



COST AND BENEFITS OF AUTONOMOUS SHIPS IN SHORT SEA TRANSPORT

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We need a sound business case!



Lower emissions



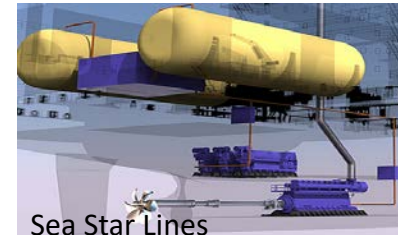
Improved operations



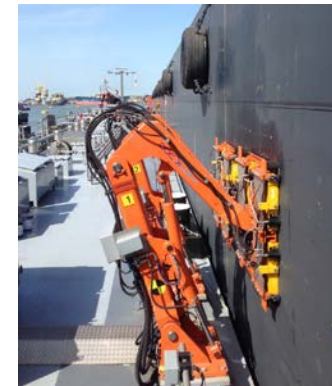
Some reduced costs



More complex ship systems



Sea Star Lines
Reliability and safety



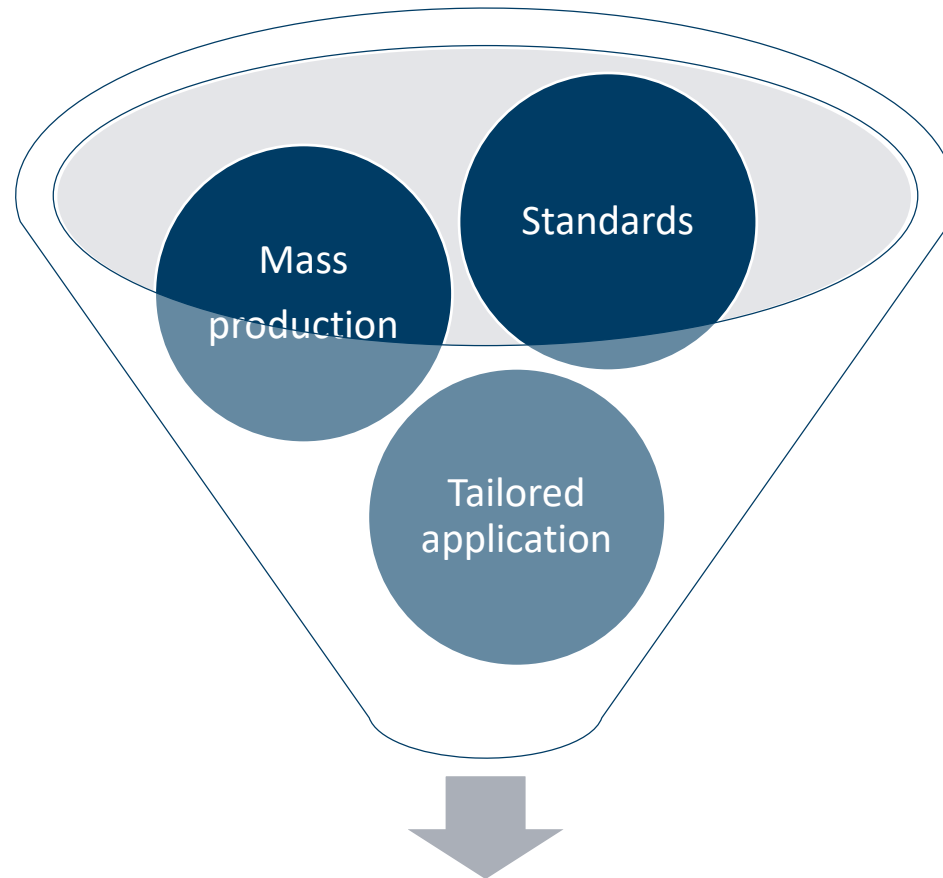
Shore Infrastructure



Tailormade for the application – change the transport
system

But with standardized ship systems

How can we reduce the costs?



Standardised ship designs
tailored for the application!

How much can we reduce the cost?

