

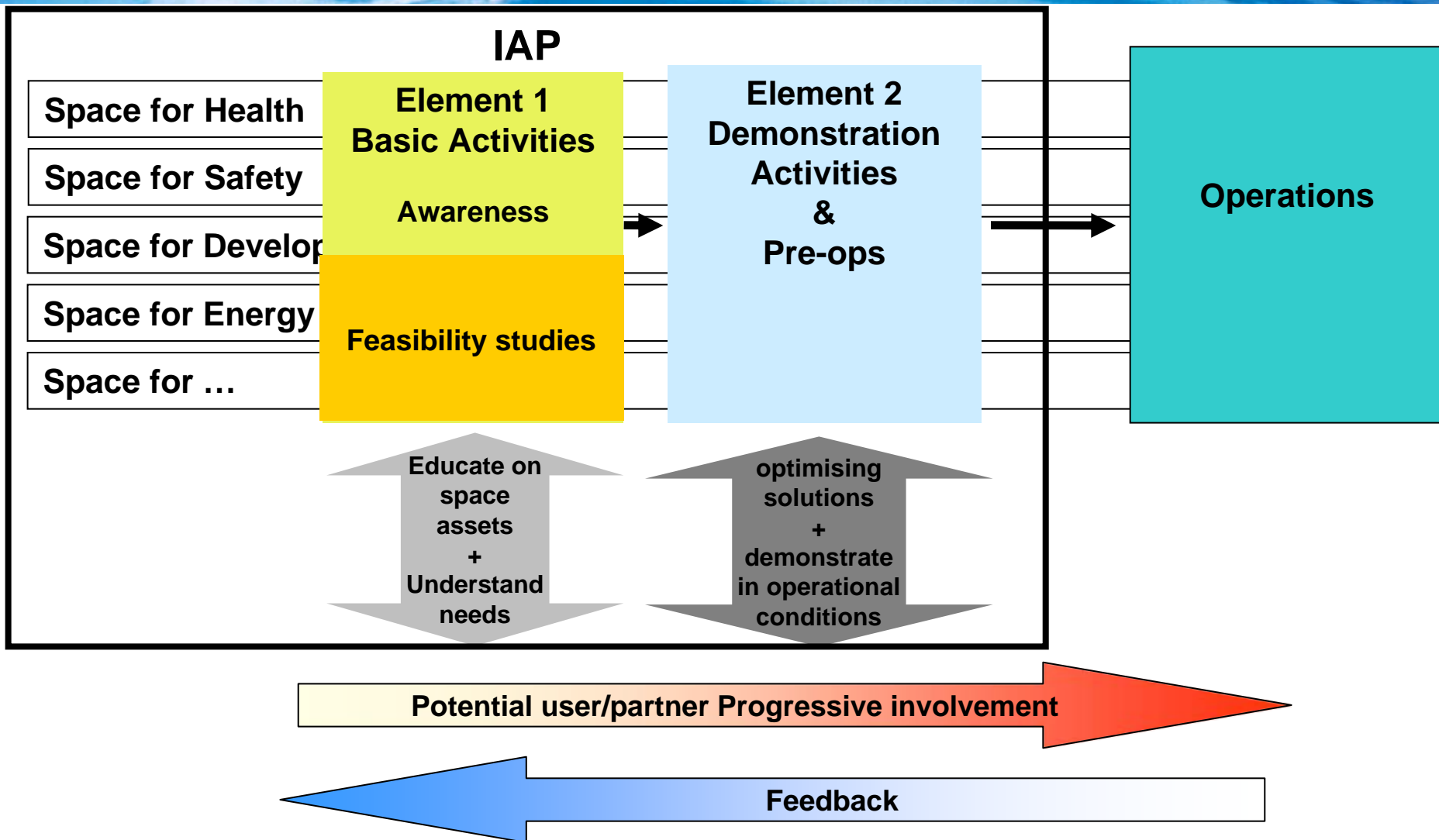
ARTES 20: MODUS OPERANDI

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Exploit systematically the extended use of space capacity and capability through the development, in close partnership with end-users, of integrated applications which can demonstrate a potential for user driven sustainable services

**“Connecting expert Communities
&
Combining Technologies”**



**Awareness
as basic element to attract
stakeholders/users**

Goals

- Identifying User Communities and their Needs
- Identifying Space Capabilities
- Informing and Educating Potential Users
- Influencing Decision Makers and Facilitating Cooperation
- Fostering and Organizing User Demand (Capacity Building)
- Paving the way for partnership agreements

Vision for realizing the goals

- Prerequisite to achieving a successful IAP programme is a successful awareness programme!
- Realizing the goals for IAP awareness will be based on:
 1. Expert opinion from the IAP Advisory Committee (IAPAC)
 2. A web portal gateway to IAP
 3. A network of ambassador platforms across Europe
 4. Forums, Call for ideas, thematic Workshops, etc..

