SEA TRAFFIC MANAGEMENT AND THE SMART MARITIME COMMUNITY

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INTRODUCTION

The recent past of maritime navigation has been focused on the skills of the bridge and engine officers on board. During the last years of the past century and the first decade of century XXI, the maneuvering, safety and security of ships have evolved on different equipment and systems designed to support, aid and contribute to the own navigation tasks. The RADAR, ARPA, GPS, AIS and ECDIS have represented an evolution on the tasks of watch-keeping and decision-making processes during the navigation stages. The improvements on safety and the reduction on operational safety, is a part of the analysis of the project, in order to know future competence requirements regarding the new scenarios coming from the implementation of STM services, with the resulting variations in operational techniques and procedures. The internal and external project stakeholders, the clusters and the international forums need to be consulted in order to provide suitable answers promoting the engagement of skilled and qualified professionals and staff into the maritime and port industries in the coming years when STM will be deployed.

SEA TRAFFIC MANAGEMENT SERVICES

STM-services allow staff on-board and on-shore to make decisions based on real-time information. These services enable more just time arrivals, right steaming, reduced administrative burden and decreased risk related to human factors. Example of services are:

- Route optimization services
- Port Call Synchronization
- Winter Navigation
- Enhanced Monitoring
- Ship to ship route exchange
- Discovery and distribution of services are realized through an infrastructure governed by a Federation / Organization
- Limited sharing of data restricts access to all actors within the port. This would enrich situational awareness for a port
- Connected to this trinity there are numerous coordinators (such as the shipping agent) and service providers (such as tug operators) enabling efficient operations.

BASIC PRINCIPLES OF STM

To achieve the STM benefits, a service-based and regulated information sharing framework is required. The basic logic behind STM builds upon the following principles:

1. A voyage is defined and all its attributes are connected through a unique voyage identifier;
2. Information related to the voyage, and thus basis for sharing, is connected via the voyage identifier;
3. Operational intentions of sea- and land based actors are provided to others well in advance and kept up to date;
4. ICT services supporting personal contacts;
5. A collaborative attitude is empowered in information sharing and decision making;
6. One single point of reporting;
7. Situational awareness is derived from multiple informational sources;
8. Secure and authorized service realization; and
9. Discovery and distribution of services are realized through an infrastructure governed by a Federation / Organization.

Further, the following prerequisites are used in the STM definition:

- The Master is in command;
- The United Nations Convention on the Law of the Sea (UNCLOS) and the Convention on the International Regulations for Preventing Collisions at Sea (COLREG) are complied with;
- Maritime operations build upon the interplay between three types of core actors; shipping companies, ports, and cargo owners. This is an inseparable trinity meaning that neither of them exists without the other. Connected to this trinity there are numerous coordinators (such as the shipping agent) and service providers enabling efficient operations.

CONCLUSIONS

- In the distributed world of Maritime transportation, different actors have taken up digitization in the way that it serves them best. Typically, big actors have created systems for coordinating their transport operations. They do however rely on other actors’ ability to become efficient. To overco-
me this situation, Sea Traffic Management has been proposed in which intentions of upcoming, and the accomplishment of, actions are communicated prior to and during a sea voyage. STM puts an emphasis on interoperable and harmonized systems allowing a ship to operate in a safe and efficient manner while also lowering its carbon footprint.

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- STM works on the premise that the data owner decides on who shall be able to access the data it provides. By regarding the port as a hub, this would mean that the data provider authorizes access to all actors within the port. This would enrich situational awareness for a port’s actors and enable a port to operate as an efficient system of production. Limited sharing of data restricts PortCDM to a system of engagement, which means that actors only share intentions to enable episodic coupling among each other, but a port perspective would enable integrated coupling across a port visit.

- For more information, visit STM Validation Project website: http://stmvailidation.eu/