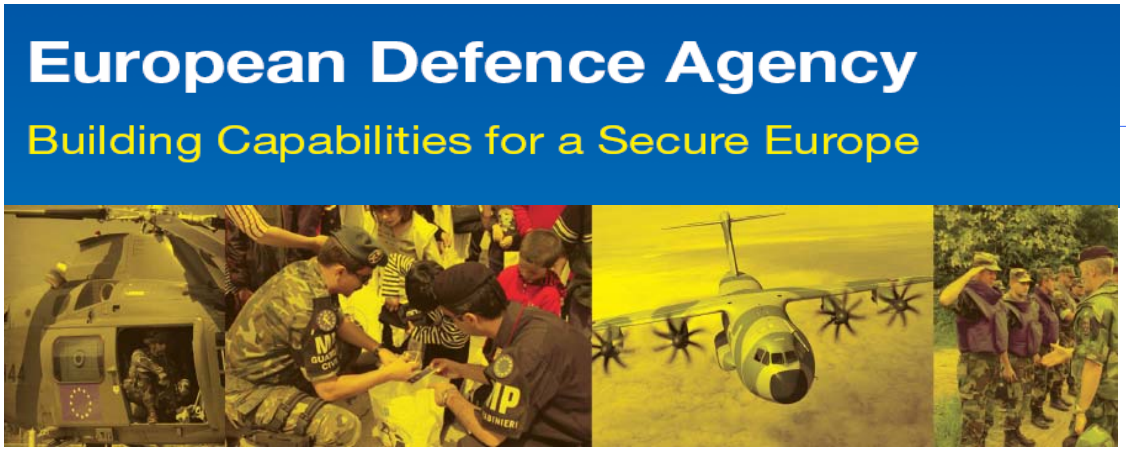
UAVs for EU Maritime Surveillance Missions

AUVSI, 8 May 2007

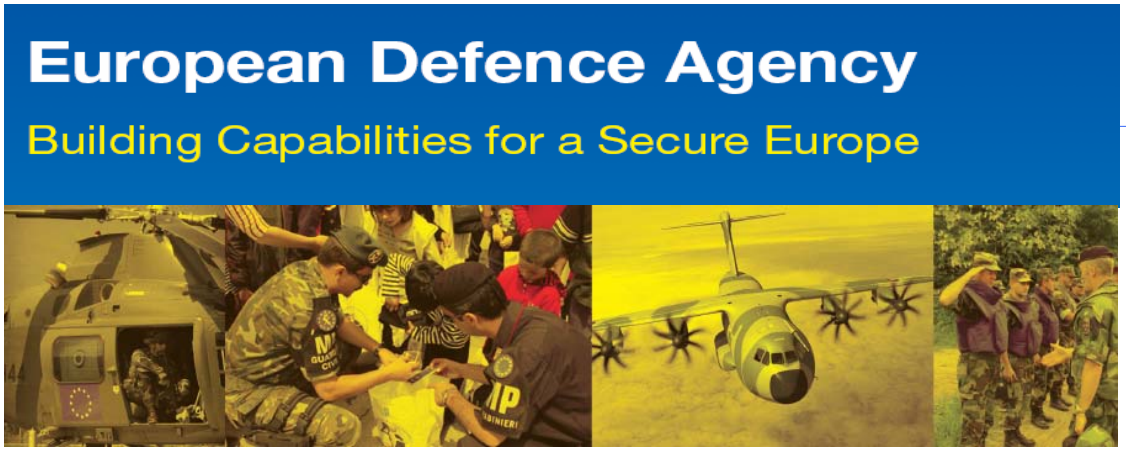
Maurice de Langlois
Capability Manager



Outline of briefing

- EDA presentation
- How did EDA get involved in UAVs ?
- Present EDA activities
- Conclusions and way ahead

EDA presentation



What is the European Defence Agency?

EDA functions all relate to:

- Improving Europe's Defence performance
- Promoting coherence in place of fragmentation
- Comprehensive approach to identifying capability needs
- Opportunities for industrial restructuring
- Progress towards continental-scale demand and market

