INTERNATIONAL MARITIME ORGANIZATION

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EXPERT GROUP ON DATA HARMONIZATION
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IMO DATA SET RELATED TO "PORT LOGISTIC OPERATIONAL DATA RELATED TO JUST IN TIME CONCEPT"

Submitted by BIMCO

SUMMARY

Executive summary:	The document provides input to the IMO Reference Data Model on port logistic operational data and real time data, in order to allow easy implementation of the IMO Just-In-Time Concept.
Strategic direction, if applicable:	5
Output:	5.8
Action to be taken:	Paragraph 16
Related documents:	FAL 42/14/1; FAL 42/17; FAL 43/20; FAL 43/7/1; FAL 43/INF.3; MEPC 74/12/4; MEPC 74/INF.34

1 This document refers to the decision of FAL 42, following consideration of a proposal by Liberia et al. (FAL 42/14/1) to extend the scope of work on the IMO Compendium, to include additional e-business solutions that are different to those related to the FAL Convention and annex (FAL 42/17, paragraphs 14.3 to 14.5).

2 FAL 43, having considered documents FAL 43/7/1 and FAL 43/INF.3, agreed on a priority list of data elements (FAL 43/20, annex 1). The list recommends, inter alia, that high priority should be given to establish a new data set for the IMO Reference Data Model on port logistic operational data related to the IMO Just-In-Time concept.

Just-In-Time concept

3 The Just-in-Time (JIT) concept refers to maintaining the most efficient ship operating voyage speed to arrive at the Pilot Boarding Place when availability is ensured of the berth, fairway and nautical services. Implementing JIT operations enables a ship to manage their speed so it can arrive at the pilot boarding place when the berth is available based on information received in advance.

4 JIT operation of ships can support fuel and emission reductions by actively managing the ship's speed as well as optimising the berth occupancy of the port. Additionally, it may improve the emission emitted and the safety of navigation as it enables the port to reduce the number of ships at anchorage.

5 Enhanced cooperation between port authorities, terminal operators, ship owners, charterers, and port service providers, is a prerequisite. There is, for example, a need to communicate berth availability, queue allocation and exchange information on accurate ship arrival and departure times.

6 JIT arrival is frequently used in the tanker and container industry, but at present not widely used by any other shipping segment.

Key to success

7 Enhanced collaboration – and communication – will be the key to success. JIT operations for ships should be based on timely and reliable data to enable making high-quality decisions.

8 Whereas the current version of the IMO Compendium contains information, which intentionally goes from the ship to shore, the JIT information comprises information from the port to the ship (including information on additional services relevant to the ship: pilotage, bunker services etc). Further there is a need for enhanced communication between the terminal and the port as well.

9 Effective collaboration can only take place if there is transparency about desired actions and their status. Accordingly, parties (the ship as well as ports, terminals and other stakeholders) need to share relevant data and inform each other about progress (e.g. cargo completion times) so that they can efficiently execute their port visit.

10 Ports shall be given the opportunity to receive real-time ETA data while the ship is *en route* to the arrival berth. Similarly, the ship will need to receive information on the berth availability. By sharing these relevant data, the parties gain insights on how well forthcoming and ongoing port calls are coordinated and synchronized.

Proposal

11 BIMCO propose to include a number of data elements to the current IMO Reference Data Model in order to ease the implementation of the JIT concept and to allow for digital exchange of data between the port and ship.

12 The proposed data are based on an industry initiative set out in the Port Information Manual (version 1.3.1) as developed in collaboration between IHMA, IAPH, UK Hydrographic Office, International Taskforce – Port Call Optimization, and Sea Traffic Management (STM).

13 Some of the proposed data elements already exists in the current IMO Reference Data Model. In the below table, these are indicated with a symbol starting with "IMOxxxx" and shown in *italics*. There is however a slightly difference in the definitions between what is set out in the FAL.5-Circ.41 containing the IMO data elements, and those data elements contained in the Port Information Manual, version 1.4.4. The differences are set out in square brackets in the annex to this paper where also more details for each of the data element can be found.

