

NetCOS

*The System Design Centre Platform
for Network-Centric Operations Simulation*



Synthetic Environment for the Design, Evaluation, and Demonstration of Network-Centric Operations

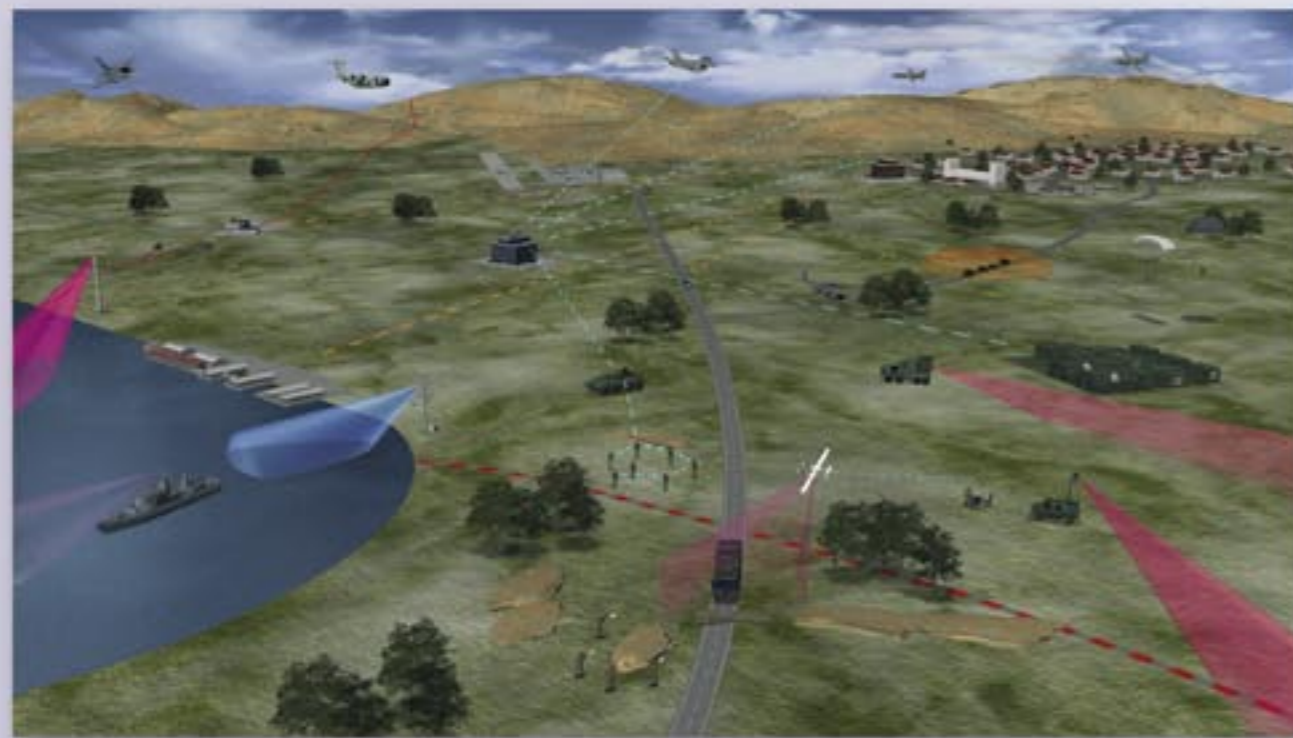
To accomplish its mission, the System Design Centre (SDC) strongly focuses on the key technologies, methodologies and tools that enable efficiency, cross boundaries capitalisation and effective risk mitigation. As such, SDC is responsible of the NetCOS (Network-Centric Operation Simulation environ-

ment), which is the multinational federating simulation environment for EADS network-centric solutions.

The truly innovative quality of this tool lies in its ability to reproduce a realistic virtual battlefield encompassing the entire "sensor-to-shooter" chain, including the

command, control and information networks.

The system thus provides powerful intuitive help to customers in the design of their network-enabled capabilities and large systems through experimentation.



