SKILLSEA

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Summary SkillSea Report

Deliverable: 1.2.3, version: 1.0, date: 18 February 2022

In this report, we suggest competence updates to current occupational profiles.

We have aligned the STCW positions and Certificates of Competence with ESCO occupations for the seagoing positions. We find that ESCO is missing some occupations. We also find that none of the positions connected with Competence of Proficiency (CoP) for special ship types or regions such as the CoP for "Masters, officers and ratings, basic oil and chemical tankers" are not covered in ESCO.

We also find that the various competences listed in the STCW B section are absent from ESCO. This covers well-defined roles in the shipping industry, such as *§ B-V/f Guidance on the training and experience for personnel operating dynamic positioning systems,* leading to the position of Dynamic Positioning Officer or DPO, which is well established worldwide. The training for this position is handled mainly by the Nautical Institute (NI), which acts as a de-facto global regulator. It has authorised 86 training centres to conduct and issue DP certification of seafarers to hold the role of DPO.

Seafarers have for decades contributed with operational maritime experience and knowledge to companies in the maritime sector. They are still crucial for realising much of the maritime industry's innovation potential. Some seafarers must be encouraged to transition to land-based occupations by acquiring transverse skills to make this happen. The European shipping industry employed directly 685,000 people in 2018, 115,000 shore-based and 555,000 at sea[1]. With indirect employment included, it is estimated that the EU shipping industry generates 2 million jobs. Therefore, a possible shortage of maritime professionals may be considered a significant risk for the long-term sustainability and competitiveness of the industry, especially if available human resources needed by the industry fall below a certain level.

A key finding from the expert group in the Future Skills report D1.1.3 is the importance of transversal skills within future maritime competences. These skills are vital to moving from one value chain to another. Lifelong learning programmes are needed to enable seafarers to work across industries and services in the maritime shipping sector. Mobility and possibilities to enter a variety of occupations are also needed to attract young talents.

The STCW Convention aims to achieve the minimum international level to operate ships safely. Additional skills are needed to achieve a Higher Standard of skills within digitalisation, green technologies, leadership, and other transversal skills. Actual workload and needed skills greatly depend on the type of vessel, market segment, route and traffic, the technology supporting the crew, etc. The shipowner therefore has a duty to make recurrent assessments of the manning of the vessel. The digital transformation does affect how the work tasks can be distributed between the crew and technology and between the ship and land-based organisation. Increased use of distributed maritime capabilities will challenge manning and skill needs.

Finally, we have addressed new skills to the sea-based and land-based occupation profiles.

1 Oxford Economics - The Economic Value of EU Shipping - Update 2020 - Report.pdf

Future-proof skills for the maritime transport sector

Project SkillSea is co-funded by the Erasmus+ Programme of the European Union

Technology and digitalisation are transforming the shipping industry. ‘Smart’ ships are coming into service, creating demand for a new generation of competent, highly-skilled maritime professionals. Europe is a traditional global source of maritime expertise and the four-year SKILLSEA project is launched with the aim of ensuring that the region’s maritime professionals possess key digital, green and soft management skills for the rapidly-changing maritime labour market. It seeks to not only produce a sustainable skills strategy for European maritime professionals, but also to increase the number of these professionals - enhancing the safety and efficiency of this vital sector.

Contents

SkillSea WP1 reports

Work Package 1 delivers the following reports: (**D** denotes Deliverable)

Number	Name	Content
D 1.1.1	Methodology	Outline of methodology used in reports
D 1.1.2	Current skills need Also referenced as: Current needs Current skills	Skills needs as found by surveying maritime professionals
D 1.1.3	Future skills and competence need Also referenced as: Future skills Future needs	Skills needs as perceived by industry leaders and visionaries
D 1.2.1	Skills and competence gap, current and future. Also referenced as: Skills and competence gap	Summary of 1.1.2 and 1.1.3 above
D 1.2.2	Identification of mismatches on a structural basis	Reviewing findings in previous reports and relating them to the structure of obtaining skills in the shipping industry
D 1.2.3	Impact on occupational profiles	How findings in previous reports impact occupational profiles
D 1.3	Recommendations for Education and Training. Short: Recommendations for MET	Summary of findings of previous reports and impact and recommendations for METs

Table 1: Overview of SkillSea WP1 Deliverables

References to reports will be with name and number or name alone or number alone, depending on context.

Glossary

This glossary does not provide official definitions, but explanations based upon recognised information sources.

Term	Definition
STCW	International Convention on Standards of Training, Certification and Watchkeeping for Seafarers
MET	Maritime Education and Training
EU	European Union
IMO	International Maritime Organisation
ISM	International Safety Management
EMSA	European Maritime Safety Agency
NMA	National Maritime Authority
NEA	National Education Authority
ICS	International Chamber of Shipping
MAIIF	Marine Accident Investigators' International Forum
BIMCO	The Baltic and International Maritime Council
OCIMF	Oil Companies International Marine Forum
NI	The Nautical Institute
ISF	The International Shipping Federation
IFSMA	International Federation of Ship Masters' Associations
IGP&I	International Group of P& I Clubs
IMPA	International Maritime Pilots' Association
CoC	Certificate of Competency
CoP	Certificate of Proficiency, maritime competency additional to CoC
CBT	Computer-based Training
EQF	European Qualification Framework
Master	Highest ranking deck officer on the ship, Captain
WBL	Work-Based Learning

Introduction

This document draws upon previous documents and investigates possible occupational profiles and updates emerging from the skills gap that has been found in previous reports.

In the application, we stated:

- Occupational profiles will be suggested based on 1.2.1 and 1.2.2 above and related to the drivers listed in 1.1.3
- It is expected that these trends and drivers will cause a demand for a number of new competences leading to new occupational profiles

The statement above can be interpreted in two ways,

a) To suggest competence up-dates to current occupational profiles and

b) To suggest new occupational profiles

In our D1.2.1 report, we arrived at a set of challenges and suggested measures to respond to the findings in our current and future reports D1.1.2 and D1.1.3. We align these with the occupational profiles of IMO STCW outlined in our D1.2.2 report. This report adds ESCO occupational profiles and compares them to the above, highlighting possible missing profiles and possible missing competencies in current occupational profiles.

While developing the survey to map the current and future skills gap, report D1.1.2 and D1.1.3, we established the categories of the shipping industry to be targeted with the questionnaire and mapped relevant company names from partner countries to target. **We use these categories when recommending changes to land-based occupational profiles.**

Seagoing positions are highly regulated through certification as per the STCW. Here we have found in report D1.2.2 that the STCW Convention specifies Certificate of Competency (CoC) as the starting point and, in addition, a range of competencies as mandatory for certain ship types and regions. In addition, the STCW recommends a range of competencies in the B section (connected with ship type, the purpose of ship and sailing area) that is widely delivered by the shipping industry to its members and, in effect, make up de-facto occupational profiles. Also, in D1.2.2, we found that the maritime industry requires many additional competence programs that go into competence profiles, see report D1.2.2, chapter 2.9 Competence matrix.

We review the measures recommended in previous reports and identify which competencies are applicable for which target groups arriving at recommendations occupational profiles.

