The whole logistics chain would benefit from better transport resource management, education of congestions, reduction of gate times, reduced traffic congestion around ports, optimisation of rail traffic, etc. The economic and environmental benefits are significant even though not yet evaluated. Instead of having every company involved in the maritime transport chain building their own predictive software and processes, STM could provide common services available to all operators.

Building Europe’s Digital Single Market

The STM team is sharing ideas, solutions and progress with other EU initiatives, such as the CORE project, focusing on goods information throughout the entire logistics chain, thus synchronising ideas and interfaces. STM has the prerequisites to be the main building block for a Digital Single Maritime Service Market. The STM Policy Advisory Group recommends that this process should start in Europe before growing worldwide, since shipping is global. Improved and new services will provide concrete value for all actors. Most of the services will be developed by the industry, while others will be controlled by the public sector.

The open interfaces will lower the threshold for entering the maritime service market. This would make the industry more attractive for entrepreneurs, and ideas from other industries could cross-fertilise the services. The image of the industry could change from conservative to flexible, thereby attracting younger and creative people. STM could trigger a cluster that engenders new technology, leading to more on-shore jobs and keeping Europe at the leading edge of industry development and its value-adding services.

Increased competitiveness of maritime transport

By sharing standardised digitised information, the processes in short sea shipping may be compressed and automated to some extent. Moving a container from Spain to Finland requires one document when moved by road, but at least 50 documents when moved by sea. The number of documents may remain the same but a Bimco initiative to standardise the basic information nevertheless offers a smoother process. The improved STM information will make the arrival time of goods more predictable and reliable, making short sea shipping a more attractive solution. In the long run, traffic can be moved from rail and road, thereby alleviating road congestion and cutting road infrastructure investments.

Improved maritime logistics will sharpen the competitiveness of all European industry, both imports and exports. Some transport traffic that has moved to airfreight could return to sea transportation. STM is a key component in keeping the EU ahead of competition in the maritime industry, while simultaneously improving market conditions for all European industries exporting and importing goods as well as moving them within the EU.
Shipping transports 90% of world trade. Europe – and the EU in particular – is an advocate of free trade, and the global shipping business is the physical instrument that makes trade economically viable. The maritime industry has traditionally been a conservative industry with many independent actors. Sharing information used to imply a competitive disadvantage. However, other transport industries have realised that if all actors start sharing data, all will be winners.

Sea Traffic Management, STM, is an initiative to establish standardised information sharing with open interfaces. It is designed to make winners of all actors in the maritime transport chain. More efficient routing can save billions of euros in reduced bunker cost and emissions. By adjusting arrivals to port availability and taking steps towards just-in-time-processes, more fuel is saved and fewer emissions are released overall, which is particularly important in coastal areas. Information sharing will also reduce the number of collisions and groundings by more than 60%, leading to obvious savings for ship-owners and insurance companies. Moreover, a decrease in the number of collisions and groundings also means a reduction of the public cost for decontamination.

What is Sea Traffic Management?
Sea Traffic Management is a concept for maritime services based on standards and open interfaces. It was thoroughly analysed and defined by the MONALISA 2.0-project (2013-2015), inspired by the Air Traffic Management work conducted under the SESAR umbrella.

To simplify the presentation of the STM possibilities, the services are grouped into four areas:

1. **Voyage Management** is a concept for maritime services based on standards and open interfaces. It was inspired by the Air Traffic Management work conducted under the SESAR umbrella.
2. **Flow Management** services will support both onshore organisations and ships in optimising overall traffic flow through areas of dense traffic and areas with particular navigational challenges.
3. **Port Collaborative Decision Making** services will increase the efficiency of port calls for all stakeholders through improved information sharing, situational awareness, optimised processes, and collaborative decision making during port calls.
4. **System Wide Information Management** will facilitate data sharing using a common information environment and structure (e.g., the Maritime Cloud). This ensures the interoperability of STM and other services.

A common technical protocol for route exchange has been developed and was approved as an international standard in August 2015. This is an enormous achievement and a prerequisite for further development and deployment of Sea Traffic Management.

**Operational Benefits of Sea Traffic Management**

By providing ships with the ability to see each other’s planned routes, STM gives navigators a more complete picture of how surrounding ships will influence their own onward voyage.

Using this data, other services are able to produce valuable information and offer advice to ships on their routes, such as recommendations to avoid congestion in areas with dense traffic, avoidance of environmentally sensitive areas, and maritime safety information.

The information exchange between ships and port actors will improve planning and performance regarding arrivals, departures and turnaround times.

**Environment related savings**

The largest environmental savings comes from the reduction of emissions. Every fuel saving corresponds to an emission saving. Every % of reduction in distance is worth EUR 500 million in less emissions in the EU. Slow steaming related to just-in-time arrivals will add to the figure.

**Safety related savings**

Based on the average claim costs from the Swedish Club, the reduction of human-error related groundings and collisions by more than 60% correspond to a EUR 100 million savings per year in EU waters.

**Improved efficiency savings**

An analysis from Copenhagen Business School shows that the introduction and implementation of an ‘ideal’ STM would make it possible to save 10 – 15% of planning and operational costs both for voyage optimization and for port operation optimization.

At sea

STM services can help ships take the most fuel-efficient route. A study covering all passages during one month through the Kattegat – the sea area between Denmark and Sweden – indicates a potential 12% fuel saving. Most of the savings arise from shorter routes, but some also derive from longer routes, avoiding shallow waters where a “squat effect” creates greater water resistance. Another study has shown that for each percentage point that Baltic Sea traffic can save in distance, the ship-owner savings is around EUR 50 million per year. And since the Baltic represents 10% of European traffic, this may be extrapolated to EUR 500 million per year across Europe.

**Between ports and ships**

A study of anchoring conducted in MONALISA 2.0 shows that the median anchoring time outside the Port of Gothenburg can be reduced from 18 hours to 13 hours. This would enable slow steaming by the anchoring ships over the last 230 nautical miles, saving 4.1% of the total fuel cost for all ships over that distance. The savings across the EU would be up to EUR 400 million per year. If ships could slow steam for even longer distances, avoiding all unwanted anchoring and arriving just-in-time, the savings would be even greater.

**The whole logistics chain**

Information about port availability and ships’ Estimated Time of Arrival are not only of interest to the two parties involved. Other ports later in the ship’s schedule would benefit from getting accurate news on delays, thereby improving port planning. Hinterland operators would also benefit from accurate arrival times.