EUCISE2020
EUropean test bed for the maritime Common Information Sharing Environment in the 2020 perspective

September, 09, 2015

EUCISE2020 has received funding from the European Union's seventh framework programme under grant agreement no: 608385

Presentation Outline

- EUCISE2020 Context and challenges
- Roadmap and principles
- Legal References
- FP7 Topic and objectives
- EUCISE2020 fundamentals

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Context and Challenges

Surveillance activities are carried out by States but most of the activities and threats that they address are transnational in nature. Within most States surveillance activities concerning fisheries, the environment, policing of the seas including traffic monitoring, or border control fall under the responsibility of several different enforcement agencies operating independently from each other. ***The aim of integrated maritime surveillance is to generate a situational awareness of activities at sea, impacting on***

- Maritime safety and security
- Border control
- Maritime pollution and marine environment
- Fisheries control
- General Law enforcement
- Defence
- Trade and economy

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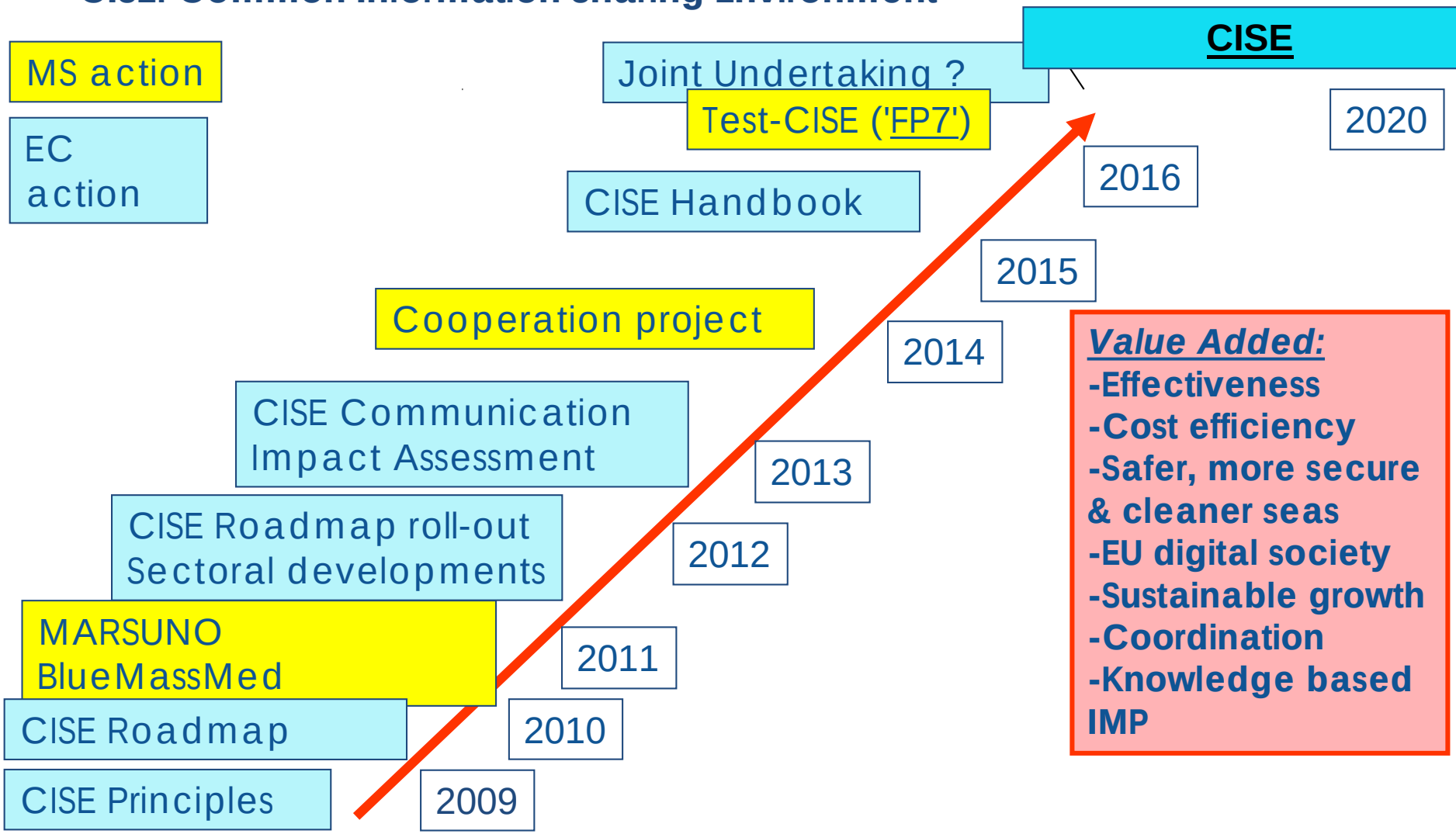
Cross – sectorial interoperability for better "Maritime Governance"
CISE: Common Information Sharing Environment