Occupational profiles at sea

STCW certification and applicability

The STCW Code lists in sections AI – AVIII the requirements for Certificate of Competence (CoC) and Certificate of Proficiency (CoP) (see chapters 8.1 & 8.2) for seafarers as shown below.

These can be considered occupational profiles as they qualify with the minimum mandatory competence for a position on ships. As a rule, CoC is a mandatory minimum, and CoP is optional/additional. Marked in blue are the mandatory minimum CoCs and the CoPs that have become part of the mandatory minimum (basic GMDSS, medical, lifeboat, and safety training). Those in white are CoPs or others. Note that some CoPs are mandatory minimum for certain ship types, which is not the same as a mandatory minimum.

Although STCW regulates most occupational profiles at sea in the form of CoCs, CoPs and recommendations, alongside the Convention are several IMO codes where some are reflected in STCW, and some are not. The IGF and Polar Codes are separate codes covered in STCW. The HSC and IMDG Codes are not covered but still set competence requirements for seafarers.

Section A	Man. min2	ESCO	Description
Chapter 1: General Provisions			
STCW I/1:			Definitions and clarifications
STCW I/2:			Certificates and endorsements
STCW I/3:			Principles governing near coastal voyages
STCW I/4:			Control procedures
STCW I/5:			National provisions
STCW I/6:			Training and assessment
STCW I/7:			Communication of information
STCW I/8:			Quality Standards
STCW I/9:			Medical Standards, including Minimum In-service Physical and Eyesight Requirements for Seafarers
STCW I/10-16			Certificates and training
Chapter 2: STCW Code for Standards Regarding the Master and Deck Department (Certification)			

2 Mandatory minimum requirement for a position

STCW II/1:	CoC	X	Officers in Charge of a Navigational Watch on ships of 500 gross tonnage or more
STCW II/2:	CoC3	X	Masters and Chief Mates on ships of 500 gross tonnage or more
STCW II/3:	CoC	X	Officers in Charge of a Navigational Watch and Masters on ships of less than 500 gross tonnage, engaged on near-coastal voyages
STCW II/4:	CoP		Ratings Forming Part of a Navigational Watch
STCW II/5:	CoC	X	Ratings as Able Seafarer Deck
Chapter 3: STCW Code for Standards Regarding Engine Department (Certification)			
STCW III/1:	CoC	X	Officers in Charge of an Engineering Watch in a manned engine-room or as designated duty engineers in a periodically unmanned engine-room
STCW III/2:	CoC		Chief Engineer and Second Engineer officers on ships powered by main propulsion machinery of 3,000 kW propulsion power or more.
STCW III/3:	Coc		Chief Engineer officers and Second Engineer officers on ships powered by main propulsion machinery of between 750 kW and 3,000 kW propulsion power
STCW III/4:	CoP		Ratings Forming Part of an Engineering Watch in a manned engine-room or designated to perform duties in a periodically unmanned engine-room
STCW III/5:	CoP	X	Able Seafarer Engine in a manned engine-room or designated to perform duties in a periodically unmanned engine-room.
STCW III/6:	CoC		Electro-Technical Officers
STCW III/7:	CoP		Electro-Technical Rating
Chapter 4: STCW Code for Standards Regarding Radio Operators (Certification)			
STCW IV/2:	CoC		Mandatory minimum requirements for certification of GMDSS Radio Operators
Chapter 5*: STCW Code for Standards Regarding Special Training Requirements for Personnel on Certain Types of Ships			
STCW V/1-1-1:	CoP		Masters, officers and ratings, basic oil and chemical tankers

3 II/2 applies to the Management level, II/1 to operational level. Separate requirements for ships over 3,000 GT were added in the 2010 Manila Amendments where it was noted that administrations could add national requirements and minimum sea time as chief mate of 12 months and master of 36 months was added.

STCW V/1-1-2:			Masters, officers and ratings, advanced oil tanker cargo
STCW V/1-1-3:			Masters, officers and ratings, advanced chemical tanker cargo
STCW V/1-2:			Masters, officers and ratings on liquefied gas tankers
STCW V/1-2-1:			Masters, officers and ratings on basic liquefied gas tankers cargo ops
STCW V/1-2-2:			Masters, officers and ratings on advanced liquefied gas tankers ops.
STCW V/2-1:			Masters, officers, ratings and other personnel on passenger ships, crowd control
STCW V/2-2:			Masters, officers, ratings and other personnel on passenger ships, crisis management
STCW V/3-1:			Masters, Officers and Ratings on ships subject to IGF code Advanced training
STCW V/3-2:	CoP		Masters, Officers on ships subject to IGF code Advanced training
STCW V/4-1:			Masters and deck officers on ships operating in polar waters, Basic Training (Polar Code)
STCW V/4-2:			Masters and deck officers on ships operating in polar waters Advanced training (Polar Code)
Chapter 6*: STCW Code for Standards Regarding Emergency, Occupational Safety, Security, Medical Care and Survival Functions			
STCW VI/1:	CoP		Safety familiarisation, basic training, and instruction for all seafarers.
STCW VI/2-1:	CoP		Issue of certificates of proficiency in survival craft, rescue boats other than fast rescue boats.
STCW VI/2-1:	CoP		Issue of certificates of proficiency in fast rescue boats.
STCW VI/3:	CoP		Training in advanced firefighting.
STCW VI/4:	CoP		Mandatory minimum medical first aid and medical care
STCW VI/5:	CoP		Issue of certificates of proficiency for ship security officers.
STCW VI/6:	CoP		Security-related training and instruction for all seafarers.

STCW Code - Additional Resources under STCW Convention			
SECTION B			Sections B-V/a, B-V/b, B-V/c, B-V/d, B-V/e, B-V/f - additional special training requirements for personnel on certain types of ships
Other IMO codes alongside the STCW (some samples)			
HSC Code	CoP		Proficiency as deck/engine officer on high-speed craft
IMDG Code	CoP		Proficiency in classification, packing, securing, segregation, documentation, marking, labelling, stowage, and risks with dangerous cargo shipment
ISPS Code			Proficiency as a Ship security officer
ISM Code			Proficiency in security-related equipment (ECDIS type-specific training)

Table 2: STCW codes

The occupation profiles in STCW vs ESCO

For the seagoing positions, we align the ESCO occupations with STCW positions to see if the positions corresponding to the CoC positions are found in ESCO. We find that some key positions are missing from ESCO. We also find that none of the positions connected with CoP for special ship types or regions such as the CoP for "Masters, officers and ratings, basic oil and chemical tankers" is included in ESCO presently.

We also find that the various competences listed in the STCW B section are absent from ESCO. This covers well-defined roles in the shipping industry, such as § B-V/f Guidance on the training and experience for personnel operating dynamic positioning systems, leading to the position of Dynamic Positioning Officer (DPO), which is well established worldwide. The training for this position is handled mainly by the Nautical Institute4 (NI), which acts as a de-facto global regulator. It has authorised 86 training centres to conduct and issue DP certification of seafarers to hold the role of DPO5.

Another position is § B-V/e Guidance regarding training and qualifications of masters and officers in charge of a navigational watch onboard offshore supply vessels, a market with 5300 vessels worldwide6.

