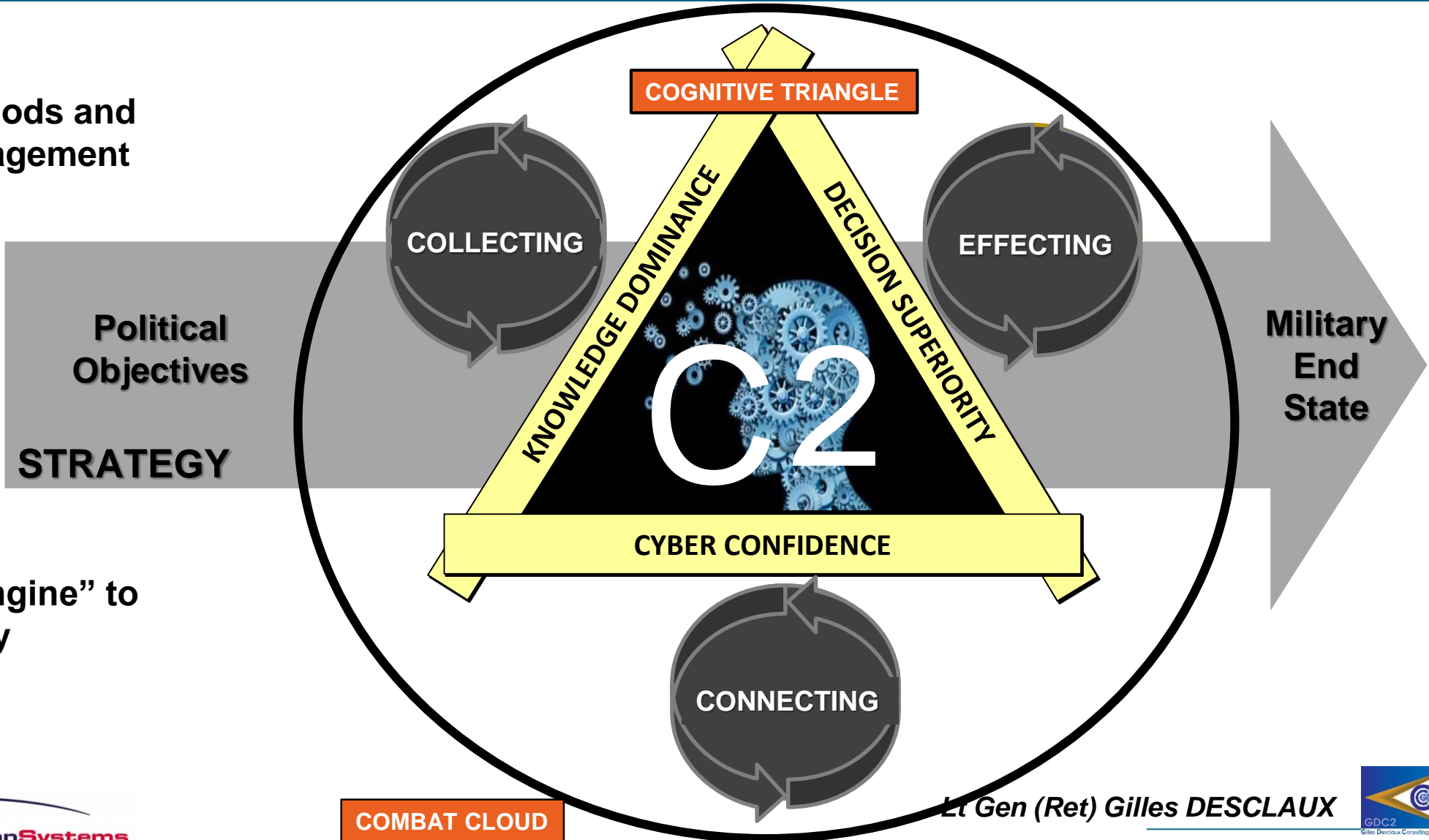
2. The Big Picture & big impacts

3. Military Decision Making: What, Who, How, Why and Where?

4. The ENSC, TRS, IBM Research Program Example

5. The Human Dimension as a conclusion

- Processes, methods and knowledge management techniques



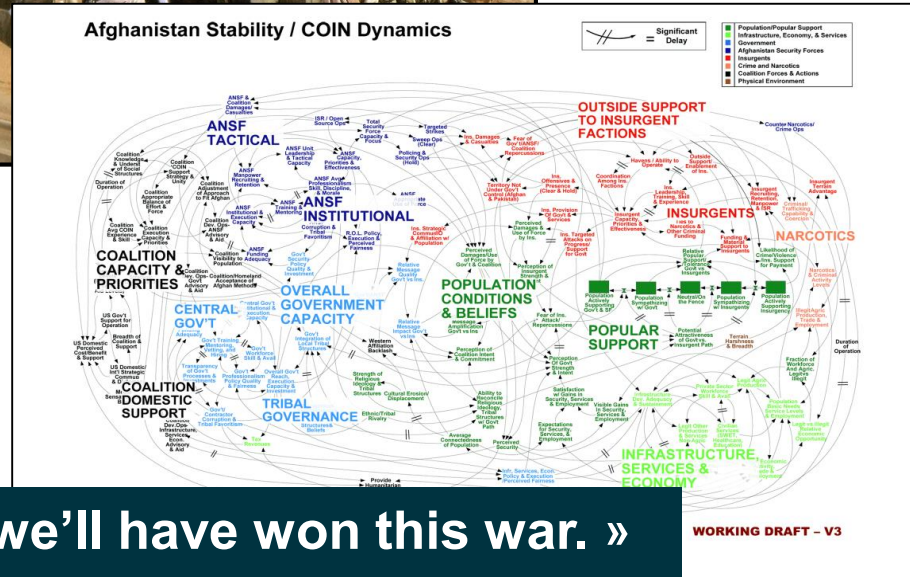
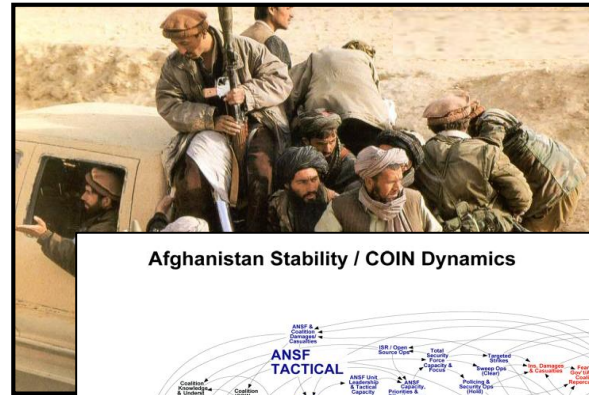
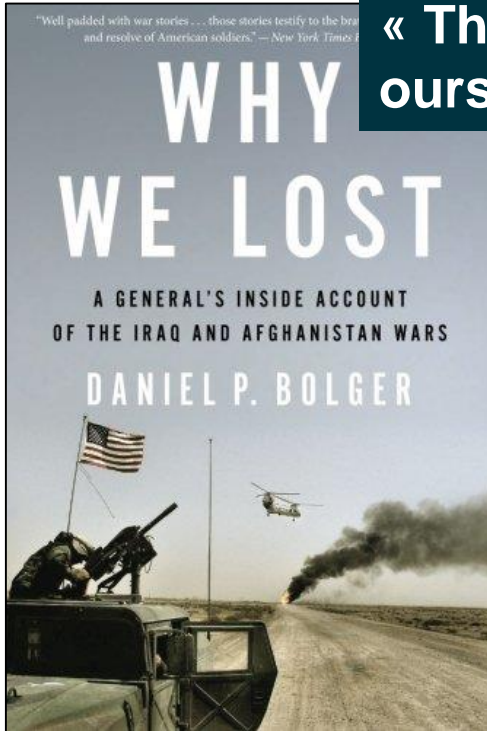
- A theoretical “Engine” to deliver a strategy



« Even if you have a fancy car, you still have to decide where to go »
Vice-President of Engineering at Google



« The Taliban cannot militarily defeat us, but we can defeat ourselves. »
General Daniel Bolger, US ARMY

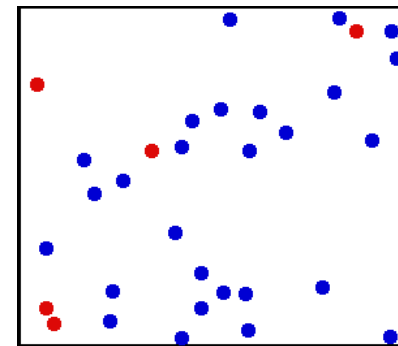


« When we understand that slide, we'll have won this war. »
General Stanley A. McChrystal, US ARMY

Ends + **Context and Consequences** + Means = Strategy



- **Big Data & AI will strongly support that renovated theory.**
- **New mental model to add more fidelity to Context and Consequences.**



“Chaos is order yet undeciphered”

PREDICT
PREparing for the Domino effect in Crisis situations

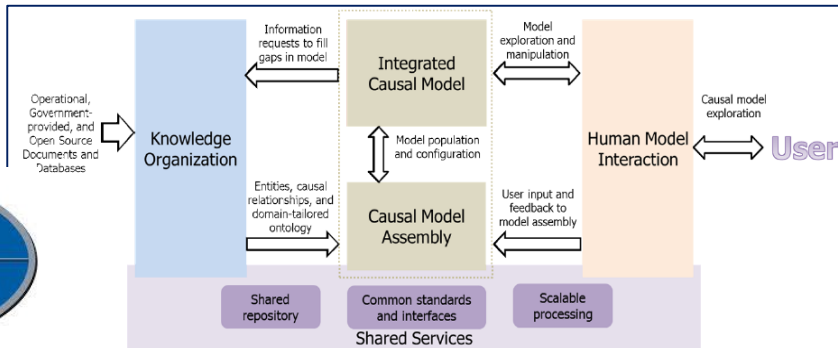


HFC
Hybrid Forecasting Competition

COMPASS
DARPA's Collection and Monitoring via Planning for Active Situational Scenarios

