e-Navigation – it's all about the data

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Introduction

e-Navigation is the future, digital concept for the maritime sector.

Integration and harmonization are keywords in the definition of e-Navigation:

"e-Navigation is the *harmonised* *collection,* *integration**, exchange, presentation and analysis of maritime information onboard and ashore by electronic means to enhance berth to berth navigation and related services, for safety and security at sea and protection of the marine environment"*

e-Navigation objectives

- Safe and secure navigation of vessels

- Facilitate communications, including data exchange between vessels and shore

- Integrate and present information onboard and ashore to maximize navigation safety benefits and minimize risk of confusion

- Global coverage with consistent standards and interoperability

Common Information Structure
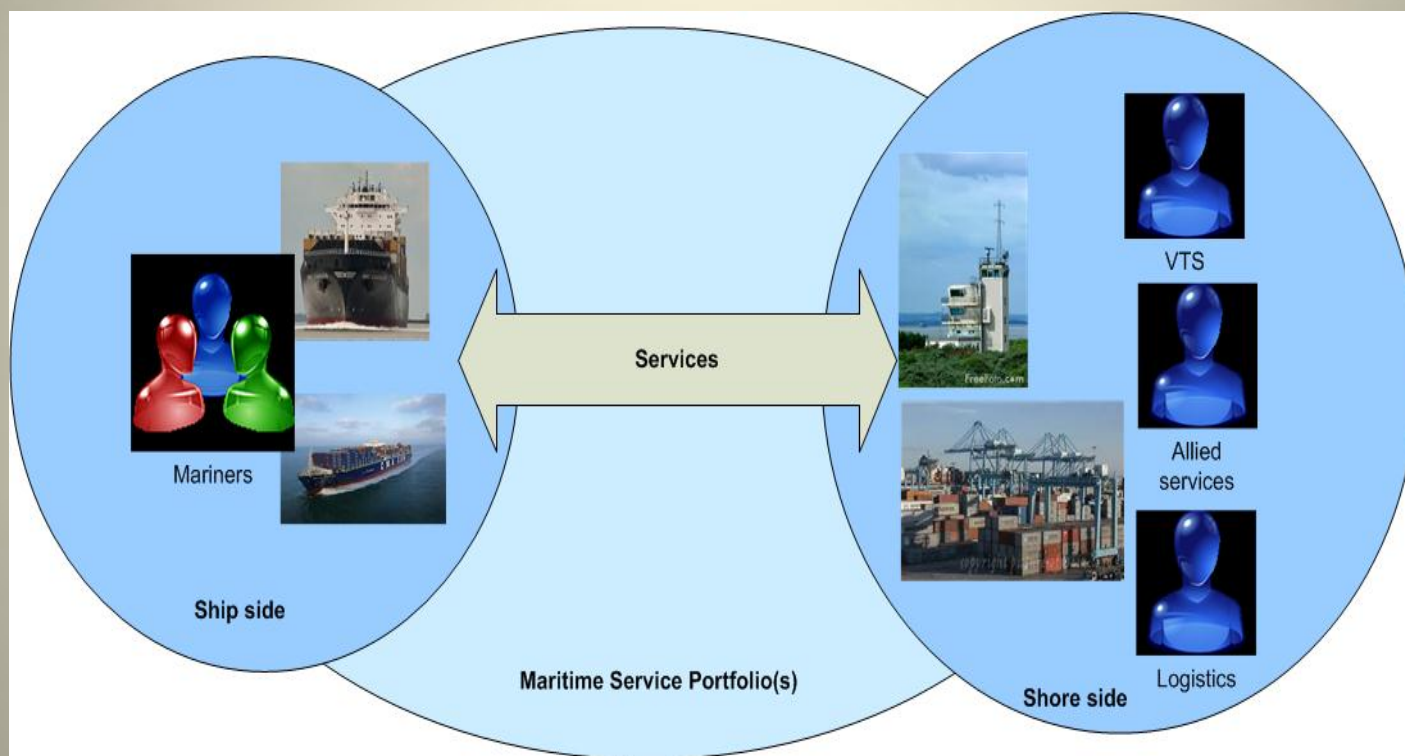
Common Information Structure

Mariners require:

– Information for planning and execution of voyages

– assessment of navigation risk and compliance with regulation

– information accessible

from single system

Image: Kongsberg
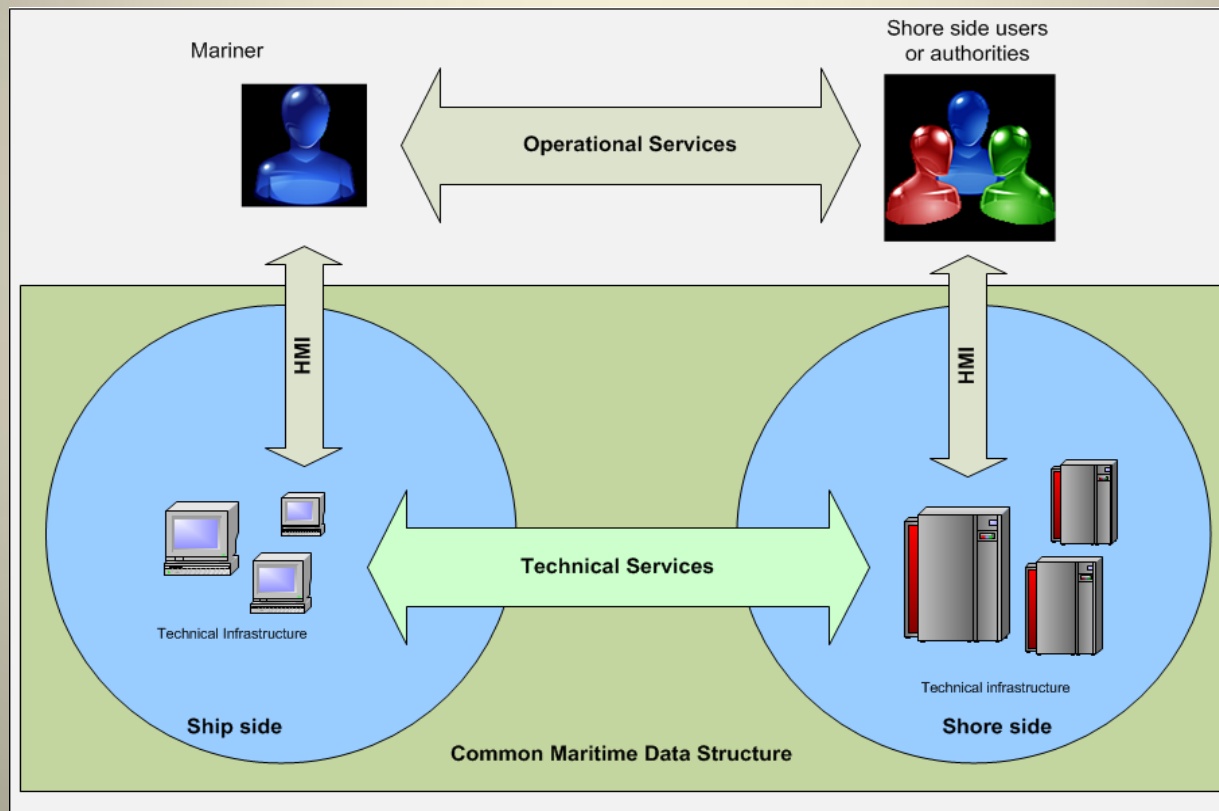
Common Information Structure

Shore users require:

– information for their maritime domain

– static and dynamic information on vessels and their voyages
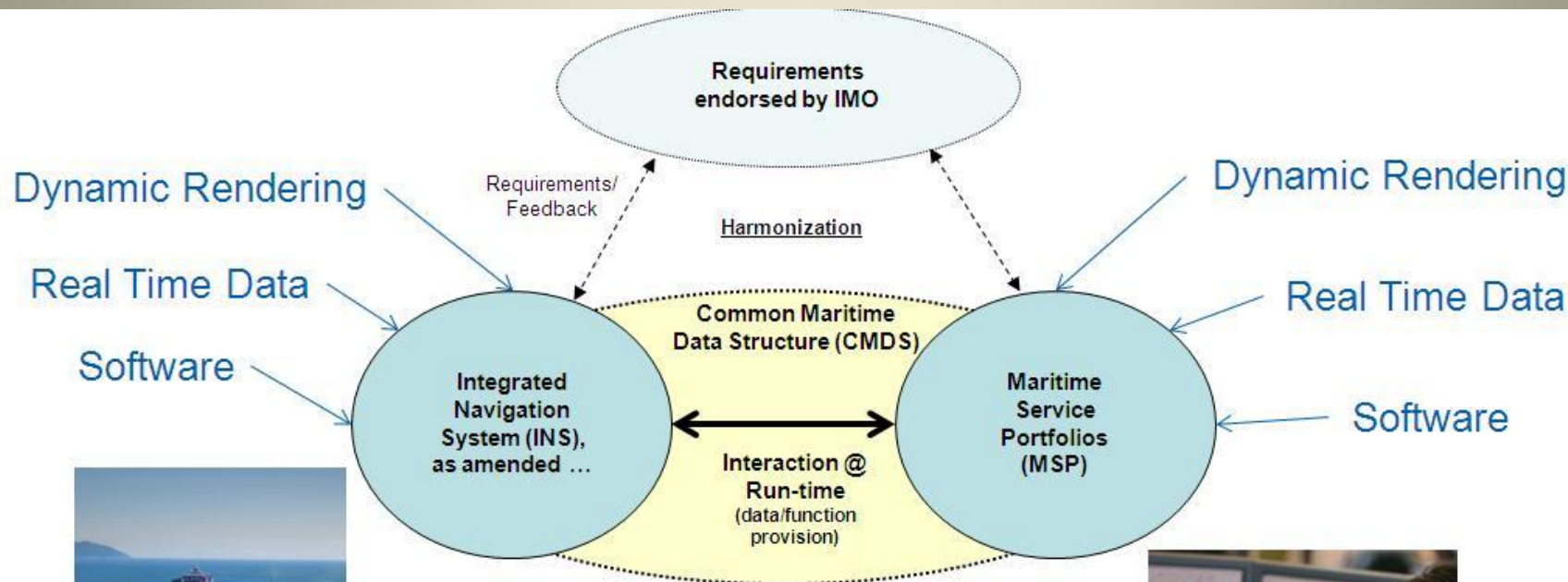
– an internationally agreed common data structure

