An introduction to Maritime ITS as a concept

Ørnulf Jan Rødseth, Director Maritime ITS, ITS Norway
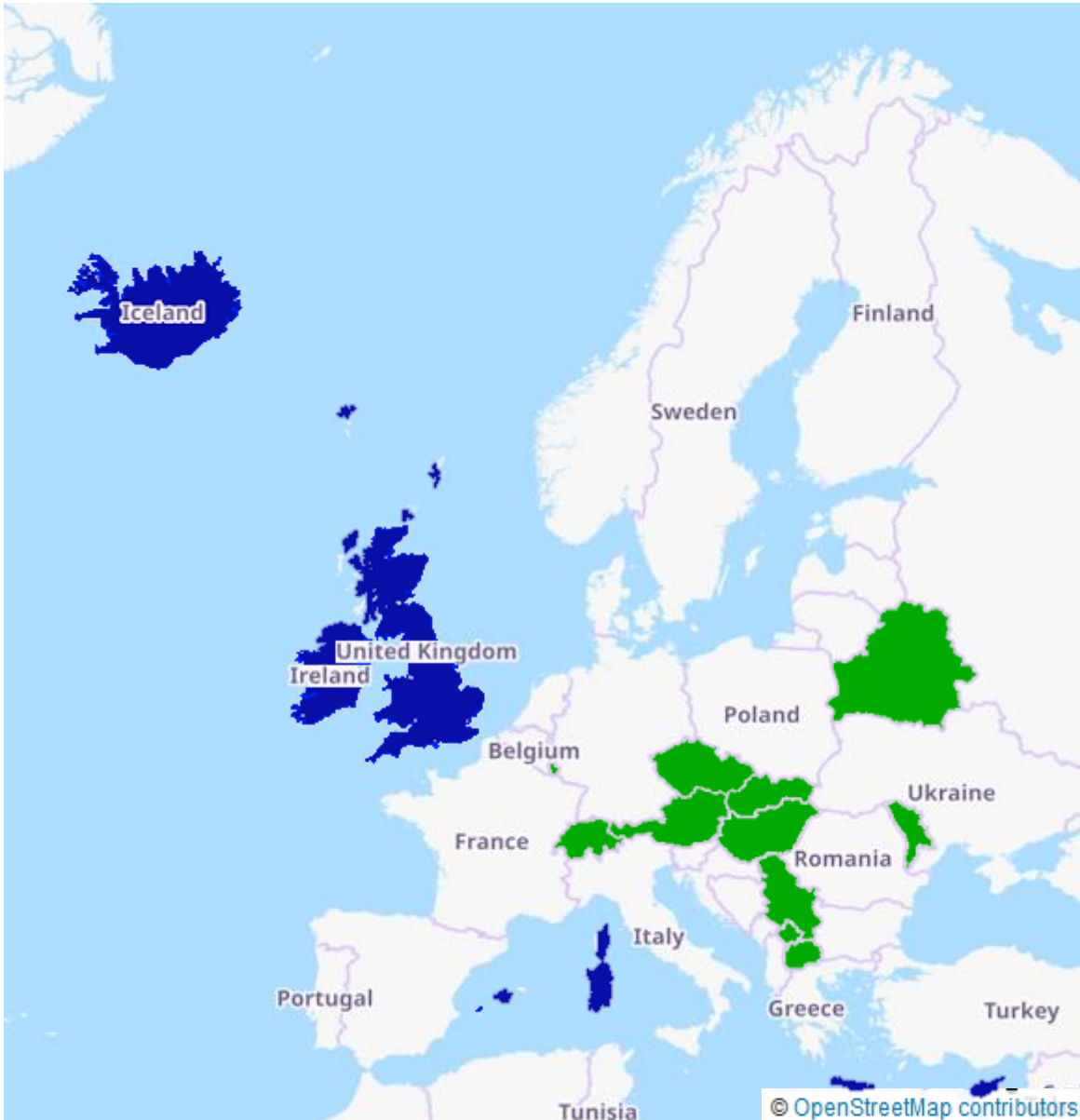**Nordic+ webinar: The future of Maritime ITS and next steps - 2024-05-24**
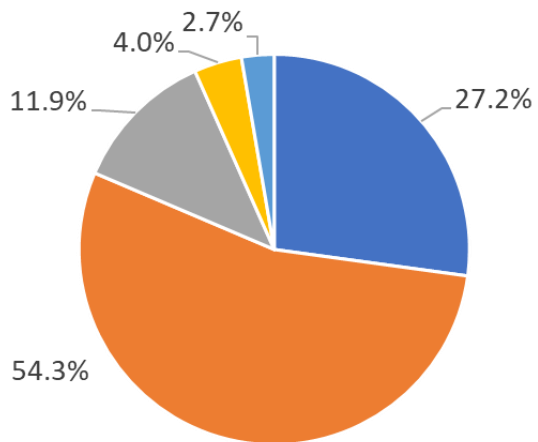
ITS Norway

