



The Global Language of Business

# The PortCDM concept in application

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Co-financed by the European Union  
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# Agenda

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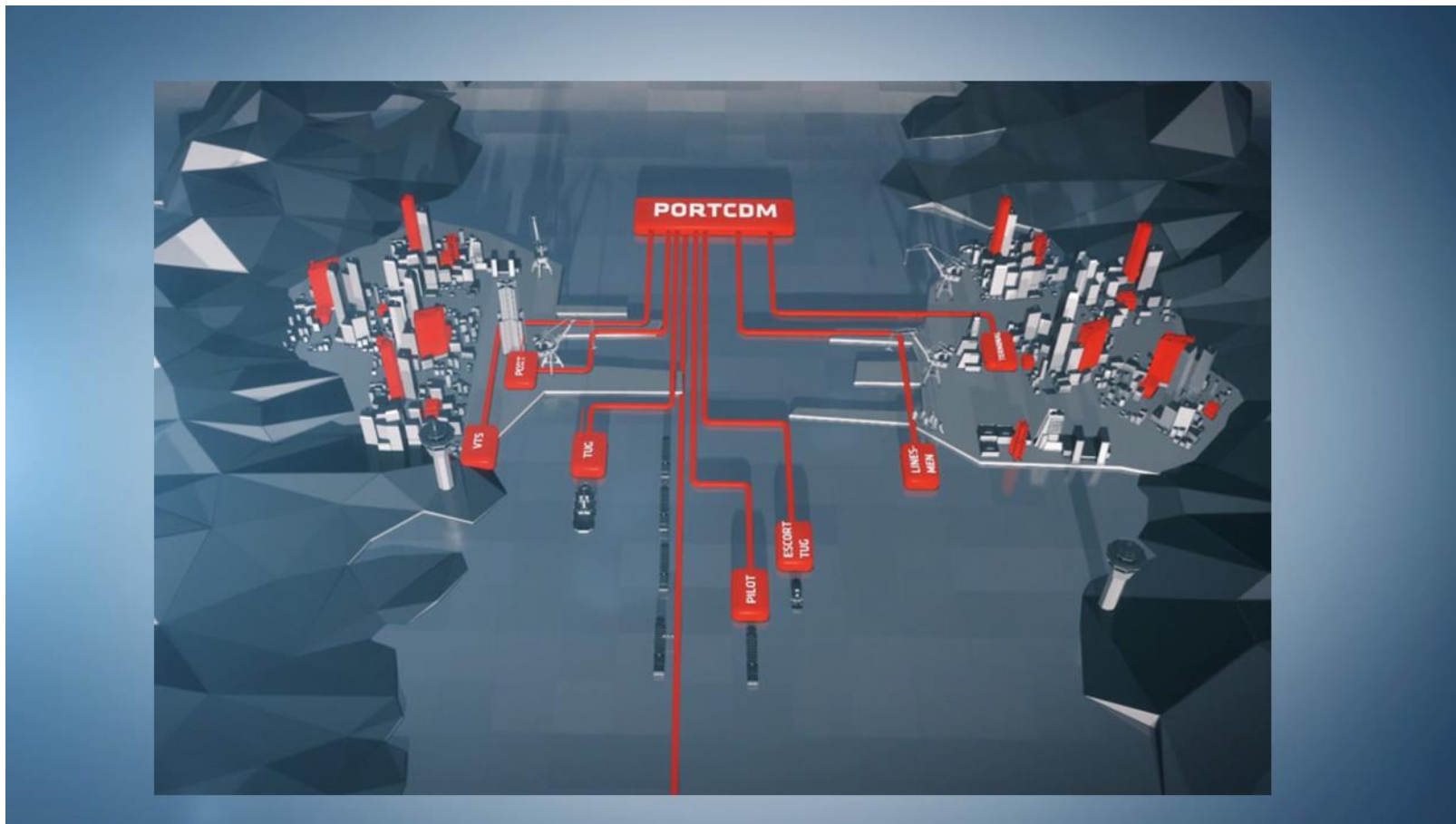
- What is port collaborative decision making (PortCDM)
- Why are we doing this?
- How are we doing this?
- Means for international harmonization
  - The port call message format
  - The International PortCDM council

