Ship Reporting Systems
versus
Single Window facilities

R. Seignette
Port of Rotterdam Authority
Rotterdam, December 2017

1. Abbreviations

AIS	Automatic Identification System
CCS	Cargo Community System
ECDIS	Electronic Chart Display and Information System
ETA	Estimated Time of Arrival
EU	European Union
FAL	Facilitation
GISIS	IMO's Global Integrated Shipping Information System
IMO	United Nations International Maritime Organisation
IPCSA	International Port Community System Association
ITCP	IMO's Integrated Technical Cooperation Programme
MSC	Mari time Safety Committee
LRIT	Long Range Identification and Tracking
MSW	Maritime Single Window
NCSR	IMO sub-committee on Navigation, Communications and Search and Rescue
PCS	Port Community System
PROTECT	The Protect Group promotes, maintains and supports EDI message exchange for Port Authorities
SOLAS	International Convention for the of Safety Of Lives At Sea; 1974
SRS	Ship Reporting System
SW	Single Window
TC	IMO's Technical Cooperation Committee
UN/CEFACT	United Nations Centre for Trade Facilitation and Electronic Business
UNECE	United Nations Economic Commission for Europe
VTMIS	Vessel Traffic Management Information System
VTS	Vessel Traffic Services
WCO	World Customs Organization
WTO	World Trade Organization

2. Introduction

The purpose of this paper[1] is to raise awareness about the implications following the introduction of 'automating ship reporting' at IMO, and to clearly distinguish between reporting via an operational "Ship Reporting System" and an administrative "Single Window" facility.

This paper was triggered by the NCSR[2] submission "Revised Guidelines and Criteria for Ship Reporting Systems (IMO Resolution MSC.43(64))", by Brazil, Norway, Singapore, and Intermanager[3] [1].
This submission of December 2015 argued that, in order to reduce paperwork and to harmonize existing reporting schemes, a new electronic system of reporting is envisaged, using data communication via existing and new systems, which delivers the ship information in a secure manner to the national competent authority at the port of arrival[4].

According to the submitters, this electronic system should use existing pre-agreed protocols to transmit digital pre-arrival information (such as information outlined in the FAL forms) and other regional/national requirements as defined in SOLAS regulation V/11 for ship reporting systems. This should ensure harmonized message types for all ship reporting systems.
In addition, the submitters argued that using such a reporting system will support just-in-time operations for the port as well as enabling once-only pre-arrival information to the national competent authority, the so-called "single window" solution.

Although the intentions of the submission are laudable, the shipping sector will face many challenges and huge investments when such an electronic system is pursued. Eventually, it may be expected that such an endeavour will not result in reduction of paperwork on board the ship, nor in harmonization of existing reporting schemes.

This paper will demonstrate that using current Ship Reporting Systems (SRS) in a Single Window (SW) environment will be bounced by a lack of interoperability and of interconnectivity. It will also demonstrate that SRS and SW facilities are governed by different legal frameworks.

---

[1] An earlier version of this paper has been presented by Port of Rotterdam Authority at an UN/CEFACT-IPCSA-PROTECT joint meeting in March 2016 in Valencia.

[2] sub-committee on Navigation, Communications and Search and Rescue; governed by the IMO's Maritime Safety Committee (MSC).

[3] InterManager is the international trade association for the shipmanagement industry.

[4] The eNavigation strategy states that automated and standardized reporting procedures will lead to reduced administrative overheads [3].

3. Background

Ship Reporting Systems.
According to Regulation 11, chapter V of SOLAS, Ship Reporting Systems shall not be used for other purposes than the improvement of the safety of life at sea, the safety and efficiency of navigation and/or to increase the protection of the marine environment . They may or may not be operated as part of a vessel traffic service .

Several port entries and confined and/or congested waters are guided by Ship Reporting Systems, Vessel Traffic Services (VTS) and/or compulsory maritime pilotage, in the last decade supported by a traffic image[5] enriched by data from Automatic Identification Systems.
Governing these systems is the competence of IMO's MSC Committee, in particular of its sub-Committee NCSR.

