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VESSEL TRAFFIC MANAGEMENT EXPERIENCES IN EUROPEAN WATERS

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Shipping Risk Mitigation Research and Practice in Canada:
Considering Area-Based Management Approaches

Dalhousie University, Halifax, Canada, 30 August 2022

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Mission

Educate future maritime and ocean leaders

Global relevance

Education, research and capacity building in the framework of a UN Specialized Agency

Postgraduate programmes only

PhD and MSc in maritime and ocean affairs

Global alumni community

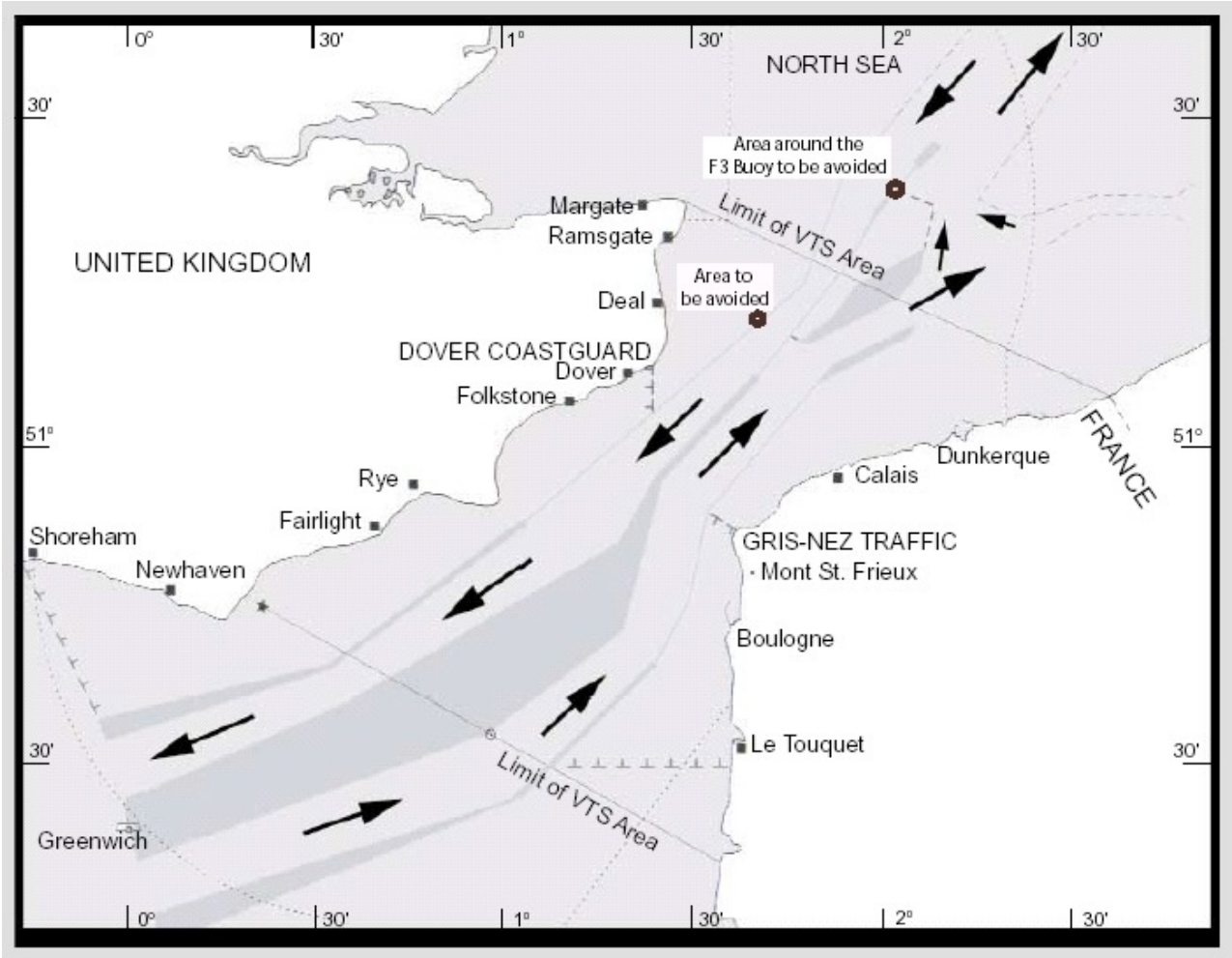
Alumni in leading maritime and ocean positions in 171 member States of IMO