1) IAP Advisory Committee- IAPAC

- The IAPAC will provide independent cross-disciplinary and multi-dimensional expert opinions and justified recommendations regarding
 - Which broad areas of interest have the greatest potential for the development of IAP
 - How this potential may best be realised
 - What are the perspectives for end-users
 - How best to influence relevant key Decision Makers, and who to influence?
- The direction of the IAP Awareness programme and the resulting thematic roadmap will thus be based on the advice of the IAPAC
- The IAPAC will thus also provide legitimacy for the path taken by IAP and more in general for all the TIA application activities

2) IAP / ARTES 3-4 Web Portal "Gateway"

- A web portal serves as a "gateway" to *Integrated Applications*.
- The goals of this portal will be:
 - Serve as a 'notice board' for IAP calls, ITTs, news stories, events, workshops
 - Repository of documentation and information / education tool for users
 - Promotional tool for IAP activities (workplan, feasibility studies, demo projects, etc.)
 - Meeting point for special interest groups and network of ambassador platforms
 - Additional services, such as communications and document exchange tool (e.g. eRoom)
 - A central single entry point (of contact) for all IAP

3) Network of IAP Ambassador Platforms (1)

- **A practical way to reach out across Europe is to organise a network of IAP representational platforms across Europe**
 - These platforms would most practically be based in existing institutions with geographic or thematic expertise and responsibilities.
- **Geographic/ regional representation**
 - The platforms could represent local knowledge (e.g. Eastern- Central-Europe, Scandinavia, etc.) experience and contacts with key decision makers, industry and institutions;
 - A first candidate for the AP geographic platform is ESPI – European Space Policy Institute with a focus on Eastern and central Europe.

3) Network of IA Ambassador Platforms (2)

- **Thematic domain representation**
 - These platforms could represent a particular theme or domain, having experience in that domain and/ or being located at or near a European centre specialized in that domain.
 - A first candidate for thematic platform is the Norwegian Center for Telemedicine (NST) in Tromso (Norway) for eHealth in inaccessible regions;
 - Others are starting in UK (enhanced mobility), France (Environmental Risks & Hazards in the Mediterranean Region), Italy (Alpine region application), Spain (Renewable energies), Finland (Baltic region), etc...

