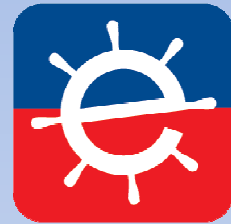


international



e-NAVigation  
underway 2016

# IALA and the physical & logical eNAV communication framework

Ómar Frits Eriksson  
Director, Maritime Technology & Business Development at DMA  
Chair IALA e-NAV Committee

# 21. February 2005

## Important Window of Opportunity

WEND9-INF4

### **MARINE eNAVIGATION: AN ORIENTATION PAPER**

*By Brian Wadsworth, U.K. Department for Transport*

#### **Summary**

1. This paper argues that we have an important window of opportunity to make marine navigation easier and to reduce navigational errors, with their attendant toll of accidents, loss of life, injury and environmental damage. Electronic navigational technologies are already available, being developed or are capable of development, which can be integrated to provide an accurate, secure and highly cost-effective e-Navigation system, with potentially global coverage. The same technologies are scalable for use by larger and smaller vessels.

## What is it?

The transmission, manipulation and display of navigational information in electronic formats,

## Why is it needed?

to minimise navigational errors, incidents and accidents, to improve security and to reduce costs for shipping and coastal states

e-Navigation aims to replicate,  
in the field of “marine navigation”,  
standards of safety and accuracy  
associated with “air navigation”

## Common Standards & Protocols

“Delivering fully viable systems  
with global coverage  
Will undoubtedly take years”

# IALA Strategic Goal for e- Navigation

- Harmonize the information structure, Maritime Service Portfolios and Communications for e-Navigation
- By creating standards and by cooperation with other IGO's
- To achieve worldwide interoperability of Shore and Ship systems.

# IALA e-Navigation Committee, structure

- WG 1 Harmonization
- WG 2 Implementation
- WG 3 Telecommunication
- WG 4 ENAV Services
- WG 5 PNT (Position, Navigation Timing)

# WG1 - Harmonization

The development of  
internationally accepted and harmonized principles,  
concepts, data models, services and systems  
for e-Navigation.



# WG2 - Implementation

Center of excellence

for sharing information on e-Navigation test beds.

Monitor the e-Navigation strategy implementation  
to provide advice to IALA Membership  
on the implementation of e-Navigation.

# WG3 - Telecommunication

All telecommunication aspects,  
including both terrestrial and space based  
radio communications,  
AIS, VDES, except radionavigation (PNT).

# WG4 - ENAV Services

Define the content of e-Navigation services,  
operational (i.e. information) aspects of e-Navigation  
and the value added services provided to users.