# What is PortCDM?



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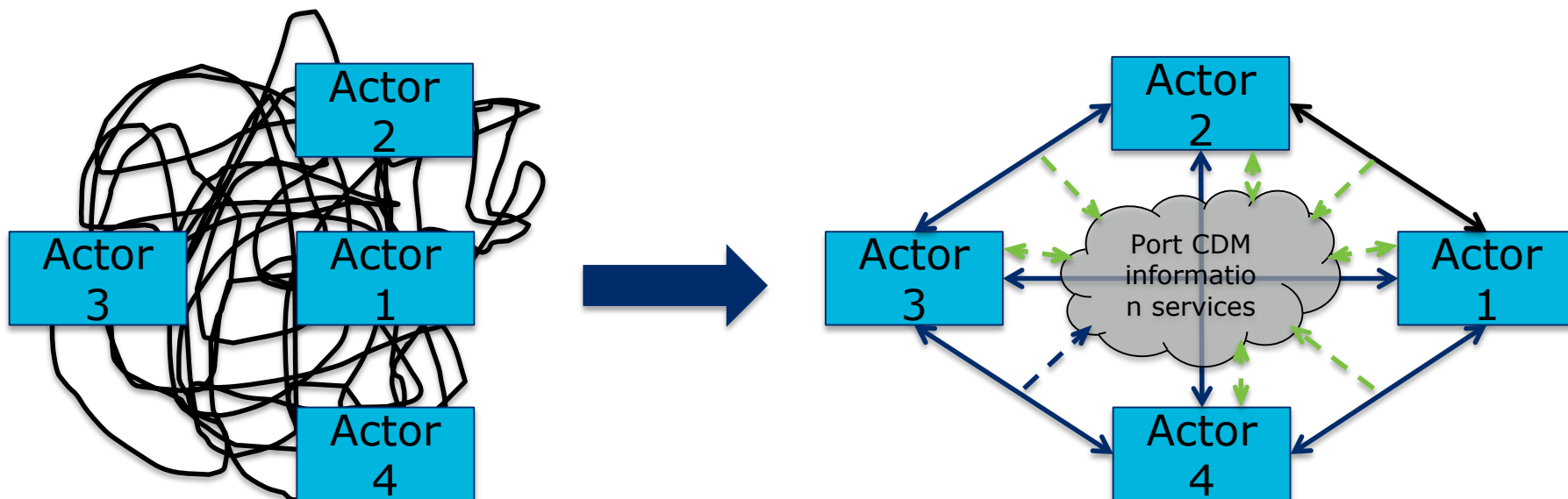
## [PortCDM the movie](#)



