



“THE PILOT’S VISION”

**6 November 2018,
PENSACOLA, FLORIDA**

Agenda



1. An Opportunity to Improve in Strategy Development



2. Big Data & AI: The Big Picture & Big Impacts

3. Key Principles of Incorporating AI in the Military Decision Making

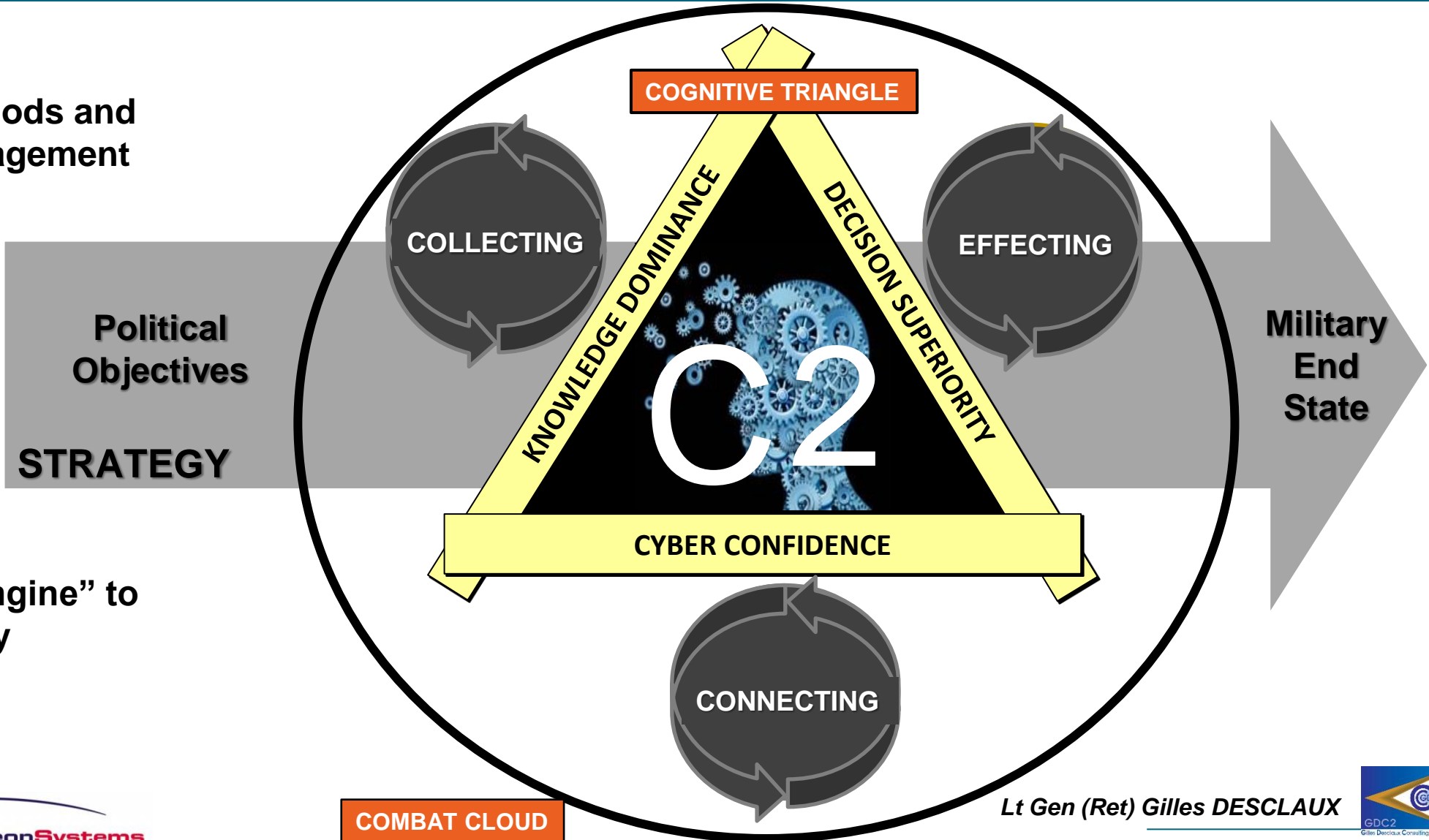


4. Global Project & Ongoing Researches to Augment C2 Processes

5. Conclusion and Future Researches

C2 & AI: a necessarily comprehensive approach

- Processes, methods and knowledge management techniques



- A theoretical "Engine" to deliver a strategy

1. BD & AI: an opportunity to renew our Strategy

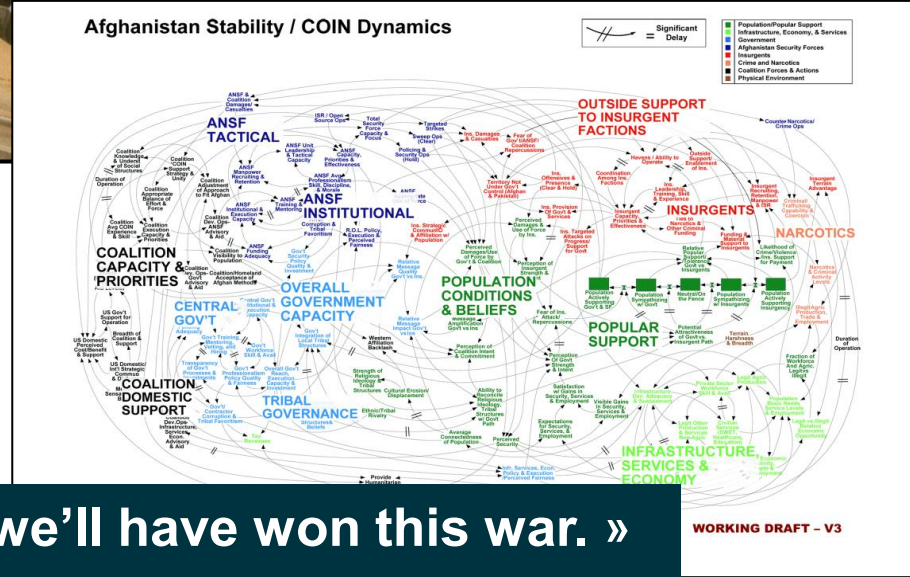
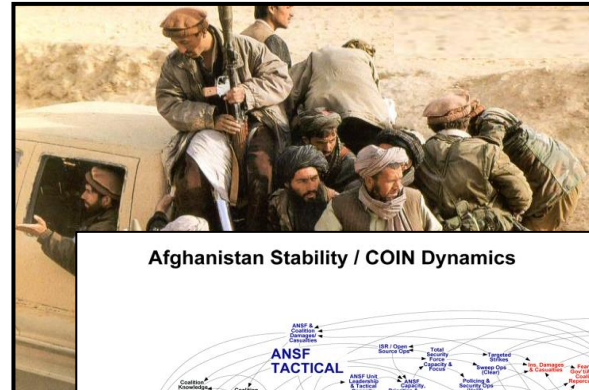
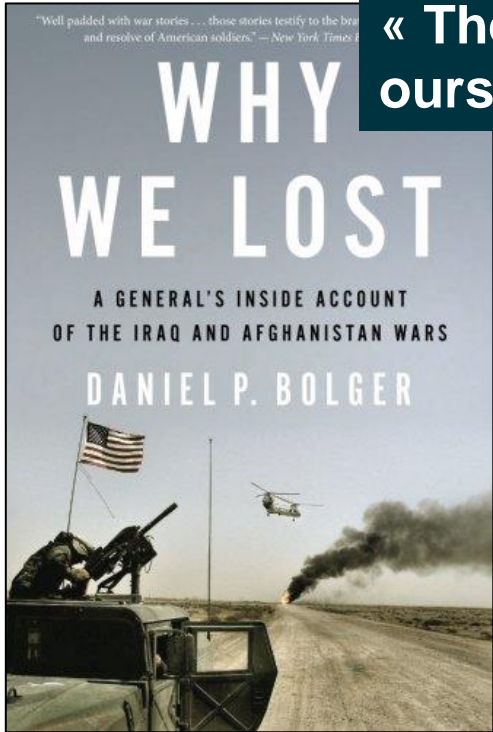


« Even if you have a fancy car, you still have to decide where to go »
Vice-President of Engineering at Google



From Complicated to Complex and even Chaotic

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

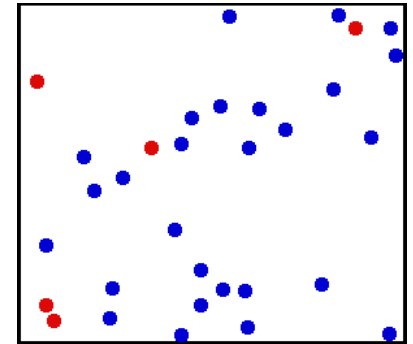


« When we understand that slide, we'll have won this war. »
General Stanley A. McChrystal, US ARMY

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.**



Numerous Research Programs on Understanding and Prediction

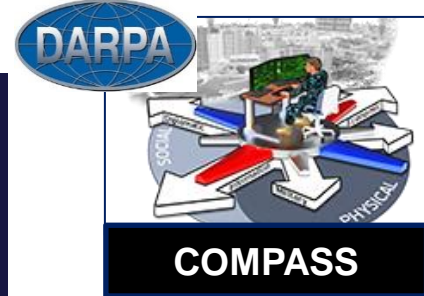
“Chaos is order yet undeciphered”



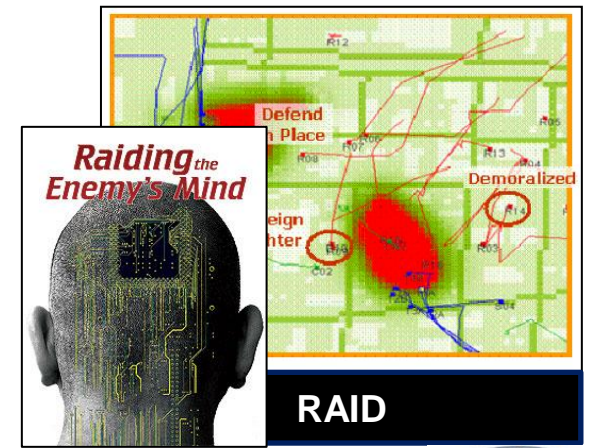
PREDICT
PREparing for the Domino effect in Crisis situations




HFC
Hybrid Forecasting Competition

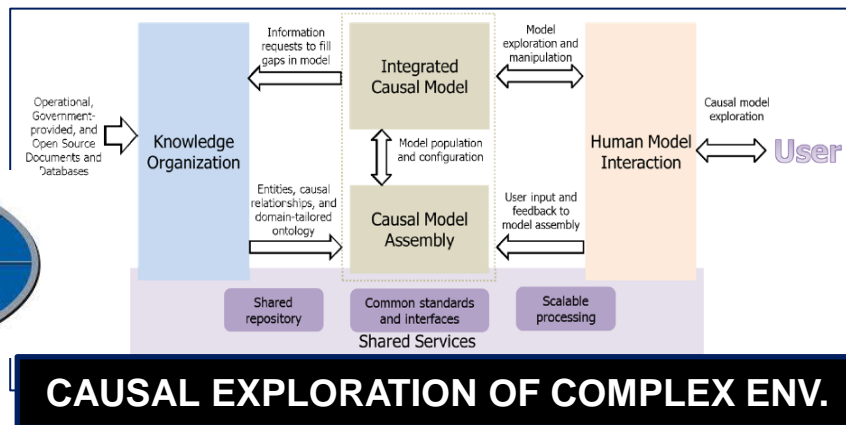


COMPASS
DARPA's Collection and Monitoring via Planning for Active Situational Scenarios



