EDA approach on architectures in support of capabilities development

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Marcel STAICU, Project Officer NEC
Knowledge Management, EDA Capability Directorate
marcel.staicu@eda.europa.eu

Agenda

- EDA and its role in EU's capabilities' development
- EDA approach on the use of architecture and SOA

EU Common Security and Defence Policy

- European Security and Defence Policy (ESDP) launched in 2000
- Focus = Crisis Management Operations
- Military and Civilian Capabilities
- Headline Goals: Collective Objectives
- Over 20 ESDP operations since 2003 (civ and mil)
- The Lisbon Treaty (2009) => Common Security and Defence Policy (CSDP)

But

- Capability Improvement Lagging Behind

Why a European Defence Agency?

- Improving Military Capabilities = EDA's 'Raison d' Être'

- Fragmentation in Europe:
  - national military requirements → diverging demand
  - national R&T + procurement → different equipment
  - national defence industry → 'national' production

- Effects:
  - operations: lack of standardisation and interoperability
  - defence budgets: waste of money
  - industry: lack of adaptation to a competitive market

- Some key data:
  - 23 different types Armoured Fighting Vehicles
  - 16 national naval shipyards (US: 3)
  - > 50% spent on personnel (US: 21%); approx. 20% spent on investment (US: 36%)
  - approx. 85% of Defence R&T and 80% of equipment procurement = national
  - 80 000 military deployed (US: 200 000) of total 1.8 million military (US: 1.6m)

Treaty of the EU (Lisbon Treaty, 2009)

Section 2 (Provisions on the Common Security and Defence Policy), Art 42, Para 3:

Member States shall undertake progressively to improve their military capabilities. The Agency in the field of defence capabilities development, research, acquisition and armaments (hereinafter referred to as "the European Defence Agency")

- shall identify operational requirements,
- shall promote measures to satisfy those requirements,
- shall contribute to identifying and, where appropriate, implementing any measure needed to strengthen the industrial and technological base of the defence sector,
- shall participate in defining a European capabilities and armaments policy,
- and shall assist the Council in evaluating the improvement of military capabilities.

