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# Intellectual Output 2:
## "The skill matching challenge"

# Task 2:
# Global report on Focus Groups

BEYOND ACADEMIA:
BROADENING THE CAREER HORIZONS OF DOCTORAL STUDENTS
IN MARINE AND MARITIME SCIENCES IN EUROPE

(SEA-EU-DOC)

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# "The skill matching challenge"

*Aligning doctoral students skills with employers' and entrepreneurs' expectations in the non-academic sector*

## 1. Introduction

The European Commission's Expert Group on "skills and career development in the Blue economy" has identified the education-industry cooperation as one out of three key areas of importance for their discussions. In 2018, the European Marine Board published a paper titled "Training the 21st century marine professionals", with the aim of proposing a new vision for marine graduate training in Europe, looking beyond the traditional approaches to education. To achieve this, the capabilities of the next generation of marine scientists and engineers must be improved to work at the systems level, applying multi-disciplinary knowledge to address complex marine issues. Most of the recommendations included in this Marine Board publication are in line with the necessity of a stronger link between academia and the non-academic sector, as potential employers of doctorate holders. In this context, doctoral education should ensure that doctorate holders' skills converge with employers' expectations.

In this context, the Intellectual Output 2 "The Skill matching challenge" aims to align doctoral students' skills with employers and entrepreneurs' needs in the marine and maritime sector. To do so, a comparative analysis of doctorate holders' skills (based on their skills' awareness) and employers' and entrepreneurs' needs will be performed asking them about the main weaknesses they detect in doctoral education. The work to accomplish must focus on three levels: the students' skills, the employers' needs, and the alignment of these two elements.

The present report is aimed on **Task 2: FOCUS GROUPS**, presenting the main outcomes obtained from 5 different focus groups carried out with employers (representatives of companies and SMEs) and entrepreneurs. They attended a unique session of work in which they gave their opinion about the skills they

would demand if there was a possibility of incorporating a PhD holder into their activities.

## 2. Participants



5 different focus groups were conducted according to the participants or host institution:

UBO - Université de Bretagne Occidentale, France
UCA - Universidad de Cádiz, Spain
CAU - Christian-Albrechts-Universitaet zu Kiel, Germany
UG - Uniwersytet Gdański, Poland
UNIST - Sveuciliste U Splitu, Croatia

Each focus group developed a specific session that lasted between 1.5-2.1 hours with several attendants (Figure 1), representing a variety of private companies including small and medium-sized enterprises (SMEs), local authorities, research institutes, and associations within the marine and maritime sector.