EDA Mission and Functions

EDA organisation

HR Dr.Solana
Head of EDA

Nick Witney
Chief Executive

Dr.Linnenkamp
Deputy CE

Plans & Policy

Media & Comm

Capability Directorate

Armament Directorate

Research & Technology

Industry & Markets

Corporate Services

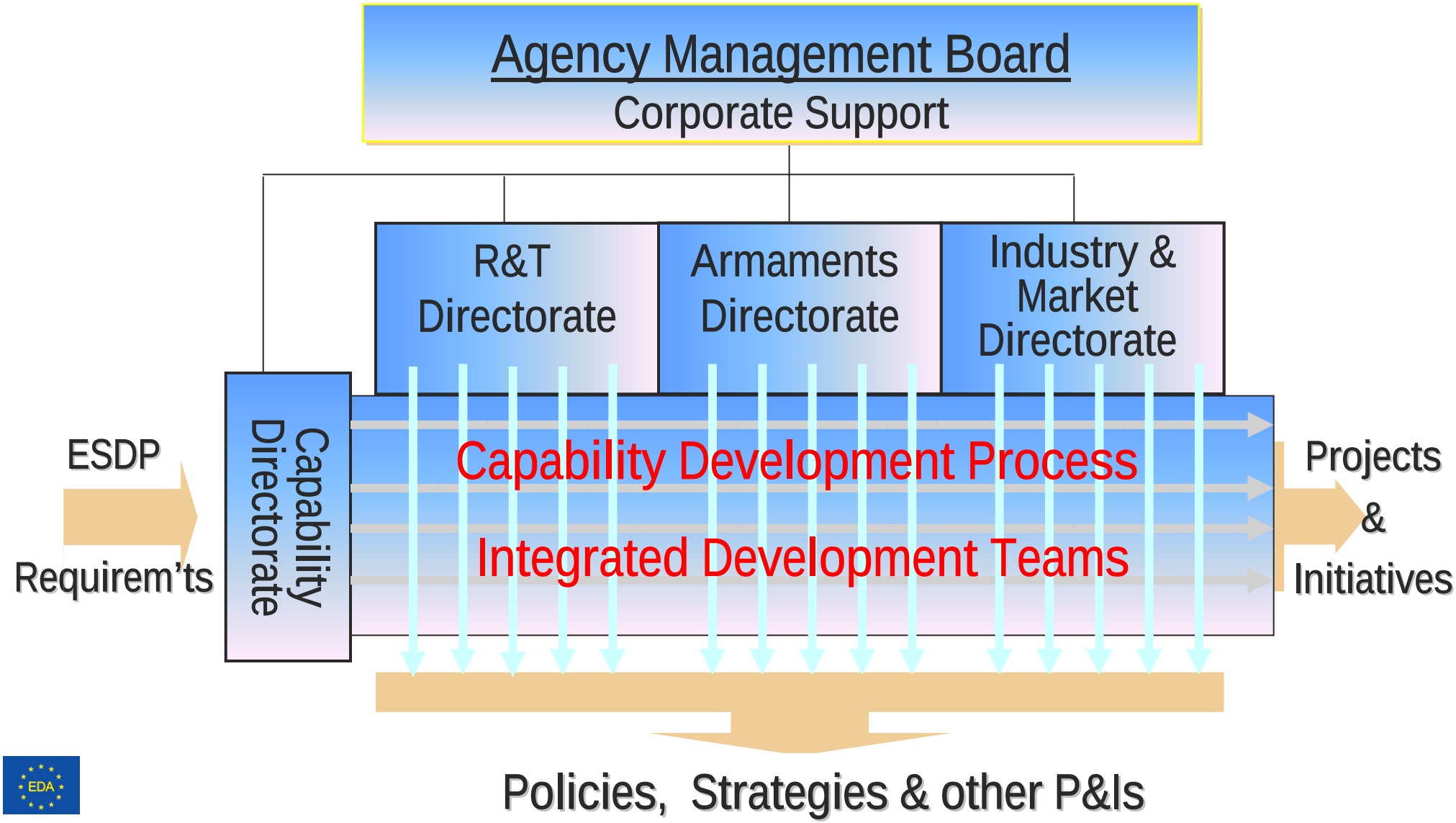
Development of defence capabilities in the field of crisis management

Promotion & enhancement of European armaments cooperation

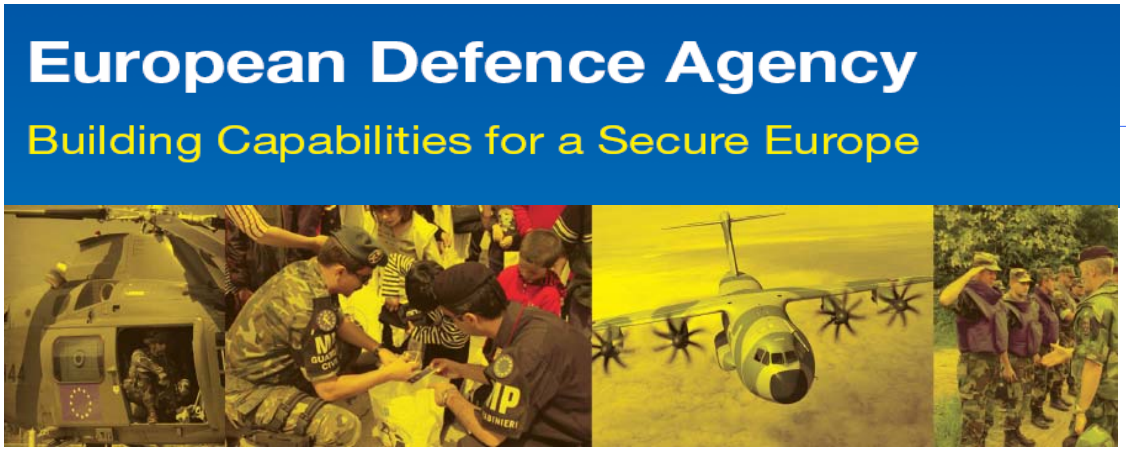
Enhancement of effectiveness of European Defence Research and Technology (R & T)

Strengthening DTIB for the creation of an internationally competitive European Defence Equipment Market