New risks and asymmetric threats have created the need for new capabilities that enable the armed forces to perform their missions successfully in a fundamentally different global security and defence environment. Effectiveness is no longer assessed on the basis of each asset deployed in the battlefield, but rather on the "optimal combined use"

of all resources to deliver the "right response" to the enemy. Superiority in the field of operations therefore relies on having the capability to acquire, process and share relevant information, and an awareness of the situation, at a faster pace than opposing forces. Superiority relies as well on optimising available platforms and forces to produce the very best effect in operations. New

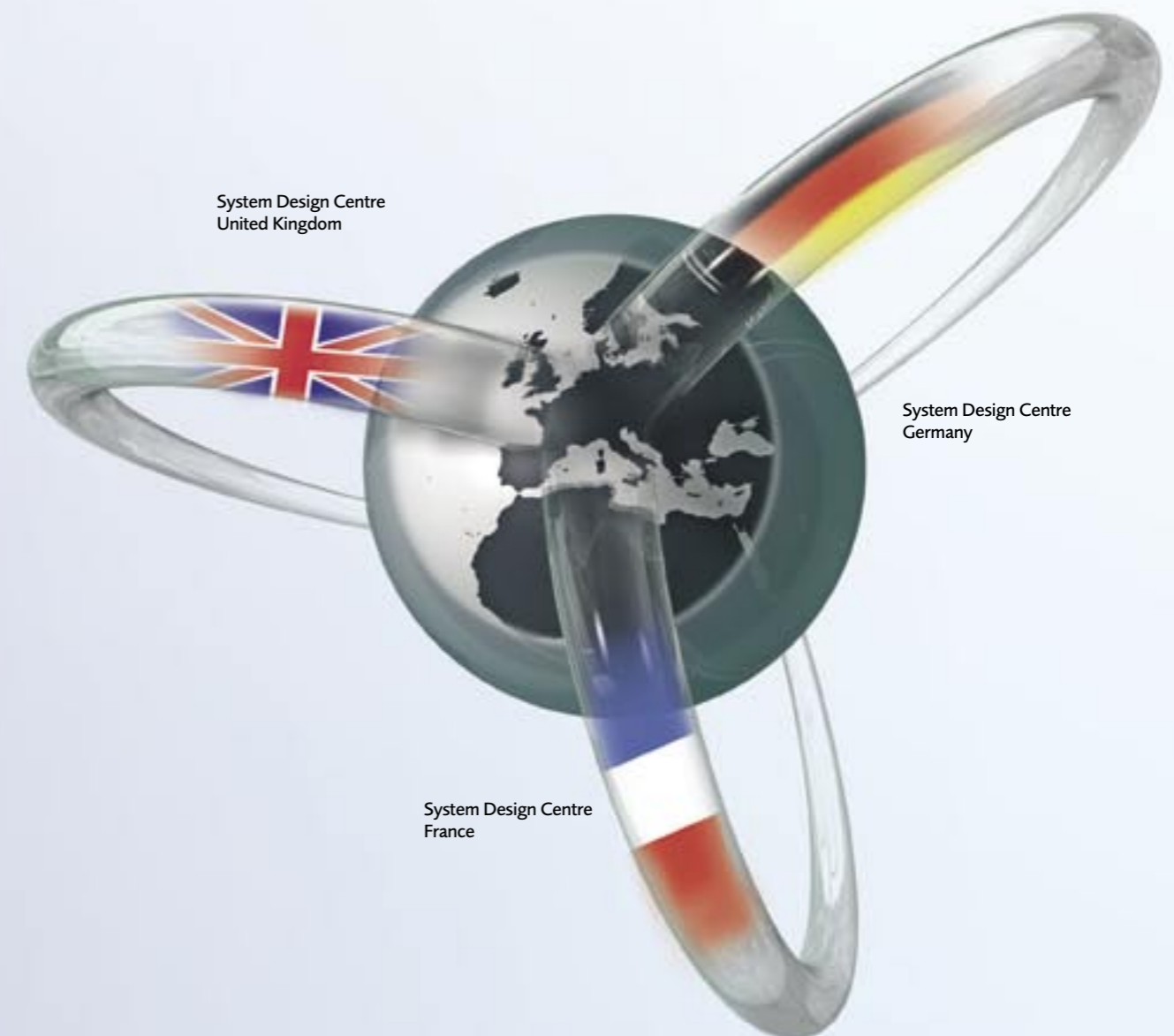
concepts, in what is collectively known as Network-Centric Operations (NCO), and Effect-Based Operations (EBO) are emerging to provide armed forces with this all-decisive "information/decision/effect superiority".

The Power of networked Simulation & Integration Centres

EADS federates its modelling, simulation and experimentation capabilities within the System Design Centre to support customers in designing their network-enabled capabilities and large systems in defence and security.

As the EADS simulation & integration hub, NetCOS links EADS sites to federate and stimulate the most advanced or legacy systems, and the digital models of major platform and system manufacturers. Interactive scenarios are thus generated in order to evaluate the performance and interoperability of existing and future capabilities (UAVs, combat aircraft,

ships, missiles, etc.) in a network-centric architecture. Its open architecture gives NetCOS the ability to interconnect the existing simulation capabilities of customers, industrial partners and in-house entities. In addition, a NetCOS mobile platform is available for on-the-field experiments, computer aided exercises, or use at joint venture or customer facilities.