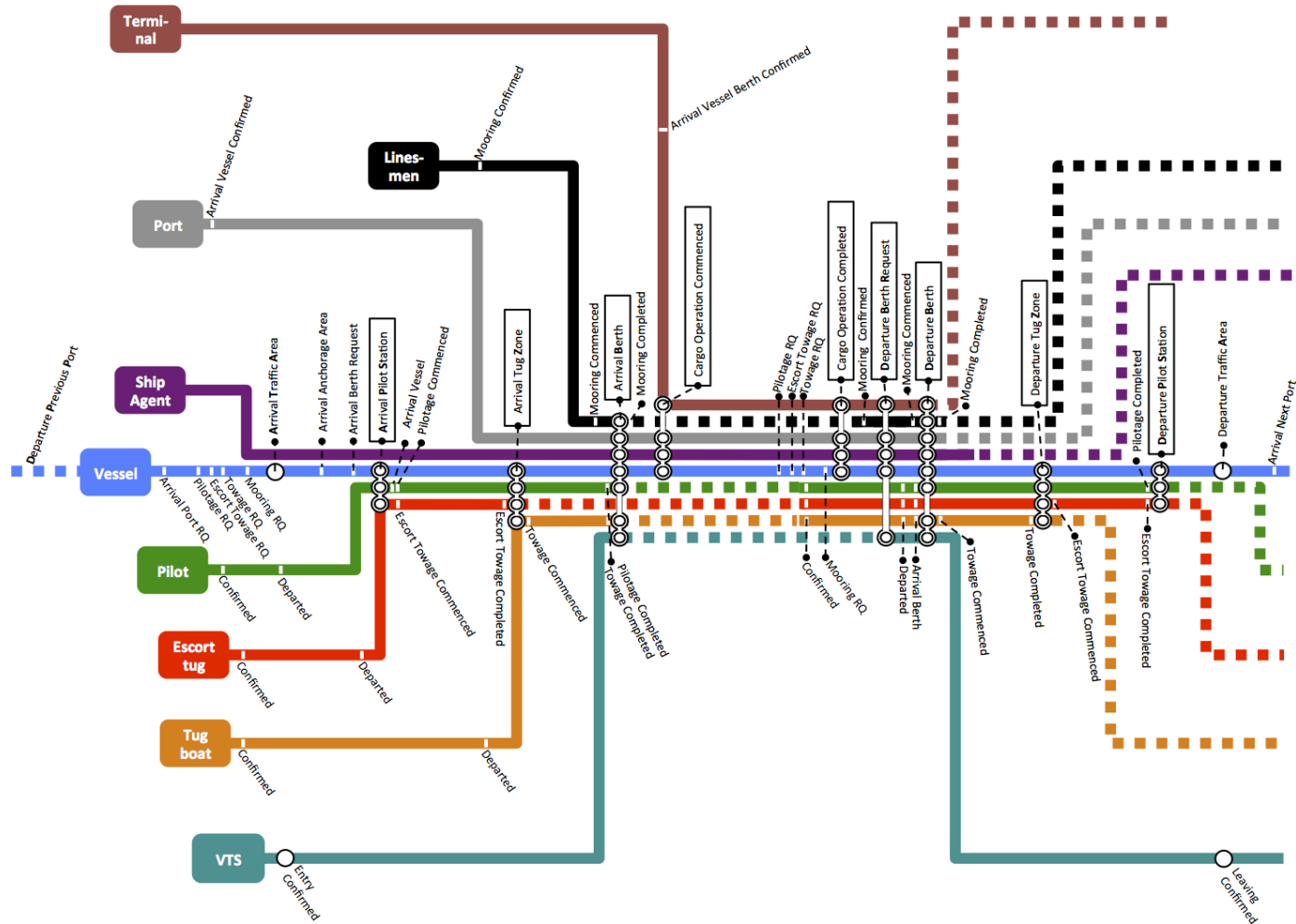
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# Towards common instant information sharing



# The port call process as an event process in a distributed environment



# At the core of the port call process



- **The vessel making** a visit for a particular **purpose**
- **PortCDM** is based on three foundations to **enhance precision** in time stamps

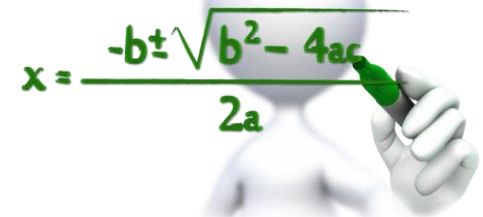
- Combining multiple data sources



- Synchronizing involved actor's conception of different time stamps



- Evaluating the likelihood that an action will occur according to the plan





- ## Is based on

- Shared time stamps by different port call actors associated to the same port call identifier