THE EARLY DAYS OF VESSEL TRAFFIC MANAGEMENT

- **The humble beginnings**
  - **Origins of the word risk are maritime**
    - Greek navigation term ***rhizikon*, *rhiza*** which meant “root, stone, cut of the firm land” and was a metaphor for “difficulty to avoid in the sea”
  - **Oldest attempts to facilitate maritime traffic are lighthouses**
    - First lighthouses were established 2500 years ago
    - Objective: To support seafarers in their attempts to navigate their ships safely

TECHNOLOGY AND VESSEL TRAFFIC MANAGEMENT

- **The history of Vessel Traffic Management is also a history of technology development, the development of maritime transport in general and a changed risk profile of shipping**
  - **Development of modern technologies**
    - Introduction of the radar technology after World War II in combination with radio communication allowed for traffic management at a different level
  - **Components of traffic management**
    - Vessel Traffic Services (VTS)
    - Traffic Separation Schemes (TSS)



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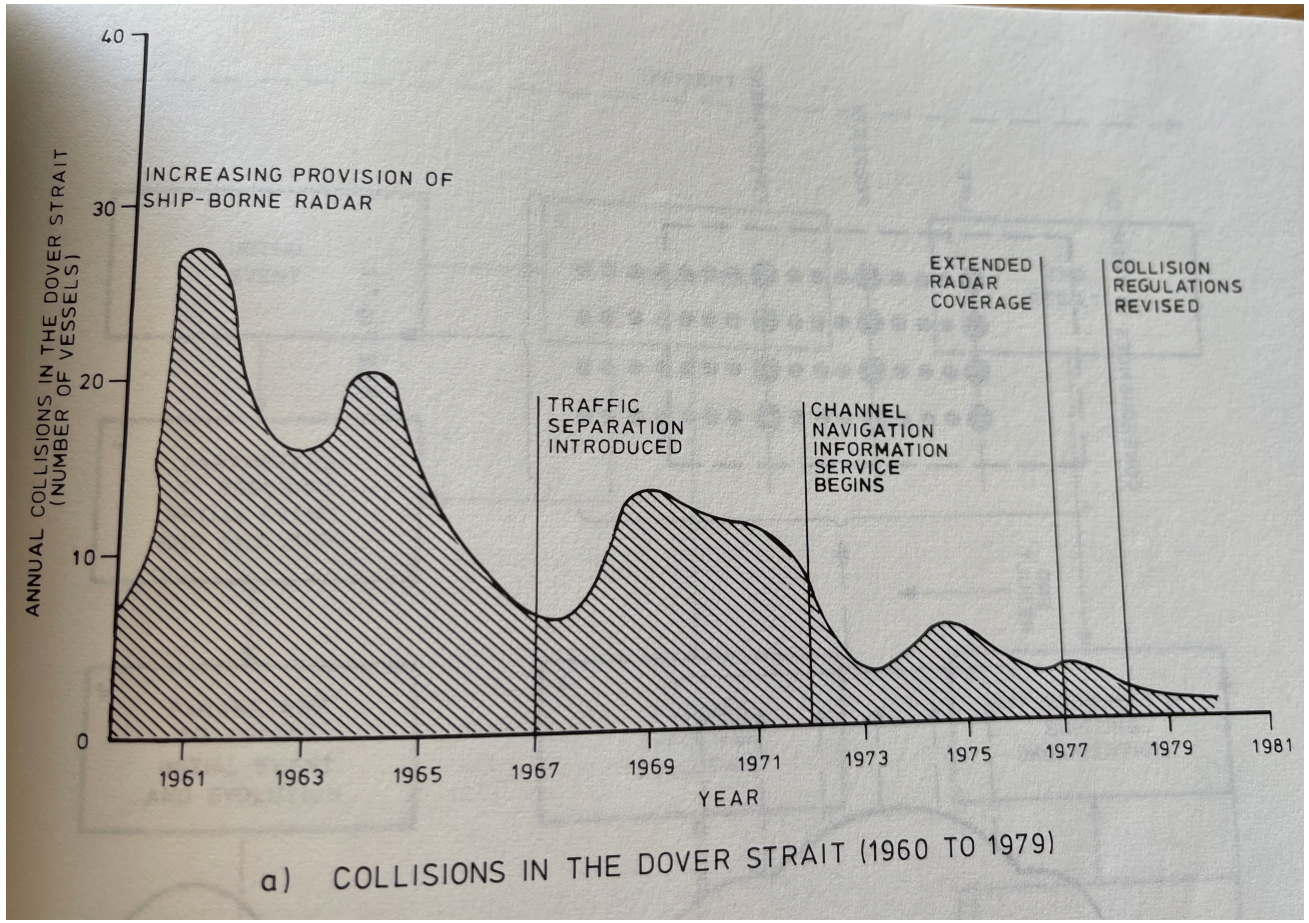
CHANGED MOTIVATION FOR VESSEL TRAFFIC MANAGEMENT

