DIGITAL TRANSFORMATION: BUILDING BLOCKS OF A DATA AND ECOSYSTEM STRATEGY

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ABOUT WÄRTSILÄ

FOUNDED IN 1834

GLOBAL LEADER

in sustainable solutions for the marine and energy markets

2018

Turnover
5 174 MEUR

Operating result
543 MEUR

Order intake
6 307 MEUR

Operations in
200 LOCATIONS

Our personnel
APPROX. 19 000

Nationalities
138

ENABLING SUSTAINABLE SOCIETIES WITH SMART TECHNOLOGY

INNOVATING SINCE 1834

TOGETHER

FOR A SUSTAINABLE FUTURE

We aim at increasing efficiency while enabling a zero emission society.

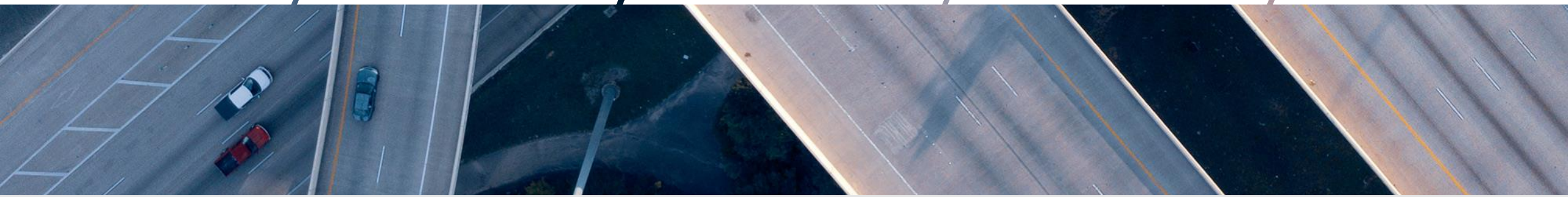
Strong emphasis on **digitalisation and smart technologies**

New products and solutions in the areas of **efficiency improvement**, **fuel flexibility**, total **cost of ownership**, and the **reduction of environmental impact**

Long-term co-operation with research institutes and partners

ENERGY MARKET TRENDS & DRIVERS

- RAPIDLY INCREASING RENEWABLES
- DECENTRALIZED ENERGY
- INCREASING ROLE OF FLEXIBLE GAS
- EMERGING STORAGE TECHNOLOGY
- DATA & DIGITALIZATION



TOWARDS A 100% RENEWABLE ENERGY FUTURE

The energy landscape is in transition towards more flexible and sustainable energy systems. We envision a 100% renewable energy future.

Wärtsilä is leading the transition as the Energy System Integrator – we understand, design, build and serve optimal power systems for future generations.

Engines and storage will provide the needed flexibility to integrate renewables and secure reliability.

We develop and deliver solutions and services to help our customers maximize performance and profitability throughout the asset lifecycle.

THE LEADING ENERGY SYSTEM INTEGRATOR

ENGINE POWER PLANTS

Ultra-flexible internal combustion engine based power plants

ENERGY STORAGE AND INTEGRATION

Utility-scale energy storage solutions and advanced software

RENEWABLES

Utility-scale solar power plants integrated with engine power plants and energy storage

GAS-TO-POWER

LNG solutions integrated with engine power plants in one single project

LIFECYCLE SERVICES AND ASSET MANAGEMENT

MARINE MARKET TRENDS & DRIVERS

- URBANISATION AND INCREASE IN POPULATION
- AGING OF POPULATION AND GROWING MIDDLE-CLASS
- ADVANCED TECHNOLOGY DEVELOPMENTS
- CLIMATE CHANGE
- GEOPOLITICAL FACTORS AND SCARCE RESOURCES

MARINE BUSINESS

In the maritime and oil & gas industries, no other company has a broader offering of technologically advanced, environmentally sustainable, and economically sound solutions. With an integrated product portfolio comprising full lifecycle solutions, **we are leading the industry's transformation** towards a highly connected Smart Marine Ecosystem.

TOWARDS A SMART MARINE ECOSYSTEM

We are leading the industry's transformation towards a Smart Marine Ecosystem, whereby **real-time communication** and the **digitalisation** of all aspects of shipping and port operations, including the entire logistics chain, are utilised to **create long-term value** for our customers and partners.