The B section of STCW lists guidance on subjects a-f, 6 in all that is not described in the A section. These competencies clearly migrate into the areas where the shipping industry provides the competence either as in-house training or through a professional MET provider. See *D1.2.2 Identification of mismatches on a structural basis. From D1.2.2,* we look at the competencies listed in chapter *2.9 Competence Matrix and* see that the positions marked with o are not listed in ESCO, provided here for reference.

4 https://www.nautinst.org

5 https://www.nialexisplatform.org/media/1493371/accredited-dp-centre-list-november-2019.pdf

6 https://www.clarksons.com/services/broking/offshore-support-vessels/

ECDIS Transas 4000 Maker Specific
Ex and Exi Basic
Ice Navigation Course
Safety Officer Course
Ship's Manoeuvring and Handling
Basic Instrumentation & Process Control (In-H...
Bridge Equipment Familiarization (In-House)
Electrotechnology Course
In-House Anti-Piracy Awareness Training
In House Bridge Simulator Steering Course
In-House Hydraulics & Pneumatics
In-House Refrigeration
ISM Course
Liquid Cargo (In-House)
Navigation for Deck Officers (In-House)
P.E.O.S and H.R
Ship handling (In-House)
Ship's Catering Services - NC2
Ship's Catering Services NC1
Work Attitude and Value Enhancement Seminar

Table 3: Additional competence for a tanker, beyond STCW - an example

SEA		
ASSOCIATION	ESCO OCCUPATION	STCW REFERENCE
DECK		
Officers in charge of a navigational watch Chief mate	Deck officer	a) A-II/1 b) A-II/2
Master mariner	Ship captain	A-II/2
Officers in charge of a navigational watch	Helmsman	a) A-II/1
Officer of the watch	Maritime pilot	Master, Chief mate A-II/2
Master mariner	Skipper	Master, A-II/2
ENGINE		
Officers in charge of an engineering watch	Ship duty engineer	A-III/1
Chief engineer officers and second engineer officers	Marine chief engineer	A-III/2
Officers in charge of an engineering watch	Ship assistant engineer	A-III/1
Electrotechnical officers	Not listed	A-III/6
RATING		
Ratings as able seafarer engine	Engine minder	A-III/5
Ratings as able seafarer deck	Matrose Ordinary seaman Sailor	A-II/5
Ratings forming part of a navigational watch	Not listed	A-II/4
Ratings forming part of a watch in a manned engine-room	Not listed	A-III/4
Electrotechnical ratings	Not listed	A-III/7
Masters, officers and ratings, basic oil and chemical tankers	Not listed	STCW V/1-1-1:

Masters, officers and ratings, advanced oil tanker cargo	Not listed	STCW V/1-1-2:
Masters, officers and ratings, advanced chemical tanker cargo	Not listed	STCW V/1-1-3:
Masters, officers and ratings on liquefied gas tankers	Not listed	STCW V/1-2:
Masters, officers and ratings on basic liquefied gas tankers cargo ops	Not listed	STCW V/1-2-1:
Masters, officers and ratings on advanced liquefied gas tankers ops.	Not listed	STCW V/1-2-2:
Masters, officers, ratings and other personnel on passenger ships, crowd control	Not listed	STCW V/2-1:
Masters, officers, ratings and other personnel on passenger ships, crisis management	Not listed	STCW V/2-2:
Masters, officers and ratings on ships subject to IGF Code Advanced training	Not listed	STCW V/3-1:
Masters, officers on ships subject to IGF Code Advanced training	Not listed	STCW V/3-2:
Masters and deck officers on ships operating in polar waters, Basic Training (Polar Code)	Not listed	STCW V/4-1:
Masters and deck officers on ships operating in polar waters Advanced training (Polar Code)	Not listed	STCW V/4-2:

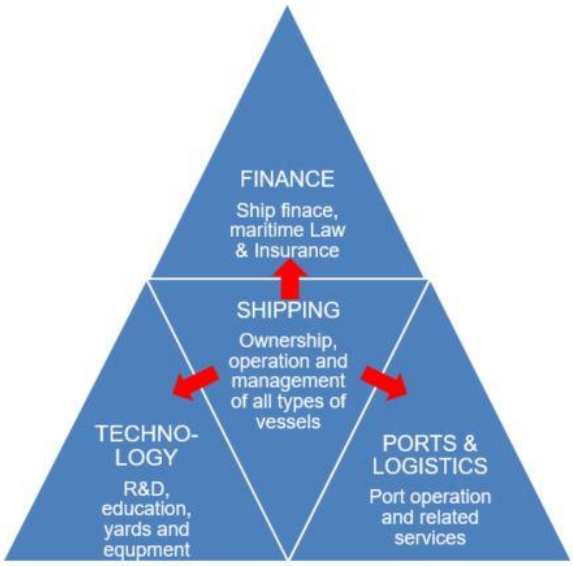
Table 4: ESCO vs STCW positions

From STCW, there are a number of further competencies that are not listed in ESCO, such as 6 CoPs in part B and the High-Speed Craft operational requirements, listed in the separate International Code of Safety for High-Speed Craft, see table 2 above.

Land-based occupational profiles

Seafarers have for decades contributed with operational maritime experience and knowledge to companies in the maritime sector. They are still crucial for realising much of the maritime industry's innovation potential. To make this happen, some seafarers must be encouraged to make the transition to land-based occupations by acquiring transverse skills. It is estimated that some 70% of shipping-related shore jobs[7] are knowledge-intensive, high-quality jobs. Therefore, a possible shortage of maritime professionals may be considered a significant risk for the long-term sustainability and competitiveness of the industry, especially if available human resources needed by the industry fall below a certain level.

Figure 1: Shipowner/operator and related industries



We look at the occupational profiles listed in the ESCO framework and find that there are 41 profiles listed. By looking at a small sample of shipping industry companies on LinkedIn, we find from 260 job listings of seven companies 237 unique job titles (see Attachments). The most frequent ones are Lead Auditor – Aquaculture (10x DNV), Customer Experience Agent/Manager (7x Maersk), Sales Executive (4x Lloyds Register) and Dynamics 365 CRM Customer Service – Developer (4x Mediterranean Shipping Company). It is immediately apparent that the number of possible occupational profiles in the shipping industry far exceeds the profiles listed in ESCO. It will most likely not be helpful to list them all as they appear very company-specific.

The roles listed in ESCO and the roles found on LinkedIn do not align very well. Surveyor appears five times in the LinkedIn sample and engineer appears 14 times as part of a position but not as in ESCO where **Marine Engineer** is listed but in LinkedIn in various other contexts such as **Approval Engineer, Hydraulics Engineer, Structural Engineer, Hull Approval Engineer** etc. and it is clear that these positions are very different from Marine Engineer and do not match very well.

Note that other IMO codes regulate extensively shoreside shipping industries such as ship construction and ship operation through MARPOL, SOLAS and a long list of codes. Some set standards ashore, such as the

7 Data on shipping-related jobs and relevant economic values can be found in Oxford Economics' THE ECONOMIC VALUE OF THE EU SHIPPING INDUSTRY - 2017 update. A report for the European Community Shipowners Associations (ECSA).

IMDG Code made mandatory from 2020, where chapter 3.1 specifies training for shore-based personnel.[8] This does not constitute an occupational profile but absolutely states that some shoreside positions must have this competence.

