

# A C4I<sup>\*</sup> capability solution

Comm@nder



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# Command & Control

- Solution is “Comm@nder”
  - C4I formula for information dominance on the digitised battlespace
- It provides
  - Interoperable info & comms framework
  - Integrated network-enabled operations
  - Interface to plug in mission applications
- for
  - Equipment, systems and support, even officers’ retraining
- Shared awareness, collaborative fighting for Army or joint forces

# Market background

- Global C4I spending increasing at rate of approx 17.5% to 2007
- 2007 C4I market estimated to be worth approx \$51BN
- Market is expected to grow steadily up to 2015
- Leading edge countries moving to more joint systems
- Key driver is interoperability with existing legacy systems
- Traditional defence contractors (e.g. Thales) will still be heavily favoured (track record is key)
- Opportunities for new entrants to act as sub-contractors to traditional players

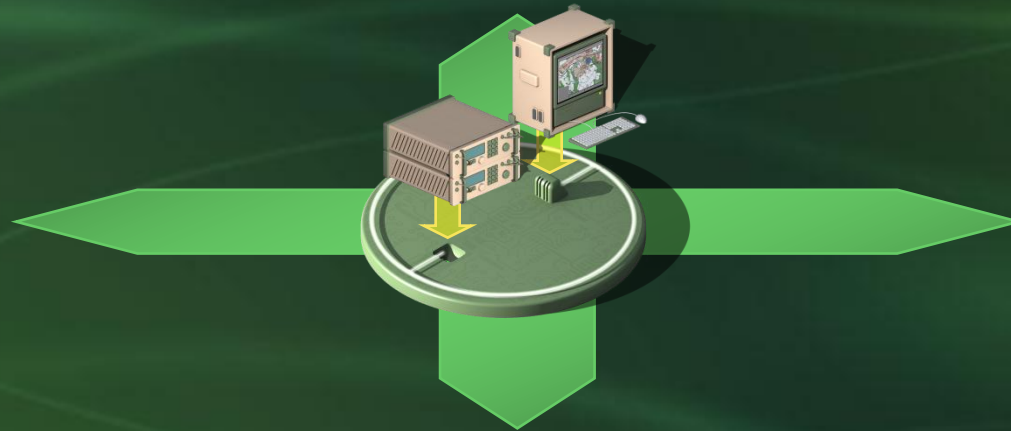
# Thales Background

- **Highly regarded traditional defence contractor**
- **20 year track record of successful defence projects and ongoing support**
- **They offer fully-integrated solutions, not single function systems**
- **Strong existing customer base in EMEA**

