



Report from RSW no. 3

Transferable skills in Technology sector

Spanish non-academic stakeholders

Date: 27-october-2020 & 03-november-2020

Place: Online (Zoom)

Organizing institution: Fundación Universidad-Empresa (FUE), University of Alcala (UAH)

No. of participants: 14 regional stakeholders + 3 members of FUE + 2 members of UAH

Agenda for Regional Stakeholder Workshop:

1. Introduction

- Introduction to the DocEnhance project
- Transferable skills for the non-academic sector

2. Round Table: Transferable skills that PhDs should have to facilitate their professional opportunities and career Development in the non-academic sector

- Brief presentation of participants
- Analysis of the sectorial job market requirements regarding transferable skills
- Open discussion: proposals regarding skills related to mobility, interdisciplinarity, open education, data administration, career management, etc.
- Open discussion: transferable skills in doctoral education.

3. Conclusions

- Synthesis of proposals and results from the session's discussions.





DocEnhance

OBJECTIVES OF THE RSW NO.3

- To discuss specifics of the Spanish technological and industrial sectors focused on the employability of doctoral graduates.
- To identify transferable skills essential for working in the industrial and technological sectors.
- To prepare a final list and ranking of transferable skills identified as crucial for working in the technological and industrial sectors.

SUMMARY OF THE RSW EVENTS

This third regional stakeholder workshop, located in Spain and focused on technological and industrial stakeholders from the non-academic sector, was organised by Fundación Universidad-Empresa and University of Alcalá. An online mailing campaign was carried out, as well as dissemination on social networks (Facebook, LinkedIn and Twitter). Interested participants were contacted to provide further information on the RSW. After a review, up to 20 people were invited to participate in the RSW, dividing it into 2 online events (forced by the current situation of Covid-19). The groups were limited to a maximum of 10 people per workshop in order to ensure dynamic discussion and participation from all participants. Finally, 14 people (6+8) attended the 2 workshops. Each session had a duration of approximately 90 minutes, going through to the given Agenda. After the online sessions, a short questionnaire was sent to the participants in order to evaluate the workshop and identify the most important transferable skills required by doctoral graduates. All the 14 participants sent their answers to the questionnaire.





DocEnhance

CONCLUSIONS

As required for the RSW nº 3 focused on retrieving technological stakeholders feedback, RSW participants came from a wide spectrum of industrial and technological companies from the following fields: Biotech, Chemistry, ITC, Digital Services, Pharma, Aerospace, Photonics, Logistics, etc.

Participant professional profiles were also very diverse: founders/co-founders or staff at innovative technological and industrial spinoffs/startups (5); talent development and HR functions at large multinational companies (4); project management at large multinational firms (2); researchers at a university or large multinational firms (2); industrial doctorate candidate (1).

After a first section where the DocEnhance members presented the main objectives of the RSW, the list of identified skills in the deliverable report D1.1 of the DocEnhance project were described and introduced to the participants, categorising them in 4 different group of transferable skills: Personal, Social, Acquired and Business Skills. Each competencies group was largely discussed giving the floor to the participants.

- **Personal Skills:** Participants agreed that two key skills are needed in the current scenario at industrial and technological companies: **adaptation to change, change management and resilience. Other important skills are complex problem resolution, decision making, negotiation capacity, emotional intelligence and empathy.** Given the current difficulties entailed in finding a placement within academia, self-management skills related to professional expectations are vital for early researchers. It is worth noting that almost everyone agreed **that these personal skills are not easy to include in doctoral curricula and that they are easier to acquire through in-company training.** Not too much attention was dedicated to integrity in research, ethical issues or sustainability.
- **Social skills:** Communication skills stood out as the most valuable ones, including a high level of writing (preparation of quality reports and documents) and oral





DocEnhance

(presentations / speaking in public) skills. Many participants pointed out that they would hire someone able to sell a product/project in a convenient way. Participants also focused on the need for more experience in team working and conflict resolution, pointing out that early researchers working on their PhD thesis usually lack real team interaction (with the exception of those in industrial doctorate programs). They are not accustomed to working in teams and academia, in general, does not promote teamwork among doctoral candidates. Good networking skills were also mentioned as relevant.

- Acquired skills: Participants perceived that foreign language (mainly English) skills are always required in international companies. Additionally, several participants referred to self-branding as an important skill that should be fostered in early researchers as an essential element of personal career management. In this same line of thought, several participants mentioned the need to foster self-promotion skills (i.e. PhD candidates and graduates sometimes have difficulties in identifying their strong points and the transversal skills they possess, they do not know how to “sell themselves”, the so-called, personal branding should be improved).
- Business skills: Three skills were repeatedly mentioned when discussing skill gaps in the transition process from academia to business:
 - integration in company culture and policies: PhDs/Early researchers lack a general knowledge of business culture and how companies operate (limited resources, different communication style, importance of interpersonal relations and team work, multidisciplinary, people management, conflict resolution, client interaction, day-by-day company work-life, etc.) Several participants suggested that company stays or internships (in lieu of or in addition to university research stays) would allow doctoral candidates and graduates to “soak up” business culture, and thus contribute to close this skills gap. The PhD mindset is not oriented to economic viability and results.





DocEnhance

- project and time management: early researchers are accustomed to look for perfection in their work and when they begin to work in a company environment they tend to spend more time than allotted in completing given tasks. In a company environment, the “best” solution is sometimes not the “optimal” solution (“perfect is the enemy of good”); there is often not enough time for “perfection”, and decisions have to be taken quickly. Strict project (budget) and time (deadlines) management is essential in the non-academic sector, but is not usually part of a doctoral graduates’ mindset.
- leadership, people supervision and political savvy.

