



NAVAL
POSTGRADUATE
SCHOOL

Integration of the Dynamic Model of Situated Cognition in the Design of Edge Organizations

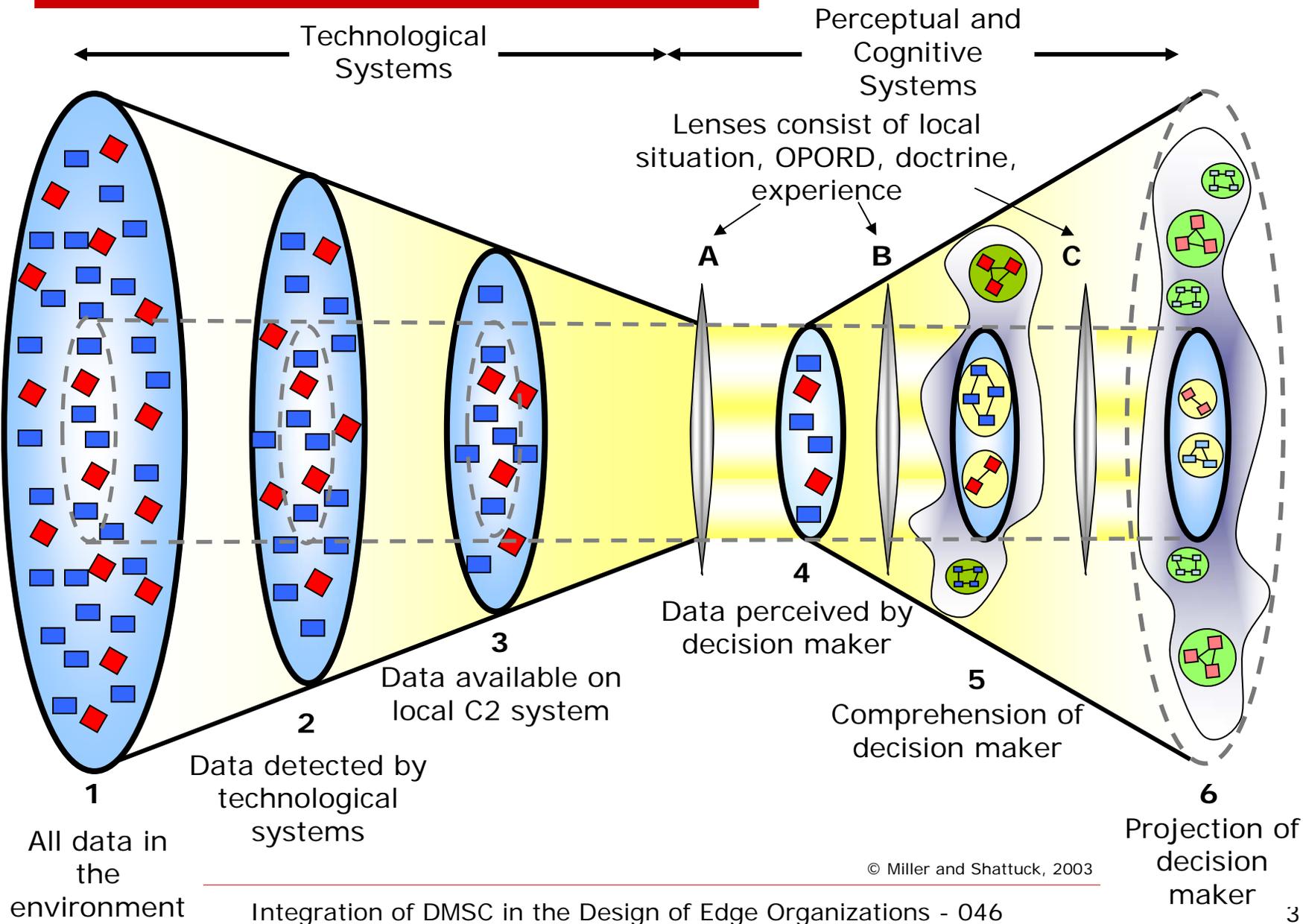
Paper 045

Gregory A. Miller
Edouard Kujawski
Naval Postgraduate School
Monterey, CA

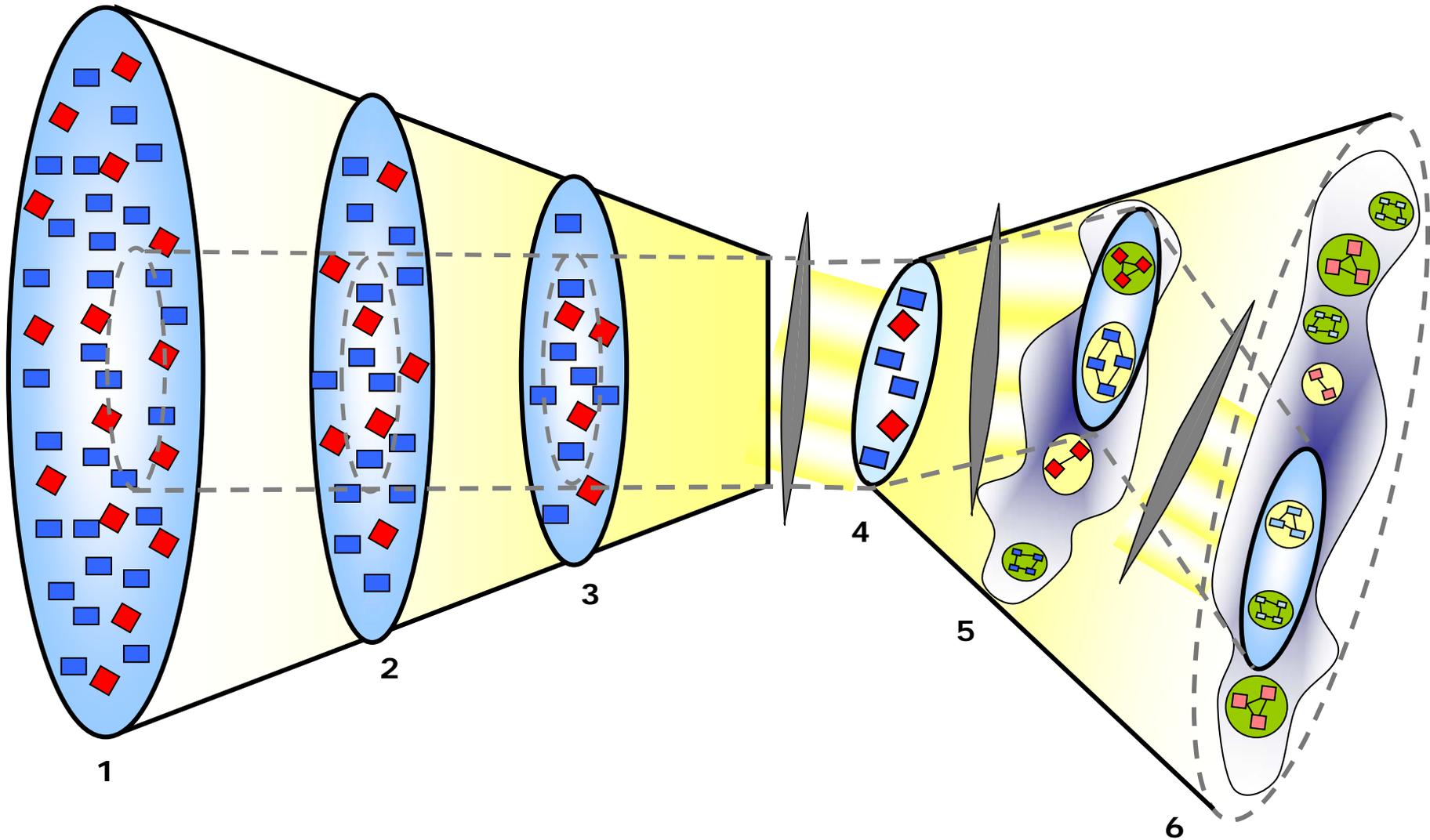
Introduction & Motivation

- Original DMSC introduced in 2003
 - Explicitly included human elements
 - More complete DOMLPF analysis of C2 systems
 - Consistent with capabilities-based assessment
- Applied in numerous situations
- What to do about errors?
 - Quantify rework, loss, other impacts?
 - Quantify impact of efforts to minimize error propagation via models?