RAID
Raiding the Enemy's Mind

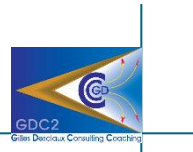
A System Dynamics (SD) Approach to Modeling and Understanding Terrorist Networks
BAA-07-01-IFKA Proactive Intelligence (PAINT): Model Development
Massachusetts Institute of Technology (MIT)
- Sloan School of Management
- Political Science Department
- Engineering Systems Division
and National Security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

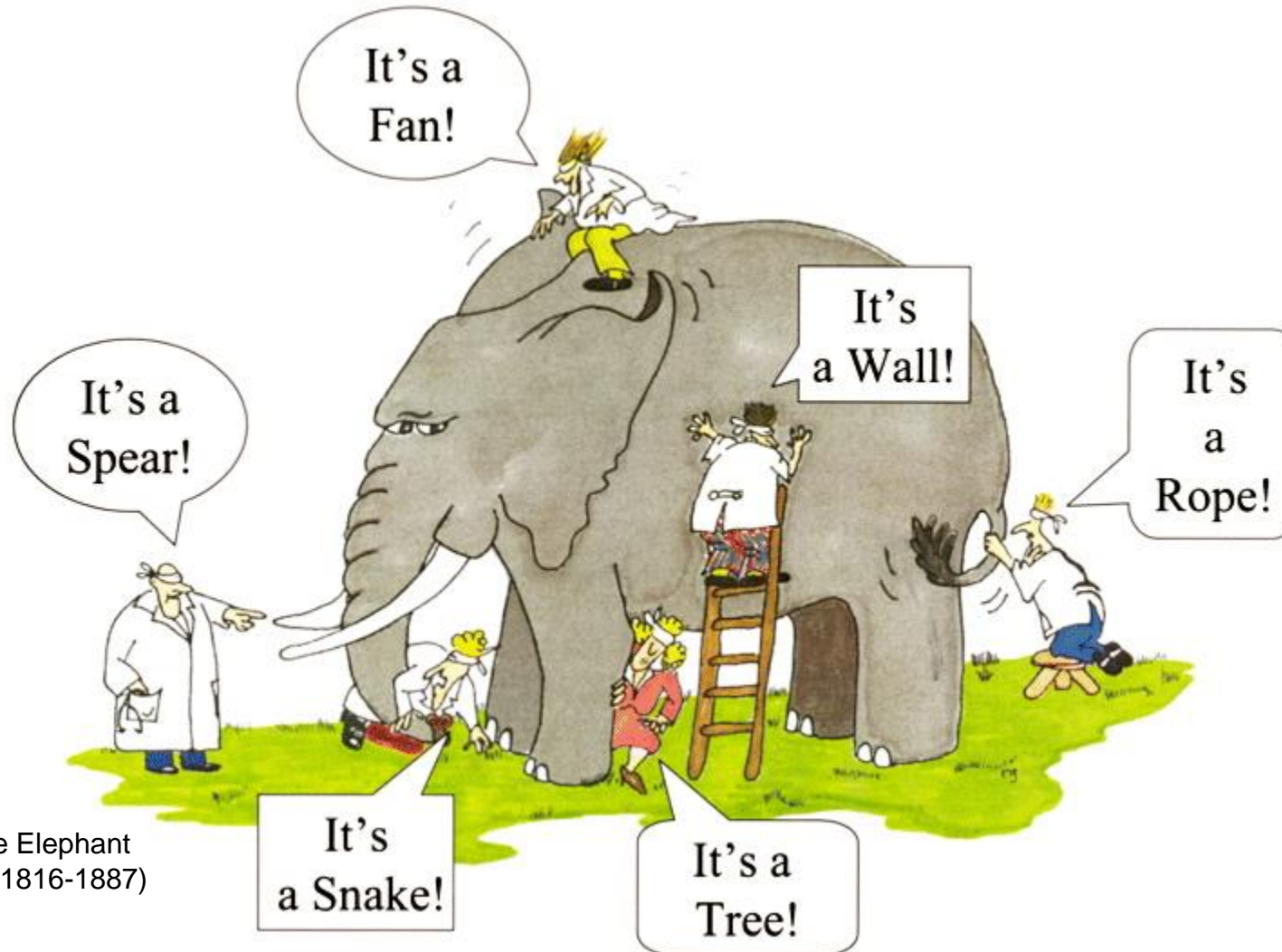

GROUND TRUTH



Lt Gen (Ret) Gilles DESCLAUX

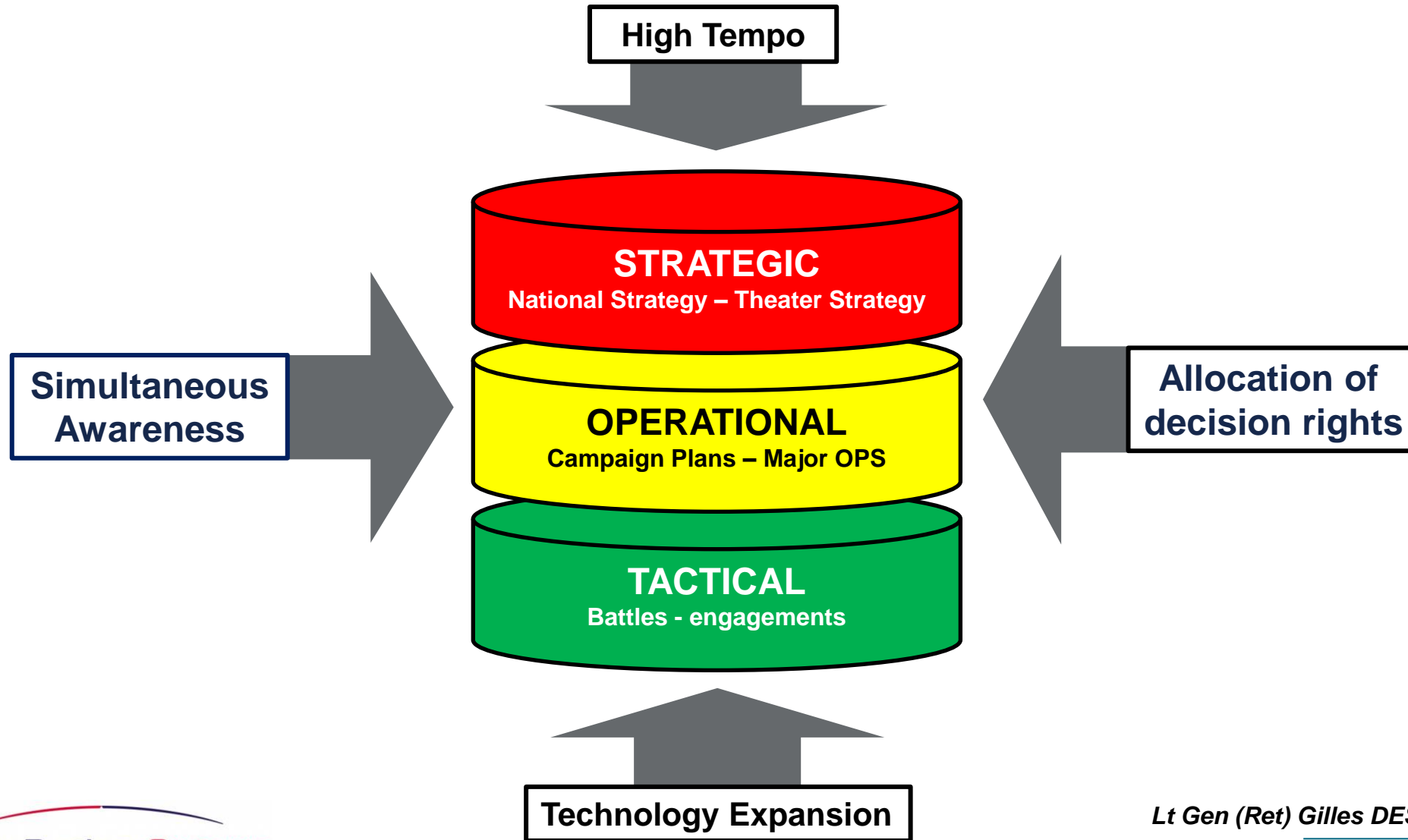


2. The Big Picture & Big Impacts

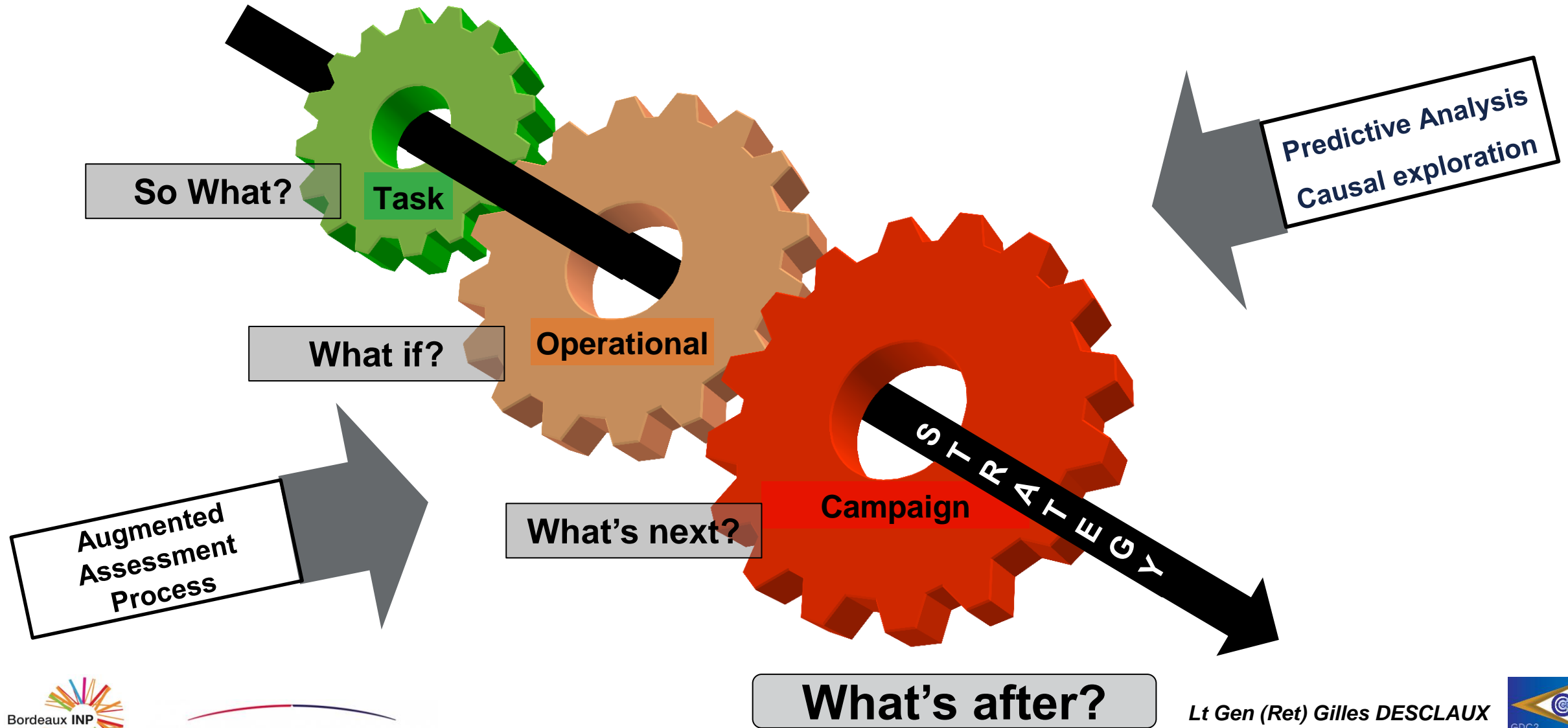


The Blind Men and the Elephant
John Godfrey Saxe (1816-1887)