Others skills such as innovation and entrepreneurship were mentioned to a lesser degree, although some participants pointed out that academia does not foster the entrepreneurial mindset among PhD candidates and graduates. Lastly, marketing, enhancing the value of research or product development and IPR management were not considered as relevant skills for doctoral graduates, as these issues depend on company characteristics and policies (most firms have their own specific departments for these tasks, or they resort to external consulting firms).

Transferable skills needed for more ‘industry- and society- ready’ PhDs

A post-workshop survey was distributed to participants in which they were asked to rank the transferable skills that PhDs need in order to be more “industry- and society- ready” (i.e. better prepared for professional integration in non-academic sectors) from two perspectives: the importance each of the skills listed have for companies who hire PhDs (1= not important at all; 2 = somewhat important; 3 = important; 4 = very important; 5 = essential); and the level of competence possessed by PhDs hired by companies (1= very low; 2 = low; 3 = adequate; 4 = high; 5 = very high). All participants responded.

The 10 skills ranked as most important for companies were:





DocEnhance

1. Adaptability / flexibility (4,64)
2. Collaboration / team work (4,57)
3. Motivation / proactiveness (4,50)
4. Language skills (4,50)
5. Presentation skills (4,36)
6. Permanent self-learning (4,29)
7. Ability to address different audiences (4,14)
8. Understanding business culture / organizational structures (4,07)
9. Participation in non-research activities (4,00)
10. Time management (3,93)

The highest levels of competences possessed by PhDs were related to the following skills:

- Thematic knowledge (4,29)
- Permanent self-learning (4,07)
- Ethics (3,93)
- Critical / analytical thinking (3,86)
- Motivation / proactiveness (3,86)
- Problem solving (3,71)
- Digital skills (3,71)
- Creativity / innovation / vision (3,64)
- Data analysis (3,64)

These results point to clear gaps in every category of transferable skills, that doctoral education might address to improve the employability of doctoral graduates.

The levels of competences possessed by PhDs only surpass company expectations in the case of the following featured skills:

- Geographic mobility (+28,21%)
- Thematic knowledge (+20,00 %)





DocEnhance

- Methodology (+13,64 %)
- Sustainability (+13,64%)
- Data analysis (+ 6,25%)
- Digital skills (+1,96%)
- Critical / analytical thinking (+1,89%)

The widest gaps (over 30%) between the importance of specific skill for companies and the levels of competences possessed by PhDs (seen by companies) were found for:

- Understanding business culture / organizational structures (-43,86%)
- Ability to address different audiences (-41,38%)
- Participation in non-research activities (-41,07%)
- Presentation skills (-39,34%)
- In-company internships (-39,22%)
- Client interaction (-36,36%)
- Collaboration / team work (-35,94%)
- Personal branding / self-promotion (-32,61%)

Finally, the next table summarizes all the previous information:

RANKING OF TRANSFERABLE SKILL FOR PhDs	IMPORTANCE FOR COMPANIES	LEVEL OF COMPETENCE	GAP (%)
BUSINESS SKILLS			
Understanding business culture / organizational structures	4,07	2,29	-43,86
Client interaction	3,14	2,00	-36,36
Time management	3,93	3,00	-23,64
Decision making	3,50	2,86	-18,37
Project management	3,36	2,71	-19,15
Interdisciplinarity	3,29	2,64	-19,57
Entrepreneurship/intrapreneurship	2,64	2,00	-24,32
IPR management	2,57	2,14	-16,67
Strategic planning	2,86	2,64	-7,50





DocEnhance

Problem solving	3,86	3,71	-3,70
Financial planning	2,00	1,86	-7,14
Critical/analytical thinking	3,79	3,86	1,89
ATTITUDES			
Adaptability / flexibility	4,64	3,57	-23,08
Motivation / proactiveness	4,50	3,86	-14,29
Creativity / innovation / vision	3,86	3,64	-5,56
ACQUIRED SKILLS			
Language skills	4,50	3,50	-22,22
Digital skills	3,64	3,71	1,96
Data analysis	3,43	3,64	6,25
Methodology	3,14	3,57	13,64
Thematic knowledge	3,57	4,29	20,00
COMMUNICATION SKILLS			
Ability to address different audiences	4,14	2,43	-41,38
Presentation skills	4,36	2,64	-39,34
Networking	3,57	2,64	-26,00
Elaboration of reports / presentations	4,00	3,36	-16,07
INTERPERSONAL SKILLS			
Collaboration / team work	4,57	2,93	-35,94
Leadership (initiative, team work management)	3,64	2,64	-27,45
Conflict resolution	3,86	3,00	-22,22
Evaluation and self-evaluation	3,79	3,00	-20,75
Professional networking	3,21	2,93	-8,89
Ethics	4,07	3,93	-3,51
Intercultural skills	3,43	3,43	0,00
Sustainability	3,14	3,57	13,64
PROFESSIONAL CAREER MANAGEMENT			
Personal branding (self-promotion)	3,29	2,21	-32,61
Identification of skills	3,86	2,86	-25,93
Professional career management	3,50	2,79	-20,41
Permanent self-learning	4,29	4,07	-5,00
PREVIOUS EXPERIENCE			
Participation in non-research activities	4,00	2,36	-41,07
In-company internships	3,64	2,21	-39,22
Supervision activities in the academic and non-academic sectors	3,43	2,57	-25,00
Geographical mobility (short/long term; national/international)	2,79	3,57	28,21