ASSOCIATION	ESCO OCCUPATION
LAND	
SHIP OWNER/OPERATOR	Forwarding manager
	Freight inspector
	Maritime water transport general manager
	Ship planner
	Inland water transport general manager
	Vessel operations coordinator
	Water traffic coordinator
LOGISTICS	Freight transport dispatcher
	Intermodal logistics manager
	Marine cargo inspector
	Dangerous goods safety adviser
	Non-vessel operating common carrier
MARITIME INDUSTRY	Marine engineering drafter
	Marine engineering technician
	Marine mechanic
	Vessel engine assembler
	Vessel engine inspector
	Vessel engine tester
CLASS SOCIETY	Marine surveyor
SHIPPING CONSULTANTS	Naval architect

8 IMO IMDG Code: Ch. 1.3: Shore-based personnel* engaged in the transport of dangerous goods intended to be transported by sea shall be trained in the contents of dangerous goods provisions commensurate with their responsibilities.

	Shipbroker
PORT OPERATIONS	Port coordinator
	Stevedore
	Stevedore superintendent
	Ship pilot dispatcher
NON-CERTIFIED CREW	Ship steward/ship stewardess
	Decksman
SHIPS AGENTS	Shipping agent
SHIPYARDS	Vessel assembly inspector
	Vessel assembly supervisor
	Wood caulker
	Marine electronics technician
	Non-destructive testing specialist
	Marine electrician
	Marine engineer
	Shipwright
	Marine upholsterer
	Material stress analyst
GOVERNMENT	Transport health and safety inspector

Table 5: ESCO land-based occupational profiles

Connecting new skills to occupational profiles

Challenges identified

These challenges have arisen from the drivers identified in the Future Skill document D1.1.3 p64 (New technologies, globalisation, maritime labour market, social transformations)

From the 1.2.1 report, we have consolidated our findings to eight challenges with characteristics. We now connect these with occupational profiles on sea and land.

1. Shortage of maritime professionals (Developing career paths)

   In the Current Skills analysis, seafarers' education, although complying with STCW, does not consider a variety of needs in the shipping industry that can be fulfilled through higher education such as, BSc & MSc programmes. Future analysis confirms there will be a strong need at sea or in corresponding roles to seagoing for seafarers educated beyond STCW in leadership, communications, culture and diverse technologies, including green, sustainable, and digital.

2. Mobility issues and talent attractiveness

   In the Current Skills analysis, the desire for mobility emerges from the seafarer standpoint, but recognition of maritime qualifications and career paths are not accessible. Future analyses confirm a matching need on the shoreside for the seagoing experience of seafarers that transition through higher education to fill landside roles in the shipping industry.

3. Communication, culture, and language issues

   The Current Skills report reveals seafarers experiencing inadequate capabilities in human factor areas such as: D1.1.2 conclusions 27: teamwork, personal communications and problem solving & 28: maritime economy and business, safety and risk management, ship operations and crew management, and marine operation and maintenance management, while future investigation confirms the shipping industry will need people with seagoing experience that have these skills.

4. Core shipping management skills, including leadership

   These skills are identified as missing by seafarers concerning maritime economy, business, law and ship technology, mainly because there is no such requirement in the STCW. The need is confirmed by the shipping industry in the future analysis, e.g. chapter 7.4.4 of D 1.1.3 Key findings from focus groups, highlighting the need for *leadership, language skills and communication skills*

5. Digital skills

   Both reports point to digital skills being in great demand. Current skills point mainly to maritime professionals' ability to interact with computer programs, focusing on data analysis, computing skills, and data representations. Future skills point more to the understanding and competence of handling integrated computer systems such as control centres and integrated process control such as power management systems and fuel optimisation systems. Cyber security is added as a future requirement from the Future Skills study.

6. Operation in highly digital and automated environments

   This is not identified in the current skills survey but emerges from the future skills report. Seafarers are becoming system managers. In-depth skills to understand complex systems, onboard and onshore, are needed to be able to serve the requirements for redundancy of all systems.

7. Transversal skills

   Transversal skills have different definitions in the STCW Convention and the EU[9], also see pages 77 & 78 of the Current Skills report. From the Current Skills survey, it is apparent that almost all transversal skills as defined by the EU are missing, and the current level is below industry requirements. This is confirmed through the Future Skills study, which especially points to the need for future maritime professionals to have the skills to move from one value chain to another.

8. Green skills

   In the Current Skills survey, seafarers are not very aware of the need for green skills. This is much more apparent in the Future Skills study. Here it is emphasised that knowledge concerning zero-emission and green technologies such as new fuels and new operational modes such as autonomous operation and its various degrees of autonomy will be in great demand in the future.

A note on talent attractiveness

Talented and skilled individuals have a key role to play in countries' future prosperity. They hold jobs that are key to innovation and technological progress and ultimately contribute to more robust economic growth with other employment opportunities and better living conditions. Organisation for Economic Cooperation and Development (OECD) countries increasingly compete to attract and retain talented workers, notably by adopting more favourable migration policies for the best and the brightest. This should be mitigated by ensuring enough competent and attractive talent is entering education and becoming available to the shipping industry. For some groups of prospective students, integrated employment programmes where a career going from sea to land would be attractive.

Globalisation has impacted people and communities worldwide and is a major driving force of change in society. Energised by changes in technology and mobility, globalisation has dramatically changed economies and has made our world more interconnected.

Cities already generate 80% of global GDP, and the importance of cities and surrounding regions will grow. Cities provide efficiency benefits, which result in gains in productivity and competitiveness. Cities are the centres of knowledge, innovation and specialisation of production and services. In today's world, cities are

9 There are numerous categorisations of the transversal skill.

According to UNESO "'transversal competencies' has six domains: 1) critical and innovative thinking, 2) interpersonal skills, 3) intrapersonal skills, 4) global citizenship, 5) media and Information literacy, and 6) others. The domain 'others' was created as a way for researchers to include competencies, such as physical health or religious values that may not fall into one of the other." Source: UNESCO Bangkok 2016, Asia-pacific, https://unesdoc.unesco.org/ark:/48223/pf0000244022

European Parliament and Council set out a recommendation on the key competences for lifelong learning. In the recommendation, they defined eight key competences that are considered important for every European to develop and update throughout their lives to be able to adapt to change. They are based on the need for personal fulfilment and development, active citizenship, social inclusion and employment: 1) Communication in mother tongue, 2) Communication in foreign languages, 3) Mathematical competence and basic competences in science and technology, 4) Digital competence, 5) Learning to learn, 6) Social and civic competences, 7) Sense of initiative and entrepreneurship, and 8) Cultural awareness and expression

The Convention lists the following transversal skills: 1) Ability to apply task and workload management, including planning and co-ordination, personnel assignment, time and resource constraints and prioritisation. 2) Knowledge and ability to apply effective resource management: allocation, assignment, and prioritisation of resources; effective communication onboard and ashore; decisions reflect consideration of team experiences; assertiveness and leadership, including motivation; obtaining and maintaining situational awareness. 3) Knowledge and ability to apply decision-making techniques: situation and risk assessment; identify and consider generated options; selecting course of action; evaluation of outcome effectiveness.

to an increasing extent competing to attract the best companies and most talented people.

