e-Navigation – it’s all about the data

Nick Ward, vice-chair IALA e-NAV Committee

Presentation for e-Navigation Underway, 29-31 January 2013, Pearl Seaways
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
Common Maritime Data Structure
e-Navigation Data Flow - CMDS

- Dynamic Rendering
- Real Time Data
- Software

Integrated Navigation System (INS), as amended...

Requirements endorsed by IMO

Harmonization

Common Maritime Data Structure (CMDS)

Interaction @ Run-time (data/function provision)

Maritime Service Portfolios (MSP)

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?
  – Development of MSPs and S-100 PS: 2014-18
  – Implementation: 2018 onwards (?)

• Parallel development process
  – Maritime Service Portfolios
  – Product Specifications
e-Navigation Road Map
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
nick.ward@gla-rrnav.org