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Thales at Eurosatory 2004

14 -18 June 2004
Paris-Nord Villepinte, France,
Stand V5

Future land operations
at Eurosatory 2004

*At its pavilion, Thales will be showing a film entitled **Thales at the heart of future land combat** to illustrate its capabilities as prime contractor for network-centric systems for land forces.*
The film highlights the Group's extensive know-how in short-range and long-range combat and the information chain, based on intelligence, command and communication systems.
Based on its broad understanding of the land and joint operations, Thales offers equipment and systems that enable land forces to gain greater situational awareness, decide and act more quickly and more effectively, and minimise human casualties during joint and allied operations.

For more information, contact our Press Service at Eurosatory
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Changing operational needs

A new worldwide political landscape, new types of threats and the increasing availability of new technologies are leading to a far-reaching "transformation" of the military environment.

In this radically new environment, information technology is a force multiplier, enhancing combat effectiveness by:
- enabling networked combat platforms to cooperate in a system of systems to generate coordinated military effect
- **speeding up the operational tempo** by shortening the OODA loop (observe, orient, decide, act)
- providing accurate, reliable, timely information to engage targets earlier and at greater ranges with a combination of line-of-sight and beyond-line-of-sight fire.

Thales is ready to take up today's challenge by breaking with the traditional platform-centric approach to defence systems and proposing **fully integrated systems of sensors and effectors that detect and provide coordinated target engagement (hard-kill/soft-kill) to accomplish the mission in hand.**

Thales: a major player at the heart of future land operations

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To help armed forces achieve this transformation, Thales has proven capabilities in system prime contracting for land and joint forces, drawing on its expertise in such key areas and technologies as sensors, manned and automatic weapon systems, telecommunications and information systems.

As a land systems integrator, Thales leverages its digital technology expertise to propose fully integrated combat, reconnaissance, target surveillance and acquisition, command, intelligence and air defence systems.

Thales' ability to conceive a comprehensive action system associating operational commanders and soldiers, combat vehicles, weapons, sensors and unmanned systems enhances land forces' combat effectiveness.

Sharing validated information in appropriate forms increases cooperative efficiency to support timely decision-making. Combat actions therefore involve applying sufficiently decisive, precise effects through controlled use of force to limit the risks taken by troops by neutralising threats and reducing their exposure to direct fire.

Thales is building on its multi-domestic presence to consolidate its local player status in all its countries where it is operating, and to work in **closer partnership** with its customers. This local presence is part of the Thales value proposition and underpins its ability to support customers throughout the entire process, from initial system design to deployment optimisation in the field.

By integrating all its land systems capabilities, Thales has gained an overall vision of airland theatres and joint forces environments. As a result, the Group is able to offer coherent architectures for large-scale end to end systems of systems in the digitised battlespace.

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Close partnership to support transformation

Transformation of the armed forces is redefining operational requirements. To meet this challenge, Thales has set up a centre of excellence for network-centric systems. Drawing on know-how and experience across the Thales Group, this new centre provides unparalleled expertise in operational analysis, system architectures and new operational concepts. It is key to the Group's response to the growing demand for network-centric capabilities and C4ISR solutions (Command, Control, Communications, Computing, Intelligence, Surveillance, Reconnaissance) with enhanced system interoperability.

Close cooperation between system designers, operational users and industry is needed to ensure a smooth transition from legacy systems to future network-centric systems. The different partners are drawing on a broad range of skills and services to evaluate the incremental introduction of network-enabled capabilities (NEC) in an approach based on joint experimentation. Thales offers dedicated "battlelabs" designed to simulate new technical and operational scenarios. These enable operational users to assess the technical capabilities of the solutions proposed and to develop new concepts of operations (CONOPS) to establish links between legacy systems and future systems.

Integration centres combine system demonstration, testing and integration capabilities, making it possible to merge numerous technologies and study future system-of-system architectures. Thales implements these centres in close partnership with its customers to provide simulated operational environments. Operational users and industry partners also benefit from new services solutions covering architecture design, systems engineering and operational analysis to help them make the best possible use of new technologies and collaboration procedures. Thales works with its customers to develop solutions that meet their operational needs as closely as possible (allied interoperability, dual technologies, joint operations), enabling collaborative planning and decentralised execution to produce synchronised operational effects.

In turn, command and combat simulators make it possible to integrate new technologies and develop new CONOPS in an incremental approach. The validity of these concepts is demonstrated in the field through operational analysis of combat operations.

Thales proposes an innovative approach and works in close partnership with its customers to support them in the transformation of their operational needs.

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This approach is illustrated at Eurosatory by a demonstration of a network-enabled land force for a simulated mission.