EDA in the CSDP Framework

European Council

Heads of State and Government

Guidelines

Reports

Defence Ministers

EDA SB

Chair

Foreign Affairs Council

Foreign / Defence Ministers

Chair: HR Ashton

PSC

Ambassador level

CHODs

European Defence Agency

AMB

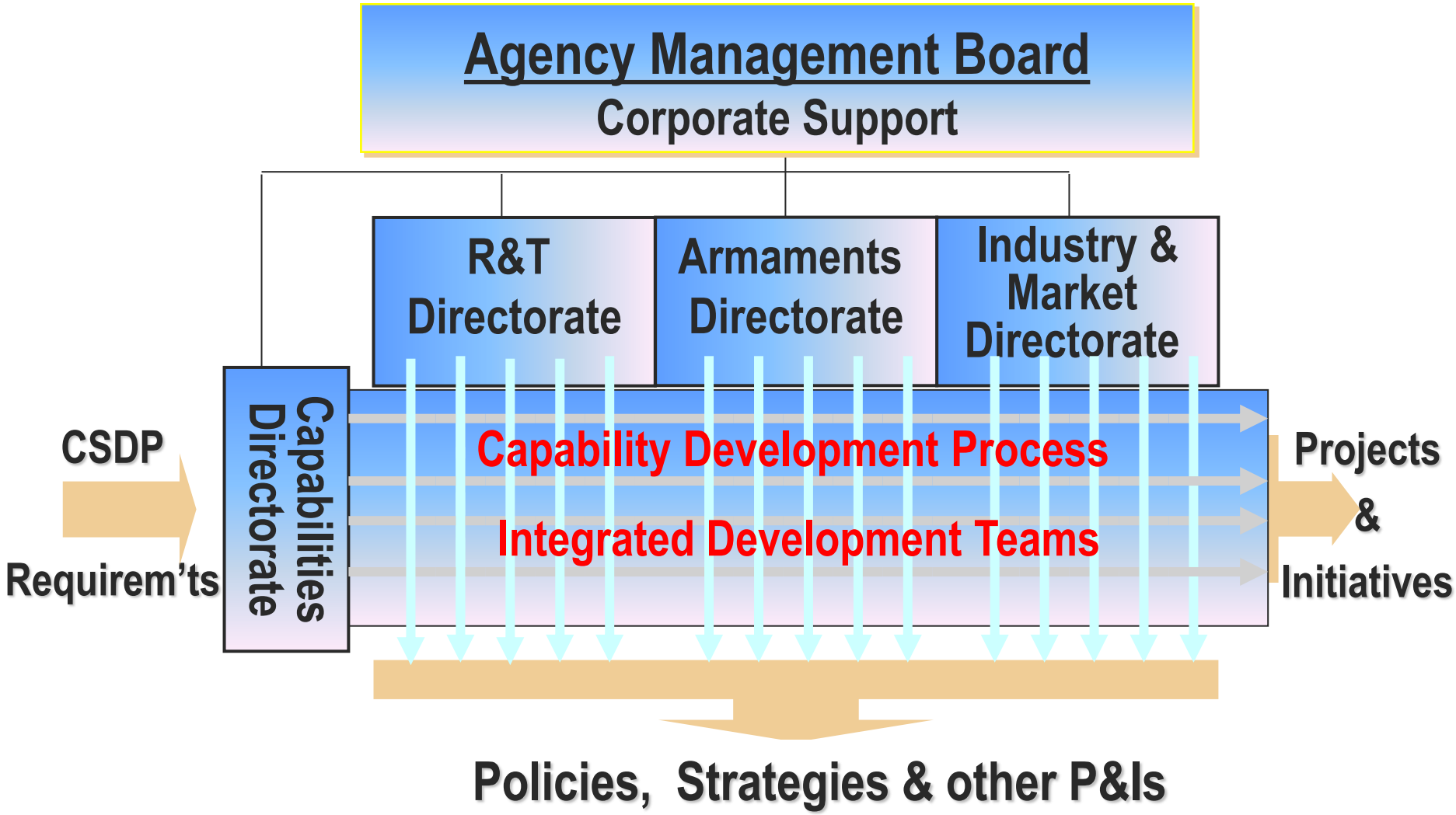
EUMC

CMPD

CIVCOM

EUMS

Internally, an integrated way of working



Shareholders and Stakeholders

Shareholders

= 26 participating Member States (all EU Members except DK)

- they pay (EDA general budget; projects)
- they 'own' the military capabilities

Stakeholders

= Commission, ESA, LoI, NATO, OCCAR, etc.

- they complement EDA capability development (NATO)
- they are key partners in mil-civ coordination (CION, ESA)
- they are 'sister' organisations in improving European mil capacities (OCCAR & LoI)

EDA Strategic tools and Strategies

- **Capability Development Plan (8 July 2008)**
  - Defining the short (2010), medium and long-term (2025+) needs
- **European Defence Research and Technology Strategy (10 November 2008)**
  - Defining the ways (roadmaps), means (cooperative measures) and ends (key technologies)
- **European Armaments Cooperation Strategy (15 October 2008)**
  - Defining the process how to move efficiently and most effective from harmonised military requirements to cooperative armaments programmes
- **European Defence Technological and Industrial base Strategy (14 May 2007)**
  - Competent, competitive and capability driven
  - Truly 'European', not the sum of all national DTIBs

12 Priorities for Capabilities Development

- Network Enabled Capability
- Intelligence, Surveillance, Target Acquisition and Reconnaissance Architecture
- Counter-Improvised Explosive Devices (C-IED)
- Chemical, Biological, Radiological and Nuclear Defence
- Counter-Man Portable Air Defence Systems
- Mine Counter-Measures in littoral sea areas
- Third Party Logistic Support
- Increased availability of helicopters
- Medical Support
- (Comprehensive Approach - military implications)
- (Computer Network Operations)
- (Military Human Intelligence and Cultural / Language Training)

Note: currently under revision

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Why NEC*

Approach for EU crisis management operations

- more effective command and control
- better information-sharing

Concept for developing an EU-wide programme

- to transform the way in which information is handled, managed and exchanged
- building on on-going efforts in the Member States and EU institutions