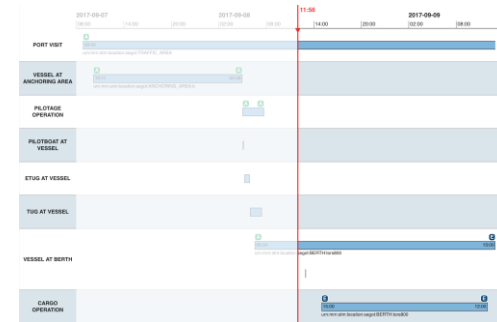


# PortCDM's three foundations



- The situational awareness of the port call process
- Shared time stamps between port call actors related to a port call
- **Is expected to result in**

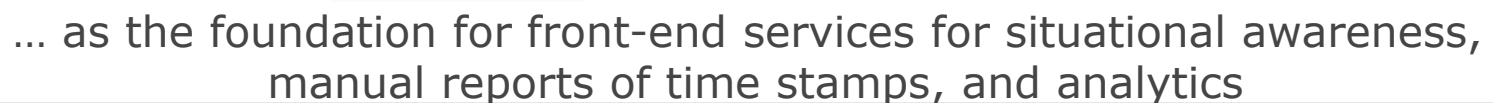
- Basis for enhanced JIT operations and efficient capacity utilization



- Basis for shipping lines to make JIT arrivals and JIT departures to facilitate planning inbound- and outbound sea voyages

- Basis for port-to-port collaboration independent of a shipping line or terminal





# PortCDM tools



The desktop interface includes a 'Selected Portcall' section with a card for 'Advantage Avenue' (2017-10-02 16:08). Below this is a 'Vessel Information' section for 'Advantage Avenue' (IMO: 9419452, Call sign: WYKZ). The main area features a 'Portcall Timeline' with a timeline view showing events like 'PORT VISIT', 'VESSEL AT ANCHORING AREA', 'PILOTAGE', and 'VESSEL AT BERTH'. A 'Statement Log' at the bottom shows pilotage completion reports.

The mobile app displays a 'Timeline' for 'Thun Goliath'. It lists events such as 'PORT VISIT' (14:30), 'Arrival Vessel Traffic Area' (16:00), 'VESSEL AT ANCHORING AREA' (12:05), 'VESSEL AT BERTH' (4:00), 'Arrival Vessel Berth' (07:00), 'Departure Vessel Berth' (19:00), 'PILOTBOAT AT VESSEL' (12:26), and 'PILOTAGE' (12:30).

The web interface shows a 'General' section with a form to select a vessel from a list or enter data manually. It includes fields for 'Ship Name', 'IMO', and 'Arrival or Departure'. Below this are sections for 'Pilot from previous port onboard' and 'Agent at berth', each with fields for 'Date', 'Time', 'Latitude', and 'Longitude'. There are also sections for 'Actual time berthing' and 'Agent left berth'.

## RTA Generator (multi port call overview)

Port Call Status Dashboard											
Vessel name	Time to arrive	ETA	ETD RTA	Sync factor	Port visit confirmed	Berth visit confirmed	Pilotage confirmed	Tonnage confirmed	Cargo Op confirmed	VTS entry confirmed	Departed Prev. Port
Begonia Seaways	+0d 1h 38m	2017-05-18 18:30:00	2017-05-19 02:00:00	0%	<span style="color: green;">●</span>	<span style="color: grey;">●</span>	<span style="color: grey;">●</span>	<span style="color: grey;">●</span>	<span style="color: grey;">●</span>	<span style="color: grey;">●</span>	<span style="color: yellow;">●</span>
Baltsund	+0d 21h 8m	2017-05-19 12:00:00	2017-05-19 14:00:00	0%	<span style="color: green;">●</span>	<span style="color: grey;">●</span>	<span style="color: grey;">●</span>	<span style="color: grey;">●</span>	<span style="color: grey;">●</span>	<span style="color: grey;">●</span>	<span style="color: yellow;">●</span>
Ark Forwarder	+0d 12h 38m	2017-05-19 03:30:00	2017-05-19 13:30:00	0%	<span style="color: green;">●</span>	<span style="color: green;">●</span>	<span style="color: green;">●</span>	<span style="color: grey;">●</span>	<span style="color: grey;">●</span>	<span style="color: grey;">●</span>	<span style="color: yellow;">●</span>
Baltic Frost	+0d 1h 38m	2017-05-18 18:30:00	2017-05-20 06:00:00	0%	<span style="color: green;">●</span>	<span style="color: green;">●</span>	<span style="color: green;">●</span>	<span style="color: grey;">●</span>	<span style="color: grey;">●</span>	<span style="color: grey;">●</span>	<span style="color: yellow;">●</span>