VTS - Nijmegen

Common Maritime Data Structure

e-Navigation Data Flow - CMDS
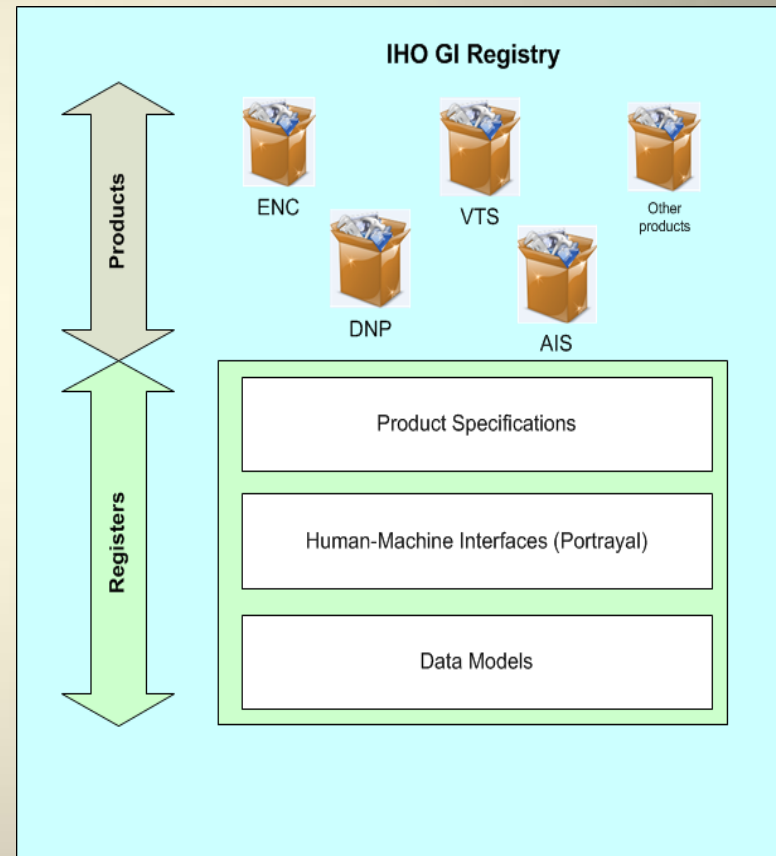

From IALA e-NAV Committee WG5 "Picture Book"