* *Ref: Council Document 9453/1/09+Cor1, "Developing network-enabled capabilities (NEC) in support of ESDP", agreed by PSC on 16 June 2009*

NEC Concept definition*

"The ability to shape a cohesive environment

- for a comprehensive approach and
- for a unified effort of civilian and military entities and actors at all levels in EU-led Crisis Management Operations and Missions,

through informed and timely decision-making and coherent execution,

based on

- the seamless and efficient sharing and exploitation of information,
- by competent personnel, properly tailored processes,
- and developed networks"

** Ref: Council Document 12737/08+Cor1, "EU Concept For NEC in support of ESDP", noted by PSC on 16 June 2009*

NEC dimensions

- **People**
  - social aspects, governance/management, business processes, rules & legislation, policies, cultural change, awareness and training, human interface
- **Information**
  - management, sharing and protection
- **Technology**
  - capabilities, systems & sensors, networks and federation of networks, services, standards, research and technology, experimentation and testing, cooperation programmes

Project Team NEC

- Chaired by Germany and staff support from EDA
- pMS representatives from MoDs
- Council Secretariat representatives (civil and military)
- Commission representatives (civil)

Main completed effort - EDA NEC Implementation Study (Dec 2010):

- a NEC Vision "what ?"
- a NEC Roadmap "how ?"

- On three time horizons (2012, 2018, 2025)
- Three dimensions: people, information, technology

From concept to vision

National and EU developments

NEC Concept

NEC Roadmap
(people, information, technology)

NEC Vision

enabled by CEWA (comprehensive EU CSDP-wide architecture)

NEC Implementation Study

Architecture Federation (1)

Problems and Challenges with Integrated Architectures

- Problems
  - Integrated architectures are **difficult to build**
  - Architectural information are **difficult to present**
  - Comprehensive and actionable description needed **without undue complexity**

- Challenges
  - **Comprehensive description** of the enterprise and its entities capable of supporting decision making
  - **Access** to architectural information
  - Coherent architecture **configuration management**
  - **Methodology for linking** architectural data

Architecture Federation (2)

Architecture Federation uses net-enabled data management approach for the architecture data COI (community of interest) to address the challenges of Integrated Architecture

- Key Principles
  - **Respect of individual requirements**,
  - **Federation** of architecture artefacts **not rebuilding** architectures,
  - Maximizing **reuse** of existing architectures
- Key Concepts
  - Architecture **types/levels**,
  - **Tiered accountability**,
  - High level **taxonomies**,
  - **Semantic** alignment,
  - **Context (AV-1)** : Purpose, Boundary, Scope, Viewpoint, Echelons, Breadth

Enterprise Architecture Transition

Transition Strategy needed from the As-Is to the To-Be Architecture with associated transition architectures