Vessel name	Time to arrive	ETA	ETD RTA	Sync factor	Port visit confirmed	Berth visit confirmed	Pilotage confirmed	Tonnage confirmed	Cargo Op confirmed	VTS entry confirmed	Departed Prev. Port	Waiting time	Anchoring time	Action
Aldana	2017-05-19 14:30:00	Operational plan			<span style="color: green;">●</span>	<span style="color: green;">●</span>	<span style="color: green;">●</span>	<span style="color: grey;">●</span>	<span style="color: grey;">●</span>	<span style="color: grey;">●</span>	<span style="color: yellow;">●</span>	20min	20min	<a href="#">Remove</a> <a href="#">View</a>
Andrea	2017-05-20 23:30:00	Operational plan			<span style="color: green;">●</span>	<span style="color: green;">●</span>	<span style="color: green;">●</span>	<span style="color: grey;">●</span>	<span style="color: grey;">●</span>	<span style="color: grey;">●</span>	<span style="color: yellow;">●</span>	20min	20min	<a href="#">Remove</a> <a href="#">View</a>
Ark Forwarder	2017-05-19 03:30:00	Operational plan			<span style="color: green;">●</span>	<span style="color: green;">●</span>	<span style="color: green;">●</span>	<span style="color: grey;">●</span>	<span style="color: grey;">●</span>	<span style="color: grey;">●</span>	<span style="color: yellow;">●</span>	20min	20min	<a href="#">Remove</a> <a href="#">View</a>
B Gas Champion	2017-05-19 04:30:00	Operational plan			<span style="color: green;">●</span>	<span style="color: green;">●</span>	<span style="color: green;">●</span>	<span style="color: grey;">●</span>	<span style="color: grey;">●</span>	<span style="color: grey;">●</span>	<span style="color: yellow;">●</span>	20min	20min	<a href="#">Remove</a> <a href="#">View</a>
Baltic Frost	2017-05-18 18:30:00	Operational plan			<span style="color: green;">●</span>	<span style="color: green;">●</span>	<span style="color: green;">●</span>	<span style="color: grey;">●</span>	<span style="color: grey;">●</span>	<span style="color: grey;">●</span>	<span style="color: yellow;">●</span>	20min	20min	<a href="#">Remove</a> <a href="#">View</a>
Baltic Merchant	2017-05-18 18:30:00	Operational plan			<span style="color: green;">●</span>	<span style="color: green;">●</span>	<span style="color: green;">●</span>	<span style="color: grey;">●</span>	<span style="color: grey;">●</span>	<span style="color: grey;">●</span>	<span style="color: yellow;">●</span>	20min	20min	<a href="#">Remove</a> <a href="#">View</a>
Baltsund	2017-05-19 12:00:00	Operational plan			<span style="color: green;">●</span>	<span style="color: green;">●</span>	<span style="color: green;">●</span>	<span style="color: grey;">●</span>	<span style="color: grey;">●</span>	<span style="color: grey;">●</span>	<span style="color: yellow;">●</span>	20min	20min	<a href="#">Remove</a> <a href="#">View</a>
Begonia Seaways	2017-05-18 16:30:00	Operational plan			<span style="color: green;">●</span>	<span style="color: green;">●</span>	<span style="color: green;">●</span>	<span style="color: grey;">●</span>	<span style="color: grey;">●</span>	<span style="color: grey;">●</span>	<span style="color: yellow;">●</span>	20min	20min	<a href="#">Remove</a> <a href="#">View</a>

The 'PortCdm Analysis' dashboard includes a sidebar with links to 'Dashboard', 'ET-AT Evaluator', 'Berth Productivity', 'Waiting Time', 'Data Quality', and 'Raw Data'. The main area displays key metrics: 5 Total Portcalls, 203 Total States, 439 Total Statements, 85.1% Avg. Predictability, 69.5% Avg. Productivity, and 144 min Avg. Waiting Time. It also features a 'Statements Evolution' chart and a 'State Analysis' section.

