- The skill matching challenge - Learning from intersectoral stakeholders for boosting career opportunities of marine and maritime sciences doctoral alumni

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Objectives

… is to align the doctoral students' skills with employers' and entrepreneurs' expectations in the non-academic sector.

- **Identify** valuable **skills** acquired during the doctorate **that can be transferred** to any work context.

- **Increase the quality of doctoral training** to better fit the diversity of employment opportunities.

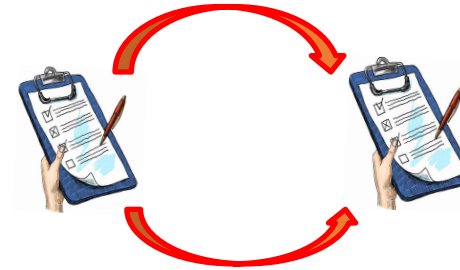# Methods used ... to identify the needs of the labour market

Surveys

Focus groups

Multiplier event

Delphi analysis

Methodology

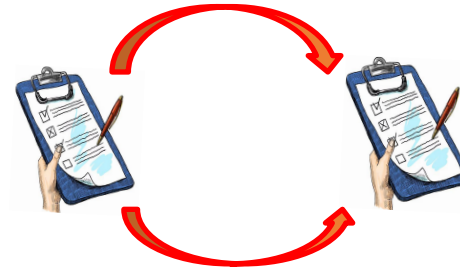# Methods used … to identify the needs of the labour market

- Surveys
- Focus groups
- Multiplier event
- Delphi analysis

Focus group

"… method used to solicit feedback from a small group of people on a specific topic."

Delphi analysis

"… method used to solicit opinions on a specific topic **to reach consensus …**, usually through questionnaires."

Methodology

Methods used   … to identify the needs of the labour market
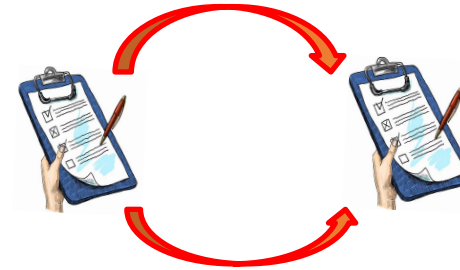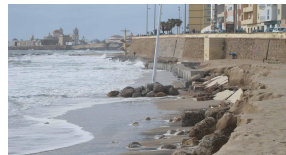
- Surveys

- Focus groups
- Multiplier event

- Delphi analysis

entrepreneurs and small, medium and large **enterprises**

+

research institutes, and associations

Methodology

Surveys

525 questionnaires were sent → 71 responses received

The **questionnaires' objectives** were to gather information on the companies':

- **Awareness** of **potential and skills**

- **Willingness to hire**

- **Awareness of the industrial doctorate programs** and willingness to participate

- Demands, in terms of **skills** (personal, social and interpersonal)

Focus groups / Delphi analysis

5 Focus Groups in total,
5 Delphi analysis with 2 rounds of questions – 20 answers in total

- **Advantages in hiring** ?

- **Most valued abilities** (fundamental knowledge, soft skills or social and interpersonal skills) and **skills** to make the best contribution to their business

- **Willingness / main considerations to hire**

- **Barriers** encountered **to hire** a

Methodology

Multiplier event: Doctorate holders for Blue and Sustainable Growth

Round table: *"Skills beyond academia"*

Open **debate** on:

1. The **skills offered** by the doctoral schools.

2. The **skills demanded** by the non-academic sector.

3. The **perception of the skills acquired** by PhD students.

Methodology

Skills identified by employers

☐ No consensus regarding **most valued ability**, e.g.:

- **fundamental knowledge** most important among non-profit organizations & public sector), but

- being **too specialized and non-flexible is a serious drawback** (private companies), e.g. they valued most project management.

☐ The importance of **soft skills** and **resilience** was highlighted.

Results & Discussion

Skills

COMPLEX PROBLEM RESOLUTION

CREATIVITY & INNOVATION

- Most important **soft skills:** "innovation and creativity", "team work", and "complex problems resolution".

TEAM WORK

- Most important **interpersonal skills**: "team work capacity ", "creativity", "leadership" and "flexibility".

- Various **lacking skills**, e.g. - Fluency in English (ideally, together with another language),

