Battlelabs
The EADS approach

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Battlelabs in the world

- **From US…**
  - Capability Based Planning
  - Simulation Based Acquisition
- **…, UK & NiteWorks…**
- **…, to Continental Europe countries (and NATO)**

- **Federations in synthetic environments of simulations, hardware, software and man in the loop**

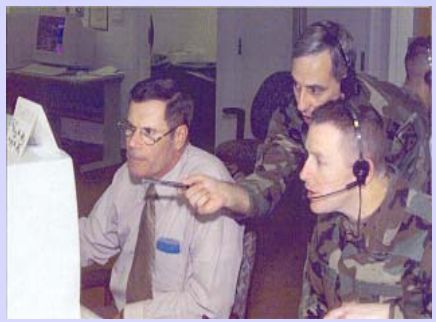
- **All major defence players have built battlelabs**
  - NG CWIN, Boeing BIC / SOSIL, BAe BMEC, Thales BTC/TIC, DCN Solaris, EADS SDC/NetCOS…

- **MoDs, inc. Doctrine and Transformation centers and Planners / Program managers want to use battlelabs**
  - UK DXC, FR CICDE, FR SAIS LTO, GE ZTBw Common Umbrella & Co, NATO ACT, EDA LoI NEC, Singapore SCME, Middle East,…

Overall Context in EADS:

- **Support internal & external customers in Transformation and Network Centric System-of-Systems implementation throughout life cycle**
  - National Doctrine Centers, NATO/ACT, EDA, JFCOM
  - EADS BUs Programs
- **Based on a strong methodology, architecture, modelling, simulation & experimentation framework**

Military or civil Authority experts



Operational concepts Design and evaluation

Programs

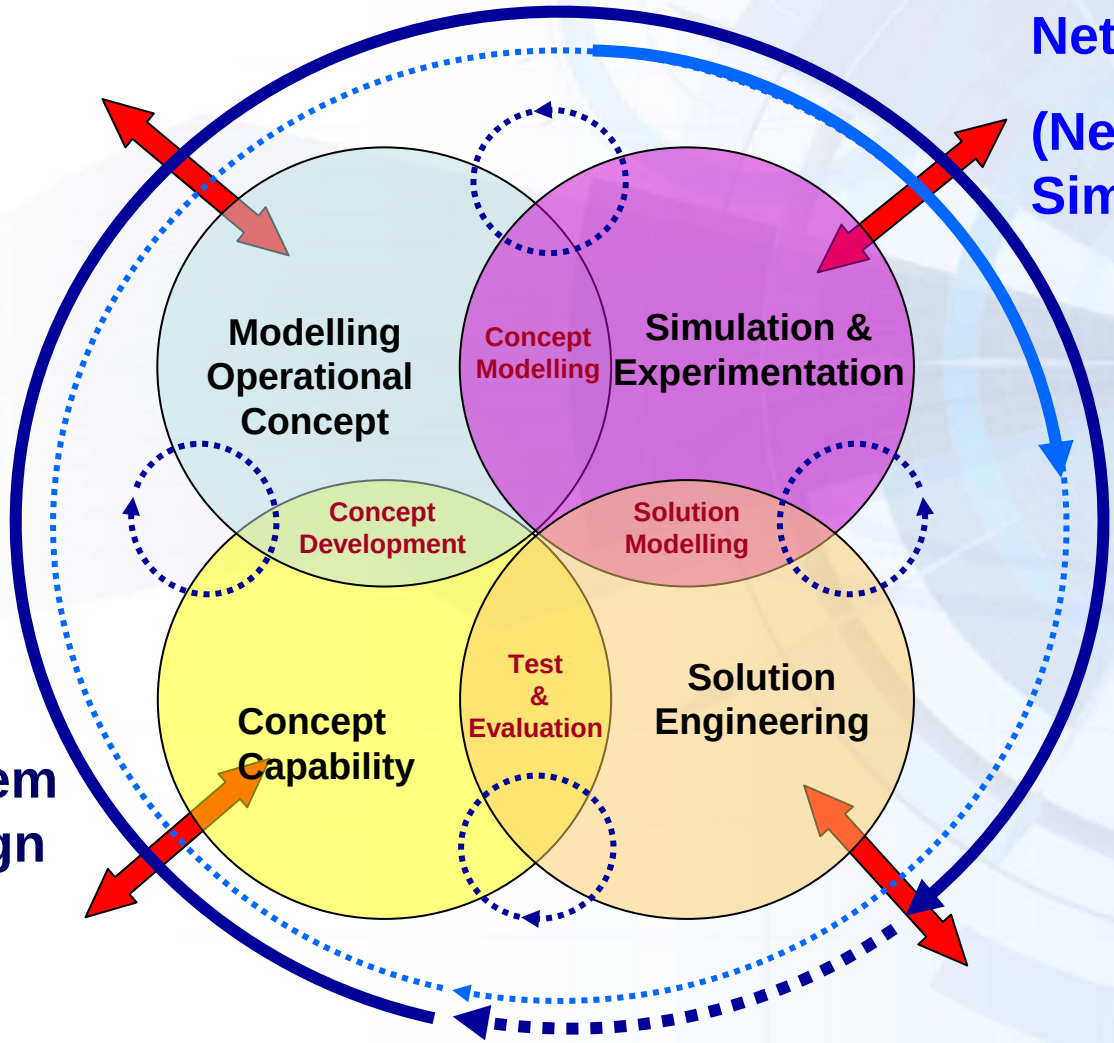
System-of System Design, Evaluation and Integration