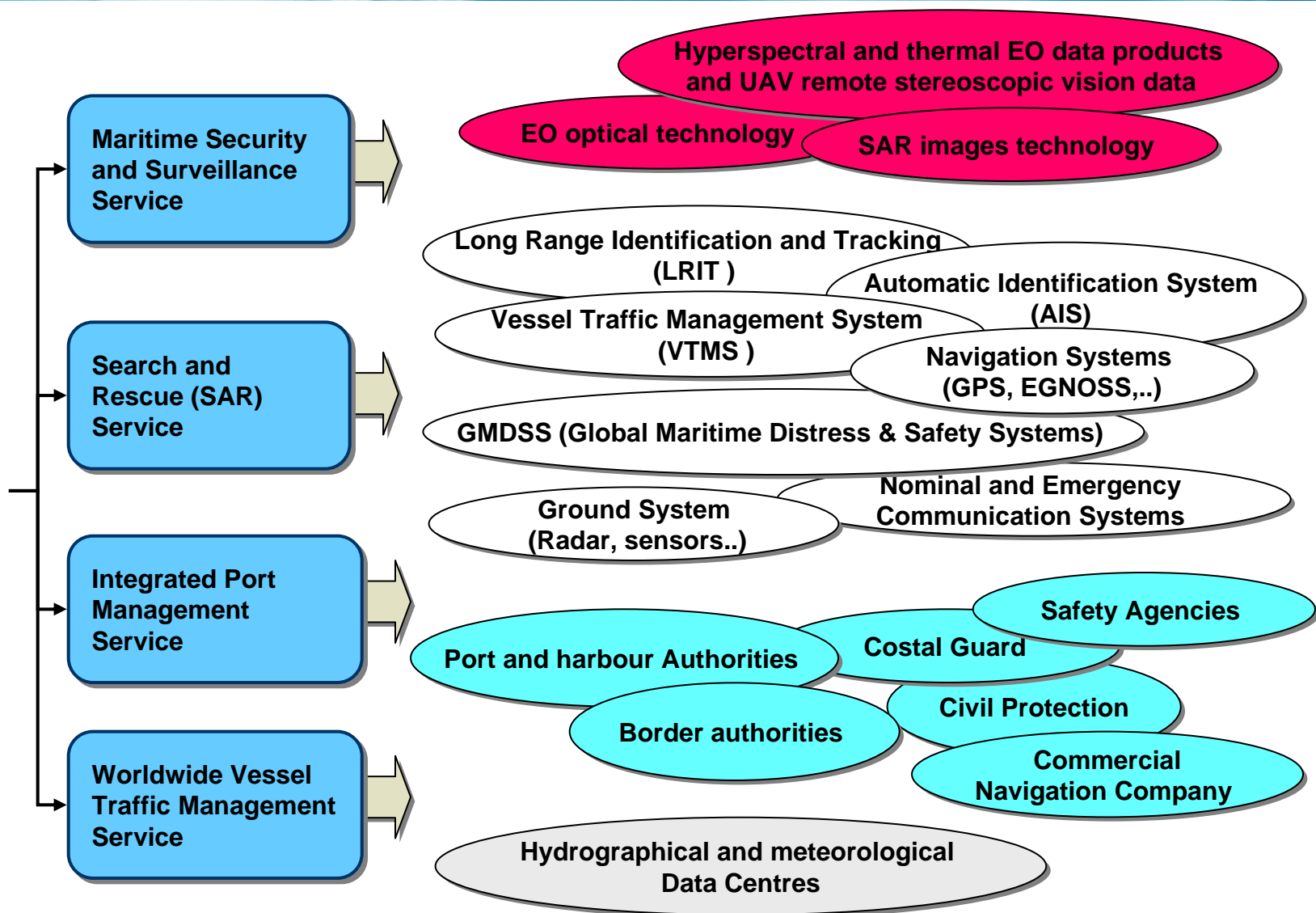
MARITIME Users Needs And Services

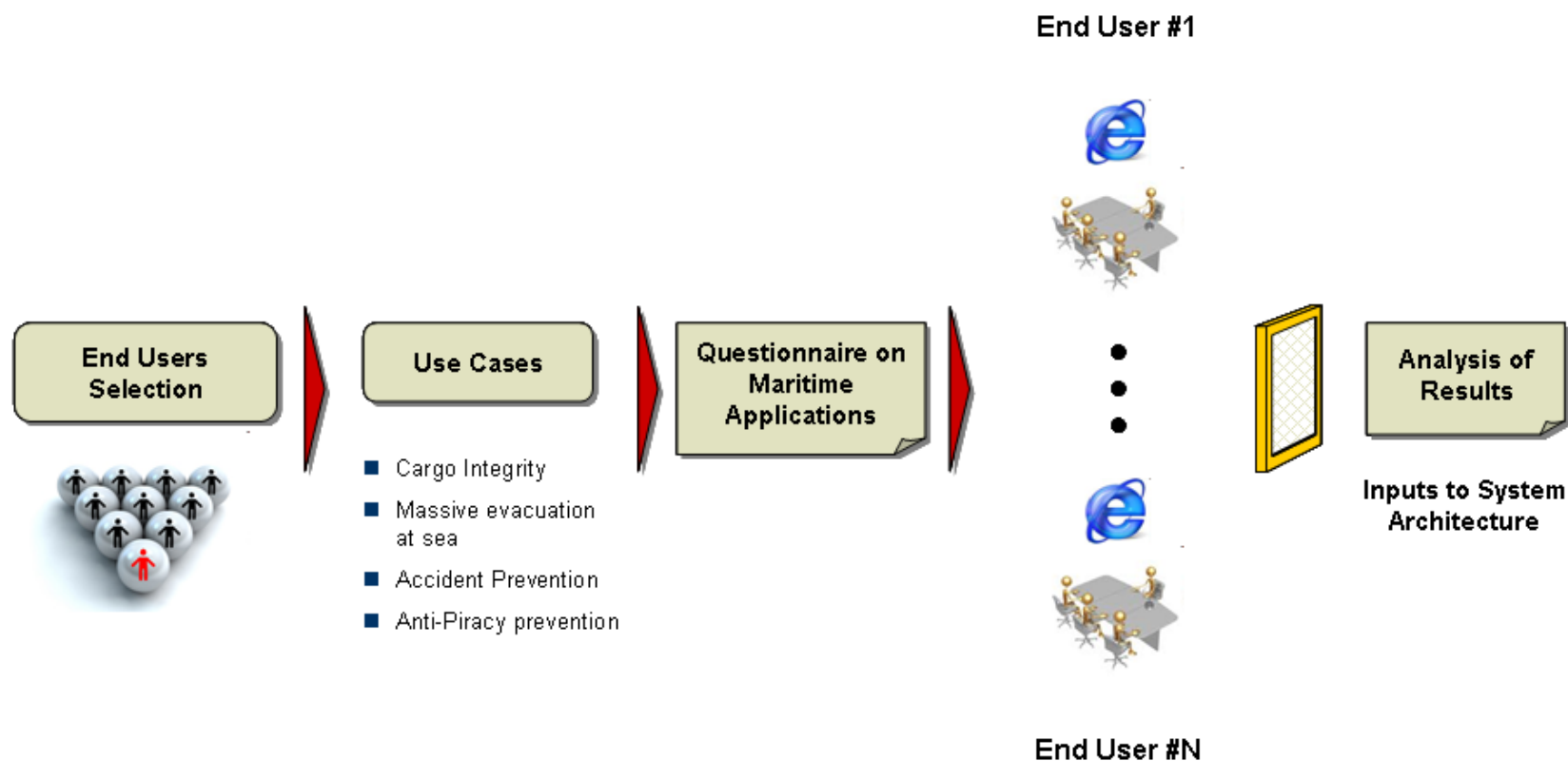
Maritime Key Requirements For Safety and Surveillance

- Ability to achieve and maintain **maritime domain awareness** (intelligence, people, cargo, cooperative and non-cooperative vessels), both on specific areas and worldwide
- Ability to automatically generate, update and **rapidly disseminate** ship tracks and respective metadata (people, cargo, vessel,...).
- Ability to aggregate maritime data from **multiple sources** (AIS, LRIT, VMT,...) at multiple **levels of security** to determine ship movement, past history and current location.
- Global, persistent, **24/7/365**, independent from weather conditions, pre-sail through arrival, maritime cooperative and non-cooperative vessel tracking awareness information (people, vessel, cargo)
- **Automated**, rule-based maritime-related activity (people, vessel, cargo) detection alerting and associated information to appropriate analysts.
- Ability to manage user-defined maritime awareness picture (real-time, integrated (non-EO/EO data), what-if scenarios....)
- **Interoperability/integration** with currently existing data sources and systems at local, regional, national and international level (cargo ships and containers tracking systems such as GPS, AIS, VTS, Satellite VDS, integration of VMS and AIS, existing and operational networks and infrastructures (SafeSeaNet))
- Ability to integrate different sources (AIS, LRIT, Radar, SAR images,..) in order to detect and eventually identify **Not cooperative vessels**.

