4

Enabling multimodal intelligent transport systems

It is time for surf-n-turf

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Presented by Ø.J. Rødseth, SINTEF Ocean, Trondheim, Norway

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Shipping – the original ITS

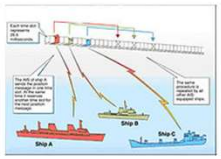
ARPA anti-collission radar
1969

INMARSAT/MARECS
1981

IMO

A 19/Res.819
15 December 1995
Original: ENGLISH

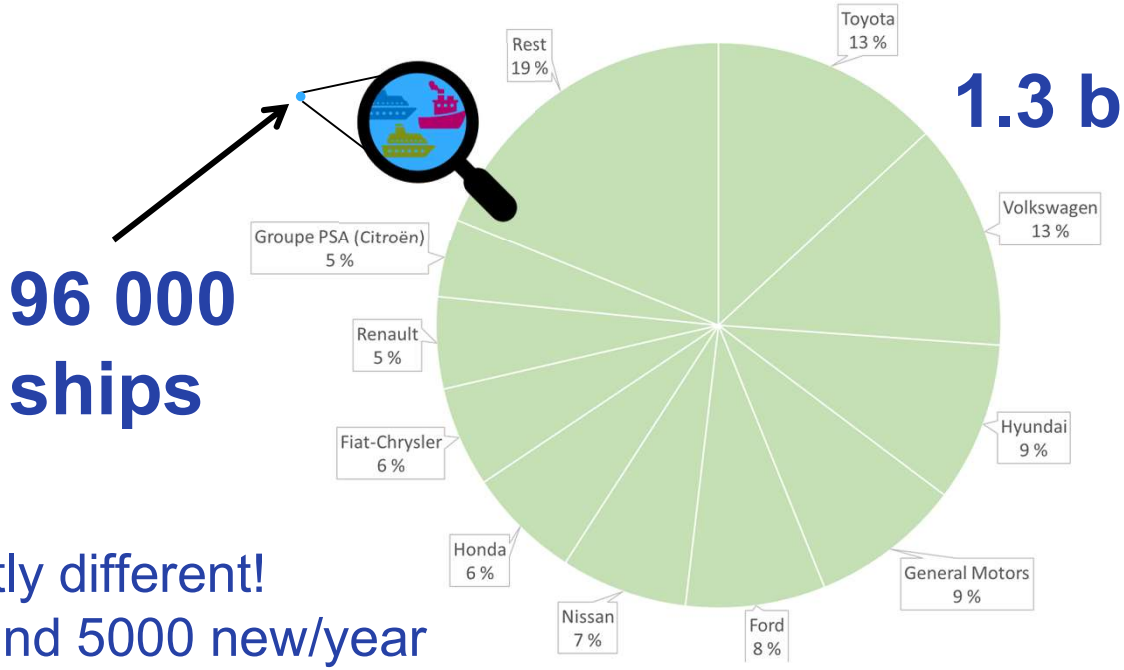
GPS performance requirements
1995



AIS performance requirements
1998

Rapidly moving towards Shipping 4.0 and more extensive digitalization

However, a small market!



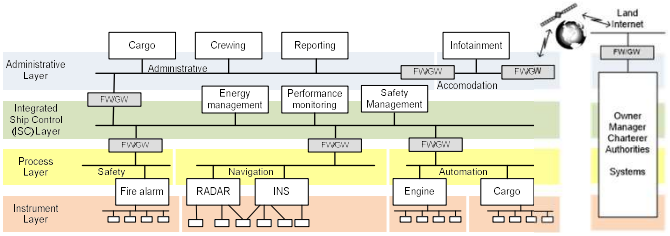
96 000 ships

1.3 billion cars

Mostly different!
Around 5000 new/year

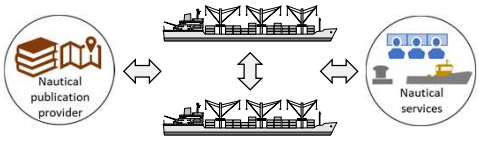
Split on cars produced in 2020 (about 80 million), i.e. about 10 million Volkswagen