BD & AI will blur the Levels of War

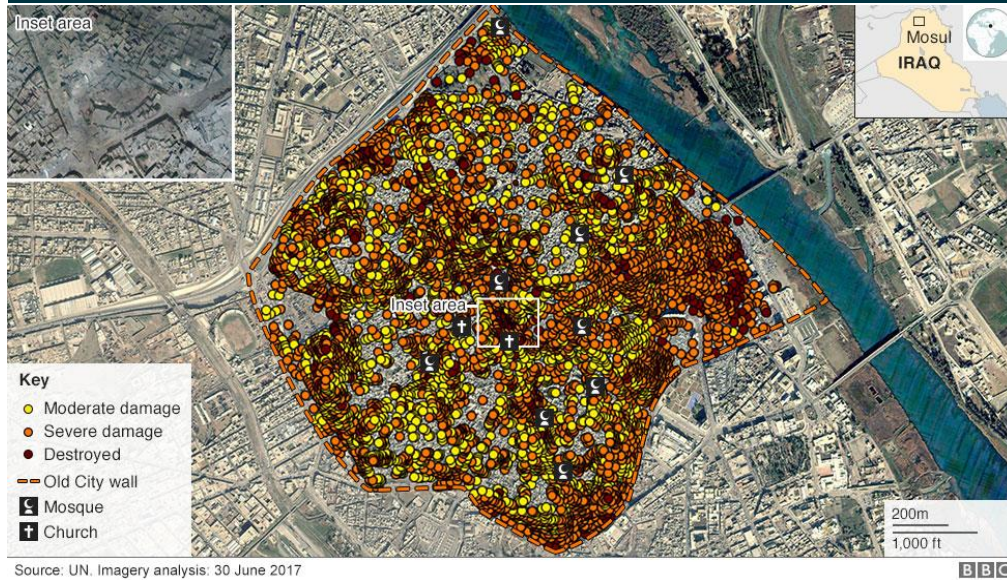


BD & AI will compress decision event horizons



Lt Gen (Ret) Gilles DESCLAUX

- 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. »

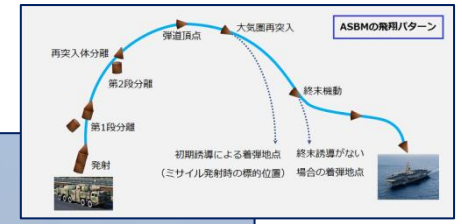
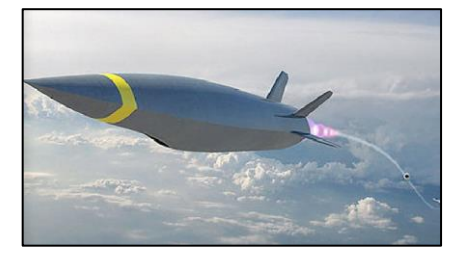
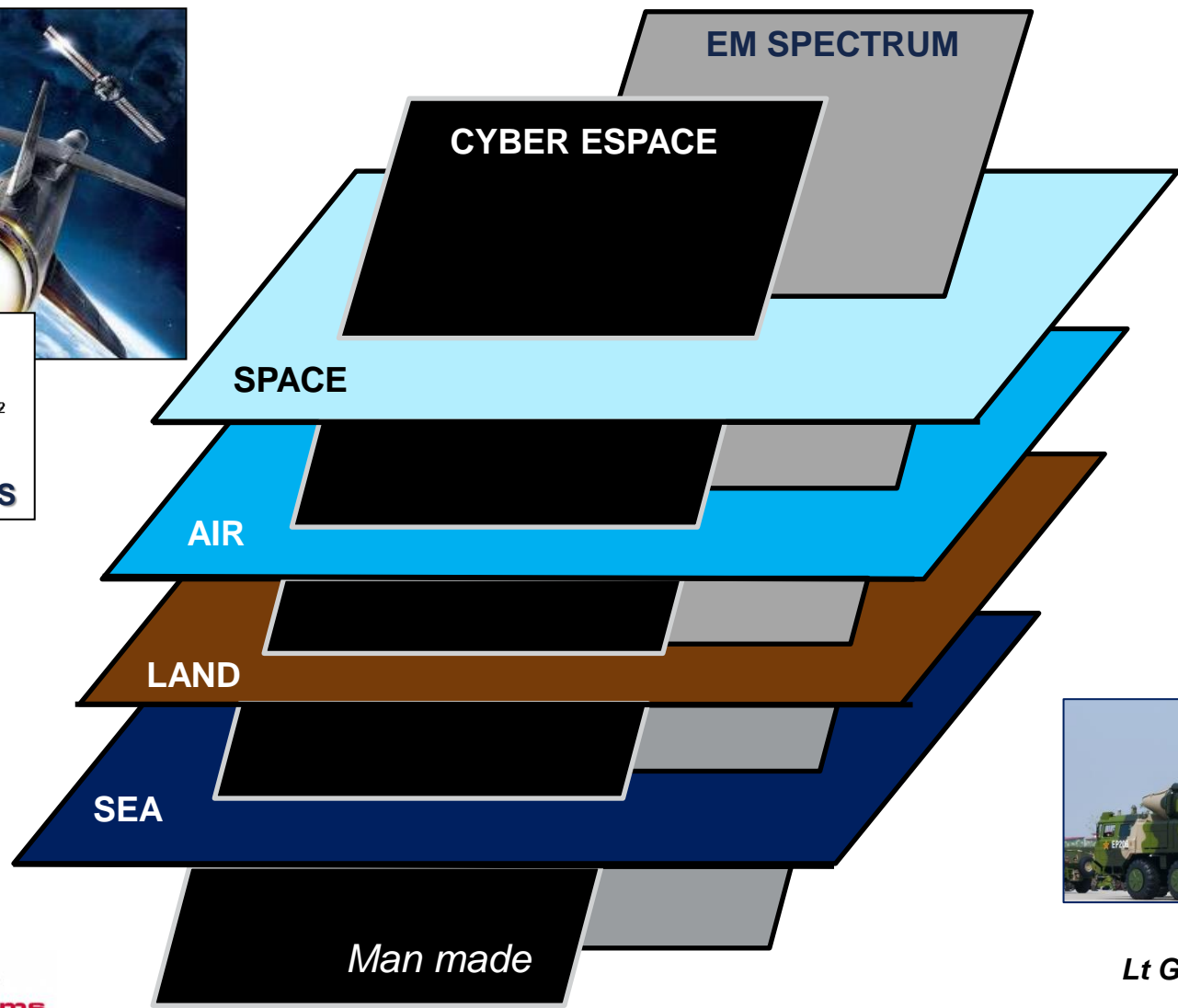
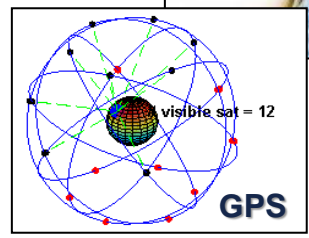
The Economist Jan 2018