How can landside and seagoing maritime professions attract the best talent?

- Core maritime capitals are expected to grow as a part of globalisation. Cities with good maritime education combined with surrounding industrial clusters of advanced companies will have a precondition to developing new competencies for the maritime industry's future workforce. New competence programmes in step with industry needs will be attractive as they will ensure employment at the end of the educational programme, and they are likely to be highly valued. There are also indications that jobs that impact the world are becoming attractive[10]
- The quality and variety of maritime education institutions and industrial clusters with the necessary density of companies are key to attractiveness. Clusters of companies competing and cooperating support innovation and attract talents.
- Close links between educational centres, shipowners and manufacturers are critical for the strength of R&D development and a competitive strategy (D1.1.3).
- Clear and visible career paths from seagoing occupations to land-based occupations will be of particular importance to talents who consider the seagoing career a step in a continuously changing career.

10 Danish study on young people wanting to impact the world

Skills update

Seagoing occupations impact

From D1.2.1, we have listed challenges and possible measures. We analyse the measures and identify the affected positions and what kind of competences are involved, first for seagoing positions and next for the landside.

Challenges	Possible measures (Abbreviated from D 1.2.1)	Skills update	Target group
Shortage of maritime professionals	The study programme offered by MET institutions should include topics/courses covering subjects beyond and above STCW minimum requirements.	Mobility Transversal Leadership Culture & comms. Green skills Operations in a digital world Digital	Seafarers
	Maritime professionals should have easy access to Lifelong learning programmes that enable them to move between value chains and work across industries and services in the maritime shipping industry.	Lifelong Learning	Seafarers
Communication, culture and language issues	EU-wide, regional or national programmes of measures aiming to increase cultural awareness should be considered	Culture skill with an assessment as part of the seafarer certificate or diploma	Seafarer certificate or diploma
	Courses aiming to upgrade leadership skills	Leadership skill with an assessment as part of the seafarer certificate or diploma	Seagoing officers
Core shipping management skills, including leadership	Courses aiming to upgrade the knowledge and skills of seafarers. Courses should be modular and flexible in terms of duration, scope, and delivery. Degrees awarded should be comparable and	BSc in Shipping Management, with work-based learning and additional LLL courses conducted as distance learning Mobility	Seafarers

Core shipping management skills, including leadership	based on the ECTS system	Transversal leadership Culture & comms. Green Operations in a digital world Digital	
	Courses aiming to upskill seafarers in the use of integrated and complex systems	Qualifications in integrated and complex systems	Seagoing officers
	Courses aiming to up-skill seafarers' analytical skills	Analysis, critical thinking, systems engineering (transversal skills)	Seagoing officers
Digital Skills	Courses aiming to upskill seafarers in the use of standard software tools in accordance with the standard EU set of skills	Skills using standard software tools	Seagoing officers
	Courses aiming to upskill seafarers in remote monitoring, surveillance and control technologies should be developed and promoted in WP2.	Remote monitoring, surveillance and control technologies	Seafarers
	Courses aiming to upskill seafarers in the use of new technologies/methods, i.e., VR, Simulator and so on.	New technologies/methods, i.e., VR, simulators, etc	Seafarers
	Courses aiming to upskill seafarers in data analysis, computing skills, and data representations	Data analysis, computing skills, and data representations	Seafarers
	Courses in cyber security for seafarers and shore-based employees	Cyber security skills	Seafarers
Operation in highly digital environments	Curses aiming to upgrade or re-skill workers associated with complex systems, for	Complex systems, for example, automation systems and autonomy	Seafarers

	example, automation systems and autonomy		
	Courses aiming to upskill seafarers in interaction with advanced socio-technical systems to respond to challenges in the operations of autonomous ships	Advanced socio-technical systems to respond to challenges in the operations of autonomous ships	Seafarers
	Courses supporting distributed maritime capabilities where knowledge and competence are distributed to technology, procedures, and regulations as well as shared between the seafarers and land-based organisation	Supporting distributed maritime capabilities	Seafarers
	Courses aiming to upgrade service and repair (equipment) in cooperation with real-time cooperation with land-based suppliers	Upgrade service and repair (equipment)	Seafarers
Transversal skill[11]	Courses aiming to upskill seafarers in the human element, leadership t skills beyond those already outlined in the STCW Convention	The human element, leadership	Seafarers
	EU-wide programmes of measures aiming to promote "learning to learn" attitudes	"Learning to learn."	Seafarers
	Courses aiming to widen seafarers' skills in collaboration with land-based personnel	Workload management, communication, decision making	Seafarers
Green skills	EU-wide programmes of measures aiming to increase environmental awareness	Environmental awareness	Seafarers

11 The STCW Convention lists the following transversal skills: 1) Ability to apply task and workload management, including planning and co-ordination, personnel assignment, time and resource constraints and prioritisation. 2) Knowledge and ability to apply effective resource management: allocation, assignment, and prioritisation of resources; effective communication onboard and ashore; decisions reflect consideration of team experiences; assertiveness and leadership, including motivation; obtaining and maintaining situational awareness. 3) Knowledge and ability to apply decision-making techniques: situation and risk assessment; identify and consider generated options; selecting course of action; evaluation of outcome effectiveness.

	Courses aiming to upskill seafarers in procedures and operations of complex hybrid types of machinery	Complex hybrid types of machinery	Seafarers
	Courses aiming to upskill seafarers in how to handle a variety of fuels (for example, hydrogen and ammonia) and battery-related risks	How to handle a variety of new and zero-emission fuels	Seafarers

Table 6: Skills update for seagoing occupations

These are the strategic deliveries passed on to later WPs, especially WP2 and WP3, for implementation.

Skills update that impacts landside occupations

Challenges	Possible measures (Abbreviated from D 1.2.1)	Skills update	Target group
Shortage of maritime professionals	The study programme offered by MET institutions should include topics/courses covering subjects beyond and above STCW minimum requirements.	Mobility Transversal Leadership, culture & comm. Green skills Operations in a digital world Digital	MET academics
	Maritime professionals should have easy access to lifelong learning programmes that enable them to move between value chains and work across industries and services in the maritime shipping industry.	Lifelong learning	MET teachers Shipping industry HR employees
Mobility issues	Courses aiming to upgrade or re-skill shore workers associated with the maritime industry.	Mobility Transversal Leadership, culture & comms. Green Operations in a digital	MET teachers Shipping industry employees

		world Digital	
	Student exchange between MET institutions across the EU to facilitate an appropriate understanding of different cultures.		MET teachers and educational authorities need competence in mobility.
	Academic staff exchange should be further promoted to accelerate the update of study programmes. They should be encouraged to gain the ability to use new teaching methods to upskill the workforce, i.e., an e-learning platform.		MET teachers need competence in new teaching methods (suitable to reach seafarers/seafarers' needs)
	EU-wide standards of proficiency in language skills available for people working in the maritime industry should be considered	Language skill with assessment as part of the seafarer certificate or diploma.	Language skill with assessment required for land-based positions
Core shipping management skills, including leadership	Courses aiming to upgrade the knowledge and skills of the maritime industry workforce should focus on linking up the interactions between seagoing positions and land-based occupations. Courses should be modular and flexible in terms of duration, scope and delivery.	For example, BSc in Shipping Management, with work-based learning and additional LLL courses conducted as distance learning. Mobility Transversal Leadership, culture & comms. Green Operations in a digital world Digital	Maritime industry workforce
	Courses aiming to upgrade business management, economics and law	Transversal Leadership, culture & comms.	Legal Finance

