Technology evolution for future radiocommunication and navigation

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CIRM
What is CIRM?

• The Worldwide Marine Navigation and Communications Manufacturing and Service Industry Trade Association

• Registered office in England and Wales (UK Companies House + not for profit)

• “To promote on a non-profit basis the study of all matters relating to installations and devices associated with electronic aids to marine navigation, marine radio and satellite communications and other relevant electronic devices ....... and standardization of documents in relations to these matters”

• Set up to participate in international and regional conferences and meetings relating to above and to foster relations between all organizations
Where are we?
Members and Secretariat

• 112 companies worldwide
  • Navigation / communication equipment – manufacturers, parts manufacturers, software houses
  • Charts – suppliers
  • Training - establishments
  • Satellite – suppliers, ASPs, CSPs
  • Service – providers, certification and inspection bodies

• Full Memberships – not subject to government control and with a right to vote

• Associated Memberships – companies that may be subject to governmental control and no voting rights
112 Member companies – distribution
## What do we do?

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<th>Navigational Equipment &amp; Systems</th>
<th>Manufacturers &amp; Equipment Suppliers</th>
<th>Radiocommunications &amp; GMDSS</th>
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<tr>
<td>Radar &amp; Plotting Aids</td>
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<td>Satellite Systems - Global &amp; Regional</td>
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<td>Automatic Identification Systems (AIS)</td>
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<td>MF/HF/VHF/UHF Systems &amp; DSC</td>
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<td>ECDIS, ECS &amp; Electronic Charts</td>
<td>Software Developers</td>
<td>SART, AIS-SART &amp; 406 MHz EPIRBs</td>
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<td>Integrated Bridge Systems &amp; INS</td>
<td>System Integrators</td>
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<td>Electromagnetic &amp; Gyro Compasses</td>
<td>Servicing &amp; Maintenance Companies</td>
<td>LRIT &amp; Satellite Tracking</td>
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<td>Autopilots, Heading &amp; Track Control</td>
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<td>Technological innovation</td>
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<td>Echo Sounders &amp; Speed Logs</td>
<td>Specialist Service Providers</td>
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<td>GNSS &amp; Terrestrial Systems</td>
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<td>Voyage Data Recorders</td>
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<td>Autonomous Shipping</td>
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Close co-operation with:
IALA, BIMCO, INTERTANKO, IACS, IHO, ICS, INTERMANAGER, IMPA ++
At the IMO

At Trade Shows and Conferences
Next Annual Conference – San Sebastián April 24 – 27, 2017

San Sebastián 1928

Singapure 2017
CIRM is also involved in...

IEC TC80 ‘Maritime Navigation and Radiocommunication Equipment and Systems’ - produces operational and performance requirements together with test methods

CIRM provides Mr Kim Fisher, marine navigation and communication specialist as ... Secretary to IEC TC80
CIRM Working Groups

• e-Navigation
• Radiocommunications
• ECDIS
• Service
• Type Approval
• VDR
• Cyber Risk
• CIRM/BIMCO Joint Working Group on Software Maintenance
Technological evolution
Trends

• Expanding role of software-driven systems; need for software updating
• Integration of systems, complex onboard networks
• Development of standardised e-navigation services – emergence of new service-driven business model?
• Massive increase in ship connectivity, demand for bandwidth
• Initiatives on cyber security all across industry
IMO Output: MSPs

- Maritime Service Portfolios under development at IMO, IHO, IALA
- Groups of digital services built on common data structure
- Examples: VTS, MSI, Pilotage service, Telemedical, Nautical Chart service
- Common Maritime Data Structure (CMDS) underpins e-navigation
- IHO S-100 Universal Hydrographic Data Model to be used as CMDS
- S-124 (Navigational Warnings), S-129 (Under Keel Clearance), etc.
IMU Output: S-Mode

• S-Mode Guidelines on IMO agenda 2018-2019

• Original concept constrained users and manufacturers...

• But valid user needs lay behind it!

• New concept from CIRM – “always-on standardization”

• Our technical proposal now under user testing and evaluation
Maritime Connectivity Platform

• MCP under development in several projects
• Developmental comms framework proposed as backbone to e-nav
• Purpose: enable efficient, secure, reliable information exchange
• EfficienSea2 “intelligent roaming device”
Communications

VHF Data Exchange System (VDES)

- Evolution of AIS - developed to address increasing demands on current system
- Intended to achieve full operational capacity by 2021

Hybrid/cellular communications systems

- 3G/HF situational awareness in Arctic; shore-ship data exchange independent of shipboard satcom systems (Fleetrange and KNL Networks)
- Cellular SA for <100km fleet in Korea; high-speed wireless comms network for small ships lacking advanced equipment (LTE-Maritime)
AMRDs

- Autonomous Maritime Radio Devices under regulatory focus
- Mobile stations transmitting over radio, independently of ships
- Examples: fishing net indicators, temporary beacons on ice, etc.
- ITU currently considering AMRD categorisation and numbering
- CIRM providing input to discussions at WP5B
• **R-Mode** - utilising Signals of Opportunity to provide PNT alternative to GNSS (www.accseas.eu)

• **eLoran** - high powered terrestrial PNT service – resurgent?

• **Radar absolute positioning** - position fixing using enhanced NT Radar & eRacons
Maintenance of shipboard software

• Critical for shipboard software to be maintained properly
• Current situation has room for improvement
• CIRM/BIMCO Joint Working Group established
• Draft SW Maintenance Standard developed – identifies Roles and responsibilities
• Will increase standardisation (software log, electronic service reports)
• Pilot project undertaken Q1 and Q2 of 2017... results under analysis
Future of Performance Standards

• ECDIS has challenged “fit and forget” industry practice
• Need for dynamic systems to be updated needs change in mentality
• Difficulty for manufacturers – making changes to existing systems
• In future should IMO handle SW separate to HW?
• Goal-based IMO Performance Standards are being discussed at Flag State level
Closing thoughts
Thank you!