End users

Training, Exercices, Operational Evaluation

Life cycle

The Closed-Loop Transformation Cycle



NetCOS

(Network Centric Operations Simulation)

System Design

Proposal & Product Teams

Customer Interaction

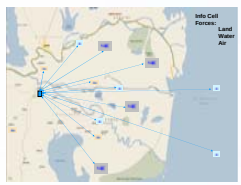
Spiral Development

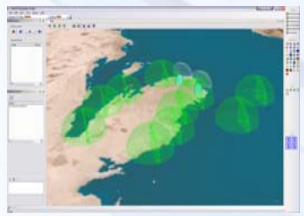
Concept Development Path

Idea → **Rough Concept** → **Detailed Concept** → **Result**

Experiment → **Experiment** → **Experiment**

Discovery	Confirmatory	Refinement	Demonstration
Quick Look Sim. Expert Workshop Analytical Study	Detailed Sim. Wargame Lab Experiment	Virtual Sim. Command Post Experiment	Live Field Experiment





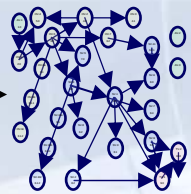
Prototype Path

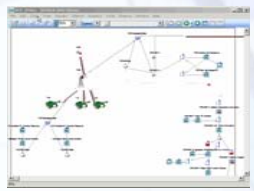
gradually grow subsystem capabilities (inserting new technologies, ...)

Experience on Border Security

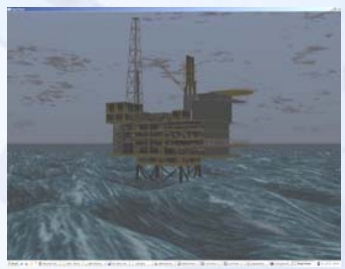
METHODOLOGY STEPS ***TOOLS***

Operational concept definition → ***Requirements For coastal & Border surv.)***

Process modeling →  ***System Architect (Dodaf OV 2 to OV6)***

System Process simulation →  ***Simul 8***

Performance Validation → ***Synthetic environment Real C2 system Man in the loop***



- **Dialogue with the Customer**
- **Operational Effectiveness improvement**
- **Lessons learned / Hybrid Experiment with HW/SW and Man in the loop**
- **Reduction of Engineering Efforts**
- **Design to -y**
- **Mitigation of Technical Risks**
- **Improvement of Quality**

A distributed Network of Experimentation Centers

- Interconnected and play multinational experiments
- Mobile platform
- 20 M€ investment
- US and Spain under analysis

Federating EADS Systems and Simulations

Ballistic Missile Defense	Joint Littoral Warfare	NCO Testbed	Joint ISR	Border Security	UAV TestBed	Urban Operations