Original DMSC

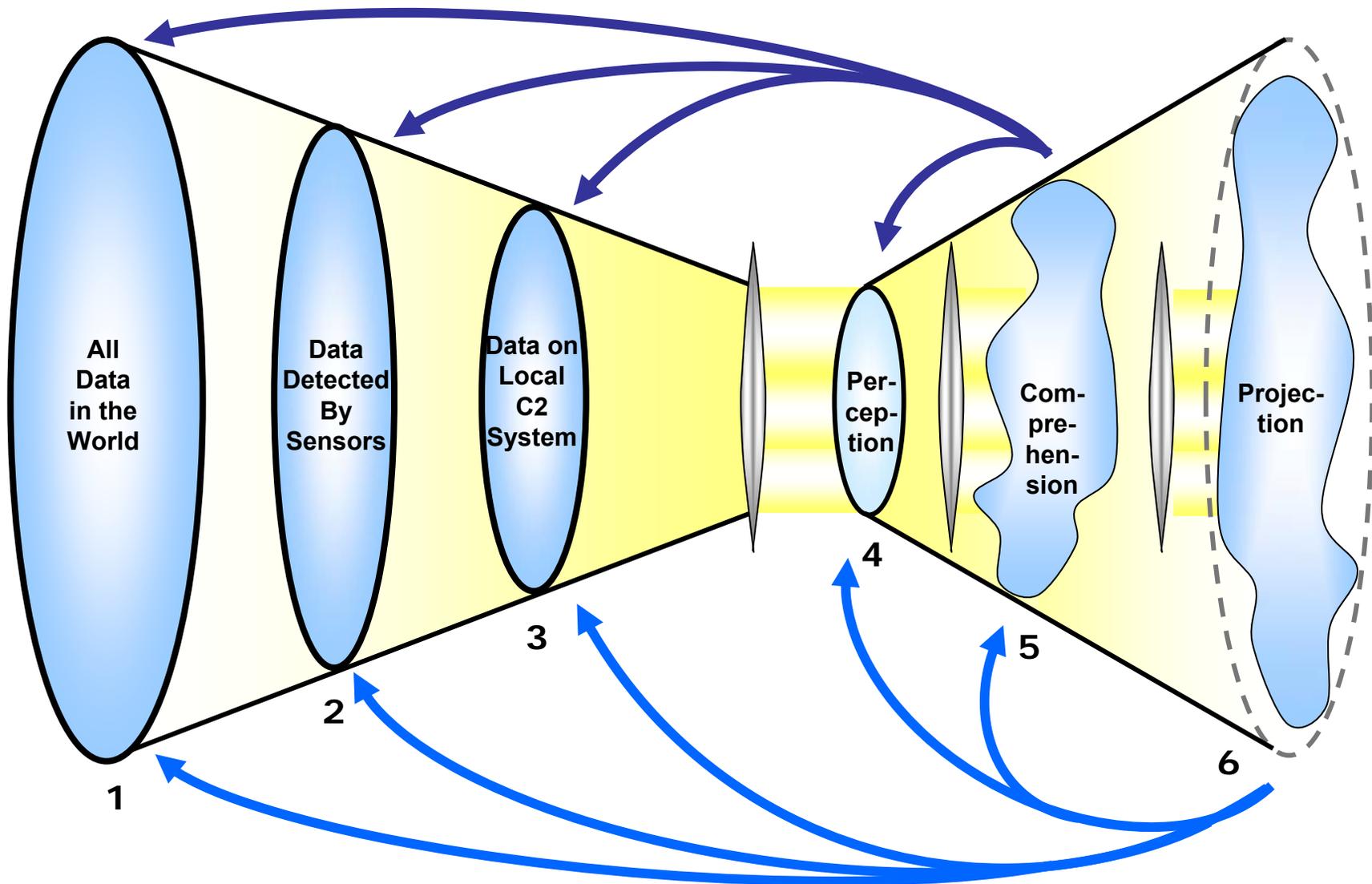


Lens Distortions

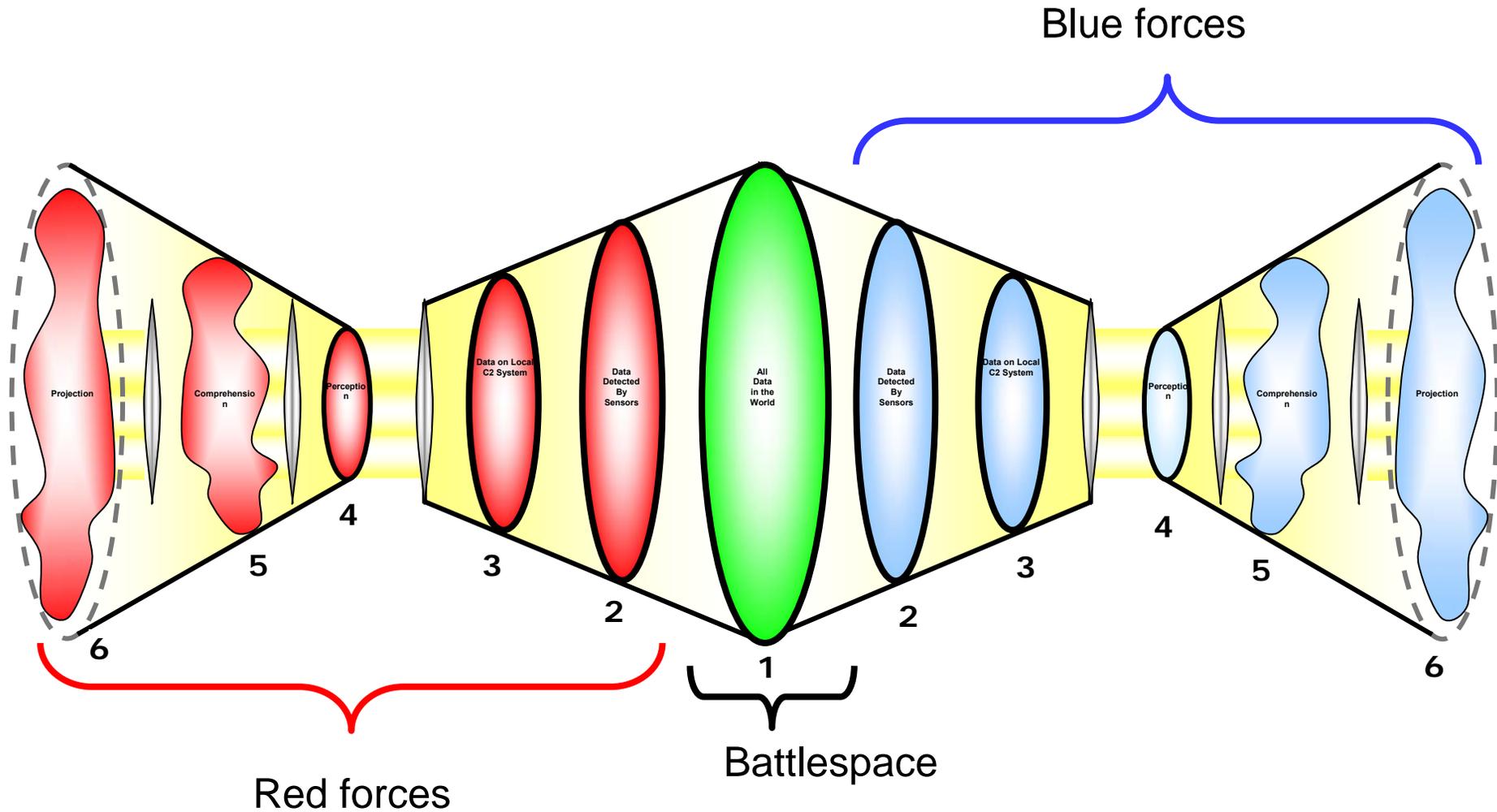


© Miller and Shattuck, 2003

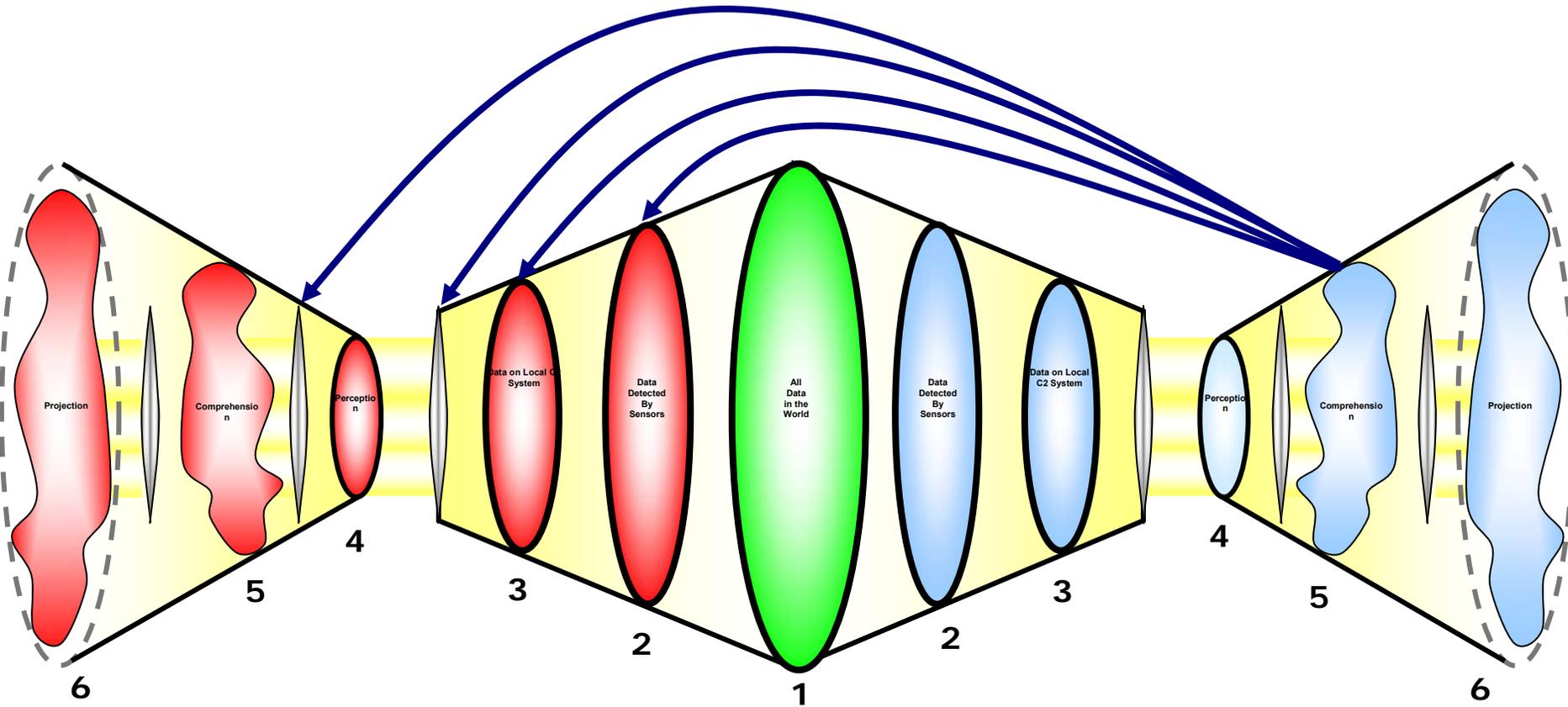
