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Competences, skills and career expectations: insight from the Italian seafarers' labour market

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Abstract

Seafarers represent a critical resource for the shipping industry since they significantly affect the competitiveness of shipping companies. Nonetheless, few prior contributions have been addressed to labour performance in this sector and several literature gaps still persist. Therefore, the paper aims to identify the main hard and soft skills of seafarers, according to their onboard position and qualification. Moreover, the manuscript provides valuable insights on the Italian shipping labour market, by investigating how Italian seafarers evaluate their own skills and competences and future career expectations. We administer an ad-hoc structured questionnaire to Italian seafarers involved in deck, engine and hotellerie departments, receiving 694 usable responses. The outcomes provide an in-depth overview of the Italian Seafarers' labour market, leaving several rooms for future academic studies. In addition, the results are expected to support both maritime and port-related managers as well as policy makers when modelling public and private employment services.

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1. Introduction

According to the managerial perspectives of Resource-based view and Knowledge-based view, skills and competences represent a pivotal resource for companies' competitiveness (Wernerfelt, 1984; Barney, 1991). Nonetheless, few prior academic contributions have investigated the importance of skills and competences in the shipping industry and a gap persists in literature because of the complexity in understanding the onboard competences of various professional profiles. The shipping labour market, indeed, is characterized by the presence of several professional positions and related skills and competences. Moreover, the advent of digital technologies and new labour reforms (Satta et al., 2019) have determined rapid changes in maritime labour market's requirements, pushing shipping companies to increasingly invest in the development of their employees' skills and competences (Notteboom, 2018). Thus, a deeper understanding of specificities characterizing hard and soft skills in the industry appears particularly relevant not only for supporting training courses and programmes, but also for optimising the human resource management by shipping companies.

Given the above, the aim of the paper is twofold. First, it maps the main onboard professional profiles for each ship department and related hard and soft skills. Second, it provides an evaluation of seafarers' competences in order to understand their general level of preparation. Moreover, the study investigates the main barriers perceived by seafarers for their career path, given the problems encountered in the poor life satisfaction (especially in the last part of their seagoing career) and the negative implications observed on their performance (Thai et al., 2013). In particular, the manuscript analyzes the possible barriers for a job requalification ashore, which may reinforce seafarers' commitment to the job (BIMCO, 2015).

For these purposes, we develop an ad-hoc structured questionnaire, which includes 72 questions organised in 6 sections, as follows: socio-demographic variables and prior seagoing experiences; current job position and qualification; competences and skills (self-assessment); perceived barriers to ashore job careers; ashore job expectations; desired training courses and educational programmes. The questionnaire is administered via monkey survey in the January – March 2018 timeframe, resulting in 694 usable responses from Italian Seafarers involved in the deck, engine and hotellerie departments.

The outcomes provide an in-depth overview of the Italian Seafarers' labour market, shedding lights on their skills and competences, future career expectations ashore and critical concerns related to these issues. The results are expected to support shipping companies in the management of human resources as well as policy makers when modelling public and private employment services.

The paper is structured as follows. Section 2 introduces the concept of hard and soft skills and discusses managerial theoretical perspectives to explain how they affect the competitiveness of shipping companies. Section 3 describes the method of the study, considering issues related to both "desk" and "on-field" research. Section 4 reports the main findings related to the research objectives of the study and provides

managerial and academic implications. Finally, Section 5 highlights the research limitations before concluding.

2. Skills and competencies in managerial theoretical perspectives

The following section investigates the importance of skills and competences in the shipping industry. The paper introduces a brief definition of hard and soft skills according to academic literature in management studies, stressing both organization and human resource perspectives. Among managerial theories, Resource-based view (RBV), Knowledge-based view (KBV) and internal marketing perspectives are proposed and compared when addressing the complex management of human resources within the shipping domain. In particular, the study focuses on seafarers' hard and soft skills and investigates how shipowners can create a sustainable competitive advantage grounding on human resources. The study is also valuable along with a seafarers' perspective, as it makes human resources involved in the industry more conscious concerning their role for their companies' success and sheds lights on opportunities related to future professional career both onboard and ashore.

2.1. Hard and soft skills: background

Both theoretical studies (Jackson and Schuler, 1995) and empirical investigations (MacDuffie, 1995) have proved the managerial approach used by a firm to manage its workforce can have a significant impact on its performance (Way, 2002). In this regard, previous Human resource management (HRM) studies have produced evidences about the importance of skills and competences for firm's competitiveness (Youndt et al., 1996; Wright and Boswell, 2002). In particular, Blundell et al. (1999) argue high skilled employees increase labor productivity and, thus, positively affect firm's performance. Nonetheless, not all competences equally contribute to the aims of the company and not all are achievable through training courses. Indeed, consistent with academic literature (Laker and Powell, 2011), a distinction should be defined between hard and soft skills in relation to their diverse impact on firm's performance.

To understand this distinction, it is helpful to briefly outline the broader concept of competence. A common definition is provided by Mirabile (1997; p.75), who describes competences as: "*knowledge, skill, ability, associated with high performance on the job, such as problem-solving, analytical thinking, or leadership*". More recent definitions refer to motives, beliefs and values (e.g., Boyatzis, 2009). In this perspective, skills can be considered as "*a part of competence*" and represent an essential factor for labour performance, especially for those jobs which require high professional technicalities.