Maritime transport in Europe

EUROPE

- A few countries without coast
- Some countries even on islands or having large and far away islands.

- Most countries with coast and using maritime transport.

- Some of these more dependent on maritime transport than land transport.

Modal split of freight import/export, EU-27 2021 (% tons)

13.0%
0.9%
3.3%
8.8%
74.0%

■ Maritime ■ Road ■ Rail ■ Inland waterways ■ Other
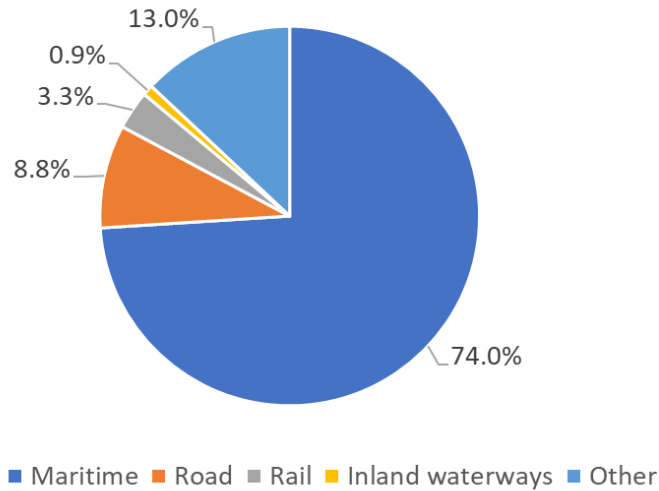
Modal split of freight transport, Intra-EU-27 2021 (% tonne-km)
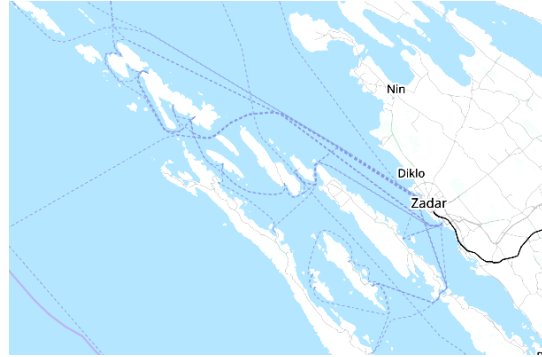
2.7%
4.0%
11.9%
27.2%
54.3%

EUROPE

- Export and import heavily dependent on maritime (in ton).

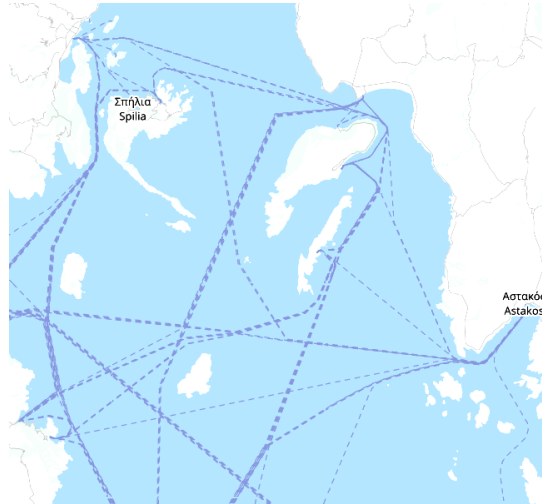- Intra-EU, road is about twice that of maritime (in tonnes-km).

