



DIGITAL DISRUPTION IN MARITIME

# Action opportunities

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During 2018, the Global Maritime Forum in partnership with Rainmaking conducted workshops around opportunities arising from digital innovation. One of the ambitions was to identify concrete action opportunities to help improve the performance of the maritime industry and thus contribute to a more sustainable industry in economic, social and environmental terms.

Inspired by the presentations and discussions on collaborative approaches from other industries and startups, participants started developing ideas for the maritime industry. Some of the key ideas will be shared here in a series where we address them one by one. The action opportunities vary in their focus, complexity and purpose. Some could be taken up immediately by a few partners working together while others would require cross-sectoral and multi-stakeholder collaboration.

We invite you to engage and respond back with feedback or interest in participation.

## Blockchain for cargo tracking

*Challenge:* Today, the tracking of cargo in cases of incorrect delivery is nearly impossible. It is also hard to identify where in the chain the issue occurred. This is due to a number of missing mechanisms, e.g. reliable record of identity, transparent and verifiable trail of ownership and up to date cargo traceability information.

*Solution:* Participants hypothesised Blockchain can be used to solve some of these challenges by creating an electronic immutable transparent and verifiable decentralized record around cargo documentation. Additional benefits from such a solution would include access to reliable information that can be used for risk management or financial purposes, the creation of automated smart contracts around container documentation and a reduction of human errors due to automated processes.

*Barriers:* Implementing an early stage technology brings a number of risks, including cyber security, resistance to adoption and the need to retrain people to work with the new technology. There are also challenges related to regulation in particular related to the legal validity of electronic documents.

*Way forward:* One way forward could be to build on existing blockchain initiatives and engage maritime stakeholders in developing commercial pilots focusing on specific applications for instance related to the misdelivery of cargo. Alternatively 2-3 industry partners and a venture builder could launch an explorative phase to identify problems to solve and build an initial prototype to demonstrate the value and feasibility. Afterwards the solution could be scaled commercially with multiple partners or become a non-profit infrastructure.

## Smart Capacity Management Platform

*Challenge:* Today the capacity on board ships is not fully utilized since no mechanism exists to dynamically match cargo with unused capacity across operators. This means that more resources in the form of ships, fuel and port infrastructure etc. is required to transport the cargo than necessary, which increases operating costs and environmental impact.



*Solution:* Participants hypothesised that the efficiency of the maritime logistics chain can be improved through a data-driven Smart Capacity Management Platform, which would match cargo with unused capacity. The platform should combine multiple data sources including vessel positioning data, cargo flows and requirements, tracking of cargo contents at container and more granular level, as well as unused capacity in transit.

The data gathered by the platform could also be used to better understand patterns of cargo flows, managing peaks and predicting needed capacity more accurately, which could also allow optimizing vessel routing and improving vessel positioning as well as modelling risks of various routes and optimizing travel routes against risk exposure and weather events.

*Barriers:* The introduction of a Smart Capacity Management Platform could erode existing margins due to data symmetry/transparency, which could make operators hesitant to join. There is also a need to resolve questions around ownership of the platform and business model. The platform would require access to reliable data from multiple sources as well as data matching/modelling capabilities, which might not be readily available and raise concerns regarding confidentiality and data protection.

*Way forward:* A first set of actions could focus on identifying available data that will allow matching ships with cargo and their use for predictive analysis as well as mapping the state of art in terms of data matching/modelling capabilities that exist in other industries. On this basis commercial pilots could be developed. It would be relevant to involve actors from the maritime industry as well as outside actors for instance experts from academia, software development and entrepreneurs, and collaborative vehicles such as hackathons and start-up accelerators could be used.

## **Circular ship recycling and waste management**

*Challenge:* With the decreasing length of life of ships as well as the increased focus on environmental sustainability, sustainable ship recycling is becoming a growing need and concern. At the same time the trend towards building a circular economy focusing on reusing valuable resources as input in new production processes could create new market opportunities for recycled materials.