ASTAT – Autonom ship transport at Trondheimsfjorden

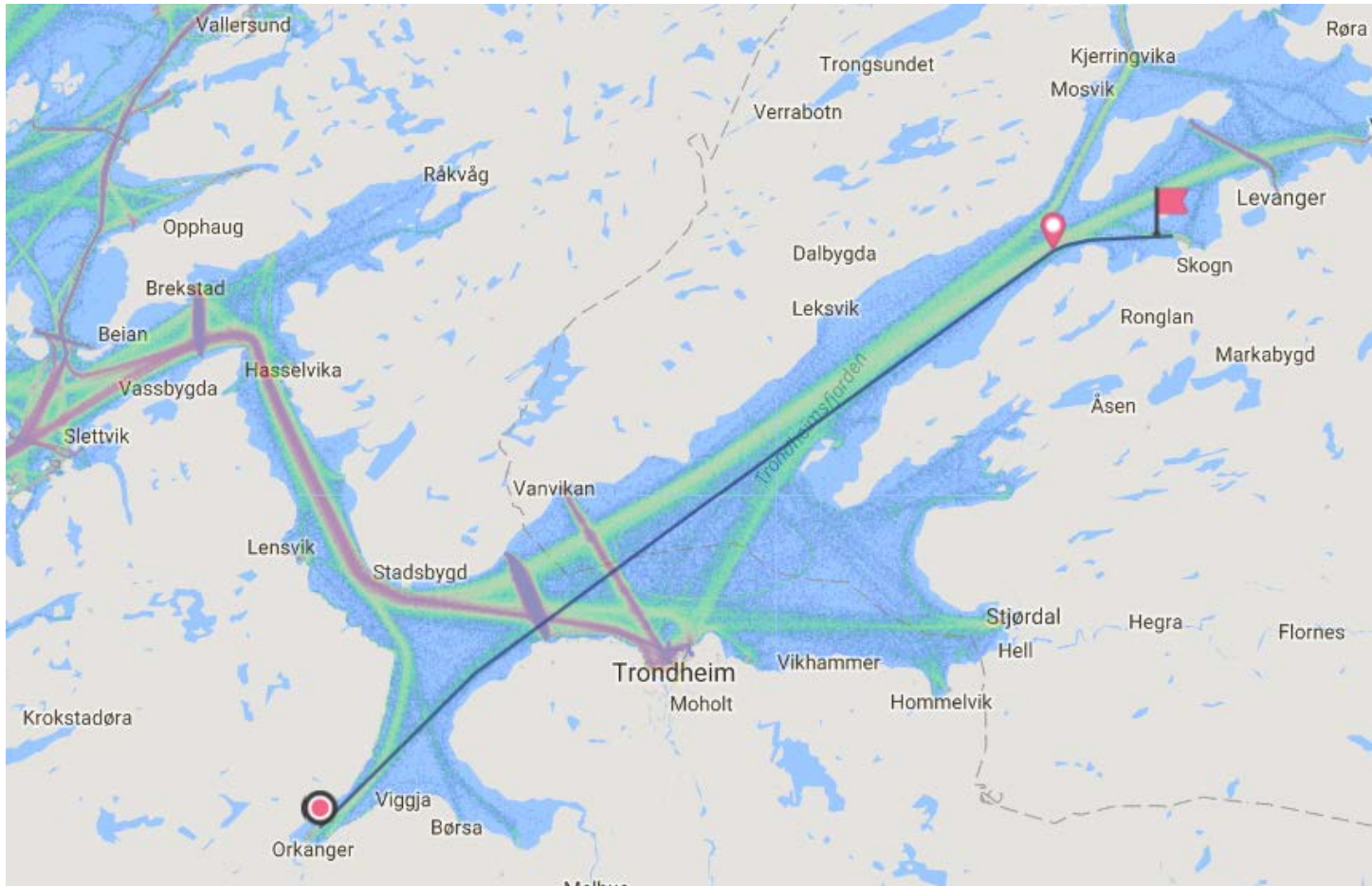


Autonomous Ship Transport at Trondheimsfjorden (ASTAT)

- Short voyages
- Inland, sheltered
- 12-50 TEU
- Batteries
- Constrained autonomy

