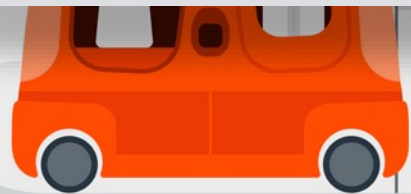




# Maritime ITS – What and Why?

Ørnulf Jan Rødseth, Director Maritime ITS, ITS Norway

Mobilitet 2024 – Oslo, 2024-03-05



ITS  
Norway



What is maritime ITS?

# Definition of ITS

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## 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 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: The term "surface transport system" is viewed as including ferry systems; **it is less clear if it includes long-distance sea-faring** ships.



**‘Intelligent Transport Systems’ or ‘ITS’** cover all transport modes: Road, rail, air, and waterborne (deep sea, short sea, and inland waterways).

# Conventional ITS



Driver information and traffic management.



Autonomous vehicles.



Transport management.



CCAM – Cooperative, connected and automated mobility.



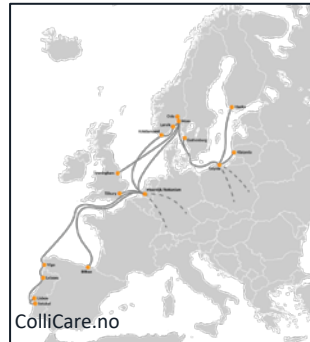
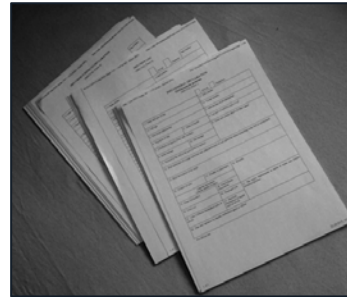
Intermodal connectivity.

# Maritime ITS

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Driver information and traffic management.



Transport management.



CCAM – Cooperative, connected and automated mobility.