- **Initially, vessel trafic management was only done as a service to faciliate the navigation on the ship**
- **With increasing traffic densities, ship sizes and volumes of dangerous cargoes carried on ships it served more and more as a safety measure to protect coastal waters**
- **Main focus in the debates of the 1980s and later on**
  - How effective is vessel traffic management and how can accidents be avoided through effective vessel traffic management



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ACCIDENTS AND VESSEL TRAFFIC MANAGEMENT

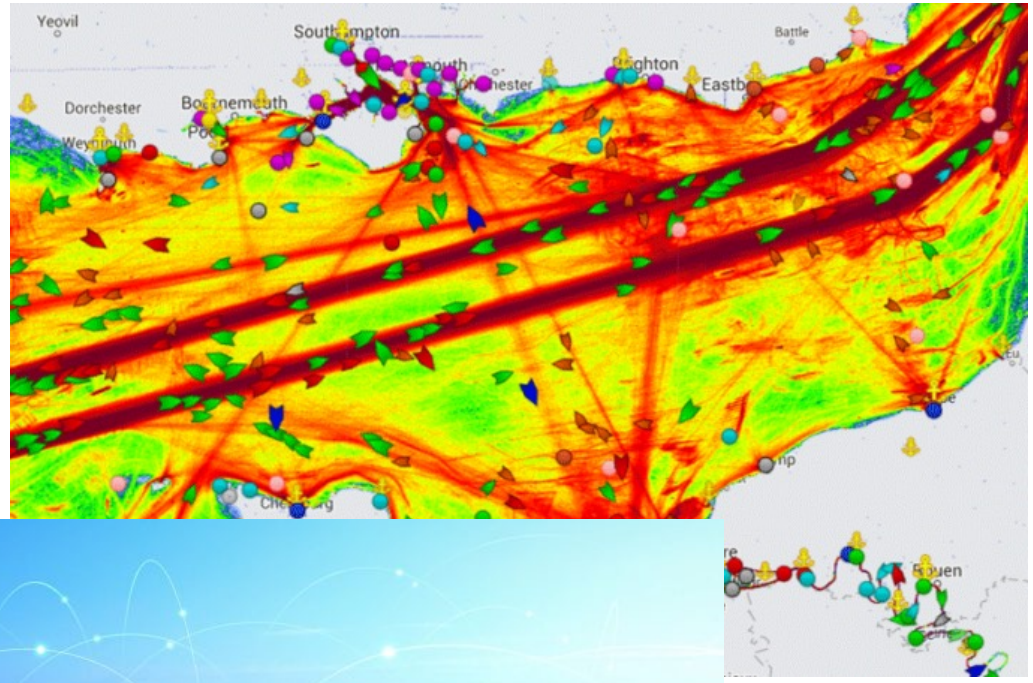
- **A number of accidents some 25 years ago provided indication that a new approach to vessel traffic management was needed**

