



European Federation of Inland Ports

Inland Ports – Digital hubs in intermodal logistics

1. The impact of digitalization

Like in other industrial processes over the world, the European inland port sector is undergoing a transformation because of digital technologies and the further digitalization of logistic processes.

As trade and cargo volumes are expected to grow on a global level, EFIP believes that new technologies and digitalization as well as further integration of existing IT systems will help to increase efficiency of logistics and manage flows of goods in the port in a more sustainable and cost-effective manner. Without digitalization, the logistic sector is not competitive enough.

Many inland ports are currently in transition towards greener and more efficient practices with the help of technology enabled by the Internet of Things (IoT). EFIP believes that the competitive position of inland ports is not only dependent on infrastructure development, but nowadays also linked to the way in which digital approaches and solutions are integrated in the port community system (as part of the digital infrastructure of ports).

As the benefits in efficiency and energy savings are far-reaching for inland ports, so will be the impact on current port communities. In general, EFIP is convinced that digitalization of logistic services can improve efficiency and ultimately increase sustainability and profitability of a port when organised well. In this paper, we would like to share with you our concerns, experienced challenges, bottlenecks and expected role for inland ports in order to further embrace it on a European level.

2. The challenges for inland ports

The meaning of digitalization is not always well understood and the level of digitalization differs from one port to another. An important challenge is to find the right balance between on one hand finding tailor-made solutions (programmes and support schemes) for digitalization in inland ports and on the other hand securing harmonised and standardised Intelligent Transport Systems in ports. An important step is to create a Digital Inland Waterway Area (DINA) leading to an internal market for inland waterways. The EU-wide uptake of River Information Services can be the right catalyst to make this happen.



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2.1 Need to harmonise the reporting requirements

Problem: Currently, the legislation for collecting port statistics and inland waterway transport statistics are regulated on national or even regional level, as the Regulation (EC) No 1365/2006 on statistics of goods transport by inland waterways gives plenty of room for interpretation. Thus, the full potential of RIS technologies cannot be exploited for the collection of waterway transport and port statistics.

Consequence: The uptake of electronic reporting for statistics is hindered by different (reporting) requirements for port operations of vessels, transit of vessels, import and export transport operations. Also the establishment of a Single Window for reporting in inland navigation is not possible.

Suggestions:

- EFIP suggests to harmonise and standardise the reporting requirements for inland waterway transport statistics and port statistics in order to apply an electronic reporting RIS Service to these areas.
- EFIP suggests to collect port statistics only electronically and to find ways in which this information can be provided to a Single Window for inland navigation.
- EFIP believes that when cross-border transport is affected by the lack of harmonisation there is need for consensus between the involved countries, regions, River commissions and the EC.

2.2 Applicability of the RIS Directive for all ports covered by the RIS Directive

Problem: Currently the RIS Directive does not apply for all ports (class IV or above). Thus, there is no requirement that the regulations concerning the technical specifications for RIS are applied in port areas in a harmonised way.

Consequence: Especially in larger ports this can lead to unavailability of essential RIS Services based on one or more of the technical specifications for RIS. Good examples are Notices to Skippers/ IECDIS charts, which are rarely published for limitations inside a port area.

Suggestion: EFIP believes that ports should be included in the area of applicability of the RIS Directive.



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2.3 Access for ports to vessel cargo information

Problem: In addition to the tracking of vessel positions it would be very valuable for ports and port infrastructure operators to have easy access to cargo conditions. Though electronic reporting infrastructure is available in many European countries, it's not always open for ports and port facility operators or limited to certain types of transports. Also it is currently not matched with the actual vessel position information.

Consequence: Access to vessel cargo information would allow for better, faster and more efficient planning of port resources and improve the performance of IWT as part of intermodal transport chains.

Suggestions:

- EFIP proposes to provide a central means of the relevant data of access to vessel cargo information. The access shall be possible through a graphical web interface but also machine readable access (e.g. through web services) for larger ports. It is important that the benefit of sharing these data is clear for all the stakeholders.
- In order to feed this central access EFIP proposes to introduce an obligation for the EU member states to either link the national Electronic Reporting systems to the central service and to provide cargo information following agreed performance requirements (minimum service levels), or to completely use the central cargo reporting service.
- In addition, the EU RIS Directive should provide a legal basis for role-based access for ports and port facility operators. Today's bilateral agreements cannot be handled efficiently in daily business.

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2.4 RIS tools to support berth and terminal management

Problem: For the administration of port or berth services, the exact mooring place and time of arrival/departure of vessels in ports and at river berths is very important. Currently – except from some innovative pilot projects like the RheinPorts Information System (RPIS) - this information needs to be collected manually or is based on the reporting of skippers.



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Consequence: Consequently, the planning, charging and supervision of port facilities and river berths requires lots of manual work and has a high level of uncertainty and inaccuracy. It is difficult to draw reliable conclusions e.g. in case of damages to the infrastructure or to react on changes to the initial planning.

Suggestions:

- Tracking and tracing information (including ETA information on approaching vessels) would allow for geo-fencing services to supervise the usage of port facilities and river berths.
- EFIP proposes to encourage the provision of such services either on national or international level.
- In addition, the EU RIS Directive should provide a legal basis for role-based access for ports and port facility operators. Today's bilateral agreements cannot be handled efficiently in daily business.
- The inclusion of planning and pre-announcement data will increase the ports' efficiency and thus reduce operational costs for all stakeholders and make inland ports more reliable nodes in the logistics network.