Single Windows
IMO has discussed Single Window solutions for facilitating maritime transport already for a quite some time. So far, this has been the competence of the IMO/FAL Committee.
These discussions have been consolidated with discussion on Single Window solutions for facilitating maritime trade, by UNECE and WCO [2, 3].

> *During the 4th UNECE International Conference on Single Window of 30-31 October 2017 in Geneva, Mrs. Olga Algayerova, UNECE Executive Secretary, referred to article 10.4 of the WTO Trade Facilitation Agreement, in stating that the Single Window is essential for business and trade, and is supposed to coordinate between cross border agencies, to sustain interoperability[6].*

In this respect, the role and position of Port Community Systems (PCS) , Cargo Community Systems (CCS) and other Single Submission Platforms become relevant. Through strategic alliances with National Single Windows these collaborative systems may exist to help facilitate national and cross border trade through the efficient exchange of the large volumes of electronic data for maritime trade [4].

Concluding
Where SRS support operations in maritime transport, to improve safety of life at sea, safety and efficiency of navigation and/or to increase the protection of the marine environment, and is based on radio communication, SW facilities support administration in maritime trade, to facilitate the cross border business and transport efficiency and is based on electronic data exchange through internet.

---

[5] Displayed on board on an Electronic Chart Display and Information System (ECDIS), and at the VTS Centre on another VTMIS platform.

[6] She expressed her wish that Recommendation 33 will be updated by the outcome of this conference, including new technologies like Blockchain.

4. eNavigation

About ten years ago, eNavigation entered the operational domain as promising concept[7], intended to harmonize collect, integrate, exchange, present and analyse marine information on board and ashore by electronic means to enhance berth to berth navigation and related services for safety and security at sea and protection of the marine environment [5].

With the introduction of 'berth to berth navigation' by Resolution A.893(21), the responsibilities of ship's Masters for voyage planning have been extended with planning of the difficult in-port parts of the voyage; Parts that – before this Resolution - were guided by maritime pilots or VTS.

This Resolution - guidelines for voyage planning - states that all information relevant to the contemplated voyage or passage should be considered. Consequently, this includes informing the port authority and port services about her expected arrival and requested berth, and processing operational port information with regard to local regulations and clearance procedures.
However, informing the port authority about the expected time of the ship's arrival is also covered by the Reporting Formalities (pre-arrival notification). In many countries – and in the EU Member States since June 2015 – this information is exchanged at least 24 hours before the Expected Time of Arrival (ETA) – via a Single Window - with the port authority and with other Governmental agencies concerned, like Customs (pre-arrival declaration).

> *Norway has a strong position in these eNavigation discussions at IALA and at IMO. Norway is also leading the eNavigation implementation strategy [3], and is in need of practical results. For this purpose Norway et al took the opportunity to bring Norway's Single Window solution[8] to IMO, and proposed to use it for a testbed, to assess its feasibility for automating ship reporting through SRS. In its submission[9], Norway argued that automating ship reporting would free up a considerable amount of time for the bridge team, allowing them to focus on their most important task, namely navigating the ship.*

With addressing the gap between voyage planning at sea (IMO/MSC) and planning a port call (IMO/FAL) with respect to information exchange related to berth to berth navigation, the ship had to take port logistics issues into account. This was new for many Masters. Also ports needed to make much more information available to shipping, which used to be protected by maritime pilots or VTS operators.
Here the confusion started, and shipping raised new questions, such as: 'When do I fulfil my reporting formalities; by having sent my electronic notifications to the authorities concerned well in advance[10] or by automated ship reporting through SRS ?'

The confusion is still visible in discussions in the shipping sector, and within IMO, as chapter 5 shows.

---

[7] eNavigation is developed by IALA on behalf of IMO and the maritime industry, and is a main topic in the technical committees of IMO (MSC, NCSR). See http://www.imo.org/en/OurWork/Safety/Navigation/Pages/eNavigation.aspx

[8] Parallel to its eNavigation activities, the Norwegian Coastal Administration was engaged in the delivery of a Norwegian specific Single Window solution, in order to comply with the EU Reporting Formalities Directive.