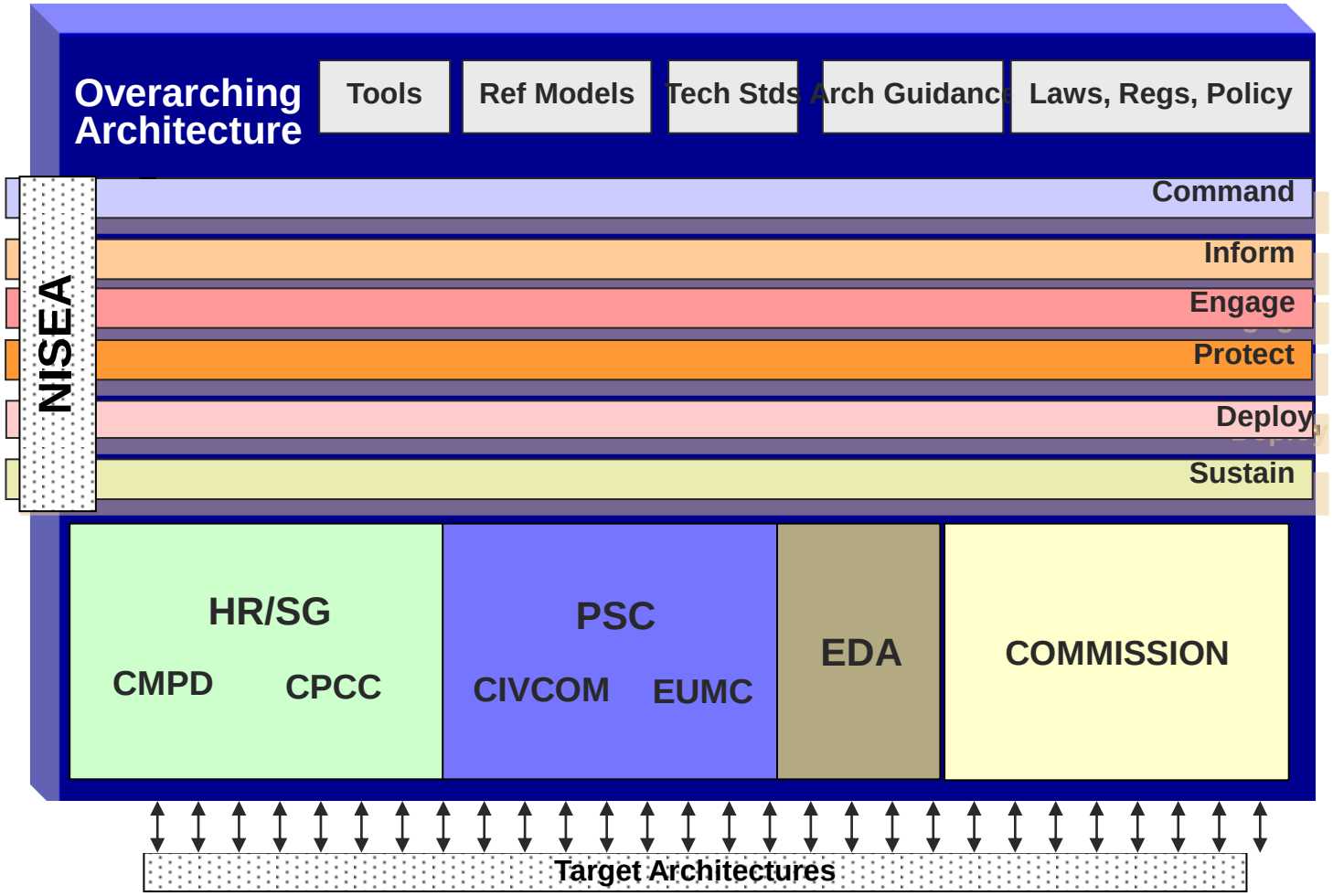
- To address
  - Redundancy and gap analysis
  - Programs and projects definition
  - Programs and projects sequencing plan
  - Linkage with capability investment portfolios
  - Impact assessment and performance
- To include the definition of the Context (AV-1) of the architecture
- To integrate the Enterprise Capability Life Cycle Framework

The proposed CEWA Federation

- The CEWA is an architectural version of the Vision
- The CEWA is the OA part of the CEWA Federation which is composed of the OA, RAs, and TAs of the CSDP-enterprise
- The OA, RAs and TAs of the CEWA Federation are federated according to the CEWA Federation Strategy (to be defined)
- RAs covers the architectures of the Net-Enabled Information Sharing Environment (NISE), the Capabilities Development Areas, Missions and Organizations

NEC IS focused on the OA and NEC aspects

The proposed CEWA Federation



The proposed Components of the CEWA

- Laws, Policies and Regulations
  - Architecture policy
  - Governance policies
    - e.g., Network systems architecture, SOA engineering, T&E
  - Capability-based Process
  - Information Assurance policy

- Strategies and Plans
  - Information Sharing
  - Information Management & Information Technology
  - Information Assurance
  - Architecture Federation
  - Architecture Transition

The proposed Components of the CEWA

- Standards
  - Architecture Standards
    - e.g., EU Architecture Framework
  - CSDP IT Standards Registry
    - e.g., Interoperability Profiles
- Tools
  - CSDP Architecture Registry
  - Integrated (Capabilities Development Areas) CDA initiatives repository