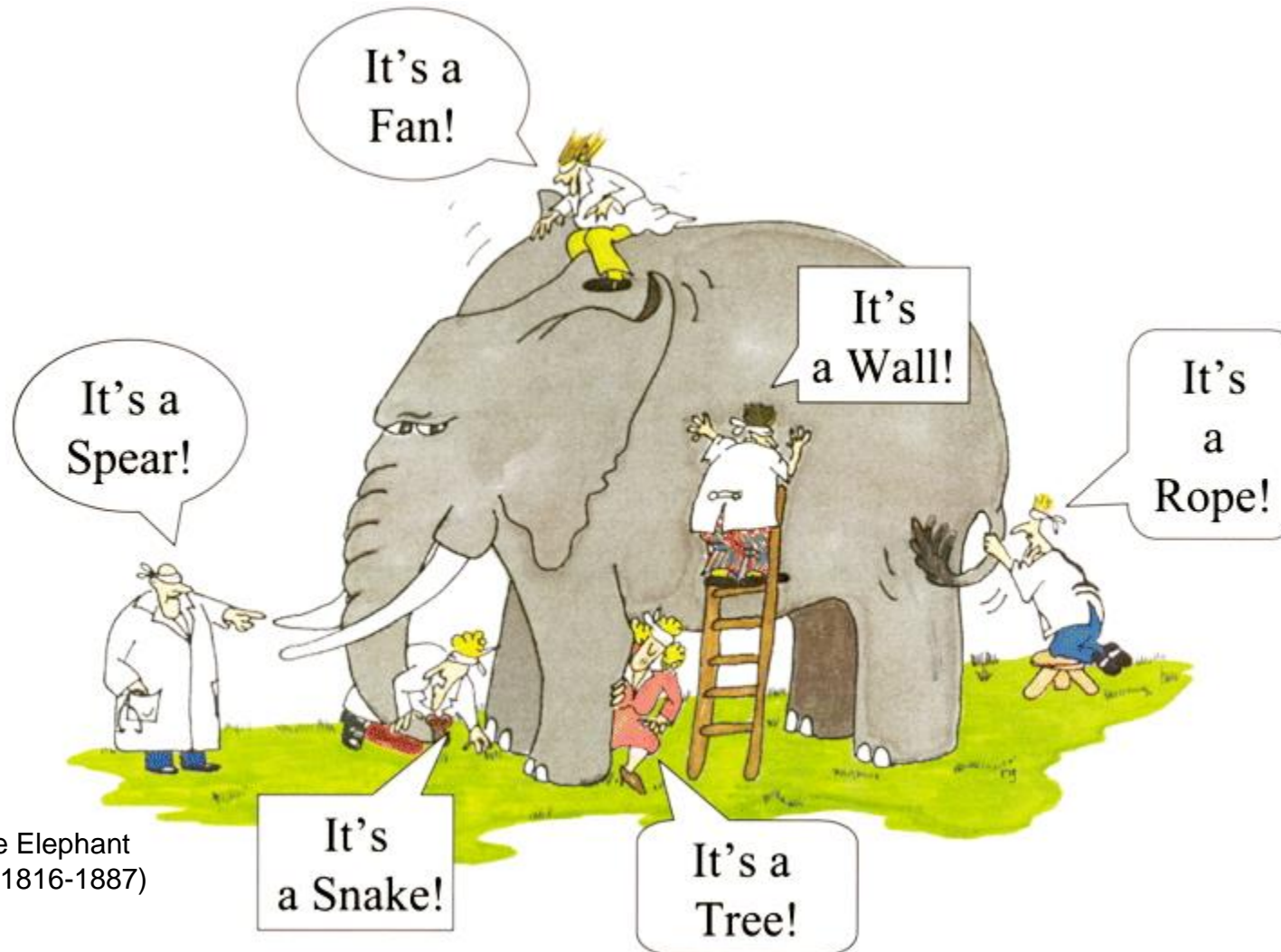
RAID
Raiding the Enemy's Mind

A System Dynamics (SD) Approach to Modeling and Understanding Terrorist Networks
BAA-07-01-IFKA Proactive Intelligence (PAINT): Model Development
Massachusetts Institute of Technology (MIT)
- Sloan School of Management
- Political Science Department
- Engineering Systems Division
and National Security Innovations, Inc. (NSI)