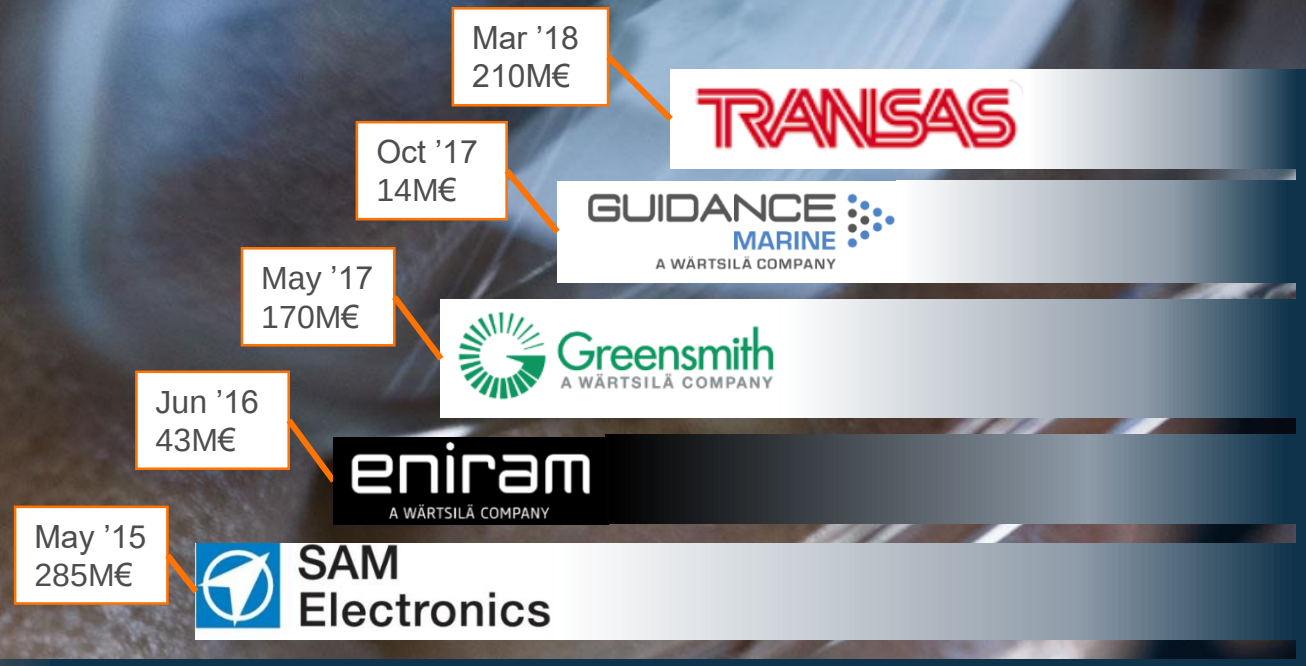
By applying smart technology and performance optimisation services, **we deliver higher safety, greater efficiencies and minimised climate impact.** This will result in more sustainable, safe, and profitable operations for ship owners and operators around the world.

DATA STRATEGY

Strong emphasis on **digitalisation and smart technologies**

Acquisitions have brought us strengths in

- **Software expertise**
- **Data acquisition**
- **Insight generation**



Data Driven
Smart Technology
Company

(1834)

WÄRTSILÄ

Conning
02:02:21 UTC
No Unacknowledged Alerts
GYRO
Course
ROT 0.0°/min
Trackpilot Set Actual Next
Heading 230.2°
Drift Angle
Course 230.3° 230.2° ---.-°
0.0°
Radius 2.00 NM -.-- NM -.-- NM
Off Course 0.1°
Off Track 2m
Route XTD
R 6 m
Active System Route
Name: Hamburg - Lissabon
Destination: WPT 66
WPT Waypoint Name ETA at Wheelover Track Distance Speed
55 South Falls
56 Brachy Head 10 Aug 06:06 UTC 230.6° 34.8NM 15.2kn
57 Off Casquets TSS 10 Aug 15:35 UTC 254.5° 142.5NM 15.2kn
58 Ushant 10 Aug 23:53 UTC 231.3° 126.5NM 15.2kn
Time Schedule to Arrival Point Lissabon Pilot
Distance To Go
985.6NM
Required 12 Aug 20:39 UTC 20 18:37 14.8kn
Actual 12 Aug 08:24 UTC 20 6:21 18.1kn
Delay (-) / Spare (+) +12:15
AUTO GPS 1
18.13Kn
PORT
STBD
0.3°
0.3°
MENU