		Green	
Digital Skills	Courses aiming to upgrade shore-based employees' skills in maritime information and control systems	Maritime information and control systems	Shore-based employees'
	Courses in cyber security for seafarers and shore-based employees	Cyber security skills	Shoreside employees
Operation in highly digital environments	Curses aiming to upgrade or re-skill workers associated with complex systems, for example, automation systems and autonomy	Complex systems, for example, automation systems and autonomy	Shoreside employees
	Courses supporting distributed maritime capabilities where knowledge and competence are distributed to technology, procedures, and regulations as well as shared between the seafarers and land-based organisation	Distributed maritime capabilities	Shoreside employees
	Courses aiming to upgrade service and repair (equipment) in cooperation with real-time cooperation with land-based suppliers	Digital: Augmented reality Virtual reality Digital twins To upgrade service and repair (equipment)	Shoreside employees
Green skills	EU-wide programmes of measures aiming to increase environmental awareness	Environmental awareness	Shoreside employees
	The courses aiming to upgrade or re-skill in sustainable and green skills shoreside workers associated with the maritime industry		Shoreside workers

*Table **7**: Skills update for land-based occupations*

Higher-level skill standard

STCW minimum vs Higher Standard

The maritime education conforming to the STCW Convention is designed to achieve the minimum international level to operate ships safely. To achieve a Higher Standard of skills within digitalisation, green technologies, leadership and other transversal skills, the basic maritime training must change to reflect this.

Currently, the STCW requirement to become a navigator or engineer at the management level is in some countries achieved in a minimum of two years of education plus sea time. (see report D1.1.2). More extended educational programmes are available where the STCW minimum requirements for a navigator or engineer officers are part of a three-year bachelor's degree programme. Even a small number of Master programmes of this kind are available (report D1.2.2).

It is believed and likely that traditionally, a shorter education is more attractive than a more comprehensive education for the student candidates aspiring to become seafarers, provided that the same level of formally required seagoing competence is reached. This pattern is not so clear concerning genders. A trend of females choosing more comprehensive educations over shorter has led to a higher number of females with higher education than males since 2017 in Norway[12]. This can be seen from the data collected in D1.2.2, where the ratio of candidates completing BSc degree programmes vs non-BSc degree programmes is one to three. There seems to be no significant difference as to what level – operational or management – is possible between the two types of educational programmes. Being at the very beginning of their career, it is not likely that all of them foresee a development where they want to transition to land-based jobs.

In this landscape, we know that for the maritime industry to stay competitive in the future, more seafarers need to make the transition to land-based jobs and that this transition must be supported by suitable competence programmes delivered to the seafarers either during their primary education or as additional training while working at sea.

A longer education is necessary to reach a higher competence level during basic education, lasting three or four years. It should not be made mandatory. The shortest possible route to becoming a seafarer should not be removed, but the advantages of the longer education enabling a smooth transition to land-based shipping industries should be promoted. Its rewards should be highlighted to prospective student candidates.

Additionally, employees that acquire a broad set of competencies – whether it updates or upgrades to their set of skills – are more likely to achieve their full potential[13]. In our reports D1.1.2 and D1.1.3, we have researched current and future skills needs, summarised in the report D1.2.1, and it is clear that the training programmes for seafarers need to change to accommodate the findings to meet future needs.

Sharing of work tasks and distribution of skills

In 1997, IMO adopted a resolution setting out its vision, principles, and goals for the human element. The human element affects maritime safety, security and marine environmental protection involving the entire set of human activities performed by ships' crews, shore-based management, regulatory bodies, and

[12] https://forskning.no/kjonn-og-samfunn-ntb-skole-og-utdanning/utdanningsgapet-mellom-kvinner-og-menn-oker/1277779

[13] Communication from the Commission to the European Parliament, the Council, the European economic and social committee, and the committee of the regions: a new skills agenda for Europe Working together to strengthen human capital, employability, and competitiveness.

others. All need to cooperate to address human element issues effectively.

The resolution Principles of safe manning notes that safe manning is a function of the number of qualified and experienced seafarers necessary for the safety and security of the ship, crew, passengers, cargo and property and the protection of the marine environment.

The actual workload on the vessel may vary greatly depending on the type of vessel, market segment, route and traffic, the technology supporting the crew, etc. The shipowner therefore has a duty to repeatably make assessments of the manning of the vessel.

The digital transformation does affect how the work tasks can be distributed between the crew and technology and between the ship and land-based organisation.

Advancements in wireless communication, sensor technology, and advanced analytics fuel the digital transformation. Connectivity is undergoing an evolutionary change in most parts of the world, and enhancement in satellite communications opens up the potential for successful cooperation between ships and land-based organisations. Increasing ship-to-shore connectivity creates vast amounts of data that shipping companies can extract insight and value from to make data-driven business decisions and optimise operations. Every aspect of operations at sea at the port and across the fleet can be optimised – from vessel tracking and predictive maintenance to crew safety and welfare.

Increased automation, autonomy and remote operations will also affect our work tasks and how we organise the work. The IMO has suggested the term Maritime Autonomous Surface Ships (MASS) as a general name for these new ship types. A MASS has been defined as a ship that can operate independently of human interaction to a varying level. Maritime professionals are then becoming system managers. In-depth skills to understand complex systems, onboard and onshore, are needed to serve the needed redundancy of all systems.

Distributed maritime capabilities where knowledge and competence are increasingly distributed to technology, procedures, and land-based organisations will change the work tasks of the individual maritime professionals. For example, vessel positions, manoeuvres, speed, fuel consumption, cargo condition, and so on can be monitored in control centres. Fleet managers will then be able to analyse this data, enabling them to advise the captain and crew on navigation, weather patterns, fuel consumption and port arrival. We will have distributed maritime capabilities and dispersed ship crew with other roles and responsibilities than we can see in current operations. Soft skills are needed to master communication throughout the value chain.

Also, sensor data from onboard integrated machinery systems is increasingly transferred to shore centres. Digital twins enable real-time data analytics by using AI and machine learning tools to support rich management and operational view of the entire supply chain. This technology will enable a high degree of streamlining operations from ship control centres.

The fixing of malfunctions onboard often requires outside expertise from the suppliers. While ships were traditionally autonomous organisational systems that the maritime professionals onboard mastered alone, they are now increasingly part of large networks of ships, several internal and external IT systems, control centres, yards, certification agencies and regulations. Common broker platforms and e-commerce will simplify and secure the supply chain and reduce the amount of paperwork in the value chain under blockchain technology. These advances enable integration of the business process and reduce transaction costs.

The complexity of socio-technical systems into which ships are increasingly woven requires increasingly complex control systems. We have coined this transition distributed maritime capabilities and the use of dispersed teams.