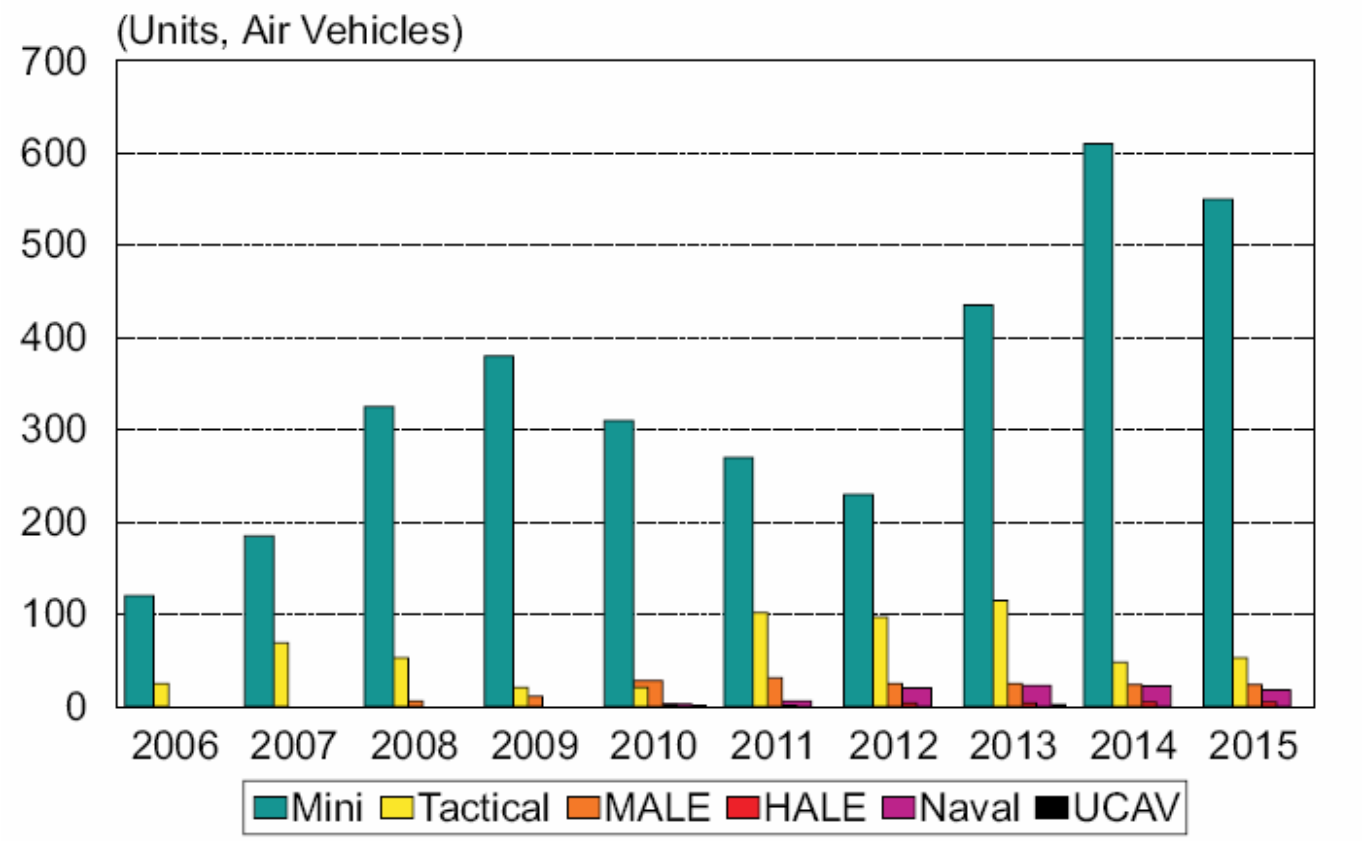
Agency way of working



How did the EDA get involved in UAVs ? The facts

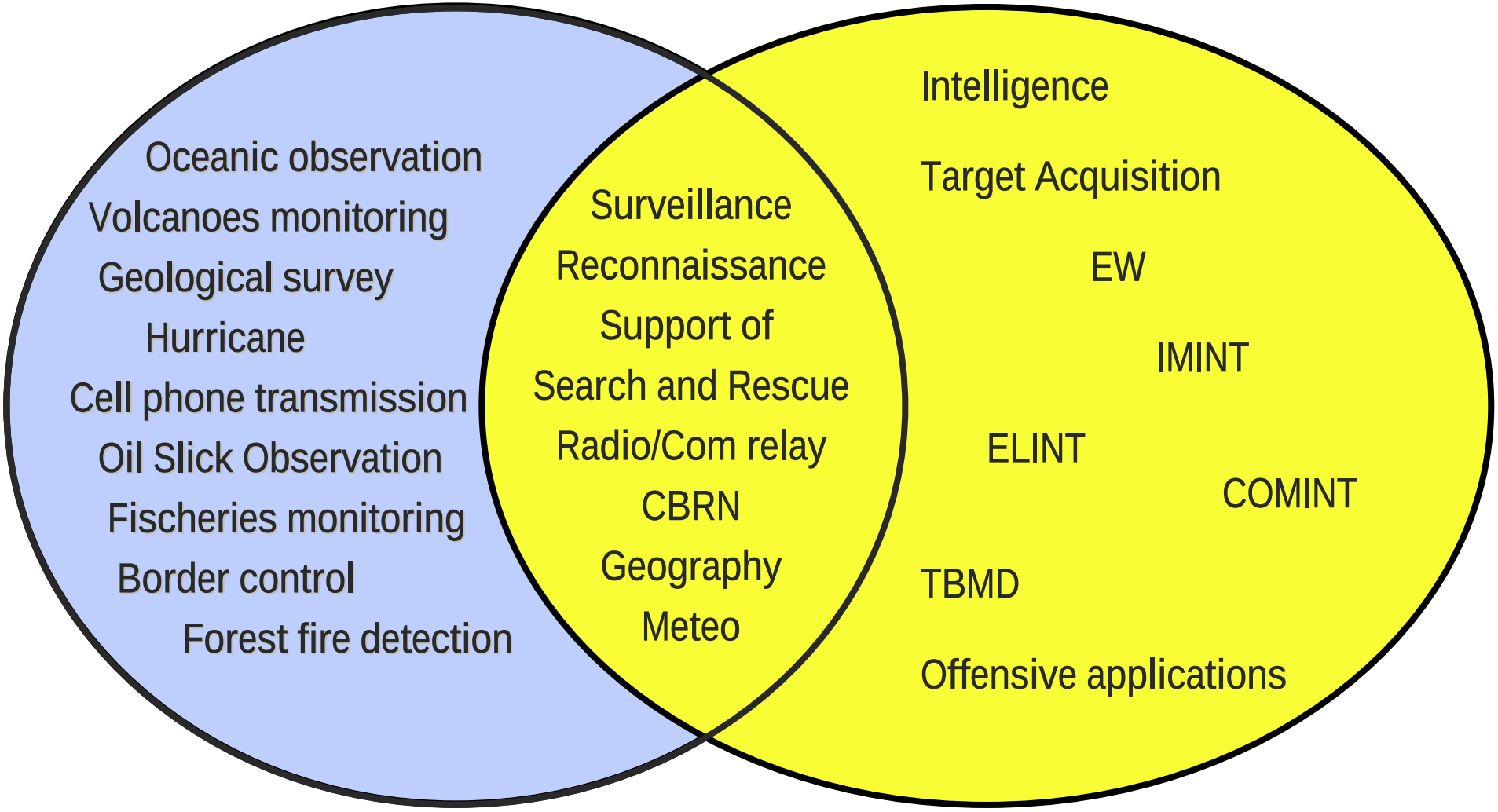


European Market UAV Forecast



- **The military market for Mil UAVs will rise in the next years**
- **Insufficient „market space“ in Europe for full parallel UAV R&D**
- **Insufficient units in the high technology UAV segment (Tactical/MALE/HAAV)**

UAVs Civilian/military applications



UAVs: EDA first orientations

- Harmonised EU approach:
  - Integration of UAVs in C4ISTAR
  - Concept of Employment for EU MALE /HALE UAVs
  - MALE UAV Staff Requirement
  - Open System Architecture document
  - Maritime Tactical UAVs Staff Target
- Definition of R&T key technologies
- Harmonisation of procurement after 2010
- The use on UAVs outside of segregated airspace and related air traffic management