FROM DATA COLLECTION TO PREDICTIVE ANALYTICS

eniram
A WÄRTSILÄ COMPANY

2009-2011	2012-2013	2013-2014	2015-2016	2017-2018
REAL-TIME ONBOARD	**REACTIVE ANALYTICS**	**PREDICTIVE ONBOARD**	**REAL-TIME ANALYTICS**	**PREDICTIVE ANALYTICS**
Eniram Vessel platforms installed on core fleets	Initial reactive analytics in place with operational pdf reports and web tools	Eniram vessel platforms enabled with predictive capability	Real-time data & performance dashboards. First generation of mobile operations and predictive analytics	Expand to new features and areas such as safety, security, emissions, maintenance, and hotel operations

Applications

Frequency Regulation

Ramp Rate Control

Renewables Smoothing

Capacity Shifting

Demand Management

EV Charge Management

Black Start

Computational Platform

Operation Scheduling • Peer-to-Peer Group Control • Real-time Equipment Control • Local HMI

Components

BMS Adaptors

PCS Adaptors

Grid Adapters

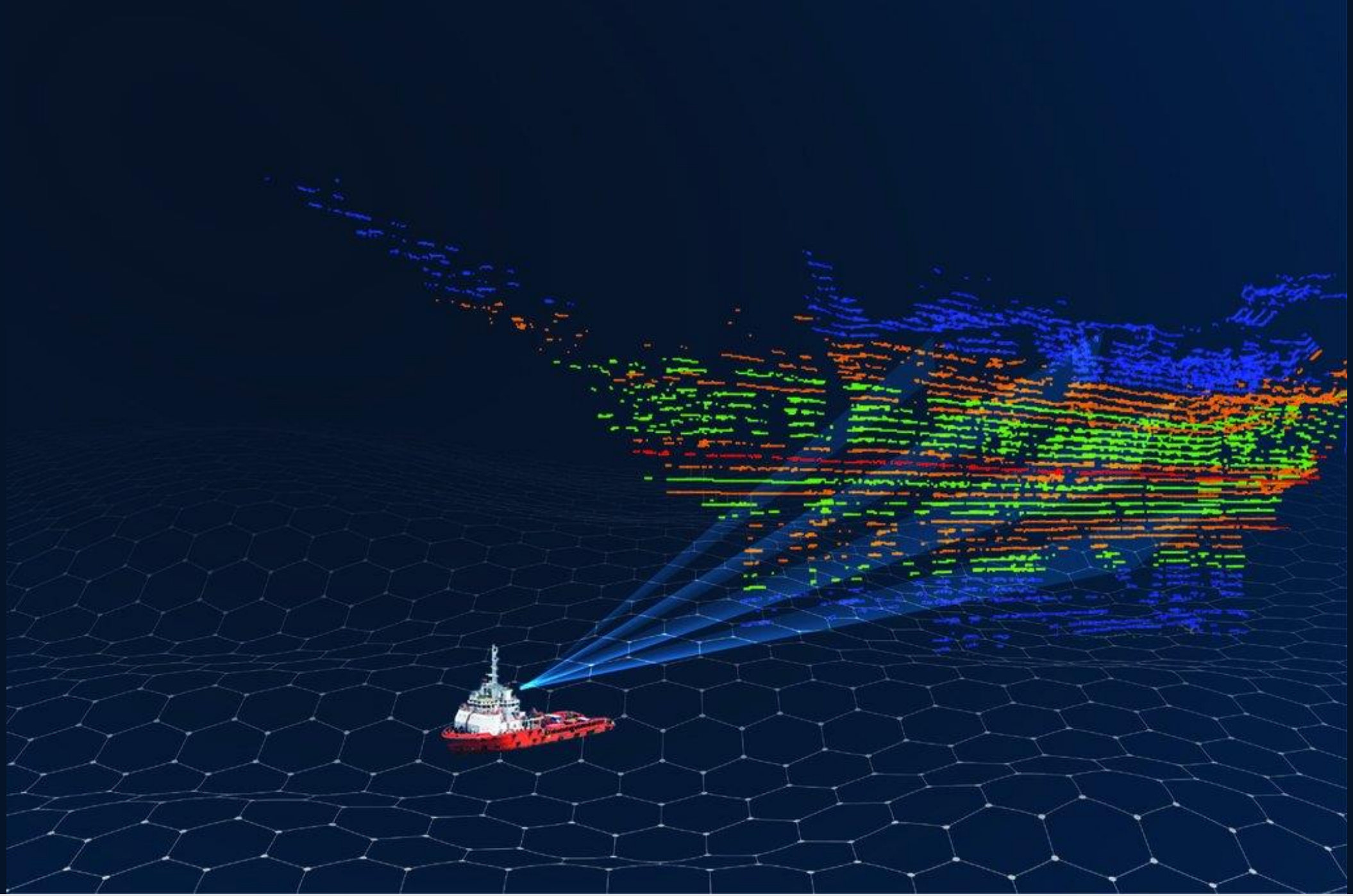
AMI Adaptors

Other Device Adaptors

Temperature sensors

Fire suppression

HVAC, etc.



FLEET OPERATIONS SOLUTION

THESIS MANAGED SERVICE

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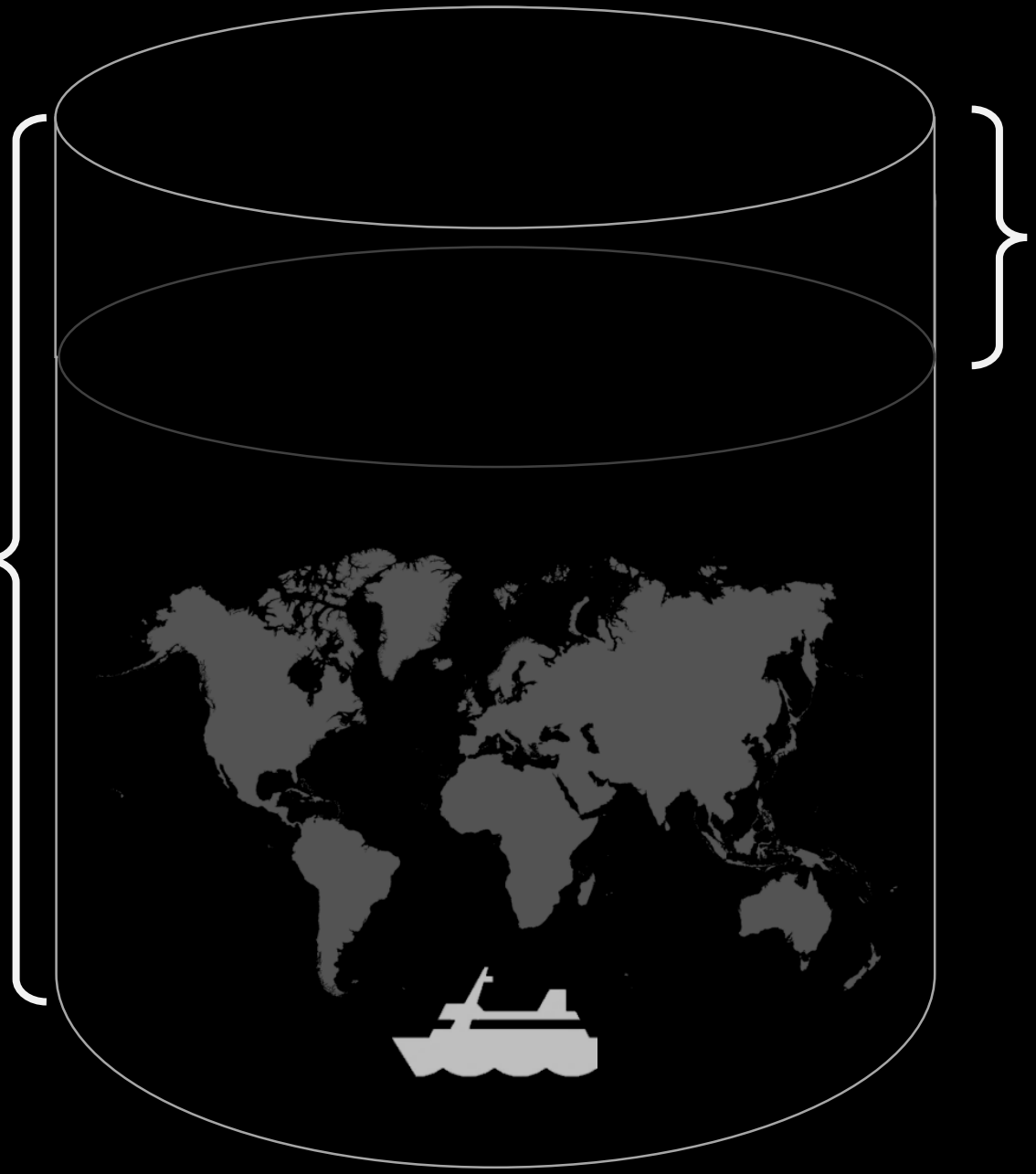
Optimising onboard operations will save