1/ Mission planning: definition of the initial situation

- environment: model of suburban terrain (with simulated weather conditions) and electromagnetic propagation
- threat scenario: type (example: light armoured vehicles and combatants waiting in ambush in the city), size (example: one company with anti-tank weapons), intentions (hold the city)
- allied force structure: type of weapon systems, organisation, networked links.
  Here, the emphasis is on networked capabilities (sensors, communications, information systems, command systems, etc.) rather than individual platforms.

2/ Engagement

The forces' actions are simulated in the previously defined synthetic environment.
The simulator reconstructs all players, their behaviour and the effects of their actions on the ground.

> �) **Presented on the Thales stand**

3/ Analysis

Multi-criteria technical and operational analysis tools (cost, mobility, human factors, etc.) enable analysis of the operational situation after the engagement.
These criteria are used to assess the operational benefits of conducting engagements using a network-enabled force.


Thales is showcasing two key simulation systems:

- In partnership with GIAT Industries, Thales has developed the SIM EC3* simulator. It provides force system architects with the simulation facilities they need to assess candidate architectures by implanting a close combat coherence engine in a fully digitised battlespace.

  *SIM EC3: SIMulateur Engin de Cohérence du Combat de Contact

- Demonstration of a "battlelab" simulation system (laboratory designed to simulate new technical and operational scenarios) in order to:
  - assess the performance of equipment and candidate architectures for future operational network-centric combat systems
  - contribute to the development of innovative solutions based on network-centric warfare (NCW) and network-enabled capabilities (NEC) concepts.

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Towards cooperative airland engagements

Thales presents its vision of airland operations

Underpinning the concept of cooperative fighting systems is the integration of all deployed platforms (infantry soldiers, armoured vehicles, unmanned ground vehicles, ground sensors, UAVs, etc.) into the digitised battlespace. The future cooperative fighting system concept is based on networked information gathering, processing and distribution, and is one example of a new generation of network-centric combat systems for the airland theatre.
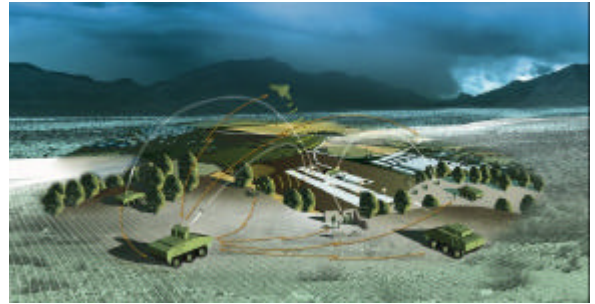
Possibly the most vivid illustration of the operational benefits of this approach is the beyond-line-of-sight (BLOS) fire capability: combat platforms rely on a grid of advanced sensors and effectors to engage the adversary without breaking cover.

Each platform in the wider combat system contributes to the cooperative engagement in real time, which makes it possible to pool target acquisition functions and assign targets to weapon systems more effectively. Networking all the weapon systems involved in achieving airland dominance creates a single, unified system of systems offering synchronised cooperative engagement capabilities.

In combat systems, Thales proposes a modular design-to-cost offering from stand-alone platforms to complete multi-platform combat systems, with:
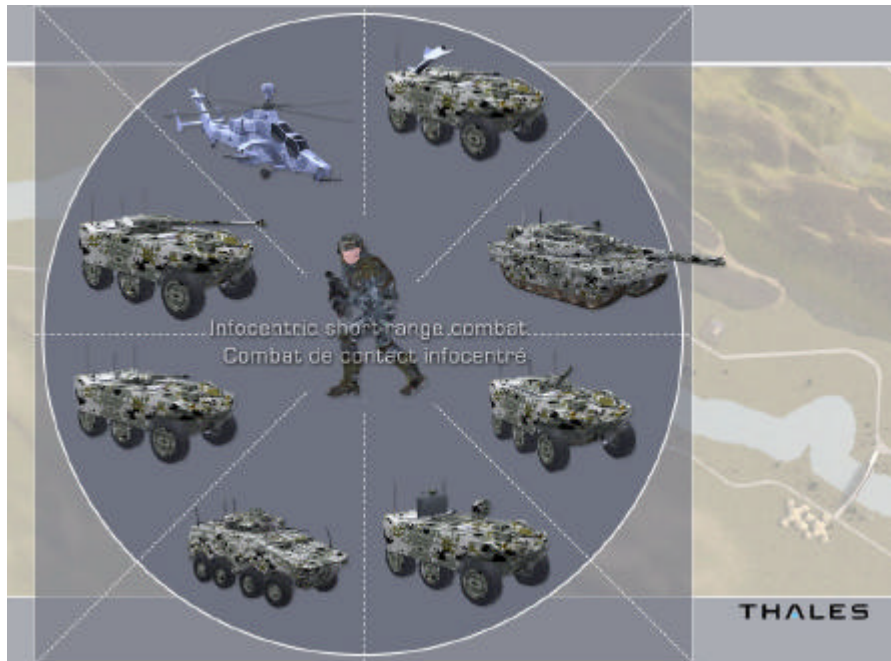- **line-of-sight (LOS) and beyond-line-of-sight (BLOS) detection capabilities**
- **information dominance through data dissemination to all platforms**
- **reduced system mass and volume, and enhanced combatant survivability**