Summary of the facts

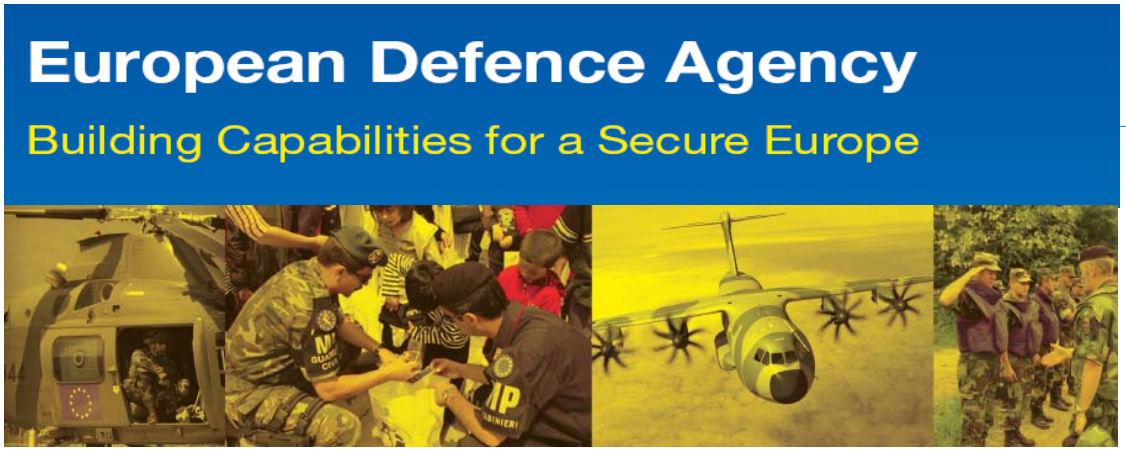
- **Europe representing the second largest market** and the **second most significant center for high-tech research**, about 20% of the worldwide total
- **The UAV military requirements are known**
- **A civil UAV market will slowly emerge** over the next decade, **starting first with government organizations** requiring surveillance systems similar to military UAVs such as
  - coast guards
  - border patrol organizations
  - similar national security organizations
- **A commercial, non-governmental UAV market is unlikely to emerge** except in some niche markets **until the airspace access issue is fully resolved**
- The **single largest hurdle** to the growth of the civil UAV market is the **issue of UAV operations in controlled airspace**