According to academic literature, the boundaries between the concepts of hard and soft skills are not glaring (Hendarman and Cantner, 2018). Generally, hard skills are investigated referring to the specific context in which they are used. In this vein, Rainsbury et al. (2002) argue hard skills are mainly cognitive and are influenced by

individual's Intelligence Quotient (IQ). Relatedly, Poisson-de Haro and Turgut (2012) claim hard skills consist of technical skills and conceptual skills. As regards, conceptual skills include intellectual agility, vision, rationality, wisdom, insight, adaptability and a sense of mission. Therefore, hard skills pave on the acquisition of knowledge and technicalities required to perform some specific tasks related to a job or task, especially for the use of managerial tools or equipment. For this reason, despite this group of skills is arduous to achieve, training courses can accelerate the development of this type of skills especially when they refer to a single task or operation.

Conversely, soft skills represent interpersonal, human or behavioral skills whih are essential in every workplace (Weber et al. 2011). Consistent with this definition, Moss and Tilly (1996) assert soft skills belong to the personality and the attitude of employees. As socio-emotional skills, they are crucial for personal development, social participation and, thus, for a successful career (Kechagias, 2011). Nowadays, skills such as communication, ability to work on multidisciplinary teams, adaptability, leadership, negotiation, influencing, problem-solving and decision-making are considered crucial in every labour environment (Laker and Powell, 2011; Marando, 2012). Therefore, soft skills are achievable through work and life experiences whereas ad-hoc training courses are expected to be nearly useless.

2.2. Resource-based view and Knowledge-based view perspectives

According to resource-based view (RBV), Wernerfelt (1984) defines the firm as a bundle of resources and capabilities that combined together ensure the development of specific competencies, which are the base for a sustainable competitive advantage. Barney (1991) classifies resources in three categories: physical capital resources (e.g., plants, equipment, and finance), organizational capital resources (e.g. organizational structure, control systems, human resource systems) and human capital resources (skills, judgment and intelligence of employees). Capabilities represent the skills required to fully exploit the abovementioned resources of the company. They include individual knowledge, such as skills, attitudes and behaviors of managers and employees, as well as the organizational structure of the firm. They can be acquired or easily imitated by competitors, or can be unique and incomparable (Athey and Orth, 1999). In this regard, Barney (2014) argues a firm can hold a competitive advantage only when it relies on distinctive and enviable competences, namely skills and talents related to human resources.

Given the above, knowledge is widely considered as one of the most important strategic resources of the company (Grant, 1996; Balogun and Jenkins, 2003). In this perspective, knowledge-based view (KBV) is an extension of RBV: organizations are still heterogeneous entities made of different combinations of resources, but the focus is on knowledge, which represents the most important productive resource for its contribution to value added creation and strategic significance (Grant, 1997; Hoskisson et al., 1999). In particular, knowledge resources are difficult to imitate and,

thus, constitute the foundation for sustainable differentiation (Wiklund and Shepherd, 2003).

Although the KBV emphasizes the role of knowledge into organizations, the process of transfer and transformation of knowledge into competitive advantage is not easy due to the disturbance of internal organizational factors (Kogut and Zander, 1992). Therefore, Cook and Yanow (1995) argue organizational capabilities and HRM cover a pivotal role in the development and transfer of knowledge and specific competences that need time and a suitable labour environment to grow among company's employees (e.g., high quality level of team spirit, reward and other HRM practices, and a positive alignment between company's aims and employee's personal needs and expectations).

When it comes to the shipping industry, a sustainable competitive advantage emerges from a well-coordinated use of seafarers' hard skills and competences. According to the KBV theory, shipping company's high performance rely on crew performance and not on the results of individuals (Progoulaki and Theotokas, 2010).

Nonetheless, some problems related to the concrete application of RBV and KBV principles in this industry come out. First, the global seafaring labour market unveils two diverse layers: one for seafarers employed in their national fleet, and another for those employed on foreign flagged ships. Thus, shipping companies deal constantly with several information gaps concerning these markets as well as with the management of multiculturalism on board of ships (Theotokas and Progoulaki, 2007). Moreover, seafarer's occupation takes place under special conditions and employment contracts which differ from one country to another and can negatively affect his/her performance and hard skills. The frequent turnover of seafarers constitutes an additional factor for the HRM of shipping companies which are called to frequently raise new crew members and harmonize their skills. In this vein, personnel retention strategies represent valuable initiatives which can relieve HR from heavy tasks (Mitchell et al., 2001). To this purpose, the internal marketing perspective suggests some viable options that can foster the relationship between the shipowner and seafarers.

2.3. Internal marketing perspective

Internal marketing is a management philosophy which aims to encourage and enhance company's understanding of employees' needs and requirements (Gronroos, 1990). In this perspective, the firm is considered as an internal market populated by internal "customers" (i.e. employees), who should be satisfied through ad-hoc internal marketing strategies. This managerial approach towards HRM has proven an increase of employees' engagement (Lovelock and Wirtz, 2004): they acquire a more holistic view of their job and they feel more integrated in the company. Therefore, employees are more motivated, improving their commitment to the job and raising up their individual performance. In addition, internal marketing can have a positive effect on the development of new soft skills since they rely on stimulating a favorable labour environment.

Another relevant topic is the increasing competition among organizations in attracting skilled personnel. Mahroum (2000), indeed, argues best employees are considered as target customers in the current competitive arena since they can positively affect the performance of the company. Given the above, one of the main goals of internal marketing is to understand the factors which contribute towards company's "employer attractiveness" (Berthon et al., 2005). By this way, organizations can hold their talents, on the one hand, and steal high skilled employees from competitors or hire gifted unemployed people, such as new graduates, on the other hand. Hence, companies that attract the best minds will have higher possibility to achieve a sustainable competitive advantage in the marketplace. According to this theory, Berthon et al. (2005) introduce the concept of "employment advertising" and "employment branding" as a tool to raise company's attractiveness.