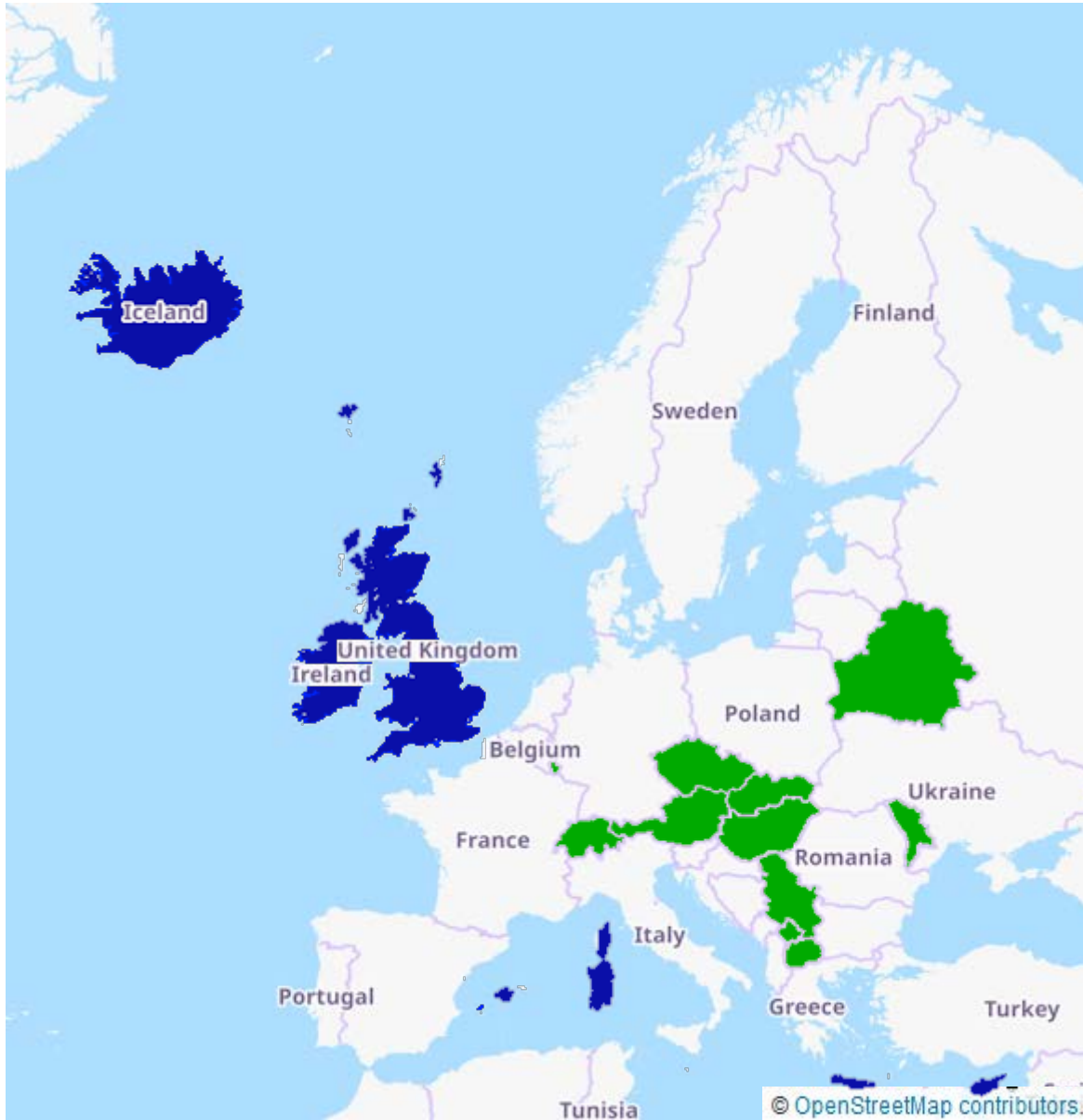


Autonomous vehicles.



Intermodal connectivity.

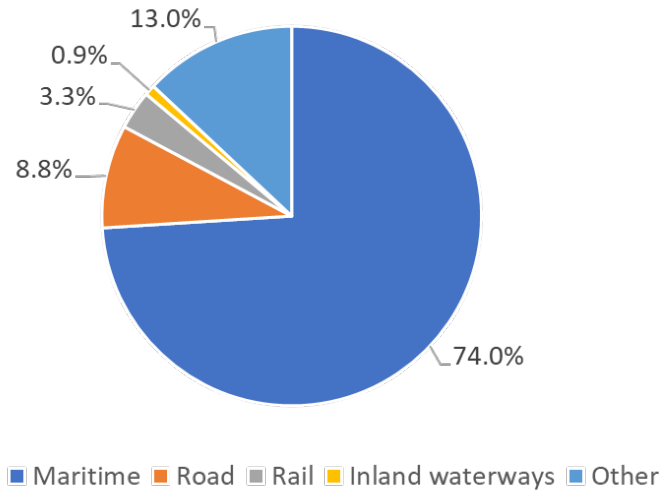
# Maritime transport in Europe



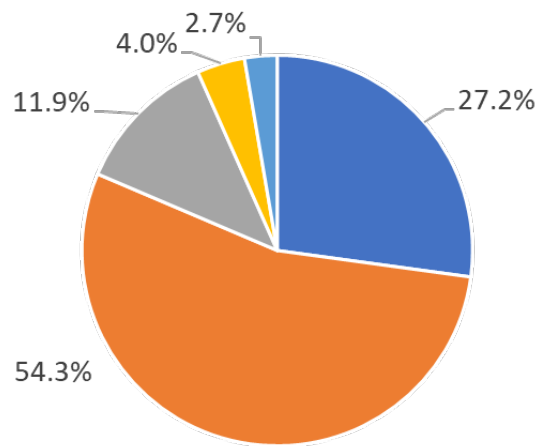
## EUROPE

- 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)



Modal split of freight transport, Intra-EU-27 2021 (% tonne-km)



## EUROPE

- Export and import heavily dependent on maritime (in ton).
- Intra-EU, road is about twice that of maritime (in tonnes-km).



