

## E-MARITIME: CONCEPT, OBJECTIVES, COMPONENTS

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**Abstract:** Maritime transport is the prominent mode for trade between EU and third-countries carrying approximately 40% of internal market freight flows and 90% of EU external trade. More than half of EU ports have no dedicated system for communicating with Administration or the transport operators. The EU e-Maritime initiative will embody policies, strategies and capabilities facilitating the development of e-services.

**Keywords:** e-Maritime, SKEMA, SafeSeaNet, e-Navigation

### 1. e-Maritime concept

SKEMA is a project funded by the European Commission - DGTREN under the Seventh Framework Programme. It is aimed at establishing a Sustainable Knowledge Platform for the use of stakeholders in the Maritime Transport & Logistics industry.

In May 2009 SKEMA produced a draft report on e-Maritime, namely "Scoping the EU e-Maritime initiative" [1]. The work is ongoing and a new set of tasks have been devised with the ultimate goal of further developing policy options, defining the e-Maritime framework and proposing a roadmap for 2020.

In general, e-Maritime is aimed at supporting the development of sustainable transport in Europe through the development and application of systems based on the latest information, communication, and surveillance technologies in line with the EU transport policy objectives [2].

Other definitions are:

*Definition 1:* "e-Maritime" = working and doing business in the maritime sector with the support of internet based applications (advanced electronic);

*Definition 2:* "e-Maritime" stands for online interactions between all the different stakeholders in the maritime sector

*Definition 3:* A virtual network in an electronic environment based on open platform and standards to ensure interoperability between different maritime-related applications. This network should enable administrative and commercial communications between ships, between ships and shore, including port communities, administrations, operators, freight forwarders and other hinterland actors.

The EU e-Maritime initiative is intended to be a broad and all-encompassing initiative going beyond pure maritime transport services; addressing customs, border, environmental, fishing control functions.

### 2. e-Maritime objectives

The objective of European e-Maritime initiative is to promote "coherent, transparent, efficient and simplified solutions in support of cooperation, interoperability and consistency between member States, sectors, business and systems involved in the European Transport System" [3].

The SKEMA Periodic Study is concerned with aligning the problem definition of e-Maritime, considering the following five domains:

1. Improved Administration Domain Applications;
2. Improved Shipping Operations;
3. Improved Port Operations;
4. Integration into Logistic chains;
5. Promotion of seafaring profession and sea-shipping

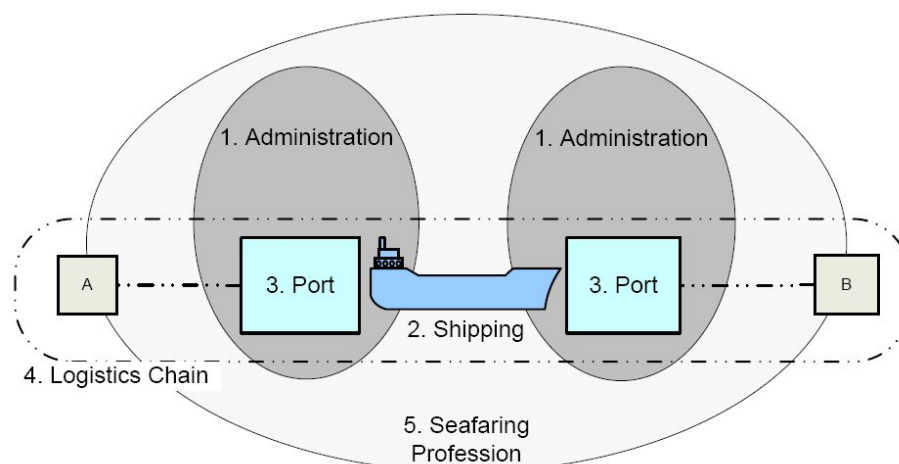


Figure 1 Integrated view of e-Maritime domains [4]

The scope of the EU e-Maritime initiative is illustrated in Figure 1.

The main objectives of the e-Maritime:

- a. Accelerated take up across EU of SafeSeaNet, EU LRIT and e-Navigation;
- b. Improved utilisation of the GALILEO and its integration with traffic monitoring processes;
- c. Improved information exchange between administration and business (A2B & B2A) with dependable interoperability platforms (Single Window), online services and regulatory compliance reporting systems;

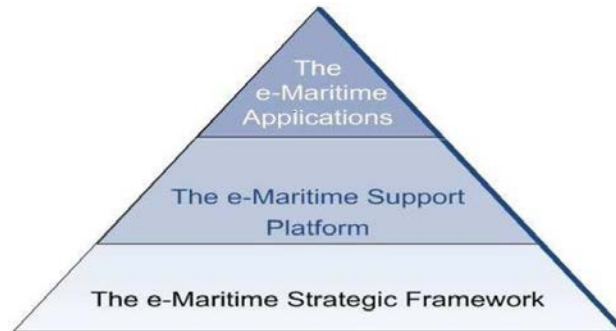
d. Improved utilisation of resources by supporting maritime transport stakeholders co-operate efficiently in co-modal networks;

- e. Improved efficiency and quality of shipping services through integrated fleet management systems;
- f. Enhanced attractiveness of short sea shipping and its role in an efficient door-to-door supply chain;
- g. Development of European Ports as key logistics hubs particularly through advanced Port Single Windows and Port Community systems;

- h. Promotion of e-learning for maritime transport industry professionals focusing on seafarers;
- i. Development of information, knowledge and entertainment sharing facilities for seafarers;

- j. Promotion of communications infrastructure solutions providing versatility, fast response and high integrity for ship-shore communications;
- k. Promotion of technologies that allow seamless communications across diverse communications media and protocols.