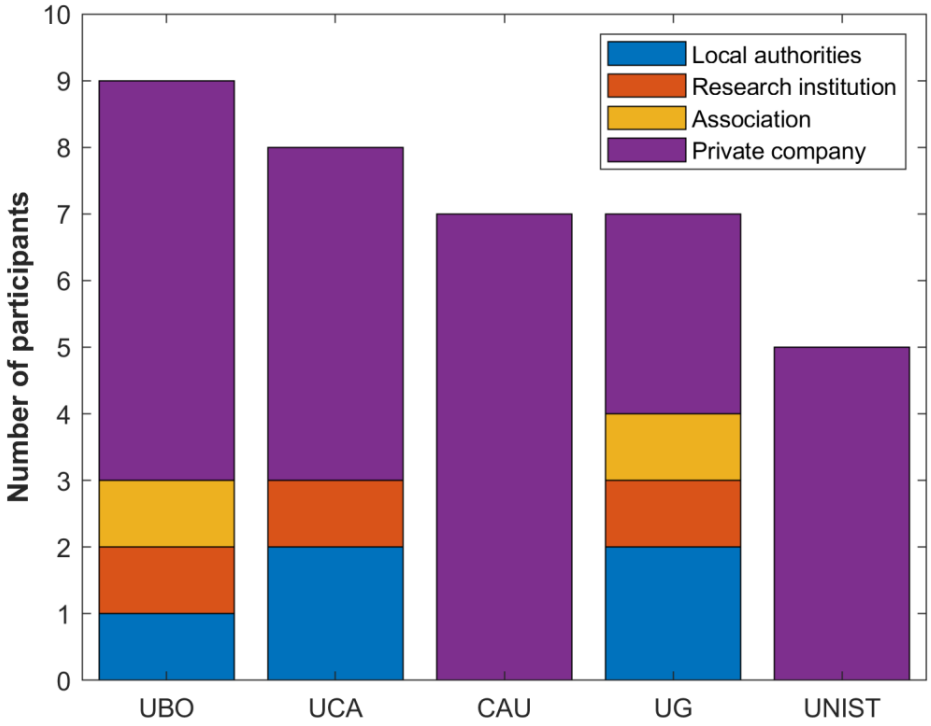


Figure 1. Number and type of participants according to the different Focus Groups

In general, all groups described the sessions as **fluid, participative, and rich in ideas,** providing valuable strengths for the SEA-EU DOC Project. The **participants were active and enthusiastic**, with no notable incidents in the execution of the focus groups. Only the UNIST Focus group pointed out that the session was carried out with fewer participants than expected due to the cancellation of several participants just one day before the session.

## 3. Outline of the Focus Group Sessions

5 questions were raised and discussed within the Focus Group. All of them related to the possibility of incorporating a PhD holder into their activities. Concretely:

***Question 1:*** *To cover the needs of their business or entrepreneurial activities, do they see an advantage in having a PhD holder?*

The answers to this question can be divided into two different approaches: i) Having a PhD holder **can be an advantage** or ii) that **there is no need to have a PhD holder** for their activities.

**i)** There was a general view that having a PhD holder is virtually essential (UG), because the business environment is fast paced and constantly evolving (UBO). A PhD can be beneficial due to the inherent skills (that are regularly upgraded), such as (UBO and UG):

- ***Adaptability and ability to learn quickly*** and evolve with the company.
- ***International experience*** (language skills): communication in meetings, conferences, or even with other organizations.
- ***Specialized knowledge and scientific skills*** together with writing and analytical skills.

Also, **a PhD holder is expected to work hard** (long hours) and they **can be beneficial for formal occasions** (benefits of having a person with a high degree of training) (CAU).
Mutual benefits (for the PhD and for the company) were also discussed*, e.g.,* the company provides technology, which is often applied in scientific studies conducted at universities.
A common response was also the **benefit for companies in terms of presenting grants, projects or applying for resources for innovation** (UG, UCA). A PhD holder would be able to successfully submit a project but also to report it. **Responsibility** is another positive skill related to PhDs and named as an advantage: *responsible tasks certainly require broadly educated people* (UG).

Although in general the small companies did not find advantages for hiring PhDs, the contrary was true for large companies, emphasized from the view that having a PhD is crucial for R&D activities (UNIST, UCA), e.g., "*the companies that have more employees have a potentially greater need to hire highly educated staff*" maybe because "*large companies have their own R&D departments where they employ such professionals*" (UNIST).

**ii)** Another point of view was that having a PhD is not necessary for recruitment. Other skills are more decisive while hiring than having a PhD "*it's really not about the doctorate, it's about skills"* (CAU). The general responses from this point of

view were that there is **no need to hire highly educated staff in small businesses** as **it is a non-profitable specific knowledge** (UNIST); this opinion was also agreed within the UCA Focus Group: *"the smaller the size of the company, the greater the difficulty"*. A specific opinion was that small businesses are focusing more on recruiting master's Graduates. Within this approach, it can be concluded that **having a PhD is not a priority factor when hiring a person, but it does add up** (UCA).

In this aspect, the UG Focus group discussed about necessary synergies among sciences and business, with emphasis on the aspect that science is not entirely taking the practical dimension of a proposed solution into account, it needs to be integrated with practice.

Figure 2 aims to highlight the main words or terms mentioned during discussions related to Q1.


**Figure 2. Word cloud identifying word frequencies related to Q1 (TagCrowd).**

***Question 2:*** *What skills should a PhD holder ideally have to make the best possible contribution to their business?*

The main answers to Q2 were related to the skills desired by the interviewees (Table 2), but also to several skills that are lacking on the part of the PhD holders.