When it comes to shipping industry, considering the frequent turnover on the ships and the lack of labour demand in the sector, internal marketing represents an important instrument to retain the best seafarers. This managerial strategy can stimulate seafarers to continue their seagoing career thanks to better life and work expectations. Moreover, high skilled seafarers can also aspire to a professional career ashore within the divisions of the same company, if it is vertically integrated (Parola et al., 2006). This mechanism, indeed, is particularly relevant for vertically integrated groups because it allows the cross fertilization of competences among different business units.

As a result, seafarers are more motivated to take part in training courses and improve their hard skills for achieving higher qualifications. This attitude strongly affects their contribution to the enhancement of shipping company's performance.

2.4. Research objectives

The theme of skills and competences appears particularly complex within the shipping industry, especially when considering the variety and heterogeneity of the professional profiles belonging to the three ship departments (i.e. deck, engine and hotellerie) and related skills and competences. Few prior academic contributions have addressed this topic, and there is still a gap in literature for disentangling the distinction between hard and soft skills in this sector. Therefore, empirical evidence and research projects appear pivotal for scholars because they may provide valuable insights to investigate seafarers' skills. According to Hendarman and Cantner (2018) seafarers' hard skills differ in relation to various job positions. Higher qualifications require more complex skills as demonstrated by the hierarchy of the deck department: seafarers who want to achieve the qualification of shipmaster or first officer must be able to carry out specific tasks and manage heavy responsibilities, which require significant hard skills (e.g., planning, command, assistance and surveillance of maritime navigation with conventional and electronic instrumentation), whereas the ordinary seaman does not need the same advanced certifications and competences. Conversely, soft skills are applicable transversely across all levels of the organization for performing any sort of activity. Thus, soft skills

such as leadership, commitment to the job and the ability to work in a team derive from previous work experiences and can be used not only in the shipping industry, but also in most workplaces.

Due to the rapid changes in maritime labour market's requirements, shipping companies are now challenged to heavily invest in developing their employees' skills and competences, to enhance labor productivity and firm competitiveness. In this perspective, we formulate our first research objective which aims to support academics and practitioners in the identification of the main hard and soft skills required in this labour market:

RO1: to map the main onboard professional profiles for each ship department, identifying the associated hard and soft skills.

According to RBV and KBV theories, seafarers, as human capital, represent a relevant resource of shipping companies. In this perspective, these organizations need a managerial tool to measure the level of seafarers' skills, aiming at increasing labour productivity. Indeed, skills and competences are intangible resources which are difficult to evaluate. Moreover, the shipping companies' HR Departments must understand seafarers' needs to foster their engagement and commitment towards the company. Prior studies and professional reports (e.g., Thai et al., 2013; BIMCO, 2015) have demonstrated seafarers tend to leave the industry before the retirement age because they are not satisfied with their lifestyle and working career. As a result, they are unmotivated, having a huge impact on their job performance. The problem becomes even more serious considering the current shortage of seafarers in shipping labour market, especially for specific professional profiles which require high skills and competences (BIMCO, 2015)

Therefore, the second research objective of the paper aims to evaluate seafarers' hard and soft skills by a self-assessment procedure, which can provide valuable insights for both shipping companies and their employees. Consistent with the results of RO1, this approach may contribute to understand seafarers' awareness of their hard and soft skills, in relation to the onboard position held. It also represents a significant basic tool for the HRM to get an overview of the main lacks and weaknesses, as perceived by employees.

RO2: to evaluate how seafarers assess skills and competences developed in their seagoing experience, in order to understand their levels of preparation and identify the main limits for their career development.

Finally, given the problems encountered in the poor life satisfaction of seafarers in the last part of their seagoing career, the RO2 is also addressed to identify the main limits and barriers perceived by seafarers for a future job requalification ashore. considering the soft and hard skills owned by each onboard professional profile and their respective (self-)assessment, we try to understand why these competences cannot be used for a job position ashore and why seafarers fail in the research of an alternative/complementary job. According to the internal marketing managerial

perspective, the knowledge of seafarers' requirements (e.g., the desire to conclude their career ashore) represents an important driver for improving the HRM of shipping companies.

3. Method

This section describes the methodology applied to investigate the two research objectives of the paper. In particular, the manuscript benefits from the research outcomes of the Project titled "SECOND LIFE: Seafarers work and live better having alternatives of a future job ashore", funded by the ITF Trust in the 2017-2018 period and commissioned to the research team of the Italian Centre of Excellence in Logistics Transport and Infrastructures (CIELI) of the University of Genoa (Italy) . The project goals are to advance the knowledge on the career and life expectations of Italian seafarers, identifying the most suitable career opportunities for each onboard professional profile, based on their hard and soft skills. Given the complexity of the set purposes, the proposed method is articulated in two activities: (i) desk research, to map onboard professional profiles and related skills and competences, and (ii) on field research & online survey, to evaluate the level of skills owned by seafarers and the main perceived barriers for a future career ashore.

3.1. Desk research

In line with RO1, the main professional profiles belonging to the deck, engine and hotellerie department of the shipping industry are identified through a three-stage desk research procedure which includes: a) the review of all professional profiles resulting from the well-known report of Iacono and Monticelli (2015) entitled "Guida ai mestieri del mare - Le professioni dello shipping"; b) the identification of new professional profiles, examining job offers on various specialist websites and online platforms in the period June 2017 – September 2017; c) the resulting list of professional profiles is submitted to 5 experts of seafarers recruitment, operating for container and bulk shipping companies, as well as cruise and ferry companies. To this purpose we collaborate with ESA Group (the private industrial partner of the "SECOND LIFE" project), a well-known Italian crewing and manning agency. Combining the knowledge and the long experience in the shipping industry of ESA Group with the research activity of CIELI team, we identify 116 onboard professional profiles, divided into: 12 for deck department, 13 for engine department and 91 for hotellerie department (Figure 1).