Key Principles

- ***CISE is a set of specifications for interoperability***

Once Member States implement them, information will be easier to share.

- ***CISE will be based on the work of the Pilot Projects (BluemassMed and MARSUNO) and of the Cooperation project***

These specifications will be based on the work of the Pilot Projects (BluemassMed and MARSUNO) and of the Cooperation Project.

- ***CISE will not impose any organisational constraints***

Member States are free to choose their service providers and consumers.

- ***EUCISE2020 will be the reference implementation of CISE***

Member States of 12 maritime EU/EEA Countries will jointly develop EUCISE2020, in connection with the EU Commission (DG MARE, JRC, DGIT, DG CONNECT), co-funded by FP7 Security Research-DG ENTERPRISE.

- ***EUCISE2020 architecture adopts the CISE Hybrid Vision Model***

Principles and technical solution will be based on the CISE Hybrid Vision model (CISE Architecture Visions Document - v3 00 - http://www.eucise2020.eu/publications).

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Reuse Principle

- Creation / consumption of services in CISE should be facilitated as much as possible: the creation of a reference implementation of the services shall be envisaged
- EUCISE2020 will reuse building blocks of eSens (eDelivery, eInteraction, eID, eSignature…)
  - e-SENS (Electronic Simple European Networked Services: www.esens.eu) *is a large-scale project that embodies the idea of European Digital Market development through innovative ICT solutions. The project will consolidate, improve, and extend technical solutions to foster electronic interaction with public administrations across the EU.*
  - eSens includes governance and vision on sustainability of IT solutions
  - Likely: output of eSens to become corporate Commission solution to connect public authorities (all policy domains)

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From Specifications to standards

- The specifications of services and the common data model are based on the output of the pilot projects (BluemassMed and MARSUNO) and of the Cooperation Project
- The current Incubator Project will be taken under consideration
- High value services will be built in EUCISE2020 project
- Specifications to be transformed into **standards**
- The long term vision is that IT providers of maritime surveillance technologies and solutions one day implement and test IT solutions EU wide based on commonly agreed international standards

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CISE Official European Documents

- JOINT COM TO THE EUROPEAN PARLIAMENT AND THE COUNCIL "For an open and secure global maritime domain: elements for a European Union maritime security strategy" – JOIN (2014) 9 final
- CISE - Com from the Commission to the European Parliament and the Council - COM(2014)451 final *"Better situational awareness by enhanced cooperation across maritime surveillance authorities"*
- Impact assessment - SWD(2014)225 final
- GENERAL AFFAIRS Council meeting, 23 May 2011 Conclusions on Integration of Maritime Surveillance
- Com from the Commission to the Council and the European Parliament on a Draft Roadmap towards establishing of the Common Information Sharing Environment for the surveillance of the EU maritime domain (COM(2010)584 final)
- GAERC Conclusions on the Integration of Maritime Surveillance (17.11.2009)
- Commission communication on the integration of maritime surveillance (2009)
- GENERAL AFFAIRS Council meeting, Conclusions on Integrated Maritime Policy and Maritime Surveillance (8.12.2008)

"The Council ..... confirms that an integrated approach to maritime issues constitutes a major objective, since the synergies, the coherence and the added value of sectional action ... need to be reinforced by being integrated into a comprehensive vision of the seas, oceans and coastlines, taking account of distinctive regional features and in accordance with the principle of subsidiarity."