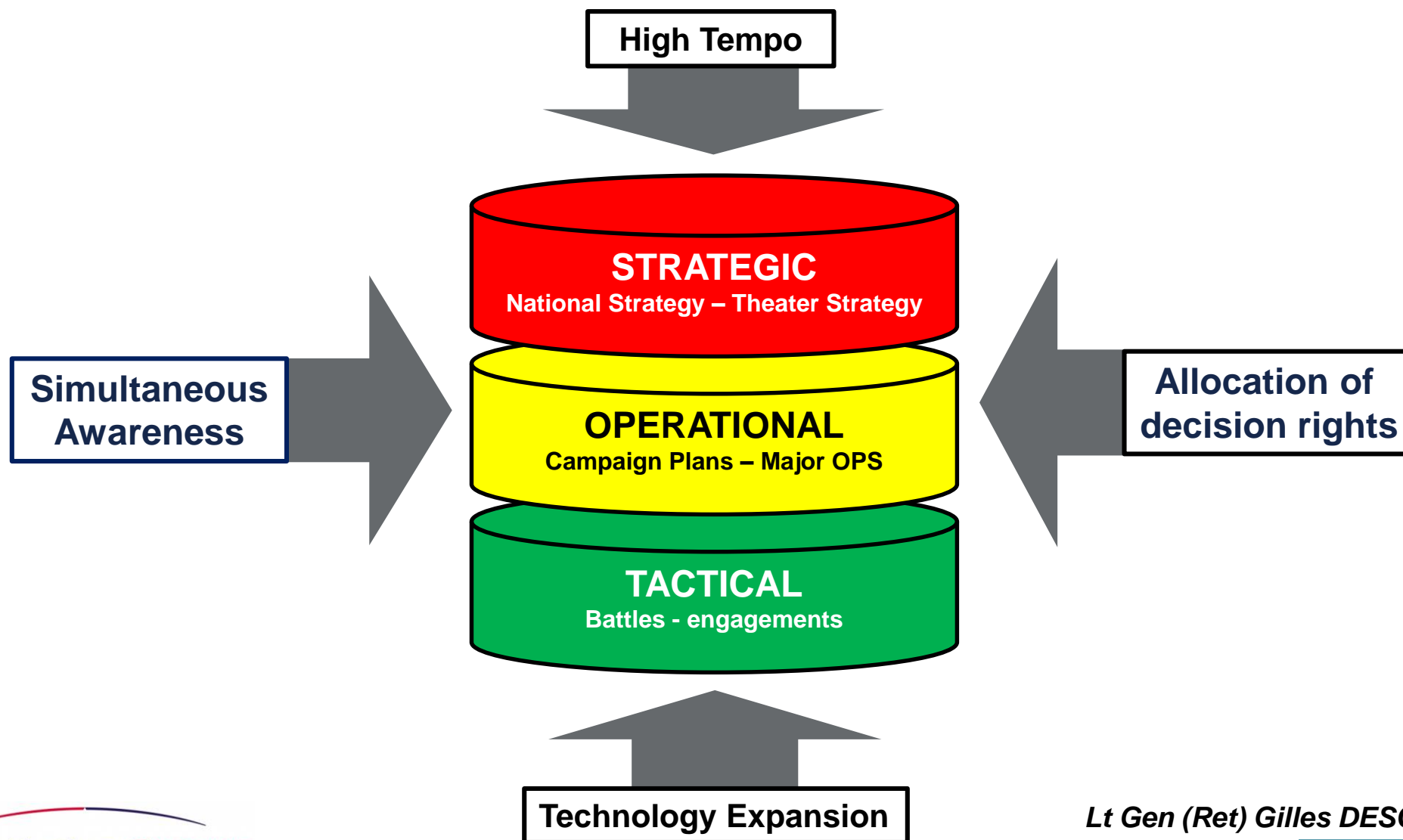


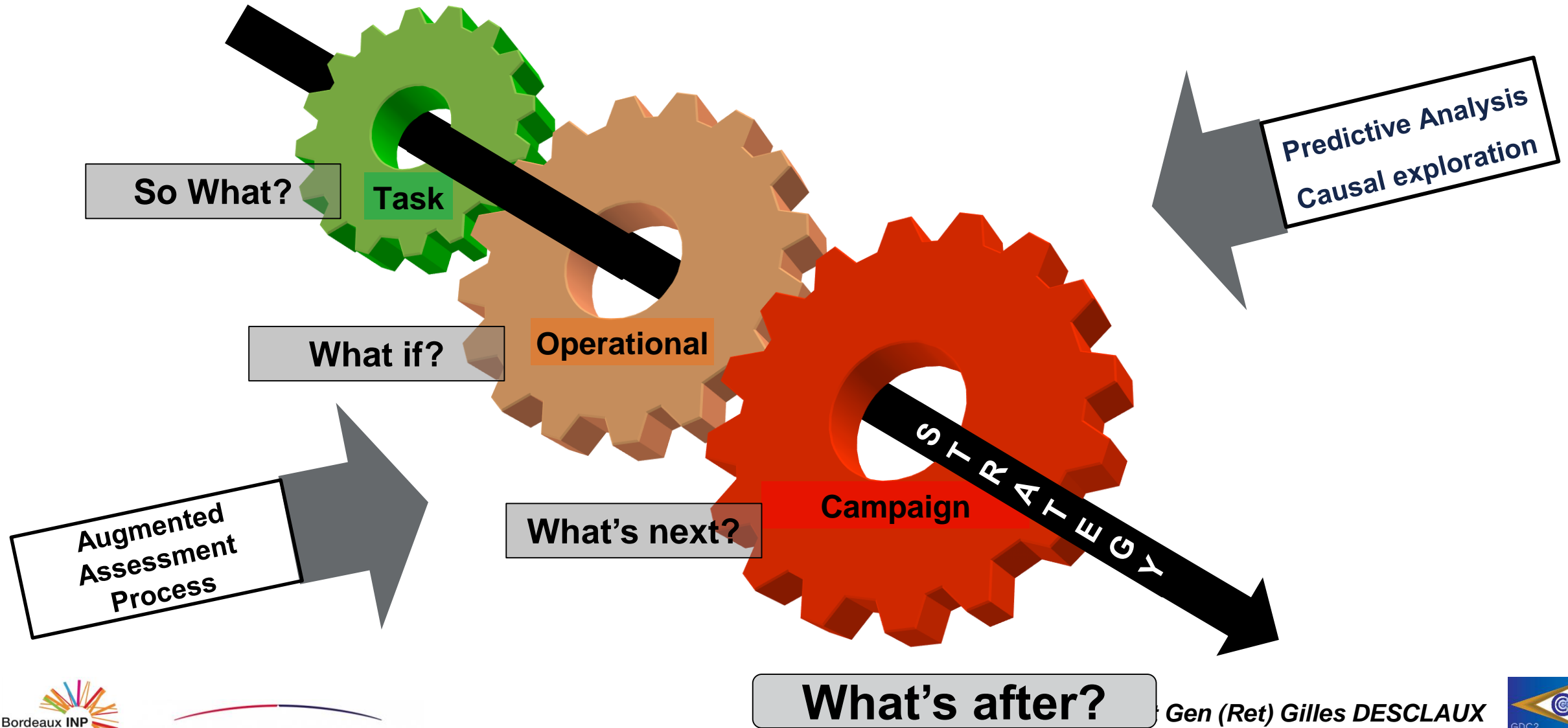
CAUSAL EXPLORATION OF COMPLEX ENV.

GROUND TRUTH

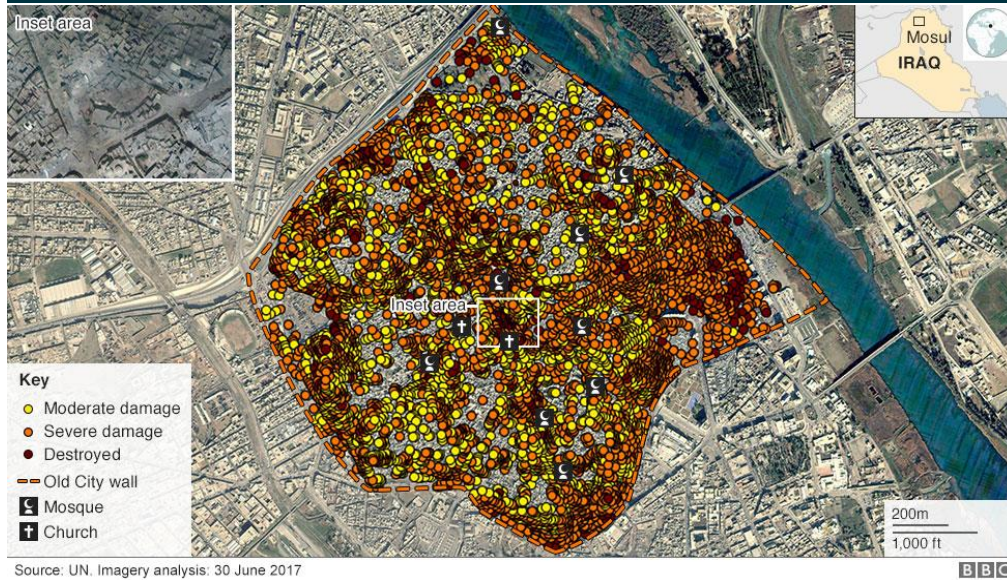


The Blind Men and the Elephant
John Godfrey Saxe (1816-1887)





- War amongst the population, who are the real stake.
- Greater consideration for civilian harm.
- Influencing more effectively human networks.



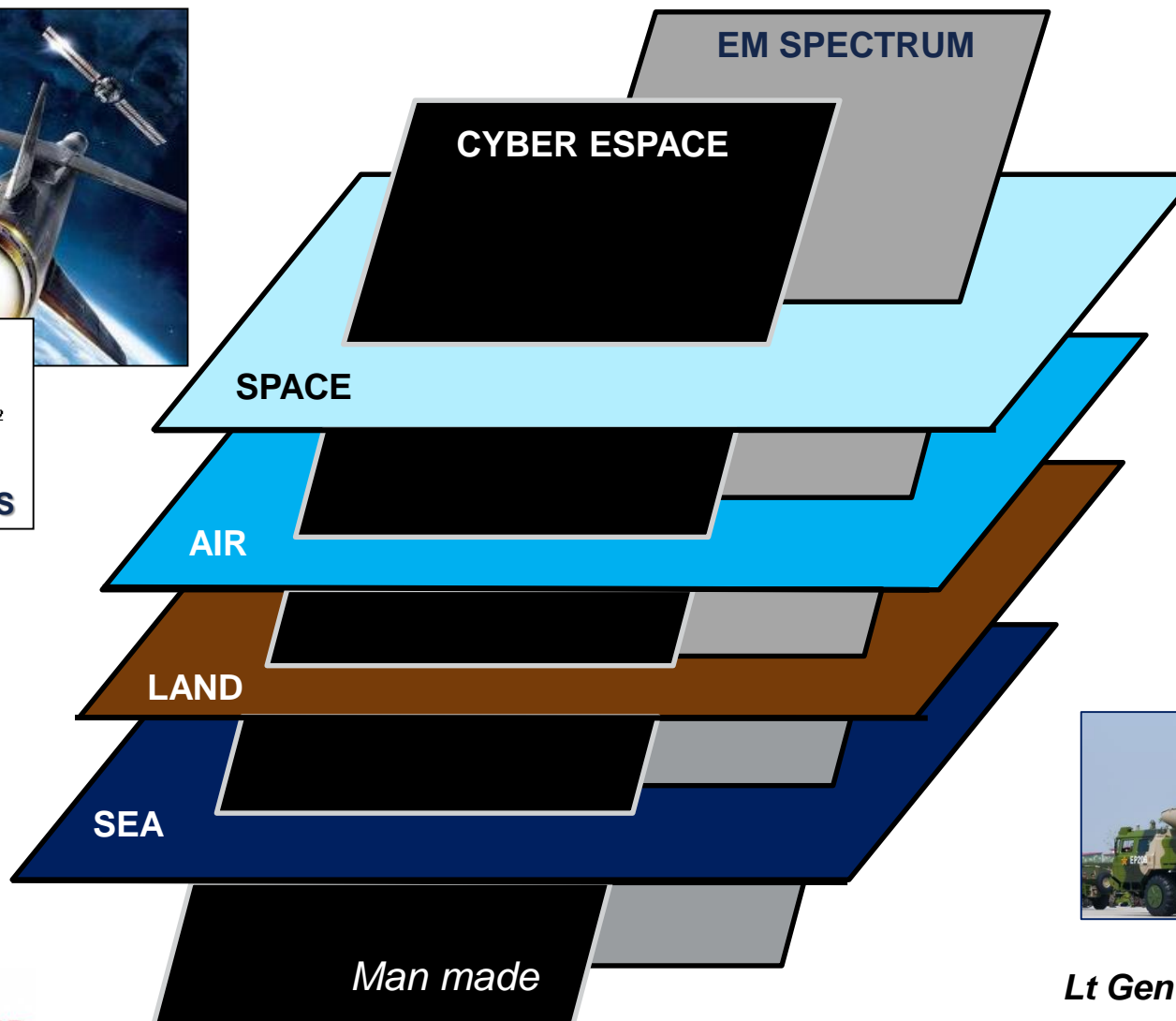
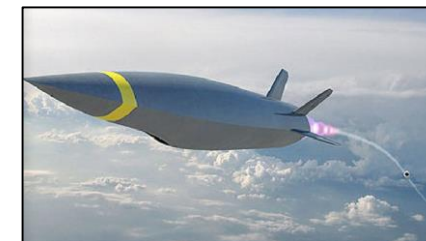
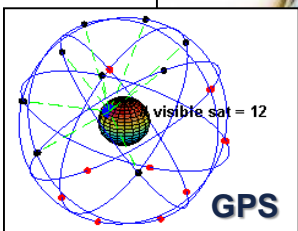
« How shifts in technology and geopolitics are renewing the Threats. »