A multi-purpose Tool

From System-of-Systems Engineering to concrete Experimentations

By simulating and illustrating crisis theatres or combat scenarios, NetCOS helps users and architects

to evaluate candidate architectures and develop the required system performance.



Demonstration

The NetCOS system provides support for military experts, system architects and engineers in a common step-by-step approach, from the design of new concepts and system architectures, to their development, validation and deployment. The use of NetCOS to illustrate a new concept in a synthetic environment strengthens the value of the message through a visualisation of the concept itself.



Concept Design and Engineering

Thanks to its broad-scale use of simulation, NetCOS reduces development cycles, programme costs and risks, while confirming the fitness for purpose and performance of the systems involved.



Experimentation

In order to prove system-of-systems solutions, NetCOS allows complex scenarios to be evaluated using realistic simulations, connecting real systems, hardware and man-in-the-loop. "After-Action Analysis" tools provide the required information to evaluate, validate and qualify the system architectures providing significant risk reduction for LSI programmes.

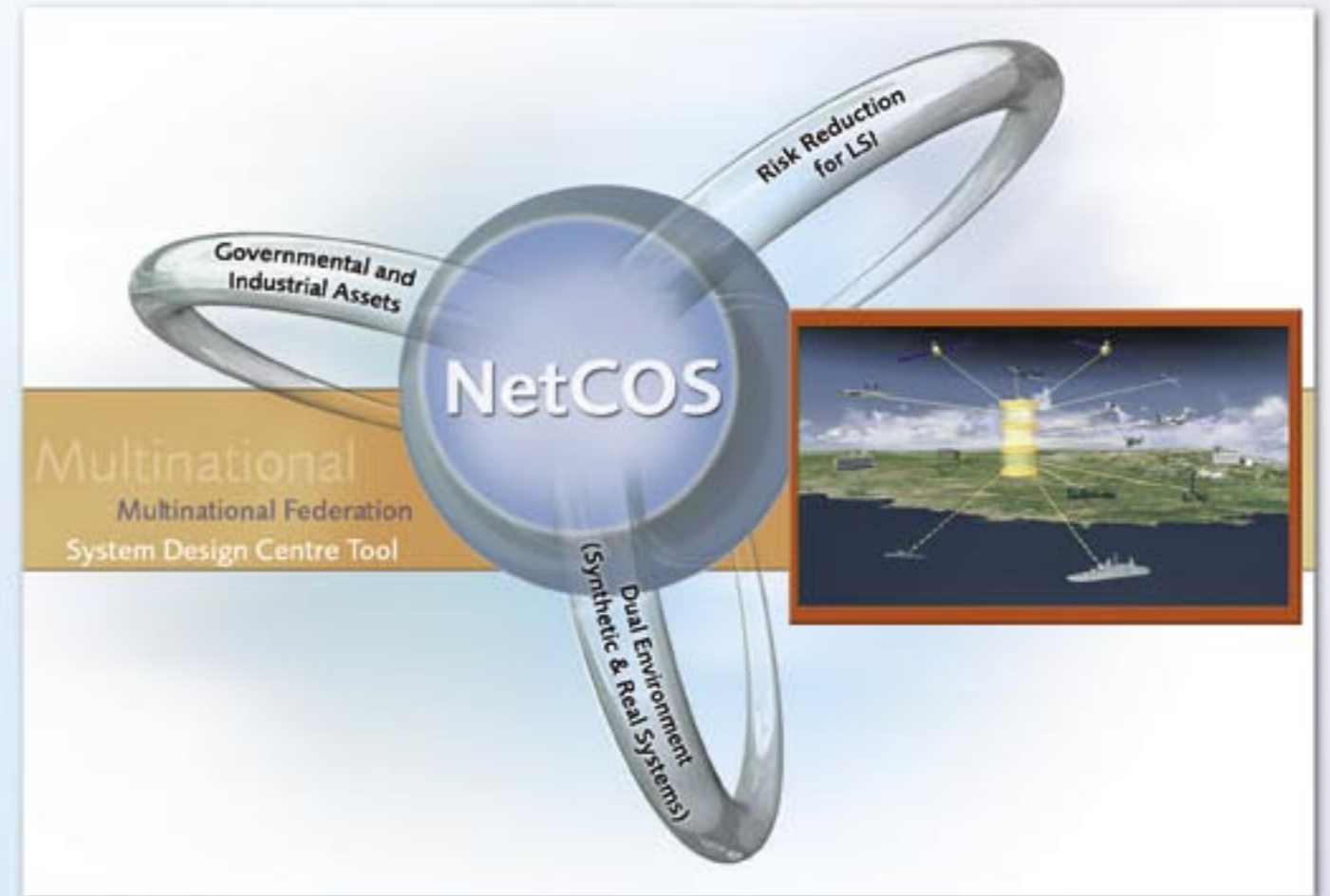


Training

NetCOS also provides decision aids and training for modern command systems. Thanks to its virtual environment capabilities, officers or commanders are able to monitor the run-through of operational scenarios.