- EU Council document, 2008 Maritime surveillance - Overview of ongoing activities

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- 7 main initiatives sponsored by FP7 Security Research about maritime surveillance supporting the EUROSUR Roadmap: Perseus, I2C , Seabilla , Dolphin, Nereids, Simtisys + Pre Operational Validation Project Closeye
- 2 Pilot projects: BluemassMed and MARSUNO
- Cooperation Project
- CISE Incubator
- POV CISE to support the CISE Roadmap implementation

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Existing CISE Landscape (2012)

The exiting CISE landscape includes a variety of systems and initiatives across all seven CISE User Communities. The nature of systems and initiatives and their purpose varies to a significant extent. However, according to studies promoted by DG MARE, a number of facts gives an overall characteristic of the existing landscape:

- 47% of studied systems/initiatives is central systems, representing stand-alone solutions with centralised data (e.g. CECIS, THETIS, CleanSeaNet, Coastnet, Baltic Ice Management, etc.)
- 25% of studied systems/initiatives is distributed networks, interconnecting existing (national) systems across EU
- The remaining part of the landscape represents a variety of initiatives, reports, studies and supporting projects (e.g. MARSUNO report, EUROSUR resource projects, the INSPIRE Directive, etc).
- The majority of the systems is focused on the exchange of unclassified data
- out of the full analyzed landscape, there are 4 large (having more than 1000 users, covering most of the Member States) operational systems (10%), namely CleanSeaNet, SafeSeaNet, SIENA and EUROSUR.
- **Only 3 initiatives (7%) out of the analyzed landscape are focused on cross-sector collaboration, namely BluemassMed, MARSUNO** and IMDate.

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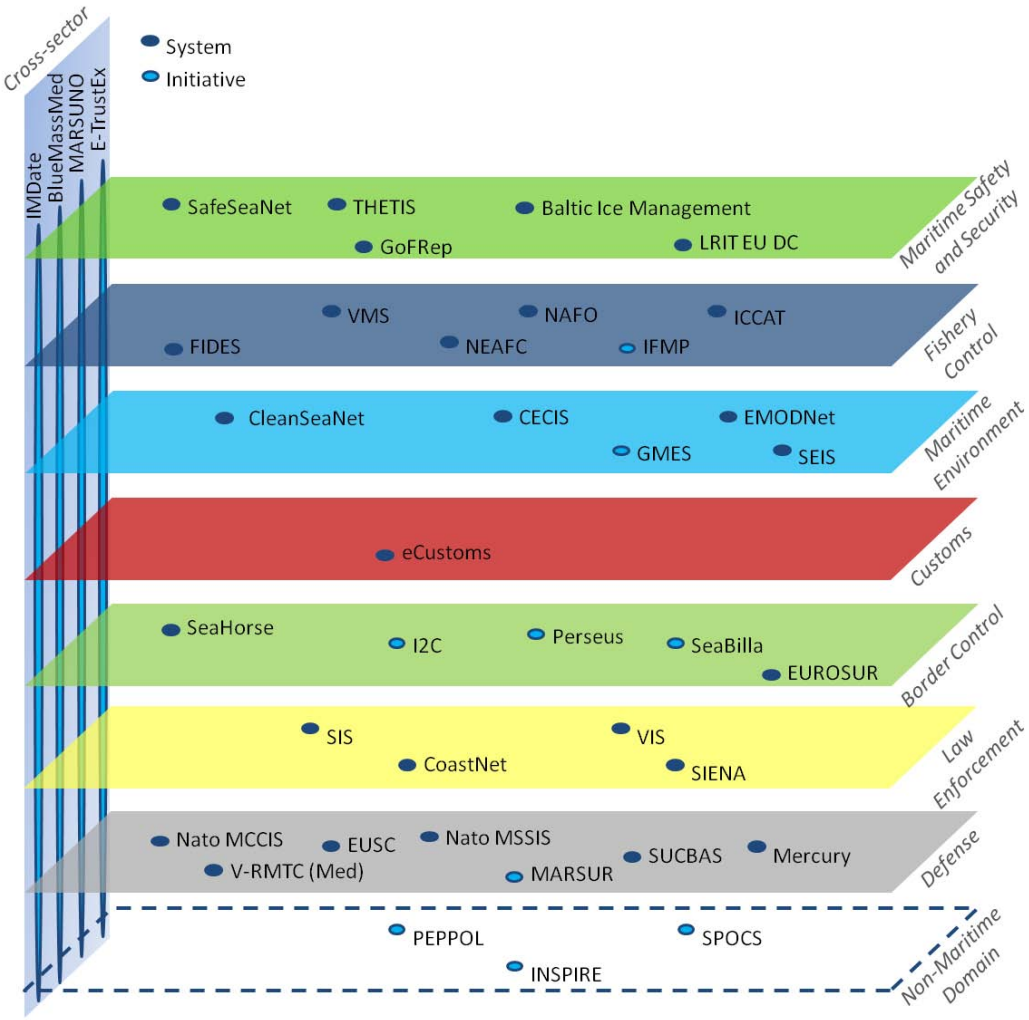
Existing European Systems and Initiatives