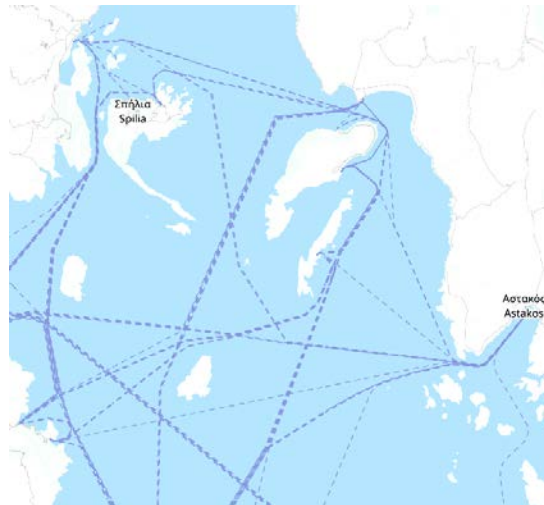
Norway



Croatia



Greece



Sweden

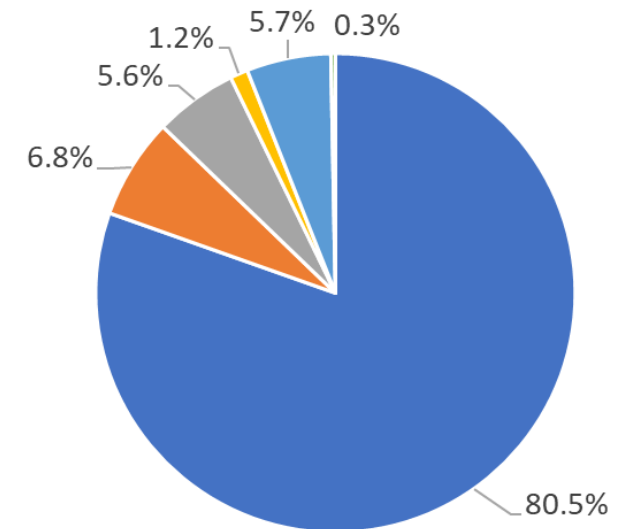


© OpenStreetMap contributors.

- But many regions are dependent on waterborne transport also for passengers.

## EUROPE

- Overall, passengers by sea is small in EU.

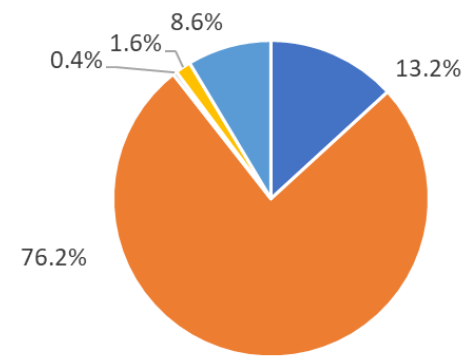


Passenger transport EU-27 (pkm), Source: EU Statistical Pocketbook 2022

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

Smarter, Safer and Sustainable Transport

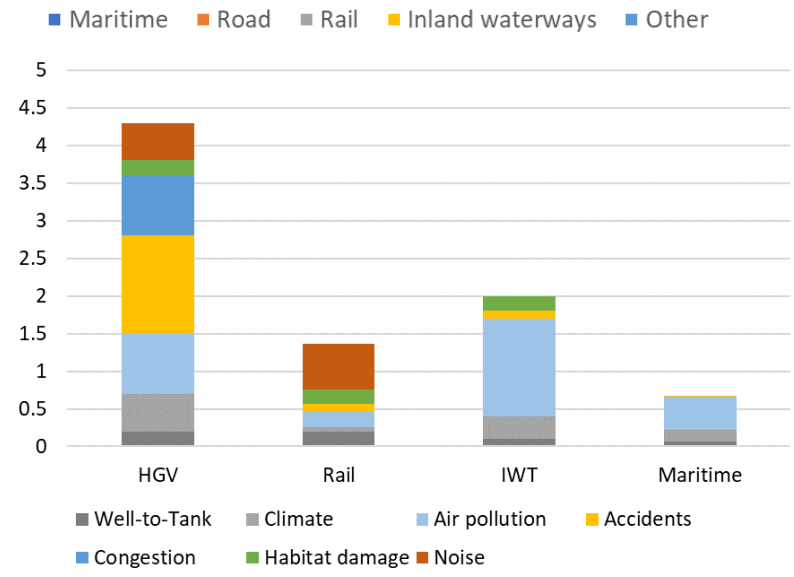
GHG emissions from freight transport, EU-27 2021, Source: EU Statistical Pocketbook 2022