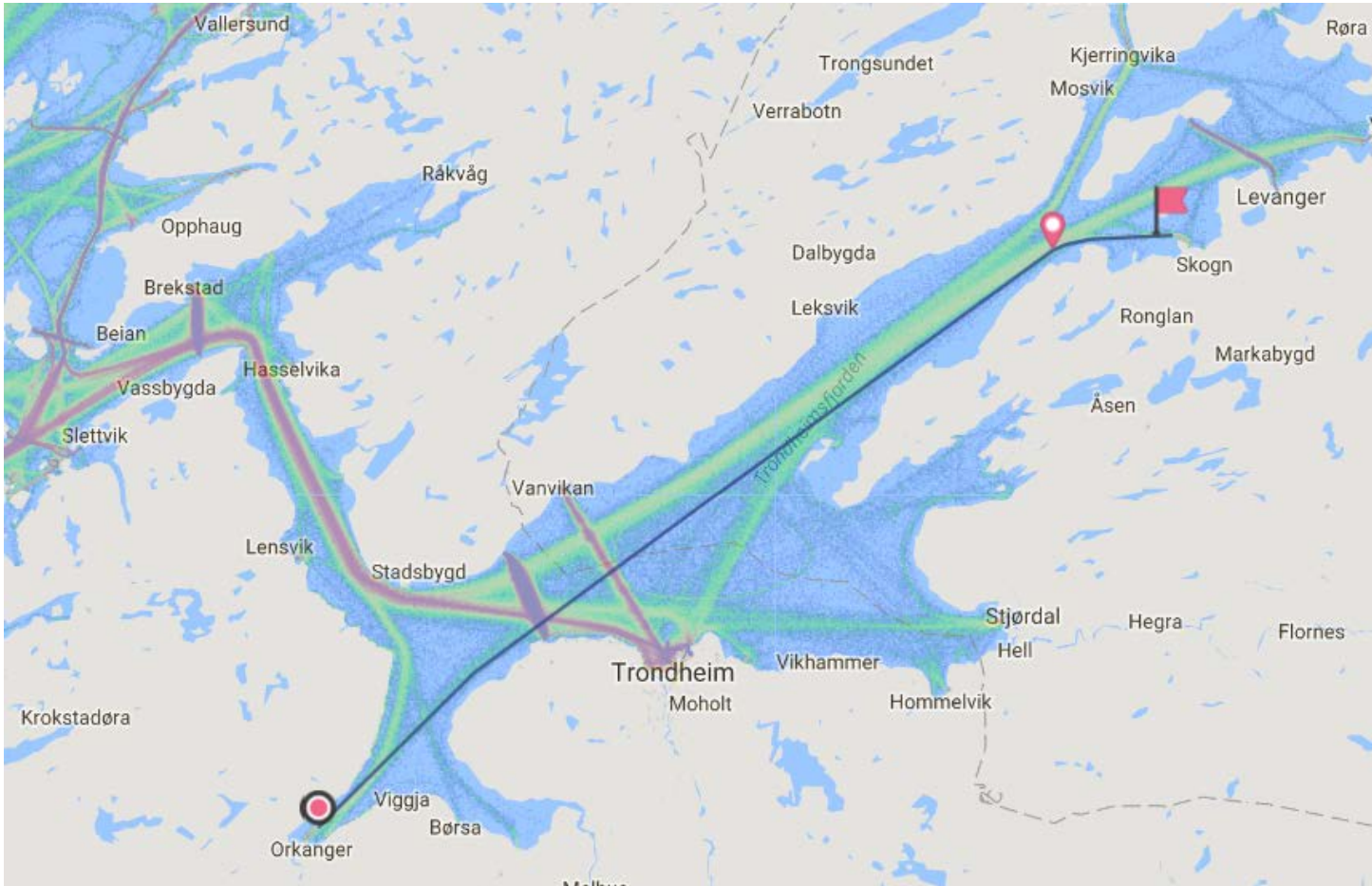


Case 1: Bulk transport inside fjord (Lumber) - Today



- Old bulk ships
- Trucks to Orkanger
- Stored at port
- Transport storage to quay
- Manual labour in all steps
- Cheaper to work at day time