Smarter, Safer and Sustainable Transport

ITS Norway
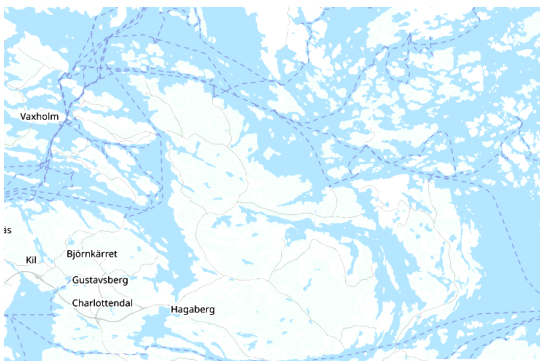
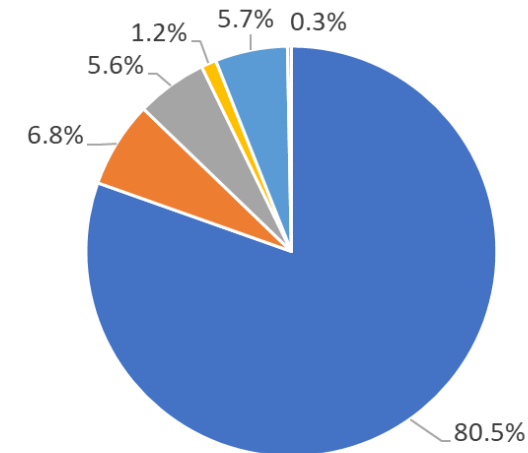Source: EU Statistical Pocket book 2022

Norway

Croatia

Sweden

Greece

© OpenStreetMap contributors.

EUROPE

- Overall, passengers by sea is small in EU.
- Some regions dependent on waterborne transport for passengers.


1.2% 5.7% 0.3%
5.6%
6.8%
80.5%

Passenger transport
EU-27 (pkm), Source:
EU Statistical
Pocketbook 2022

■ Private ■ Bus & Coach ■ Rail ■ Tram & metro ■ Air ■ Sea

ITS
Norway

Smarter, Safer and Sustainable Transport

GHG emissions from freight transport, EU-27 2021, Source: EU Statistical Pocketbook 2022
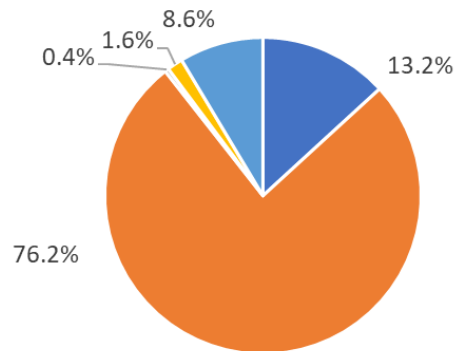
Average external costs freight transport EU-28 (€-cent/tkm), Source: Handbook on the external costs of transport, 2019
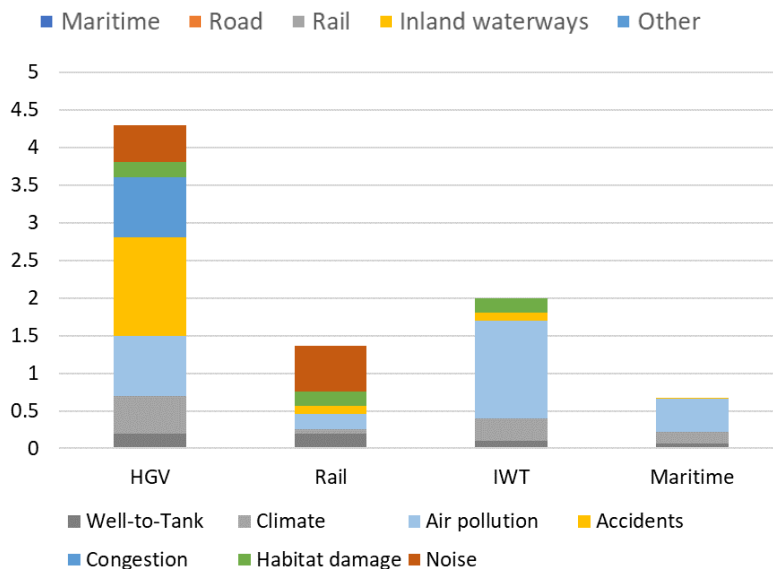
HGV: Heavy Goods Vehicle
IWT: Inland Waterway Transport

EUROPE

- Road traffic is the largest contributor to GHG emissions in transport.

- External costs are not just emissions!

ITS Norway

Smarter, Safer and Sustainable Transport

What is maritime ITS?