## EUROPE

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

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

- External costs are not just emissions!

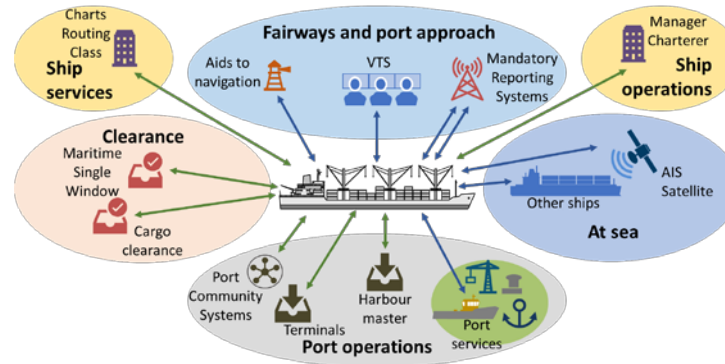
# Maritime ITS and sustainability

# Contributions from Maritime ITS to sustainability goals



## Autonomous ships: New transport systems

- More user friendly
- Lower energy
- Competitive with trucks



## Maritime digitalization: Seamless automation

- Voyage optimization
- Port call optimization
- Full automation



## Sea-land interface: Reduce transshipment cost

- Terminal and port operations
- Hinterland connections
- Full automation

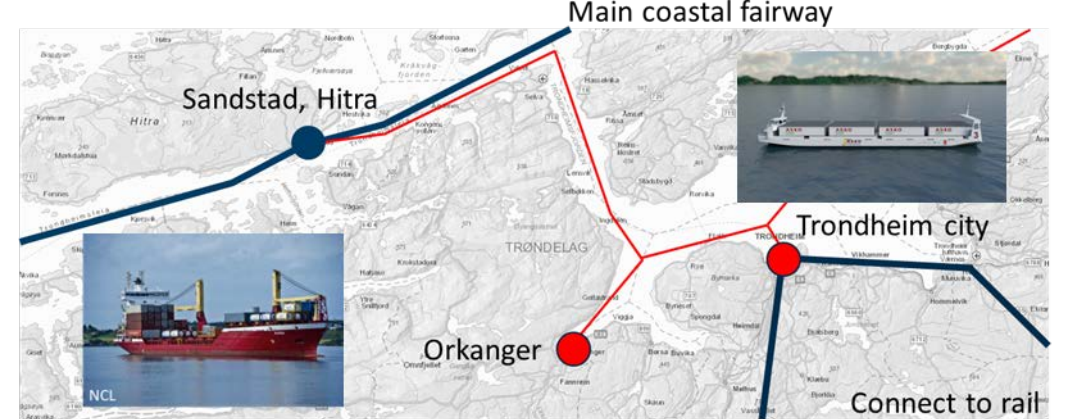
# Some examples



Just in Time,  
Voyage optimization



More efficient ship transport:  
Move transport from road to sea



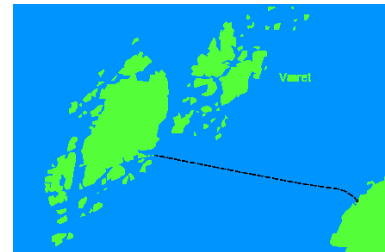
Extend sea transport further into rural and urban  
areas, increase frequency and reduce cost.



Improved car ferries



Improve passenger services in rural areas.