[9] NCSR 3/10 of 21 December 2015

[10] In accordance with the FAL forms.

5. Discussions

Prototype of maritime single window[11]
During FAL39 in September 2014, the Committee considered document FAL 39/10/3 (Secretariat), and recalled that FAL 38 had agreed to the proposal made by Norway that, taking into account both the costs and complexities of the systems of electronic exchange of information, and also its benefits for the reduction of administrative burdens on ship masters and administrations, the Technical Cooperation Committee (TC) 63 should be requested to consider setting up a new project activity[12] within the Integrated Technical Cooperation Programme (ITCP) to develop a prototype of single window in maritime transport.

The Committee further recalled that TC 63 had approved ITCP 2014-2015, including the enhanced exchange of electronic information by conducting up to four needs-assessment missions in selected pilot countries.
The Committee noted that the Secretariat had found during the technical cooperation activities on FAL that the majority of Member States had some kind of single window in place related to cargo, but only a few had any single window for maritime transport.
Based on those experiences and to make more efficient use of the limited resources available under ITCP, the Secretariat planned to design a prototype of a maritime single window in lieu of undertaking the four assessment missions: That maritime single window would be focused on facilitating the clearance of ships, passengers and crew members, and on connecting the cargo-related information with the single window on cargo clearance already in place, using the information provided in the IMO FAL Forms.

From Technical Cooperation Committee (June 2015)
While it has been identified that the majority of IMO Member States have in place a Single Window facility related to cargo, only a few had any Single Window facility for maritime transport. In order to support countries to implement the anticipated FAL Convention requirements, IMO has initiated the Maritime Single Window (MSW) project.
In its 65th session in June 2015, TC moved the Maritime Single Window project (MSW) forward.
A further recommended practice will encourage the use of the "Single Window" concept to enable all the information required by public authorities in connection with the arrival, stay and departure of ships, persons and cargo, to be submitted without duplication.

In December 2015, the Norwegian Marine Technology Research Institute (MARINTEK) had completed the first two phases of the MSW project: First phase: gathering information using a user survey to develop the user requirement; and second phase: assessment of the user requirement and the design criteria.
The Third phase focussed on the development of MSW prototype, to be IMO's property. This was carried out via a testbed, as detailed in [1], to prove technology for the revised Guidelines and Criteria for Ship Reporting Systems[13], and was discussed in December 2016 during NCSR 4.

---

[11] From FAL39 report (Oct. 2014)

[12] That new project activity could assist Member States with financing and technical assistance in establishing systems for the electronic exchange of information.

[13] IMO Resolution MSC.43(64)

Guidelines and criteria for mandatory Ship Reporting Systems

In submission NCSR4/9 Brazil explored a new architecture for Interoperating Single Windows Systems and a new GISIS feature to facilitate the use of Single Window systems.

In this submission, the inclusion of the single window concept in the revision of the Guidelines and criteria for SRS was considered a paradigm shift.

In NCSR4/9/1 IMO's Secretariat noted the work of the NCSR Sub-Committee on this subject and urged Member Governments to review adopted mandatory ship reporting systems in lieu of existing ship reporting technologies, such as LRIT and AIS, and take action, as appropriate, for possible amendment to the system.

In June 2017 MSC98 adopted Resolution MSC.433(98) on Guidelines and criteria for SRS, revising Resolution MSC.43(64), and endorsed NCSR's conclusion that no further action was needed with respect to the perceived administrative burdens on the reporting requirements relating to SOLAS regulations V/11.7 and V/28.2.

Concluding

With Resolution MSC.433(98) IMO has encouraged Governments that operate approved ship reporting systems to consider automated electronic reporting means recognized by the Organization (like LRIT and AIS) when reviewing their ship reporting systems [6].

Any reference to a Single Window was left out, and eNavigation's flirt with Single Window has fallen silent in this respect.