€20 Bn+



€200 Bn

SPENT ON FUEL PER YEAR

Optimising the logistics chain will save

€60 Bn+

Products
Solutions
Ship
Ecosystem

ECOSYSTEM STRATEGY

Introduction

WHAT WE KNOW

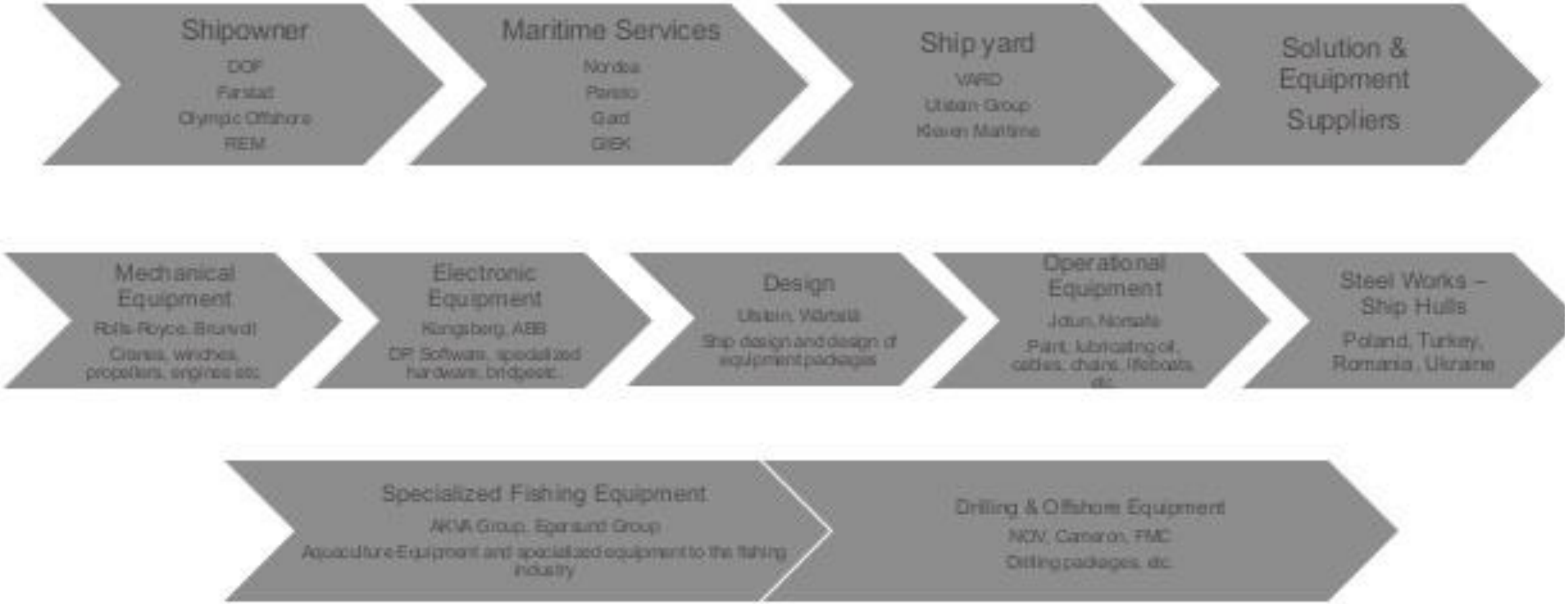
Normal commerce

