SEA TRAFFIC MANAGEMENT: LINKING PORTS TOGETHER IN COLLABORATIVE DECISION MAKING USING (NEW) GS1 STANDARDS
MONALISA 2.0 (2013-2015)

- **Definition** of the Sea Traffic Management concept
- 39 Partners
- 24 MEuro

STM validation project (2015-2018)

- **Validation** of the Sea Traffic Management concept
- 57 partners
- 43 MEuro

PORTCDM IN TWO PROJECTS
CONCERNS OF SEA TRAFFIC MANAGEMENT

The problem:
The need to increase efficiency in operations within and between ports

Optimal bunker use (from berth to berth)

Maximize the utilization of the facilities in ports

Minimize the use of energy to steam between two ports

Right routing (-12 %)

Green steaming (-25 % for anchoring vessels)

constrained by safety considerations
PortCDM – THE MOVIE

https://www.youtube.com/watch?v=ZS5SjDAol90

ON SEA TRAFFIC MANAGEMENT
SCOPE IN PortCDM

Port Call Process

ARRIVAL

PORT VISIT

DEPARTURE

SEA VOYAGE

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THE VOYAGE IN FOCUS

Voyage Optimization & Traffic coordination

Port Call Synchronization

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STM STRATEGIC CONCEPTS & OPERATIONAL SERVICES

Voyage management
Support planning and dynamic re-planning

Port CDM
Approach and Port synchronization

Flow management
Area management and flow optimization

Voyage Optimization & Traffic coordination

Port Call Synchronization

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POINT OF DEPARTURE FOR PortCDM

Why?

- Jointly we know a lot
- Increased predictability requires collaboration
- Collaboration requires communication
- Communication requires unified, precise language and contextual understanding
DESIRED PortCDM EFFECTS

- Fast turn-around
- Optimal resource utilization
- Just-in-time operations
- High degree of predictability
- Minimal waiting times
- Green Steaming

Vessel

Port

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TOWARDS SYNCHRONIZED INFORMATION SHARING
All ports work differently.
An optimized port call is when the vessel reaches an agreed location at a specific time and all necessary facilities and services are ready to receive the vessel ensuring an optimal turn around in the port.

- Increased need for inter-operability between actors engaged in port calls

- A digital platform that enables structured sharing of timestamps between involved actors and provides situational awareness for actors’ decision-making

- **Today, no standards exists for exchanging timestamp messages** related to port call enabling enhanced situational awareness.
INTEGRATING WITH EXISTING SYSTEMS AS THE SOURCE

- Approach Management System
- Single Window
- Shipping ERP
- Vessel Operating System
- Port Community System
- SeaSWIM
- PortCDM Information Service System
- Service Provider’s System

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PORT CALL LAYERED MODEL

Process layer

Main process

- Pre-arrival
- Arrival
- Port visit
- Departure
- Post departure

Sub processes

- Vessel movement
- Port arrival
- Port maneuvering
- Berth visit
- Anchoring
- Port departure
- Vessel movement

Event layer

State layer

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STRUCTURE OF A TIME STAMP

Time stamp = Time type + State

Time type:
- Estimated (ET)
- Actual (AT)
- Recommended (RT)
- Target (TT)

State:
- Location state
- Service state
PORT CALL MESSAGE STANDARD

Is built upon and has been a source for the development of

PORT CALL

MESSAGE STANDARD

Is applied in approaches for

PORT call synchronization

Being aligned with and is of use for

PORT call optimization

Maritime authorities (IMO), Port authorities and other port actors, BIMCO, Shipping companies, Service Providers, (Bridge) Equipment suppliers, Platform providers, Standardization organizations (like GS1)
EPCIS offers great potential!

- Proven for sharing physical event data
- Lacks coverage for important event information in Maritime and Ports (M&P) context
- GS1 committed to support adding M&P data elements to EPCIS Business Vocabulary
Extending the GS1 system

- Unambiguous identification for Vessel Voyage
- Unambiguous identification for Port Call
  Vessel at Port, Plane at airport, truck at warehouse are all forms of Slot Management operations.
  => Potential for Mode Independent Slot Identification
- Sharing future event information
  Expected/Estimated, Recommended, Planned/Target
The port call process is a complex sequence of activities

The basic unit of analysis is the timestamp

Increased need for precision in timestamp communication

The better the information about current status, the better the possibility to coordinate for the purpose of optimization and synchronization

A great potential in an enhanced EPCIS (for ship-to-shore interaction) which has been initiated as a collaborative effort driven by GS1
THINK DIFFERENT
MAKE THINGS HAPPEN
MAKE A DIFFERENCE

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