- **Existing approaches on a national level could not provide for higher safety levels any longer**

- **Response on a European level, which included, among others:**
  - Establishing the European Maritime Safety Agency and equipping the agency to develop a European concept for maritime traffic management

BASIC INGREDIENTS FOR THE EMSA APPROACH TO VTM

- **Two major components enabled the EMSA approach at a new level**
  - **Automatic Identification System (AIS)**
  - SOLAS Chapter V, Regulation 19 (2.4) – applicable to all ships since 31 December 2004
  - **Maritime Single Window**
  - Directive 2010/65 EU – for enhanced data exchange in maritime traffic and port operations



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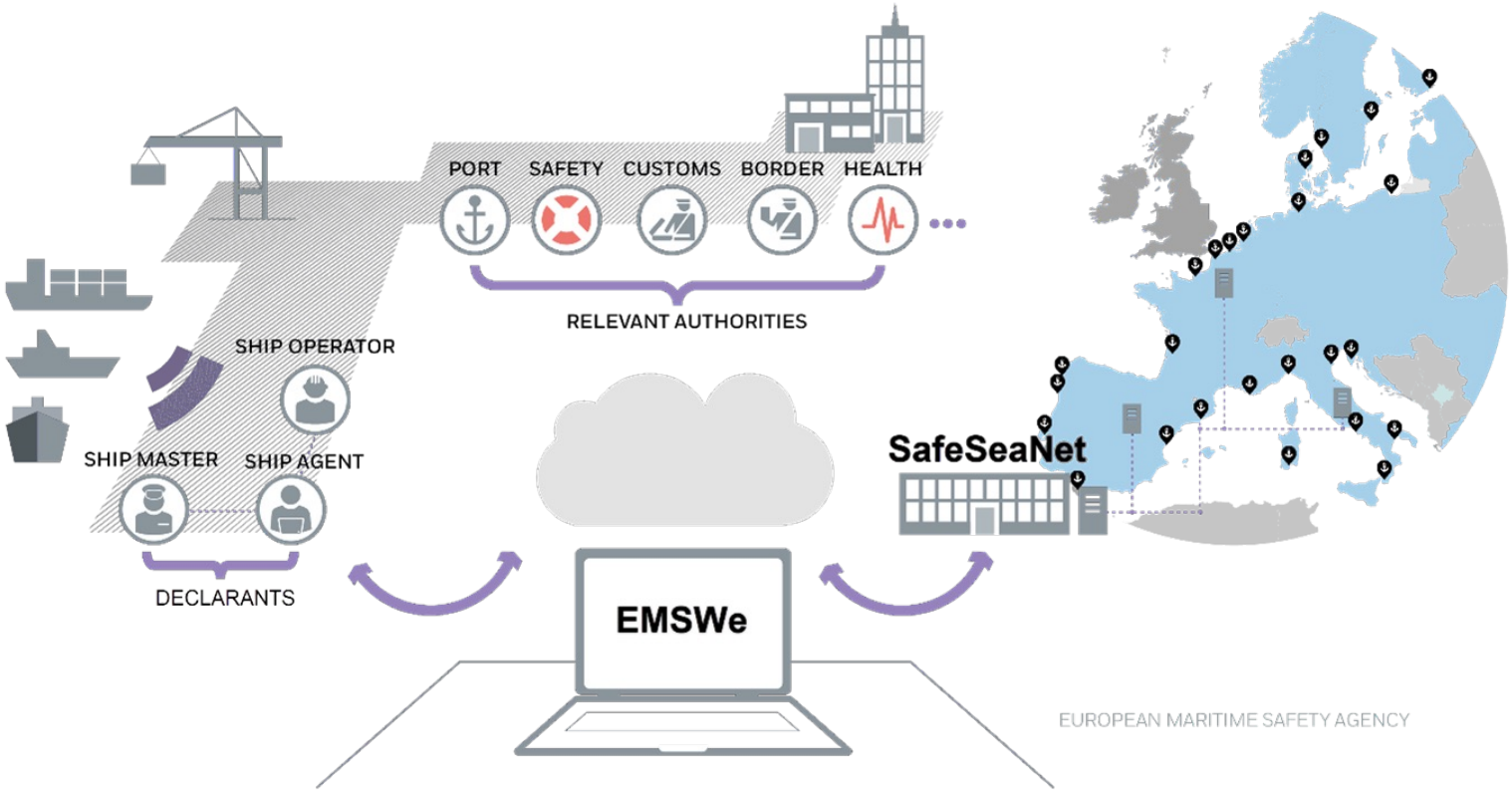
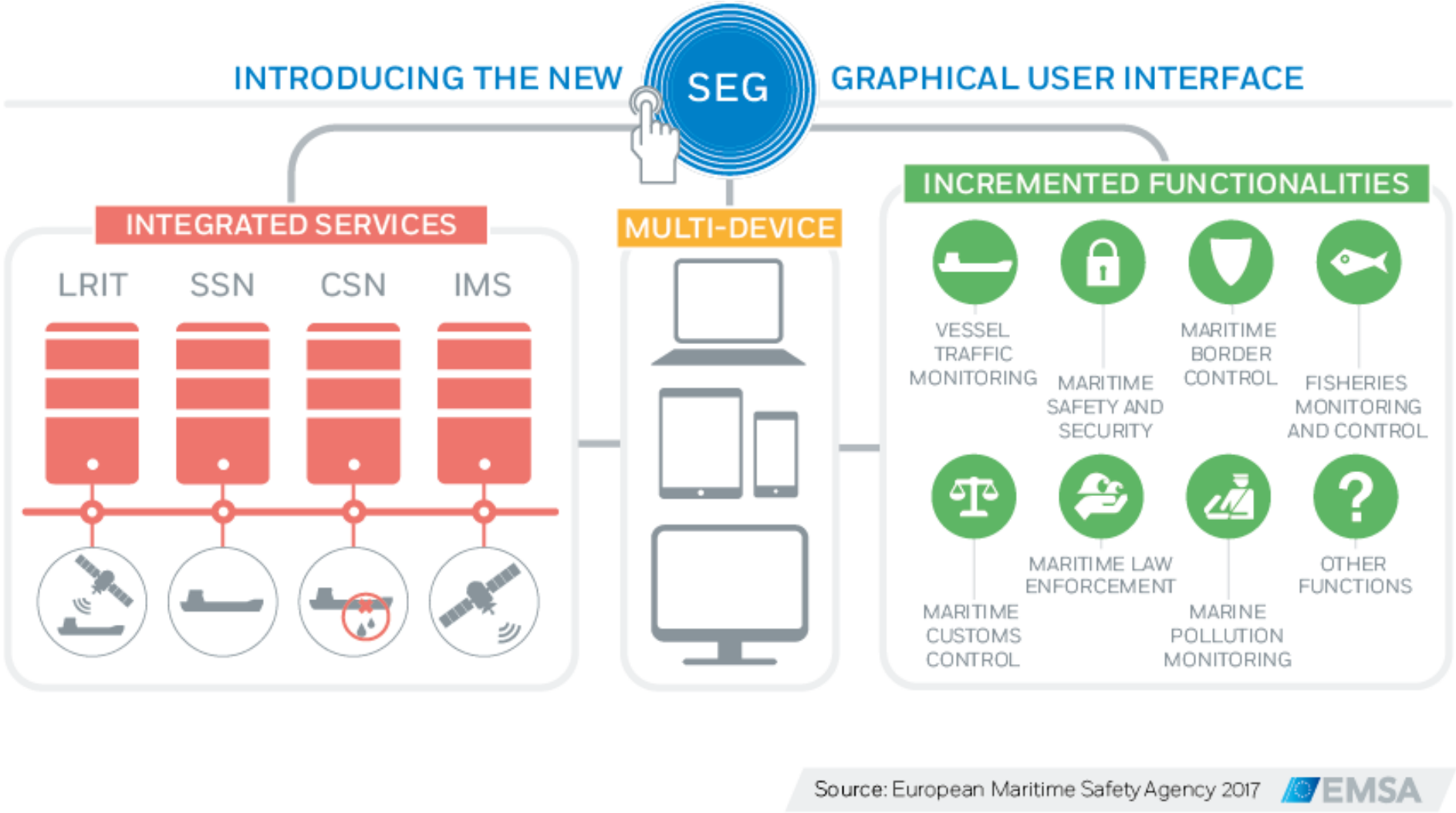
EUROPEAN MARITIME SINGLE WINDOW ENVIRONMENT (EMSWE)