Change indicator	Data ID	Data element	Definitions
Positions			
	IMO0108	*Port of arrival, coded*	*The code representing the port where the ship arrives.*
+		Anchorage	An area in which ships anchor or may anchor.
+		Terminal	A number of berths grouped together and provided with facilities for handling cargo, e.g. oil terminal, container terminal
+		Pilot Boarding Place	At sea, a place where a pilot embarks or disembarks from a ship
+		Berth	The place assigned to a ship when anchored or lying alongside a pier etc.
+		Berth Position	The position along a berth, specified by one point (e.g. bollard, manifold or ramp number), allowing the ship to determine the ships position at berth.
Time stamp			
	IMO0064	*Date and time of arrival – estimated (ETA)*	*The date and time the ship is estimated to arrive at the port of arrival.*
+		Requested Time of Arrival (RTA)	The date and time the ship is requested to arrive at a specified location.
+		Planned Time of Arrival (PTA)	The date and time the ship plans to arrive at a specified location.
	IMO0063	*Date and time of arrival - actual*	*The date and time the ship arrives at the port of arrival.*
	IMO0066	*Date and time of departure - estimated*	*The date and time the ship is estimated to depart from the port of departure.*
+		Requested Time of Departure (RTD)	The date and time the ship is requested to depart from a specified location.
+		Planned Time of Departure (PTD)	When the ship plans to depart from a specified location.
	IMO0065	*Date and time of departure - actual*	*The date and time the ship departs from the port of departure.*

14 Some of the new data elements are unfamiliar to shipping today, e.g. the RTA and RTD. The “RTA berth” is a request of the terminal to the ship to come alongside at a specific berthing position at a particular time and is based on the planning of the terminal. Another example, based on the “ETA pilot boarding place”, the port authority provides a “RTA pilot boarding place”. Similar with the RTD; based on the “ETD berth”, the port authority provides a “RTD berth” taking into account the size of the ship, conditions for the ship, capacity of the fairway (planning of other ships on the fairway), and capacity of the nautical services. This then leads to the “RTD berth” as a request from the port to the ship to depart from the berth.

15 The data elements should be included in the ongoing development of the current IMO Reference Data Model.

Action requested of the Expert Group on Data Harmonization

16 The Group is invited to consider the information contained in paragraphs 11 to 15 of this document and take action as deemed appropriate.

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ANNEX

Port information
Source: Port Information Manual, version 1.4.4

Change indicator	Data element number	Data element	Definitions	Format	Code lists	Business rules
	IMO0108	Port of arrival, coded	The code representing the port where the ship arrives. [Any port, terminal, offshore terminal, ship and repair yard or roadstead which is normally used for the loading, unloading, repair and anchoring of ships, or any other place at which a ship can call.]	an…5	UN/LOCODE	
+		Anchorage	An area in which ships anchor or may anchor.	an….256	Global Location Number (GLN) (ISO/IEC 6523) IHO S-32	Datum: WGS 84. Held in decimal degrees to a defined precision, (minus to indicate South and West)
+		Terminal	A number of berths grouped together and provided with facilities for handling (loading and unloading) cargo, e.g. oil terminal, container terminal	an….256	Global Location Number (GLN) (ISO/IEC 6523) IHO S-32	Datum: WGS 84. Held in decimal degrees to a defined precision, (minus to indicate South and West)

Change indicator	Data element number	Data element	Definitions	Format	Code lists	Business rules
+		Pilot Boarding Place [Pilot Boarding Ground]	At sea, the meeting place to which the pilot comes out [At sea, a place where a pilot embarks or disembarks from a ship]	an….256	Global Location Number (GLN) (ISO/IEC 6523) IHO-S57, IHO S-4	Datum: WGS 84. Held in decimal degrees to a defined precision, (minus to indicate South and West)
+		Berth	The space assigned to or taken up by a ship when anchored or when lying alongside a wharf, jetty, or other structure [The place assigned to a ship when anchored or lying alongside a pier etc.]	an….256	Global Location Number (GLN) (ISO/IEC 6523) NP100	Datum: WGS 84. Held in decimal degrees to a defined precision, (minus to indicate South and West)
+		Berth Position	The position along the line of a berth, specified by one point (e.g. bollard, manifold or ramp number), allowing the ship to berth in the correct position along the berth.	an….256	Global Location Number of Berth (ISO/IEC 6523) with extension (for bollard/manifold/ ramp number) IHO S-32	Datum: WGS 84. Held in decimal degrees to a defined precision, (minus to indicate South and West)

