

Strategic foresight for maritime transitions: A digital foresight platform as a framework for exploring systemic changes and policy pathways

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Outline of the project

- GYROSCOPE: Scenarios, risks and opportunities of digital solutions in transition towards green and sustainable marine logistics
- Research Council of Finland (previously Academy of Finland)
 project, duration 2023–2025
- Partners: University of Turku, Kotka Maritime Research Association, Aalto University, University of Helsinki https://sites.utu.fi/gyroscope/





Objectives

- Project brings together researchers, national authorities and operational actors of the Finnish maritime cluster, to create common understanding of the present situation
- Produce a comprehensive picture of sustainable transition to low-carbon marine logistics in Finland and strategic policy pathways to achieve it
- Construct a DFP (Digital Foresight Platform) to build an analytical process, and "a dashboard", that combines instruments for, e.g., scenario planning, risk analysis, unforeseen events, and creative development of policy pathways





Digital Foresight Platform: analytical process



Step 1. Context and technology scoping

- Outlining the analytical context: autonomous shipping, ice, new fuels
- Identification of a set of key smart technologies and digital solutions (literature review and interviews)

Step 2. Bayesian network analysis

- A method to translate mental maps to quantitative probabilistic Bayesian networks
- Automation of the translation process as far as possible

Step 3. Alternative scenarios

- Designing alternative scenario frames
- DFP participants: expert panels use the platform for creating scenarios
- Visual tools (e.g. Miro)
- Causal mental maps

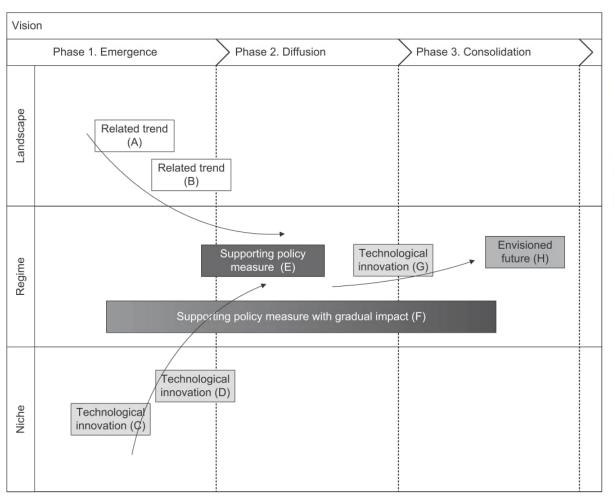
Step 4. Risk models and risk management

- Assessment of potential risks with resilience impacts for each context
- Risk management guidelines
- Risk analysis
- Evaluation of controllability



System transition roadmap for catalysing maritime policy pathways







Contents lists available at ScienceDirect

Technological Forecasting & Social Change



Process supporting strategic decision-making in systemic transitions [☆]



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Auvinen et al. (2015) Process supporting strategic decision-making in systemic transitions. *Technological Forecasting & Social Change* 94, 97–114.



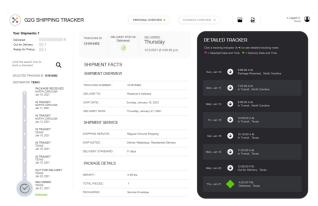
Auvinen et al. 2015: 106

Towards a dashboard?

ABC Shipping Logistics



Good to Go (G2G) Shipping Dashboard



Shipping Logistics Dashboard



SLA (Service Level Agreements)
Shipping Scorecard



• GYROSCOPE

Superstore Shipping Logistics Dashboard



Logistics Shipping Dashboard





Concluding remarks: Various dimensions of the DFP



- DFP is a theoretical framework
 - Combining various scientific traditions, such as futures studies, systems analysis, policy studies and spatial planning
- DFP is an analytical and empirical process
 - Integrates several methods, for example horizon scanning, Bayesian modelling, scenario analysis, risk analysis, and development of policy pathways
 - Emphasis on socio-technical contradictions, highlighting their potential generative force (Castán Broto 2015)
- DFP is a systemic planning frame for scanning long-term planning prospects, related policy pathways and possible systemic contradictions
 - Long-term perspective: probable futures, possible futures and radical futures
- DFP is a "proof-of-concept" model and "a dashboard"





THANK YOU!