*Solution:* Participants hypothesised that digital technologies can be used to scale current waste management and recycling efforts and underpin the creation of digital market places, where materials produced through ship recycling can be sold as inputs into other production processes, thus incentivizing sustainable ship recycling practices.

*Barriers:* The creation of a circular shipbuilding and ship recycling industry requires the involvement of a large number of stakeholders including shipyards, equipment manufacturers, shipowners, ship recyclers, ship financiers and regulators. In addition, there is a need for a systemic understanding of the barriers and friction points that must be overcome to realize the vision in order to catalyze real action.

*Way forward:* A cross-industry focus group involving key stakeholders from across the maritime industry (ship owners, ship yards, finance, regulators etc.) and involving thought leaders from outside the industry should be tasked with developing a vision for circular ship recycling and identifying the key friction points that must be addressed. The focus group should also help disseminate best practices and identify proposals for concrete actions that could be taken for instance related to regulation, use of digital technologies or economic and market based incentives.

## **Crew recruitment and allocation marketplace – “Upwork” for crewing**

*Challenge:* Crew allocation and recruitment is a challenge and the existing generic platforms for talent/matching (e.g. LinkedIn, Upwork) do not provide the necessary granularity of information and matching capabilities to address the talent marketplace within the shipping industry.

*Solution:* Participants hypothesised that a custom-designed platform (talent marketplace) that operates on industry level could consolidate supply of available talent, provide a structured and trusted way of qualifying/vetting the talent and make it possible to algorithmically match supply to demand.

*Barriers:* While the technology required to build a digital talent marketplace is readily available a number of barriers exists in order to make it a practical tool. A key issue is the vetting and reliability of data about potential talent i.e. how



can companies make sure that the information provided is correct. There are also issues related to the protection of personal data that must be addressed. A successful platform must be attractive to use both for talent and for companies and have a sufficient critical mass of users to create value.

*Way forward:* The implementation of the platform could be done through a startup venture with limited participation in order to demonstrate a Minimum Viable Product. Initial stakeholders in this venture would be 2-3 large crew management players and a venture builder. After proof of concept additional partners could be invited to scale the venture.

### **“Trip advisor” for the maritime industry**

*Challenge:* There is a general lack of transparency in the maritime industry, which makes it difficult to choose those service providers that deliver high quality service while also making it difficult for quality providers to charge a premium for their services.

*Solution:* Participants hypothesised that the creation of a Tripadvisor for the maritime industry, where industry players rate and review the maritime services they use - for instance ports, cargo handlers, pilots, agents and suppliers - could help create much needed transparency as well as give feedback that service providers could use to improve their quality.

*Barriers:* A maritime trip advisor would require sufficient critical mass of active users to bring value. Mechanisms should be put in place to ensure the reliability of the information provided by the platform. A concrete business model that can both ensure neutrality and generate sufficient income to run the platform would also need to be developed.

*Way forward:* A first step could be to gather a critical mass of stakeholders interested in establishing a maritime Trip Advisor platform that could develop a more concrete proof of concept that would outline objectives and goals for the platform. On this basis a platform could be established either as a not-for-profit initiative or as a commercial venture.

### **Port Call optimization**

*Challenge:* Many ships schedule to arrive early at ports in order to make sure that they can access the necessary services and reach their berth in time. This leads to suboptimal route planning and higher fuel consumption as well as potential congestion in and around ports.

*Solution:* Participants hypothesised that creating digital solutions for the exchange of digital information between ships, ports and relevant service providers based on internationally accepted common data standards, the port call process can be optimized. This can improve the reliability of the maritime logistics chains, improve efficiency and reduce the environmental impact of shipping.

*Barriers:* There have already been established initiatives aimed at optimizing the port call process through the use of digital technologies and platforms, for instance an initiative by the Port of Rotterdam, but in order to reap the full potential solutions should be developed that would include more partners and more ports.

*Way forward:* The awareness of the potential for optimizing the port call process through the use of digital solutions and standardized data should be raised for instance based on the best practices identified in existing initiatives. In addition, barriers to the full deployment of port call optimization initiatives should be identified as well as possible ways of addressing them.