Oval Feedback



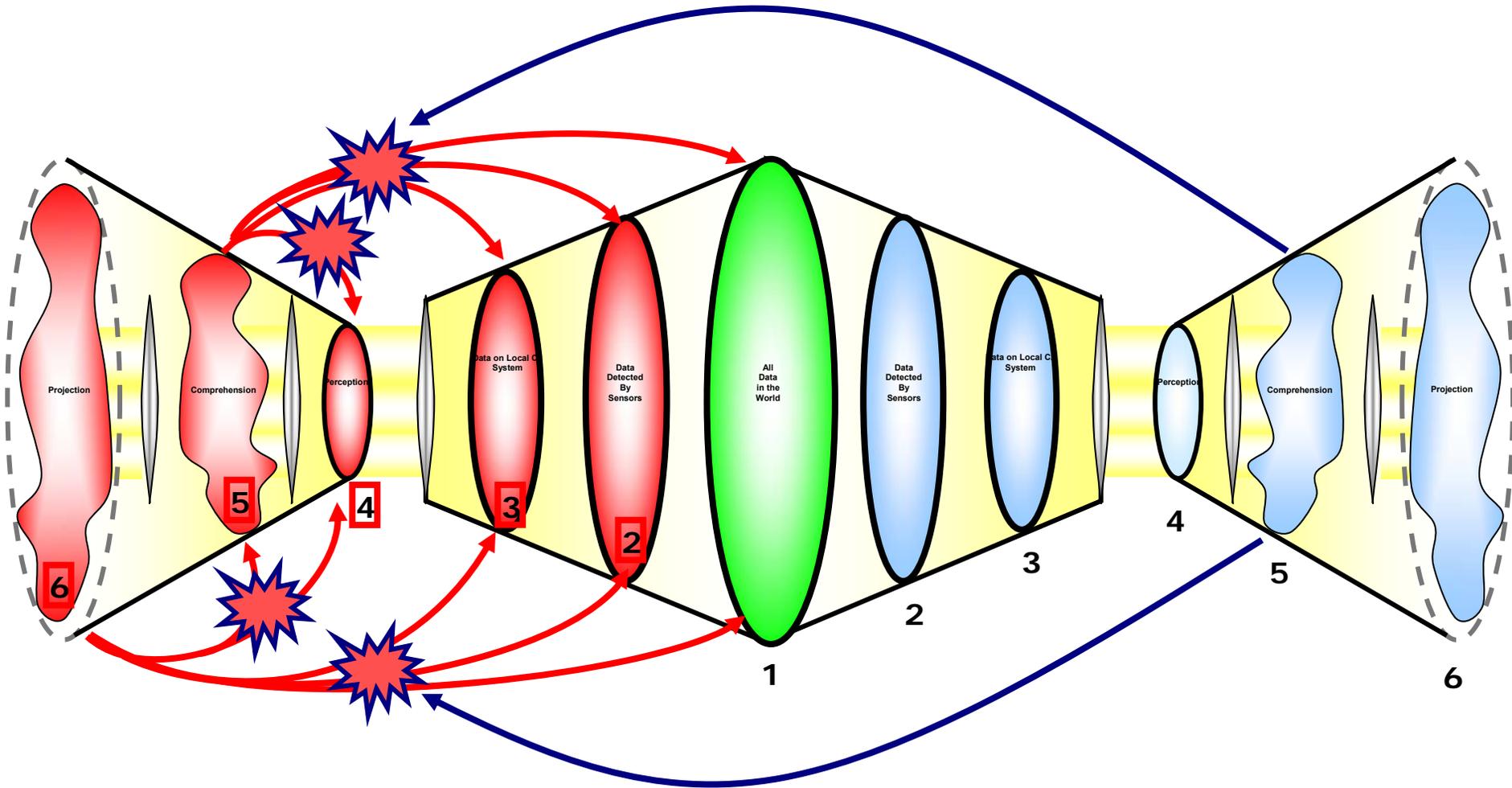
A Recent Extension



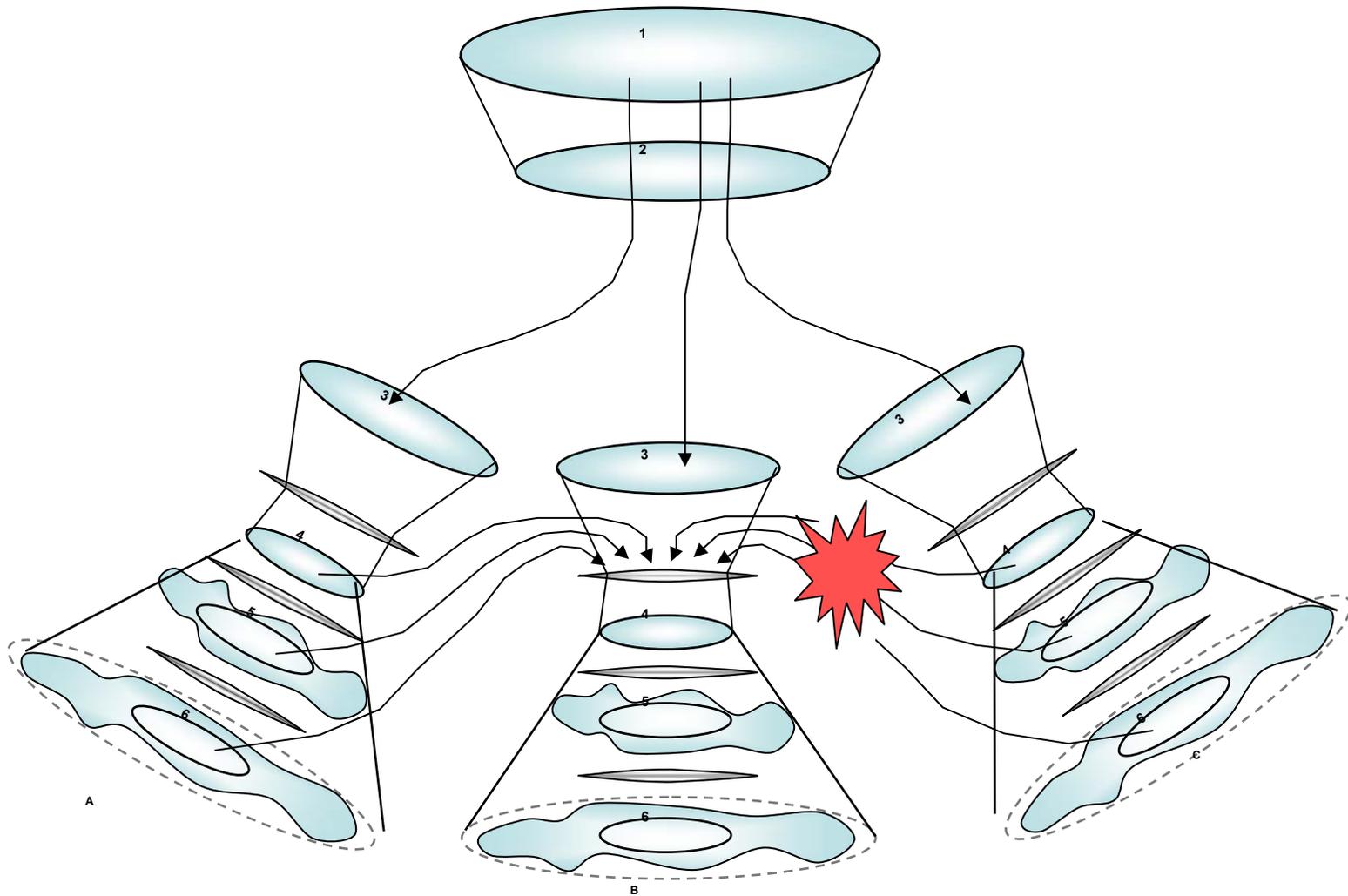
C2 Warfare



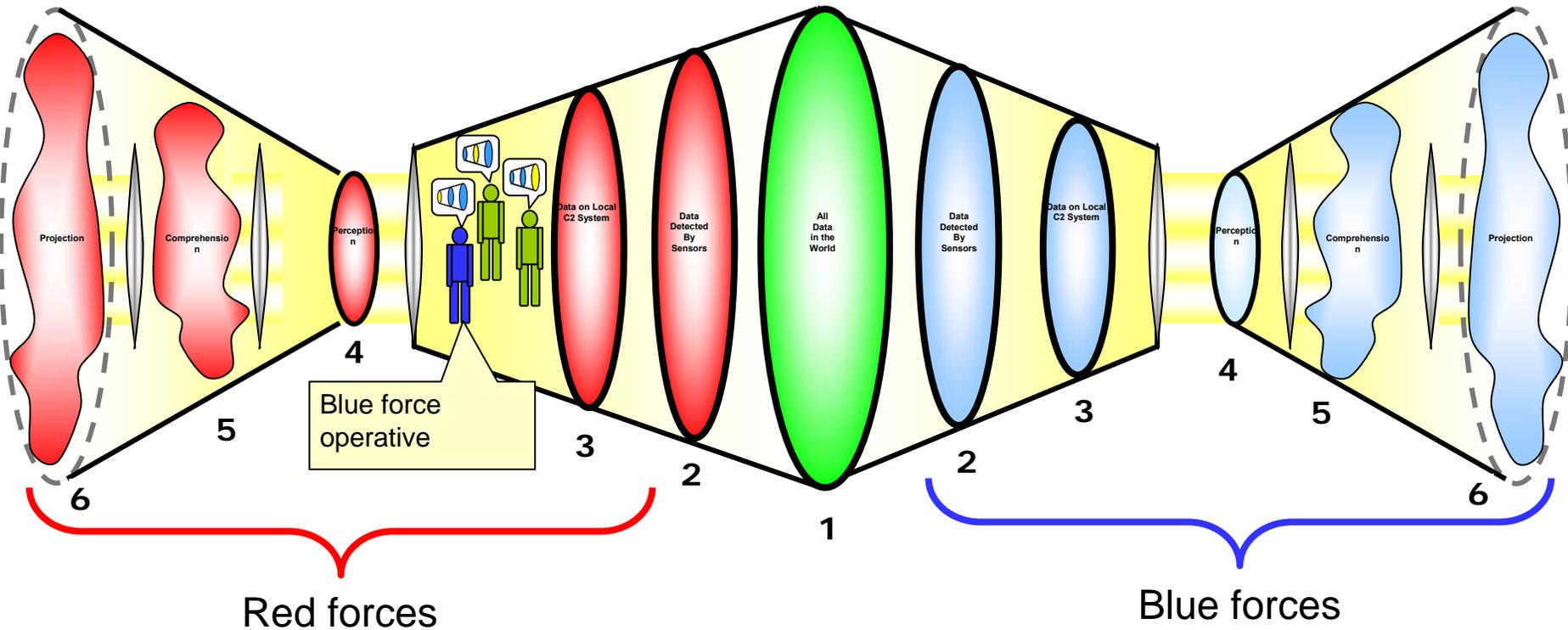