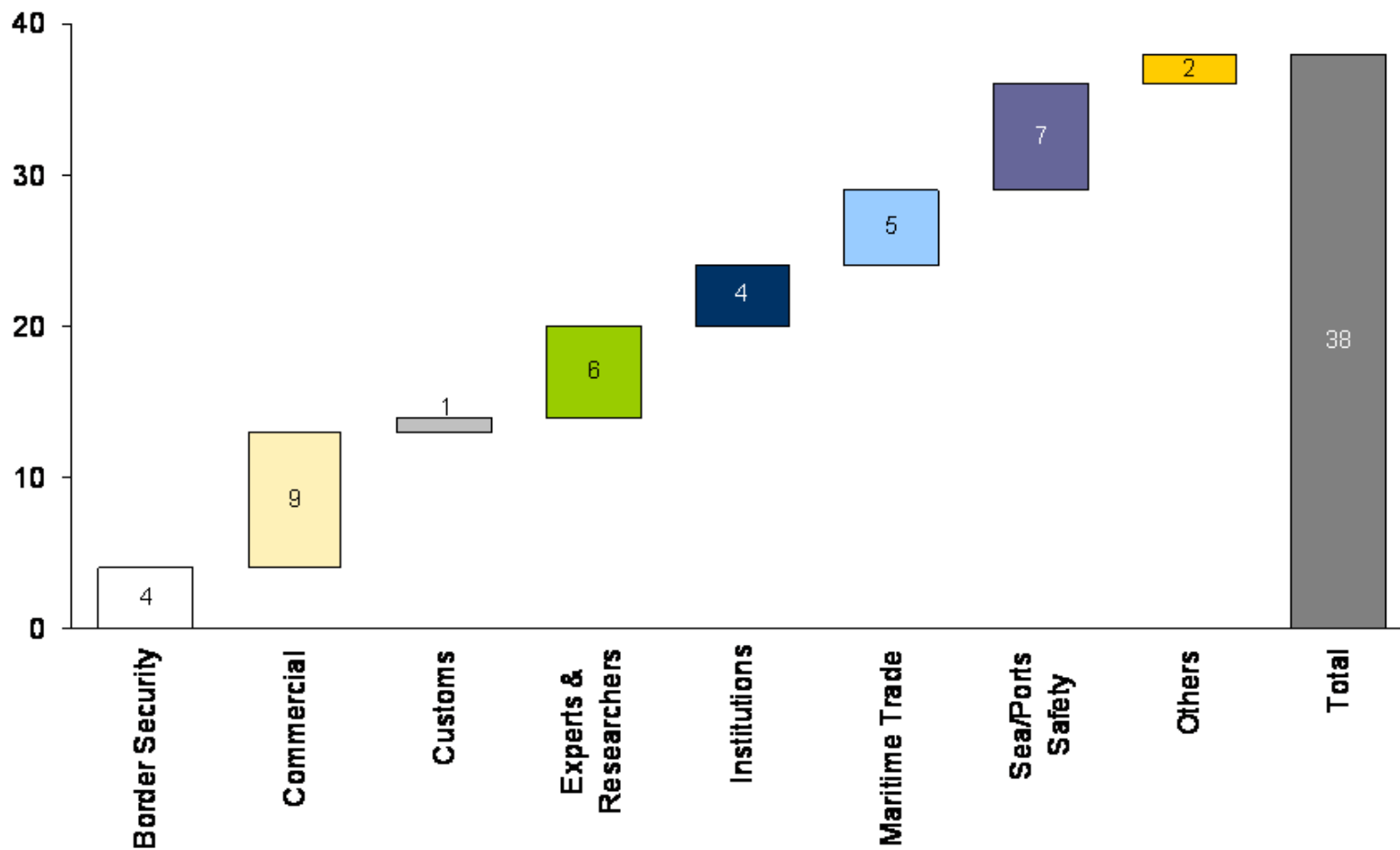
Maritime Key Requirements for Fleet Management