Figure 1. Onboard professional profiles

Deck
12 professional profiles

- Ship Master
- First officer
- Second officer
- Third officer
- Safety officer
- Security officer
- Environmental Officer
- Bosun
- Able man
- Ordinary seaman
- Plumber
- Carpenter

Engine
13 professional profiles

- Chief engineer
- First assist. chief eng.
- Second assist. chief eng.
- Third assist. chief eng.
- ETO
- Chief refrigerator eng.
- Chief refrigeration
- Motorman
- Oiler
- Wiper
- Fitter
- Electrician
- Ordinary machine worker

Hotellerie
91 professional profiles

Sub areas	Figures
Food and beverage	**18**
Purser	**2**
Housekeeping	**4**
Hotel administration	**9**
Personal care department	**23**
Saloon/spa/fitness	5
Medical	1
Various activities	17
Entertainment department	**4**
Office position	**31**
Accounting	7
Administrative/Clerical	10
Air operations	4
Marketing/Public relations	7
Reservation/sales	3

Resource: authors' own elaboration

Then, in the period October 2017 – January 2018, we scrutinize the main hard and soft competences associated with these job positions and qualifications, taking advantage of the information and insights provided by ESA Group and others Italian manning agencies. For each selected profile, we develop a document reporting both hard and soft skills achieved through seagoing experiences and training courses (see, among others, Ghosh et al., 2014). As a result, we identify 26 hard skills and 22 soft skills belonging to deck, engine and hotellerie ship departments. Given the peculiarity of hard skills, which differ from each job position and qualification, we propose an original theoretical framework made up of three different layers of hard skills (i.e., micro, meso and macro levels). Relatedly, we disarticulate the macro-level, which consists of 26 competences, into 109 hard skills (i.e., meso-level) and then into 762 even more specific hard skills (i.e., micro-level). This approach provides scholars and practitioners with a tool to evaluate the hard skills required by the shipping labour market according to three different perspectives. Macro-level identifies the main categories of hard skills whereas micro level outlines in detail the skills of each professional profile. In order to facilitate the analysis, micro-level hard skills are aggregated into sub-categories (i.e., meso-level), which provides an adequate level of detail without making the investigation too complex to manage.

3.2. On field research: the online questionnaire

As regards RO2, we develop an ad-hoc structured questionnaire made of 6 sections and 72 questions. The questionnaire was administered to more than 4,500 Italian seafarers, with the support of ESA Group and others relevant Italian stakeholders of the industry, in order to understand how seafarers evaluate their own skills and competences, given a specific background. In detail, the structured questionnaire is articulated in 6 sections, as follows:

i. Socio-demographic variables and prior experiences.

ii. Current job position and qualification.
iii. Competences and skills (self-assessment).
iv. Barriers to ashore job careers (perceived).
v. Ashore job expectations.
vi. Training courses and educational programmes.

The first section reports socio-demographic information of respondents (e.g., gender, age, nationality, place of residence, etc.) aiming at defining the main descriptive statistics of the sample. In addition, it contains questions referred to sample seafarers' previous experiences (e.g., first and last boarding, information regarding previous work experiences, including the different typologies of vessels they have worked on). The second section investigates the current job position and qualification of the sample seafarers. We identify the department they belong to (i.e. deck, engine and hotellerie), the typology of employment contract and the certificates of competences they have achieved during their career. In the section concerning the self-assessment of competences and skills by respondents (i.e., III), we ask sample seafarers to self-assess their skills. As regards soft skills, the questions are addressed to each respondent without any distinctions of job position and qualification. Thus, sample seafarers are called to self-assess 22 soft competences they have achieved during previous working and life experiences according to a 6-point Likert scale (i.e., 0-5). Despite the initial choice to use a more common 5-point Likert scale (i.e., 1-5), we decide to include the value 0 since respondent seafarers may not have any experience or competence related to a specific skill. Moreover, several academic contributions (see e.g., Leung, 2011) argue there are no differences in the utilization of scale points beyond the 3-point scale. When it comes to the questions concerning the evaluation of hard competences, they are divided in different blocks depending on the ship departments (i.e., deck, engine and hotellerie), job position and qualification (e.g., ship master, second officer, chief engineer, motor man, plumber, etc.) and previous work experiences of each respondent (i.e. the typologies of vessel they have worked on). Thus, every block of questions is customised on respondent's previous answers, since hard competences concern specific technical aspects and qualify seafarers. As a result, sample seafarers are called to self-assess their hard competences according to a 6-point Likert scale. Section IV deals with the (perceived) barriers to ashore job careers by sample seafarers. We ask if they have tried to look for a job ashore and which are the main (short-listed) negative endogenous and exogenous factors have prevented this experience (e.g., lack of contacts facilitate the identification of job opportunities ashore, inadequacy of the salary levels for the specific professional qualification ashore, inadequate knowledge of the English language, etc.). Conversely, we investigate the duration, the typology of contract and the main characteristics of their ashore job experience, including a comprehensive evaluation and the main limitations perceived. The fifth section collects the information concerning respondents' future career expectations. Therefore, questions are addressed to scrutinise the amount of years respondent has worked ashore, the number of years he/she thinks to leave onboard career and find a job ashore, potential industries of interest (e.g., shipbuilding industry, public administration, touristic port, education, manufacturing industry, etc.) and a list of

preferred professional profiles related to the prior 10 sectors of maritime and port industry. In particular, sample seafarers are called to indicate a level of appreciation for each short-listed possible professional profile ashore (e.g., pilot, yard planner, carpenter, crew assistant, technical manager, professor, etc.).

The last section (training courses and educational programmes) is dedicated to examine the commitment of sample seafarers to attend training courses and education programmes for achieving new certificates and improving their skills. In this vein, we investigate their willingness to attend non-compulsory courses as well as their interest for specific training courses and topics.