...or in urban



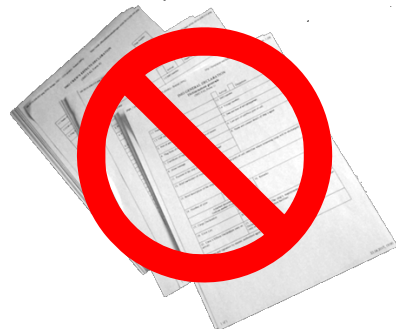
+ modal integration

# More examples



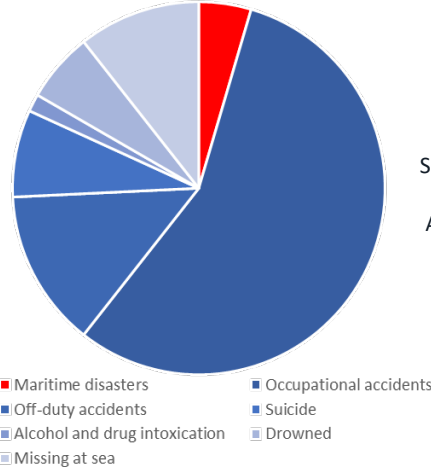
[https://www.nrk.no/rogaland/stor-mangel-pa-sjofolk-\\_lov-ar-bonus-pa-7000-for-rekruttering-1.16074489](https://www.nrk.no/rogaland/stor-mangel-pa-sjofolk-_lov-ar-bonus-pa-7000-for-rekruttering-1.16074489)

Address seafarer shortage



Less paper - more transparency.

Seafarer fatality UK 2003-2012



S. E. Roberts et al.: Fatal Accidents and Injuries in Merchant Seafarers

Reduce fatalities



87 000 employees



157 bNOK value creation



223 bNOK export value (17%)



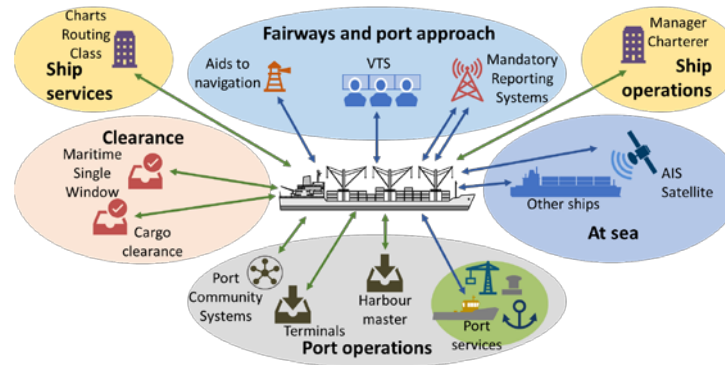
Strategier for grønn maritim eksport, Menon 14/2021.