Disruption of Feedback



Counter-Communications Action

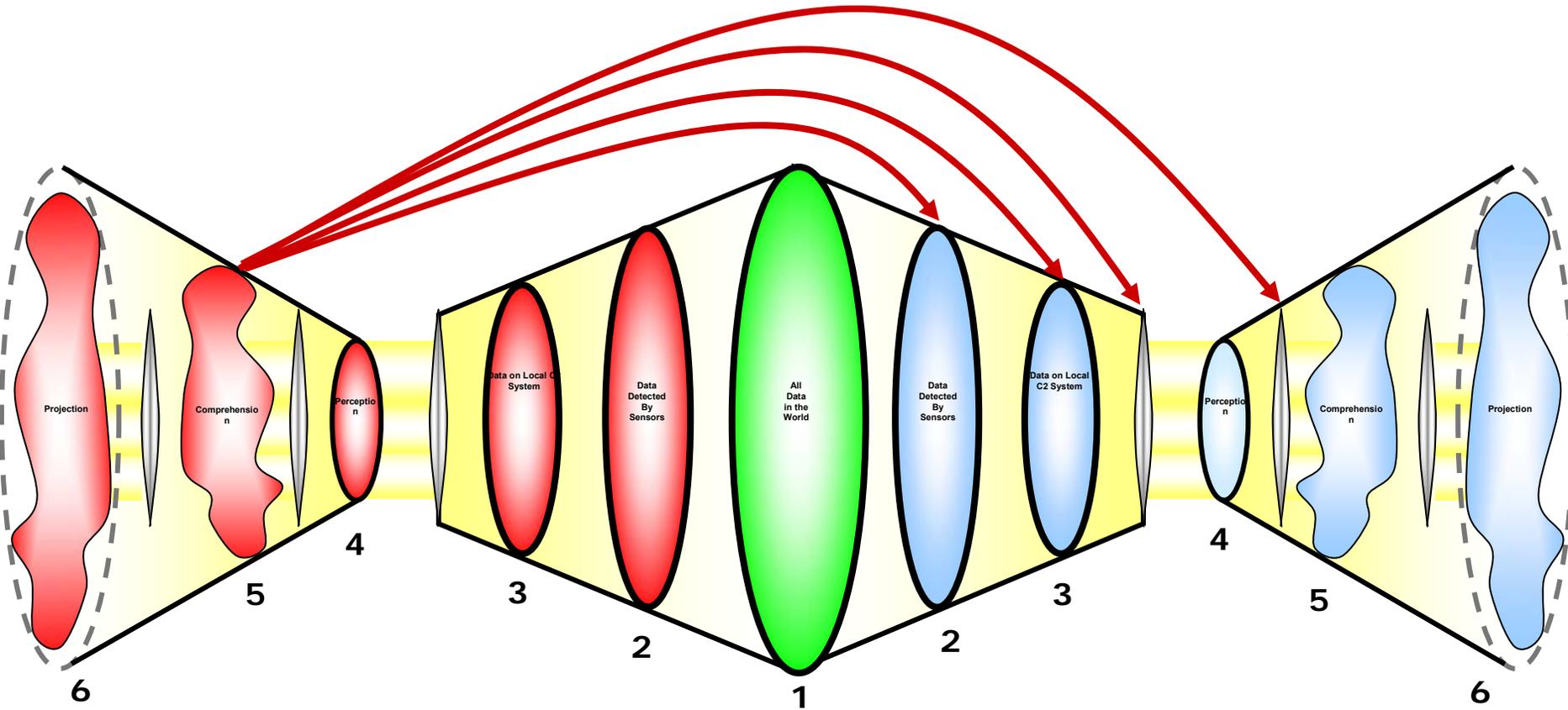


Direct Human Interaction

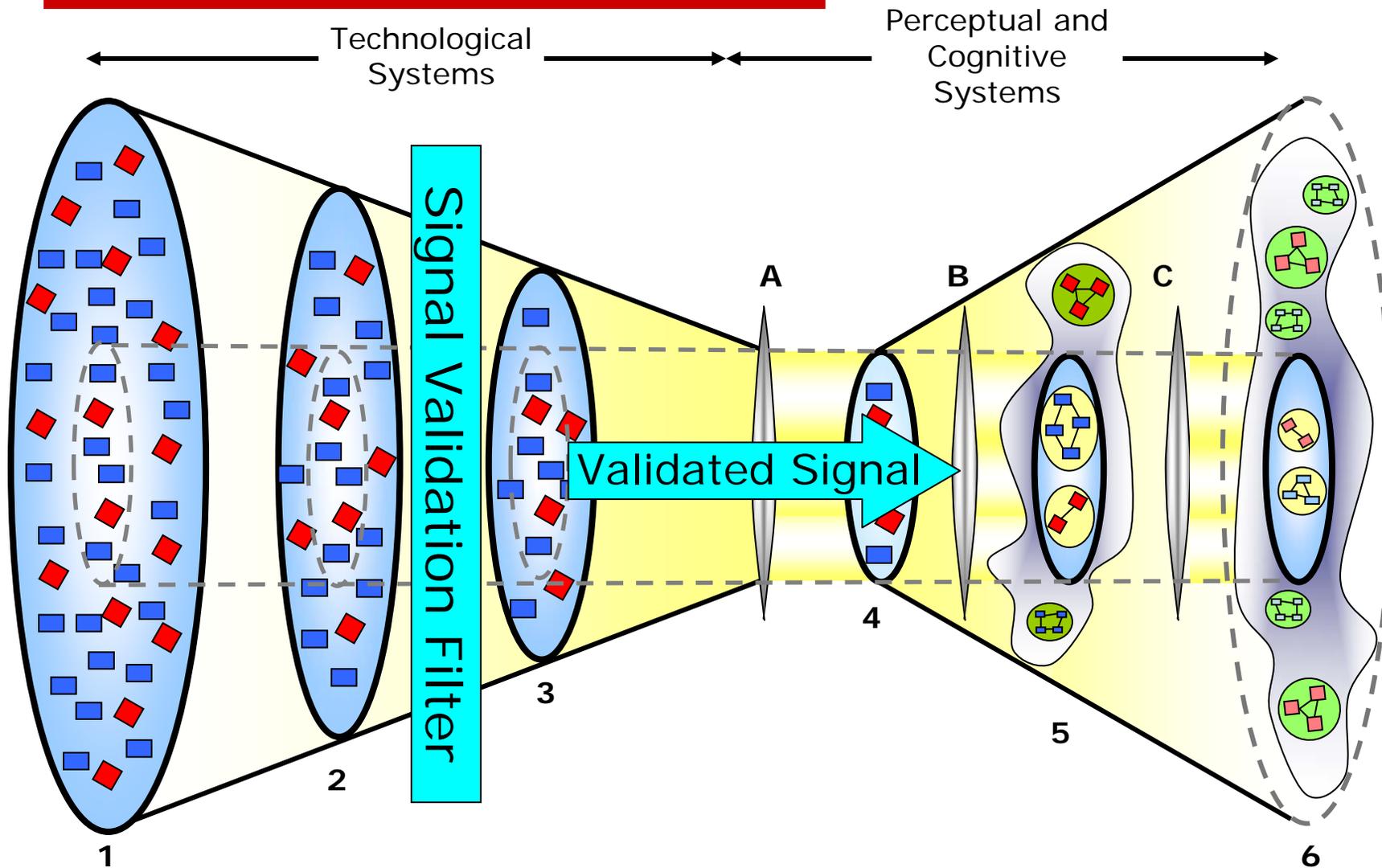