IHO Registry – common baseline

IHO Registry is a framework

Product specifications:
AtoNs, VTS, AIS etc

Based on data models:
IVEF, AtoN Information

From user needs to Registry
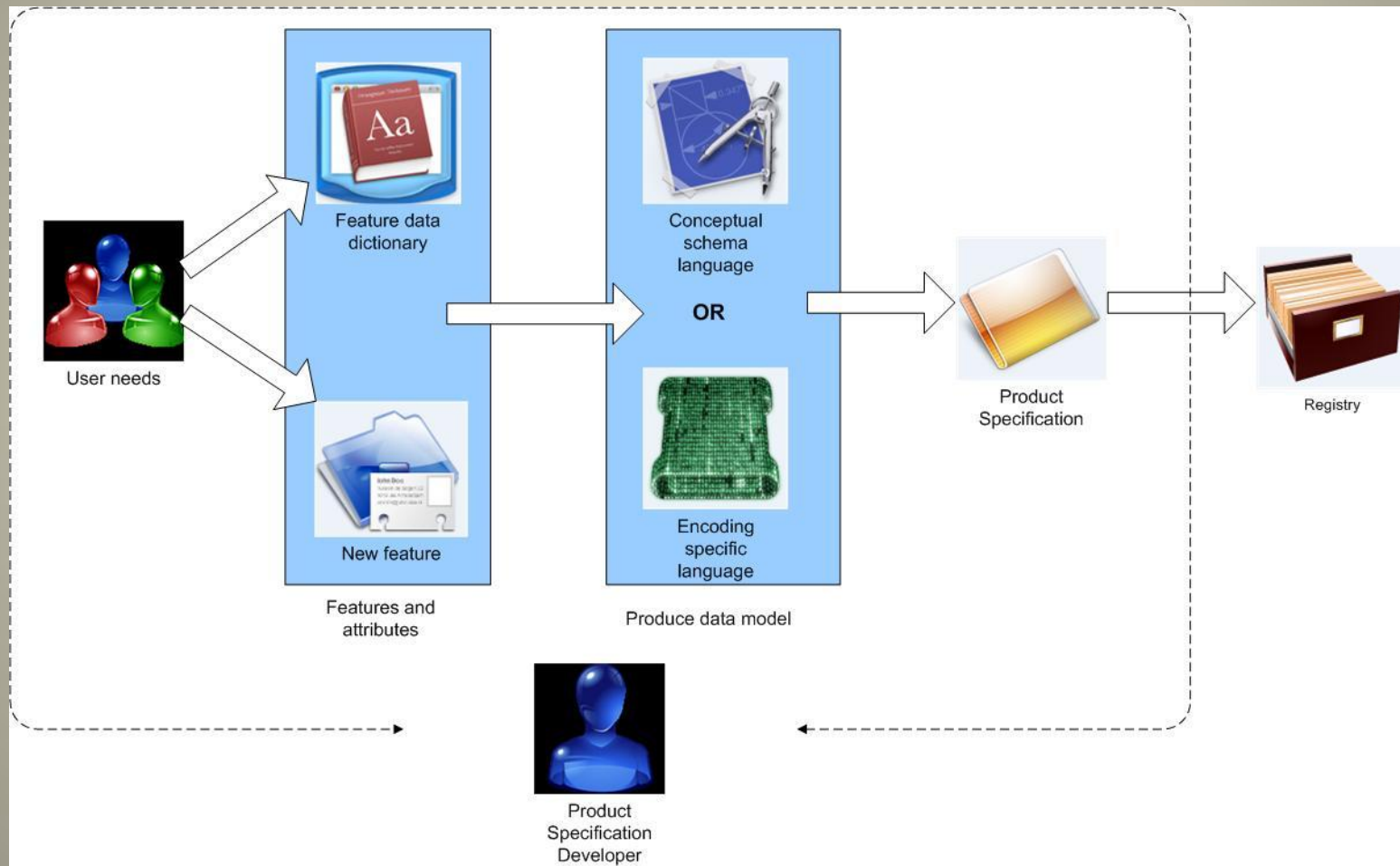
Data Exchange formats
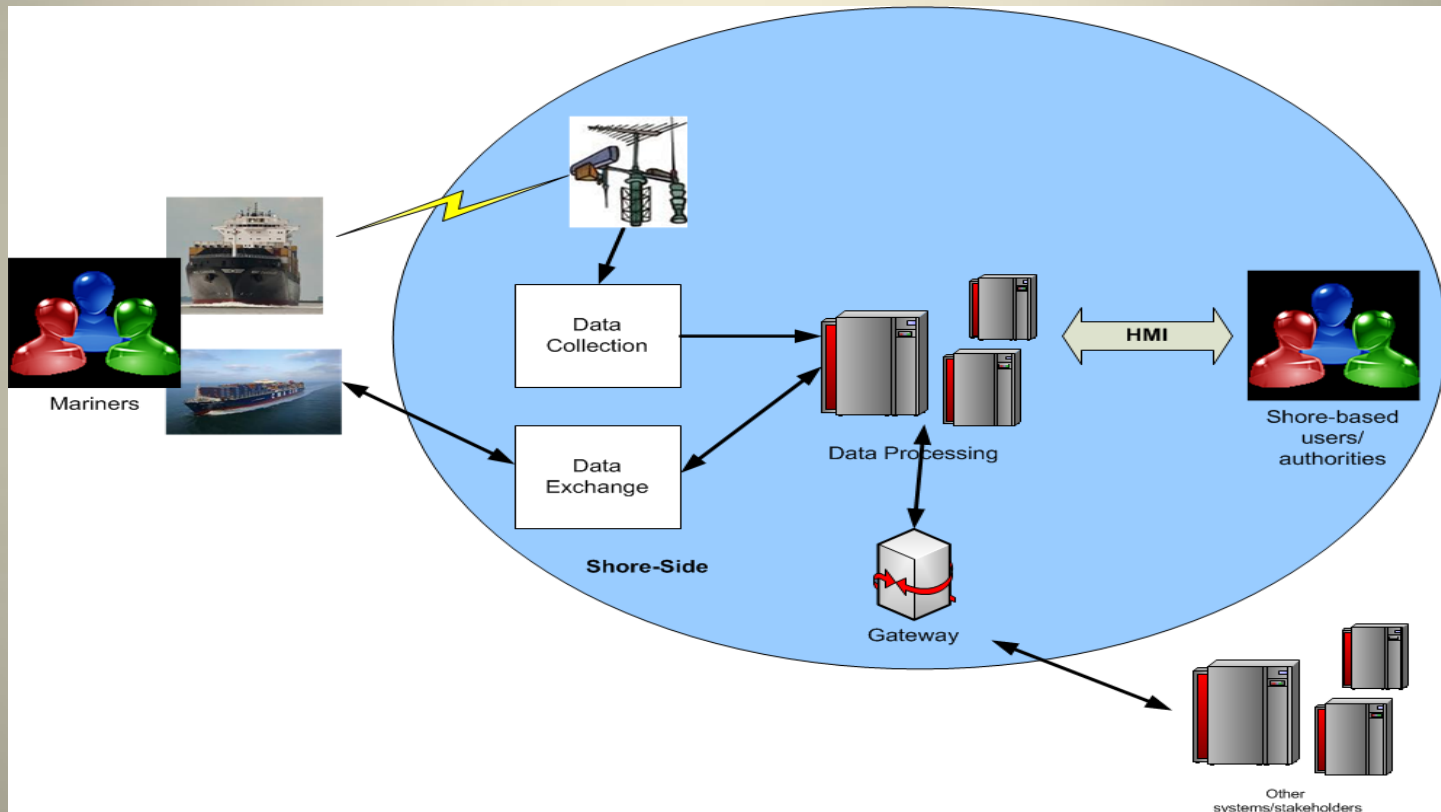
What this means in practice