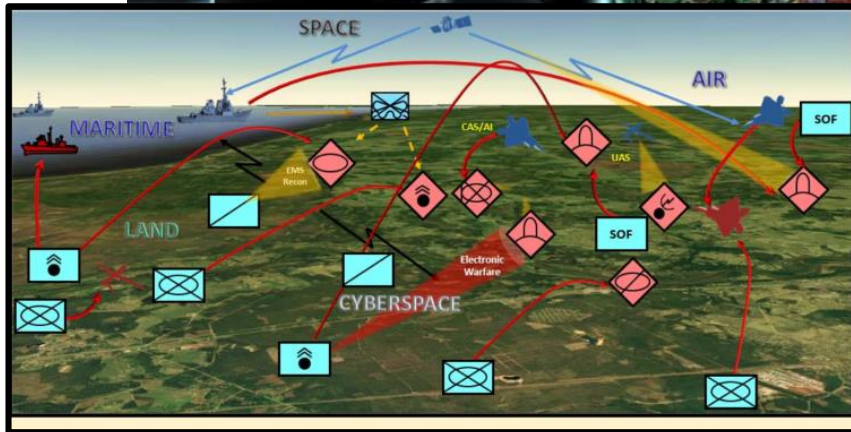
The Economist Jan 2018

THE NEXT
WAR



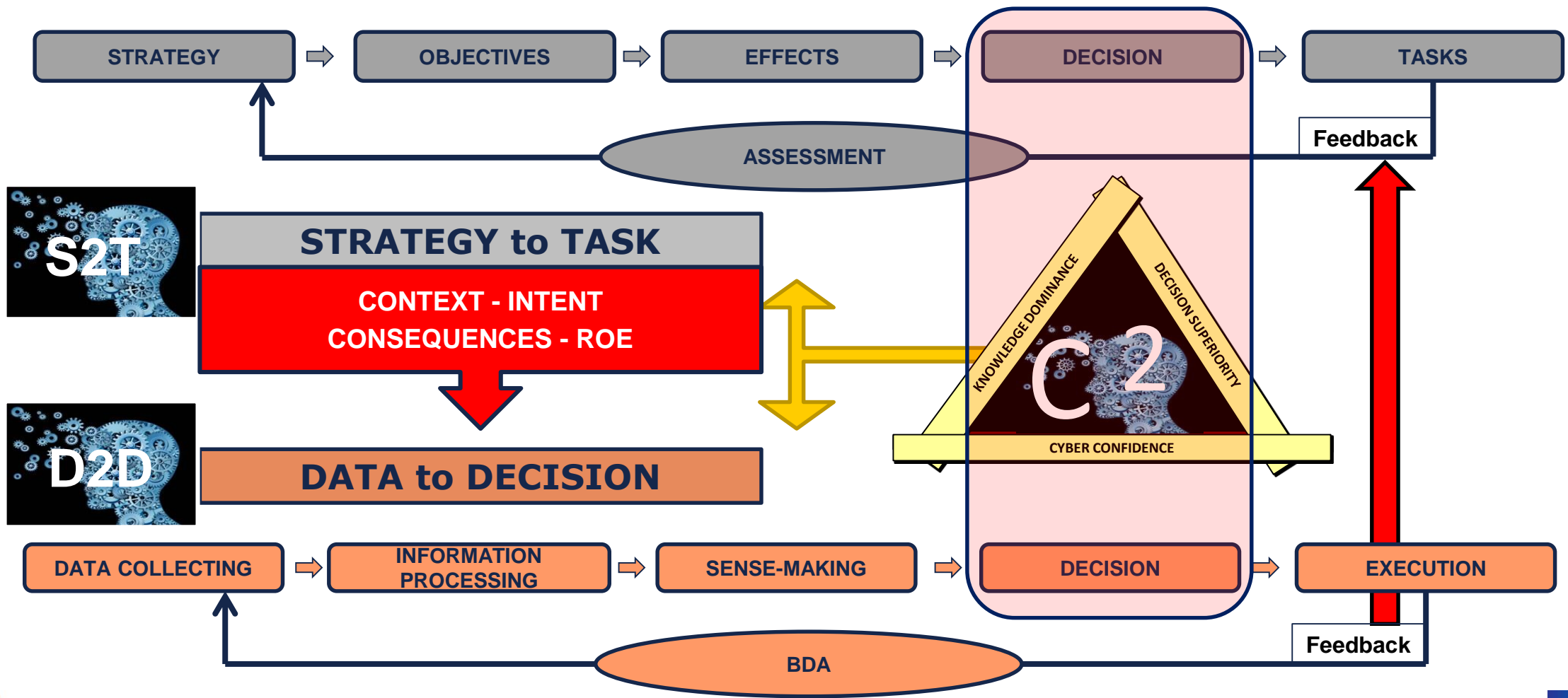
Alamy



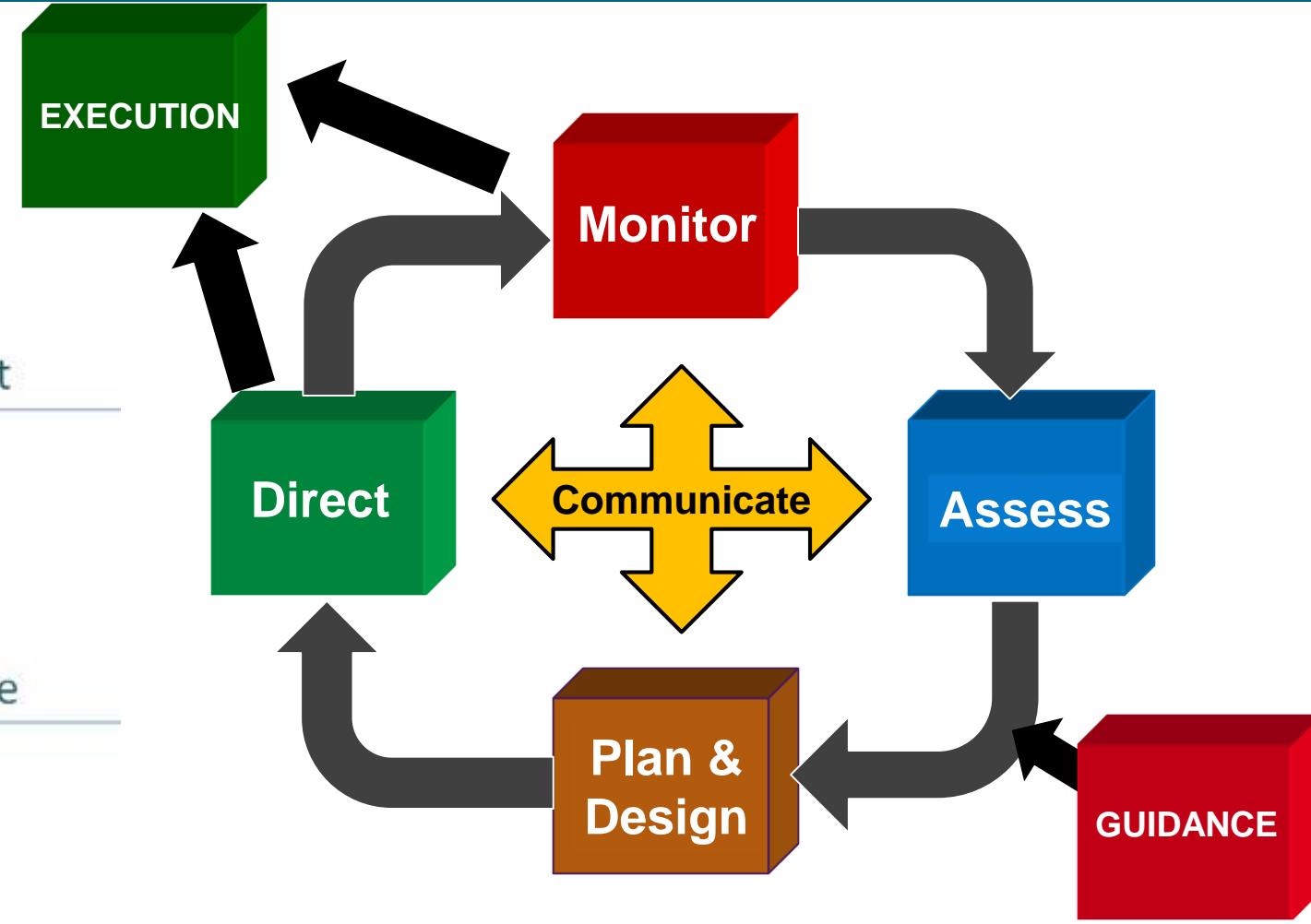


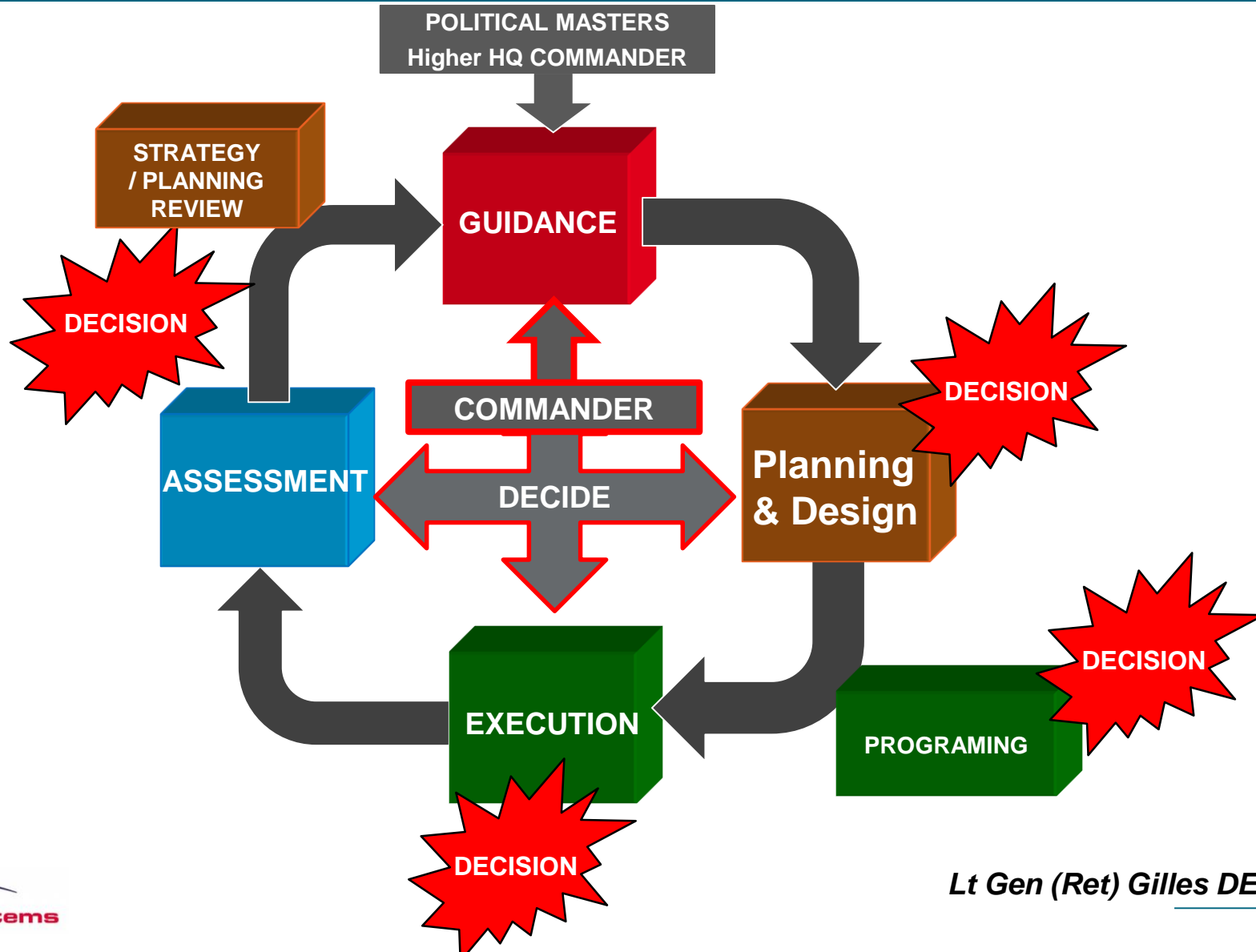
3. An Augmented Military Decision Making