Definition of ITS

Directive 2010/40/EU

'Intelligent Transport Systems' or **'ITS'** means systems in which information and communication technologies are applied in the field of road transport, including infrastructure, vehicles and users, and in traffic management and mobility management, as well as for interfaces with other modes of transport;

ISO/TS 14812:2022(en) Intelligent transport systems — Vocabulary

intelligent transport system
System comprised of information, communication, sensor and control technologies and that is designed to benefit a *surface transport system*

surface transport system
Note 2 to entry: There is not complete agreement on the precise limitations of a "surface transport system" within the ITS community. The term is viewed as including ferry systems; it is less clear if it includes long-distance sea-faring ships.

Maritime ITS
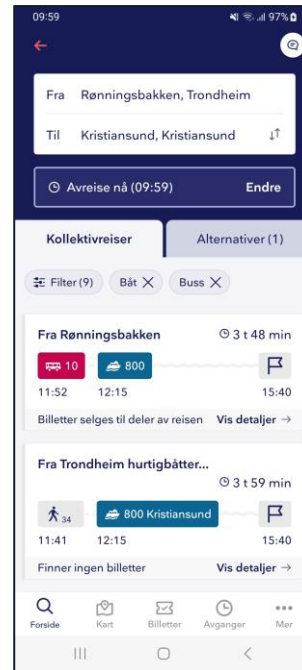Including inland and sea shipping in ITS

ITS Norway

Conventional ITS

Driver information and traffic management.

Autonomous vehicles.

Transport management.

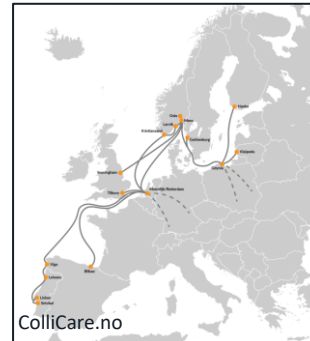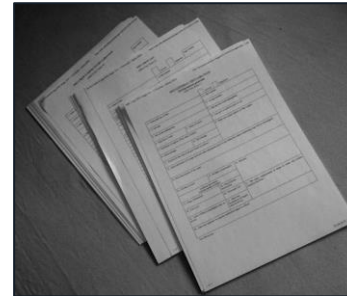CCAM – Cooperative, connected and automated mobility.

Zeabuz/Trollhatten

Intermodal connectivity.

Smarter, Safer and Sustainable Transport

Maritime ITS

Driver information and traffic management.

Autonomous vehicles.

ColliCare.no

Transport management.

CCAM – Cooperative, connected and automated mobility.

Intermodal connectivity.

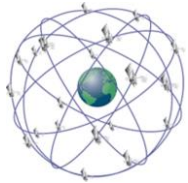ITS Norway

Smarter, Safer and Sustainable Transport
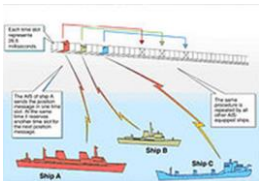
Maritime: The original ITS!

1969: ARPA Anticollision radar

1981: SatCom INMARSAT - MARECS

1995: IMO GPS Performance requirements

2000: AIS into SOLAS regulation V19
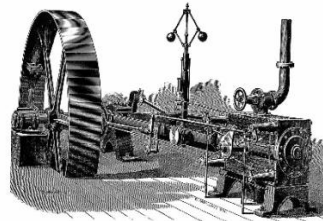
1800	**1900**	**1970**	**2010**
1. Mechanized Power	2. Mass Production	3. Computerized Control	4. Maritime ITS

Smarter, Safer and Sustainable Transport
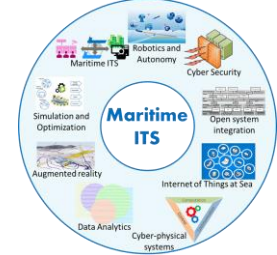
Importance of digitalization and standards

What is digitalization – digital transformation?