As concerns the administration of the questionnaire, a first hardcopy version was sent by ESA Group in January 2018 to 20 seafarers included in its database, aiming at understanding the average time required to answer all questions and the overall complexity of the structure respective content. The feedbacks received helped the research team of CIELI to improve the user-friendly nature of the survey. At the end of January 2018, we developed the final version of the questionnaire using the online platform Monkey Survey which is a useful and well-established tool in academics and practitioners' domain. Afterwards, we sent the survey to 2,984 Italian seafarers included in ESA Group's database. Due to invalid email addresses, the actual number of seafarers who received the survey is 2,760 that denotes a negligible failure rate (7.5%). To widen the sample, in late-February we submitted the questionnaire to others 1,600 seafarers included in IMS's database (a well-known Italian company of crew management). This action was particularly relevant because this database contains some professional profiles which are not entirely covered by ESA Group database (especially seafarers who work in the cruise and ferry sectors). The online compilation was closed on March 30th, with a final sample of 694 usable questionnaires. In particular, the sample is composed by:

- 319 seafarers from the deck department
- 193 seafarers from the engine department
- 182 seafarers from the hotellerie department.

Considering the novelty of the study and the hard work required to contact seafarers, the sample is considerably wide and statically consistent for the analysis.

4. Discussion of findings and implications

4.1. Onboard professional profiles and respective skills

After examining 116 onboard professional profiles belonging to deck, engine and hotellerie ship departments, we apply our original theoretical framework to identify and categorise the hard and soft skills of each detected professional profile.

As a result, Table 1 reports the 26 macro-level hard competences and the related number of meso-level and micro-level hard competences included in each one.

Table 1. Macro-level hard competences

Id	Macro-level	No. meso-level	No. micro-level
1	Bunkering, lubrication and ballasting operations	6	7
2	Command, assistance and surveillance of maritime navigation	26	33
3	Control of propulsion equipment and systems	10	12
4	Control of trim, stability and space of the ship	13	15
5	Control, maintenance and repair of electrical, electronic and mechanical systems on board	12	12
6	Direction, performance evaluation, safety maintenance, maintenance and repair of equipment and main mechanical and auxiliary machinery / execution of welding operations, machining and piece compliance control in the mechanical area	14	14
7	Engine and boiler guard	5	5
8	Guard on deck, wheelhouse, lookout	11	12
9	Handling, storage and unloading of cargoes according to international codes and regulations	17	26
10	Maintenance and repairs of wooden structures on board the ship	12	13
11	Management of emergencies and application of the procedures envisaged for the safeguard and care of people on board (safety / security), for the protection of the marine environment and the prevention of pollution, preventing, controlling and combating fires on board	60	121
12	Management of machine human resources	26	36
13	Management, maintenance and repair of safety, security and environmental protection facilities and equipment	48	81
14	Management, performance evaluation, maintenance in safety, maintenance and repair of equipment and main and auxiliary electrical machinery / preparation, installation, monitoring and maintenance of the on-board electrical system	12	15
15	Management, performance evaluation, maintenance in safety, maintenance and repair of equipment and main machinery and refrigeration aids / Air conditioning	23	36
16	Management, performance evaluation, safety maintenance, maintenance and repair of main and auxiliary electrical, electronic and control machinery and equipment	21	25
17	Management, performance evaluation, safety maintenance, maintenance and repair of main and auxiliary mechanical equipment and machinery	65	165
18	Mooring and anchoring manoeuvres (and maintenance)	18	26
19	On board maritime activities	13	14
20	Operation of electrical, electronic, communication and control systems	12	14
21	Operation of emergency equipment and application of the relevant procedures	4	4
22	Planning and management of safety, security and environmental protection activities and periodic training of the crew to the related equipment, operations and operations	43	67
23	Search and rescue operations	6	6
24	Ship operation control	18	26
25	Take precautions to prevent pollution of the environment following the release of liquefied gases / chemicals / oil	41	66
26	Weather and oceanographic forecasts	14	18

Source: auhors' own elaboration

Table 2 reports the 22 soft skills detected by the authors.

Table 2. Soft skills.

Id	Soft skills
1	Ability to relate and communicate
2	Ability to work under pressure
3	Accountability for others
4	Attention to detail
5	Attitude towards the goal
6	Business acumen
7	Concreteness
8	Creativity
9	Customer orientation
10	Flexibility
11	Leading Others
12	Long Range Planning/projected organizational skills
13	Make decisions in a balanced way
14	Moral commitment for work
15	Negotiation and Conflict Resolution
16	Persuading Others
17	Practicality
18	Problem solving
19	Rationality and objectivity
20	Take into account the opinions of others without prejudice
21	Take responsibility
22	Willingness to be listed and be understanding

Source: authors' own elaboration

The authors and CIELI research team produce an original document entitled "*Handbook of On Board Professional Profiles: Hard Competences and Soft Skills*", that represents a relevant tool for the present research. The handbook includes an in-depth description of all onboard professional profiles operating in the deck, engine and hotellerie departments. In particular, we outline a specific profile card for each onboard professional profile, reporting a description of job position, main tasks and respective hard and soft skills detected in the research.