- Standardised methods for exchanging information
    - Between VTS authorities
    - Between AtoN Service providers and HOs
    - Between service providers and ships
    - Between ships

- Potentially, generic standards for presentation and handling of information

For example:

- AtoN Information
  - Spreadsheet used by AMSA/AHO
  - Converted to Data Model (UML)
  - Data exchange format (GML)
  - Between AtoN authorities & HOs

- Inter VTS Exchange Format (IVEF)
  - Data model already developed
  - XML data exchange
  - Between VTS authorities

e-Navigation timescale

- Why now?
  - Strategy Implementation Plan: 2014
  - Development of MSPs and S-100 PS: 2014-18
  - Implementation: 2018 onwards (?)

- Parallel development process
  - Maritime Service Portfolios
  - Product Specifications

e-Navigation Road Map

	ECDIS implementation for > 10,000 T	Electronic charts for other vessels
		E-Nav INS/BES availability
Develop default settings (S-mode)	Standardise default settings, define resilient INS/BES	
IPNT concept	IPNT stds	Implement Integrated PNT (incl. WWRNS, multi-system receiver, resilient PNT)
	Develop future VHF/AIS services	Implement future VHF/AIS services
Identify other communications	Migration to other communications	
GMDSS Review	GMDSS migration	
Develop Standard Reporting	Implement Standard Reporting applications	
Develop IHO S-100 P. S.	Implement IHO S-100 Product Specifications	
Develop single window reporting	Shore-based single window implementation	
Develop MSP	MSP applications	
	Review of competency & training	
Strategy Implementation Plan	Review of regulatory process	
	Review of Legacy systems (LRIT, Paper Charts, NAVTEX etc)	

2012/13   2018   2023   2028

What are the benefits?

For end-users, operators and service providers

Standardized exchange of information means:

– Increased efficiency

– Fewer errors

– Simpler training

– Common equipment/interfacing

Conclusions

- e-Navigation is all about data/information

- Common Information Structure

- IHO registry baseline for CMDS

- Benefits of harmonization & effectiveness

More information
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