THE NEXT
WAR

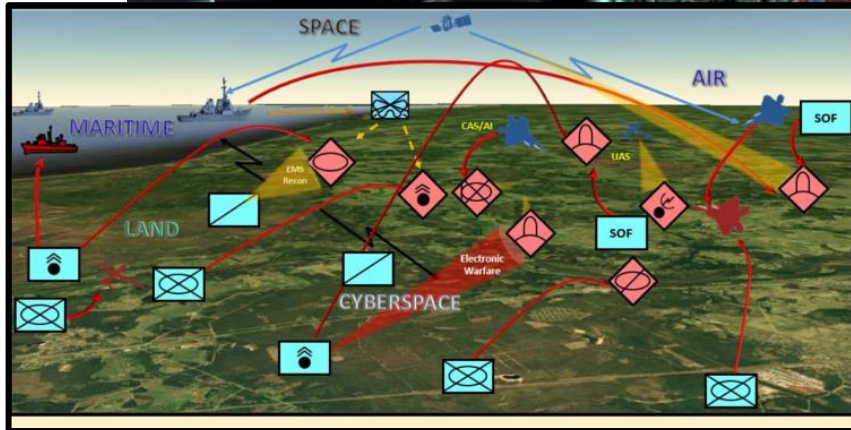


Alamy

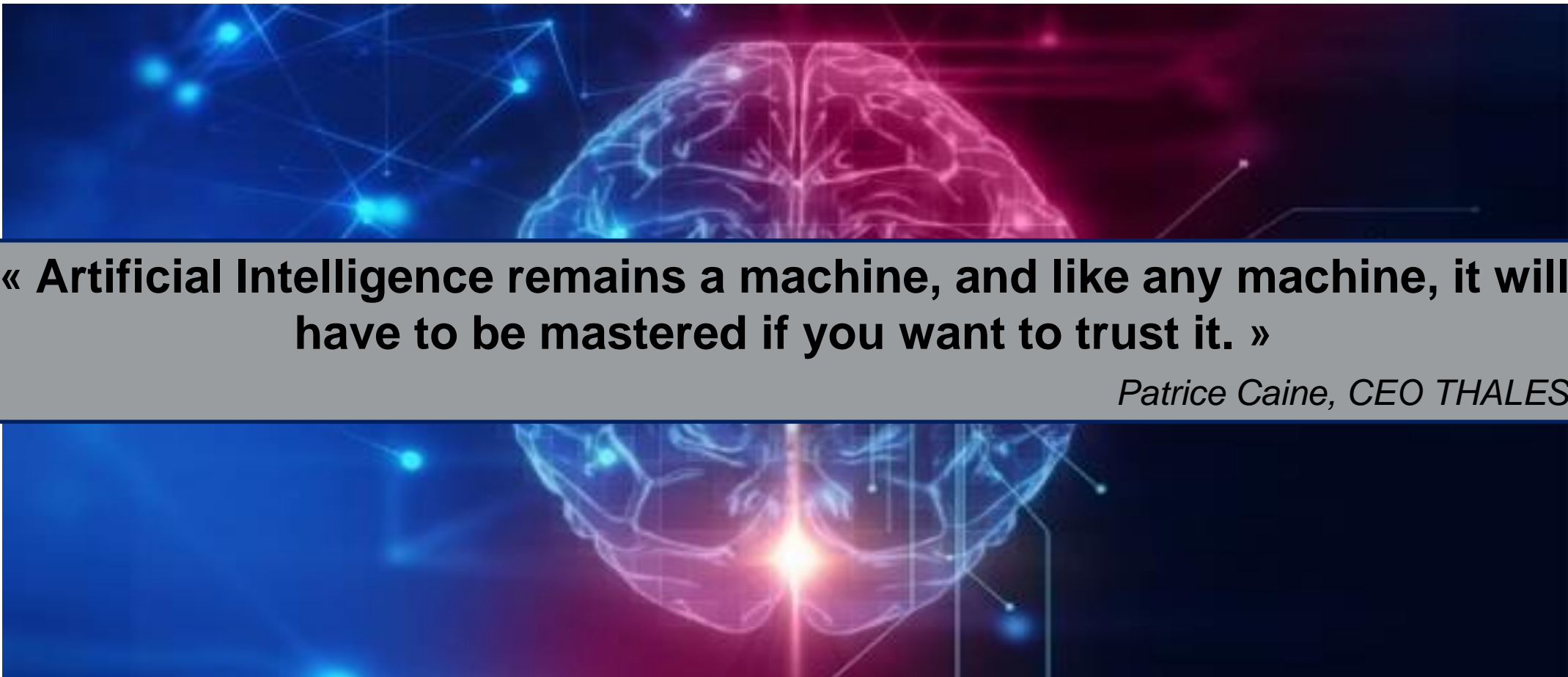
Anti-Access - Area Denial in all domains



AI will allow Multi-Domain C2



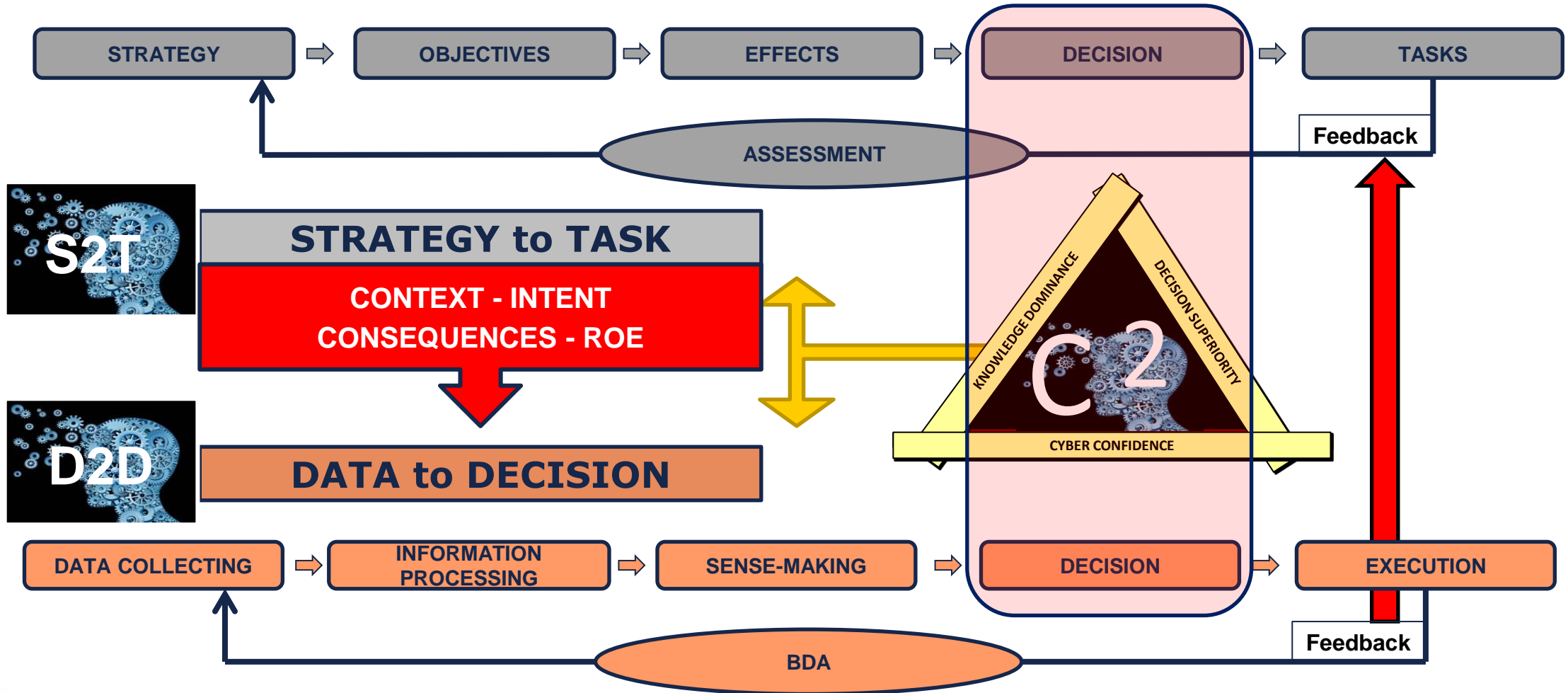
3. Key Principles of incorporating BD & AI in the decision cycle



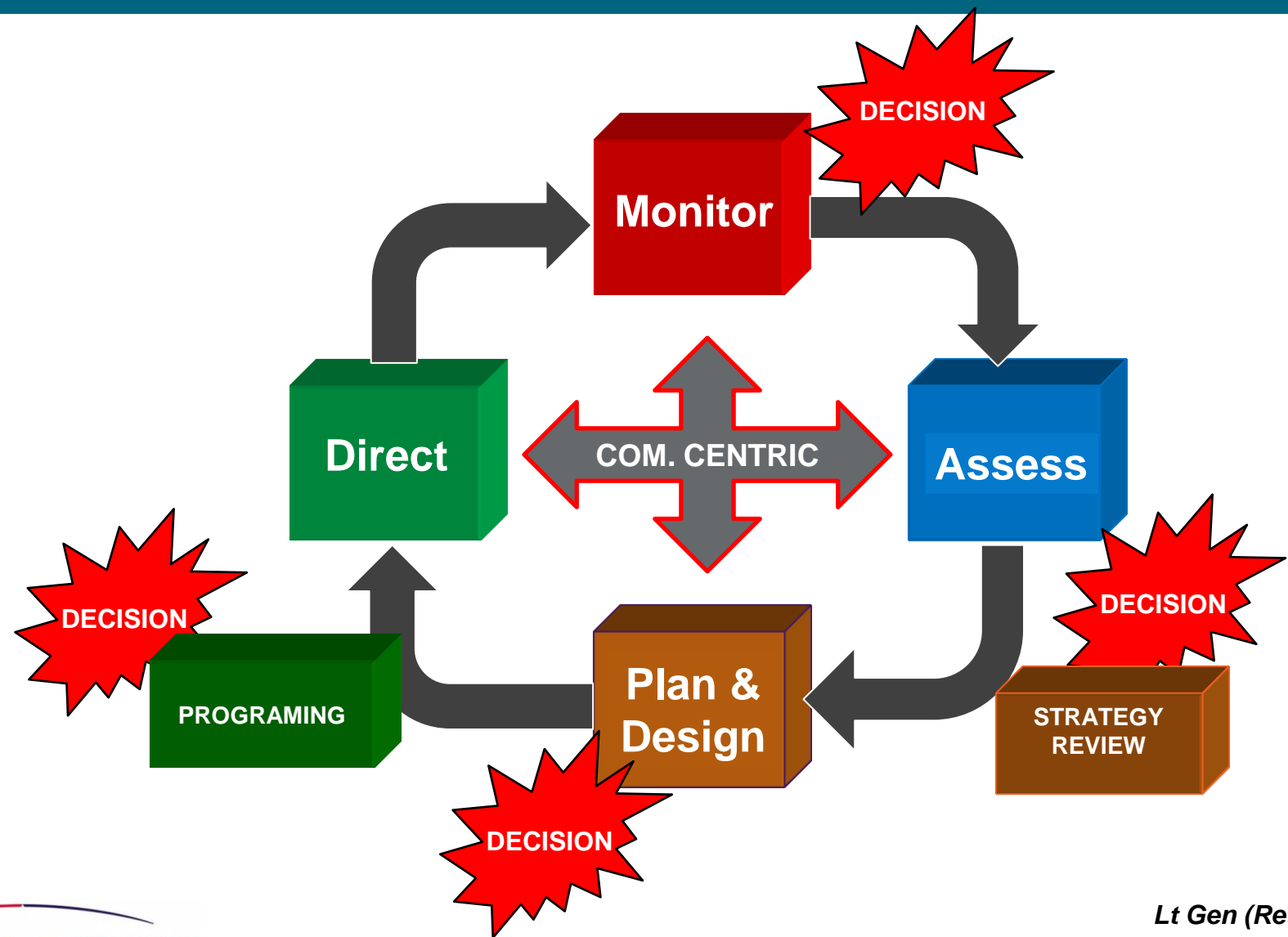
« Artificial Intelligence remains a machine, and like any machine, it will have to be mastered if you want to trust it. »