According to RO1, the handbook outlines all onboard job positions and qualifications, fostering the general knowledge of shipping labour market. Therefore, academics and practitioners can benefit from this outcome which tries to disentangle the complexity of crew management. On the one hand, academics can further investigate the organizational and managerial topics regarding skills and competences required by the shipping industry, exploiting the findings of the present research as a starting point for future theoretical and empirical studies. On the other

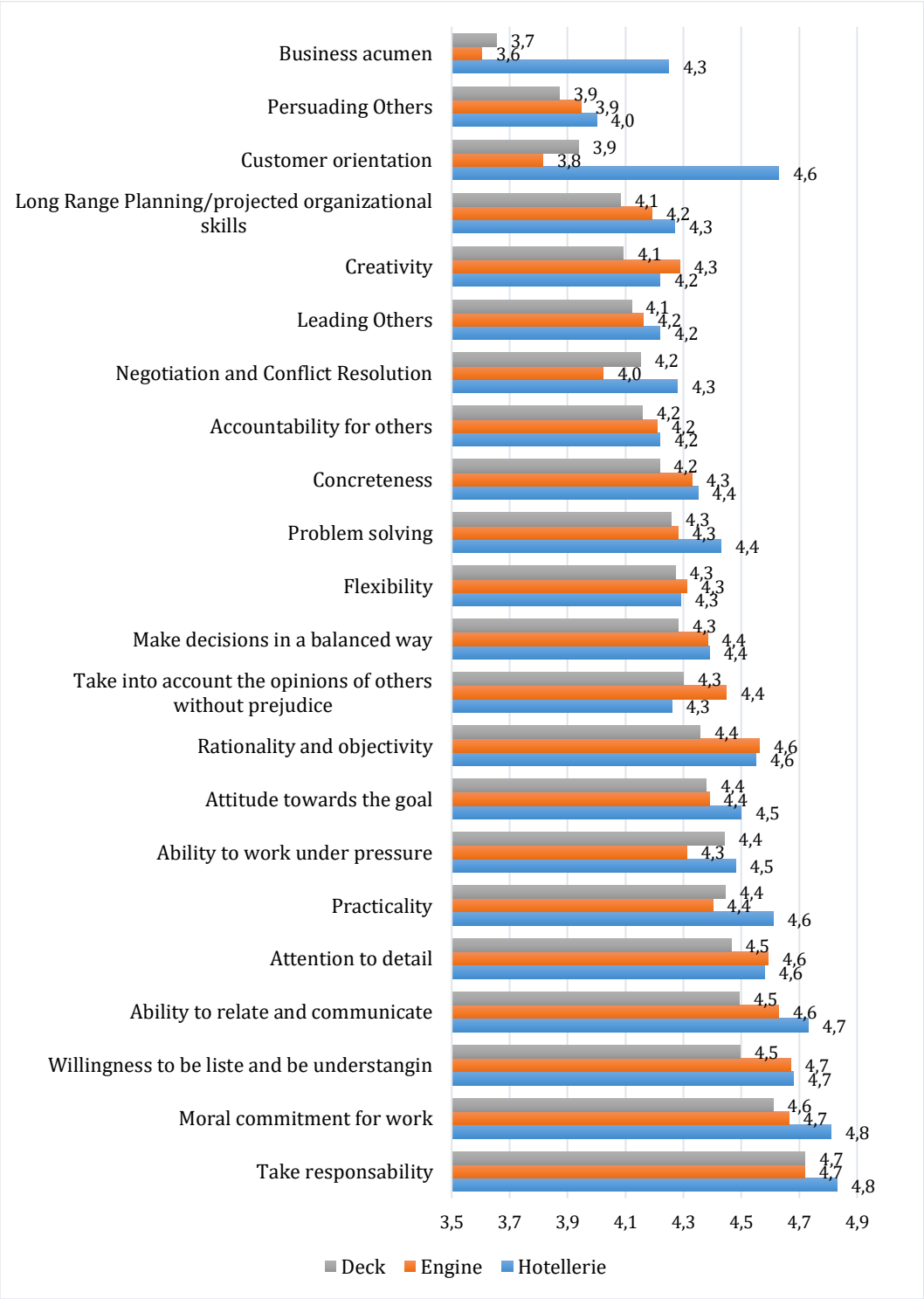
hand, practitioners have at their disposal a valuable tool for improving their HRM. In line with the RBV and KBV theories, they can optimize the management of the human capital and enhance company's performance, by analysing the competences required for each professional profile, by investing in training courses for their employees or hiring the most suitable candidates.

4.2. Evaluation of seafarers' hard and soft skills and perceived barriers

The third section of the questionnaire analyses how seafarers evaluate their own hard and soft skills. In this perspective, we asked respondents to self-assess the competences defined in previous RO1, according to their background, job position and qualification.