**3. e-Maritime components**



**Figure 2 e-Maritime components [5]**

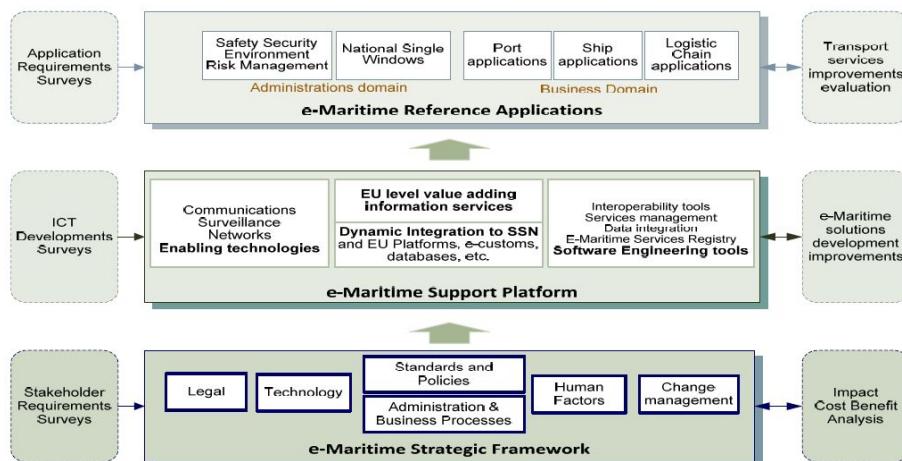
The e-Maritime Strategic Framework (or business and legal framework) will specify a coherent view of the way Maritime Transport could operate at a future date (most likely 2020). Reflects the framework directive on the key stakeholder requirements, basic principles to ensure interoperability (standards), policies, legal, technology, human factors, ongoing developments. This component will be completed by 2012.

The e-Maritime Support Platform (or interoperability platform) enabling technologies: communication, navigation and surveillance networks. EU value adding networks: SafeSeaNet, databases, e-Customs, e-Freight. Also, this component will include standards, ICT and software engineering tools for interoperability and integration of data

and services for facilitating the development and deployment of e-Maritime applications. This component will be completed by 2015.

The e-Maritime Applications (or e-services) demonstrating the potential benefits of e-Maritime in real life situations involving administrations and business across Europe. Grouped in main categories of operations where benefits can be easily appreciated:

- Administration Domain Applications;
  - Improved Shipping Operations;
  - Improved Port Operations;
  - Integration into Logistic chains;
  - Promote seafaring profession and sea-shipping
- This component will be in operation by 2018.



**Figure 3 e-Maritime components [5]**

In the document “Scoping the EU e-Maritime initiative” (v1.0C), SKEMA has identified the following aspects as falling within “Administration Domain Applications” [4]:

- a) Improved administration procedures:
  - National Single Windows (NSWs) for ship and cargo reporting;
  - Management of inspections and other measures relating to conditional clearance;

- Synchronization of NSWs with SSN and related developments;
- Integration of NSWs with other mode platforms and e-customs;
- Monitoring co-modality trends: statistical information on utilization factors, modal split trends, etc.;
- Co-operation in policy development.
- b) Improved safety, security and environmental protection:

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- Integrated safety, security and environmental risk management processes of ships in EU coastal waters (assessment, mitigation, response, recovery including enforcement of regulations);
- Improved integration of functions currently allocated to SSN, AIS and LRIT systems;
- Development of e-Navigation support infrastructure including integration of GALILEO and AIS, VTS systems;
- Exchange of information between authorities for collaboration in safety, security and environmental risk management;
- Co-operation between authorities in dealing with SAR and oil pollution identification and response measures;
- Co-operation between Maritime Assistance Services and Emergency Response services tools used by classification societies;
- Monitoring of movements of high risk vessels by authorities in different regions using coordinated surveillance technologies; support for uniform application of directives enforcement under specific conditions;
- Monitoring CO2 footprint of maritime transport based corridors;
- Investigation of oil spills and response co-ordination;
- Monitoring pollution incidents;
- Integration of networked sensors with terrestrial and national surveillance systems for environmental measurements.

c) Improved working conditions / competence development:

- Improved co-ordination of education and national training schemes between member states;
- EU level knowledge management systems to provide interactive public digital libraries on policy, regulations, state of the art reports on business practices and technologies;
- Lifelong Learning Management for people in the maritime transport and logistics industry who may wish to be kept informed of new research findings and developments as well as policy and regulatory developments in their specific areas of interest. Areas that will be particularly useful are regulatory, safety, security and environmental protection requirements.

#### **4. CONCLUSIONS**

e-Maritime aims to achieve standardisation, security and interoperability of information exchanges between Administrations and maritime operators in Europe. The freeing up of information exchanges arising from e-Maritime will result in a simplification and automation of messages, resulting in real-time digital information becoming available to Administrations – enabling them to improve their safety, security, customs controls and environmental protection functions. It will also enable them to convey helpful information readily and selectively to maritime operators. Similarly, e-Maritime will reduce the workload on ships' personnel through extensive automation of message exchanges between themselves and Administrations.

#### **5. REFERENCES**

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