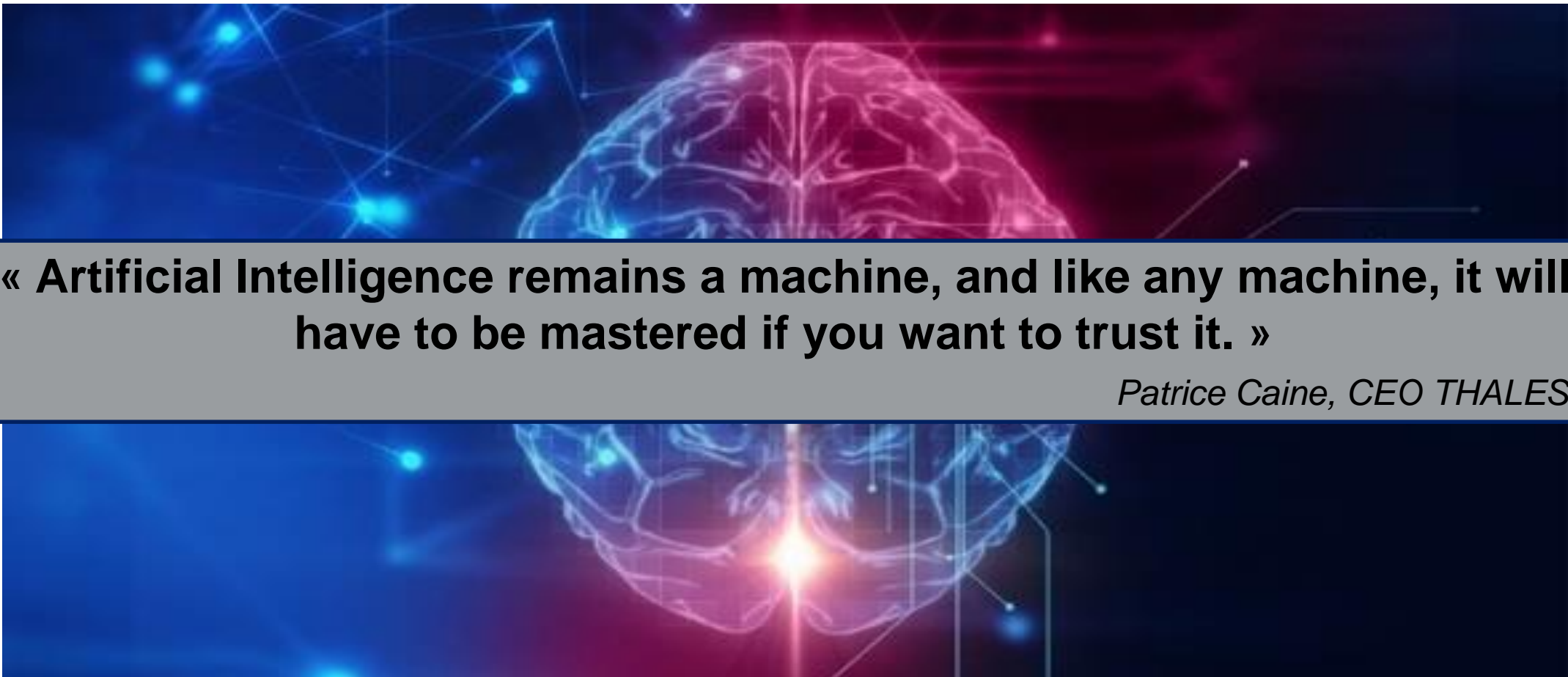




The OODA LOOP

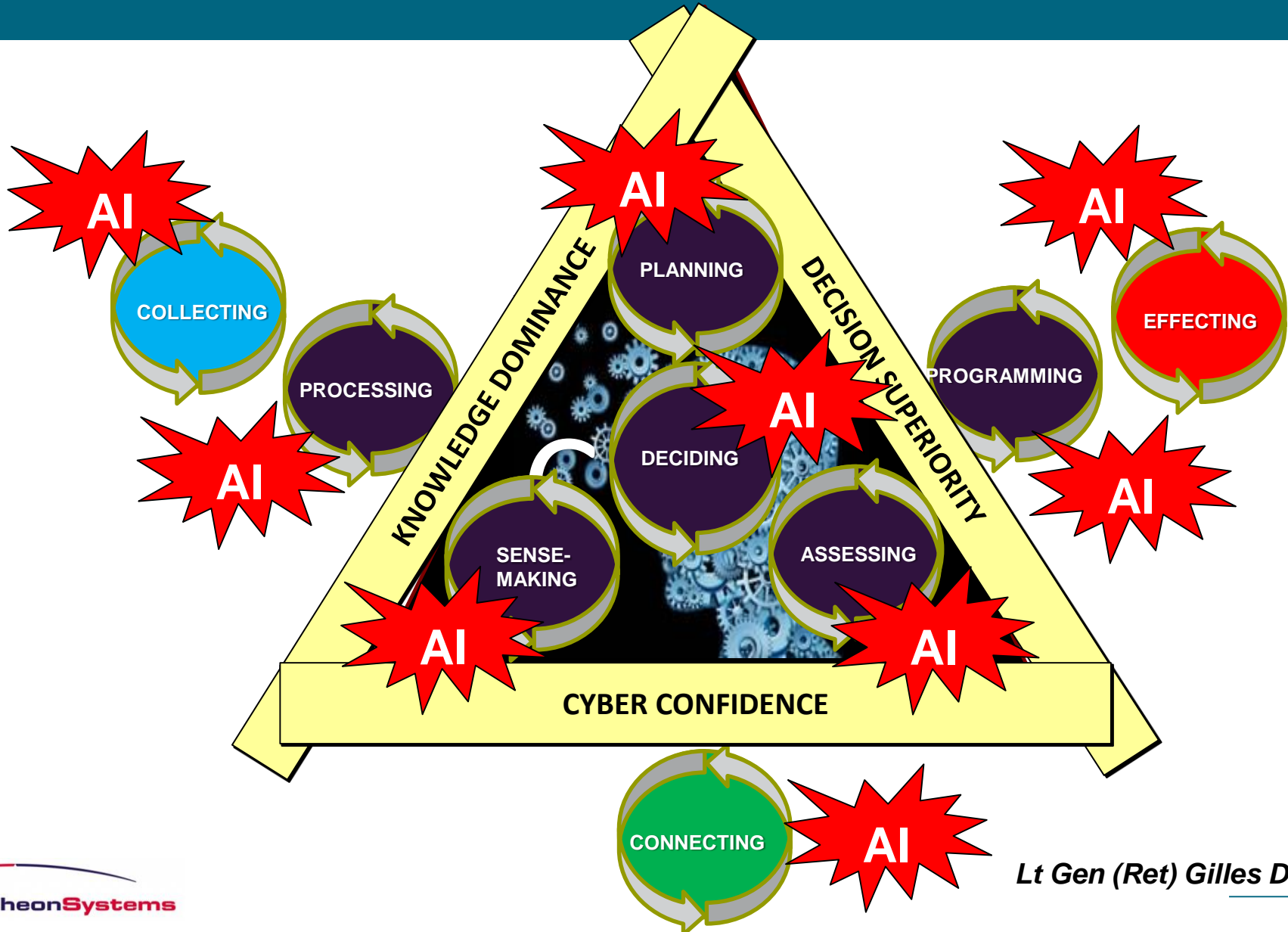


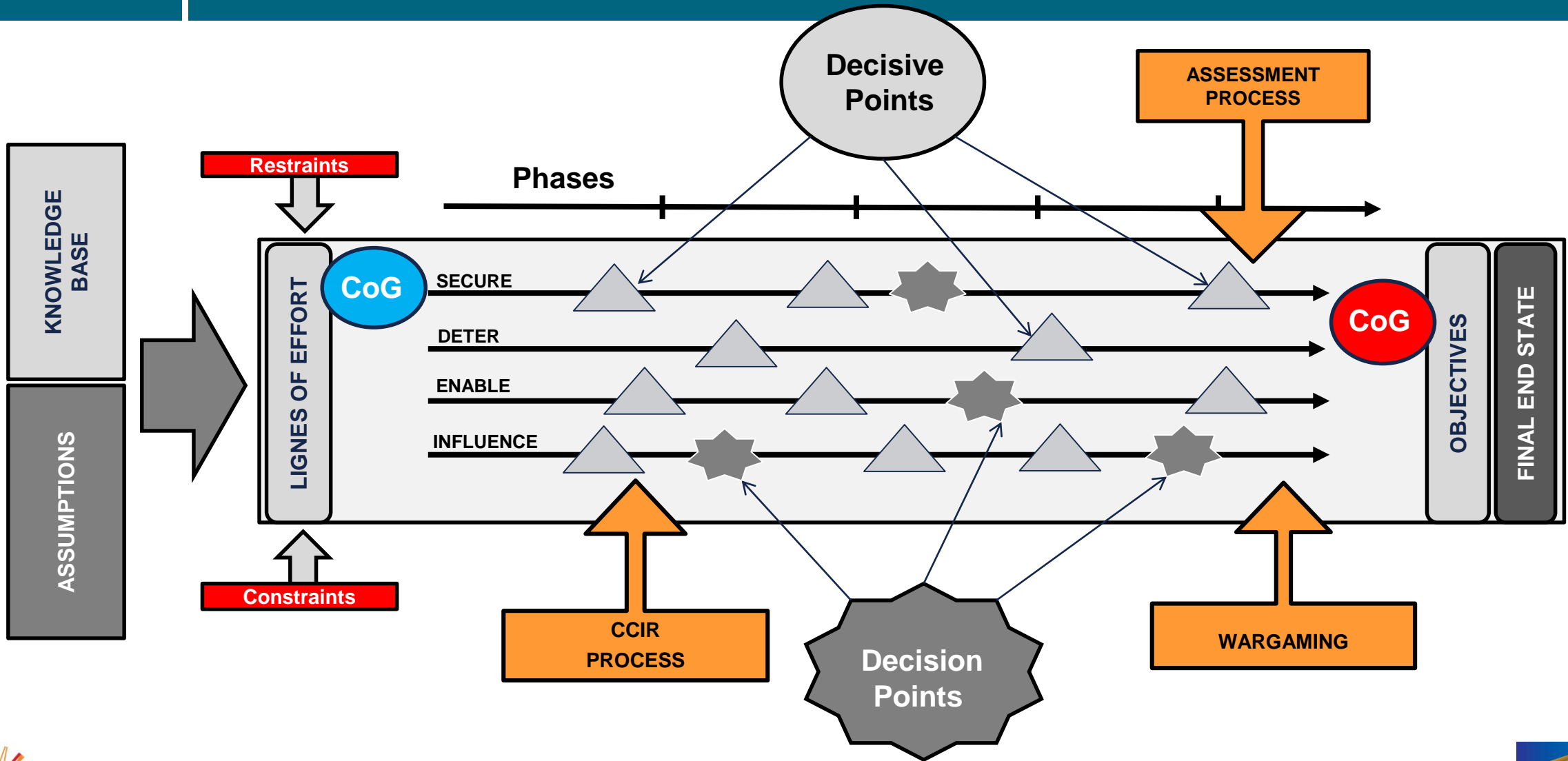




