Make the World a Safer Place

E-Navigation & Risk Management

*The Insurance Industry Perspective*

Jorge Pecci
e-navigation

To bring about increased safety and security in commercial shipping through better organization of data on ships and on shore, and better data exchange and communication between the two.
From Celestial to Digital

During the last 30 years we have seen extraordinary progress in technology applied to navigation and communication systems

- Advanced technology is developing rapidly
- Mariners have never had more electronic aids to navigation than today
- There is a need to coordinate systems and develop clear standards
e-Navigation - 3 Expected outcomes

With the intent of a harmonized and integrated concept with application to:

- **Navigation systems on board**
  - Integration
  - Standard user interface
  - Preventing distraction and overburdening

- **Management of vessel traffic information ashore**
  - Coordination
  - Exchange of comprehensive harmonized data

- **Communications infrastructure**
  - Seamless harmonized information transfer
What do we want to achieve as an Industry?

- Enhance berth-to-berth navigation
- Improved safety
- Improve environment protection
- Increase vessel efficiency
- Improve human resource management

Essentially, we want to achieve efficiencies and reduce risk to a ALARP level
Today’s environment

- Despite progress, The Human Element remains the most important factor in maritime accidents, and navigational errors continue to account for large losses.

- In 2012, a report produced by a top insurer found that for the previous five years, there had been 85 insurance claims of over $1m of which over 50% were directly related to navigational issues.

- A study conducted by UK authorities indicated that navigational errors and failures were a significant element in over half of the merchant shipping accidents.
Incident response enhancement

Incident management service provides functionality to manage:

- Search and rescue
- Oil spillages
- Collisions
- Groundings
- Fire fighting
- Medical evacuation

Search patterns/areas are distributed to all units involved, such as:

- Navy, Coastguard, Marine Police, etc
- Fire, Ambulance, Police, etc

Captain, I think I missed the turn.
Total Losses 1998-2012
By Cause, All Vessel Type (vessels > 500 GT)

Source: LMIU, total losses as reported by Lloyds List
Serious Losses 1998-2012
By Cause, All Vessel Type (vessels > 500 GT)

Source: LMIU, total losses as reported by Lloyds List
The available navigable waters are shrinking and ships are increasing in size and number

- The navigable sea space for shipping is decreasing rapidly to allow for fishing, leisure, renewable energy and environmentally protected areas.

- At the same time the number and size of vessels is increasing and the number of crew members required decreasing. Is automation enough?

- It is not unusual to see large ships and small leisure crafts sharing the same space in a congested harbor.
Challenging!
Tanker, Bulkcarrier, Containership and Multipurpose Fleets

Source: Clarkson Research, August 2013.

Note (1): Includes all vessels in these categories above 100 GT.

Note (2): All fleet totals are on the left-hand axis and deliveries and scrapping figures are on the right hand axis. Apart from 2013 data, fleet totals are as at end year; deliveries and scrapping figures are full year totals.
The actual risk exposure?

Portfolio share of vessels with values xs 100 USD million

Increasing vessel sizes => increasing share of high values
=> increasing risk of very large losses

Cefor hull portfolio as of June 2013, by underwriting years

- Red: > 300 MUSD
- Blue: 100 - 300 MUSD
Reducing navigation error

- In order to reduce navigational error, we must ensure that new technologies can aid, rather than hinder the mariner.

- They must be integrated under an overarching framework—just as all of the instruments in a large orchestra need to be tuned and harmonized to produce a good overall effect.

- Such harmonized information should enhance situational awareness and decision support for mariners and consequently, enhance navigational safety and efficiency.
Hull – gross* ultimate loss ratio (Europe + USA)
Underwriting years 1996 to 2012

Data: Belgium, Germany, France, Italy, NL, Nordic, Spain (until 2007), UK, USA

* Technical break even: gross loss ratio does not exceed 100% minus the expense ratio
(usually 20%-30% acquisition cost, capital cost, management expenses)

2011 uw year: strong total loss impact (Costa Concordia & other 2012 losses)

2012 uw year: no similar major loss impact, but no technical profit.

Back to «normal» («normal» = 80+% gross loss ratio)
Hull – gross* ultimate loss ratio (Europe + USA)
Underwriting years 2003 to 2012 – estimated development towards ultimate

2011 incl. Costa Concordia

2011 uw year:
Unprecedented total loss impact.

2012 uw year:
Similar to pre- Costa Concordia years.
Less major losses, none with same impact as Costa Concordia.

* Technical break even: gross loss ratio does not exceed 100% minus the expense ratio (usually 20%-30% acquisition cost, capital cost, management expenses)
The Insurance Market concern

- Over Reliance on electronic means of Navigation
- Lack of standardization onboard and ashore, incompatibility between vessels and an increased and unnecessary level of complexity
- More time spent looking at a screen than looking out the window
- Use of e-Navigation without proper training of all stakeholders
- GPS as the unique/main source of positioning
- Implementation on an aged fleet
Average Age of the World Fleet 2000-2013

Source: Clarkson Research, August 2013.

Note (1): Includes all vessels in these categories above 100 GT.
Note (2): Average age is calculated using number of vessels. Calculations are based on year and month of build.
The Insurance Market concern

- Transitional period length and related risks

- Implementation plan
  - Regulatory framework
  - Technical requirements
  - New training requirements to be defined for mariners, including changes to existing Maritime Academies syllabus
  - Shore base personnel training standards/requirements

- Reduction of crew size
Thank you