NISEA - The Network Enabled Information Sharing Environment Architecture

- **Information, information ressources, assets and processes** required to leverage the power of information across the CSDP enterprise and with mission partners
- **Layers of services and standards** that enable information management operations and drive EU NEC concept across CSDP missions
- **Principles, rules, constraints and best practices** associated to policies and guidance supporting NEC IS ((to be developed)

The NISEA is the common foundation for EU NEC

NISEA Hierarchical Activity Model (EU OV-5)

- A0. NISEA
  - A1. Provide Data & Services
  - A2. Provide Data & Services Security & Trust
  - A3. Provide Communication Infrastructure
  - A4. Provide Computing Infrastructure
  - A5. Provide Network Operations

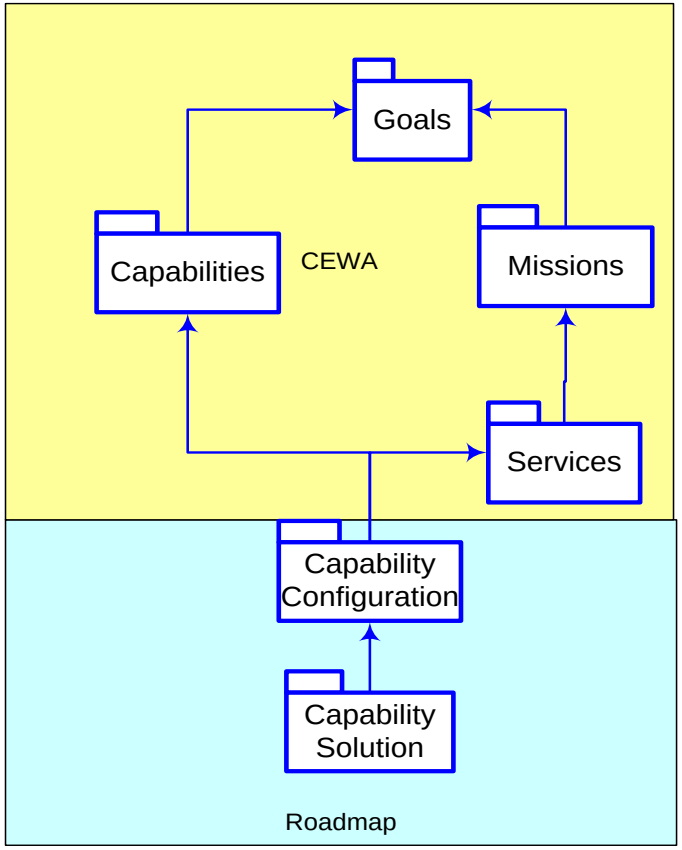
- Principles and rules have been provided for A1 and A2