# WG5 – Positioning, Navigation & Timing

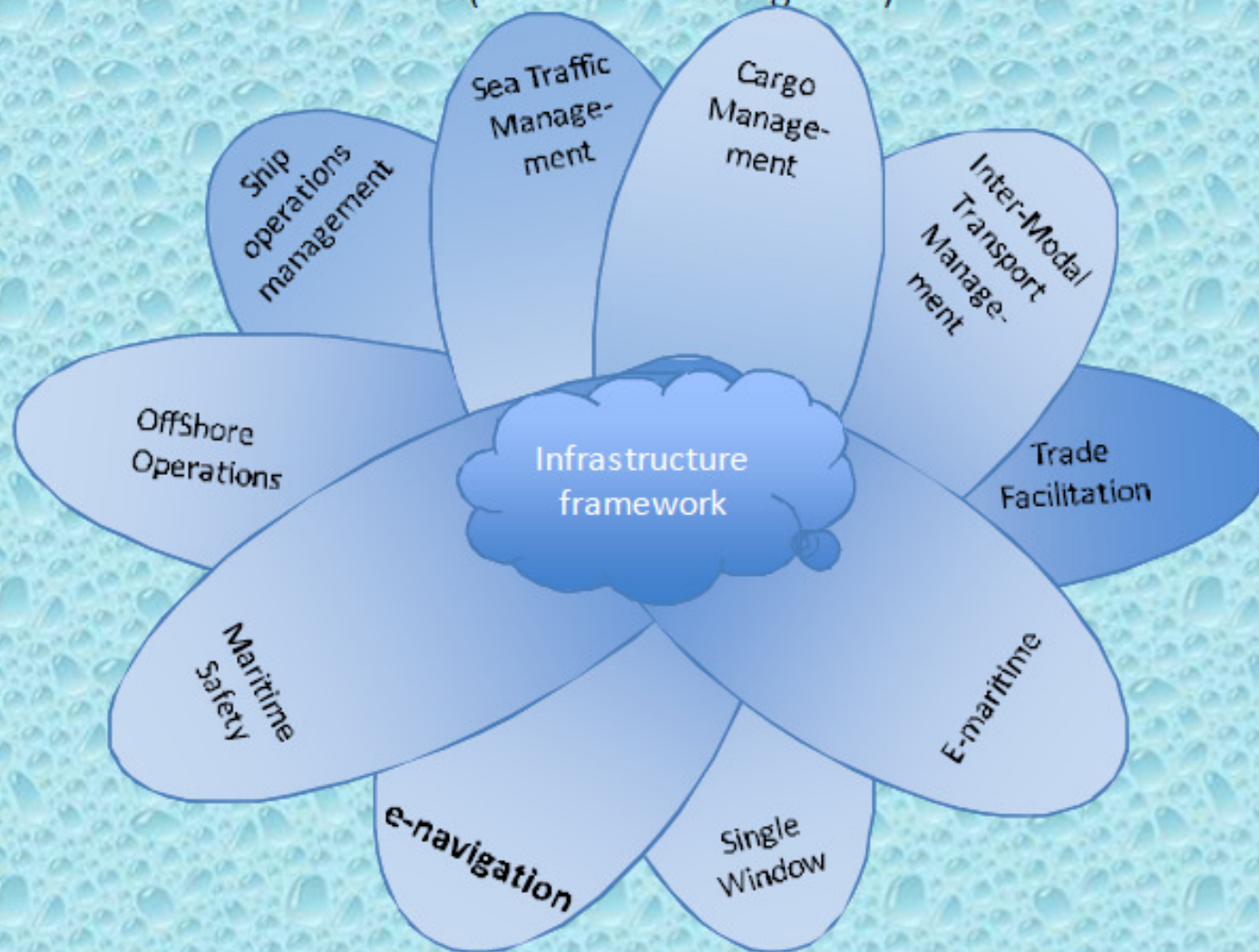
All aspects  
of Positioning, Navigation and Timing systems  
including resilience, reliability and integrity.

# Workplan next 2 years

- e-Navigation infrastructure and governance
- Maritime Service Portfolios
- S-100 Product Specifications
- Communication channels → VDES ++
- Testbeds and implementation activities
- PNT solutions,  
**R-Mode – utilizing all signals of opportunity**

# A Maritime Infrastructure Framework

(... also for e-navigation)