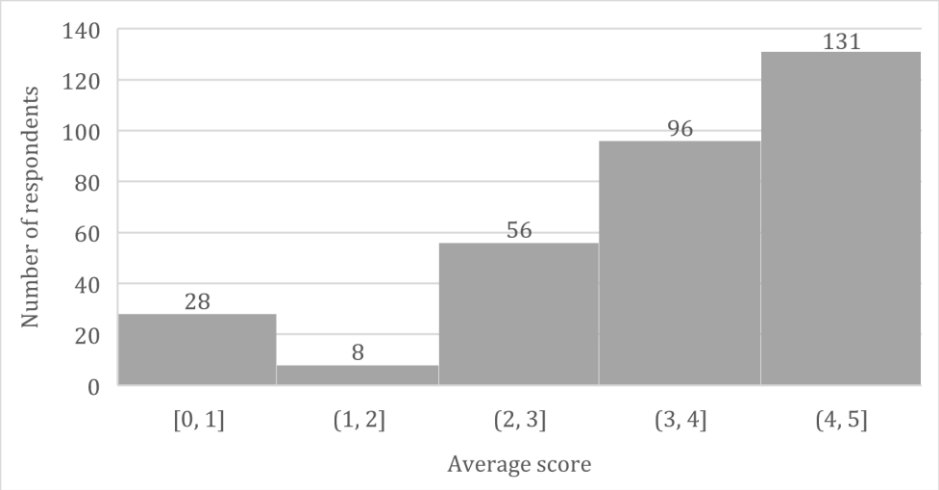
Figure 2 reports respondents' self-assessment of the 22 soft-competences, according to a 6-point Likert scale. The findings denote a general attitude of seafarers to positively evaluate their soft skills, especially the respondents of hotellerie department (4.4 on average considering all the 22 soft skills). In particular, seafarers of the deck and engine department assign a low score to "customer orientation", "persuading others" and "business acumen", which underline a gap in their preparation for managerial tasks, especially for commercial activities. Conversely, they appear more skilled for solving practical issues, as demonstrated by the evaluation of the following soft-skills: "take responsibility", "practicality", "ability to work under pressure", "attitude towards the goal" and "rationality and objectivity". When it comes to the evaluation of hard skills, we addressed specific questions to sample seafarers in accordance with their background and current job position at the moment of compilation. Hard skills are evaluated according to a 6-point Likert scale, as happens for soft skills. Figure 3 reports the average score accomplished by the seafarers belonging to the deck department. The 49% of this sub-sample (i.e., 319 respondents) reports an average score over 4 and the 13% gives the maximum score (i.e., 5) to all the hard skills investigated. Considering only the job position of "shipmaster", the 71% of the respondents reach at least the average score of 4. These results denote that seafarers of the deck department, especially the high command, which consists of the shipmaster and first, second and third officer, positively evaluate their hard skills, even though these competences require long experience and proper preparation.

Figure 2. Self-assessment of soft skills



Source: authors' own elaboration

Figure 3. Average score for hard skills: deck department

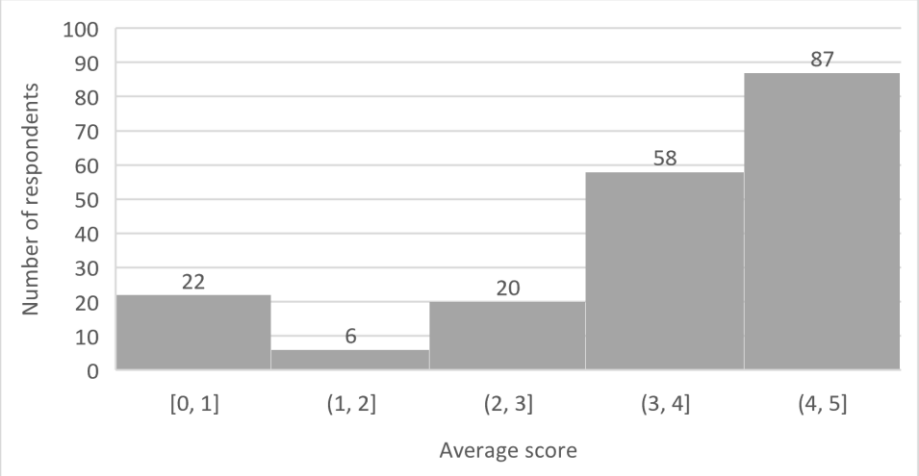


Source: authors' own elaboration

In the same way, we examine the average scores achieved by seafarers of the engine department (i.e., 193). The findings in Figure 4 show the 65% of respondents reports an average score equal to or higher than 4 and the 16% gives the maximum score (i.e., 5) to all hard skills investigated. Considering only the position of "chief engineer", the 79% accomplishes an average score over 4.

Therefore, both seafarers of the deck and engine department denote a certain level of self-confidence, since they think to have a flawless preparation, especially the respondents who belong to the high command.

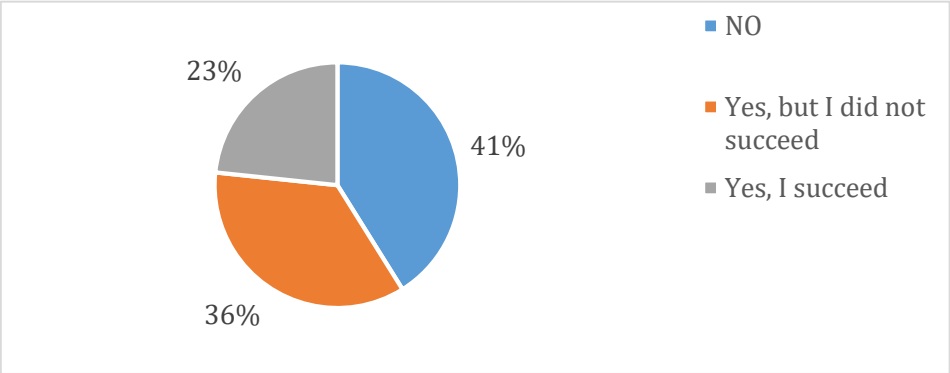
Figure 4. Average score for hard skills: engine department



Source: authors' own elaboration

Sections IV and V of the questionnaire scrutinize life and professional expectations of respondents. In particular, we investigate the perceived barriers and worries for future ashore careers and perspectives of seagoing workers.