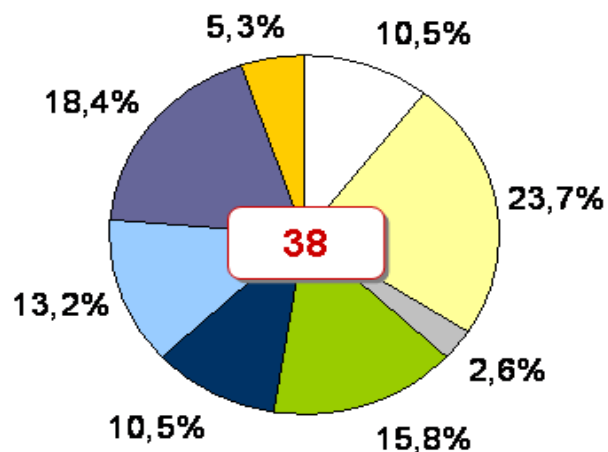
- Ability to generate and display automated rule-based **maritime alert notifications** based on a variety of predetermined indicators such as.
 - ships with anomalous or missing AIS/VMS information
 - ships stationary in unusual locations or on unusual tracks
 - ships with failures
- Global, continuous, pre-sail through arrival, data communication capabilities to exploit **commercial IP based services**
- Compliance to **international standards** (IMO, ITU, IALA,...)
- Ability to ensure information **security, confidentiality, integrity and availability**.
- Harmonization with respect to other transport modes i.e., road, rail and air.



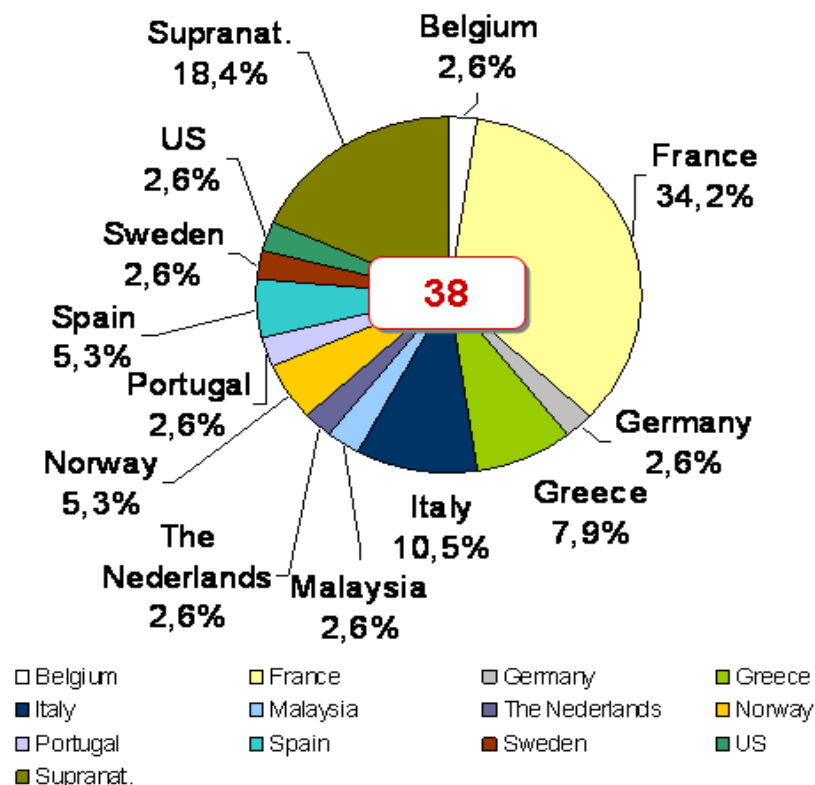


Thales MPC results





- Border Security
- Commercial
- Customs
- Experts & Researchers
- Institutions
- Maritime Trade
- Sea/Ports Safety
- Others



- Belgium
- France
- Germany
- Greece
- Italy
- Malaysia
- The Netherlands
- Norway
- Portugal
- Spain
- Sweden
- US

***Feasibility activities, as basic element to
prove the benefits of space services to new
user groups***

- **Development cycle in preparation of sustainable services**
(Awareness => Feasibility Study => Demo Project => Sustainable Service)
- **two types of feasibility study activities:**
- a) **Fully funded** activities (100%)
initiated by ESA in coordination with **user partner**
as open competitive ITTs
=> **Workplan**
- b) **Co-funded** activities (up to 50%)
initiated by industry and their partners
in direct negotiation
=> **Open Call for Proposal (AO 6124) and then injected in the Workplan or its relevant addendum**

- **Feasibility Studies** activities are generated from:
 - awareness activities
 - contacts with user communities
 - discussions with industry
- **Demo Project Activities** are generated from:
 - feasibility studies activities
 - direct interaction with user communities
 - and also discussion with industry
- **DEMO PROJECT ARE ALWAYS COFUNDED UP TO 50% BY IAP**
- **Single majority approval by JCB** for each activity
(member states may decide not to participate to specific activities)
- Proposals to be accompanied by **letter of support** of National Delegations (contact points made available in handbook or ITT)

Key selection criteria for IAP activities:

- confirmation of stakeholder interest;
- user involvement;
- identification of the added value of integrated solution;
- at least two different space assets (EO, Satcom, Satnav, HSF, etc);
- definition of system / service concept (incl. interfaces, interoperability);
- assessment of technical and non-technical risks;
- economic / non-economic viability / business case;

specifically for Feasibility Studies:

- potential for a follow-on demo project activity;
- willingness of user partner to engage also in demo project.