Conclusions

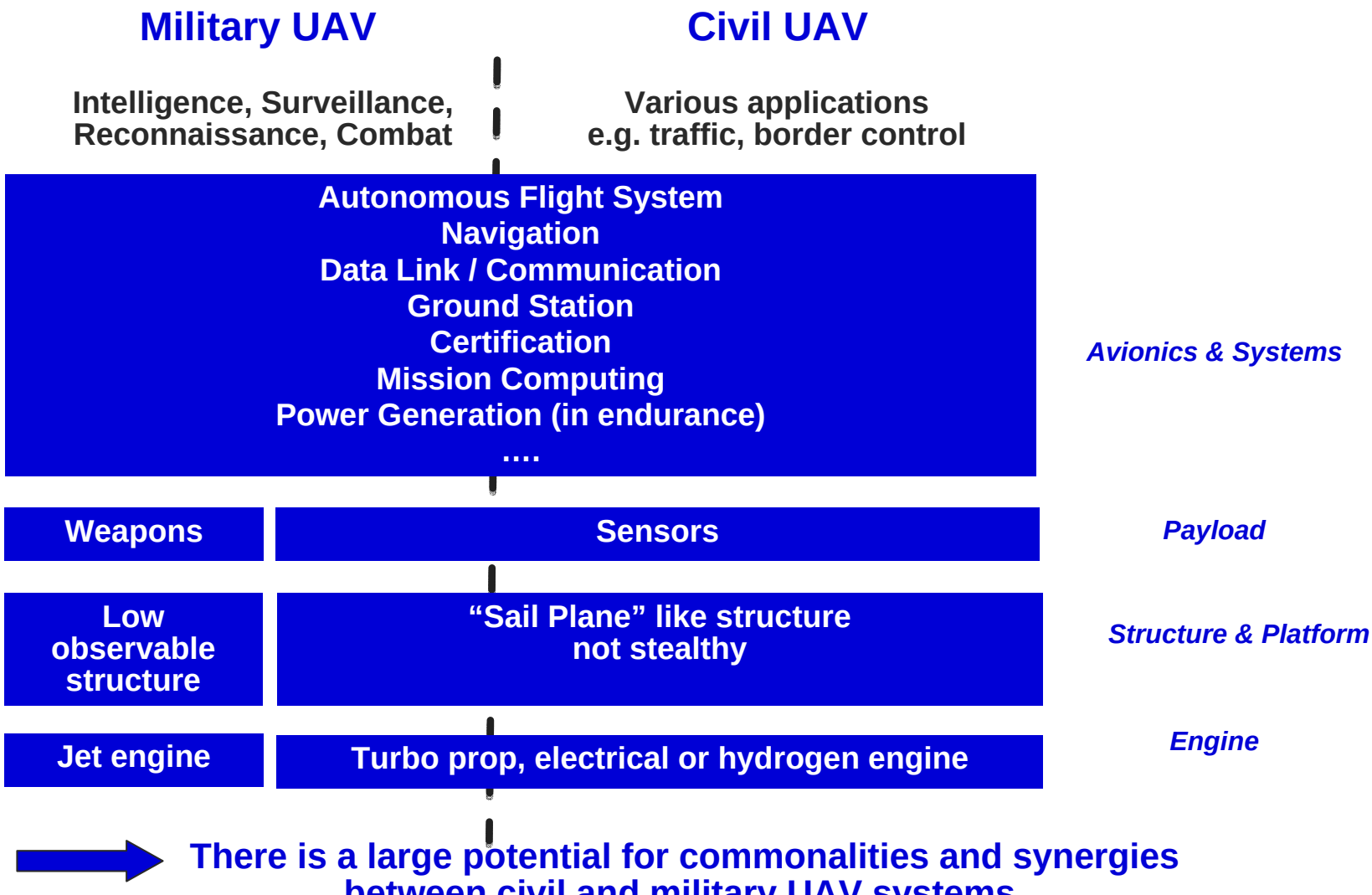
- **There is a broad range of potential UAV operations**, varying by size, performance, and architecture
- **UAVs are a key element** in the future military capability and there is **a clear demand for the ability to operate UAVs in the airspace**
- **UAVs can provide a potential public benefit** for several applications
- Several projections indicate that **UAVs will be substantial for the civil users of the future Airspace**
- There is also **a broad range of potential policy options for ensuring safe integration** but the challenging task is to identify the right ones

*There are high **Military/Civil Synergies** in design/production/operation which need to be explored. Europe needs **to focus the efforts** in the UAV technology sector*

Present EDA activities



Common Interest: Military / Civil UAV Systems



Common European Vision for Security & Defence UAVs

European Commission

European Defence Agency

European Industry

The scope of the European UAV Vision is broad, including small and micro systems, medium to large systems, fixed- and rotary-wing aircraft, and lighter-than-air and near to space systems, covering both civil and military applications

- EU Government and Industry efforts have to be coordinated within the European Framework to ensure and to build up **technological advances** of the European Industry in the future.
- Future UAV Systems must be of **modular concept** to fulfill in synergy specific civil as well as military missions in future European Security and Defence (ESDP) environment.
- **UAVs must be integrated** with manned and space systems to operate safe in national and international airspace.
- The **airspace access** issue has to be fully resolved to open up the commercial and non-governmental UAV market.

