MASS OPERATIONS— IMPACTS ON SEAFARERS

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IMO, London
05 September 2022
MASS: WHERE ARE WE NOW?

MOVING CONTROL FROM SHIP TO SHORE

Source: Chen, G (2021)
MASS: WHERE ARE WE NOW?

Airborne Inspection Drone

Remotely Operated Gantry Crane

Under Water Inspection Drone

Autonomous Ground Vehicle

Human-Robot Interaction
MASS: WHERE ARE WE NOW?

Bridge

Engines Room
FIGURE 4.8  Differentiation between countries regarding readiness for emerging and new technologies - general country profiles and maritime country profiles

Index Score
0.00 Less Prepared
10.00 More Prepared

General: 7.0
Maritime: 6.6

General: 6.7
Maritime: 6.2

General: 7.1
Maritime: 5.1

General: 5.2
Maritime: 6.1

General: 6.5
Maritime: 6.8

General: 7.0
Maritime: 6.7

General: 5.6
Maritime: 7.9

General: 4.6
Maritime: 4.7

General: 3.6
Maritime: 3.0

General: 5.2
Maritime: 5.3

Source: WMU Country Profiles – Technology Readiness: Maritime
INTRODUCTION OF MASS IS EVOLUTIONARY RATHER THAN REVOLUTIONARY

SIX MAIN FACTORS

- Technology Feasibility: Is the technology ready for its large-scale application?
- Economic Benefits: Has a sound business model been drawn up?
- Labour Market Dynamics: Is labour expensive? Is there a labour shortage?
- Regulation and Governance: Are regulations ready? Are the authorities supportive?
- Knowledge and Skills: Are users able to master the technology?
- Social Acceptance: Does society accept the technology?

Source: WMU/ITF: Transport 2040: the future of work
INFOBOX 3. E  WHAT FACTORS CAN ENABLE OR DELAY HIGHLY AUTONOMOUS SHIP DEPLOYMENT?

**ENABLERS**
- 48% Economic benefits
- 20% International regulation
- 20% Government support

**HURDLES**
- 14% Cost
- 25% Economic benefit
- 39% Regulation and governance

**Source:** WMU/ITF: Transport 2040, the future of work
POTENTIAL IMPACTS ON SEAFARERS

Sources: Historical data from ICS/BIMCO (2016); forecast used data from the start-up curves of Chapter 1 and UNCTAD maritime data; WMU forecast.

Notes: HAShips stands for Highly Automated Ships taking international voyages (average tonnage, average trade). The predictions are subject to a high level of uncertainly, quantified between -6 percentage points and +18 percentage points within a 95 per cent confidence interval. The crew reduction approximately follows an exponential process and by 2040 the crewing levels are assumed to be reduced between 16 and 24 per cent.

22% decline in the demand due to Highly Automated Ships

Sources: Historical data from ICS/BIMCO (2016); forecast used data from the start-up curves of Chapter 1 and UNCTAD maritime data; WMU forecast.
POTENTIAL IMPACTS ON SEAFARERS

Potential for Automation (Probability)

Current Automation (%)

Least automation potential

Docking pilot
Ship officers (except captains)
Ship Captains
Dock supervisor
Ship engineers
Aircraft pilots


Note: The blue line corresponds to a linear regression (y=0.81x+0.60; R2=0.37). The sample for the regression includes the subject of transport occupations that are plotted and that have a more than 50 per cent potential for automation.
New skills and competencies will be needed…but not only!!!
“Adaptation/Revision” of Maritime Labour and Human element instruments will be needed as well, considering:

- How to deal with Occupational Health and Safety (OHS)? i.e. Technostress; Additional work due to the introduction of new technology, etc.
- How to protect seafarers against monitoring/surveillance at sea due to technology?
REGULATING MASS: A COLLABORATIVE PROCESS

Source: Zou, G (2021)
Participation of seafarers in the process
1. Facilitation of more intensive dialogues between stakeholders in the maritime sector for a better understanding of the different position of all parties concerned

2. Considering to involve more Labour Supply Countries in the dialogue

3. Identifying future competencies needed to effectively work in a world of advanced automation and technology in transport and considering to allocate national funds to implement them in education and training

4. Considering OHS of seafarers within the development of the MASS Code

5. Proper national strategies and policies to address the ramifications of further automation and technology in the maritime sector
THANK YOU FOR YOUR ATTENTION

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