© Miller, Miller, and Shattuck, 2007

Red Force on Offense

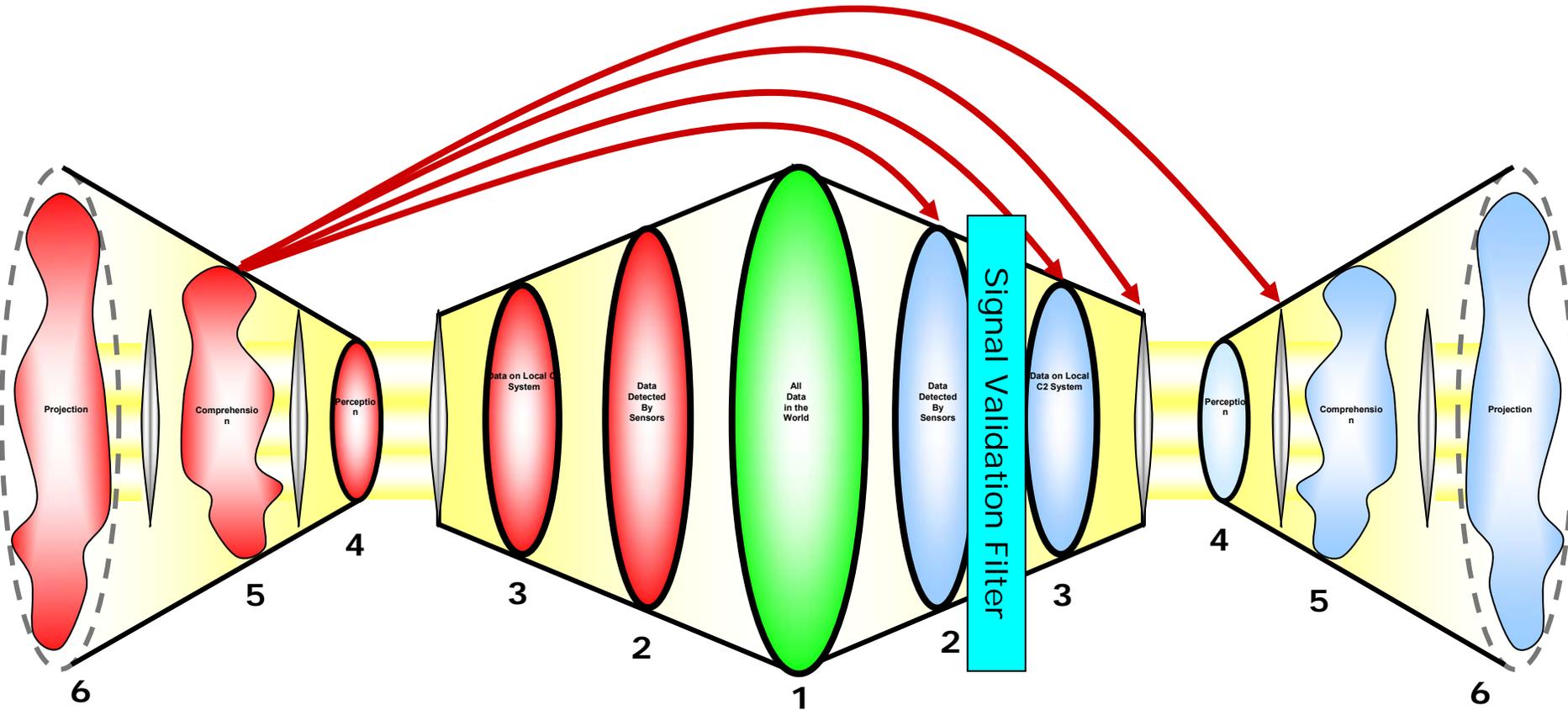


Signal Validation & C2 Warfare

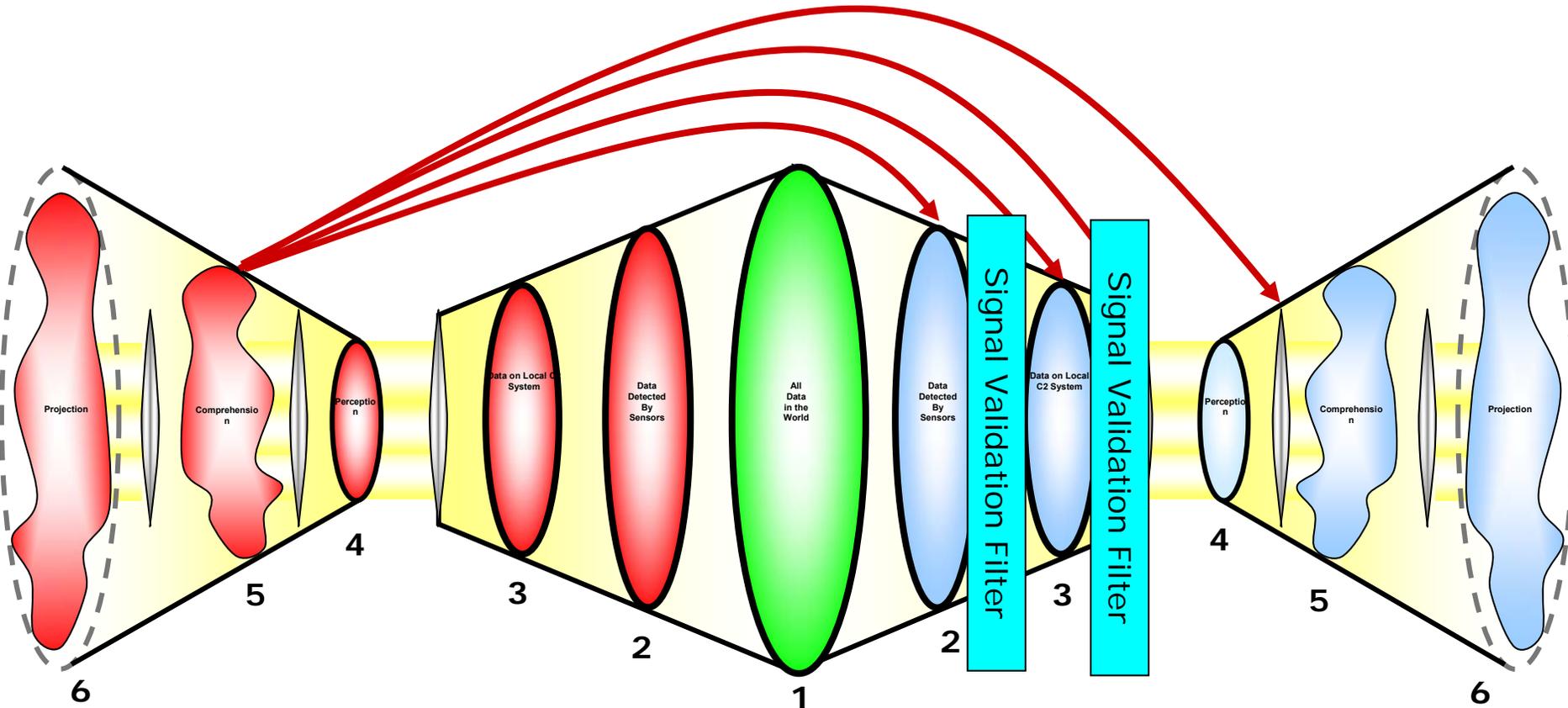