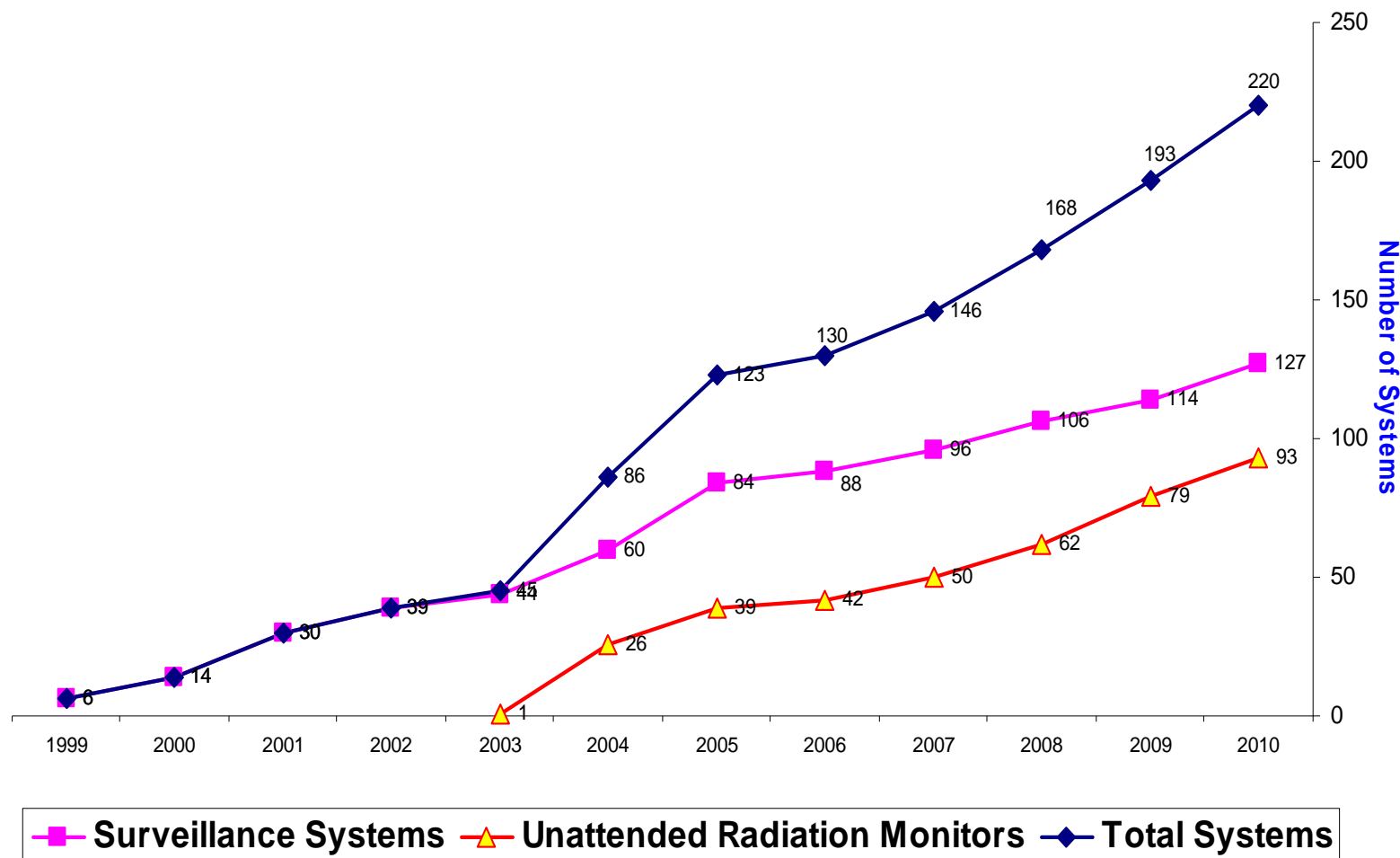
*IAEA-ESA Collaboration: the setting up of an
Operational Service for the Safeguarding of
Nuclear Facilities*

A success story!

