Disproved!

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The Baltic Sea region, with its unique environment and favourable conditions for path-breaking, is fast becoming a hotbed for maritime innovation development. With the proximity of several countries with diverse transport industries, strong research & development centres, local & national government support, and considerable market prospect, it is no surprise that the region has gained recognition for its creative potential. This article delves into one of the recent concepts that have emerged in the shipping industry, the Just-In-Time (JIT) arrival and the advantages it brings about for ports & shipping, likewise, the platform that powers it: the POLO Digitalization Platform for Ports and Logistics.

In a nutshell, JIT is a strategy that aims to optimise vessel port arrival times by reducing anchorage, which, in turn, is achieved by coordinating port & shipping operations. Vessels are given a specific time slot to arrive at the port, taking into account factors such as weather, resources (e.g., access to cargo handling equipment), and berth availability.

JIT implementation in seaborne cargo carriage challenges the older-than-dirt First-Come-First-Served principle, a culprit of many ineffectiveness still sadly present in trade, not to mention its negative impact on the environment as ships burn fuel at anchor ground. As such, the benefits of JIT are numerous. For shipping companies, reduced waiting times translate to significant savings in fuel costs and reduced carbon footprint. Ports also benefit from increased throughput, improved predictability, better planning, and reduced congestion. These trickle down the entire supply chain: improved reliability and predictability of the shipping industry reduce delays overall.

Adapt to evolve

However, getting JIT on board shipping & port operations is easier said than done. Yet, it's far from being impossible! We at Unikie, together with our partners and ports, have developed the Open-Ecosystem POLO Digitalization Platform for Ports and Logistics. This end-to-end tech solution provides an array of features tailored to meet the demands of professionals. Its highly adaptable and tailored user interface offers personalised access to functionalities, features, and data, depending on the user's role and needs. The platform enables real-time communication, data sharing, and collaboration between port operators, shipping companies and other logistics stakeholders.

POLO was initially developed as Open Source, recently becoming an Open Ecosystem. In practice, this means anyone can join and freely share lower user rights with their partners, low or zero starting costs (though local integrations might be needed), and pocket-friendly software-as-a-service fees based on features and customisation level. Moreover, anyone can further develop the platform: alone or with other ecosystem partners (the result can be either a private or public feature – or something in between). Development work can be executed by Unikie or by third parties, and our organisation will always integrate and test all new features and maintain the platform. The system has open application programming interfaces to help the development, while old open-source code can be utilised. Lastly, the platform can be used as a basis for larger enterprise features integrated into POLO or as a dedicated private app. In short, what we have here is an Open Ecosystem enabling fast(er) expansion, low(er) maintenance costs, more features, and 100% accuracy for all investments. Probably, that is why POLO is the fastest-growing digitalisation toolset for ports & logistics.

The POLO platform is a critical enabler of JIT arrival, facilitating the coordination and optimisation of vessel port arrivals. It integrates data from various sources, including the automatic identification system, weather forecasts and real-time traffic information, to provide accurate and timely information to all stakeholders involved in vessel port calls. This information is then used to optimise the planning and coordination of vessel arrivals, reducing waiting times and thus improving efficiency. The POLO platform also offers a range of other features, such as berth management, service orders, and invoicing. The platform is designed to be scalable and customisable, with the ability to integrate with other systems and adapt to the evolving needs of the industry.

Ship 'eco-driving'

The Port of Gävle's Time Slot Gävle is one of the most notable examples of successfully implementing the JIT concept and the POLO platform. From February 2023, vessels calling one of the Swedish seaport's energy harbour's seven terminals can apply for queue slots in the Port Activity App, which verifies the scheduled times with automatic ship positioning data. "With the app, we optimised the vessels' turn-around in the port area. The cool thing about Time Slot Gävle is that we can influence the entire journey to the port from, for example, the Netherlands, Poland or the Swedish west coast. We make it possible for all vessels on their way here to choose eco-driving," Niklas Hermansson, Head of Traffic and Safety at the Port of Gävle, highlighted.

Claes Möller, CEO at Tärntank Ship Management and one of the companies initiating Time Slot Gävle, also underscored, "We already use slow-steaming between

Fig. 1. The Open Ecosystem based end-to-end digitalisation platform for ports and logistics

