

EU Maritime Research Strategy 2030

4th maritime research policy conference

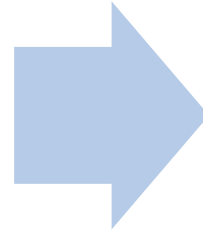
28 June 2016

EU Maritime Research Strategy 2030

- MESA project objectives:
 - To align EU maritime research with the best future strategic and commercial opportunities
 - To identify the supporting innovation and technology
 - To provide the best possible return on research investment in terms of jobs, wealth creation and regulatory compliance
 - To support the creation of the World's smartest, greenest and safest and most successful maritime industry

The process – spotting the opportunities

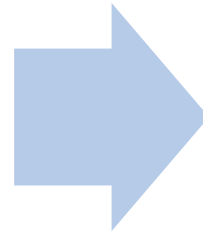
What are the global trends?



What opportunities do these create for the EU maritime industry?

The process – identifying the necessary research outcomes

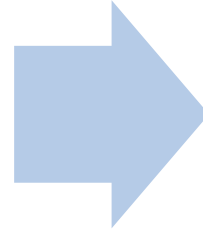
What is the current state of the art?



What new technologies do we need to exploit the opportunities?

The process – detailing the pathways to innovation

Where are the gaps?



What is the research pathway to fill these gaps?

Global trends

DNV GL



Population Growth

Continued population growth and urbanization increases demand for focused waterborne services and upgrading of infrastructure



Food and water supply

Food and water supply demand will increase, as it is closely linked to population growth and economic development



Climate change, environmental damage

Climate change will lead to more flooding, droughts, extreme weather, polar ice melting



Health, safety and security expectations

Rising expectations of adequate health, safety, security and awareness of industry's impact on the environment



Economic growth

Developing countries will significantly increase their share in global economic growth and their middle class will substantially increase



Waterborne trade growth

Driven by economic growth of developing countries and global growth in demand for food, water and technological products



Energy demand and supply

Continuing increase of energy consumption and demand, due to global population growth and GDP growth



Energy consumption by shipping

- Pressure to reduce energy consumption of and emissions to air by ships



ICT developments

Fast development in information and communication technologies will increase digitalization in all waterborne sectors

The best future EU maritime opportunities

Smart vessels,
smart fleets,
smart support



Ultra low
energy and
emission
vessels



Safe and
sophisticated
passenger
and leisure
vessels



Automated
and
autonomous
vessels



Flexible
working craft
in support of
blue growth



Waterborne Vision 2030



GÖTEBORGS HAMN
GÖTEBORGS HAMN

ELEONORA MÆRSK
SVENDBORG

ZPMC

SWL 50 / 65 / 103 TON

10

11

12

7



















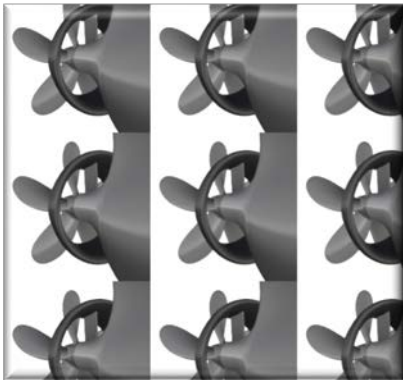


Delivering the Vision

- EU maritime research priorities
 1. Energy efficiency
 2. Safety and security
 3. Production technologies
 4. Digital maritime connectivity
 5. *Green maritime

1. Energy Efficiency

Resistance &
Propulsion



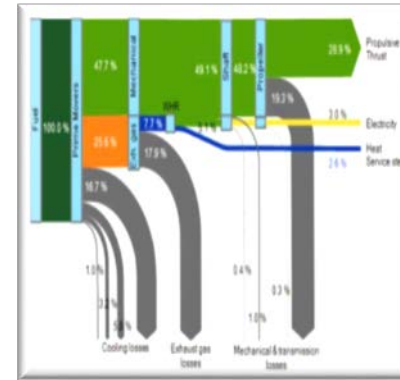
Engines &
Emissions



Energy
Consumption



Energy
Management



Ship Operations

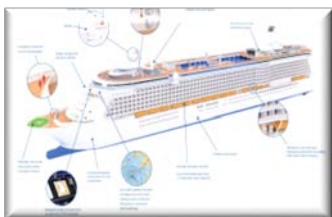


1.1 Minimise resistance & optimise propulsion

Key technology	State of the art	Short term	Medium term	Long term	Application
Friction reduction techniques (I)	FR coatings,	Compliant coatings	Hydrophobic surfaces		Ships, resistance reduction
Friction reduction techniques (II)	Air lubrication (cavity)	Air bubble techniques optimised			Ships, resistance reduction
Full scale validation of numerical techniques	Limited number of useful (integral) full scale data sets	Definition of a reference case	Data sets for reference cases		Validation of numerical tools
Delivered power in operational conditions	Model tests, numerical simulations, limited range and quality	Advanced numerical methods	Optimisation for operational conditions (wind, waves, shallow or restricted water)		Ship operation
Advanced propulsors	Theoretical background elaborated	Design studies ready and (lab) validated	1 st implementations and full scale tests		Ship propulsion

2. Safety

Accident
prevention



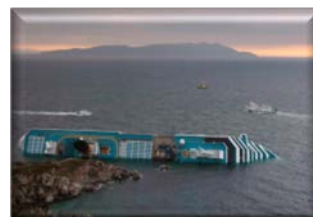
Automation



Survivability



Fire
resistance



Evacuation

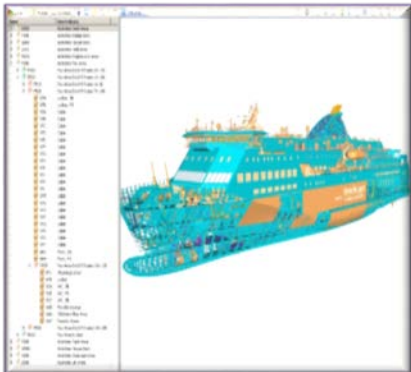


Working
conditions

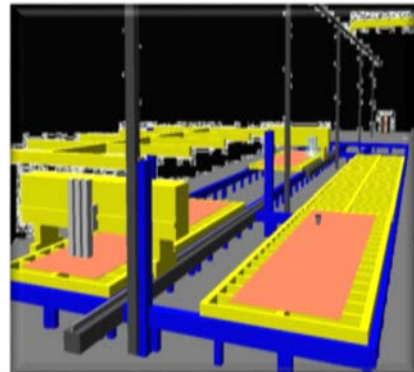


3. Production

Design tools



Preparation & Management



Materials



Assembly & Outfitting



Repair & Retrofitting



4. Digital maritime connectivity

Smart Ship



Smart Ports



European Digital Highway



Hinterland Connectivity



5. *Green marine

Emissions to air



Emissions to
water



Global impact



Accidental
pollution



Summary

- Aided by the MESA project, the EU Waterborne community has:
 - A clear vision
 - A clear understanding of the opportunities and challenges ahead
 - A clear path forward