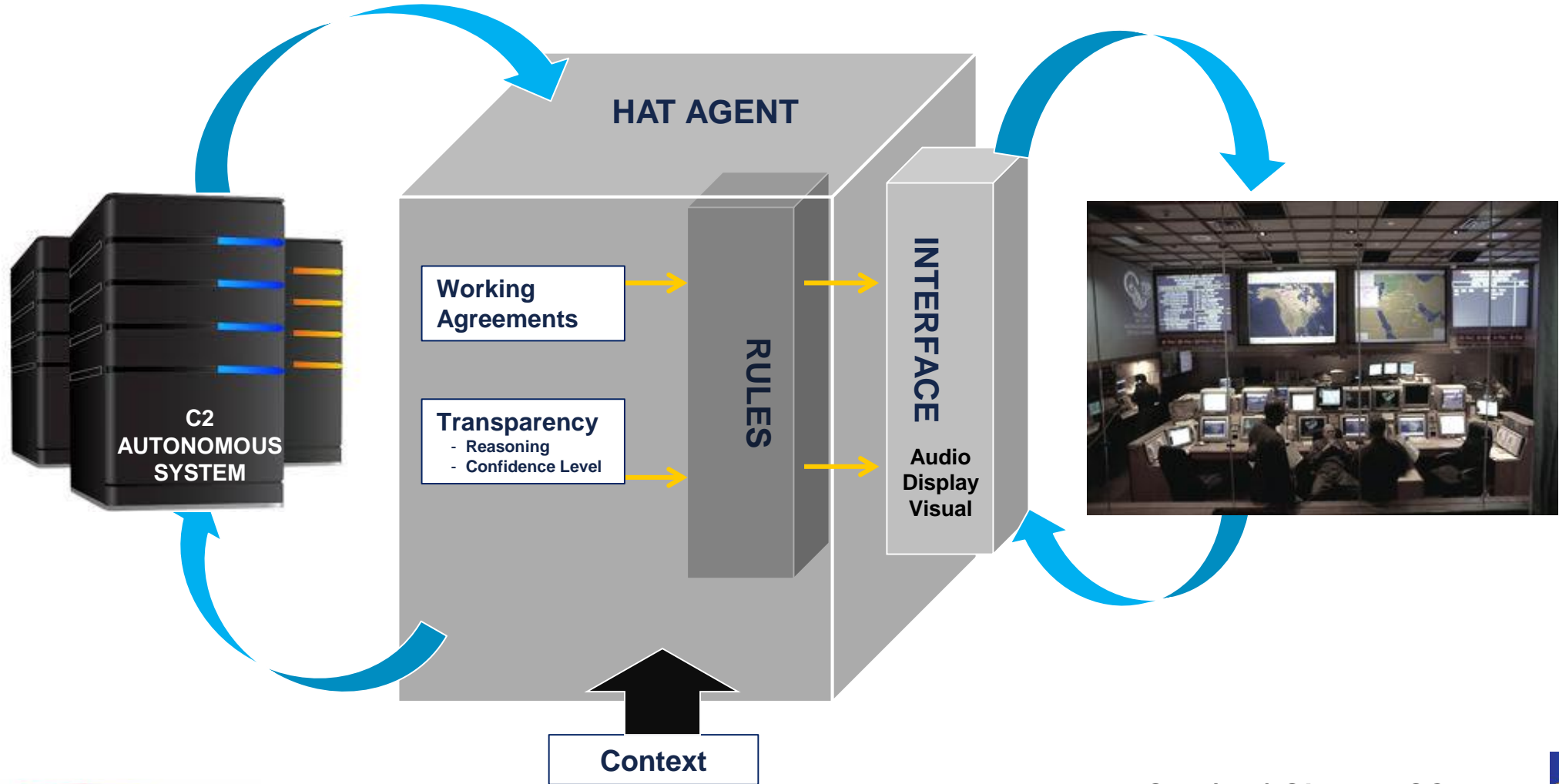
« Artificial Intelligence remains a machine, and like any machine, it will have to be mastered if you want to trust it. »