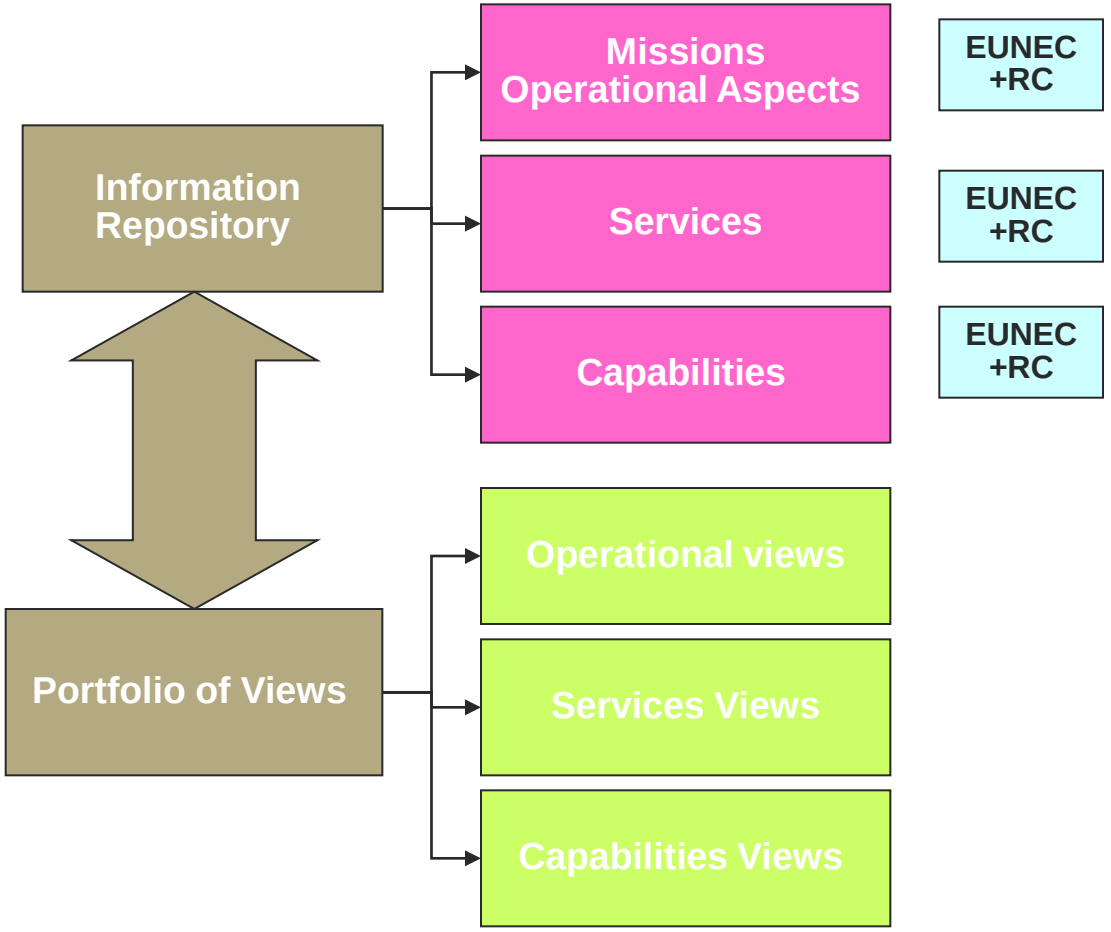
A1 and A2 have been developed in the Annexes of the CEWA

A Word about the Model

- A first step
  - The current model provides a snapshot of what a capability management tool for supporting governance could be .
  - It needs to be improved by including the RC05 capabilities in details and the capabilities of EU and Nations
- With limitations
  - The current model is limited to capabilities and services
  - Capability configurations are to be selected from the roadmap
- And building rules
  - A portfolio of views
  - A repository of capabilities and services
  - To be upgraded as the EU NEC matures