Earn money

Digital transformation

Save money

Digitalization: Process automation

Spend money

Digitization: Converting to digital representation

Requires standards

ITS Norway

Smarter, Safer and Sustainable Transport
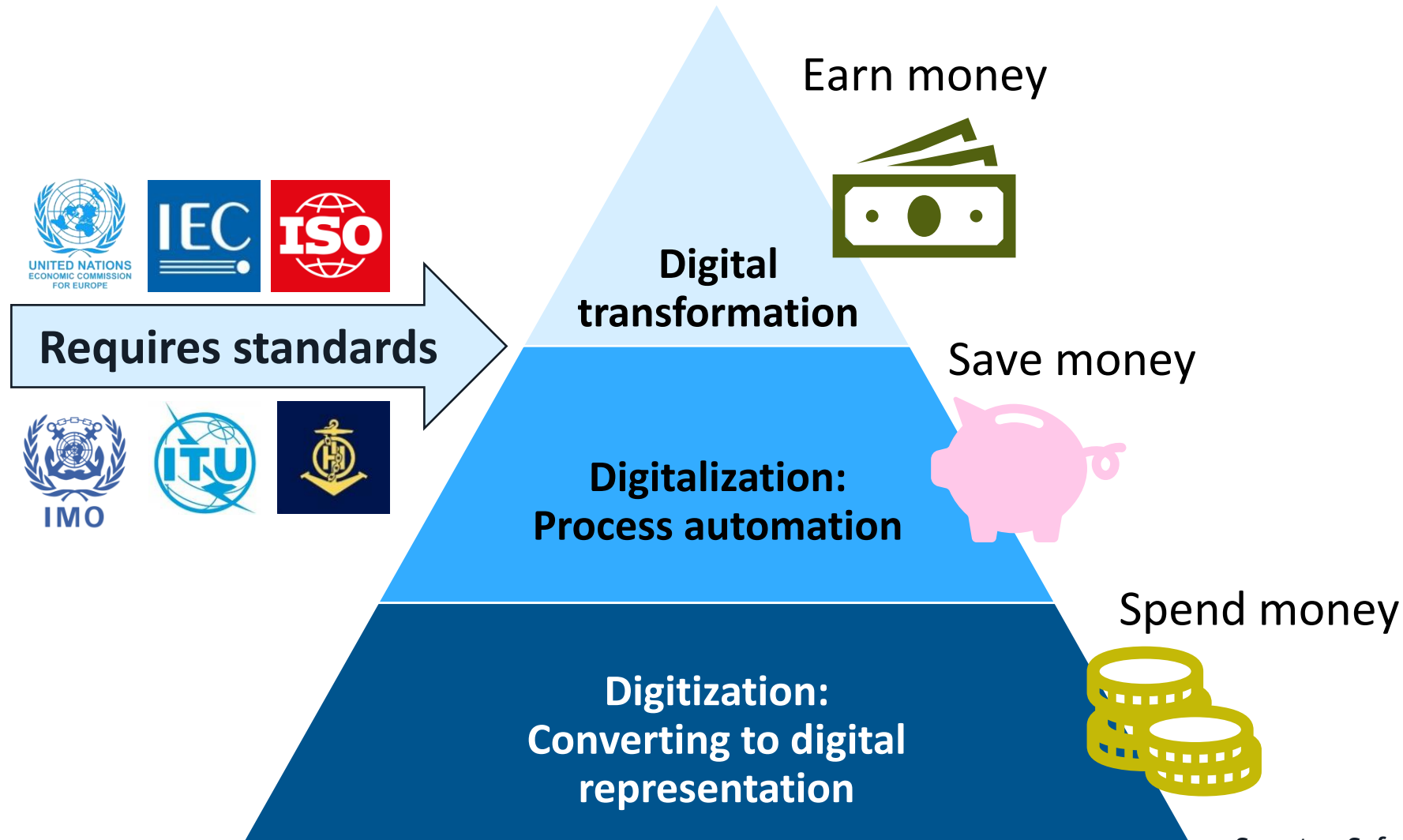
Maritime standards are not coordinated
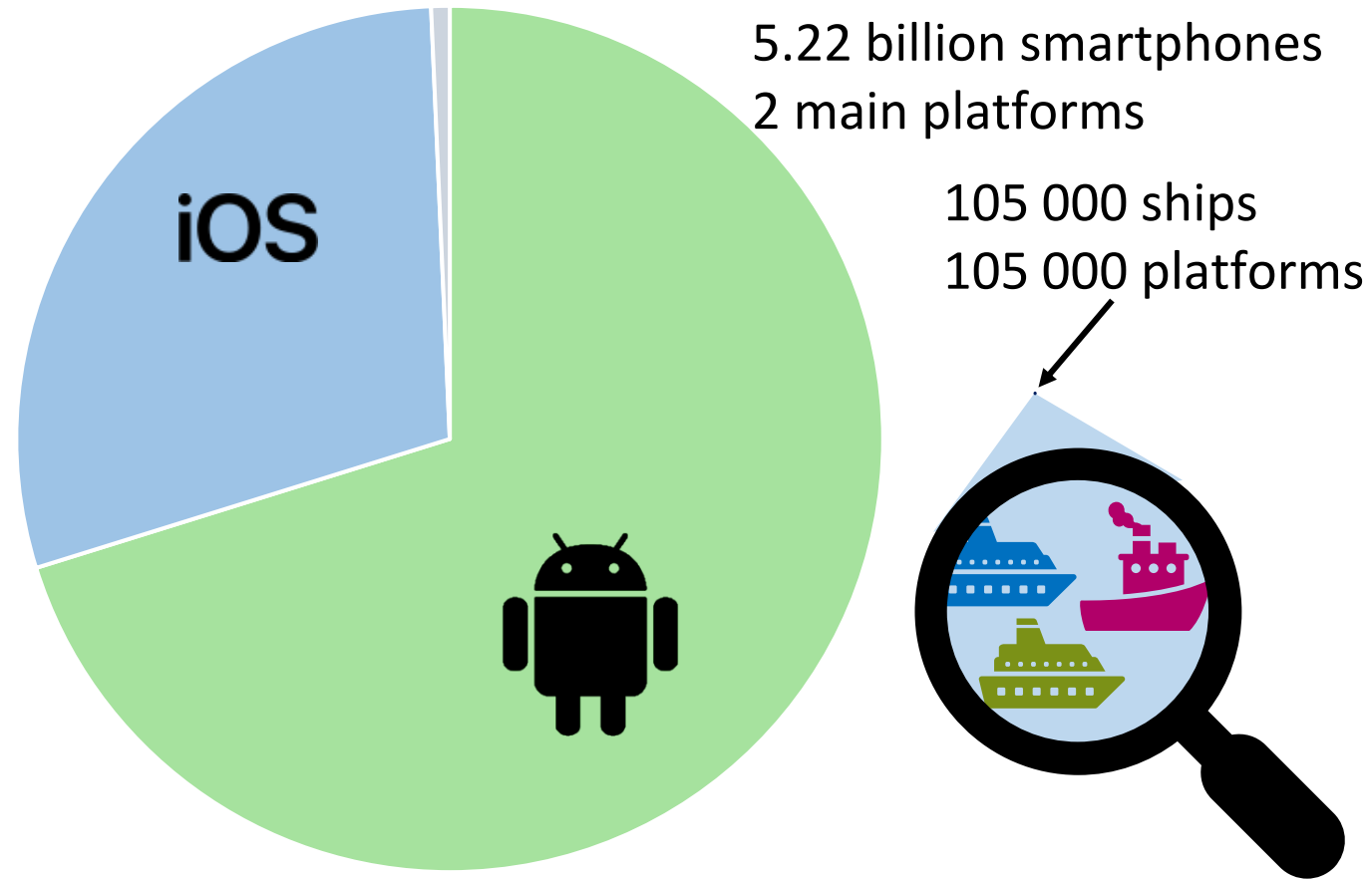