Conclusions

Occupational profiles at sea

STCW profiles dominate occupational profiles at sea. All positions connected to operating the ship and ship safety are regulated through STCW certification to a very detailed level. Competence onboard a ship can be grouped in the following categories:

QUALIFICATION	ORIGIN	IN ESCO
Certificate of Competence (CoC)	Required by STCW to hold a position onboard (mandatory minimum) A-II, A-III, A-IV	YES
Certificate of Proficiency (CoP)	Required by STCW to hold a position onboard (mandatory minimum) A-VI Required by STCW on certain ship types A-V	NO
Competence with STCW guidance	Required by industry/regional/national guidelines B-V/a-f	NO
Additional competence not specified in STCW	Required by shipping industry, appendix in D 1.2.2	NO

We have found that CoC profiles are primarily reflected in ESCO with few exceptions. Still, hardly any of the profiles connected with CoP and other competence can be found in the ESCO framework. If these profiles were reflected in ESCO, it would be a step towards making more of the seafarer competence a part of formal occupational profiles and contributing to the competencies becoming part of a future formal framework where seafarer competence would be credited with ECTS or a similar credit system.

Occupational profiles ashore

The IMO STCW Convention little regulates occupational profiles of the shipping industry ashore. We have investigated positions listed in ESCO and compared them with a representative sample of available positions listed by shipping industry companies on LinkedIn and find an overwhelming variety of occupational roles not present in ESCO.

Higher Standard and impact on occupation profiles

To meet the needs of the maritime shipping industry now and in the future, seafarers' education should be upgraded to achieve Higher Standard skills within digitalisation, sustainable technologies, and leadership. Basic maritime education should provide mandatory education to achieve the certificates according to STCW, competence according to Higher Standard, and preparation for land-based occupations.

Not all topics listed in Higher Standard are important for all occupations. Typical skill updates for seagoing occupations are listed in Table 6. Typical skill updates for shore-based occupations are listed in Table 7.

Seafarers have for decades contributed with operational maritime experience and knowledge to companies in the maritime sector. They are still crucial for realising much of the maritime industry's innovation potential. The skills and experience from the sea are needed and appreciated in land-based positions.

Fluent and visual career paths from sea-based positions to land-based positions will also attract talents to enter maritime carers.

Finally, the digital transition opens new possibilities for sharing of work tasks. Distributed maritime capabilities where knowledge and competence are increasingly distributed to technology, procedures, and land-based organisations will change work tasks and needed skills of the individual maritime professionals. For example, vessel positions, manoeuvres, speed, fuel consumption, cargo condition, and so on can be monitored in control centres. Such development will cause a need for up-dated skills on a broader part of the shipping organisations.

Attachments

STCW definitions

STCW Certificate of Competence - CoC

In Attachment 1 to the STCW Convention, updates are listed, including clarification of Certificate of Competence – CoC:

> ***Certificate of Competence*** *means a certificate issued and endorsed for masters, officers and GMDSS radio operators in accordance with the provisions of chapters II, III, IV, or VII of this annexe and entitling the lawful holder thereof to serve in the capacity and perform the functions involved at the level of responsibility specified therein.*

As deck officers commonly hold the GMDSS radio operator duty, the statement above can be read as *masters and officers*

In other words, a CoC is required to qualify for a position as an officer onboard. From this definition, ratings are required to have a CoP.

STCW Certificates of Proficiency - CoP

In Attachment 1 to the Convention, updates are listed, including clarification of Certificate of Proficiency – CoP:

> ***STCW Certificates of Proficiency*** *means a certificate, other than a certificate of competency issued to a seafarer, stating that the convention's relevant requirement of training, competencies, or seagoing service has been met.*

A CoP is additional to a CoC for officers.

In other words, CoP are documents additional to CoC issued to the officer to certify that they have met the required standard of competence in a specific duty. These certificates include certificates for personnel serving on certain types of ships (tankers and passenger ships) and those assigned with safety, security, and pollution prevention duties. It certifies that the holder meets STCW standards of competence in specific functions related to safety, care of persons, or cargo.

Positions listed on LinkedIn for EU area on 28 Jan 2022

DNV

Analysis Engineer

Approval Engineer

Cyber Security Consultants

Cyber Security Consultants

Digital Transformation Consultant

DNV Summer Job 2022

DNV Summer Project 2022

Employer Branding Consultant

Engineer, E&I

Engineer, Hydraulics

Engineer, Structural

Engineers Control & Bridge Systems

Global Aquaculture Manager

Global HR & Talent Manager

Global Manager, Business Systems and Applications

Global Topic Owner – People Reporting & Analytics

Graduate positions in DNV's Maritime Advisory unit in Trondheim

Healthcare Cyber Security Consultant

Hull Approval Engineer

Hydraulic Engineer

Hydrodynamic Analysis Engineer

Junior Engineer – Pipeline Integrity Software

Lead Auditor - Aquaculture

Lead Auditor - Aquaculture

Lead Auditor - Aquaculture

Lead Auditor - Aquaculture

Lead Auditor - Aquaculture

Lead Auditor - Aquaculture

Lead Auditor - Aquaculture

Lead Auditor - Aquaculture

Lead Auditor - Aquaculture

Lead Auditor - Aquaculture

Maritime Advisory Consultant

Medical Device Assessor / Lead Auditor - Active

Medical Device Assessors & Lead Auditors - Non-Active

Method Engineer Analysis and Calculations Verdal

Method Engineer Multidiscipline Verdal

Microsoft Word Specialist / Key contact - global templates

People Manager

Principal Sustainability Consultant

Principal Engineer Windows Backend

Project Engineer - onshore wind Nordics

Project Manager

Project Manager for DNV Renewables Certification (RC)

Quality Manager - Product Assurance

Regional Finance Manager

Researcher within Ship Autonomy

Researchers within Maritime Decarbonization

Senior Aquaculture researcher

Senior Engineer, E&I

Senior Engineer, Mechanical

Senior Engineer, Structural

Software Developers and Solutions Architects

Software, Cyber Security & Digital infrastructure Engineers to our Cyber Team

Structural calculations – Stavanger

Sustainability Team Lead / Principal Consultant

Team Lead Pipeline Operations Norway

Technical Authority level 1

Wind Turbine Structural Dynamics Developer

Lloyds Register

(95 listings, first 60)

Administrator Marine and Offshore (m/w/d)

Business Development Executive

Business Development Executive

Business Development Manager

Business Development Manager - Marine

Business Development Manager Central & Eastern Europe

Business Development Manager, MPS

Commercial Bid Manager

Diversity & Inclusion Project Specialist

Freelance Auditor Information Security

Freelance Auditor Kwaliteit, Milieu en Veiligheid

Freelance Lead Assessor ISO 9K 14K 45K

Freelance Lead Auditor - Feed

Freelance Lead Auditor Gezondheidszorg

Freelance lead auditor VCA / NVVK

Freelance Lead Auditor Zorg & Welzijn

Freelancer Lead Auditor 9001

Freiberufliche Auditor für die Lebensmittelindustrie

IATF Lead Auditor

IMS Lead Auditor

Lead Auditor

Leiter ZÜS

Lloyd's Register logo

Marine Surveyor

Marine Surveyor

MMS Auditor

New construction / Marine Equipment and component Surveyor

Project Manager

Prüfingenieur / Inspektor (m/w/d); Berlin / Brandenburg

Prüfingenieur / Inspektor (m/w/d); Leipzig / Sachsen

Prüfingenieur ZÜS Ex-Schutz

Regional Business Development Manager - Fuel Testing

Retail & Hospitality Assessor (Germany)