SIR ANCS SAMOC FAUST COSMOS FURET ORQUE

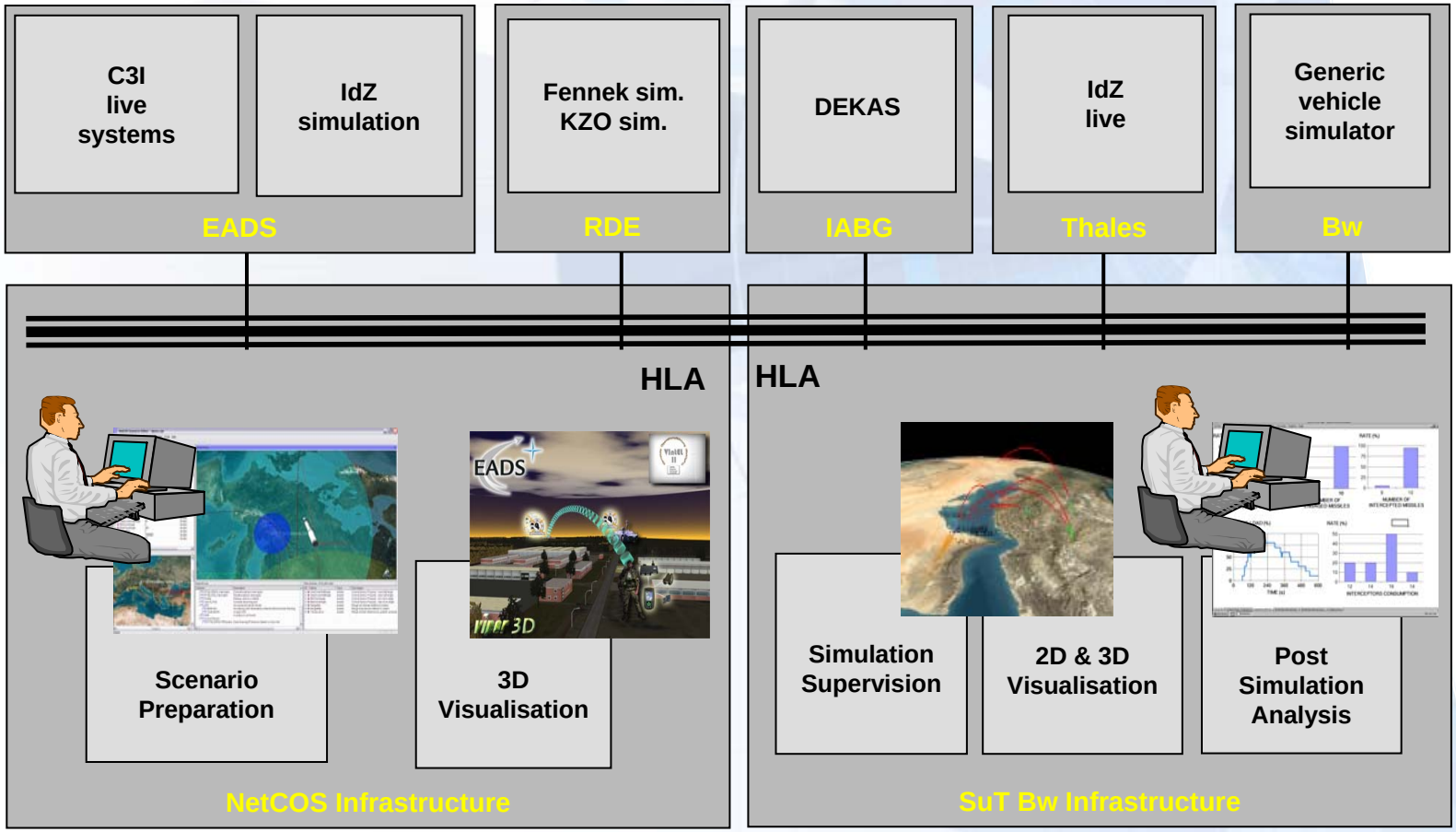
EADS

MBDA MTA MA Eurocopter
DCS ST Astrium

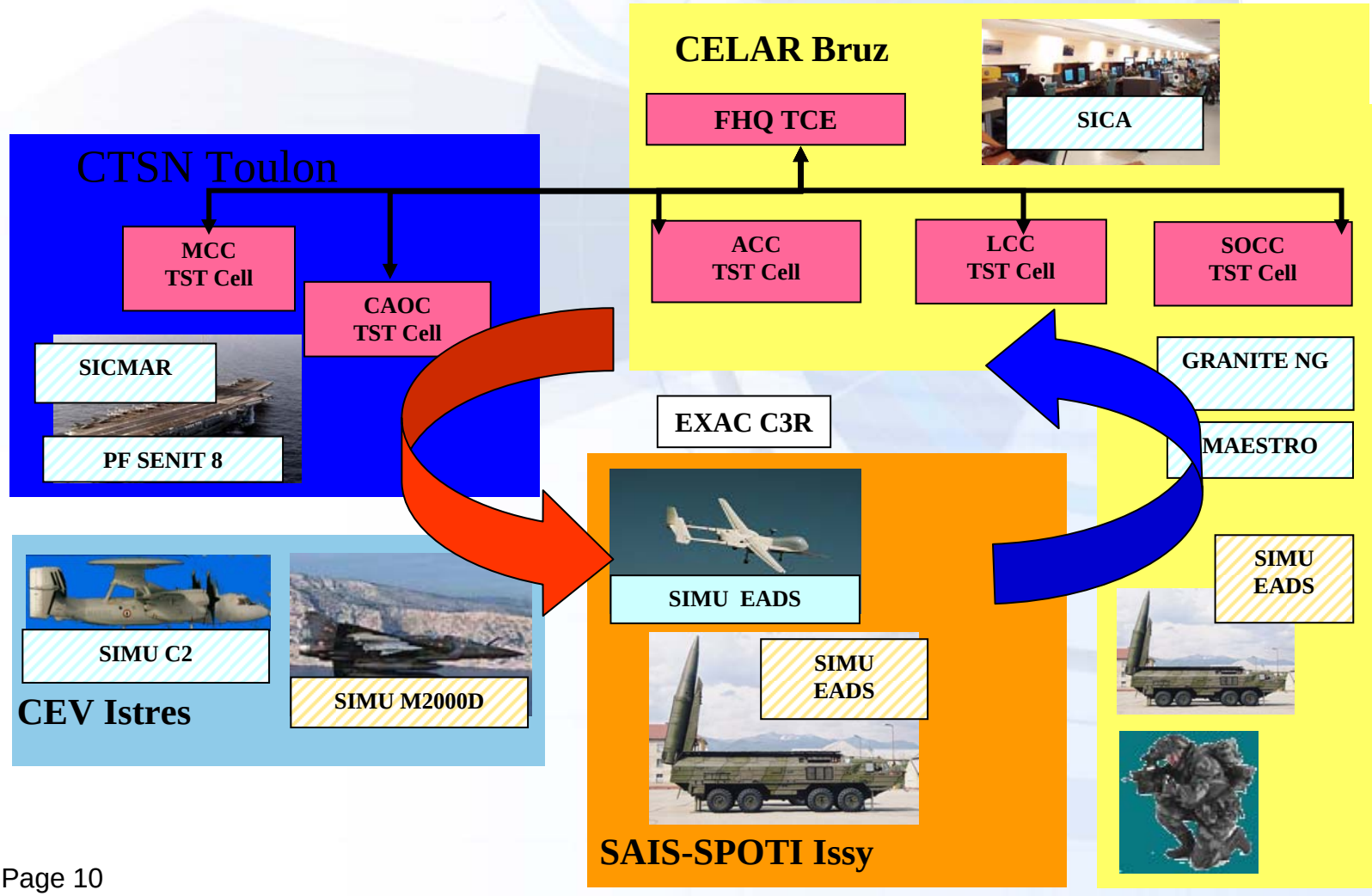
NetCORE

- CGF, Models
- Methods and Tools
- Simulation Infrastructure
- Networks

Linking with Industrial Partners
VinTEL Shared Tactical Situation example



Taking into account customer existing assets
Time Sensitive Targeting Demonstration example



What‘s next ?

- **Networks exists (encrypted internet, EXAC C3R, CBFLNet,…)**
- **Standardization remains critical (NCO IC)**
- **Technology sharing as well, especially US-EU**
- **Contractual schemes to allow better agility still under construction**
- **Intellectual Property frameworks and preserving Open Competition are still a sensitive issue**

French LTO and Industrial Battlelabs

- **Industrial battlelabs more specifically bring a large variety of assets, a multinational experience, technology and innovation, flexibility and velocity**
- **The French LTO brings a neutral environment to facilitate capitalization and sharing, and is the reference and framework for the french MoD**
- **Questions :**
  - How to capitalize industry investments and know-how, how to create better synergies ?
  - What contractual scheme for improving reactivity beyond studies and programs ?