# What is a capability offering?

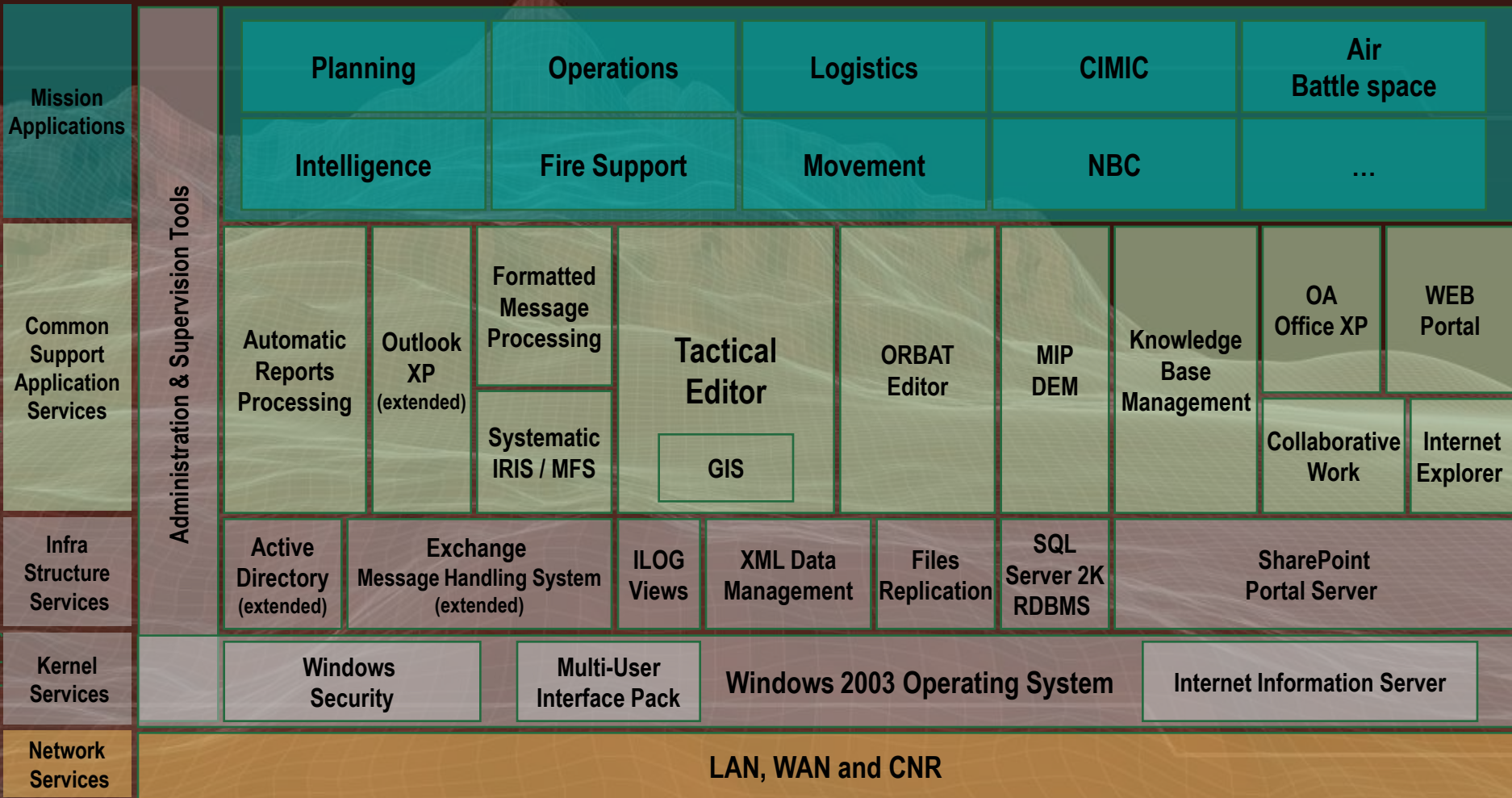
- **A solution taking into account the whole operational environment of a customer**
  - **Doctrine**
  - **Personnel**
  - **Equipment**
  - **Systems**
  - **Support**

# A common C4I architecture



- **Key benefits :**
  - Single framework for C4I integration based on military (NATO) and civil standards
  - Enabler of smooth operations between sensors, commanders and shooters
  - Standardised interfaces and open architecture to plug mission applications
- **Configuration : service-oriented architecture and web services**
- **Level : multi-level, joint and combined**
- **Host platforms : integrated to information and communication systems in deployed, mobile or dismounted configurations**
- **Communications : tactical internet, from satellite links to combat net radios**
- **Sensors : open to all battlespace sensors, manned or unmanned**
- **Shooters : open to all battlespace shooters**