© Miller and Shattuck, 2003

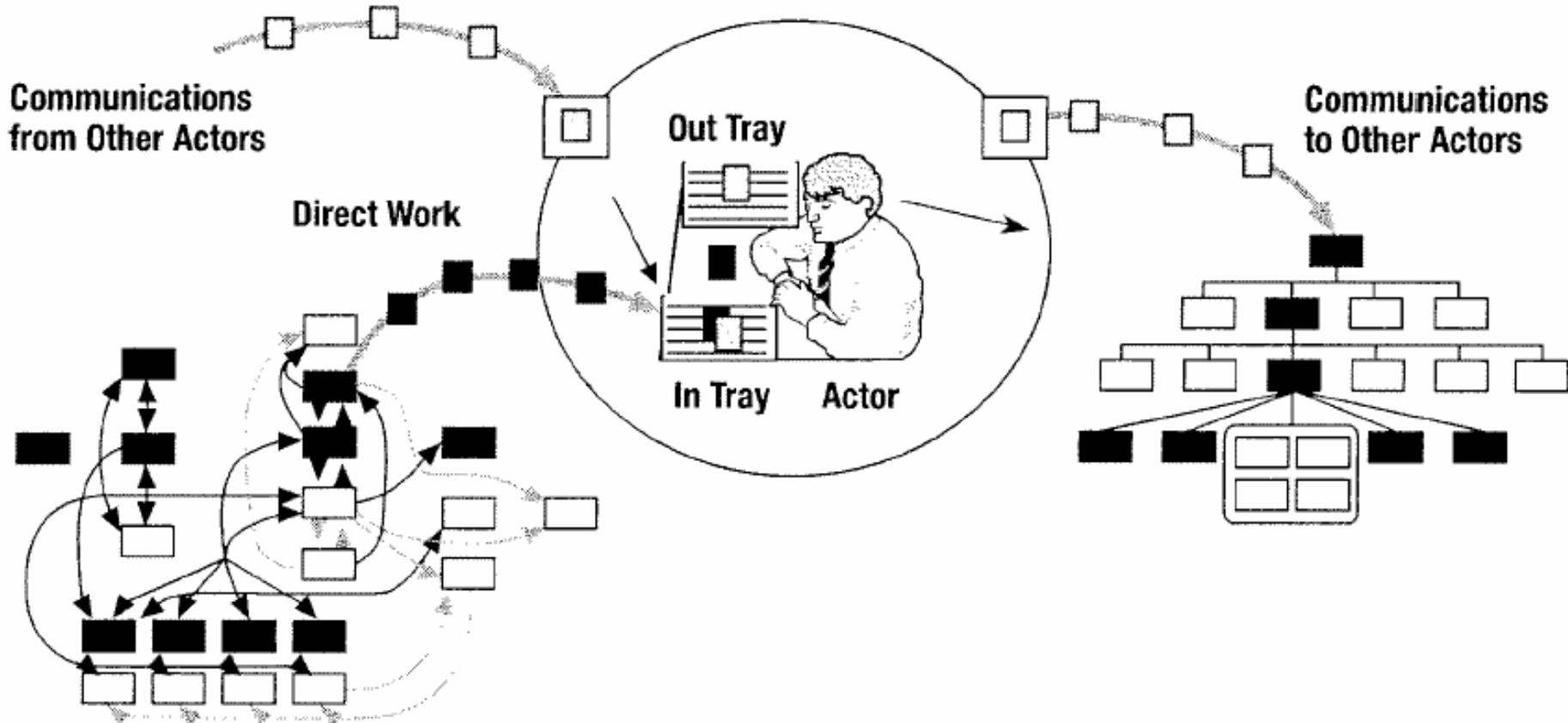
Red Force on Offense & Signal Val.



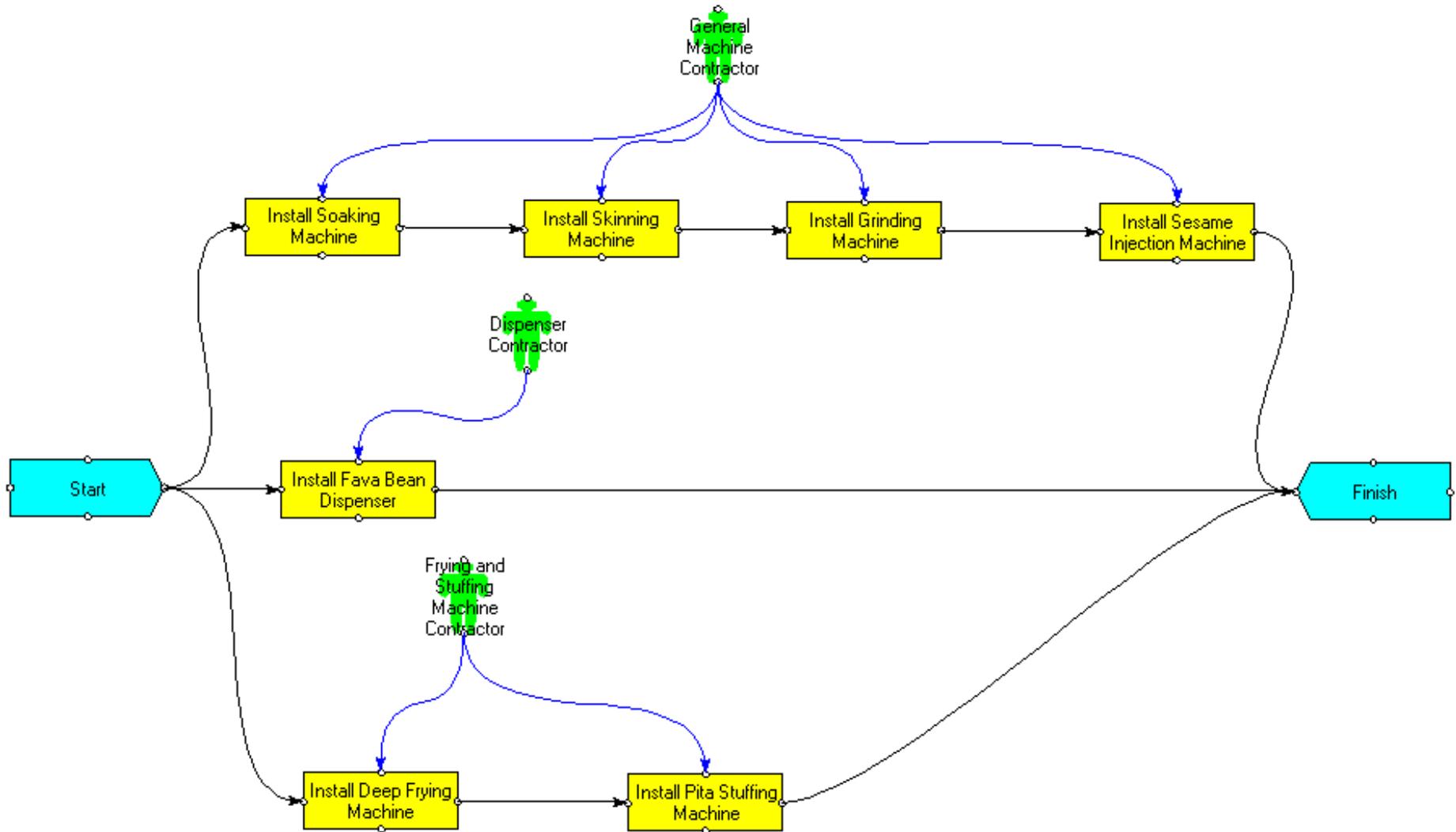
Red Force on Offense & Signal Val.



