e-NAVIGATION UNDERWAY (North America) 2019
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Conclusions

1. Connectivity and Data sharing will be key elements of any e-Navigation solution moving forward
2. Standardization and harmonization of e-Navigation aspects, including ship reporting elements is paramount
3. Ship owners/operators will likely invest in on board ship reporting apps if they address reporting requirements in most ports
4. Adding recognition of Iridium and BeiDou as GMDSS service provider will expand the communication capabilities
5. Cyber Security is a growing concern. MSC-FAL.1/Circ.3 and MSC.428(98) are addressing cyber risks and risk management
6. Maritime Services (MS) are under development. Korea's SMART Navigation Project is developing several Maritime Services utilizing the Maritime Connectivity Platform
7. MCP Consortium formed to provide development of reference Maritime Service implementations to enable others to adopt the implementation and provide the service
8. Augmented and Mixed Reality can be used to improve maintenance but also support other Maritime Services including Maritime Service 9 – Telemedical Assistance Service
9. The USACE initiative RIS - River Information Services – will make navigation data more accessible to users in operational decision making

Recommendations

1. Automated ship reporting systems should allow countries to continue to receive PDF forms created out of the ship reporting database
2. Consider using the future standard for Route Plan Exchange (S-421, IEC 63173) as a basis and integrate other data elements as extensions to this standard
3. Cyber Security needs to be considered, including a framework for secure identity management (as provided by the MCP)
4. Existing data standards need to be enhanced. The IMO Common Maritime Data Structure (CMDS), i.e. S-100 standards, are to be used to ensure compatibility between different data sets
5. Any activities need to ensure they consider improving standardization for the maritime domain
6. MS expansions should be worked on to ensure harmonization of services in the maritime domain
7. Continue development of autonomous maritime radio devices and identities
8. Continue to monitor and support work by Public Authorities to establish compatible systems for the electronic exchange of information
9. Monitor the deployment and testing of new satellite systems coming online such as OneWeb