# Port Actor Collaboration Tool (PACT)



Vessel

Statement Log

Categorised Log

Filter

Open

E

a few seconds ago

At: 800

Cargo Operations Completed

Time: 2017-09-09 12:00

Type: ESTIMATED

Reported at: a few seconds ago

Reported by: urn:mrn:stm:user:legacy:GSA

IMO: 9439

Call sign: M

E

a minute ago

At: 800

Cargo Operations Commenced

Time: 2017-09-08 15:00

Type: ESTIMATED

Reported at: a minute ago

Reported by: urn:mrn:stm:user:legacy:GSA

E

2 minutes ago

To: PS Tru W

From: 800

Departure Vessel Berth

Time: 2017-09-09 13:00

Type: ESTIMATED

Reported at: 2 minutes ago

Reported by: urn:mrn:stm:user:legacy:GSA

A

4 minutes ago

To: 800

Arrival Vessel Berth

Time: 2017-09-08 07:42

Type: ACTUAL

Reported at: 4 minutes ago

Reported by: urn:mrn:stm:user:legacy:GSA

SHOW ALL

OPERATION

urn:mrn:stm:location:segot:BERTH:tors800

# PACT Quay View



## Quay Timeline

From:

2017-10-05

02:00

14:00

A

Ternvind

A

## Vessels At Quay

CURRENT	PLANNED	PASSED	UNKNOWN
Visits: 0	Visits: 0	Visits: 1	Visits: 0

### Ternvind

CURRENT	PLANNED	PASSED	UNKNOWN
Visits: 0	Visits: 0	Visits: 2	Visits: 0

### Besiktas Iceland

CURRENT	PLANNED	PASSED	UNKNOWN
Visits: 0	Visits: 1	Visits: 0	Visits: 0

### Thun Gazelle

CURRENT	PLANNED	PASSED	UNKNOWN
Visits: 0	Visits: 1	Visits: 0	Visits: 0

2017-10-13



2017-10-09


14:00


02:00

14:00

# PortableCDM







Timeline

Thun Goliath

09/26/2017  
2:30:


**PORT VISIT**  
AT Port of Gothenburg's traffic area

**Arrival Vessel Traffic Area**  
14:30   
AT: Port of Gothenburg's traffic area  
REPORTED BY: PortitSEGOT 70h ago

1

N/A

**Arrival Vessel Port Confirmed**  
16:00  
AT: Port of Gothenburg's traffic area  
REPORTED BY: PortitSEGOT 70h ago


1


N/A

**VESEL AT\_ANCHORING\_AREA**  
AT Anchoring Area "B" (Bravo)


09/26/2017  
12:05


**VESEL AT\_BERTH**  
AT Skarvik Harbour 510

**Arrival Vessel Berth**  
07:00   
AT: Skarvik Harbour 510  
REPORTED BY: PortitSEGOT 29h ago

5

09/26/2017  
7:00:

**Departure Vessel Berth**  
19:00   
AT: Skarvik Harbour 510  
REPORTED BY: PortitSEGOT 24h ago


5

09/26/2017  
12:26

**PILOTBOAT AT\_VESSEL**

09/26/2017  
12:26

**PILOTAGE**  
FROM Pilot Boarding Position 1



Report


Thun Goliath  
**Departure Vessel Berth**  
AT: Skarvik Harbour 511

Pick Time Type


Actual  
Estimated


09/26/2017 16:04

Select Time

At: Skarvik Harbour 511


Send TimeStamp




Details

Thun Goliath  
VESSEL AT\_BERTH at Skarvik Harbour 511


Departure Vessel Berth

TIME: 09/26/2017 17:00   
AT: Skarvik Harbour 511  
REPORTED BY: urn:mrn:stm:user:legacy:MSW-SMA  
REPORTED AT: 09/26/2017 11:01  
RELIABILITY: %