Patrice Caine, CEO THALES

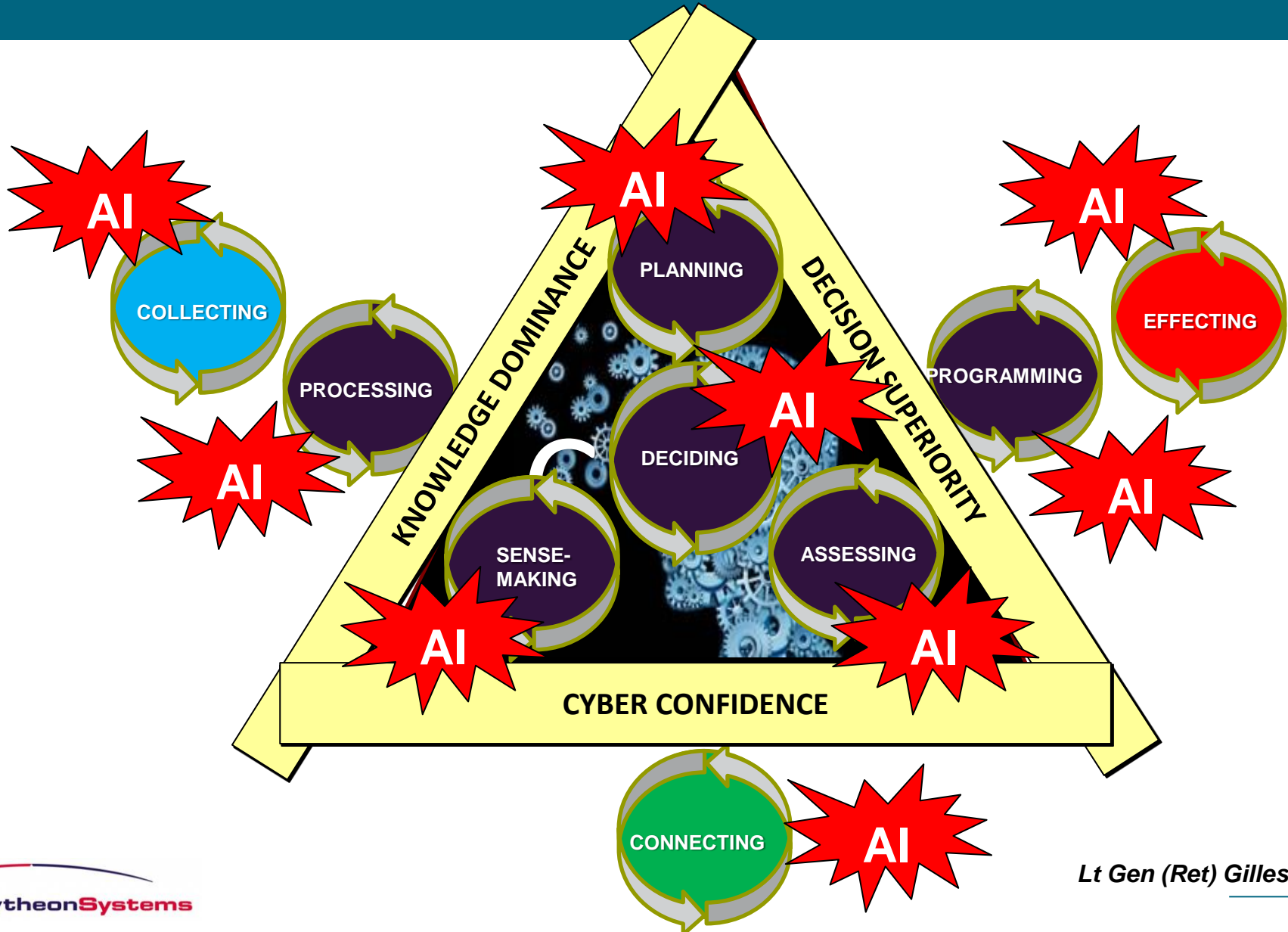
Two overarching intertwined processes



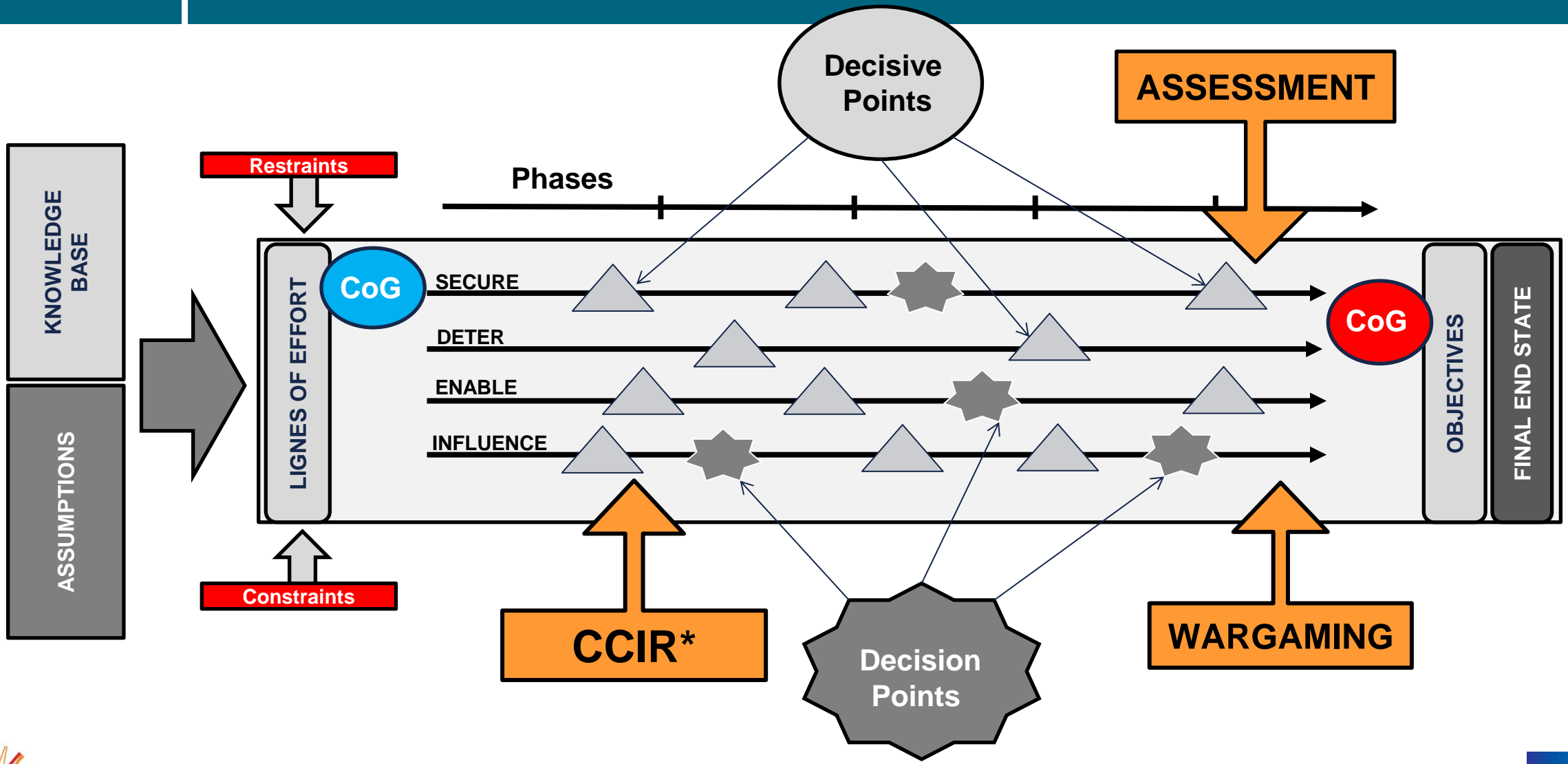
A Commander-centric Process



Mastering AI Impact is essential



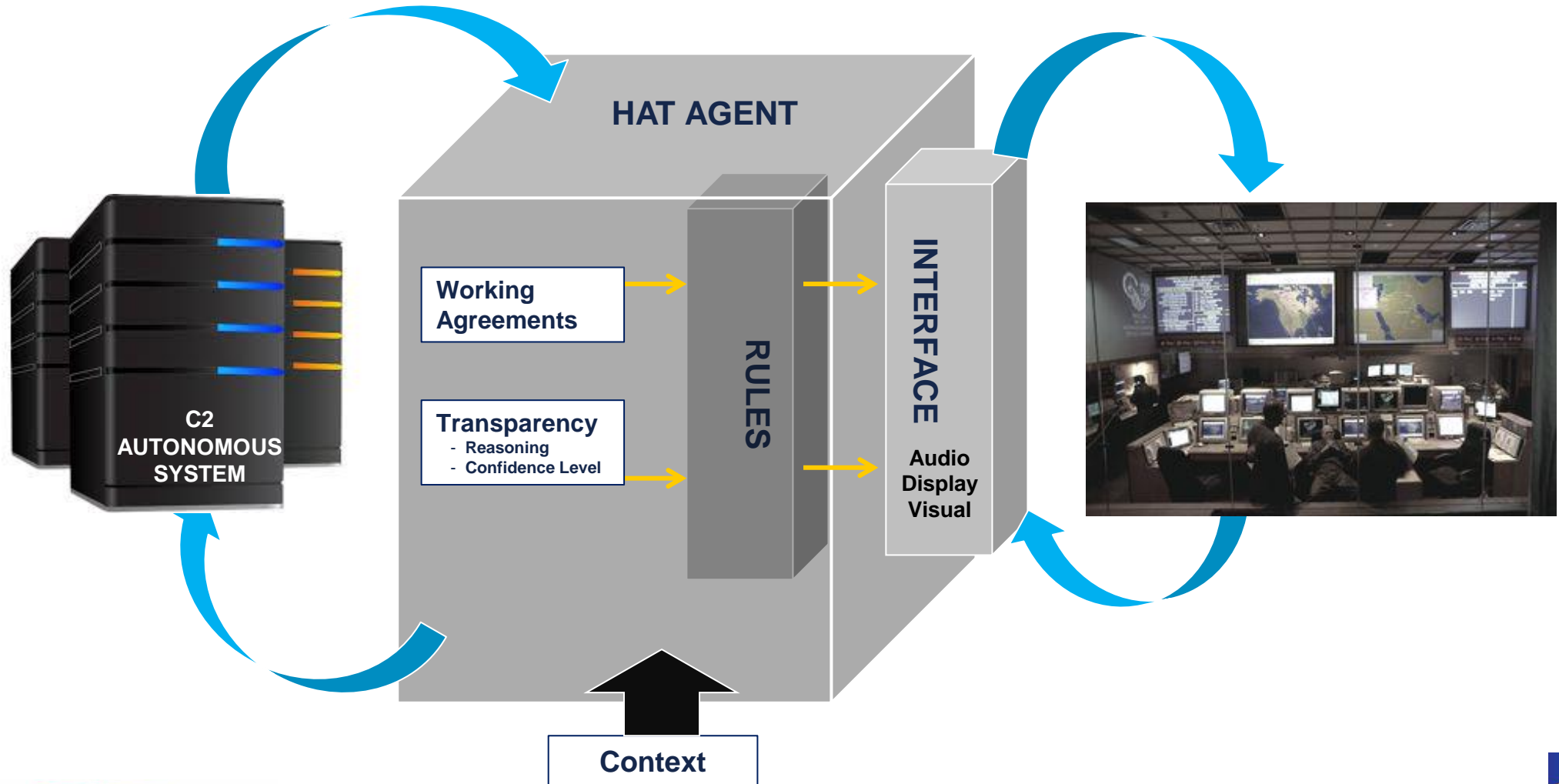
Planning as a “Human First” Principle



*CCIR = Commander's Critical Information Requirements