In general, the so-called **social skills were seen to be very important** to fit into the working environment of a company. Also, a common point of view was that the generic skills are not often explicitly taught at the University. In fact, some

participants emphasized that these skills are not part of the students training in doctoral schools, or at least, that **their training in these areas is insufficient**.

More technically, a PhD holder must know how to connect theory with practice, have a broad knowledge, and understand the problem vertically. **Confidentiality awareness** regarding conducted research (Science *vs*. Business confidentiality) was also mentioned within the UG Focus Group.




Figure 3. Skills expected for a PhD holder (Q2)

On the other hand, a set of **lacking "skills**" can also be obtained from several focus groups, such as:

- Fluency in English (ideally, together with another language)
- Understanding of the economic environment in which they must operate
- Understanding of the "D" in R&D
- Budget management
- Industrial scale-up
- Legal ramifications

Finally, some participants agreed (depending on the activity) that PhDs are not the solution to all company problems.

Figure 3 aims to highlight the main words or terms mentioned during the discussions related to Q2.


**Figure 4. Word cloud identifying word frequencies related to Q2 (TagCrowd).**

***Question 3:*** *If they employed a PhD holder, what would the primary considerations be in choosing this person? (e.g., specific technical skills, in depth-knowledge, leadership, critical thinking, personality)*

The 3rd question seems to be overlapping with Q2, as it was specifically reported by CAU: "*In general the PhD is seen as demonstration of certain skills, that opens the door, but the final decision on hiring is based on transferable skills mentioned above (referred to Q2)",* although the **ability to work openly in a team** was stressed in this Focus Group. In general, a consensus was obtained within the UCA and UBO Focus Groups naming skills that were also reported on the previous Q2, such as **project management** or **entrepreneurial mindset**. Some specific skills were stressed by specific Focus Groups. For instance, UNIST emphasized **networking abilities**, while UG stressed on **leadership competences, self-reliance, and adaptability**. Common considerations are summarized on Figure 4.