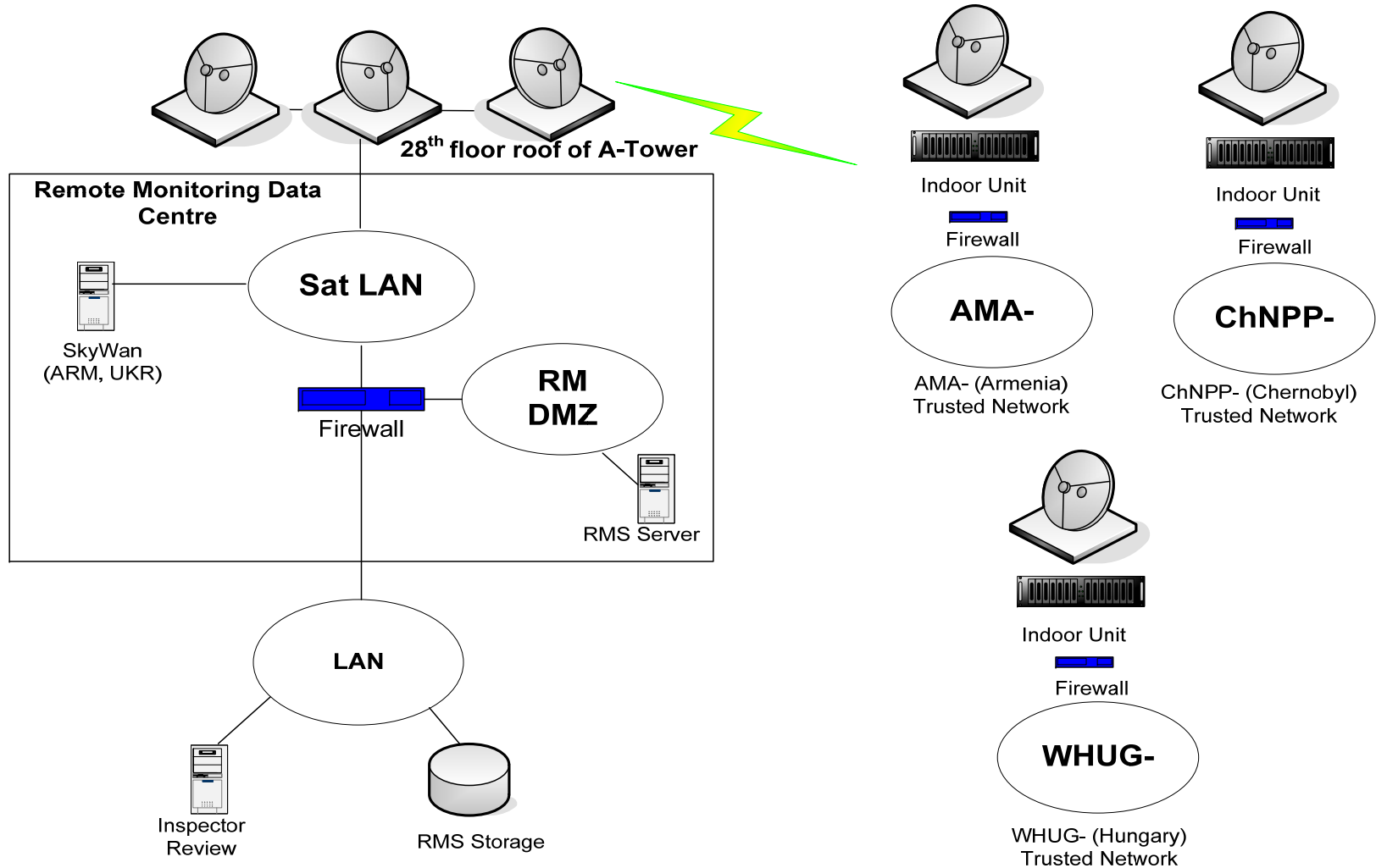
- The IAEA is the world's nuclear inspectorate.
- The IAEA inspects nuclear and related facilities under safeguards agreements with more than 145 States around the world.

- Secure, reliable, economical communications from facilities to the IAEA to transfer surveillance, radiation, and seal data.
- State of Health (SoH) to monitor equipment.
- Remotely troubleshoot & reconfigure.
- Save inspection effort, limit exposure, and operator interruption.

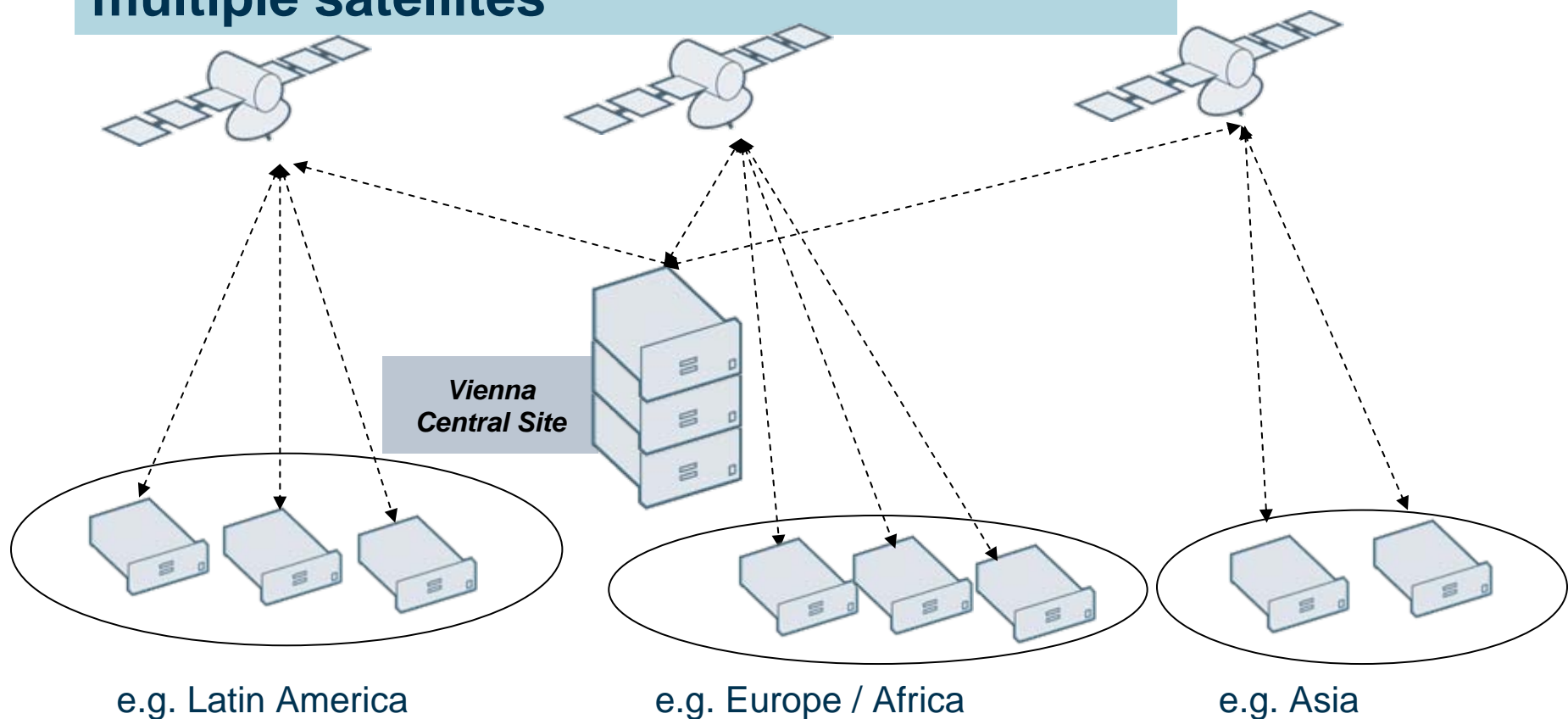
Use of Remote Monitoring Systems, 1999-2010