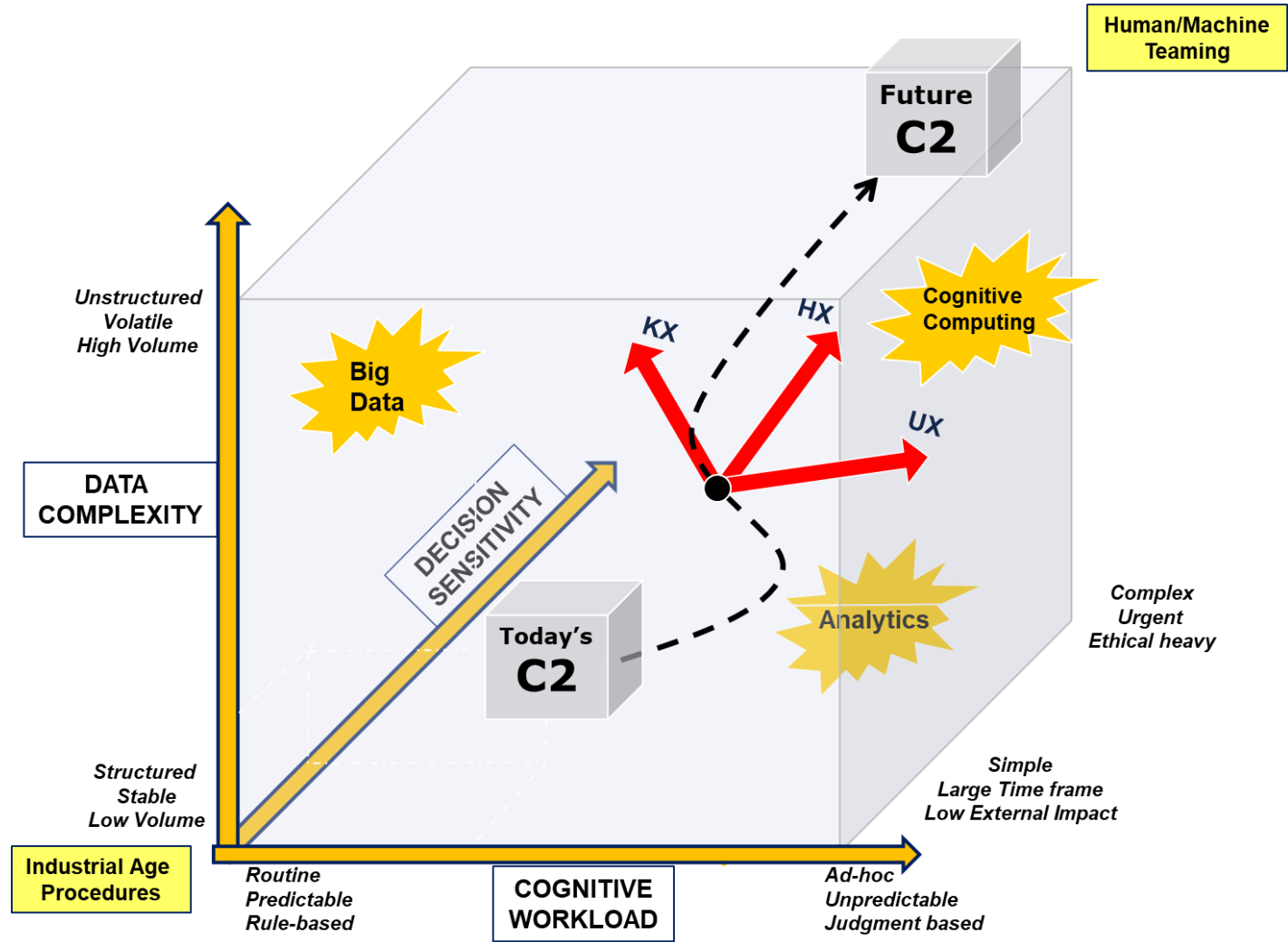
Human Autonomy Teaming Principles and Model*

* From NASA Ames Research Center



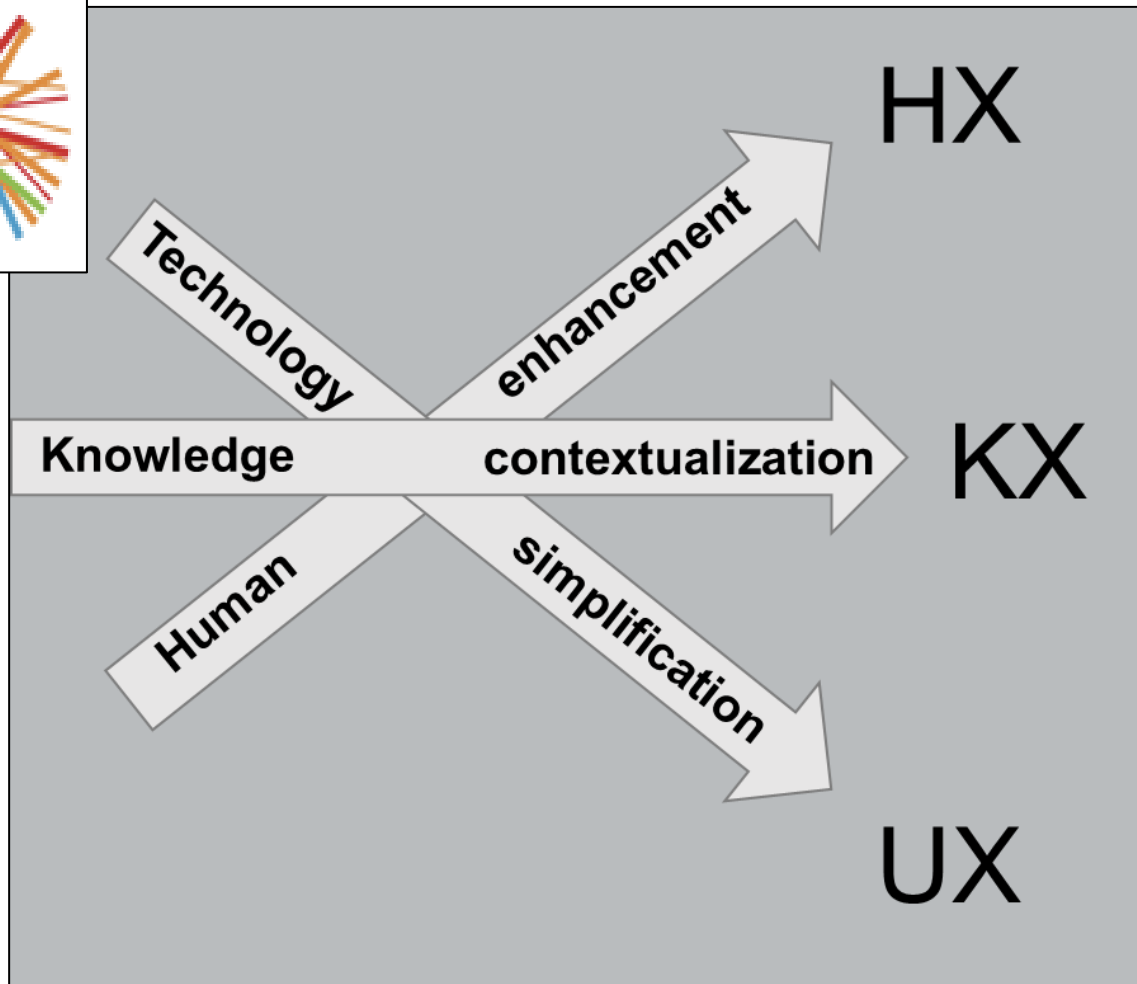
4. Our Global Project: “Drawing a Decision Cycle augmented to better approach complexity.”

From industrial age to Human Autonomy Teaming



The Transformation Methodology

“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.