Thales: prime contractor for network-centric short-range combat systems

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To demonstrate its capabilities as prime contractor for network-centric short-range combat systems and solutions, Thales is showcasing three future generic platforms, each dedicated to a specific mission: reconnaissance, command and combat. Demonstration scenarios underline how networking these platforms enhances overall operational effectiveness. For any type of operation, within joint and allied engagements, in real time and on the move, armed forces can:

- detect, understand and anticipate by exploiting data from multiple LOS and BLOS sensors
- decide and act with greater precision
- increase combatant survivability.

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Future generic platforms presented at the Thales pavilion

Demonstrating these future platforms illustrates Thales' incremental approach based on the development of existing systems to achieve future capabilities. At its pavilion, Thales is presenting various concrete examples of combat and reconnaissance systems.

Combat systems

At Eurosatory 2004, Thales is presenting integrated combat systems covering dismounted combat, mounted combat (vehicle-mounted mortar system) and area protection systems for projected forces.

The Group is a major player in the development of vetronics suites, which offer observation, identification, fire control, threat detection and platform-protection functions. These are designed for full compatibility within network-enabled environments.

👁 **Presented on the Thales stand**

- Two Norwegian soldiers equipped with an integrated communication and all-weather sighting system. To illustrate the modular structure of its offering, Thales is presenting combatant and peacekeeping versions of the system.
- Demonstrations of the 2R2M towed rifled mortar mounted on a VAB 6x6, are planned each day. Equipped with an advanced fire control system and inertial navigation unit, the 2R2M offers high mobility and short deployment times.
- Produced by Thales, the Bushmaster multi-mission vehicle offers high levels of protection and mobility. Bushmaster is presented at the ADI stand (Australian pavilion).

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Tactical reconnaissance systems

From independent reconnaissance vehicles towards networked reconnaissance units

Thales proposes tactical reconnaissance systems and solutions adapted to light, medium and armoured vehicles. These systems integrate different types of sensors (radar, optronic, electronic warfare, acoustic, seismic, nuclear/bacteriological/chemical, etc.) and offer the full range of information processing and distribution functions to form a deployable, modular and highly responsive networked reconnaissance capability.

Thales is presenting a complete range of networked sensors that together contribute to the information superiority needed for mission success. Gathering timely information enables all deployed platforms to share a common operational picture.

👁 **Presented on the Thales stand**

- Multi-source manoeuvres to demonstrate the operational effectiveness of networked sensors.

- A light vehicle equipped with an optronics suite comprising a thermal-imaging camera, daylight camera, laser rangefinder, north indicator and positioning system.

- A Belgian soldier (model) equipped with a suite dedicated to special forces missions and comprising unmanned ground vehicles, tactical micro-UAVs, satellite communication equipment, MBITR, tactical terminal and deployable sensors.

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Forward command posts

To command operations in an increasingly multinational environment with closer cooperation between joint forces, future command posts must be able to:

- gain a clearer picture of complex and fast-evolving operational situations (see more and better, analyse more precisely, select relevant information only)
- anticipate and shorten the decision-making cycle
- produce precise and synchronised effects at beyond-line-of-sight ranges.

👁 **Presented on the Thales stand**

- A demonstration showing how intelligence data is gathered from across the battlespace, then analysed and fused by the intelligence unit. This intelligence data is processed using the SICF command system.

- Automatic tactical situation data exchange between French and Spanish command information systems (CISs) using the MIP standard.

Long-range combat systems

On the basis of information gathered from different surveillance systems, and acting on orders received, land forces are able to provide an appropriate response to each type of threat.

Land forces use helicopters for support, protection and anti-tank missions. For these types of operations, close to enemy positions, aircraft are equipped with mission systems enabling crews to manage the entire mission, from planning to debriefing, in safety.

With the trend towards smaller land forces dispersed across extended zones of action, future theatres of operations will be defined around "incomplete" structures with thousands of square miles to control. In these theatres, surveillance (detection, reconnaissance, identification, location, acquisition) and action (acquisition, attack) in areas beyond the sphere of short-range combat will also include monitoring the airspace and coordinating effects using all available means. Long-range combat is fully integrated with the other force system components.

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Within the wider network-centric system, surveillance capabilities are based on the integration of:

- multi-sensor observation (UAVs, unattended or remotely deployed sensors, dedicated sensors, satellite data products, etc.)
- a command and control system
- weapon systems with precise gradual effect, at remote ranges.