Retail Assessor (Poland)

Sales Executive

Sales Executive

Sales Executive East Germany

Sales Executive South Germany

Sales Executive South Germany

Sales Manager Italy

Sales Manager, Maritime Solutions

Security Consultant - Penetration Tester

Security Consultant - Penetration Tester - Accelerator Programme

Security Engineer - Managed Security Services

Senior Business Development Manager

Senior Electrotechnical Specialist

Senior HR Advisor

Senior HR Advisor

Senior Security Consultant - Red Team

Senior Specialist

Service Delivery Technical Assistants - North-Eastern European Area

Software Developer

Sub-contractor: Tutor

Subcontractor Auditor Aerospace

Subcontractor Auditor Integrated Integrated (QEH&S)

Subcontractor Auditor Integrated Integrated (QEH&S)

Subcontractor Lead Auditor

Subcontractor Lead Auditor VCA

Subcontractor Verifier

Surveyor Inland Waterway

Surveyor Marine & Offshore Germany North East Area

Surveyor Marine Equipment & Components Vienna area

Team Lead Outfitting

Team Lead Outfitting

Team Lead Outfitting

Team Leader Outfitting (German-speaking)

Technical Consultant

Technical Sales Manager

Welding Product Leader

Wilhelmsen:

Inside Sales Advisor

Head of Fleet Performance

Vessel Manager (m/f/d)

Inside Sales Advisor

Improvement Agent

Customs Operator IDC

Fleet Manager (m/f/d)

Quality Checker

Mechanic

Area Inventory Planner

Pricing Analyst

Pricing Coordinator

Maersk

330 listings, 60 first:

A.P. Moller - Maersk logo

Account Executive - National Sales Benelux

Application Manager

Area Head of Customer Implementation

Business Performance Partner, Government Contract Execution (GCE) – EUR/AFR

Business Performance Partner, Government Contract Execution (GCE) – EUR/AFR

Business Product Owner - Carrier Haulage, Landside Transportation

Customer Communications Specialist Europe

Customer Communications Specialist Europe

Customer Experience Agent

Customer Experience Agent - Bremen

Customer Experience Agent - Hamburg

Customer Experience Agent Pharma

Customer Experience Agent Pharma

Customer Experience Agent Pharma

Customer Experience Manager - Ocean

Customer Experience Manager - Single Carrier

Customer Experience Manager - Single Carrier

Customer Experience Manager - Single Carrier

Customer Experience Manager - Single Carrier

Customer Experience Team Leader

Customer Experience Team Leader

Customer service agent bij Maersk via SUSA, Rotterdam

Customer Service Associate

Customs Services Team Leader

Director of Growth

External Sales

Global Client Development Manager

Growth Enablement Manager

Head of IT

HSSE Manager in Area NWC

Inland Customer Experience Agent

Innovation Consultant

Inside Sales

Inside Sales

Key Account Manager

Key Client Coordinator

Key Client Manager

Local Client Manager

Marine Culture Lead

Marine People Program Manager

Marketing Manager

Multicarrier Customer Service Associate

Multicarrier Customer Service Associate

Outside Sales Executive

Outside Sales Executive

Payroll Team Lead

People Advisor

People Partner

People Partner

People Partner

People Partner Germany

Project Manager Valmetrics

Project Office & Risk Manager

Safety & Operations Manager

Sales Executive

Sales Manager for EEA Sealand

Sales Support

Sales Support

Senior Business Analyst - Portfolio Partner

Senior Business Product Manager

Student Assistant to the Communications Team

Talent Acquisition Associate - Lisbon

Talent Attraction Manager (Europe & Africa)

Trade and Customs Consultant

Mediterranean Shipping Company

38 listings

.NET - C# Developer

Barge Planner

BI Microsoft Specialist

Booking Care Agent Export

Commercial Traineeship

Coordinator Cost Control (m/w/d)

Corporate Legal Compliance Team Leader

Customer care agent export

Customer Service Agent Export

Customer Service Agent Import

DANGEROUS GOODS AGENT

Data Controller & Cargo Coordinator

Disponent Intermodal Transports (m/w/d)

Dynamics 365 CRM Customer Service - Developer

Dynamics 365 CRM Customer Service - Developer

Dynamics 365 CRM Customer Service - Developer

Dynamics 365 CRM Customer Service - Developer

Facility Assistant

Forwarding Agent

Human Resources Coordinator

Import Administratief co-worker

Import Customer Service co-worker

IT Security Solution Engineer

IT Workplace specialist

Junior Legal Counsel

Legal Counsel Data Protection

Neodiplomati/neolaureati ICT - appartenenti alle categorie protette

Networking Engineer

Operations Assistant

PRACOVNÍK ZÁKAZNICKÉHO SERVISU EXPORT A IMPORT

Reefer Commercial

Release and CI-CD Specialist

Release Management / CI-CD Specialist

Senior IT Project Manager

Trainer

Web Developer

V-Ships

Assistant Fleet Superintendent

Assistant Fleet Superintendent

Finance Manager

Fleet Assistant

Fleet Procurement Officer

Fleet Superintendent

Fleet Superintendent

IHM Executive

Invoicing Officer

Key Account Manager

Key Accounts Manager

Marine Stores Officer

Marine Superintendent

Marine Superintendent

Procurement Officer

Travel Consultant

Finance, Ince & Co

Digital Marketing Executive

Private Client Associate/Managing Associate

IMO mandatory codes

These regulate mainly shoreside shipping industries such as ship design, shipbuilding, and ship operation, but some contain elements of competence required for seafarers. Other IMO codes should also be considered*. (TBA = to be analysed)

CODE	SEA	LAND
ISM Code	Competence on security-related equipment such as winch and ECDIS	
ISPS Code	Ship security officer	
2000 HSC Code	High-speed specific training - BRM	
1994 HSC Code	High-speed specific training – BRM	
IBC Code	TBA	
IGC Code	TBA	
Intact Stability Code, 2008	TBA	
Grain Code	TBA	
NOx Technical Code	TBA	
FSS Code	TBA	
2010 FTP Code	TBA	
FTP Code	TBA	
LSA - International Life-Saving Appliance Code	TBA	
ESP - International code on the enhanced programme of inspections during surveys of bulk carriers and oil tankers	TBA	
IMSBC Code	TBA	
IMDG Code	The international maritime dangerous	
IMDG Code 2018	TBA	
IMDG Code 2020	TBA	
IMO Instruments Implementation Code (III Code)	TBA	
Polar Code	A-V/4 section on competence in	
IGF Code	A-V/3 section on competence in	
BWMS Code	TBA	
Cargo Stowage and Securing (CSS) Code	TBA	
Code on Noise Levels Onboard Ships	TBA	
RO Code	TBA	
Casualty Investigation Code	TBA	
Code for the safe carriage of INF, plutonium and high-level radioactive wastes in flasks onboard	TBA	
INF Code	TBA	
BCH Code	TBA	

*There are a number of IMO codes that should be reviewed with reference to requiring seafarer competence.

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