Model Structure





ISR Collection, Platforms & Sensors
Use of Architectures

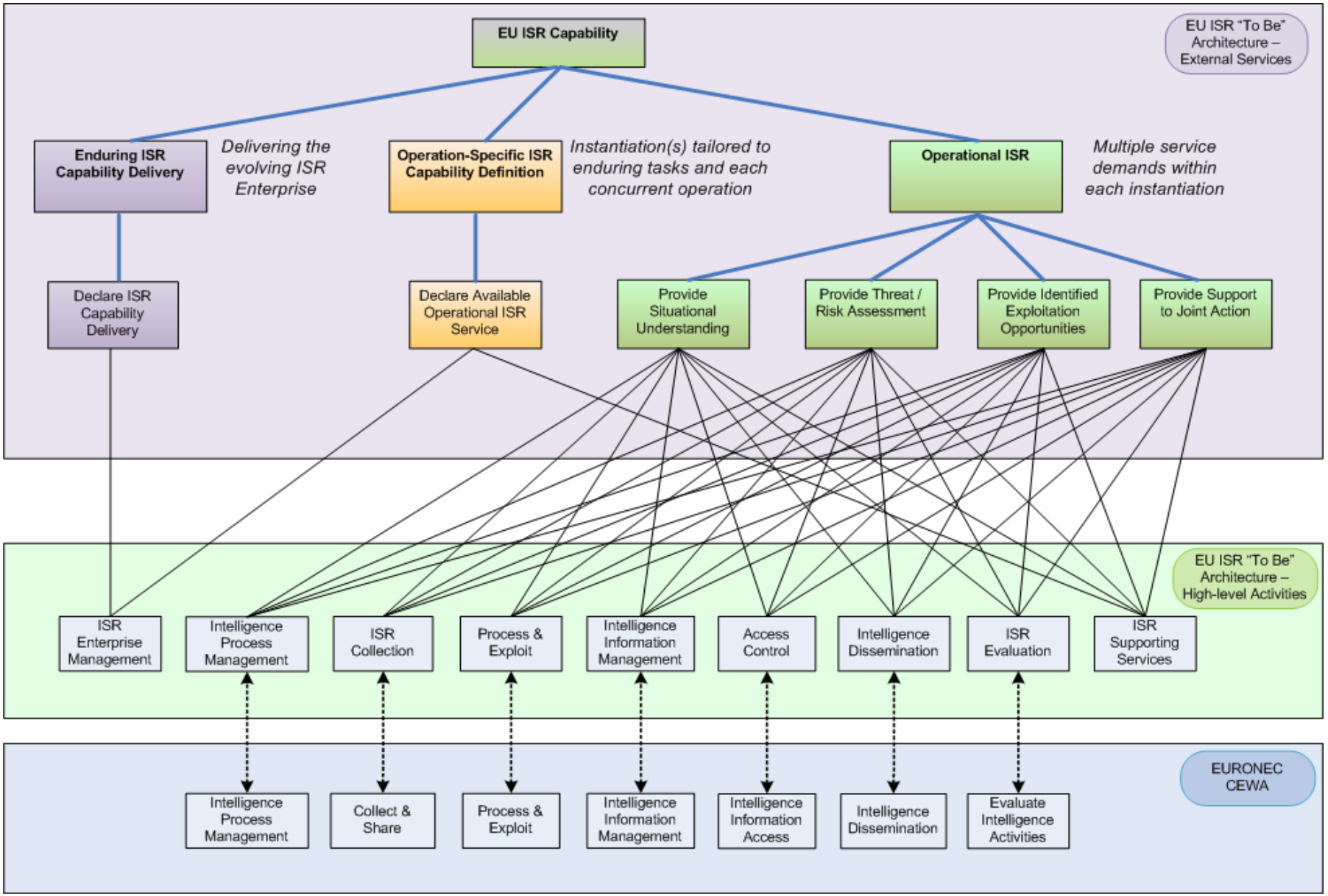
Objectives

- Develop an EU ISR Architecture Design for EU Crisis Management operations (CDP action)
- Identify ISR capability shortfalls in the ISR information collection and transfer process

Deliverables

- Strategic Context Case on ISR (to be noted by SB)
- Common Staff Targets on
  - EU ISR Architecture (2009)
  - EU Surveillance & Reconnaissance
    (SB approval expected early 2011)
- EU ISR Architecture Design Study final Results (OB2009, Dec 2010)
- EU ISR Capability Package Assessment Study (OB 2010, 12 month study in 2011)
  - Operational Analysis using Balance of Investment Analysis Modeling & Simulation facility of ESA
  - Using results EU ISR Architecture design study

EU ISR "To Be" Architecture – External Services Challenges & Way ahead



PT CIS – use of architectures

WS	2010	2011	2012	2013	2014
Architecture Management	Architecture Management 1 (AM1)		AM 2	AM 3	
C4I Architectures	C4I RA EUBG		C4I TA/Proto. EUBG	BA IEOO	RA/TA IEOO
		C4I RA OHQ/ FHQ			C4I RA/TA EU HQ COP
	J1 FAS Proto-type	J1 FAS Prototype			
IEG	C4I RA IEG				

IEOO: Information Exchange with other organisations
EUBG: EU Battle Group
FAS: Functional Area Service
IEG: Information Exchange Gateway
COP: Common Operational Picture

Challenges and lessons learned

- Define the scope and aim of the architecture.
- Define the data repository to be used.
- Select a tool.
- Build up a community of interest (stakeholders).
- Communicate and publish your results.
- Establish an architecture management framework.

DISCIPLINE AND PATIENCE ARE BADLY NEEDED

Way Ahead on architectures

Proposals:

- Architecture management currently inserted as a priority for further capability development
- CEWA to play OA role for further architectural artefacts
- Architectural management
  - Policy
  - Repository
  - Dedicated resources
- Training to be continued

Questions and Answers

"One person, one information profile, wherever connected"

Thank you for your attention.