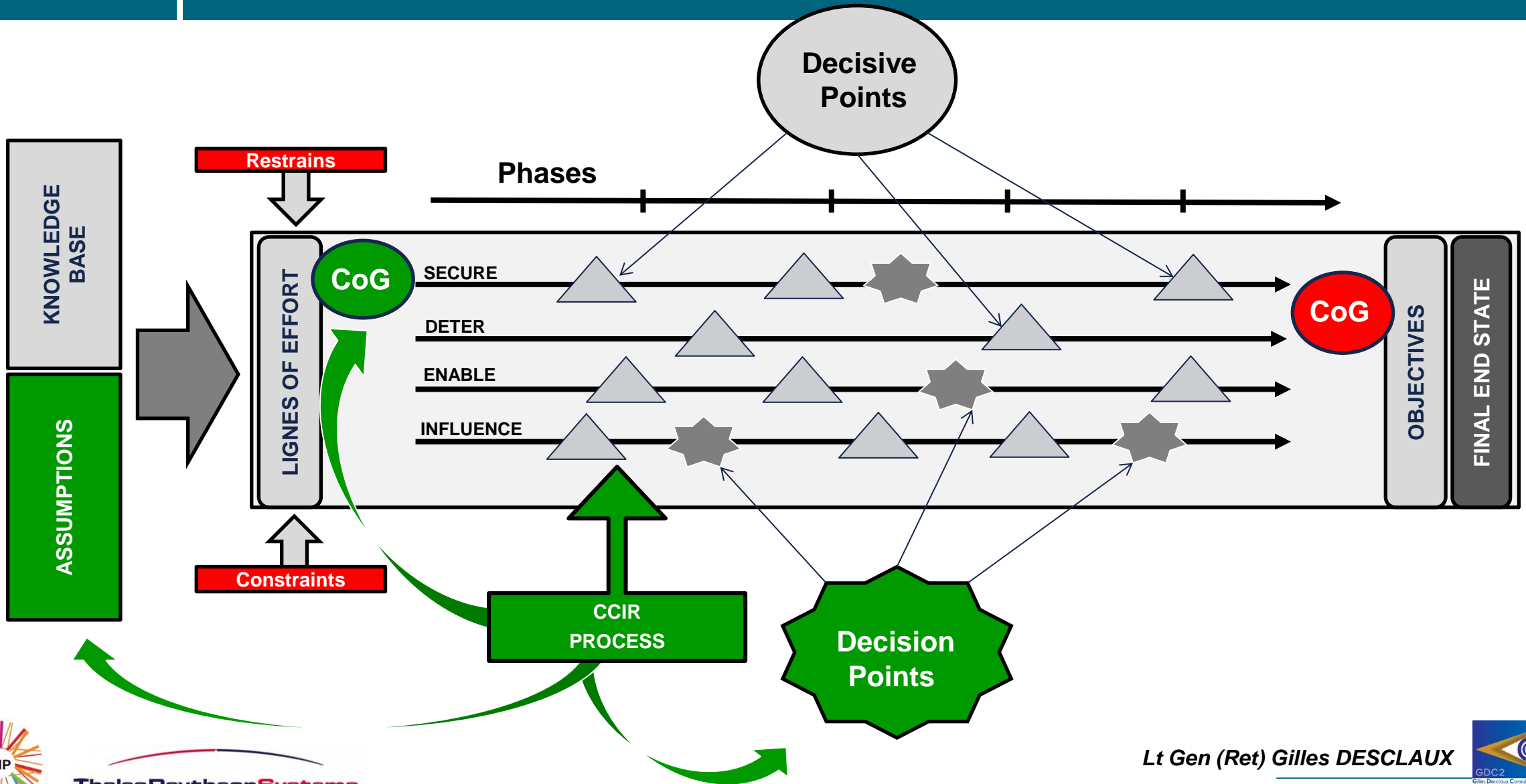


STO - IST 157 Experiment

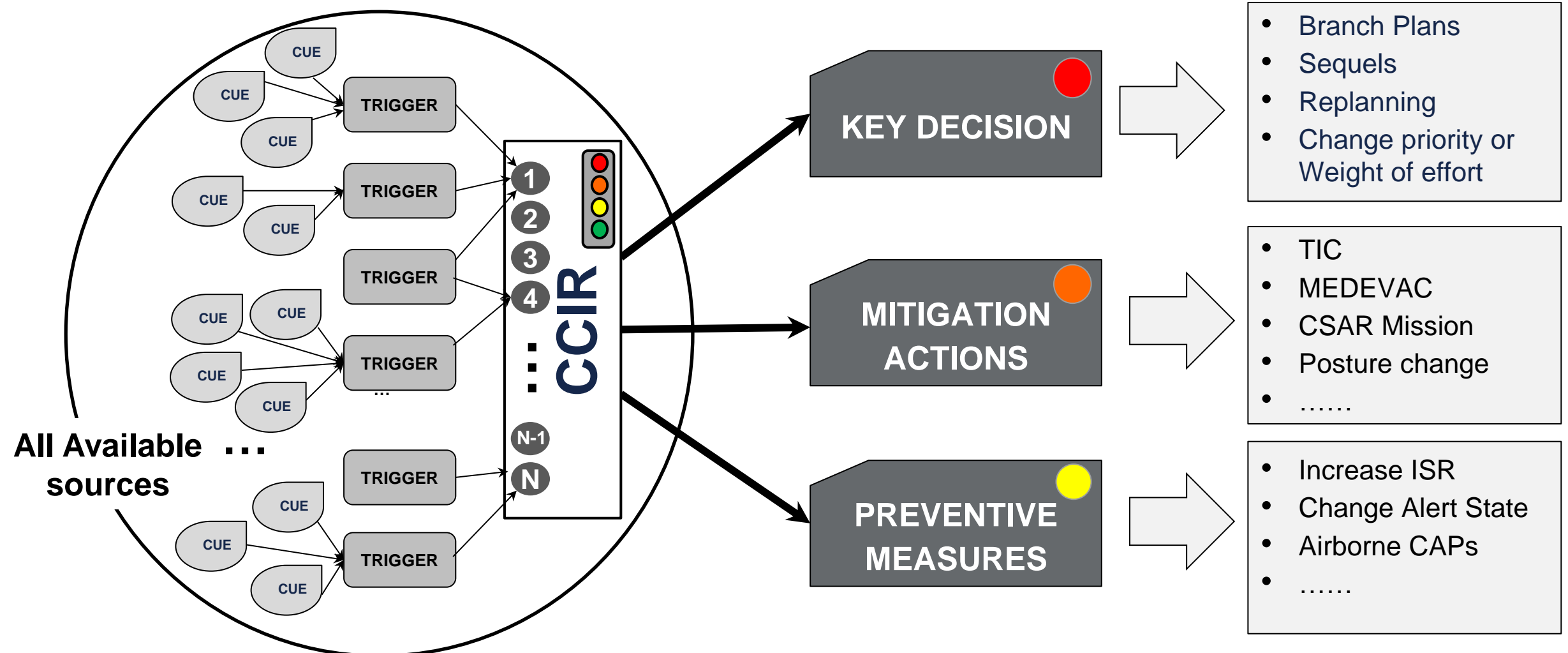
ANTICIPE

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

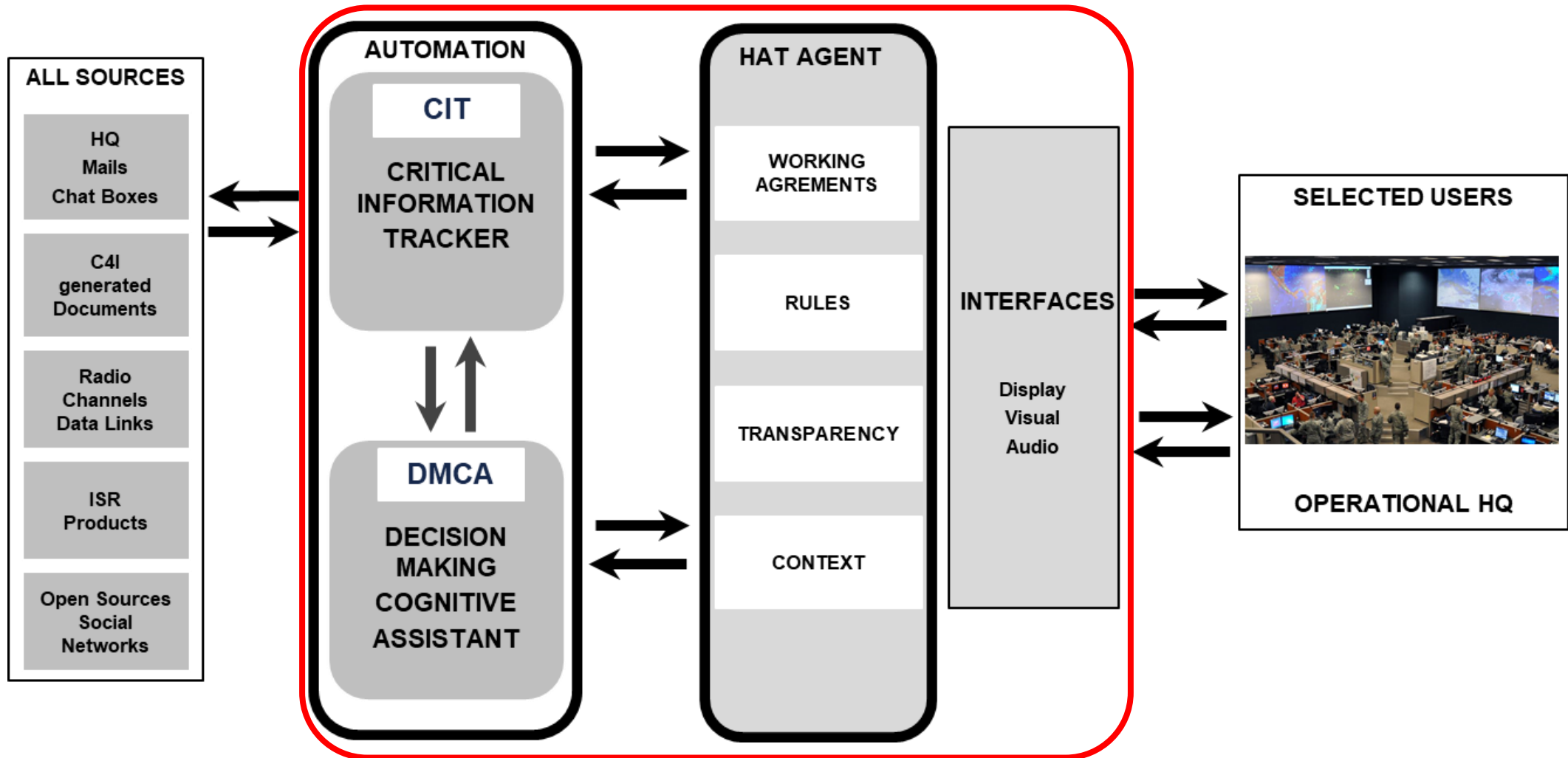
The CCIRs in the Planning Process



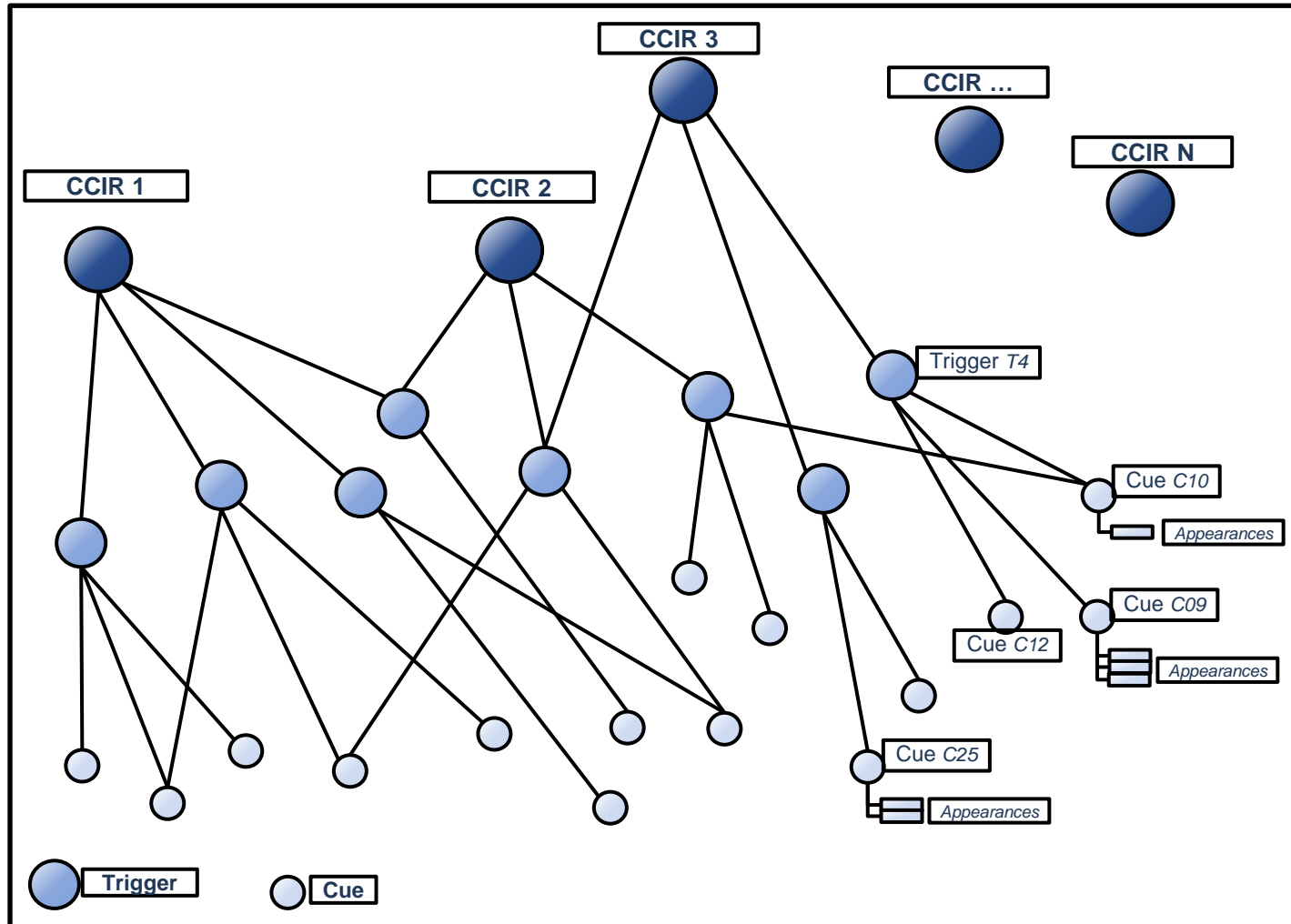
CCIRs and the Decision Making Process



ANTICIPE – Experimental Model

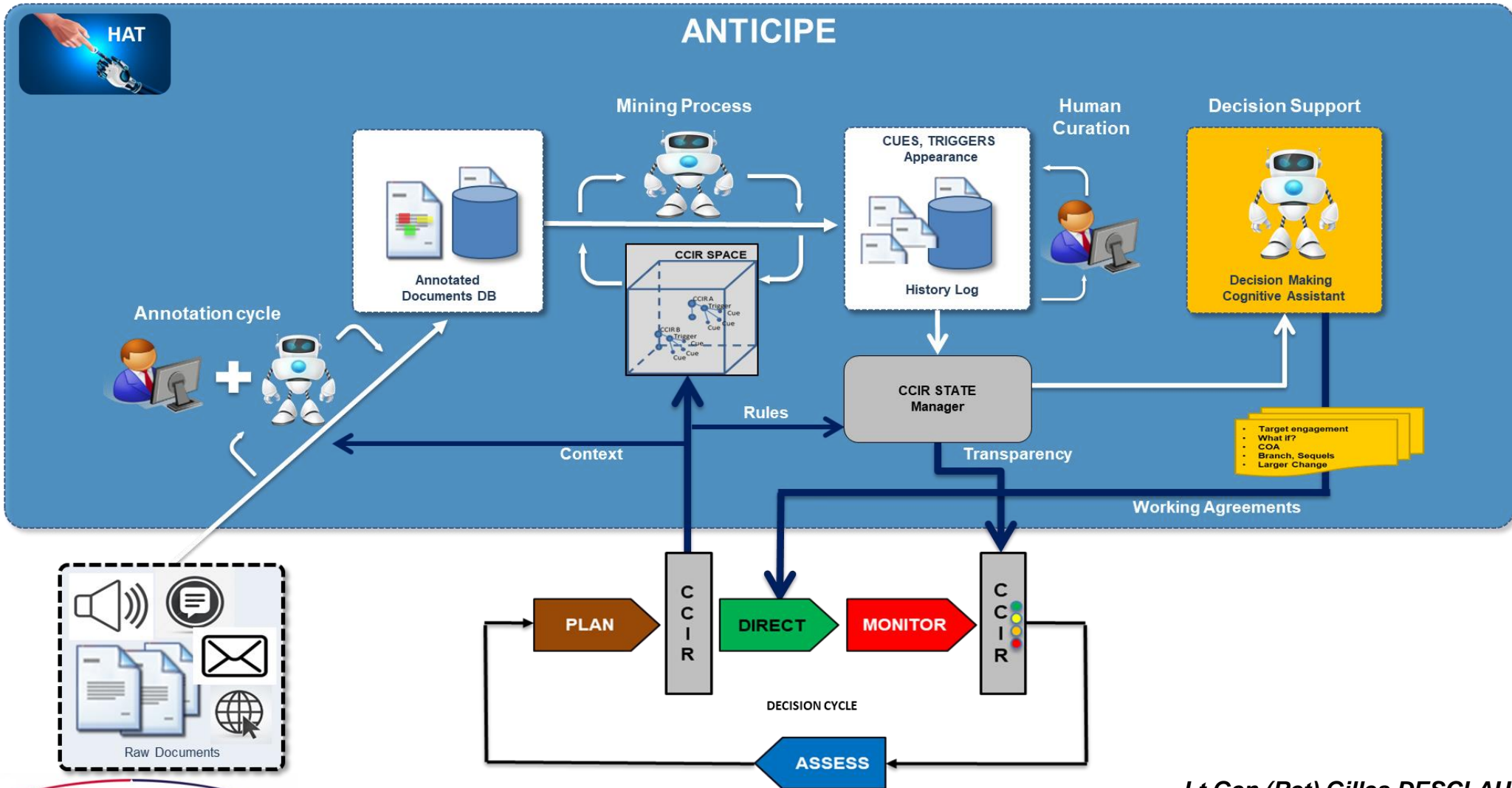