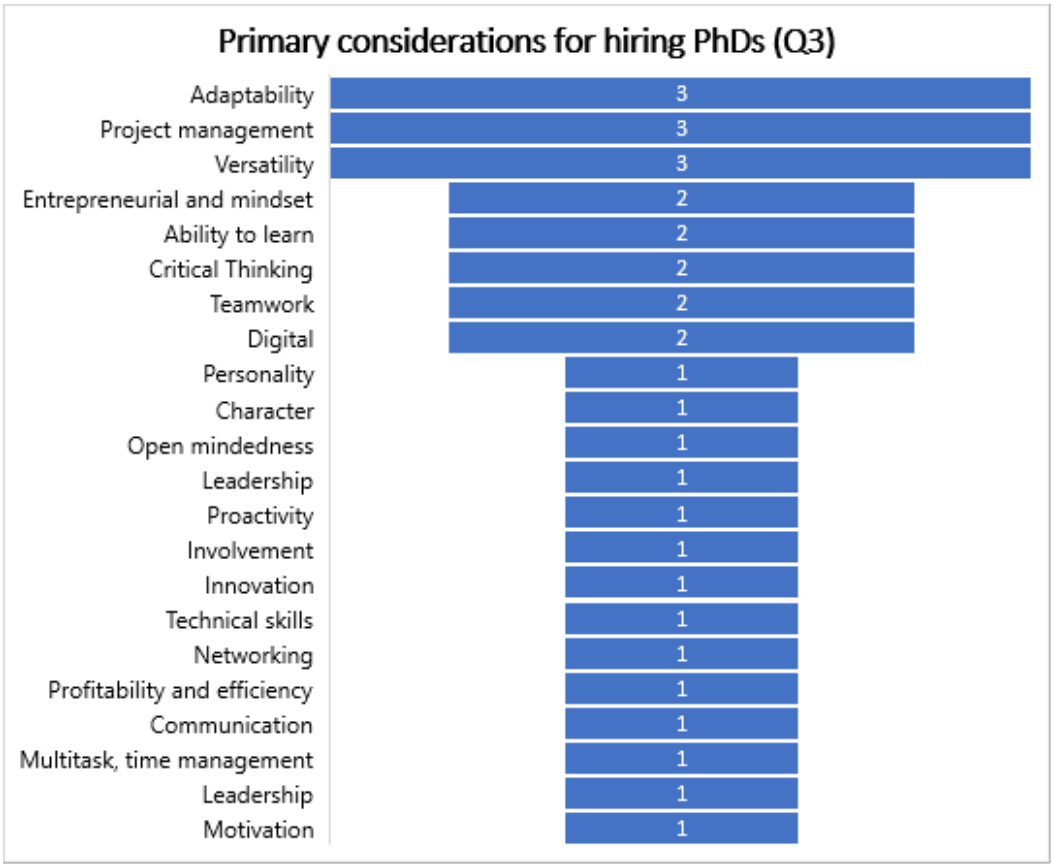


**Figure 5. Primary considerations reported in Q3. Ordering by the number of FG that mentioned the specific skill.**

Specific opinions were also raised; for instance, *"it is not a very well-perceived behavior when the mere fact of being a doctor causes a person to assume that he knows everything better"* by the UG Focus Group.

Figure 5 aims to highlight the main words or terms mentioned during the discussions related to Q3.




**Figure 6. Word cloud identifying word frequencies related to Q3 (TagCrowd).**

***Question 4:*** *What barriers might impede or obstacle the access of PhD holders to their business?*

The main barrier identified by most groups was the **salary**, which appears as an important hurdle in 4 out 5 Focus Groups. Salary as a barrier appears with some specification, *e.g.,* at UNIST because the degree of education can be a burden for employment. In the case of UBO, the participants mostly thought that PhD holders did not ask for high salaries because they were used to getting low wages, for example, during their postdoctoral contracts. Only one participant from the UBO Focus Group mentioned salary as a hurdle because the rules in their sector forced them to give PhD holders a salary based on a predefined salary grid.

Other barriers identified within the Focus Groups were:

- People are too subject-specific and have a lack of flexibility
- Job applications are written in a too technical way
- Level of academic status, as it could make other employees with a lower level of education feel inferior
- Personality and behavior
- Organizational hardship
- Many administrative processes (also commented in CAU)
- Profile very exigent for a company or very specific profile (training focused on teaching and research)
- Lack of motivation

Some of these identified barriers match with skills expected or ideally requested for companies in the previous questions (Q1-Q3).

It is important to note that some participants found that **PhD holders did not always introduce themselves in light of the company**, but rather in terms of their **own expertise**. This was the major hurdle to gain access to the companies (CAU Focus Group).



Figure 6 aims to highlight the main words or terms mentioned during discussions related to Q4.


**Figure 7. Word cloud identifying word frequencies related to Q4 (TagCrowd)**

### **Question 5:** *What can their respective companies or initiatives offer specifically to a PhD?*

There were a variety of opinions on this Q5, mainly due to the specificity of each participating company. Nevertheless, the **offer of good working conditions** was practically reported by all the Focus Groups from terms of equipment (computer, instruments, etc.) through **abundance of freedom** (*e.g.* flexible working hours, the freedom to build their own research projects within the company), an opportunity to implement ideas, as well as satisfaction from the job and its effects, offering an **exciting work environment, working on a young, dynamic team**, etc.

Another offer that appeared in two Focus Groups was the **cooperation with eminent companies and experts in the field**. Some companies considered a good offer to cooperate closely with other businesses all over the world.

The **stability and economic solvency** (in case of public companies) were also mentioned. Others just specified financial means to do their work.

As a final note, it is worth mentioning that some Focus Groups explicitly said that they could not offer anything special to a PhD holder. Mostly, participants felt they would not treat a person with or without a PhD differently except if the job required it.



Figure 7 aims to highlight the main words or terms mentioned during discussions related to Q5.


**Figure 8. Word cloud identifying word frequencies related to Q5 (TagCrowd)**