Case 1: Bulk transport inside fjord (Lumber) – New transport system

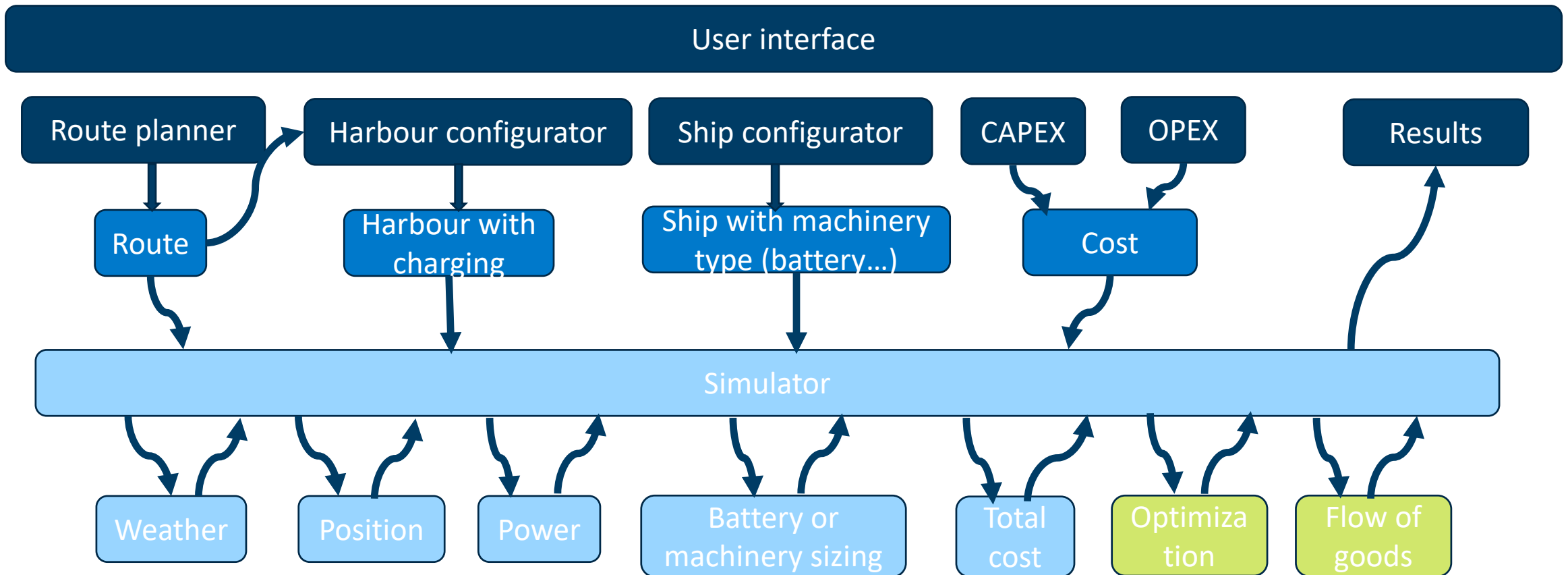


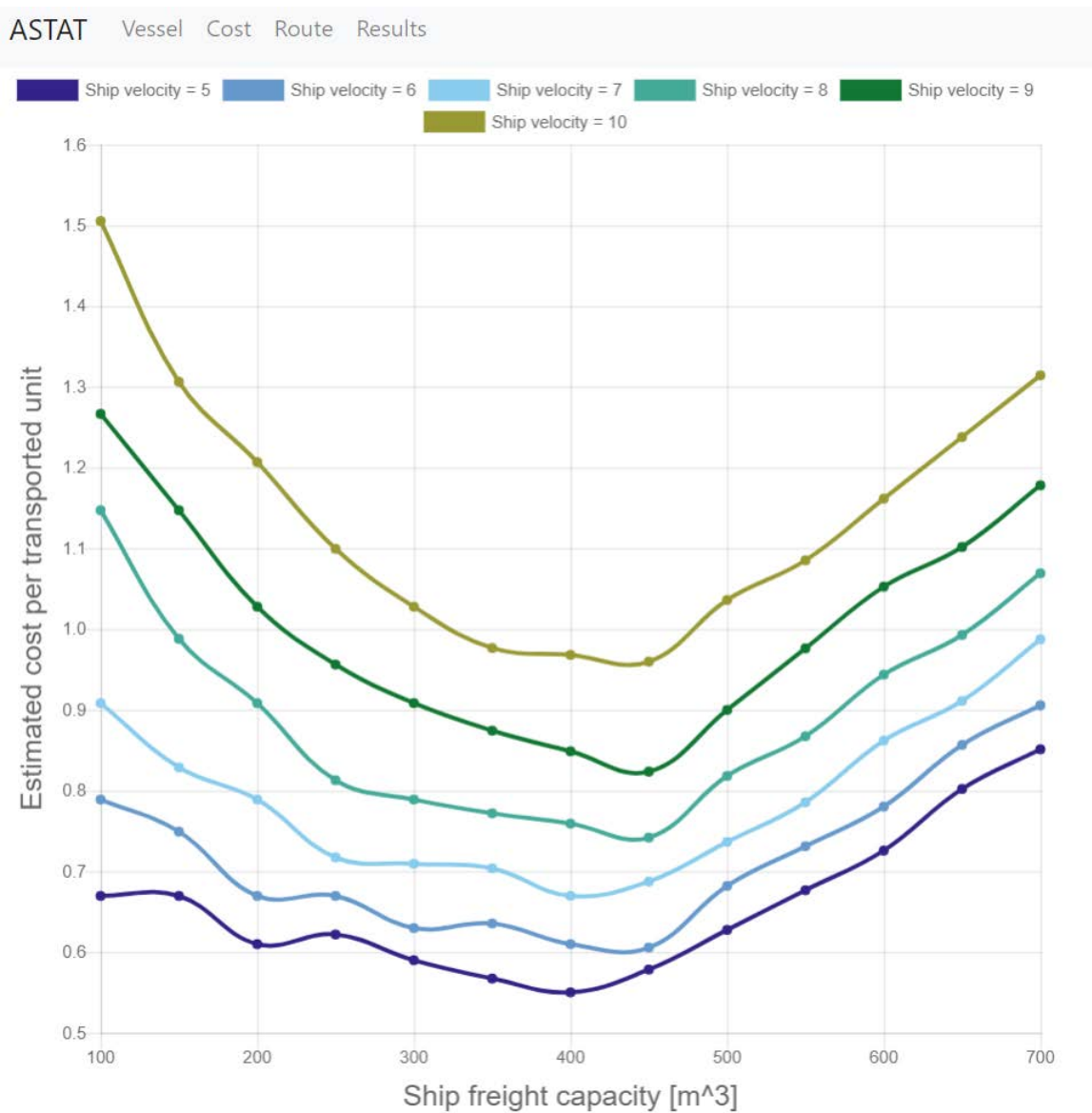
- Remove storage
- Reduce lifting
- Reduce transport
- Tailor made
- Reduced (or no) manual labour
- Any time of day has same cost

Focus in ASTAT – develop improved method for CBA

- Make it easier to perform CBA
- Increase accuracy of cost estimates

Tool for ship CBA





Cost elements and benefits

- Hull
- Machinery (battery/diesel-electric etc)
- Sensing and control-systems
- Shore control centres
- Periodic maintenance
- Port fees
- Storage and handling
- Manning

Standardisation projects

OpenBridge

Project partners



Associated partners



Co-funded by



Open Simulation Platform (OSP)



- Maritime model standard
- Open source simulation platform
- Main Partners: Rolls-Royce, NTNU, SINTEF and DNV-GL
- JIP: OSC, VARD, Kongsberg, Hyundai

Conclusions



- Autonomous ships should be tailor made for the specific transport system
 - But ship systems should be standardized
- We need better tools for CBA
- Standardisation will be essential to reduce costs



Technology for a better society