Data commerce

Ecosystem commerce

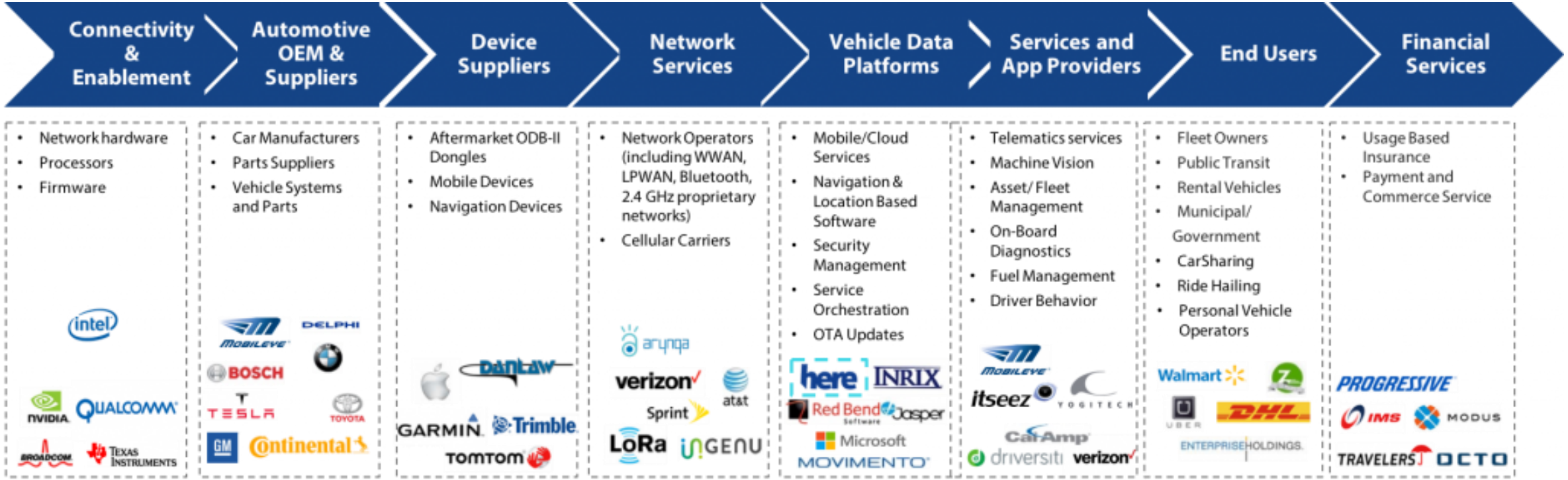
WHAT WE KNOW

Norwegian shipbuilding Value Chain



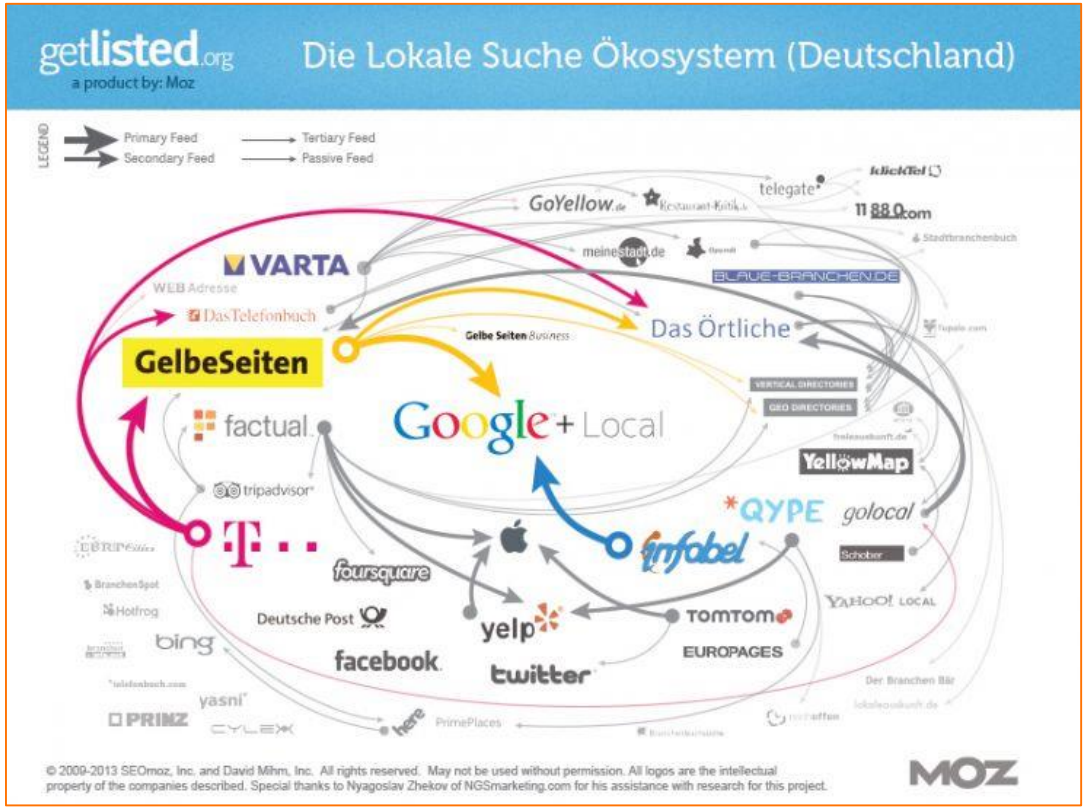
Presented by Operatel Group AS & Hina Consulting AS - 201