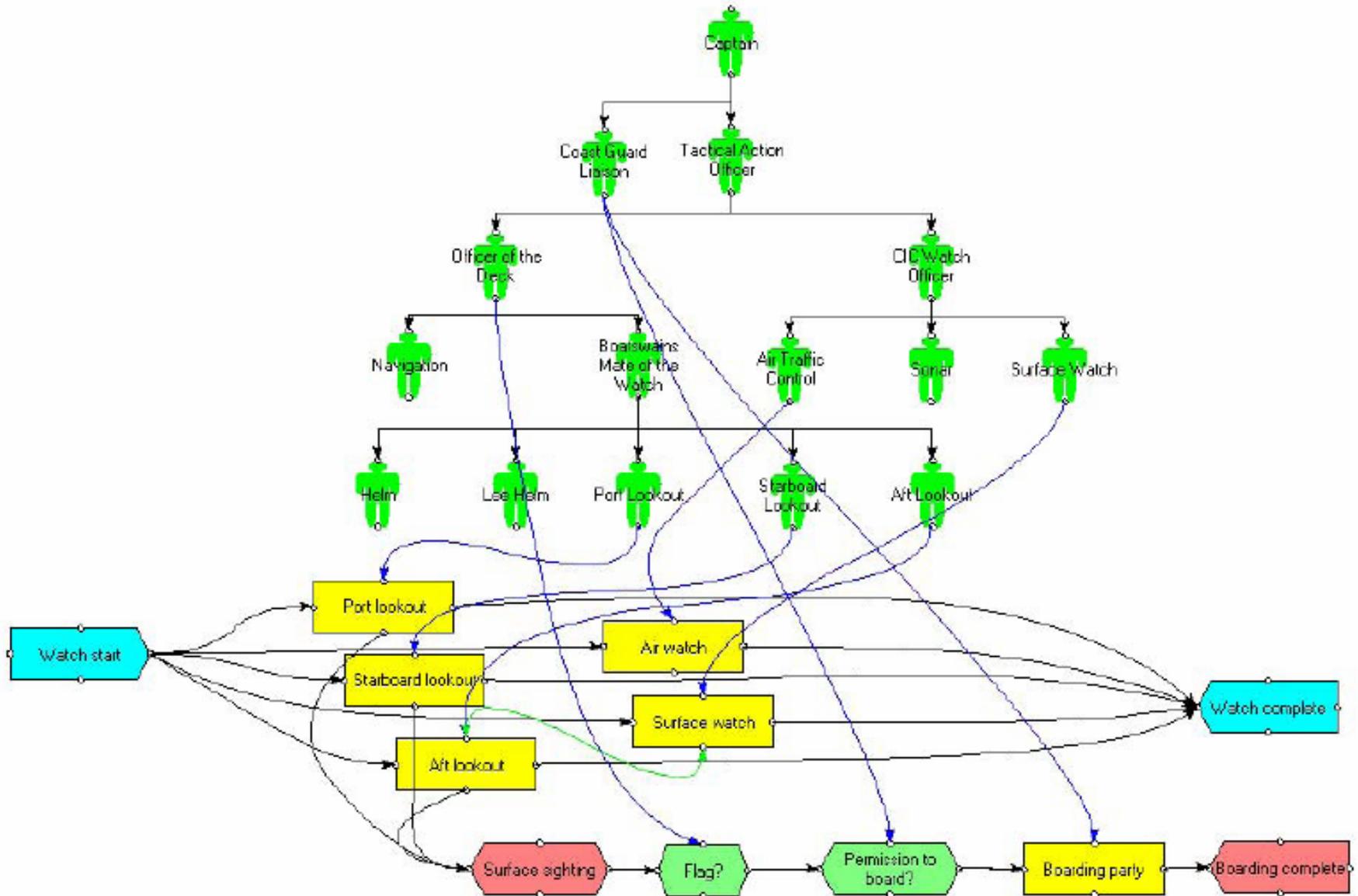
VDT Modeling Environment



Project, Organization and Work for Edge Research (POW-ER)



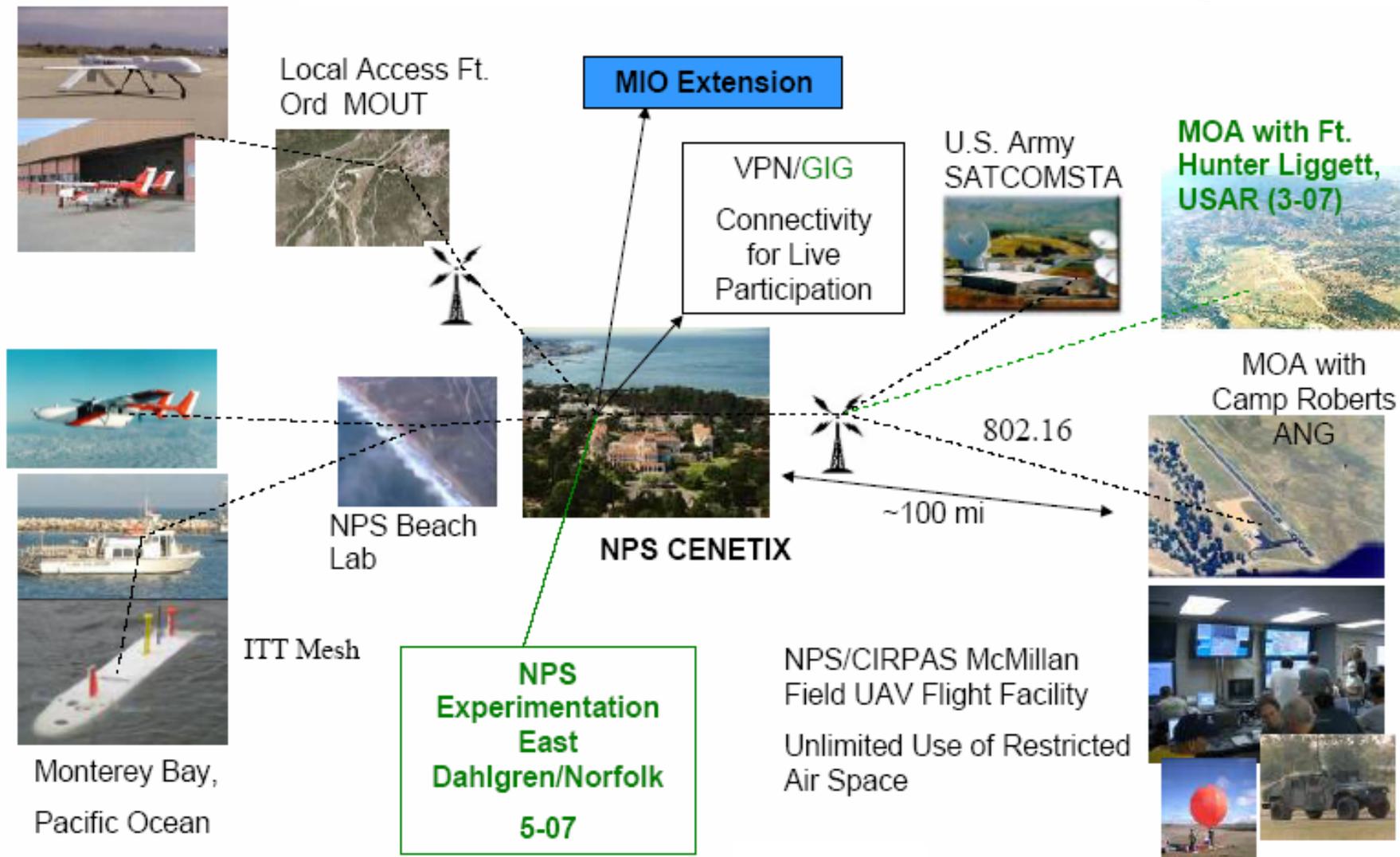
Project, Organization and Work for Edge Research (POW-ER)