Figure 5. Attempt to look for an ashore working position

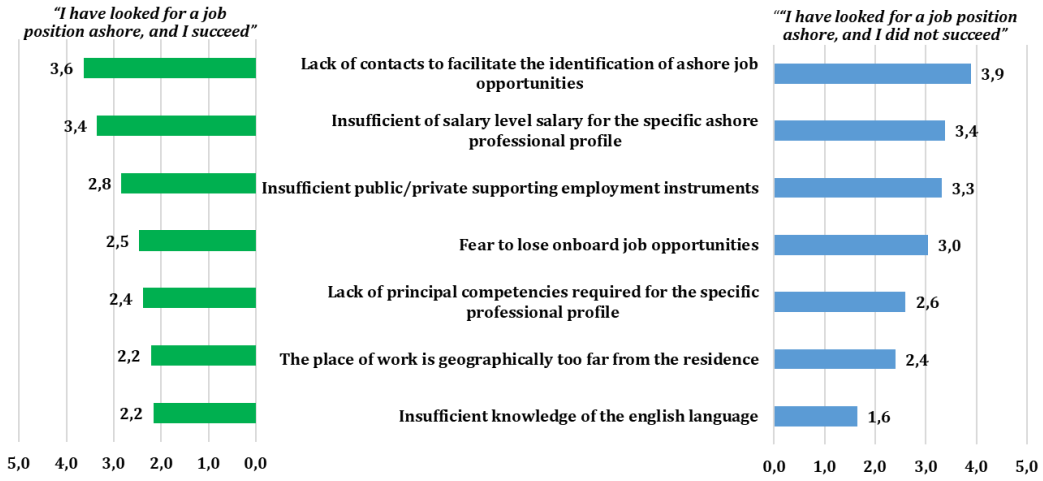


Source: authors' own elaboration

The 83% of the sample seafarers declare they would like to conclude the career ashore. This result is in line with previous studies (e.g., Thai et al., 2013; BIMCO, 2015), which underline the prospect of job ashore is a key driver for explaining the abandon of the seagoing career before the retirement age. Accordingly, Figure 5 reports the answers concerning the attempt of respondents to have looked for an ashore working position. Despite the majority of the sample seafarers would not continue to work on a ship until retirement, quite surprisingly the 41% of respondents have not even tried to find an ashore working position. In addition, the 36% have failed in the research of a new job. These findings unveil a certain difficulty for seafarers in changing the course of their career and, thus, life expectations.

Therefore, we investigate the main reasons and limitations seafarers have met. Figure 6 shows the outcomes concerning this issue. We asked sample seafarers, who have at least tried once to look for a job position ashore, to give a score to the main barriers detected by the authors, after meetings and consultations with relevant stakeholders of the shipping industry. According to the results, the main limitations are represented by the lack of practical and user-friendly tools for identifying suitable ashore job opportunities as well as the absence of support by private and public sectors in the seeking employment. Another problem is the lower salary of ashore professional profiles compared to onboard ones, which discourages a career turnaround. Unexpectedly, the lack of some of the major competences required for working ashore is not perceived as a big limitation (the average score for the respondents "who succeed" is 2.4, whereas for those "who did not" is only 2.6).

Figure 6. Main perceived barriers in future ashore career.



Source: authors' own elaboration

In line with above outcomes, we argue the main perceived limitations in finding a job ashore regard the lack of support in job-hunting by public institutions. Accordingly, a greater level of information about a potential future ashore is pivotal as well as a new public model for the employment services. Job centres may organise seminars and courses to help seafarers in their career path. At the same time, private companies should provide valuable career opportunities to their employees in order to stimulate seafarers to hold their onboard position in return for a closing career ashore. In this perspective, internal marketing strategies could offer interesting solutions to foster the relationship between the shipping company and its employees. In particular, the managers may understand the principal worries and expectations of employees, increasing shipping company's commitment for meeting their requirements. Seafarers, indeed, show a higher labour productivity and conduct a more satisfactory life when they have alternative job opportunities ashore. Given that most of the detected limits are essentially associated with subjective worries and missing information, internal marketing strategies can support seafarers to go beyond the perceived barriers and enhance their life satisfaction thanks to a promise of a brighter future. Finally, shipping companies are challenged in their internal marketing strategy to offer tailored training courses to seafarers aiming at fostering their hard skills and self-confidence.

5. Limitations and conclusion

The present study investigates the topic of skills and competences in shipping labour market. According to the managerial perspectives of RBV, KBV and internal marketing, we define two research objectives.

In line with RO1, we identify 116 onboard professional profiles (i.e., 12 for deck department, 13 for engine department and 91 for hotellerie department), providing an original theoretical framework for mapping hard and soft skills of each professional profile, as follows:

- 48 macro-level competences (26 hard; 22 soft)
- 131 meso-level competences (109 hard; 22 soft)
- 784 micro-level competences (762 hard; 22 soft)

For addressing RO2, we administered a questionnaire to Italian seafarers in order to understand how they evaluate their own hard and soft skills. The answers by 694 seafarers belonging to the deck, engine and hotellerie ship departments underline a general attitude of respondents to positively evaluate their soft skills. As regards hard skills, both deck and engine departments report a high evaluation of their competences which denotes a certain level of self-confidence.

Finally, we scrutinize the main perceived barriers which hinder seafarers in looking for a future career ashore. The outcomes indicate "the insufficient public/private supporting employment instruments", "lower salary level for specific ashore professional profile" and "the lack of contacts to facilitate the identification of ashore job opportunities" as the most serious problems encountered. Conversely, "the lack of principal competencies required for specific ashore professional profile" does not seem to worry seafarers.

Although the paper contributes to disentangle some managerial and organizational issue concerning HRM in shipping industry, it represents a pioneering study with some limitations that can be overtaken in future research. First, the skills and competences detected should be transformed into taxonomies recognized at national level, in conformity with law and regulations. Second, the paper leaves several rooms to study the general attitude of respondents to positively evaluate both their hard and soft skills. Third, the analysis can be extended to EU and international seafarers in order to widen the sample and examine in depth how respondents from different countries and cultural background evaluate their own hard and soft skills. In this vein, it could be interesting to investigate if they perceive the same limitations for future careers ashore. Finally, future studies may also categorize and analyse the sample seafarers based on the type of vessels on which they are employed. Accordingly, they could scrutinise if there are differences in the perceptions of seafarers who work onboard a cruise vessel, a bulk carrier, a containership or a ferry.

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