Smarter, Safer and Sustainable Transport



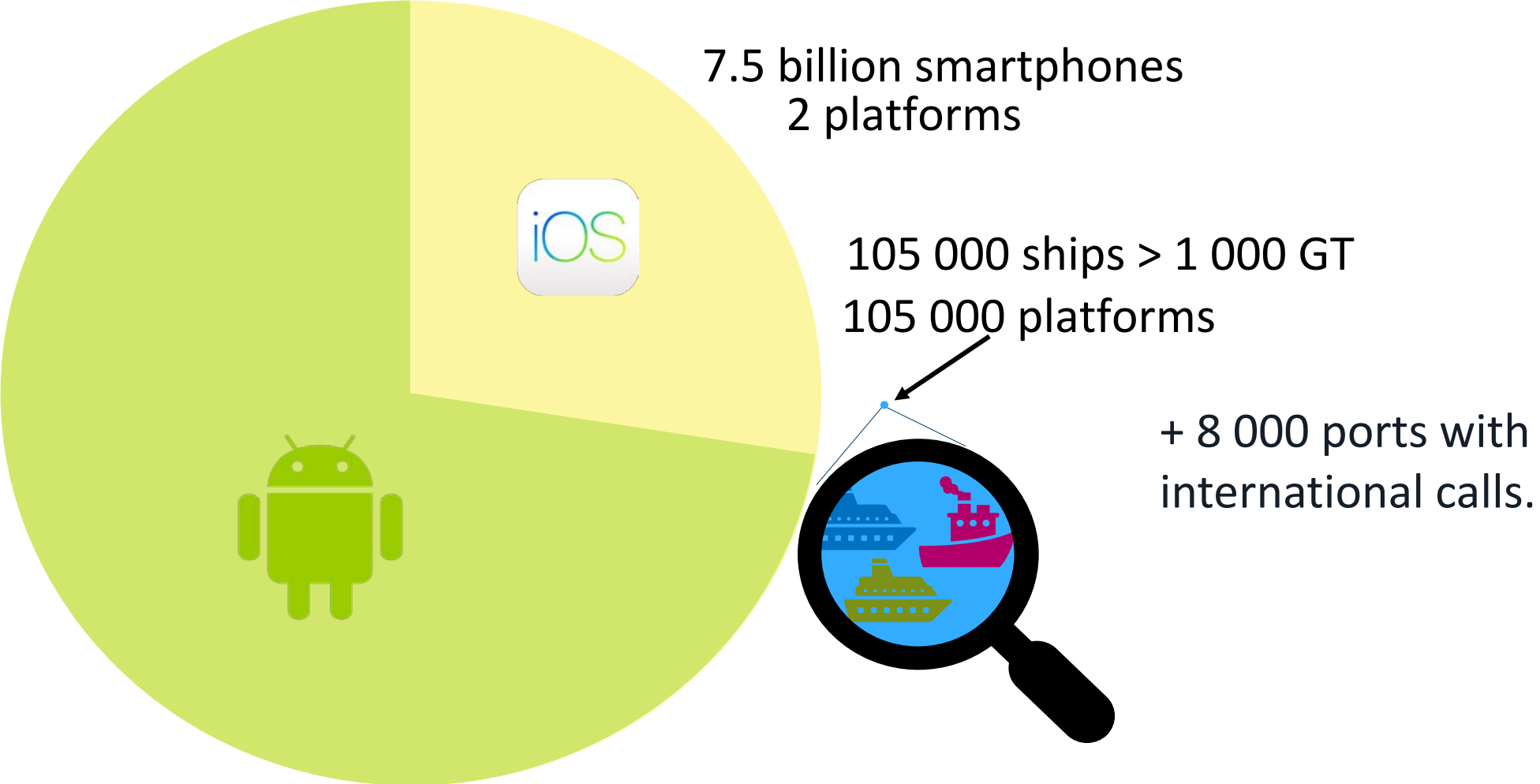
Increase cyber security and improve resilience

# How do we get there?



Digitalization + automation  
in transport  
= Maritime ITS

# However, a small sector internationally

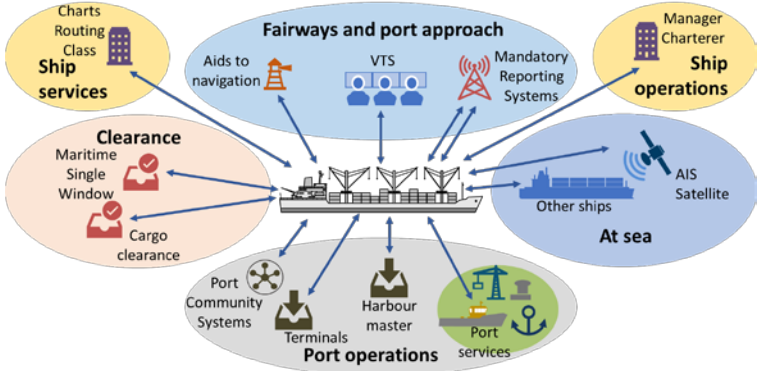




# Dependent on common international standards



# Need to rely on commonly developed international standards



- A complicated environment with many different actors that do not necessarily cooperate.



- A strong tendency for silo-thinking within specific digital sub-domain.



# Thank you for your attention!



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



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