- **Vessel Traffic Monitoring is a core component of the EMSWE and mainly done via SafeSeaNet – a monitoring and information network based on EU Directives 2002/59/EC and 2014/100/EU focusing on**
  - maritime safety
  - port and maritime security
  - marine environment protection
  - efficiency of maritime traffic and maritime transport



SAFESEANET AS PART OF THE EMSWE



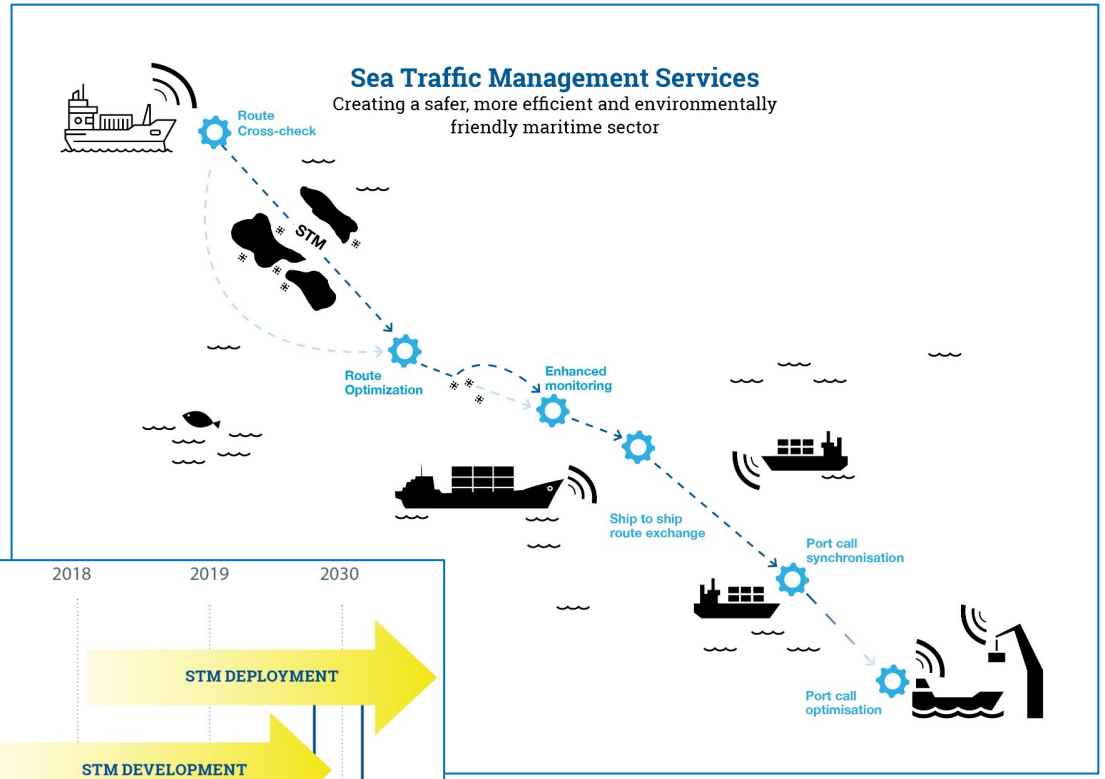
SAFESEANET AS PART OF THE EMSWE

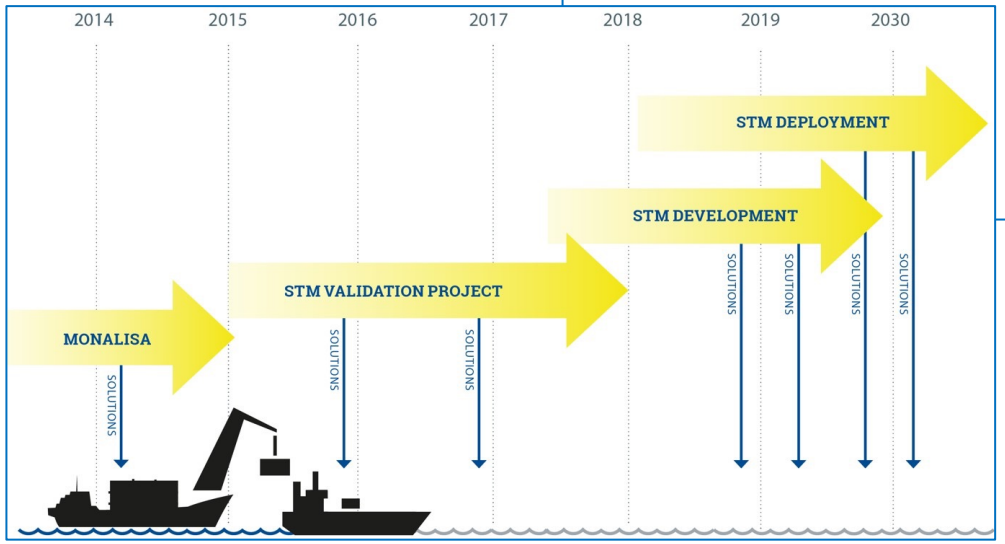
European Maritime Safety Agency

- **Components of SafeSeaNet:**
  - Automatic Identification System (AIS) based near-real-time ship positions (i.e. one every 6 minutes)
  - Archived historical ship positions (over several years)
  - Additional information from AIS-based ship reports (e.g. identification name/numbers, flag, dimensions, course, speed, dimensions, destination and ship type)
  - Estimated/actual times of arrival/departure
  - Details of hazardous goods carried on board
  - Information on safety-related incidents affecting ships
  - Information on pollution-related incidents affecting ships