- **2006 ESA/IAEA partnership began with commissioning 2 feasibility studies on satellite applications for Safeguards**
- **Oct 2006 IAEA requirements for the ESA Demo Project in Armenia, Hungary and Ukraine**
- **Jul 2009 Demo started**
- **Jan 2010 Demo completed**



- World-wide coverage through access of multiple satellites







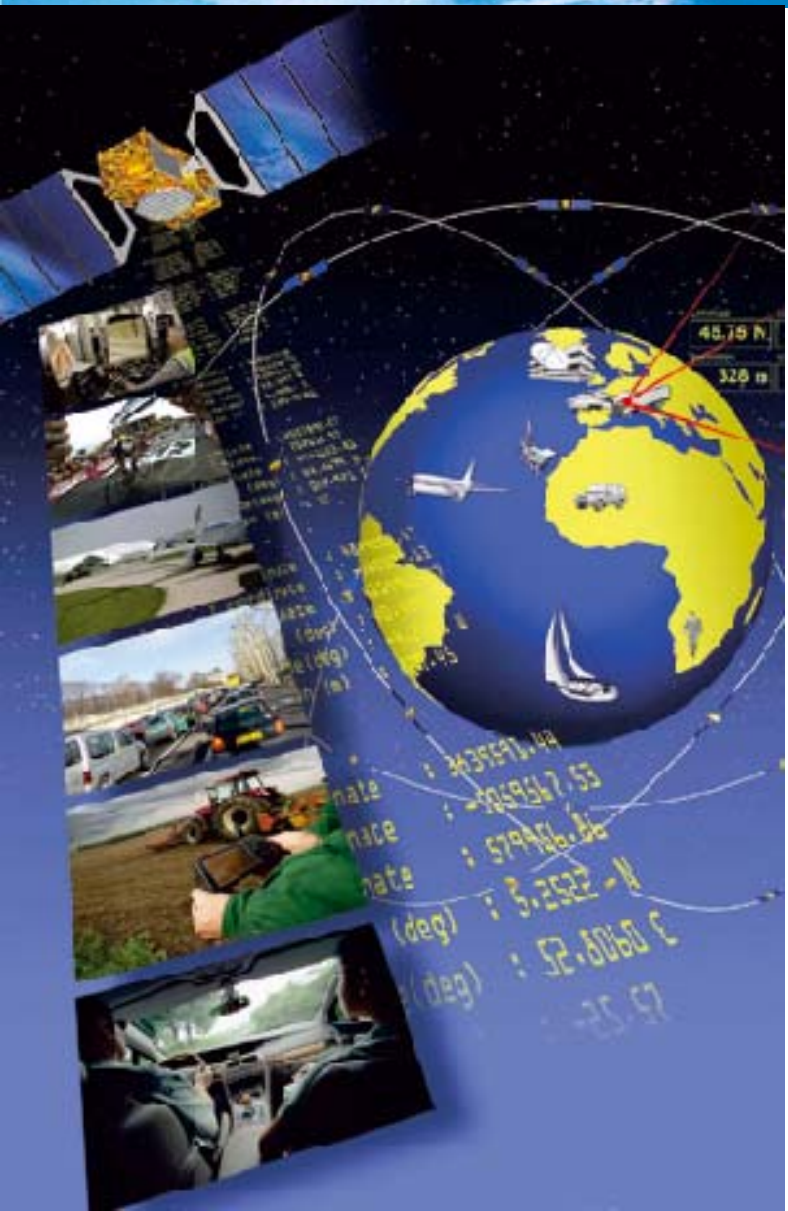




- Following the success of the demo phase, IAEA has decided to extend the network of RM based on the preliminary development;
- IAEA will establish an operational RM network in 8 locations based on the already established hub in Wien:
- Ukraine: Chernobyl, Zaparozhe, Rovno, South Ukraine, Khemelnitsky
- Armenia: ANPP
- Kazakhstan: Ulba
- Belarus: Minsk

ESA intends to promote through the IAP programme mechanism user's involvement





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