Source: Deloitte, 2012, *Draft Final report Study on current surveillance landscape and the resulting options for the Common Information Sharing Environment for Surveillance in the Maritime Domain (CISE)*



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The large majority of existing systems was characterized by:

- **verticality** – i.e., responds to the needs of a specific community,
- **operational nature** – i.e., supports operational processes more than exchange of information,
- **centralization** – i.e., centrally manages common resources.

These characteristics are very different from the CISE goals; in fact, only BluemassMed and MARSUNO, built as CISE pilots, fully responded to the cross-sector and cross-border CISE mission in terms of functions, architecture and governance models.

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According to the R&D Topic –"Testing the interoperability of maritime surveillance systems – POV (Pre-Operational Validation)"- EUCISE2020 will combine two components with synergistic effects:

a. **Networking and coordination activities**: for public bodies in Europe to cooperate in the innovation of their public services through a strategy that includes POV.
b. **Joint research activities**: related to validating the POV strategy jointly defined by the public bodies participating in the action. This would include the exploration of possible solutions for the targeted developments towards a prototype for CISE, and the testing of the proposed solutions against a set of jointly defined concepts of operations and performance criteria.

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Project Objectives

The specific objective of EUCISE2020 is to have a test-bed network of nodes connecting participating public authorities for cross sectorial information services and data exchange; the network will be used to assess in the context of CISE:

- the technical feasibility of option(s) for the Common Information Sharing Environment (CISE);
- the identification of technological alternatives for the achievement of the set of user defined operational objectives;
- the demonstration that there are existing innovative solutions (services) which provide the required capabilities;
- the feasibility of the integration of the proposed solution, taking into consideration the limitations imposed by the existing surveillance systems;
- the performance under realistic operational and formal conditions of the test bed developed;
- the cost-benefit ratio of the option(s) tested;
- the identification of the maturity level showed by the solution(s) in order to promote short/mid term utilisation;
- the definition of innovative applications, business models and procurement schemes that can facilitate the migration to these new solutions from the existing tools;

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Project Objectives

- the evaluation of the experimentation results, promoting their widening to future solutions;
- the definition of advisable technical management structure for CISE;
- elaboration of the action plan for the operational validation of new elements of R&D needed to develop CISE (concepts of architecture, concepts of operation, standards of data and services, new services, new processes, ...);
- development of an open European test bed for incremental advancement of CISE in the medium-long term;
- independent Verification & Validation of the new elements of R&D;
- assessment of organizational instruments necessary to sustain the appropriate governance structure and to stimulate public-private cooperation.

EU CISE 2020 draws a major space of opportunity for national and European maritime Institutions to collaboratively innovate their processes and systems, and for European enterprises to develop a new range of solutions and services competitive in the international market.