Patrice Caine, CEO THALES





* From NASA Ames Research Center



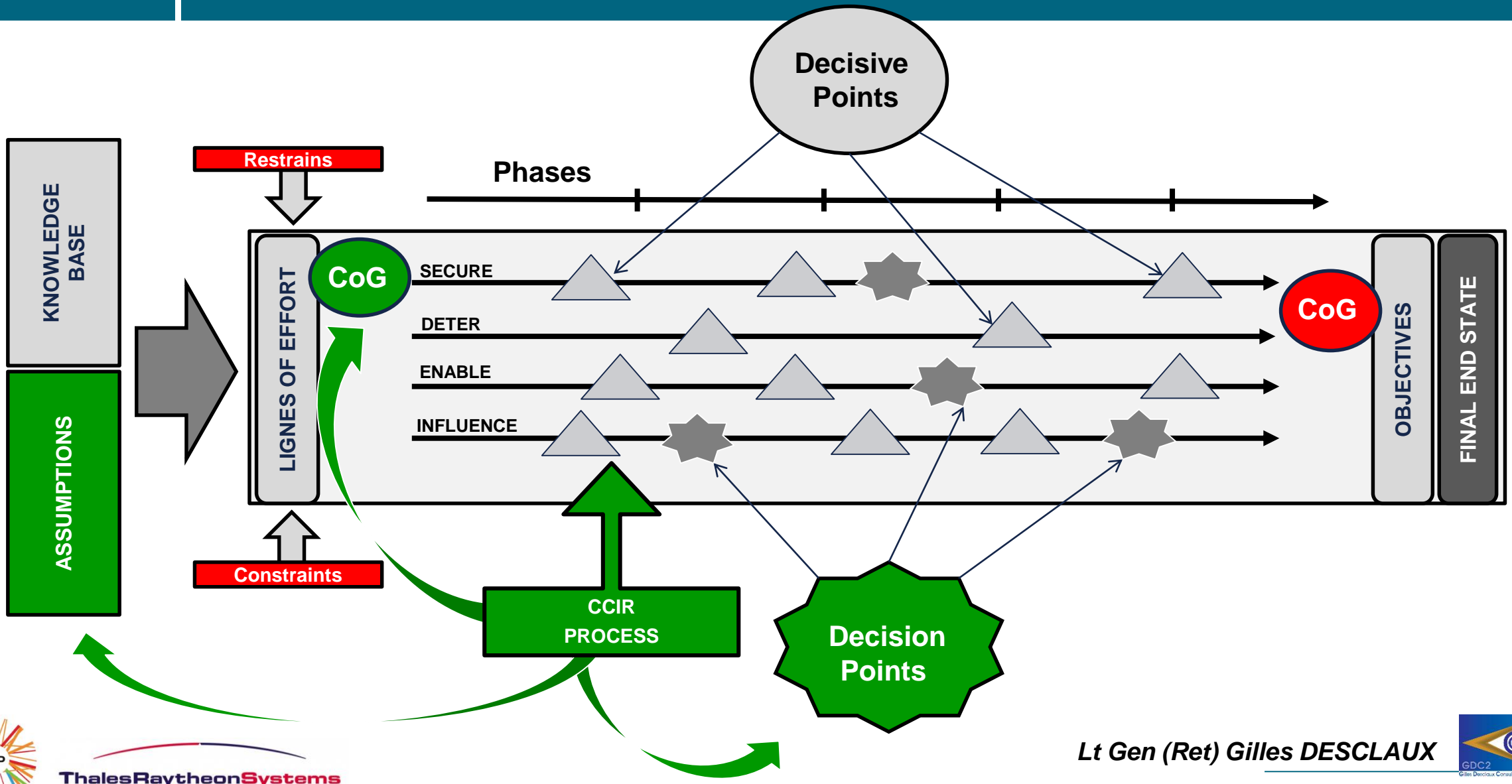


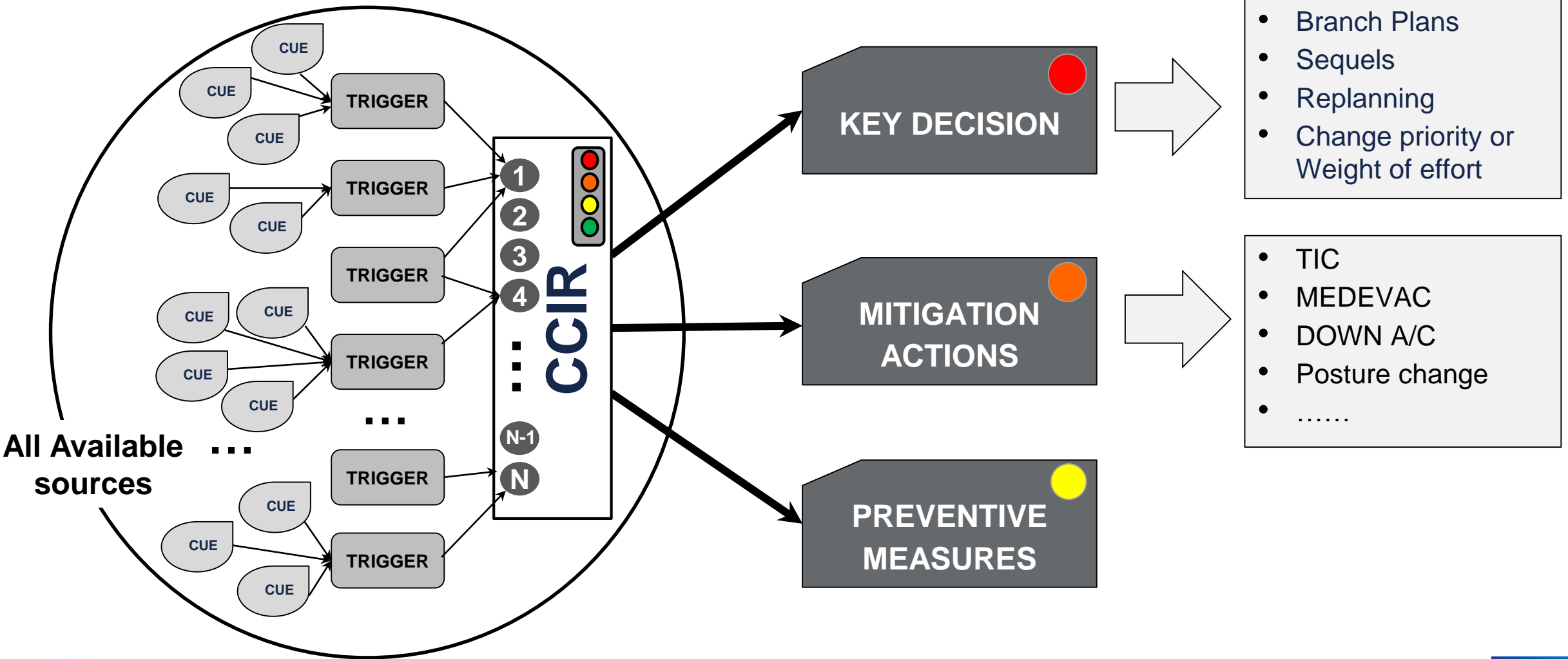
STO - IST 157 Experiment

ANTICIPE

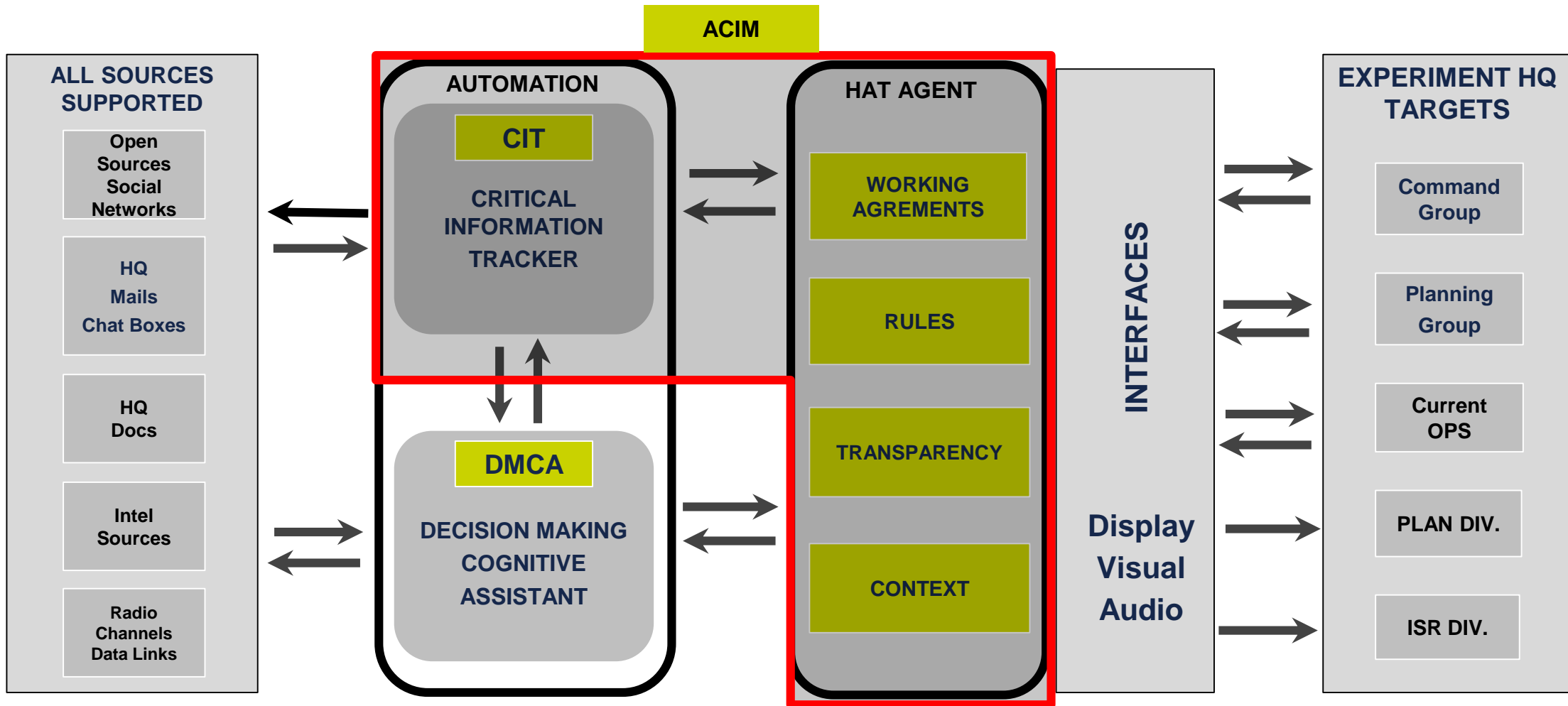
*(Augmented Near real Time Instrument
for Critical Information Process Experiment)*