Departure Vessel Berth

TIME: 09/26/2017 17:00   
AT: Skarvik Harbour 511  
REPORTED BY: urn:mrn:stm:user:legacy:PortitSEGOT  
REPORTED AT: 09/26/2017 09:45  
RELIABILITY: %

Departure Vessel Berth

TIME: 09/26/2017 17:00   
AT: Skarvik Harbour 511  
REPORTED BY: urn:mrn:stm:user:legacy:MSW-SMA  
REPORTED AT: 09/26/2017 09:07  
RELIABILITY: %

Departure Vessel Berth

TIME: 09/26/2017 16:00   
AT: Skarvik Harbour 511  
REPORTED BY: urn:mrn:stm:user:legacy:PortitSEGOT  
REPORTED AT: 09/26/2017 08:22

# Analytics



PortCdm Analysis

admin

Dashboard

ET-AT Evaluator

Berth Productivity

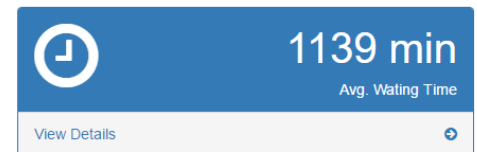
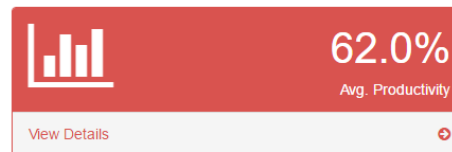
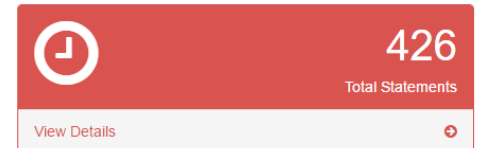
Waiting Time