Also a highly diverse market

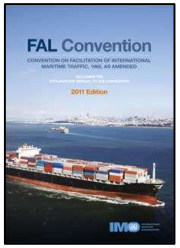


Onboard data networks – IEC/ISO

General ship-shore communication IEC/ISO



e-Navigation – IMO/IHO/IALA/ITU/IEC



Authority clearance IMO/WCO/UNECE/ISO

Port operations – UNECE/ISO

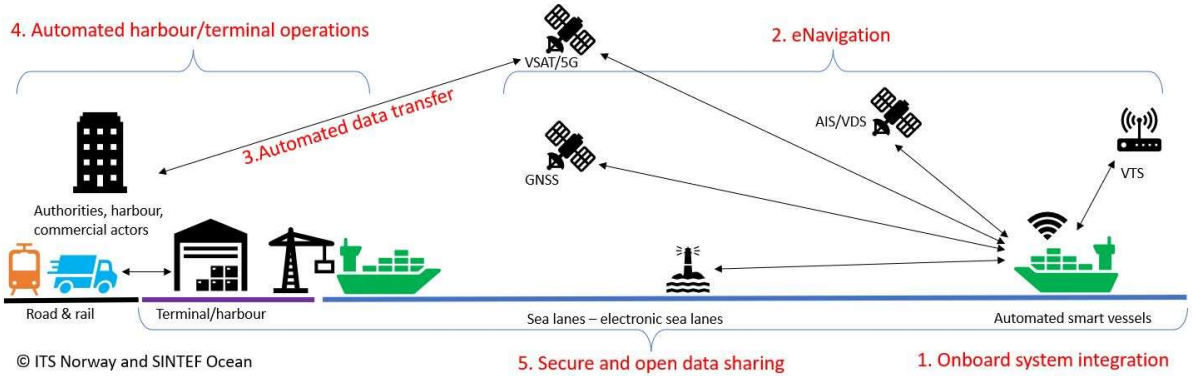
With many players

IMO FAL ship reporting harmonization group

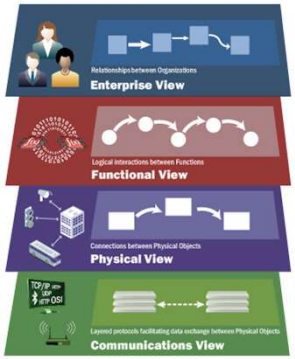
Harmonized Data Modelling Group – S-100

Individual data modelling developments in all organizations

We need a maritime ITS architecture



Covering the parties and physical interconnectivity …



… based on a ITS reference architecture?

(USA, national ITS Architecture)

Sustainable water transport

- Queues and road congestion, winter problems
- Dust and particulate matter
- Energy efficiency, new expensive fuels
- City ports move out of cities – need new logistics
- New waterborne passenger transport systems

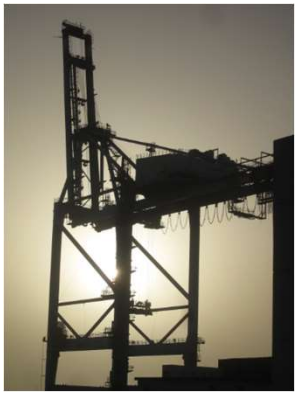
Complexity of transhipment

Ship transport is very efficient and low cost, but …

- Crane and storage costs
- Document handling
- Logistics and planning
- Delays and frequency of service

"Ships move cargo between places where it never was intended to be"

Need better integration to hinterland



Maritime Multimodal Supply Chains

Increase efficiency for transportation of goods and cargo, i.e., enable the Blue Economy Strategy

Improve maritime safety and security, including Trade Security

Protect the environment by promoting clean, green technologies, toward zero emissions shipping

Facilitate use of ITS technologies for transition to **Shipping 4.0** in support of a Multimodal Supply Chain (MSC)

Conclusions

- Maritime is in need of an integrating ICT architecture
- This may be based on existing ITS reference architectures
- This can also be used to establish higher multimodal interoperability
- Work is under way – feel free to contact us!

GET IN TOUCH

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