LL #7 Real Time Information Services (RETIS)

FACTSHEET

10 MARCH 2022

A. GENERAL (BUSINESS CASE)

1. Objectives

- Transport tracking
- Simple low-cost digitized information sharing system between existing SMA and STA systems
- Optimizing the canal flow performance and planning and validate it in a test bed at a selected waterway in Europe; Göta Älv (Gothenburg – Vänersborg).
- Traffic management for trains based on an improved knowledge of passing times of ships (incl open rail crossing bridges).
- Optimized infrastructure use, improved situational awareness and predictability of ships arrival and departure times to the actors involved in the logistical transport/ chain.

2. Main emphasis

This LivingLab builds on the possibility of system integration between existing systems in the Swedish Maritime Administration and other stakeholders who are interested in the planning purposes. The technical applications, such as API, and protocols should provide for system interconnectivity.

Seamless data flow management between SMA and STA systems to provide services and support to another, based on estimated and actual times for a ship's arrival or departure. The goal is to optimize the flow of ships through canals/locks/archipelagos/inland waterways as well as ports, due to traffic congestion, limitations in used infrastructure, and co-modal challenges. An example of multiple ships travelling in opposing directions is in canals where also locks are commonly used. This induces a need to synchronise ship passages with opening times of bridges to allow passage. The latter aspect affects and puts limitations on other modes of transport. To coordinate an optimal performance from the perspectives of the concerned ships, road and railroad traffic utilising the same infrastructure, information needs to be shared among involved actors. In the Göta älv

and Trollhätte Canal, on the Swedish west coast, there is a need to ensure smooth and efficient traffic flows of rail and road transport coordinated with the opening of bridges.

Another example is the needs for timestamps, e. g. arrival and departure times, to plan for various port operations like loading and unloading from other modes of transport bringing goods in or out of a port.

3. Challenges

- The need to integrate new information in existing applications for the operational effects based on the experience that separate applications using separate hardware presents a considerable barrier for operational acceptance.
- Development of an integrating platform for interactions between independent systems in the respective administrations or other connected stakeholders, there is a challenge in
- STA focus: Modifying operator applications to manage and present the multimodal information will put external requirements on the functionality of the applications used in e.g. train control centre utilising the timestamp information. Discussions on these development activities are ongoing and difficult, they might fall outside the timeframe of this project
- SMA focus is to create the technical ability to provide timestamps related to ships/arrival departure via an API and to visualize the information.

4. Transport mode

Maritime, Rail and Road

5. EU Map Focus

Scandinavian – Mediterranean, SCANMED. Water and land transport.

6. Geographical coverage

Sweden

7. Actors

- Swedish Maritime Administration
  - Information provider
- Swedish Transport Administration
  - Train control centers

- Swedish Ports
  - Port of Halland
  - Port of Trelleborg
  - Port of Luleå
  - Port of Wallhamn
  - Port of Norrköping
  - Port of Gothenburg
- Other possible information users
  - Traffic management systems
  - Logistic chain actors

8. Forecast scaling outside LL

By the concept design, technical realization and validation efforts, the way will be paved for adopting this approach at diverse critical passages elsewhere related to waterways or canals**.** Results can be used by all ports in Sweden as well as in waterways throughout Europe

A. TECHNICAL SETTING

9. ICT vs physical

The LivingLab will develop ICT solutions for real-life tests and pilots and studies of future system management and administration.