6. Observations

If left to eNavigation, reporting via Ship Reporting Systems and via Single Window facilities seem to converge, as explained by an initiative of Norway et al in 2015 to focus on harmonizing SRS-reports with SW-notifications.
Further investigation however showed that mandatory reporting through SRS and via SW facilities serve different purposes and operate in a different domain. Further integration as proposed by NCSR3/10 has been considered a paradigm shift. As a consequence, the underlying legislation for fulfilling the Reporting Formalities (via SW) remains separate from and is not harmonized with the underlying legislation for mandatory Ship Reporting. Hence, the Reporting Formalities are not fulfilled by automated ship reporting through SRS. This answers the question in chapter 4.

From an eNavigation point of view, there still is a business case for further digitalization of voice communication, and for automated reporting through SRS. However, it should be recognized that SRS and SW facilities use different message standards and data models for their information exchange and data management.
Actually, the shipboard systems are usually tuned to comply with SRS requirements, but not arranged as to fulfil SW-notifications[14]. Nor has she the capabilities to do so in many large ports.
Also, ships engaged in the transport of large volumes of containers usually do not have the necessary information for all SW-notifications on board.

SW developments continue on an international level, not guided by IMO[15], despite the statement made by the delegation of Norway during FAL41 in April 2017 [7 - annex 8].
Still, it may be expected that for many years to come, SRS and SW solutions will continue to 'live their own life' (in IMO/MSC and IMO/FAL) but interact regularly (e.g. IMO/ITCP).

---

[14] This is usually arranged by her agent in the port of arrival.

[15] IMO/FAL is expected to follow UNECE, WCO and other stakeholders from the industry in this.

7. Outlook

UNECE's most recent international conference on Single Window has concluded that:
> *information and communications technology and the digital economy have an increasing impact on global trade and development, including on the organization of work, employment and productivity, and environmental sustainability, and that the emergence of new technologies (Blockchain, cloud computing, data pipelines, event-driven data exchange, Internet of Things, Artificial Intelligence, Big Data, Social Media, etc.) provide additional opportunities for exploring new information sharing concepts in global trade, including for the implementation of Single Window solutions* [8],

and UNECE has started the revision process of her suite of Single Window Recommendations.

It is envisaged that this revision will shift focus from Single Window systems to Single Window environments; SW solutions through networks of interoperable and interconnected systems and platforms along the supply chain.

It is also envisaged that data from 'business to business' information exchange will be re-used in mandatory reporting to port authorities and to other Governmental agencies. This could comprise SRS as well as SW solutions. Consistency and quality of this – separated - data becomes a major issue.

As there is still a business case for further digitalization of voice communication, and for automated reporting through SRS, it may be expected that suppliers of these technical systems will further extend their IT capabilities. In doing so, they may use new technologies as mentioned above and this may affect the underlying reporting procedures in Ship Reporting Systems.

IMO as well as UNECE a.o. emphasize the need to provide the necessary technical and financial support to developing and least developed countries to advance the implementation of their reporting systems; SRS as well as SW solutions. This could be another driver of convergence of both reporting facilities.

Finally, it may be expected that discussions between IMO/MSC and IMO/FAL as in chapter 5 continue. Guiding these discussions from the proper context and with the proper expertise remain necessary.

8. References:

[1]   Revised Guidelines and Criteria for Ship Reporting; IMO/NCSR 3/10 submission; Norway et al 2015;

[2]   UNECE Recommendation No. 33; 2005;

[3]   E-Business possibilities for the facilitation of Maritime Traffic; IMO/FAL 38/5/2 submission; IAPH 2013;

[4]   UNECE Technical Note on Terminology for Single Window and other electronic platforms; April 2017

[5]   NCSR report to the IMO/MSC Committee; IMO/NCSR 1/28 Annex 7: Draft eNavigation strategy implementation plan;

[6]   Resolution MSC.433(98), adopted on 16 June 2017.

[7]   IMO/FAL41 report; April 2017

[8]   Recommendations of the 4th UNECE International Conference on Single Window of 30-31 October 2017, Geneva, Switzerland.