In order to address specific LSI (Large System Integration) programmes, NetCOS provides the

infrastructure, methodology and tools for industrial partners.



The engineering of system-of-systems

- Integration of governmental and industrial assets, both EADS and non-EADS
- Risk reduction, flexibility and efficiency for LSI system engineering
- Experimentation in a dual environment, i.e. with synthetic and real systems and models

Defence

- Surveillance / Intelligence
- Joint Operations
- Logistic Operations

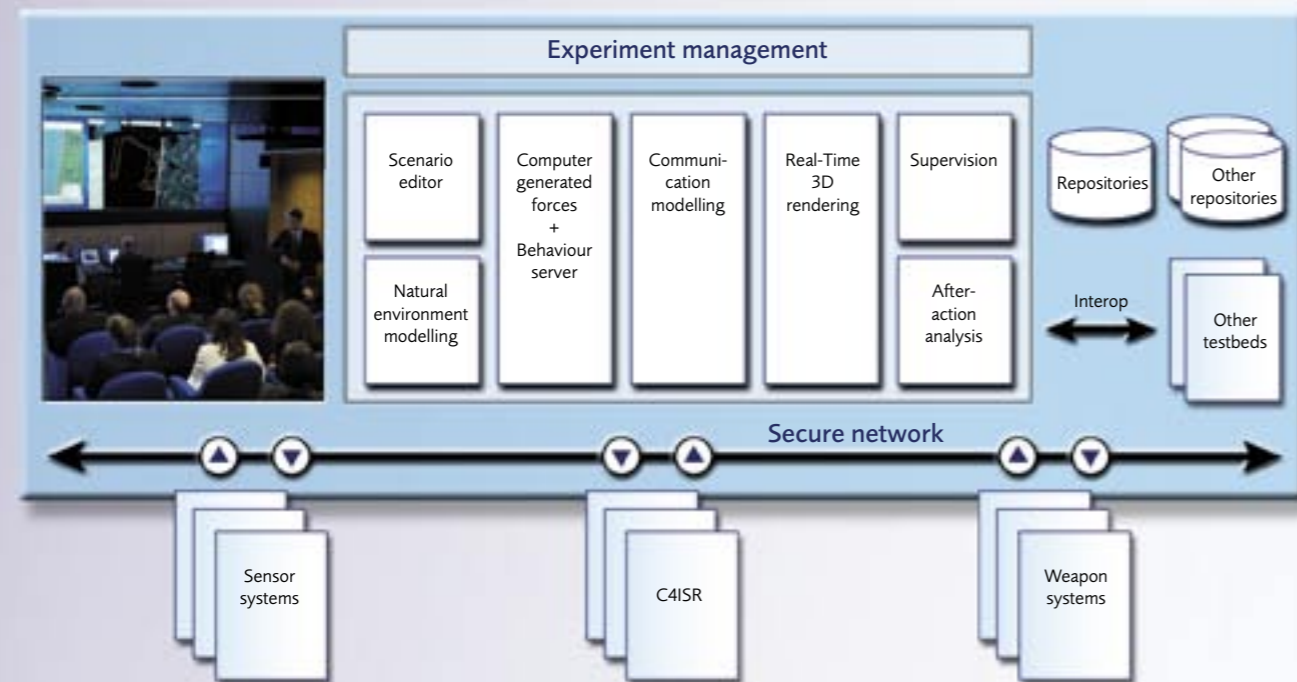
Global Security

- Intelligence
- Border Surveillance
- Security Management

An open Architecture scaleable to changing Requirements

NetCOS CORE

- A latest state-of-the-art technology environment for simulation
- An inventive environment for large federation of simulations
- A complete set of technology for connection of real systems and simulations validating their interoperability



NetCOS CORE is a consistent framework including a toolbox offering modular COTS based components that can be individually selected for each specific scenario.