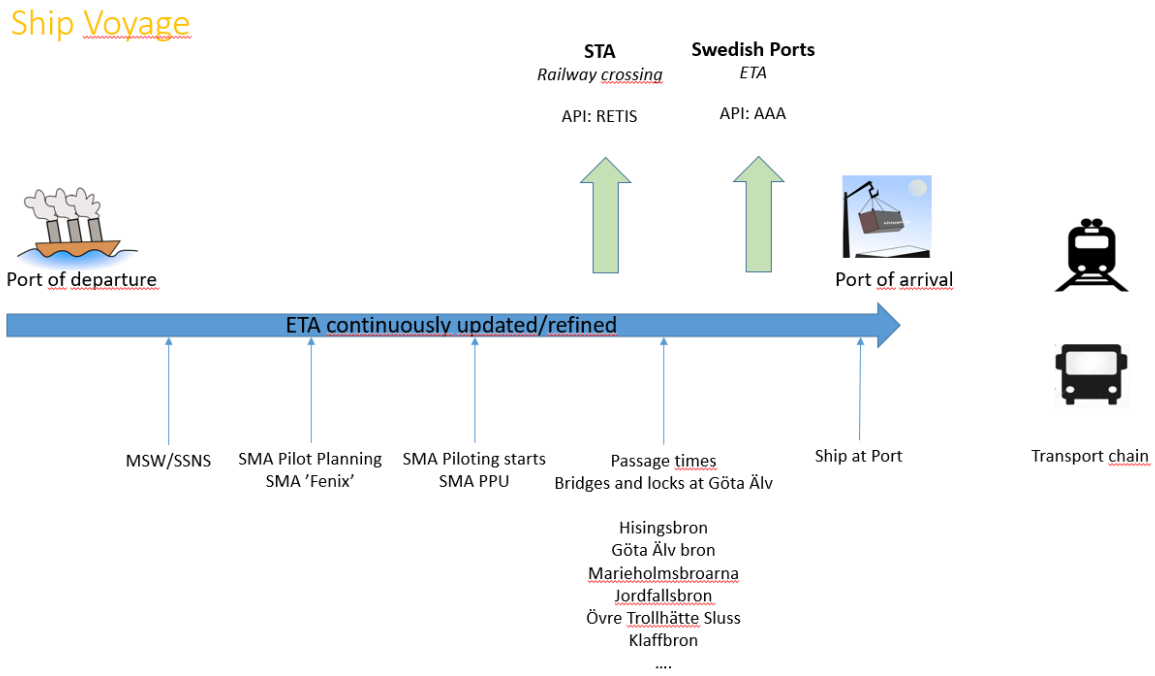
As the ships voyage progresses the information on Estimated Time of Arrival to different locations is getting more and more accurate e.g., arrival time in MSW, pilot booked and onboard from pilot planning system and eventually passage/arrival information based on actual and automatically updated route plans.

Information on timestamps related to ships arrival, pilotage and departure can be drawn from several different systems at SMA i.e. from Maritime Single Window/SafeSeaNetSystem, SMA pilot planning system and ship navigation system/ portable pilot units (PPU).

An API, named ‘AAA’, for exchanging ship’s arrival and departure information will be developed, providing the same information to all partners before and during a port call. AAA aims to increase the port operator's efficiency by communicating arrivals and departures etc. to/ from ships. With AAA, the port-call process for ships will be more efficient and thereby increase the competitiveness of shipping and contribute to less environmental impact with better tailored and planned arrivals and departures of ships in the port. Furthermore, AAA enables reliable information about the ship's arrival/ departure and optimization of the entire transport chain through further information sharing to port hinterland stakeholders thus facilitating the transition to the next mode of transport.

In addition to the above, 'RETIS', an API for exchanging passage times at bridges and locks along Göta Älv will be demonstrated.

Based on the ships actual voyage along Göta Älv, from the pilot point of boarding to the final port, the route plan will be continuously updated with expected time of arrivals at bridges and locks and finally to the port. This gives other actors increased knowledge, predictability and accuracy of the ships expected time of arrival at specific places. This can be used for train and traffic planning purposes of other actors.



This Living Lab deals with the following FEDeRATED global features:

- Language
- Access
- Identity

10. DTLF implementation option:

The Living Lab aims to use '

B. Single Platform', for the API's to be created.

C. ORGANISATIONAL ISSUES

11. Success factors

- Increased knowledge of ship movements
- Predictability and accuracy of ships arrival times
- Predictability and accuracy of ships departure times
- Increased planning abilities for train and public transport
- Increased planning abilities for ports and hinterland stakeholders

12. Risks

- Starting up LL initiatives in lockdown: the need to meet and interact with people in order to come to a common understanding is vital to success. As a result, important face to face meetings, particularly with other stakeholders, has been delayed.
- Lack of hardware equipment, shortage of components on the market
- Lack of technical personnel, high demand on IT personnel in the market
- Replanning of resources due to covid-19
- Focus on business due to covid-19, projects gets low priority

13. Timing

LL#07	2019				2020				2021				2022				2023			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Preparations																				
Planning and scoping																				
Stakeholder engagement																				
LL infrastructure development																				
Testing & piloting																				
Iteration & process analysis																				
Operational trials																				
Feedback & scaling																				

14. Contact

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