Data Quality

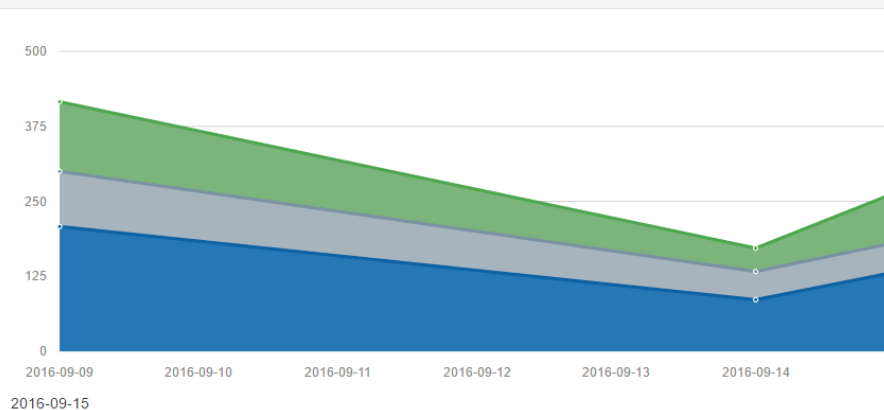
Raw Data

## Dashboard

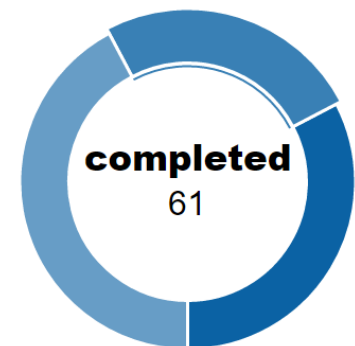
last update: 2016-09-15 12:37:03



Statements Evolution



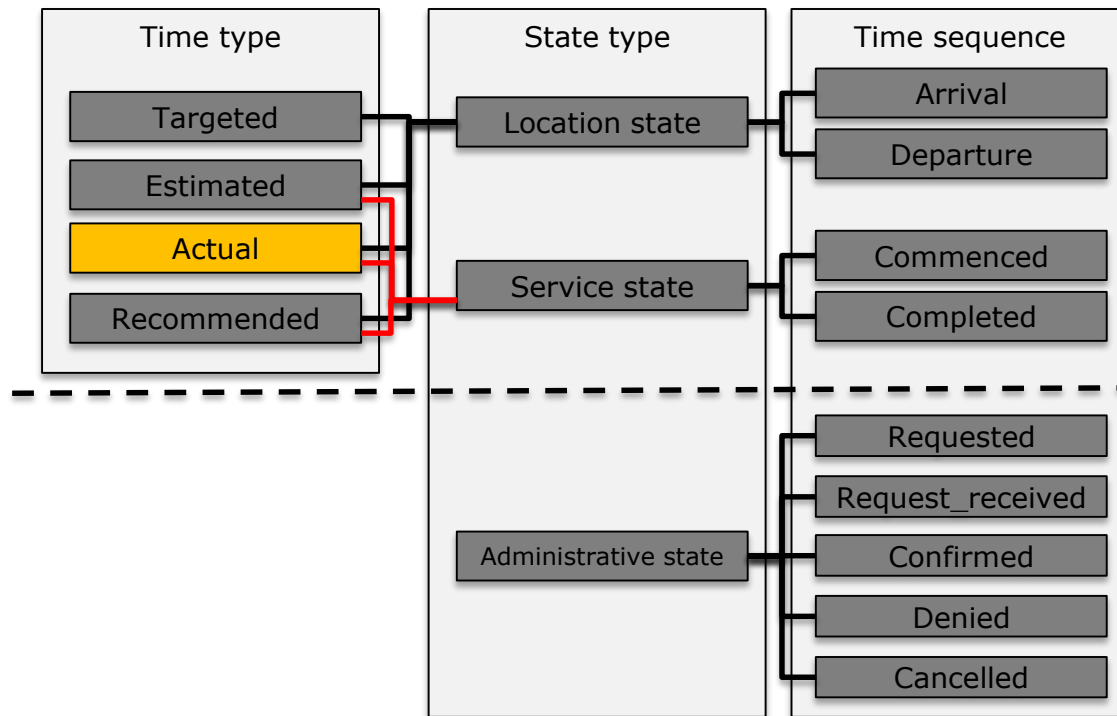
State Analysis



# The port call message format



... derived from experiences in port call optimization and port call synchronization efforts in 13 ports



M&P community will still need to develop a solution to support the exchange of information regarding FUTURE Events

Alignment with EPCIS as to be done by enabling combination of PCMF (as a S-2xx standard) and EPCIS to capture both actual and future events for logistic transport (informed by the results from STM).

# International PortCDM council



## Ensuring that PortCDM implementations meets the needs of the international maritime community

### International governing body for generic PortCDM matters maintaining:

- PortCDM concept definition and generic guidelines
- Port call message format (PCMF)
- Port call structure ontology
- Criteria for accreditation of PortCDM application and data services
- Key Performance Indicators (KPIs)

### Confirmed / TBC members

BIMCO  
BMVI Germany  
BSA Bahamas  
CIRM  
Cyprus Shipping Chamber  
IALA  
ICS  
IHMA  
IHO  
IMO  
IMPA  
IMSO  
Intertanko

Marshall Island Registry  
Member state Australia  
Member state Canada  
Member state Singapore  
MOF Korea  
Port of Freemantle  
Port of Singapore  
SMA  
Valencia port foundation  
RISE Viktoria  
IPCSA

... and more to come

THINK DIFFERENT  
MAKE THINGS HAPPEN  
MAKE A DIFFERENCE



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**RI.  
SE**

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