Jens K. Jensen  
Danish Maritime Authority



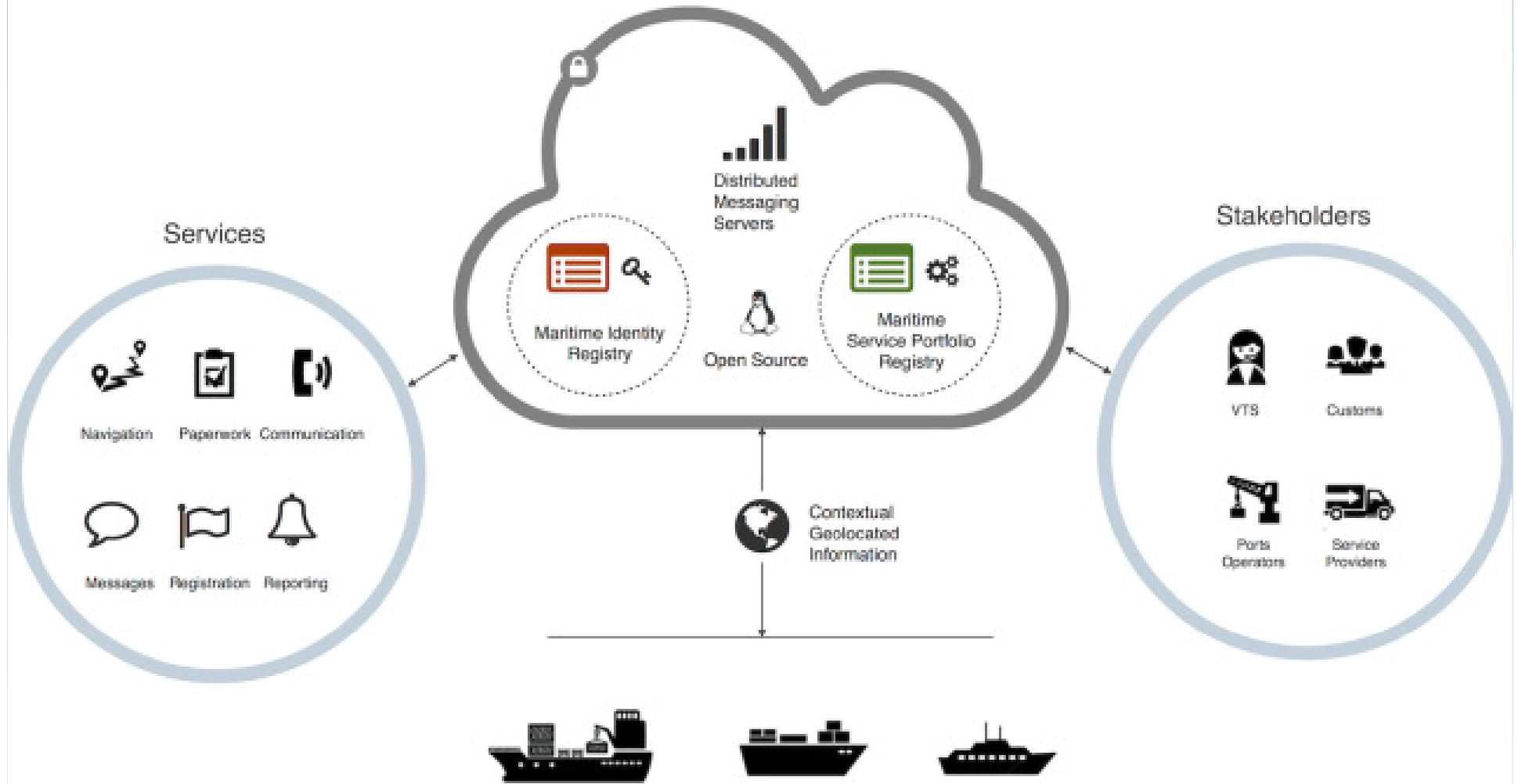
Mikael Lind  
Viktoria Swedish ICT AB



Kwangil LEE  
ETRI, Republic of Korea



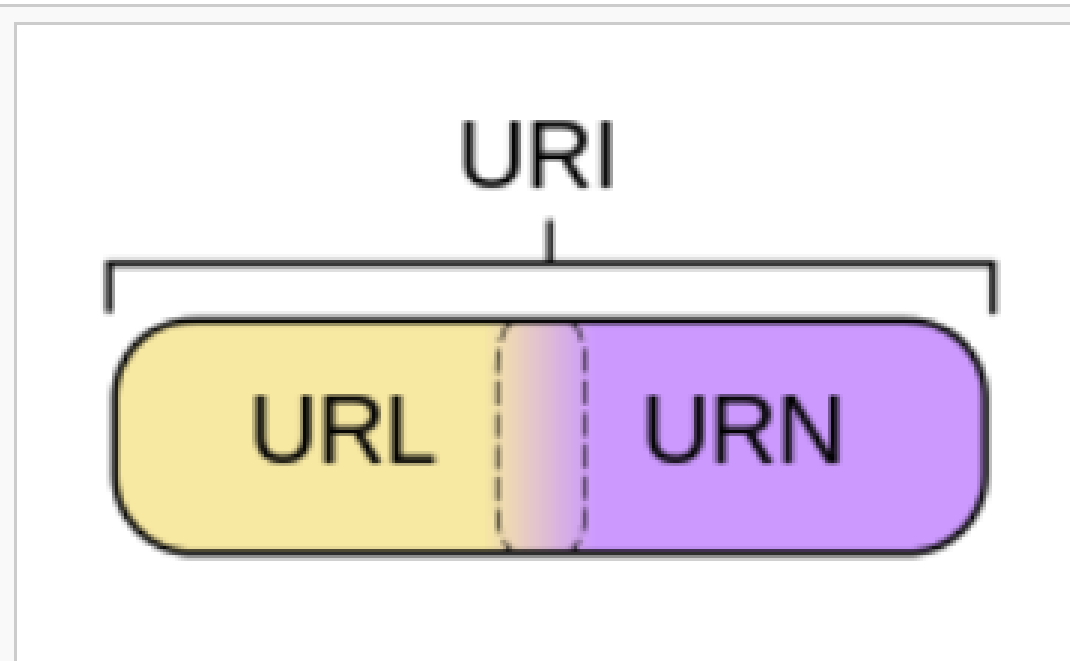
### Maritime Cloud



# Unique Identifiers for Maritime Resources

- facilitates global harmonisation of information flow in e-navigation
- may potentially be adopted by the whole maritime community including IHO and IMO.





This Euler diagram shows that a Uniform Resource Identifier (URI) is either a Uniform Resource Locator (URL), a Uniform Resource Name (URN), or both.



# Syntax of a Uniform Resource Name (URN)

*"urn:mrn:"*<NSS>

- “mrn” identifies a unique namespace within URN.
- <NSS> *is the Namespace Specific String*

*<NSS> ::= <governing-organization> ":" <type> ":" <type-specific-part>*

Based on RFC 2141

# Unique AtoN identifiers

*urn:mrn:iala:aton:<countrycode>:<NationalIdentifier>*

Example:

***urn:mrn:iala:aton:us:1234.5***

# Unique DGNSS station identifiers

*urn:mrn:iala:dgps:<countrycode>:<NationalIdentifier>*

Example:

***urn:mrn:iala:dgps:dk:12345***

# Unique MMSI identifier

*urn:mrn:itu:mmsi:<countrycode>:<NationalIdentifier>*