NetCOS CORE components:

- Simulation assets (models and simulation tools)
- Simulation Runtime Bus
- Infrastructure (supervision and collaborate tools, experimentation rooms)
- Platform and networks (secured for distributed experimentation)

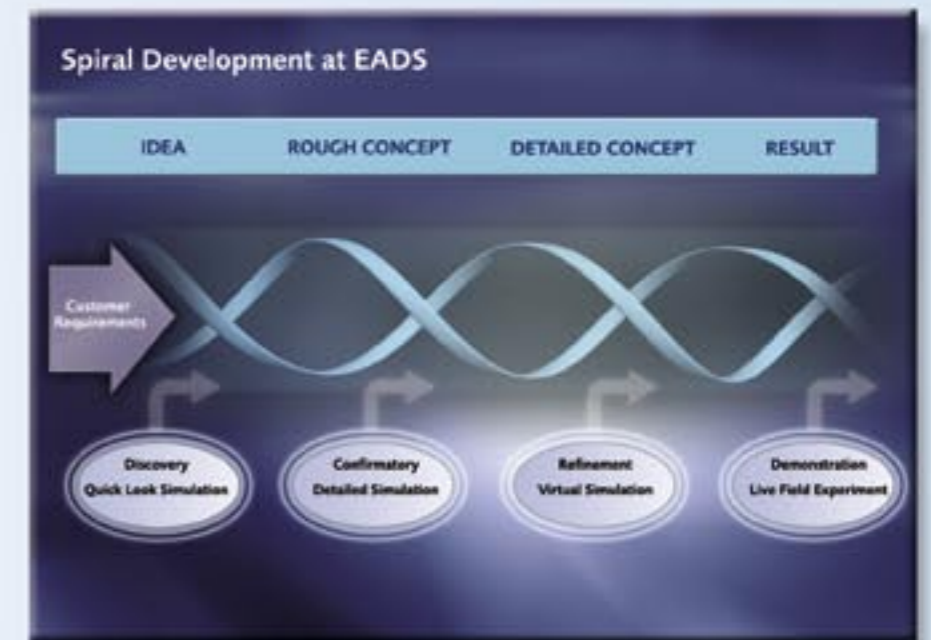
The Simulation Software Factory (S2F) allows:

- Re-usability of components from one experiment to others
- Federation of heterogeneous components
- Delivery of a scenario to the different federated components
- Definition of metrics and parameters for after-action analysis

The Strength of Methodology

NetCOS accompanies every phase of the development life cycle for new concepts and capabilities.

The experiment process is part of a complete CD&E and simulation process. NetCOS has implemented a methodology based on the specifications of the Department of Defense Architecture Framework (DoDAF), the NATO Architecture Framework (NAF), The Open Group Architecture Framework (TOGAF), the Ministry of Defence Architecture Framework (MODAF) and SEDEP (Synthetic Environment Development and Exploitation Process), that guarantees structured and efficient studies and experimentations throughout the whole development cycle. This process facilitates the development of best working practice whilst following a structured approach. Programmes can be de-risked, concept of operations developed, assets rationalised and financial savings realised, thereby enabling projects to be successfully delivered on time and to cost.

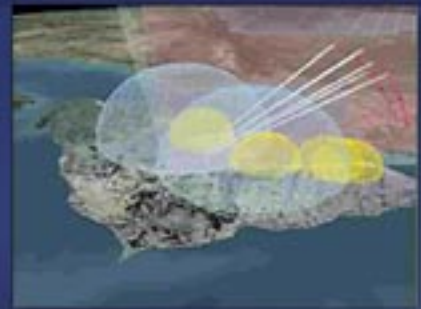




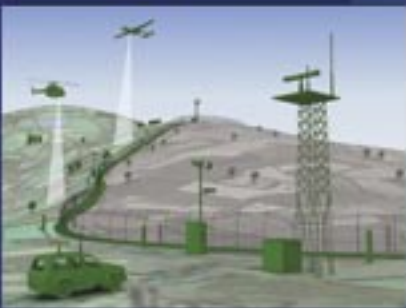
UAV Conops



Multi UAV Simulation Testbed (MUST)



Air Defence & Ballistic Missile Defence



Homeland Security



Urban Operations



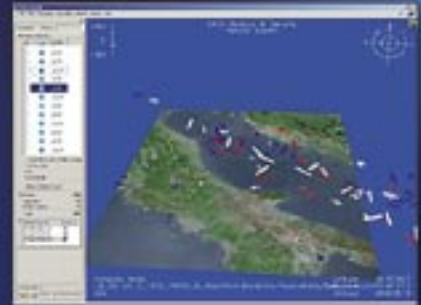
Robotic Studies



Joint ISR



TST Cell



Joint Littoral Warfare

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