CCIR Space: A Logical Data Model

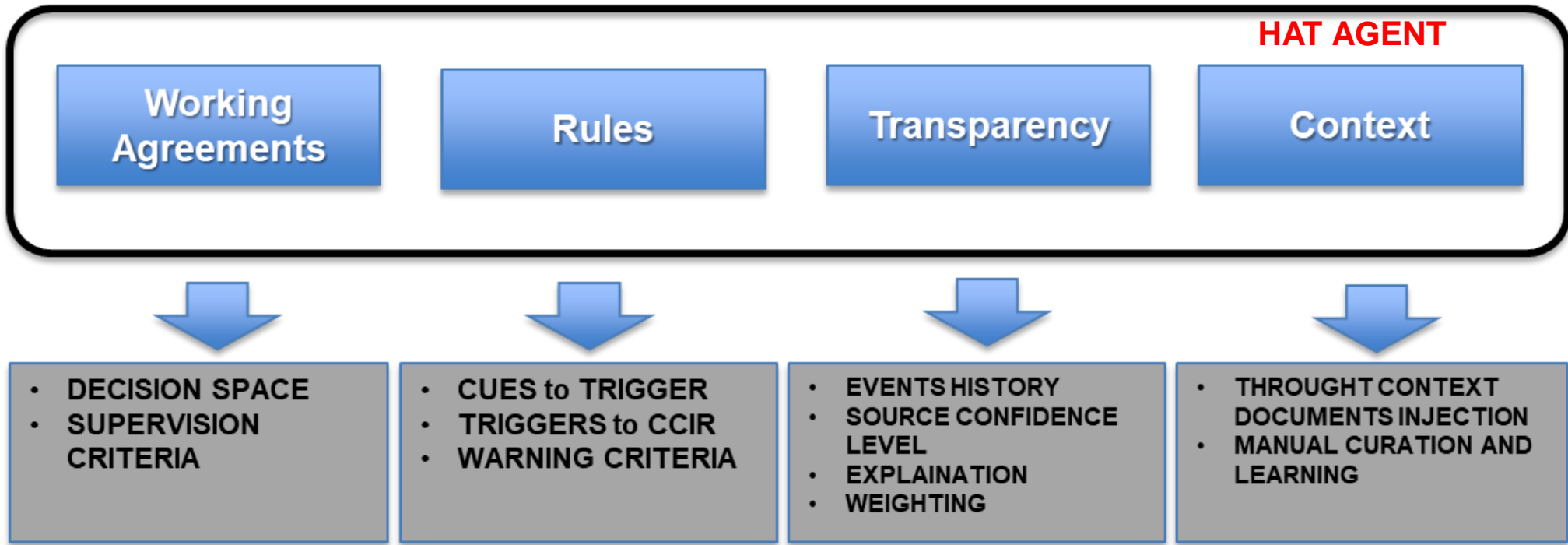


ANTICIPE Schematic Diagram

Augmented Near-real Time for Critical Information Process Experiment



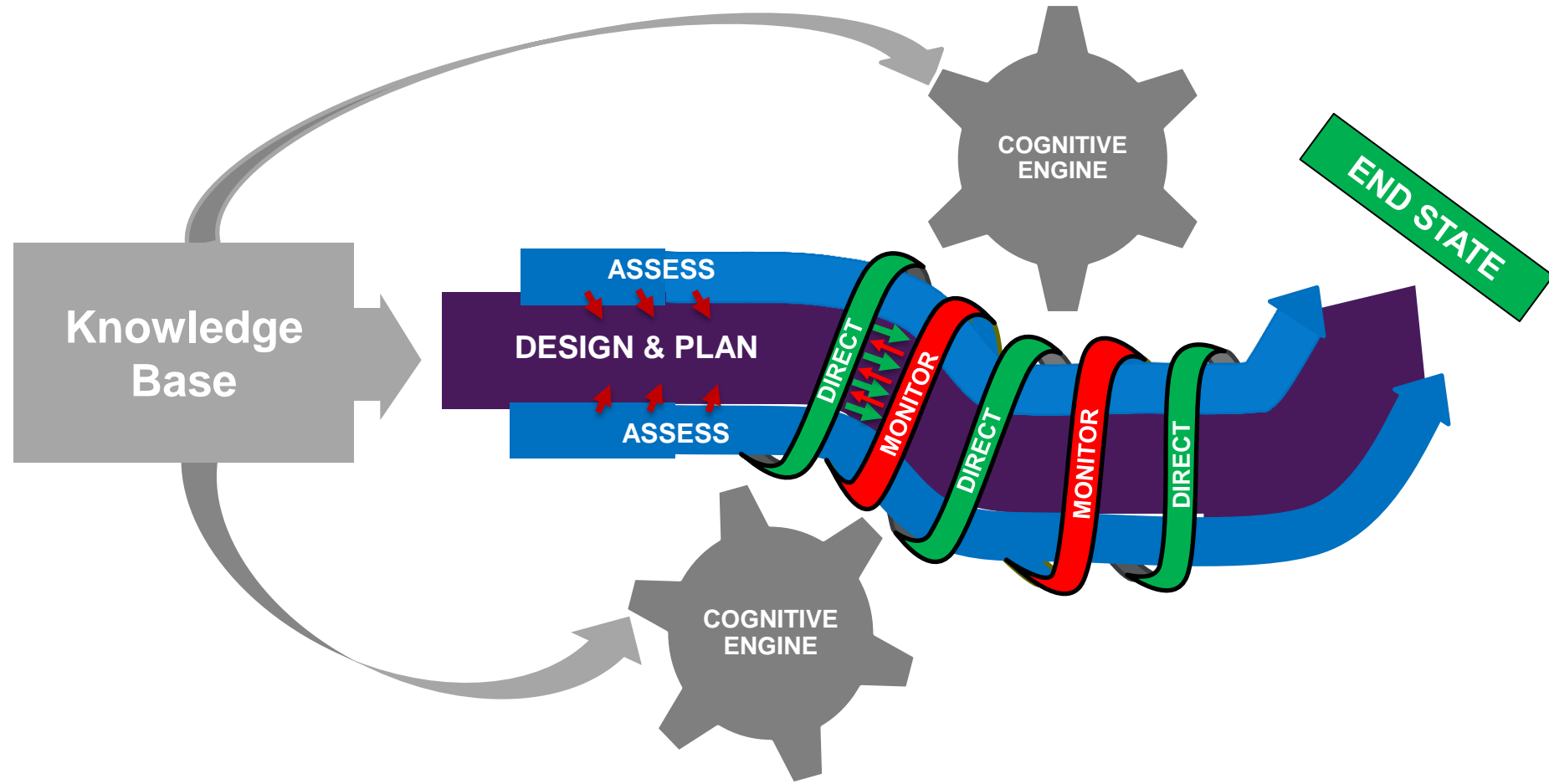
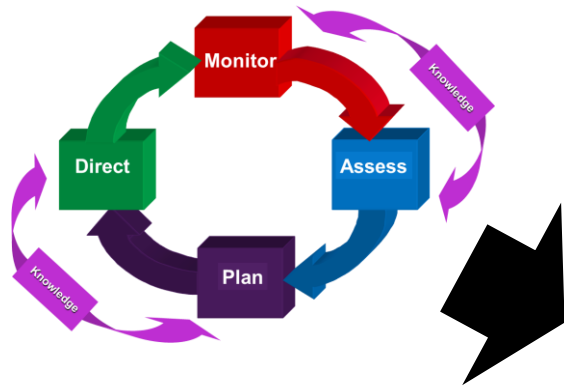
Human Autonomy Teaming Agent



5. Conclusion and Future Researches



Cognition Augmented Decision Cycle



Questions?



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