A coordinated approach on E-Navigation

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E-Navigation underway 2016
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About

INTERTANKO

LEADING THE WAY,
MAKING A DIFFERENCE

INTERTANKO
Leading the way; making a difference

International Association of Independent Tanker Owners

Non-governmental org est. 1970 in Oslo

Strict membership criteria

Members in 42 countries

Champion - Advisor - Forum

Observer Status at IMO, IOPC, UNFCCC, OECD, UNCTAD

Oslo - London - Washington Singapore - Brussels
Our committees

- Documentary Committee
- Worldscale and Markets Committee
- Vetting Committee
- Human Element in Shipping Committee
- Insurance and Legal Committee
- Associate Members Committee
- Chemical Tanker Committee
- Chemical Tanker Sub-Committee Americas
- Safety and Technical Committee
- Intertanko Offshore Tanker Committee
- Bunker Sub-Committee
- Environmental Committee
Our Goals

Zero fatalities

Zero pollution

Zero detentions
Introduction

LEADING THE WAY, MAKING A DIFFERENCE
Accidental oil pollution from tankers

99.9999% of oil transported safely

Source: ITOPF/Fearnleys/ Lloyd's List Intelligence

*2010s = projection based on 5 years
Tanker incidents (all types and sizes)

Number incidents

1,000t oil spilt

- Miscellaneous
- Hull & Machinery
- Coll/Contact
- Fire/Expl
- Grounded
- Oil pollution

Source: LMIU & ITOPF
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Stubborn Human Element

We still have accidents and incidents at an unacceptable level

• Collisions
• Groundings

When things go wrong:

65% of accidents Human Error

⇒ focus on People
⇒ Safety culture

How can E-Navigation assist in protection rather than the other way around...
Tanker Masters time in rank 2009-2014

40% Masters < 5 yrs in rank

Sample size 515

Years in rank

Number of Masters

Less Experience More

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Human factor

• With today's ECDIS, officers make mistakes
• E-Navigation will add to the complexity
• More information must not mean more complex solutions – in fact, we need simpler systems to operate, with the added information!

How do we achieve that?
Human factor contnd.

• **High Workload situations**
  – Ability to assist the navigator more actively in situations when the workload is high.
  – Navigation assistance, when will we see suggestions based on autonomous ship theories
  – Alarms…. Do they warn us when we actually need them? Or do they cry wolf most of the time?

• **Fatigue and Complacency**
  – A number of accidents has been due to the low workload and complacency
  – Ability to make a navigator, as an example, to take more active participation
Cyber Security

- Cyber security is an important threat
- Ships are global and mobile operators
- International approach more fitting for shipping sector
- ISPS code requests vessels to take account of all security threats, including cyber security
- Guidance developed by BIMCO, ICS, INTERTANKO and INTERCARGO – to be submitted to IMO

- BUILD SECURITY IN TO DEVELOPING SYSTEMS
The coordinated approach

What:
• INTERTANKO members will use the added value that E-navigation enables to enhance safety of navigation and security for seafarers and vessels. It is of utmost importance that the underlying purpose for any new development, is that it simplifies and enables safer and possibly more environmental friendly shipping. The human element and the seafarer that use the systems must always be kept in mind when engineering new systems.

How:
• Thru member feedback thru our committees and working groups INTERTANKO can give direct feedback and suggestions from the end users. INTERTANKO as organisation will continue to actively participate in and with a coordinated approach.

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E-Navigation Framework

Ashore

- Shorebased stakeholder etc like terminals, VTS, Coast Guard...

Onboard

- Standardised description of Data to be transferred i.e. IHO S-100 Series
- Ways of communication Ship-shore (Needs a standardised approach)

Ways of communication Ship-shore (Needs a standardised approach)

NMEA to slow, not open, not secure
Leading the way; making a difference

S-100 will support a greater variety of data sources, products and services

- Vessel layout
  - For compatibility studies
- Tanker terminal information
- Radar image and data
- Port bye laws
- Port information
- Route exchange
- Sea ice
- UNCLOS boundaries
- Inland ENC
- 3D & temporal
- High density bathymetry
- MIO
- Gridded data
- AML
- Future ENC (S-101)
- Web services
- Nautical Publications (S-102)
How to join the S-100

• Is what you want already in the S-100 registry?
  – Then use it!

• Not in the registry?
  – Then, find or become a submitting organization to:
    • propose a revision
    • propose something new
    • propose to establish a new domain

Why does very few, or any testbeds implement S-100 registries?
Communications on-board

• Today
  – NMEA; is not open (at least not latest version), slow, not secure, only scalable to a small extent
  – Manufacturer specific; Not open, secure?

• Tomorrow, need for ONE system that is:
  – Scalable
  – Fast
  – Open [source]
  – Secure
  – Use Internet of Things Technology??
• A lot of efforts are ongoing in this area, examples are:
  – Efficiensea 2.0
  – Maritime cloud
  – Etc..

• However, a coordinated approach is needed to develop standard(s) for some concepts where then service providers can find a market for their products.
Moving forward

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 Compatibility studies

• When will we see bollards accurately positioned on our charts in the ECDIS?
• And my vessel is properly laid out?
• We could then do mooring simulations before arrival... On our planning ECDIS?
• S-100 Registry for the implementation!

We could include everything at a tank terminal; Bollards, loading arms, lines, etc all with associated restrictions or limits.

We could include a ship layout hull form, mooring positions, even mooring rope type, manifolds, tanks ullage...

Parties can then do due diligence and compatibility studies and even send real-time data, using a standardized dataset.
HydroDynamic predictor and conning

- An example....
- Few systems today have implemented the most advanced type of predictors with the vessel's hydrodynamics built in.
- Could be extended with sensors on tugboats to get movement even with tugs connected.
- Many accidents happen when tugs are connected and the pilot gives orders to the tugs in a local language.
- S-100 Registry for the implementation!
Supporting pilotage

• With an increasing amount of PPUs around, the crew will not have the same information as the pilot.

• INTERTANKO like to see solutions enabling the pilots to use the ships equipment, in a way that the pilot needs and requires.

• Remembering that a pilot will see every manufacturers systems... Standard displays for the pilots?!?

• S-100 Registry for the implementation!
Industry best practices

• The variations in the ECDIS industry today are not acceptable!
• Moving forward to E-navigation, we would like to see a change and more commonality/standardisation.
• Industry must work together
Finally

- Focus on the two ONLY really important things when taking E-Navigation to the next step:
  - Zero Groundings
  - Zero Collisions
- Think benefit for the navigator and ship safety when designing next generation of tools.
- Cyber security is becoming a concern for the industry - build in protection to the hardware and software!
Thank you

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