Cognitive, psycho-physiological and operational Impacts Analysis on a Force HQ





Experimental Model



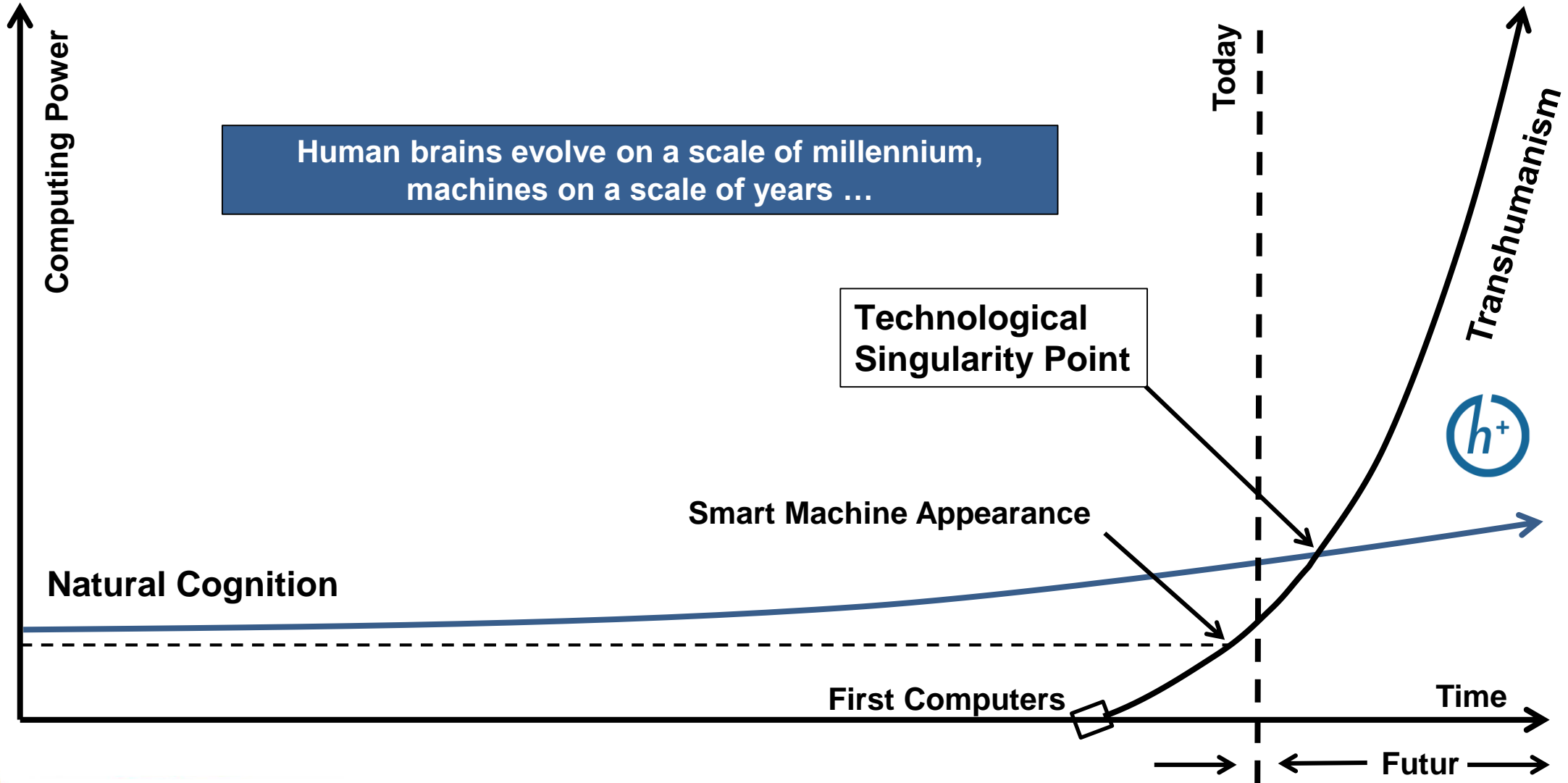
- Acceptability
- What will
- Command



o and where?



Prof. Bernard CLAVERIE, ENSC Director



Human brains evolve on a scale of millennium, machines on a scale of years ...

Technological Singularity Point

Smart Machine Appearance

Natural Cognition

First Computers

Today

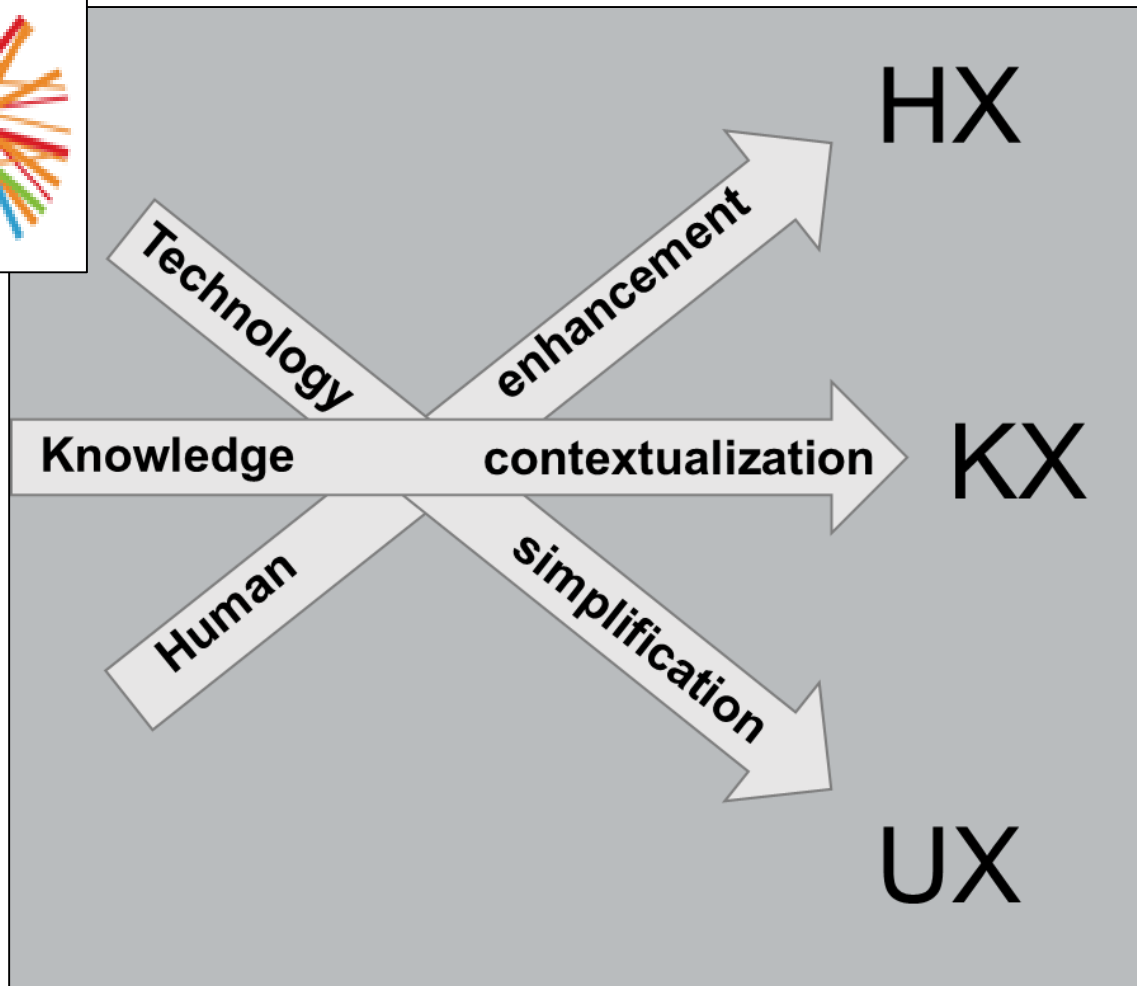
Transhumanism

h^+

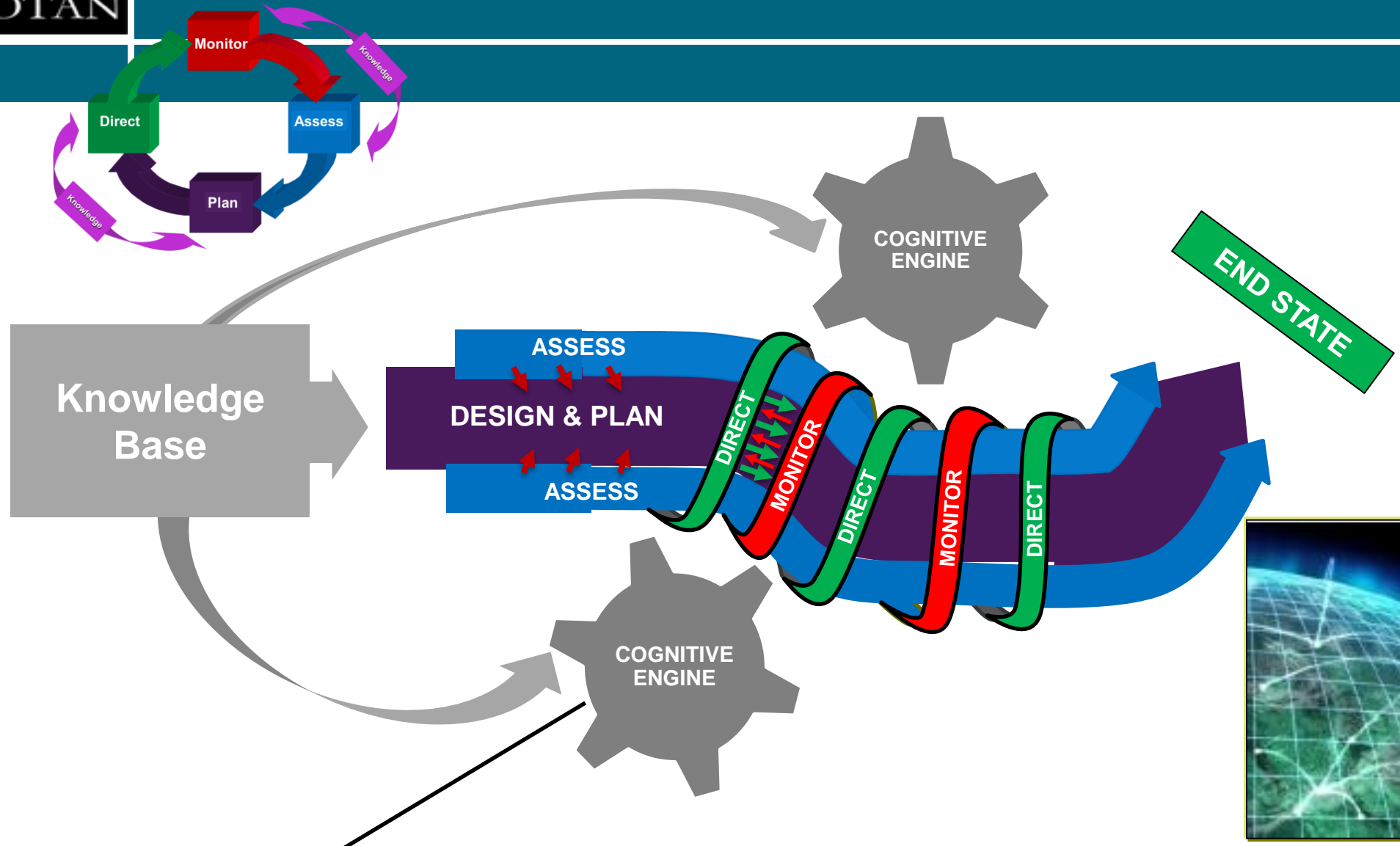
Time

Futur

“The ENSC Trident”



- **HX for Hybridity eXtension:** how AI increases the performance of humans collaborating with systems, which opens the way towards hybridity.
- **KX for Knowledge eXchange:** information processing enhancement, making knowledge directly and smoothly accessible, and shared. Large use of Representations.
- **UX for User eXperience:** refinement of interfaces, user's experience (comfort, performance, safety, control of error) and human-system articulation.



**COGNITIVE WARGAMING
PREDICTIVE CCIR
CONTINUOUS AUTO ASSESSMENT**