Change indicator	Data element number	Data element	Definitions	Format	Code lists	Business rules
	IMO0064	Date and time of arrival - estimated [Estimated Time of Arrival (ETA)]	The date and time the ship is estimated to arrive at the port of arrival. [When a ship estimates it will arrive at a specified location]	an..35 [yyyy-mm-ddThh:mm:ssZ]	ISO 8601	Date time values are always provided with the indication of time zone. [ETA: Aligned with the IMO FAL definition, enhanced by adding the “specified location” for more accuracy. This is calculated based on current speed to next waypoint and planned speed for the remaining route including speed limitations and other known parameters, such as wind, current, waves.]
+		Requested Time of Arrival (RTA)	When the ship is requested to arrive at a specified location. [The date and time the ship is requested to arrive at a specified location]	an..35 / yyyy-mm-ddThh:mm:ssZ	ISO 8601	RTA: Currently used within ports with “Just-In-Time” procedures to maximise protection of anchorages and to optimise lock planning. This is now being implemented in contract clauses to enable Just-In-Time arrivals. The requested time is received on ship from either port (for Pilot Boarding Place) or terminal (for Berth).

Change indicator	Data element number	Data element	Definitions	Format	Code lists	Business rules
+		Planned Time of Arrival (PTA)	When the ship plans to arrive at a specified location. [The date and time the ship plans to arrive at a specified location]	an..35 / yyyy-mm-ddThh:mm:ssZ	ISO 8601	PTA: Is used today in some Electronic Display Information Systems (ECDIS) and is often the arrival time agreed in contract, according to a timetable or based on a time received from port. Normally shared by ship in route plan. Planned-Time-of-Arrival (PTA) does not change, as propulsion is subsequently adjusted to meet this time, based on Speed-To-Maintain (STM). The STM is calculated based on a defined Distance-To-Go (DTG) and hours to go to the Planned-Time-of-Arrival and is expressed as a Speed-Over-Ground (SOG).
	IMO0063	Date and time of arrival - actual [Actual Time of Arrival (ATA)]	The date and time the ship arrives at the port of arrival.	an..35 [yyyy-mm-ddThh:mm:ssZ]	[ISO 8601]	Date time values are always provided with the indication of time zone. [ATA: In current use in the maritime industry. The time stamp is set when a waypoint is reached.]

Change indicator	Data element number	Data element	Definitions	Format	Code lists	Business rules
	IMO0066	Date and time of departure - estimated [Estimated Time of Departure (ETD)]	The date and time the ship is estimated to depart from the port of departure. [The date and time the ship estimates it departs from a specified location]	an..35 [yyyy-mm-ddThh:mm:ssZ]	[ISO 8601]	Date time values are always provided with the indication of time zone. ETD: Aligned with the IMO FAL definition, enhanced by adding the “specified location” for more accuracy. ETD is calculated based on current speed to next waypoint, planned speed on the remaining route including speed limitations and other known parameters. The estimate can also be based on calculation of the estimated time of completion of cargo or ship services (e.g. bunkers) or other non-navigational matters.
+		Requested Time of Departure (RTD)	When the ship is requested to depart from a specified location. [The date and time the ship is requested to depart from a specified location.]	an..35 / yyyy-mm-ddThh:mm:ssZ	ISO 8601	RTD: Also used today in ports with “Just In Time” procedures. Now being implemented in clauses of contracts to enable Just In Time arrivals. The requested time is received on ship usually from ports
+		Planned Time of Departure (PTD)	When the ship plans to depart from a specified location.	an..35 / yyyy-mm-ddThh:mm:ssZ	ISO 8601	PTD: Used today in some Electronic Display Information Systems (ECDIS). Often the departure time agreed in contract, according to a fixed

Change indicator	Data element number	Data element	Definitions	Format	Code lists	Business rules
			[The date and time the ship plans to depart from a specified location.]			timetable or based on time received from port.
	IMO0065	Date and time of departure - actual [Actual Time of Departure (ATD)]	The date and time the ship departs from the port of departure.	an..35 [yyyy-mm-ddThh:mm:ssZ]	[ISO 8601]	Date time values are always provided with the indication of time zone. [ATD: Used today in the maritime industry. A time stamp is defined after departing from a specified location.]