To build up technological advances: Key Technologies

In 2005 EDA had started a R&T flagship project on UAVs to determine if there were critical technology area's that needed to be addressed by the R&T community.

10 key technologies were identified:

- Airworthiness
- Flight Control Systems
- Automatic Take-Off and Landing Systems
- Sense & Avoid Technologies
- Power Generation
- Health Monitoring System
- IMINT (Active Imagery, integration & miniaturization of payloads)
- sensor & image management and exploitation
- Digital LOS & BLOS Data Links
- Broadband Satellite Data Links

Key technologies

LE UAV

Automatic Take-Off
and Landing Systems
IMINT (Active Imagery
integration & miniaturization
of payloads)
Digital LOS & BLOS Data Links
Broadband Satellite Data Links

Communalities

Airworthiness
Flight Control Systems
Sense & Avoid Technologies
Power Generation
Health Monitoring System
Sensor & image
management + exploitation

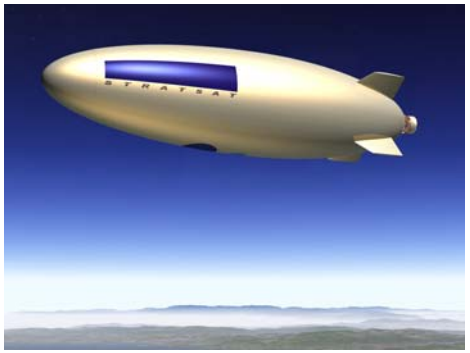
TAC UAV

Automatic Take-Off
and Landing Systems
IMINT (Active Imagery,
integration &
miniaturization
of payloads)
Digital LOS Data Links
Ship Electronic Environment

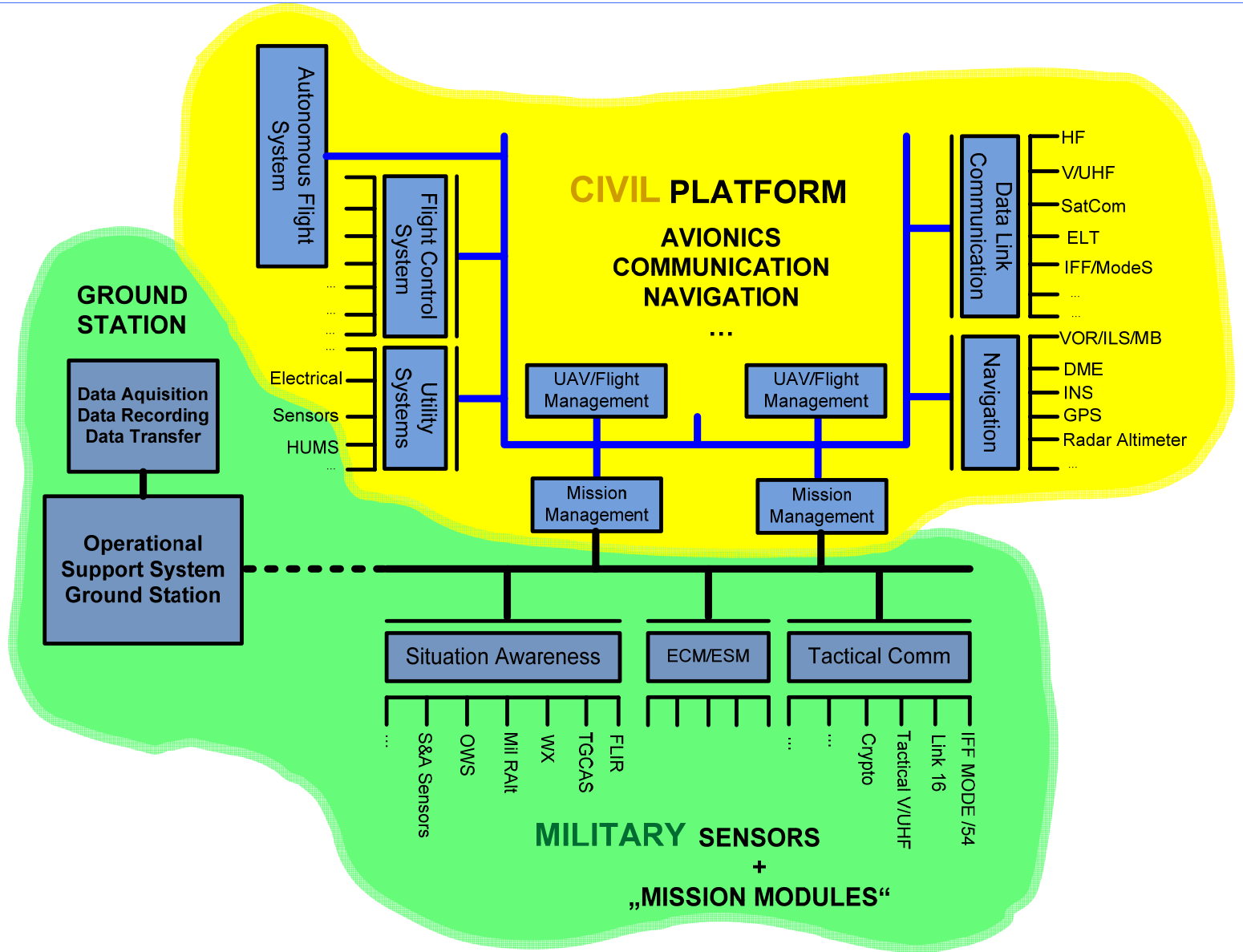
2 EDA studies initiated on data links and sense & avoid