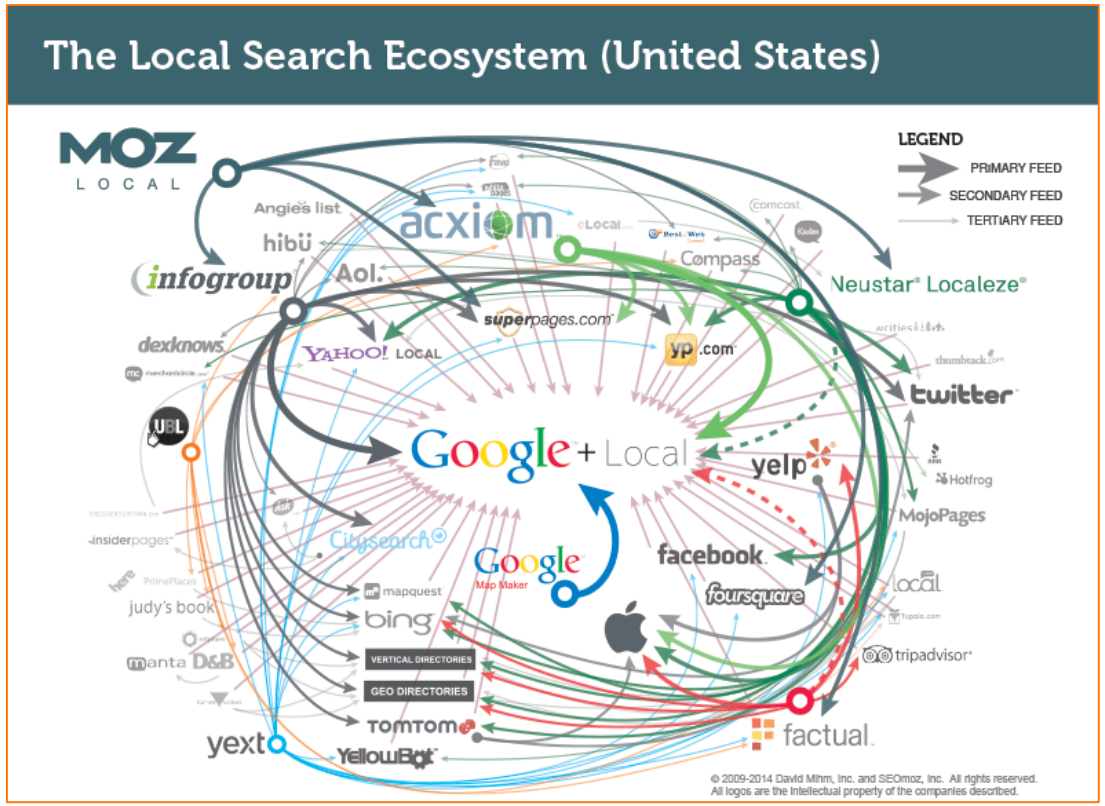
WHAT WE ARE LEARNING



http://harborresearch.com/transportation/

WHAT WE WILL NEED TO UNDERSTAND





- TECHNOLOGY FOUNDATIONS
- ROUTE TO CUSTOMER VALUE
- TRUST

WÄRTSILÄ