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CISE: European Projects Coverage

CoopP: The Cooperation Project is paving the way for smooth data transmission and easy access, whenever relevant, between public authorities (including EU Agencies) in the execution of the defined maritime surveillance functionalities (2012-2014)

MARSUNO – Pilot project on Maritime Surveillance in the Northern Sea Basins (2010-2012)

BLUMASSMED - Pilot project on Integration of Maritime Surveillance in the Mediterranean Sea and its Atlantic approaches (2009-2012)

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EUCISE2020 Coverage

EUCISE2020 Partners

- 37 Partners
- 15 EU/EEA maritime Countries
- Open to new partners and to collaborations with EU Agencies

- ★ Maritime Authorities
- ◇ Experts
- ○ Research Institutions

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Partners List

Partner	website	Partner	website
ASI	www.asi.it	DMI DK	www.dmi.dk
MMI	www.marina.difesa.it	NERSC	www.nersc.no
MEF GDF	www.gdf.gov.it	AEAT ES	www.agenciatributaria.es
MIT GC	www.guardiacostiera.gov.it	CIT	www.cit.ie
MDE ES	www.defensa.gob.es	DGPM	www.dgpm.mam.gov.pt
GUCI	www.guardiacivil.es	MARAD	www.marad.bg
SASEMAR	www.salvamentomaritimo.es	DEMOKRITOS	www.demokritos.gr
EUSC	www.satcen.europa.eu	RBP	www.politiadefrontiera.ro
SWED CG	www.kustbevakningen.se/sv/the-swedish-coast-guard	FINNAVY	www.puolustusvoimat.fi/en/Navy
MIN INT FBG	www.raja.fi	FGMSSC	www.bmvi.de
FTA	www.liikennevirasto.fi	HMOD	www.mod.mil.gr
TRAFI	www.trafi.fi	HCR	www.hcg.gr
BG PORT	www.mtitc.government.bg	MERCATOR	www.mercator-ocean.fr
MTC	www.regjeringen.no	MISE	www.sviluppoeconomico.gov.it
LAUREA	www.laurea.fi	GLT	www.studiotosato.it
OC UCI	www.ucy.ac.cy	DFT	www.gov.uk/government/organisations/department-for-transport
APRE	www.apre.it	LCU	www.unilink.it
INGV	www.ingv.it	WPI	www.wisepens.com
CMCC	www.cmcc.it		

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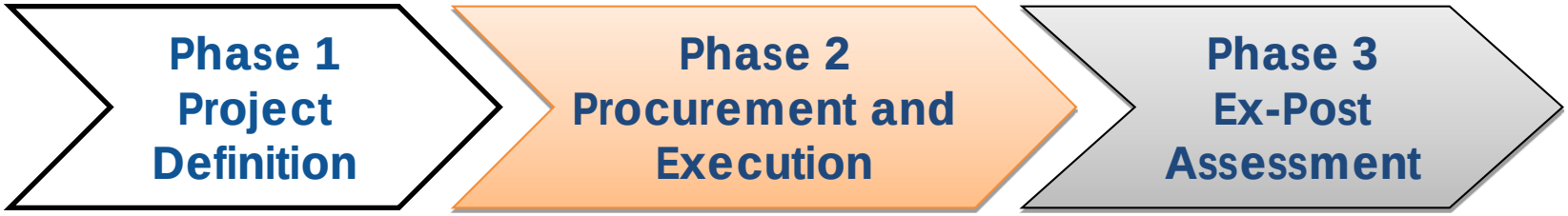
Project Phases



13 months ***15 months*** ***6 months***

Phase 1, Initial Definition Phase (CSA)

Phase 2, Preparatory and Execution Phase (CP/RTD)

Phase 3, Ex-Post Assessment (CSA)

Total duration: 33 months

Starting date: December, 1°, 2014

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Project Costs and EU Grant

Activity	Cost in €	EU Grant in €
Total Project	€ 17.053.931	€13.000.000
In Phase 2 Commonly European Procured R&D Services	€ 4.500.000	€ 3.375.000
Nationally Procured R&D Services	€ 1.200.000	€ 900.000

By the end of 2015, the EUCISE2020 Consortium will launch a European tender to develop the reference implementation of CISE.
Partners participating in the demonstration will manage national tenders to develop the national interfaces to the interoperability platform.