Example:

***urn:mrn:itu:mmsi:fr:238070999***

# Unique Navigational Warning identifoyer

*urn:mrn:iho:nw:<countrycode>:<Identifyer>*

Example:

***urn:mrn:iho:nw:dk:0123456789***

*i.e. Danish Navigational Warning nr. 0123456789*

# IALA e-Navigation Committee









# Our Business is changing

**BUSINESS**



# Eastman Kodak



Steve Sasson, the Kodak engineer who invented the first digital camera in 1975, characterized the initial corporate response to his invention this way:

*But it was filmless photograph, so management's reaction was, 'that's cute - but don't tell anyone about it.'*



*We are in the business of "High Tech Paper and Chemicals"  
not the business of "Sharing moments"*

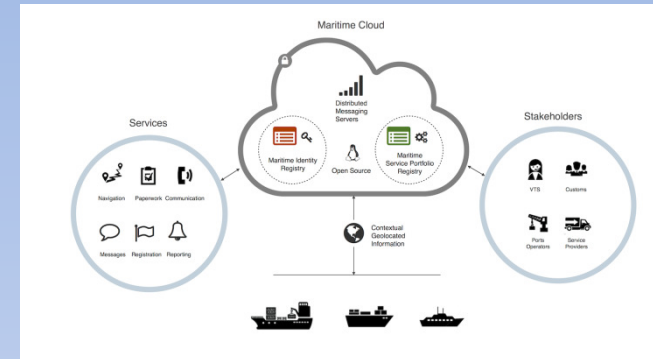
*Kodak went bankrupt in 2012*

# We are in the Business of Connectivity

*Connectivity is the enabler for  
oceans of business opportunities*

*Information exchange, Route exchange, Internet of things, MSI,  
"Skype for ships", etc..*

*Connect or go Kodak!*



# Thank you...

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