The PortCDM concept in application

Mathias Karlsson, Researcher, RISE Viktoria
Trond Andersen, Senior Advisor, RISE Viktoria & Harbour Master, Port of Stavanger
2017-10-10
Agenda

• 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?

PortCDM the movie
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

<table>
<thead>
<tr>
<th>The vessel making</th>
<th>Combining multiple data sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>making a visit for a particular <strong>purpose</strong></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PortCDM</th>
</tr>
</thead>
<tbody>
<tr>
<td>is based on three foundations to <strong>enhance precision</strong> in time stamps</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Synchronizing involved actor’s conception of different time stamps</th>
<th>Evaluating the likelihood that an action will occur according to the plan</th>
</tr>
</thead>
</table>

\[
x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}
\]
PortCDM’s three foundations

- Combination of multiple data sources
- Synchronization of actor’s conception of different time stamps
- Evaluation of actions that will occur according to the plan

Is based on

- Situational awareness of the port call process for the port call actors
- 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
Interoperable platform for sharing time stamps

PortCDM information service system

Shipping ERP
TOS
PMS
FOC

Previous / next port
Port Community Systems (PCS)
AIS

Ship ECDIS
VTMIS
NSW
Service provider’s system
Hinterland operator’s system

... as the foundation for front-end services for situational awareness, manual reports of time stamps, and analytics
# Port Actor Collaboration Tool (PACT)

## Statement Log

<table>
<thead>
<tr>
<th>Event</th>
<th>Description</th>
<th>Time</th>
<th>Type</th>
<th>Reported at</th>
<th>Reported by</th>
</tr>
</thead>
<tbody>
<tr>
<td>E</td>
<td>Cargo Operations Completed</td>
<td>2017-09-09 12:00</td>
<td>ESTIMATED</td>
<td>a few seconds ago</td>
<td>urn:mmr:stm:user:legacy:GSA</td>
</tr>
<tr>
<td>E</td>
<td>Cargo Operations Commenced</td>
<td>2017-09-08 15:00</td>
<td>ESTIMATED</td>
<td>a minute ago</td>
<td>urn:mmr:stm:user:legacy:GSA</td>
</tr>
<tr>
<td>E</td>
<td>Departure Vessel Berth</td>
<td>2017-09-09 13:00</td>
<td>ESTIMATED</td>
<td>2 minutes ago</td>
<td>urn:mmr:stm:user:legacy:GSA</td>
</tr>
<tr>
<td>A</td>
<td>Arrival Vessel Berth</td>
<td>2017-09-08 07:42</td>
<td>ACTUAL</td>
<td>4 minutes ago</td>
<td>urn:mmr:stm:user:legacy:GSA</td>
</tr>
</tbody>
</table>

**Vessel Information**

- **IMO**: 9435
- **Call sign**: 800

**MarineTraffic**

**Co-financed by the European Union**

- Connecting Europe Facility
- RISE
## Vessels At Quay

<table>
<thead>
<tr>
<th>Name</th>
<th>Current Visits</th>
<th>Planned Visits</th>
<th>Passed Visits</th>
<th>Unknown Visits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ternvind</strong></td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td><strong>Besiktas Iceland</strong></td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Thun Gazelle</strong></td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

**Quay Timeline**

- **2017-10-05**
  - From: 02:00 to 14:00

- **2017-10-09**
  - From: 02:00 to 14:00

© GS1 2015
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 meet the needs of the international maritime community

<table>
<thead>
<tr>
<th>International governing body for generic PortCDM matters maintaining:</th>
<th>Confirmed / TBC members</th>
</tr>
</thead>
<tbody>
<tr>
<td>• PortCDM concept definition and generic guidelines</td>
<td>BIMCO</td>
</tr>
<tr>
<td>• Port call message format (PCMF)</td>
<td>BMVI Germany</td>
</tr>
<tr>
<td>• Port call structure ontology</td>
<td>BSA Bahamas</td>
</tr>
<tr>
<td>• Criteria for accreditation of PortCDM application and data services</td>
<td>CIRM</td>
</tr>
<tr>
<td>• Key Performance Indicators (KPIs)</td>
<td>Cyprus Shipping Chamber</td>
</tr>
<tr>
<td></td>
<td>IALA</td>
</tr>
<tr>
<td></td>
<td>ICS</td>
</tr>
<tr>
<td></td>
<td>IHMA</td>
</tr>
<tr>
<td></td>
<td>IHO</td>
</tr>
<tr>
<td></td>
<td>IMO</td>
</tr>
<tr>
<td></td>
<td>IMPA</td>
</tr>
<tr>
<td></td>
<td>IMSO</td>
</tr>
<tr>
<td></td>
<td>Intertanko</td>
</tr>
</tbody>
</table>

… and more to come

- 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
- IPSCE
THINK DIFFERENT
MAKE THINGS HAPPEN
MAKE A DIFFERENCE

For questions do not hesitate to contact:

Mathias Karlsson
Mathias.Karlsson@ri.se

Trond Andersen
Trond.Andersen@stavanger.havn.no

Mikael Lind
Mikael.lind@ri.se

Sandra Haraldson
Sandra.Haraldson@ri.se

Michael Bergmann
Michael.Bergmann@ri.se

Co-financed by the European Union
Connecting Europe Facility

PORT OF STAVANGER
NORWAY
RISE

The Global Language of Business