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Organization

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Management Roles

ROLE	PARTNER	NATION
Project Coordination & Tendering (WP1 & WP9)	Italian Space Agency	ITALY
Stakeholders Board Chair	Italian Space Agency	ITALY
Security Board Chair	all partners on rotation basis	n/a
Communication & Dissemination (WP2)	Laurea University of Applied Sciences	FINLAND
Executive Manager for Users Coordination & Governance Model (WP3)	Hellenic Ministry of Defence	GREECE
Executive Manager for Project Definition (WP4)	Italian Marina Militare	ITALY
Executive Manager for Standardisation & IPR (WP5 & WP10)	FMGSSC	GERMANY
Executive Manager for Test-Bed Development & Integration (WP6)	Portuguese Directorate for Maritime Policy	PORTUGAL
Executive Manager for Test-Bed Pre-op validation (WP7)	Spanish Guardia Civil	SPAIN
Executive Manager for Ex-Post Assessment (WP8)	Finnish Border Guard	FINLAND

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Deliverables: Phase 1

Phase	Specific Objectives	Deliverables
Phase 1 Initial Definition Phase (CSA)	Identification of elements requiring new R&D that should be tested and validated in cooperation Definition of an action plan, setting scenarios and issues for concrete implementation of activities Establishment of modalities and procedures for POV evaluation and monitoring (common evaluation criteria and implementation methods) Drafting a preliminary CISE IPR strategy for the (expected) outcome of the Call for Tender Allocation and training of additional resources for implementation (if appropriate) Building cooperation with other stakeholders (if appropriate)	Needs Analysis and Requirements Document Partners Cooperative plan Validation Strategy Document, (*including a practical Exercise Plan and the proposed set of key performance indicators*) IPR concept strategy Technical Specifications Joint POV Call for Tender Common REQs for national CISE procurements

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Deliverables: Phase 2

Phase	Specific Objectives	Deliverables
Phase 2 Preparatory Work & Execution Phase (CP)	Implement the strategy and action plan as prescribed by the participating authorities in Phase 1 The providers of solutions to be implemented and tested will execute their work according to the prescription of the action plan, working under the supervision of the concerned participating public authorities, having the network of systems tested by them for cross sectorial data exchange under realistic operational and formal conditions, at basin and European levels	Preliminary Design of Prototype CISE (response to the POV Call for Tender) Detailed Design of Prototype CISE Authorities/MS Interface policy with legacy systems Prototype Test-bed Integration & Validation Procedures and Reports Testing exercises data sets and report

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Deliverables: Phase 3

Phase	Specific Objectives	Deliverables
Phase 3 Final Ex-post Assessment Phase (CSA)	Thorough assessment of the performance of the network of systems, against the set of jointly defined performance criteria. Confirm the IPR strategy and include dissemination of results to standardisation bodies (if appropriate).	Ex-post Assessment Report IPR strategy Data Access Policy and Implemented Rules CISE KPI and Strategy Map Dissemination Plan CISE Standardisation Proposals

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Use Cases Analysis: data, services, costs and benefits

List and Weight of Use Cases for baseline maritime environment		Global weight on yearly operations in %	Cost/Effectiveness Benefits Scenarios		
Use Case ID 13b	Inquiry on a specific suspicious vessel (cargo related)	12%	21	34	51
Use Case ID 13c	Inquiry on a specific suspicious vessel (crew and ownership related)	12%	21	34	51
Use Case ID 25b	Investigation of antipollution situation (law enforcement)	5%	9	14	21
Use Case ID 37	Monitoring of all events at sea in order to create conditions for decision making on interventions	20%	35	56	85
Use Case ID 44	Request for any information confirming the identification, position and activity of a vessel of interest	15%	26	42	63
Use Case ID 57	Knowledge of surveillance capacities of partner authorities in a given sea area to plan basic tactical surveillance (Baseline and Targeted operations)	8%	14	23	34
Use Case ID 70	Suspect Fishing vessel/ small boat is cooperating with other type of vessels (m/v, Container vessel etc.)	18%	32	51	76
Use Case ID 85	Anti-Piracy Maritime Surveillance and free navigation control: Merchant vessels at sea (outside Territorial waters) sends an alert that it is under Piracy attack	5%	9	14	21
Use Case ID 93	Detection and behaviour monitoring of IUU listed vessels	5%	9	14	21

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Background Concepts from CISE Architecture Visions Document - v3 00

http://www.eucise2020.eu/publications

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CISE Technical Characteristics

CISE is a set of specifications for interoperability

Once Member States implement them, information will be easier to share.