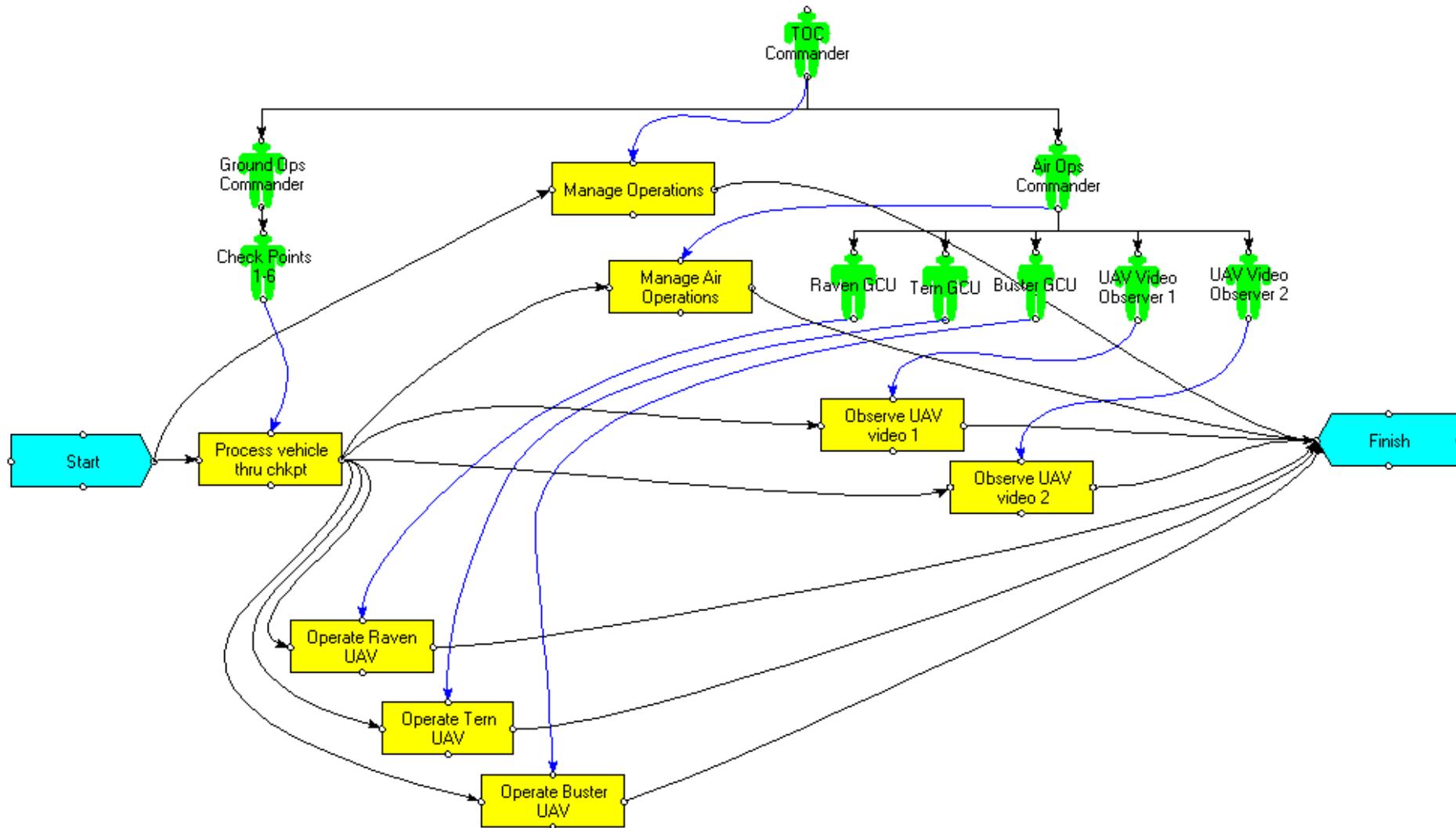
Tactical Network Topology Field Studies

NPS CIRPAS UAVs and Manned Aircraft

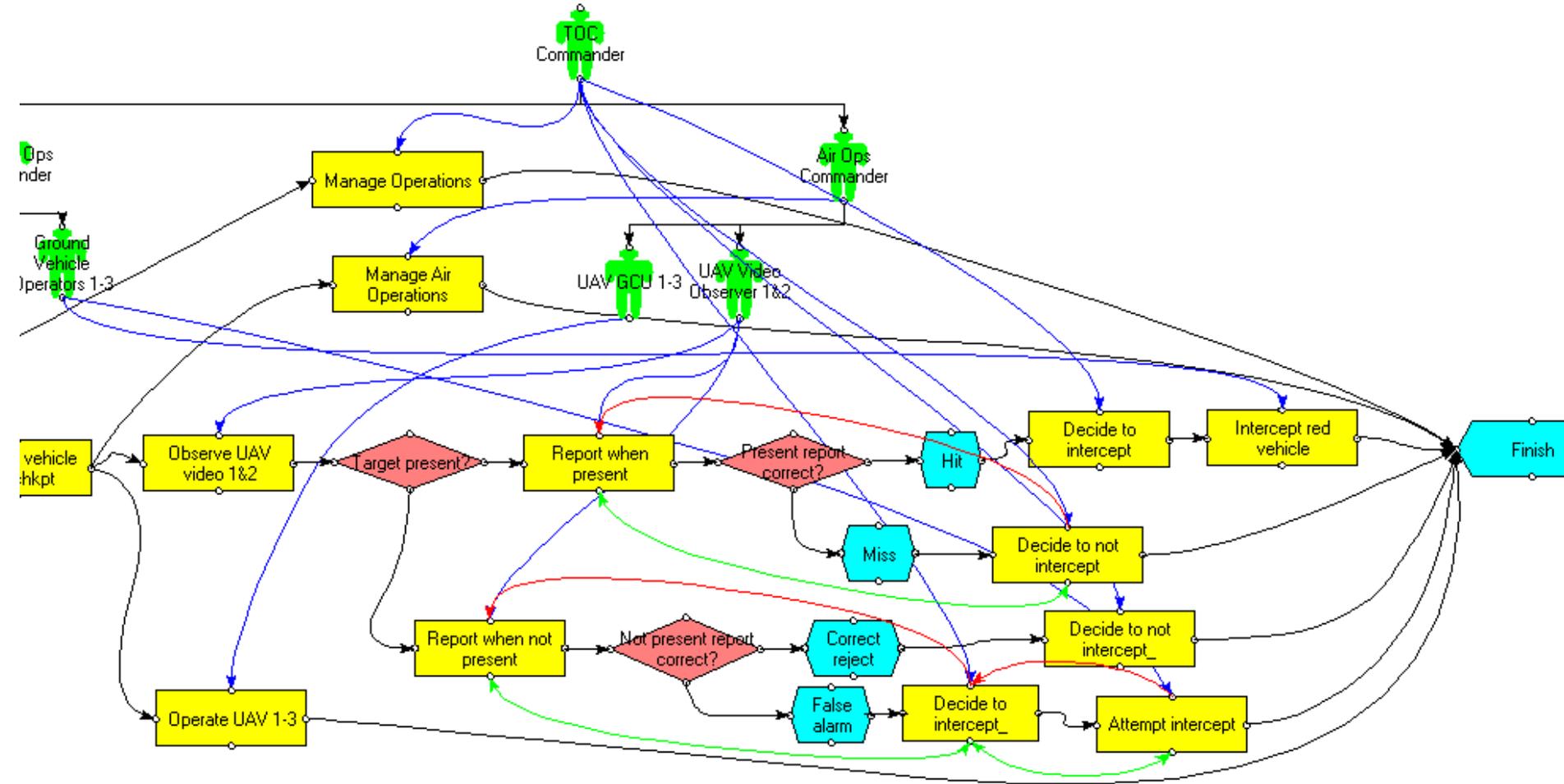
Sensor-UV-Decision Maker Networking Testbed



TNT 07-1 Baseline model in POW-ER



Branches Added



Only the beginning

Sensor validation filters

Computational modeling of organizations for C2

Human cognition & DMSC

POWER results



DMSC ovals



Signal validation changes