  - Understanding of the economic environment

  - Understanding of the "D" in R&D

  - Budget management

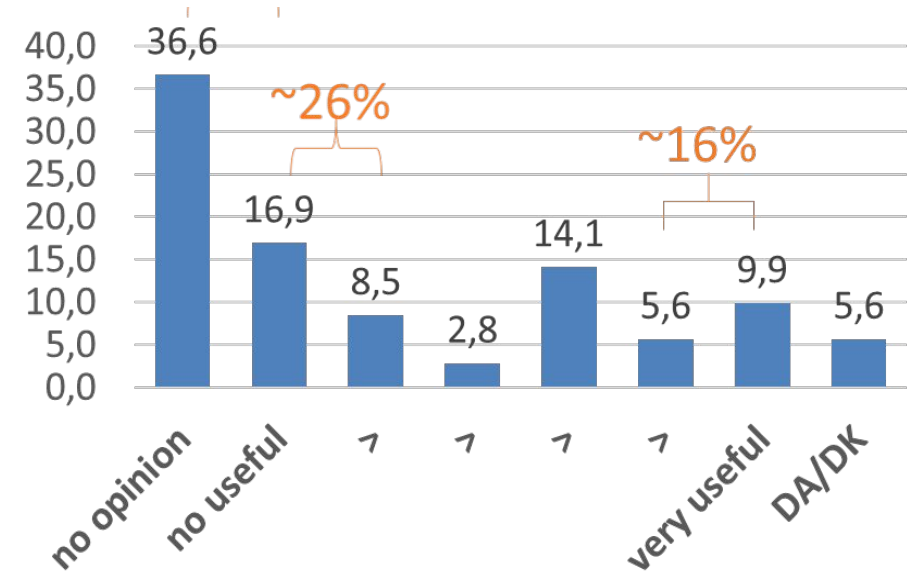 - Industrial scale-up…

Results & Discussion

Employment of doctorate holders

❌

Is there any advantage in hiring a doctorate holder?

Most companies:

☐ … **didn't find it useful** to hire a doctorate holder.

Bar chart values:
- no opinion: 36,6
- no useful: 16,9
- (arrow): 8,5
- (arrow): 2,8
- (arrow): 14,1
- (arrow): 5,6
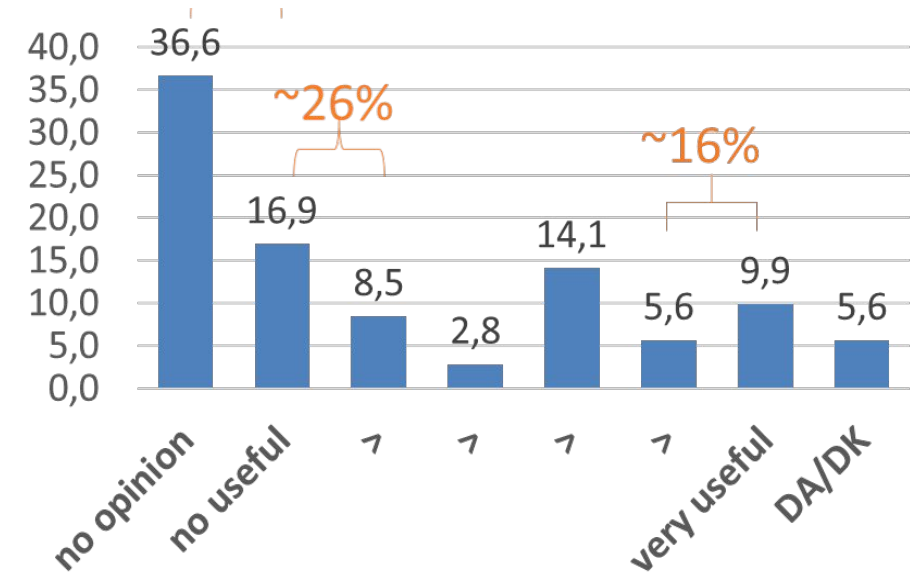- very useful: 9,9
- DA/DK: 5,6

~26%
~16%

Employment of doctorate holders

✗

Is there any advantage in hiring a doctorate holder?

Most companies:

☐ … **didn't find it useful** to hire a doctorate holder.

☐ **… had not hired** a doctorate holder within

   the last 5 years (**63%**).

☐ …were **not aware of the** *Industrial PhD Program* (**77%**).

Employment of doctorate holders

but:

- \> 50% were willing to train a doctoral candidate within an *Industrial PhD Programme*.

- And over 69% were willing to hire them afterwards!

- The **most common tasks** for after being hired: **innovation, consultancy** and **scientific advice**.

Would they train a doctoral student in an industrial doctoral program?

51%
8%
41%
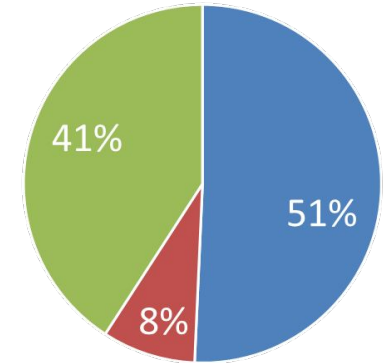
■ Yes ■ No ■ No opinion

Employment - Barriers

The **reasons** for not hiring doctorate holders were **not clear**!

☐ **Salary** appeared as an important hurdle in the Focus Groups but not in the Delphi analysis.

☐ **Private companies** aim at increasing their profit and:

- prefer less specialized people and train them within the company (reduced salary costs).

- value experience more than an academic degree

- believe that doctorate holders are individualists and don't adapt well to working in a team.

Employment - Barriers

Other barriers were also identified (depending on the Focus Group):

 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

 Lack of motivation

 Lack of flexibility

Employment – Suggestions for improvement

☐ Doctorate programs should include:

- Training in **entrepreneurship skills** & project **proposal writing**

- **business networking events** (>78 %)

☐ **Public funding to hire researchers** in private companies would increase the development of R&D projects.

☐ Need to establish a **closer collaboration** (academia – non-academia).

Conclusions

- Universities must **promote** the **doctorate holders' skills** among the non-academic sector.

- **Industrial PhD programs** should be **promoted** among the private sector

- Doctoral programmes should be **aware** of the **most important skills**

- Universities must **increase** their **collaboration** with the **non-academic R&D sector**.

On behalf of all partners:

THANK YOU FOR LISTENING!