2.5 Awareness about the changing nature of port jobs

Consequence: Logistics 4.0 not only leads to technological revolutions and changes the way that e.g. carriers or operators change their way of doing, but it also leads to a greater availability of data and information. This means that there is a need for skilled professionals in the port, able to interpret and turn it into competitive advantages. A different mind-set is needed in the inland port community; integrated social dialogue is necessary.

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- Inland ports should be supported in their efforts to set up a transparent and independent IT platform for the port community which also involves businesses and research institutes/educational bodies. These integrated platforms could lead to a better understanding of the sector's needs.
- We need uniform standardisation of the recognition of skills and better understanding of the needed competences.



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2.6 The risks of single system failure in an interconnected digital environment in the port

Consequence: When an interconnected (open) digital environment in the port has been created, risk management becomes more important in order to understand consequences of a possible single system failure. Large volumes of big data could potentially be exposed to cyber, property, leakage risks and system failure. This is risky as logistics becomes more and more dependent on digital applications such as GPS navigation, traffic forecasting, online barge-calls, real-time weather data, etc.

Suggestions:

- The sector needs an integrated approach on safety management including inland ports, logistic operators, businesses, software and hardware developers and manufactures as well as insurers; they will need to work together in order to provide maximum data security and safety.
- We need dedicated European R&D programming (e.g. under H2020) for testbeds and pilot projects. Important topics could be, the security and risk aspects of IT-systems and the application of sensor technologies, and usage of big data in the inland port community.

3. Overall bottlenecks

Below you will find some of the main bottlenecks experienced when implementing 'smart logistic concepts' in ports.

- A key bottleneck to integrated systems is access and availability to updated and reliable data.¹
- Legal uncertainty and a lack of uniform implementation of existing European and International legislation by Member States is holding back EU wide digitalization of the Transport logistics sector.
- Lack of standardisation at European level regarding multimodal transport e-documents (e.g. lack of uniform container terminal codes) is a barrier to seamless, streamlined, flexible transport logistics within the EU.

¹ Because of a lack of statistics and data on inland ports (performance) on the EU-level, EFIP is participating in the EU-project PORTOPIA (WP 7 on inland ports) as a first step to create a data-set and method for collecting inland port data.



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- The regulatory framework must be friendly for new investment and innovation on the basis of a level playing field with as few restrictions as possible.
- The port sector needs private investments, continuous possibilities for EU, national and regional funding and efficient port services. This requires fair competition and a stable legal framework. A key condition for attracting private investors is to ensure a level playing field.
- Innovation in intelligent transport systems and cluster models integrating several logistics systems are vital to optimise capacities and develop multimodality and must be promoted.
- Multimodal coordination is needed as seamless connectivity of IT-systems between the different transport modes is still lacking.
- We need a technically and legally approved single window (single entry points, authorised re-use, data security) for the cross-border exchange of traffic, cargo and fairway information.

4. Main opportunities for inland ports

- Digitalization, connectivity and integrated intelligent transport systems in port communities will have a huge potential to reduce CO2 emissions and thus support the European objectives on climate change towards 2030.
- EFIP believes that digitalization provides possibilities to improve the efficiency of logistics and could increase productivity with fewer resources, lower emissions and enhanced safety. Key is that the whole inland port community understands how new technology could lead to more opportunities.
- The concept of “Digital hospitality” in ports could not only provide information on e.g. registration systems for inland vessels, nautical information (dimensions, capacity), current regulations in ports, port dues etc.; it could diminish the administrative burden, increase security in the port and could lead to a more efficient usage of the infrastructure.
- Since the Inland Port Authorities are not directly involved in the supply chain, they can play a neutral role in bringing the parties together and to act as a catalyst to discuss with stakeholders the strategy to develop logistics 4.0. As facilitator, ports can stimulate and support the set-up of a port collaboration platform with smart integration of systems and agents to share meaningful information and thereby enable a high-quality seamless logistics chain.



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- Inland ports as ‘intermediates’ can support the development of a port digital layer with real-time data and information of every business process to control efficiency². As facilitators they could initiate the development of independent IT platforms in order to enable shippers and forwarders to bundle their freight flows and integrate real-time data. In addition, reliable broadband Internet access is needed not only in ports but also on waterways.
- EFIP believes that the collection of Big Data by an independent (government) body is crucial to optimise logistic processes. It will allow the monitoring of containers and cargo in real time and it could lead to better economic forecasting by combining different parameters (e.g. water level, fuel consumption. Through tracking and tracing it will enable ship owners to check if the goods arrived safely in the inland port.
- Inland port Authorities are expected to play a stronger role in coordinating and enhancing collaboration for digitalized port activities and service-handling activities supporting logistics 4.0. In this sense, the typical tasks for the provision and maintenance of port infrastructure need to be extended to the provision and maintenance of digital infrastructure.

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² A good example is the project of the Upper Rhine ports, supported by the European TEN-T programme: in this case the usage of ICT systems increases efficiency and sustainability of infrastructure use, by supplying both static and dynamic information about the actual infrastructure conditions and traffic forecast.