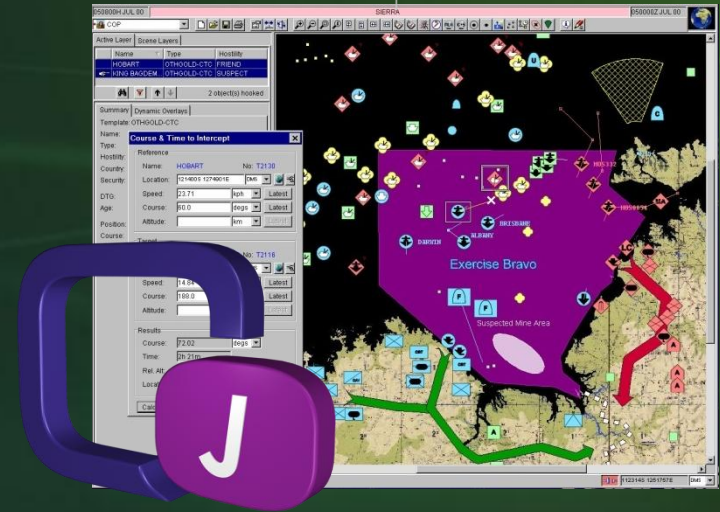
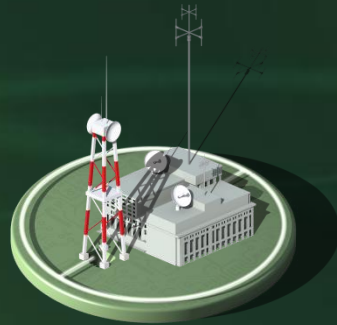
# Software Architecture



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# National Command :

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Joint



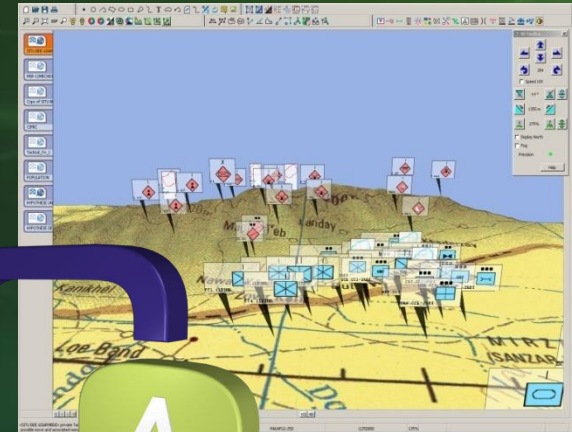
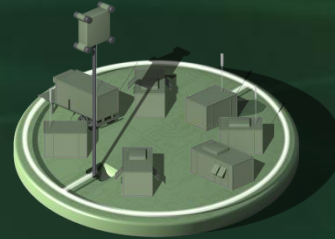
- **Comm@nder Joint Key benefits :**
  - Collaborative planning between sea, air, land and special forces
  - Common Operational Picture
- **Configuration : Infrastructure / headquarters**
- **Level : National / Coalition (Joint Component Commander)**
- **Host platforms : HQ operations centres**
- **Communications : permanent (land lines, infrastructure or satellite networks)**
- **Sensors : integration of National intelligence assets**
- **Shooters : special operation forces**

**References : JCCIS (Australia), OPSYS (Ecuador), SITOPS (France)**



# Land forces C2 :

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Army



- **Comm@nder Army Key benefits :**
  - Command & control of combined airland forces
  - Common Recognised Ground Picture
  - Planning of manoeuvre & support
- **Configuration : Deployed command post**
- **Level : national or coalition units of manoeuvre (divisions and brigades)**
- **Host platforms : shelters, tents**
- **Communications : deployed tactical internet (line of sight, satcomms)**
- **Sensors : Army intelligence, surveillance, target acquisition and reconnaissance assets**
- **Shooters : Artillery, armour, Army aviation, infantry**

References : SICBEL (Belgium), ATS (Canada), SICF (France), e-CIS (NATO), SIMACET (Spain)