  - Details of waste carried on board/to be offloaded (from June 2015)
  - Ship security-related information (from June 2015)
  - Information on the location of remaining single hulled tankers
  - Information on the location of ships that have been banned from EU ports
  - Digital map layers (containing information on depths, navigation aids, traffic separation schemes, anchorages, AIS station locations, etc.)

OUTLOOK: NEW FOCUS ON EFFICIENT MARITIME TRAFFIC

- **Sea Traffic Management (STM) goes beyond traditional Vessel Traffic Management and includes:**
  - Route Cross-check
  - Route Optimization
  - Ship to Ship Route Exchange
  - Navigational Warnings
  - Enhanced Monitoring
  - Port Call Synchronization
  - Port Call Optimization
  - Winter Navigation
  - Importing Pilot Routes
  - Search and Rescue





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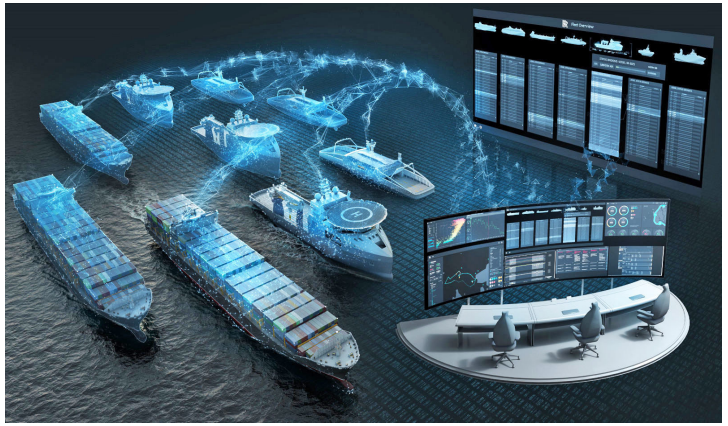
FUTURE CHALLENGES

- **Managing ships with different levels of autonomy and new propulsion systems in the same maritime traffic area**