Nautical/IMO MSC

Administrative/IMO FAL

Operative/Commercial

ITS Norway

Smarter, Safer and Sustainable Transport

Sector is too small for *evolution* of standards

5.22 billion smartphones
2 main platforms

105 000 ships
105 000 platforms

iOS

Smarter, Safer and Sustainable Transport

ITS
Norway

Purpose of Maritime ITS

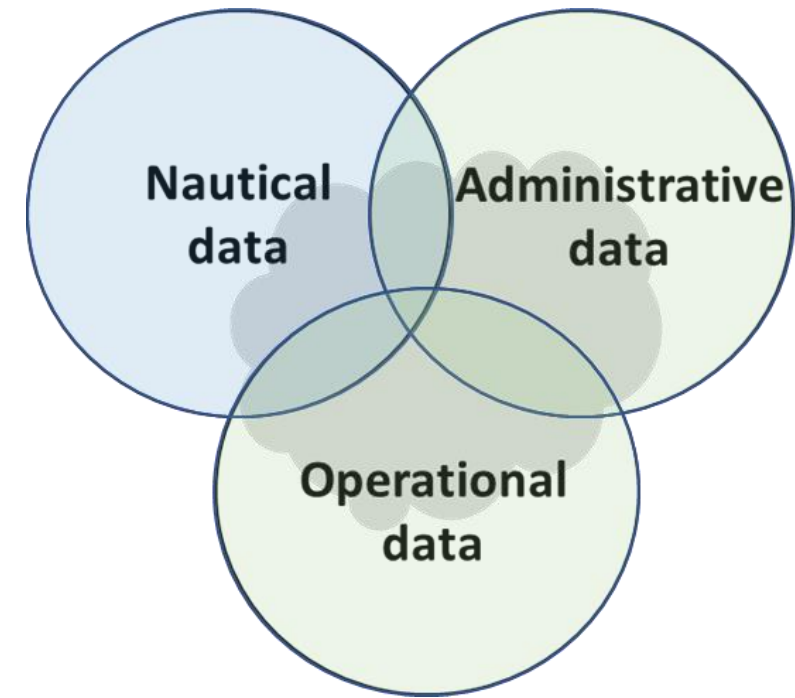**Nautical/IMO MSC** **Administrative/IMO FAL** **Operative/Commercial**
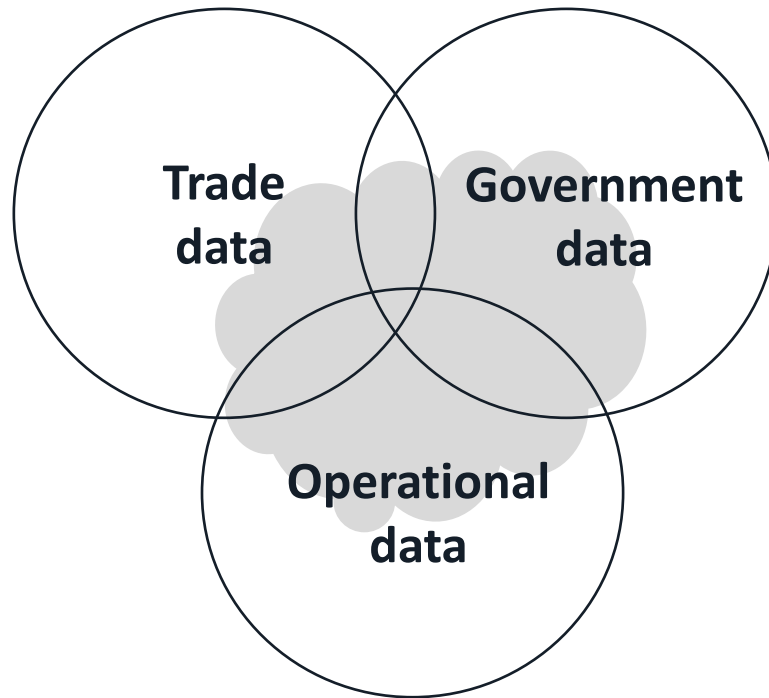

Contribute to bridging the gaps between silos

Participation in relevant international organizations

ITS
Norway

Harmonization through IMO Compendium

https://www.imo.org/en/OurWork/Facilitation/Pages/IMOCompendium.aspx

ITS
Norway

Smarter, Safer and Sustainable Transport

Cooperation on a new EU Call?

HORIZON-CL5-2024-D6-01-10

Ensuring the safety, resilience and security of waterborne digital systems

RIA, 2 project of about EUR 4 million.

Application by: 2024-09-05

- Increased safety and resilience of waterborne digital systems, including system of systems and their functions.

- Improved system design addressing human factors issues in the human/automated system interactions

- Assurance of the resilience, safety and security of waterborne digital and connected systems.

- Robust by design waterborne digital and connected systems for safety and resilience.

- Methodologies to enable effective HAZOP analysis and validation of waterborne digital systems.

- Increased software safety (incl. functional analysis and reliability assessment).

- Increased cyber security for operation and maintenance (incl. software maintenance).

ITS
Norway

Smarter, Safer and Sustainable Transport

Thank you for your attention!

https://its-norway.no/en/maritime-its/

Ørnulf Jan Rødseth
Director Maritime ITS
ornulfjan.rodseth@its-norway.no
+47 9309 4401

ITS Norway

Smarter, Safer and Sustainable Transport