# Manage field forces :

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Battle

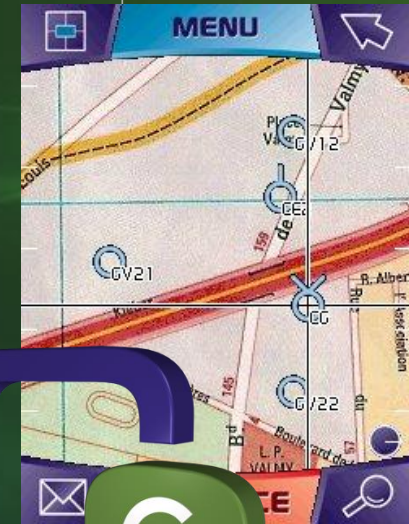


- **Comm@nder Battle Key benefits :**
  - Manœuvre command & control
  - Shared situational awareness & Blue Force Tracking
  - Synchronised effects
- **Configuration :** Mobile command post / command vehicle
- **Level :** Army unit of action (battalion & below)
- **Host platforms :** command vehicle
- **Communications :** combat net radios (high voice and data rate)
- **Sensors :** reconnaissance units and contact information
- **Shooters :** light artillery, tanks, mounted & dismounted infantry weapons

References : TOTEM (France), T-BMS (French-German Brigade), Lince (Spain)

# Dismounted soldier C2 :

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Contact

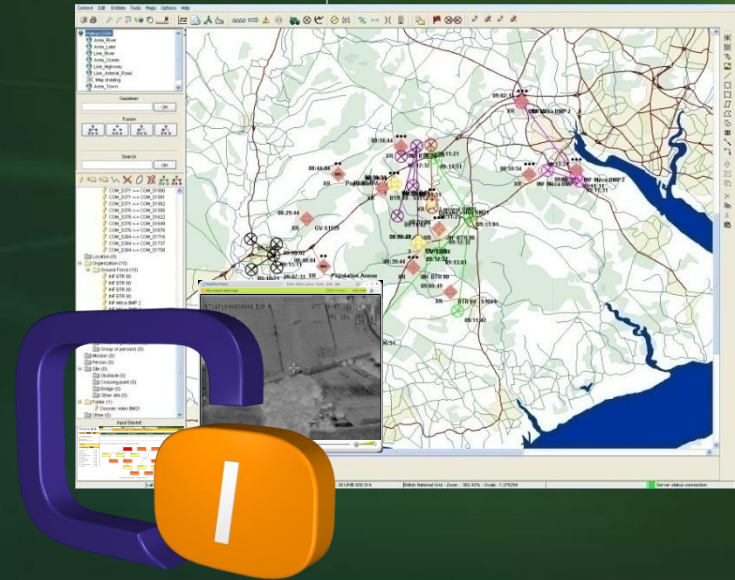
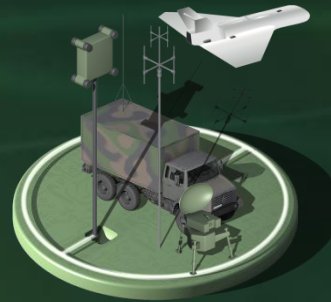


- **Comm@nder Contact Key benefits :**
  - Command & control small dismounted units
  - Integrated management of soldier communications, navigation, and target acquisition
- **Configuration :** Mobile, dismounted, manpack
- **Level :** squad / troop (reconnaissance, infantry...)
- **Host platforms :** soldier
- **Communications :** manpack radio, soldier personal radio
- **Sensors :** portable optics, abandoned sensors, micro-UAVs
- **Shooters :** individual & squad weapons (0-1000m)

References : BOOTS (UK)

# All-source intelligence :

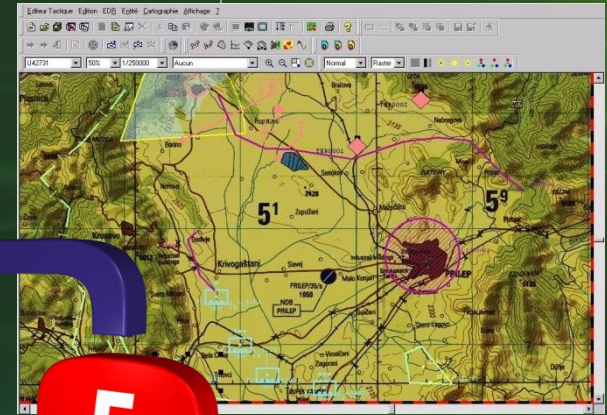
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Intel