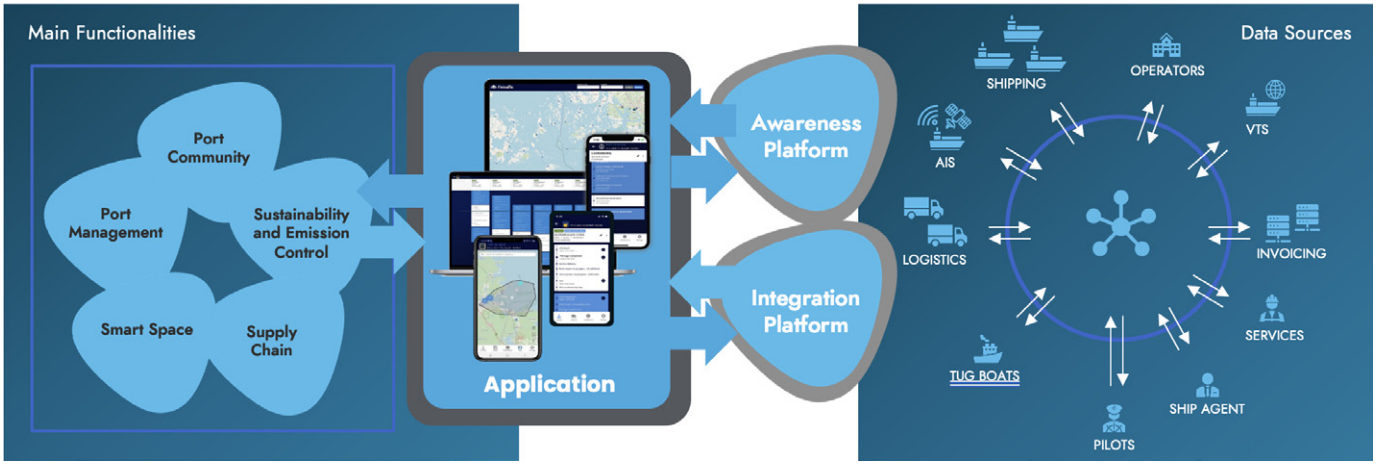
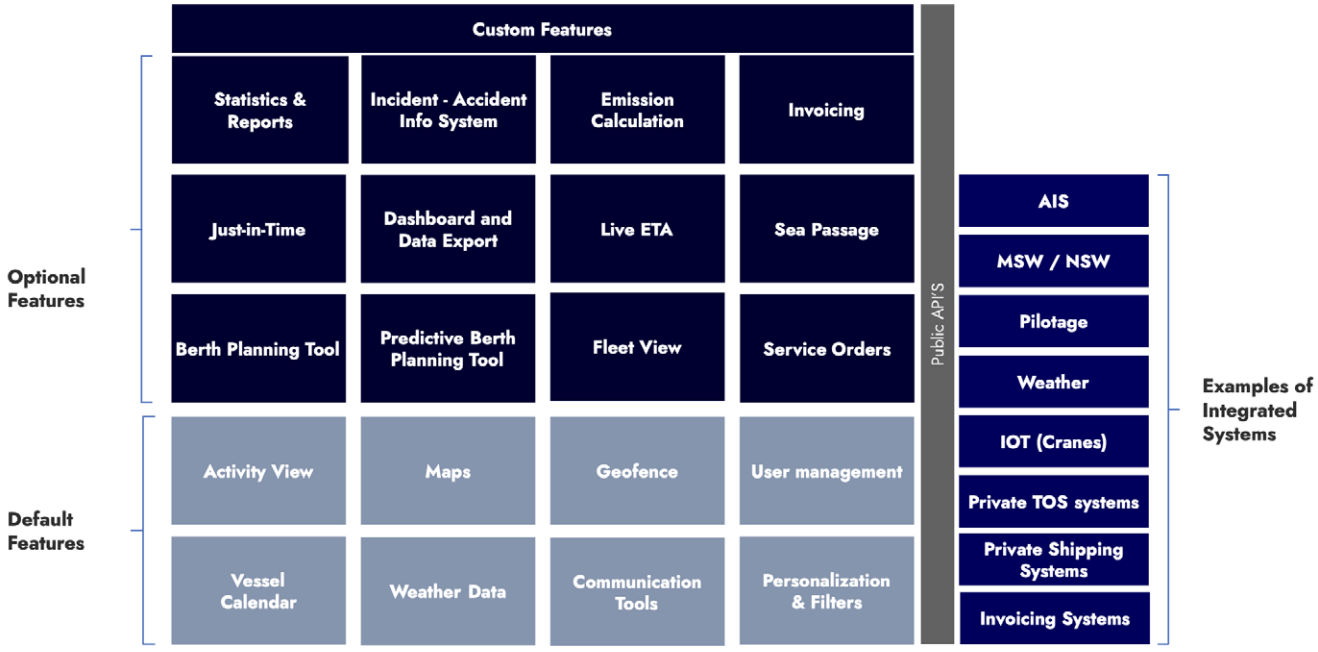


Fig. 2. Examples of POLO features



Preem's own terminals. Through the Time Slot Gävle project, we can also reduce emissions when traveling to ports with quays shared between several terminals. It enables great environmental benefits!" According to Lennart Knutsson, Commander of Tärntank's *Tern Fors* tanker, up to ten tonnes of fuel can be saved sailing between Gävle and Gothenburg.

It is an excellent example of the benefits of collaboration or as Linda Astner, the port's Head of Sustainability, summed it up, "We hope to inspire more ports to introduce similar systems. Shipping is a good example of how important it is that we work with interfaces between organisations and system connections. Everyone wants to change, but we need to work together to remove the obstacles. We have learned a lot through the cooperation within Time Slot Gävle. Together, we have also come a small step closer to our shared climate goals."

A change for the better

Time Slot Gävle is also a testament to the potential of the POLO Digitalization Platform for Ports and Logistics, helping improve the port and shipping industries' efficiency and reliability while cutting their environmental impact. The simplicity of this system disproves the notion that transport chains are just too complex and involve overmany players to change.

As the shipping industry continues to face mounting pressure to clean up its act, environment- and efficiency-wise, the JIT arrival concept and the POLO platform will likely play a vital role in the sector's transformation. With continued investment in modern tech solutions, the Baltic Sea region is poised to remain at the forefront of changing the maritime industry for the better, driving sustainable growth and innovation in the years to come.■