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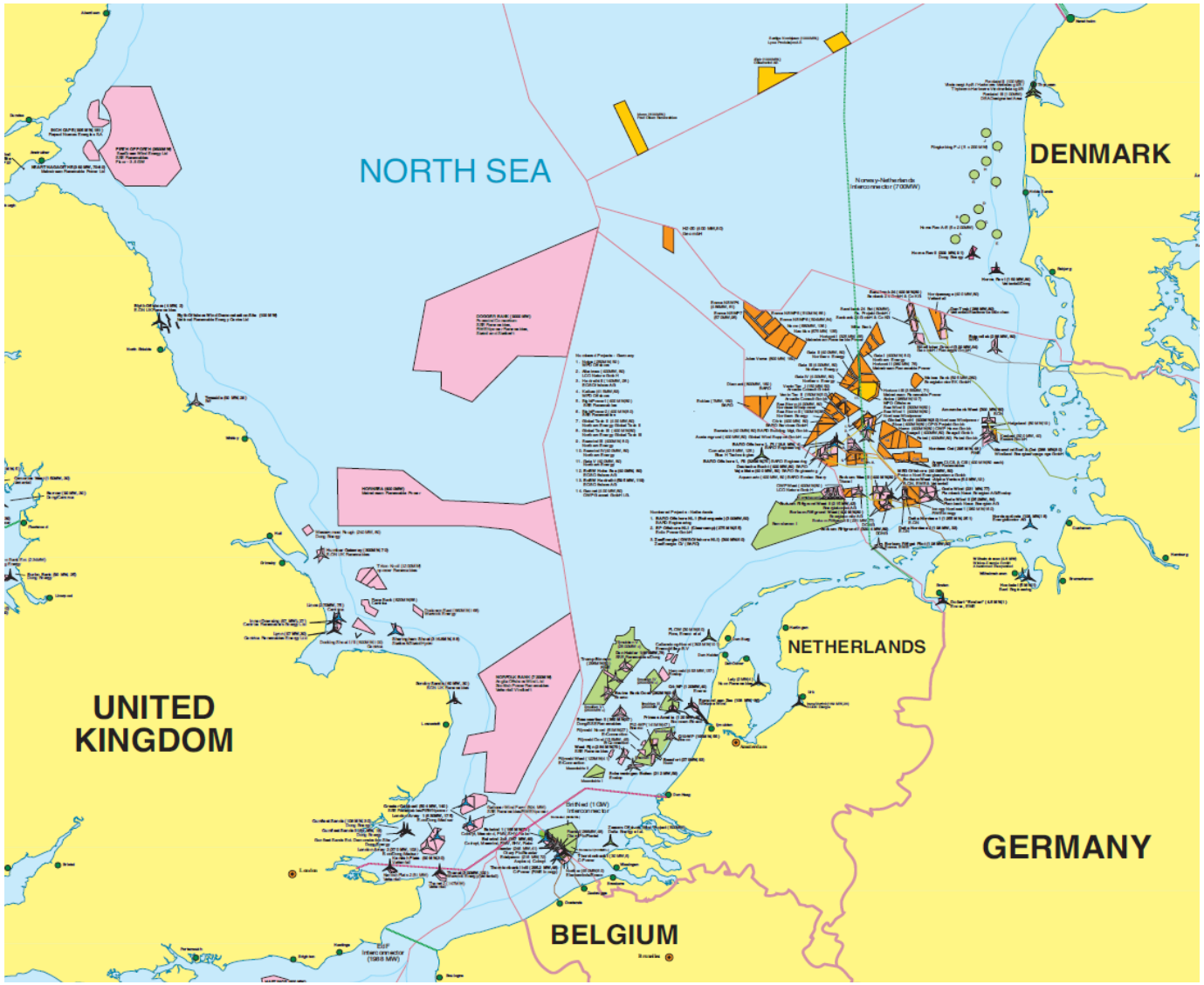
FUTURE CHALLENGES

- **Managing available space for maritime traffic and integrating new ocean industries and users**



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MANY THANKS FOR YOUR ATTENTION – QUESTIONS ARE WELCOME

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SUSTAINABLE DEVELOPMENT GOALS

IMO INTERNATIONAL MARITIME ORGANIZATION