CISE will be based on the work of the Cooperation project

These specifications will be based on the work of the Cooperation Project.

CISE will not impose any organizational constraints

Member States are free to choose their service providers and consumers.

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Based on the 9 principles of CISE, different Architecture Visions have been defined

Interlinking any public authority in the EEA	**Need-to-know and responsibility-to-share**	**Privilege decentralisation**
Civilian and military interoperability	**European, national, sectorial and regional interoperability**	**Privilege reuse**
Seamless and secure information exchange	**Sector neutral**	**Flexible service offering**

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The architecture vision for CISE

Architecture Visions were described according to the European Interoperability Framework,

- Legal
- Organizational
- Semantic
- Technical

evaluated along **3 criteria**

- Cost
- Functional coverage
- Sustainability

and combined into a **hybrid Architecture Vision** for CISE to offer **maximum flexibility** to the Member States based on core elements

Hybrid Vision for CISE

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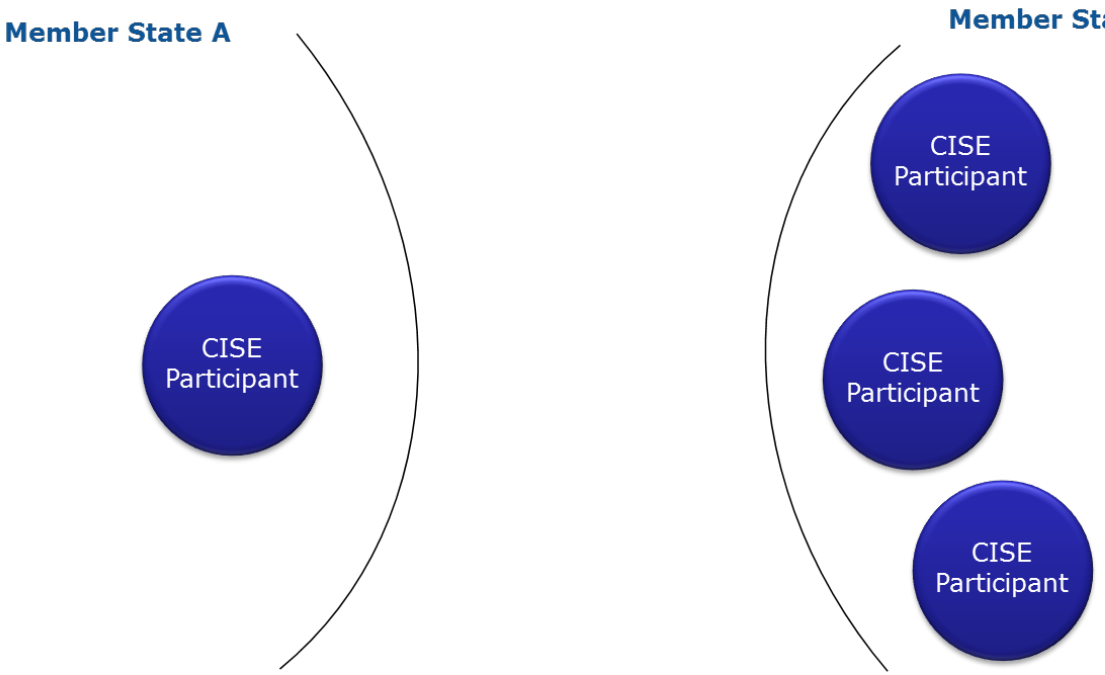
Hybrid Vision for CISE

Does **NOT** impose an organizational structure to Member States. ANYONE can participate to CISE individually. Member States can choose to offer services from any number of systems

Organisational



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The Hybrid Vision for CISE

CISE is **NOT** a system.

It is a **set of agreed specifications** for an interoperability layer which, once implemented, will ease information exchange. These specifications are based on the results from the Cooperation Project.