- **Comm@nder Intel Key benefits :**
  - Sensor-C2 integration
  - All-source intelligence, surveillance and intelligence fusion from multiple sensors
  - Timely dissemination of validated enemy situation
- **Configuration :** fixed or mobile All-Source Intelligence Cell
- **Level :** Joint intelligence centre or tactical ISTAR unit
- **Host platforms :** Infrastructure or deployed
- **Communications :** satcomms, line-of-sight, high-data rate combat net radios
- **Sensors :** HUMINT, SIGINT, IMINT and surveillance sensors (radar, video)
- **Shooters :** target acquisition assets

References : STARS (France), JEWIC (UAE), CYTOON (South Africa)

# Integrated artillery C4I : **Comm@nder Fire**



- **Comm@nder Fire Key benefits :**
  - Integrated management of artillery sensors, manoeuvre and effects
  - Short sensor-commander-shooter loops
  - Timely exploitation of fire support
- **Configuration :** deployed / mobile, organic or attached fire support
- **Level :** Scalable artillery unit, from platoon to brigade
- **Host platforms :** from command shelters / vehicles to individual firing unit
- **Communications :** combat net radios
- **Sensors :** artillery observation & target acquisition (optics, radars, UAV..)
- **Shooters :** ground-to-ground (rockets, gun, mortars), ground-to-air (gun & missile)

**References :** ATILA (France, Qatar, Singapore, Thailand, Venezuela), AS 2000 (South Africa), ATLAS (France), MARTHA C2 (France)

# Force preparedness : **Comm@nder Training**



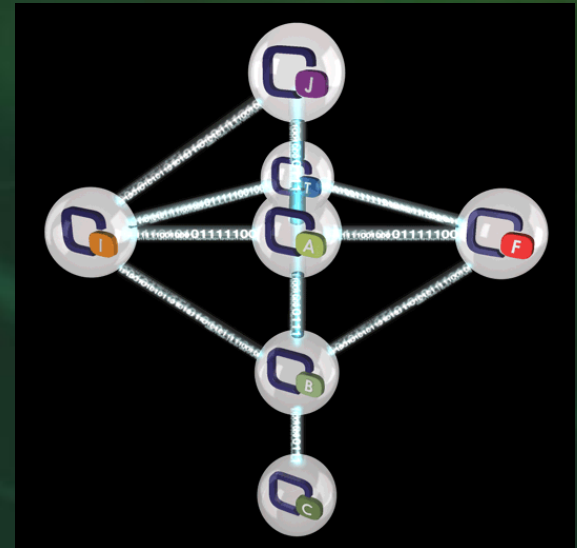
- **Comm@nder Training Key benefits :**
  - Re-training of digitised forces to networked operations
  - Stimulation of commanders and C4I (train as you fight)
  - Maximised trainer / trainee ratio
- **Configuration : infrastructure / deployed / distributed**
- **Level : Army command post (division to regiment), automated subordinate units**
- **Host platforms : training centre or deployed command post**
- **Communications : LAN or WAN**
- **Sensors : sensor models**
- **Shooters : Computer-generated forces with physical and decisional models**

**References : CENTAURE (France), SCIPPIO (France), SWORD (France)**

# Comm@nder

## Thales formula for integrated C4I on the digital battlespace

- 20-year expertise from a Lead System Integrator
- The command of critical C4I technologies
  - Combat net radios & tactical internet
  - Sensors (radars, SIGINT, IMINT, optronics...)
  - Operational information systems
- Connectivity & interoperability on a single information & communication framework



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