Next Studies

- Cost analysis
  - Balance of investment study for ISR platforms (balance between satellites, HAAS and other manned and unmanned air vehicles)
- Tackle rest of identified critical technologies
  - Continue Critical Technology Path and establish a short to medium term roadmap (tackle the rest of the 10 critical technologies identified)



Future UAV Systems modular concept: making use of Security/Defence Synergies



Airspace access: Operate UAVs into General Air Traffic

- « The removal of the barriers to operating UAVs in European airspace will stimulate a new market for a variety of new systems giving Europe a chance to take the commercial lead in this rapidly developing market. To realise the true market and military/security mission potential of current and future European UAVs, the first step is the seamless integration of UAVs in controlled airspace ».
- Three prerequisites enable this step forward:
  - a common regulatory legal framework,
  - the implementation of common safety-relevant technologies, and
  - a joint organisational structure/reference body for coordinated action of all relevant stakeholders like EU-Commission, pMS, EDA and the European industry etc. .

UAVs – A NEW APPROACH

- New factors

  European Commission interest, from security perspective

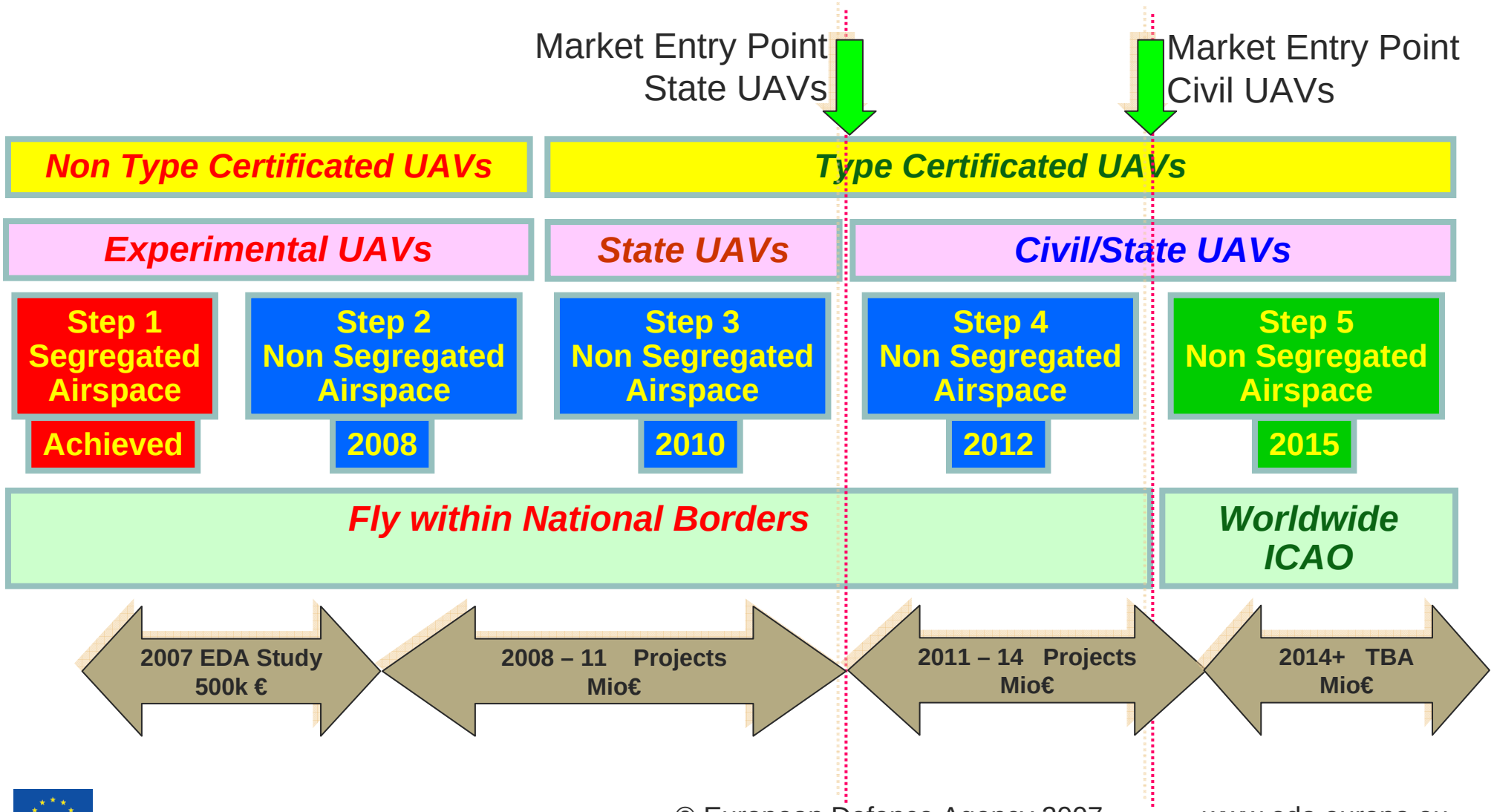
  Industry call for

  - Integrated civ/mil market
  - “Strategic research agenda” focussed on UAVs

- EDA/European Commission/Industry proposal on Common Goal:

  “To open European Air Space and have the required technology demonstrations in order to produce UAV Systems that can routinely fly across national borders”

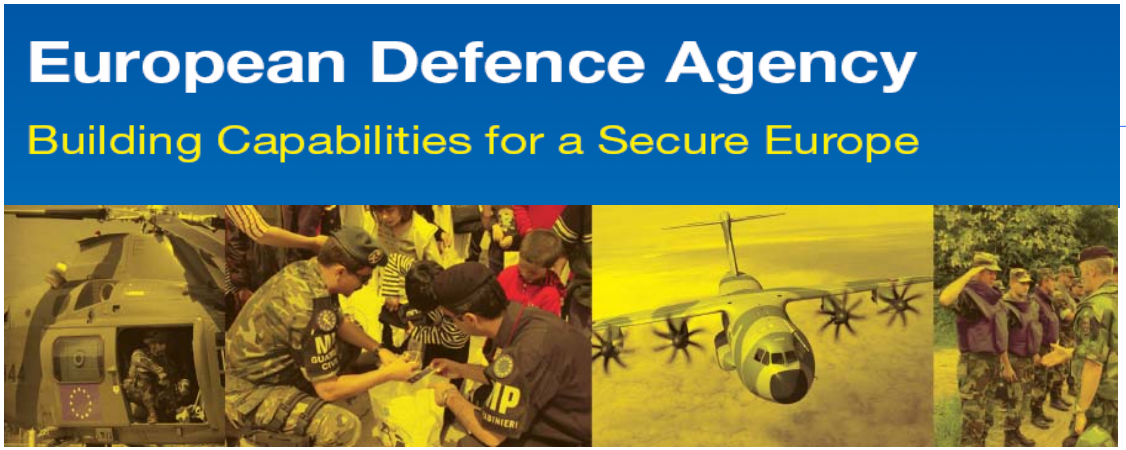
“UAVs – A New European Effort ”: UAV Insertion into General Air Traffic



Maritime Surveillance UAVs

- UAVs are complementary elements in a C4ISTAR environment
- Conflict between wide area search and identification mostly requires dedicated platforms for both tasks
- Combination of both LE UAV and Tactical UAV preferred
- Common Staff Requirements for LE UAV with a description of the maritime radar sensor
- Common Staff Target for Maritime Tactical UAV

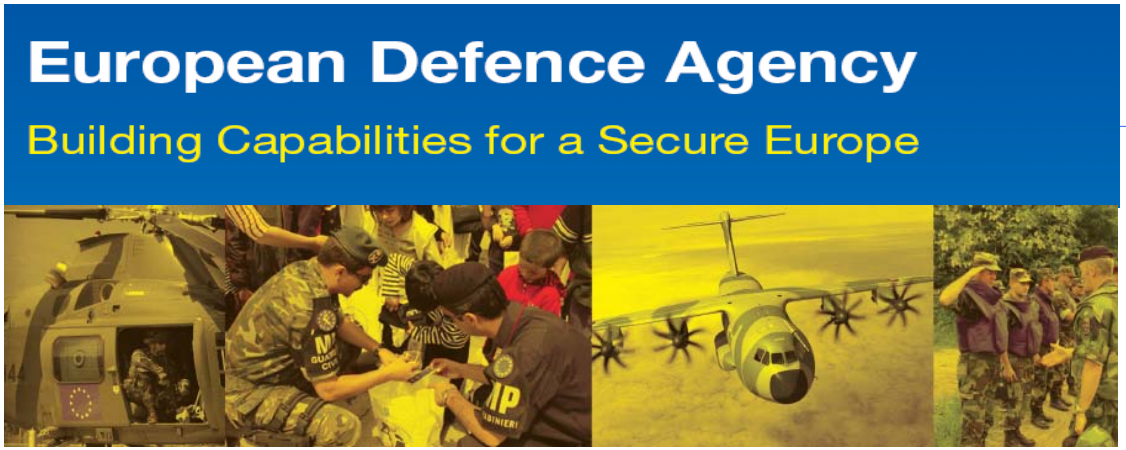
Conclusions



Conclusions

- Short term: to allow UAVs to fly over Europe by 2010
- Medium term: to work on the 3 parallel trends
  - LE UAV
  - Maritime tactical UAV
  - Feasibility studies (10 R&T priorities)
- Need to establish the organizational approach at EU level to meet the needs and requirements in order to:
  - coordinate Security/Defence UAV interests
  - coordinate priorities for technological drivers and applications
  - match between user requirements and technological excellence
- Support the build of teams/consortia of organizations and companies from across Europe to initiate the activities

QUESTIONS ??


European Defence Agency
Building Capabilities for a Secure Europe