Surveillance

Information is the critical factor in decision-making and action in any theatre of operations and is acquired using different types of surveillance systems operated independently or as part of a wider network. Surveillance missions are carried out using both ground-based and airborne sensors. Land forces use electronic and optical surveillance systems to acquire accurate, real-time information on their medium-range environment.

They also receive information from airborne sensors on fixed-wing aircraft, helicopters and tactical UAVs that they operate themselves, or are operated by air forces.

This data, whether from radar (SAR, GMTI), optronic or electromagnetic sources, is distributed to land forces via ground stations. With the broad range of technologies used and the ability to fuse the data received, land force commanders benefit from accurate and comprehensive information to complement their existing intelligence.

Drawing on its technological expertise in electronic warfare, radars and optronics, Thales provides land forces with a complete range of systems for ground-based and airborne applications.

In electronic warfare, Thales proposes electromagnetic intelligence gathering systems, such as the SGEA Valo, passive air defence systems and border and coastal surveillance systems. These sensors can be deployed autonomously, as part of a wider network-enabled capability or in conjunction with electronic warfare centres to provide turnkey electromagnetic intelligence interception, analysis and dissemination capabilities.

In radars, Thales provides land forces with airborne ground-surveillance (AGS) systems for deployment on fixed-wing aircraft, helicopters and tactical UAVs. Thales has developed the Horizon system, in operational service with the French Army, and is contributing its expertise to international programmes such as Sostar-X. It is also a partner in the TIPS consortium, selected to provide an autonomous AGS (Air Ground Suveillance) capability for NATO.

In optronics, Thales provides land forces with long-range observation equipment through products such as the TEOSS 350. It is also active in airmobility and equips aircraft (fixed-wing aircraft, helicopters and tactical UAVs) with day/night optronic s systems, such as Agile.

Airmobility, fire support and air defence

> 👁 Presented on the Thales stand

In airmobility, Thales provides mission equipment and systems for combat and special mission helicopters operated by land forces, including Tiger, Gazelle and Puma helicopters operated by ALAT as division of (French Army light aviation) and NH90, Rooivalk and Super Cobra helicopters operated by other forces. These systems provide crews with the capabilities they need for mission success.

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👁 **Presented on the Thales stand**	As a supplier of self-protection equipment and systems (CATS, TWE, etc.), Thales supports operational users at all stages of operations, from mission planning (Cofeux) to post-mission debriefing. It draws on extensive know-how in weapons and optronics to equip aircraft with rocket systems, surveillance systems and laser designation systems.

To meet requirements in ground-to-ground fire support, Thales offers a range of systems enabling armed forces to manage the entire mission chain, from short-loop threat identification to threat neutralisation.

In low-level air defence, Thales offers land forces adapted threat detection and threat engagement capabilities.

In the aerial battlespace, Thales proposes an adapted response to short- and medium-range threats spanning threat detection through to protection of strategic sites and troops on the move.

With its broad range of surveillance radars covering all types of detection and reconnaissance missions, ThalesRaytheonSystems meets requirements in airspace protection with its Gerfaut family of radars, designed for target acquisition, warning and designation, mobile radars, including the Master M, and the RAC 3D, designed to counter low- and very low-level attacks.

In crisis management, ThalesRaytheonSystems proposes adapted solutions with its range of air command and control systems. These include the ADC4I Martha system, which provides real-time command, coordination and optimised fire control of weapon systems.

To counter threats linked to the engagement phase, Thales is developing short- and very short-range ground-to-air and surface-to-air weapon systems, including the Starstreak and SAMP/T.

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Services

Thales' pavilion at Eurosatory 2004 will highlight the crucial role of simulation and related services, both for the planning of land and airland operations, and for studies into future combat equipment and systems.

Two dynamic tactical training demonstrations:

👁 **Presented on the Thales stand**

- Execution of a combat mission by an armoured platoon comprising a Leclerc tank patrol and VBL light armoured vehicle patrol in an urban environment. The demonstration covers two operation modes, force coercion and operations other than war, using the tactical-level training and education simulation system. This system is used by the French Army's Mailly-le-Camp combat training centre (CENTAC) and has also been ordered by various European countries.

- Planning and execution of an operation at a joint command post using the Scipio simulation system, designed for training brigade commanders and land force staff using the SICF command, control and information system.

Presentation of Thales' comprehensive services offering:

- support and operational management of systems and platforms
- IT solution outsourcing
- facilities management
- services consultancy and engineering
- e-services
- innovative financing solutions

This offering meets armed forces' needs for high-quality services, increased platform readiness levels, optimal spreading of investments throughout system life cycles and closer adaptation to operational requirements, thereby enabling them to focus their resources on core missions.

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