CISE is also a **set of supporting tools**:

- A registry of Authorities (i.e. contact details and services).
- Virtual collaboration tools (e.g. instant messaging).
- A reference implementation

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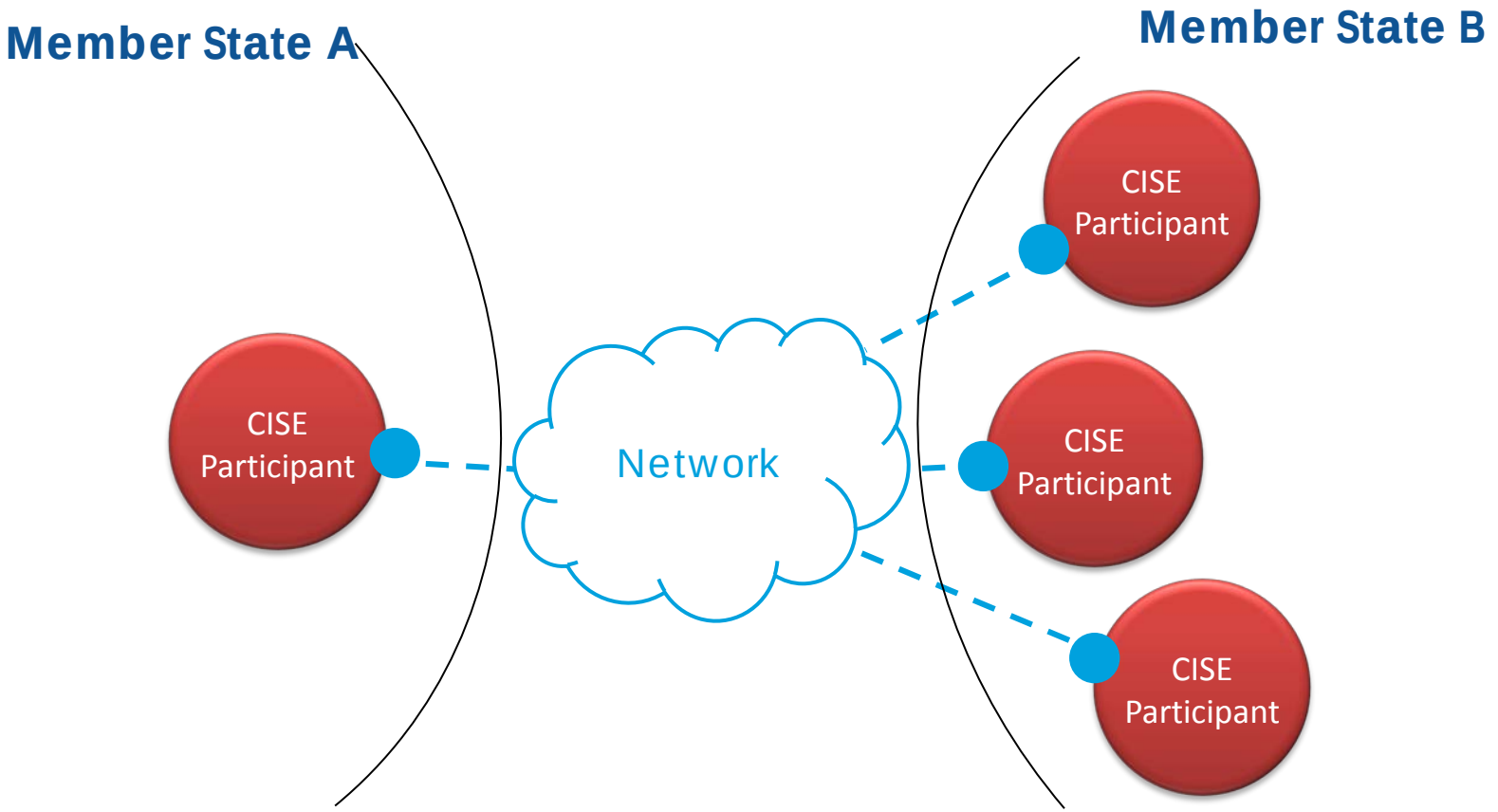
The Hybrid Vision for CISE



The Hybrid Vision combines **organisational flexibility** with **semantic and technical interoperability** through the CISE Interoperability layer.

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CISE Interoperability Layer