



**DocEnhance**

# **Results of DocEnhance career tracking survey of PhD graduates**

KRECon, Doctoral Schools: Enhancing Research Careers  
10-11 November 2022

Pavel Matějka, University of Chemistry and Technology  
Prague



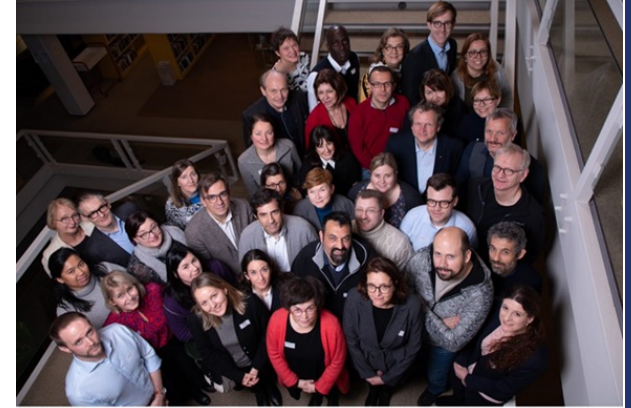
This project has received funding from the European Union's Horizon 2020 Science with and for Society programme under grant agreement no. 872483





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# Why DocEnhance?



Partners of DocEnhance project during the kick-off meeting in Tromsø Foto: Jonatan Ottesen/UiT

- PhD holders more likely to follow a career outside the university as numbers of PhDs on the rise (OECD, Education at a Glance, 2019; Kehm, 2007)
- Reported mismatches between employers' needs and skills developed in doctoral programmes (DeGrande et al, 2014; Bebiroglu et al, 2022)
- ***“Offering training in transferable skills ... is central, and should be a priority for doctoral schools and programmes”*** (Salzbourg II recommendations, EUA, 2010)
- ***“Identifying missing elements of skills training remains an important task...”*** (Survey “Doctoral Education in Europe today”, EUA-CDE, 2022)



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# DocEnhance aims

1. Collecting **evidence on PhDs' employment and skills usage**
2. Developing **employment and innovation-oriented PhD curricula** for PhD programmes
3. Involving **non-academic sector in the development of transferable skills trainings**



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# Transferable skills

## What are these?

- *“...skills learned in **one context** (for example research) that are **useful in another** (for example future employment whether that is in research, business, etc). They enable subject- and research-related skills to be applied and developed effectively.”* (European Science Foundation, 2009)
- Learned through **skills training** and **learning-by-doing**, e.g. doctoral research, thesis writing, teaching, internships outside academia, join collaborative projects or joint programmes
- Skills such as **teamwork**, **project management** or **entrepreneurship** also important for innovation and knowledge transfer (EC, 2010; OECD, 2012)





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# DocEnhance survey

## Target population

- PhD graduates **between 2016 and 2020** from 9 participating universities (NL, DE, NO, GR, ES, PT, SK, IT, CZ)

## Goals of the survey

- The employment situation, satisfaction with doctoral training, skills acquired and used, the added value of PhD, etc.
- A pilot for 7 of the 9 universities (training curricula adjustment, information to prospective PhD candidates)
- Questionnaire based on ESF career-tracking surveys [2017](#), [2015](#) + developed with DocEnhance partners

## Survey

- 2,217 responses collected (response rate: 23 %)



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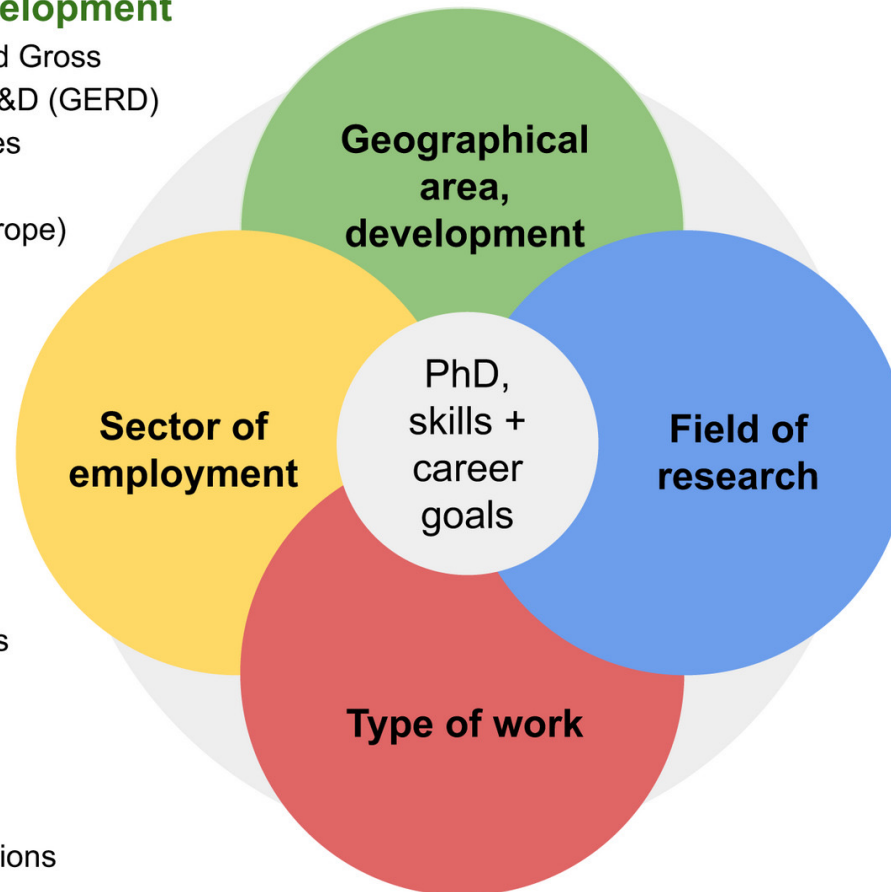
# Factors affecting PhD career opportunities

## Geographical area, development

- Economic development and Gross domestic expenditure on R&D (GERD)
- Differences among countries (Western and Northern vs. Eastern and Southern Europe)
- Differences within regions

## Sector of employment

- Higher education and research organisations (e.g. research institutes)
- Government or another public sector
- Business (industry, services and other)
- Healthcare (e.g. hospitals, clinical centres)
- Education (non-academic)
- Private non-profit organisations
- Other



## Field of research

- Natural Sciences
- Engineering and Technology
- Medical and Health sciences
- Agricultural sciences
- Social sciences
- Humanities

## Type of work

- Research and supporting research
- Entrepreneurship
- Communication
- Consulting
- Research Management
- Policy making
- Creative jobs (e.g. writers)
- Teaching
- Other

## Labour market perspectives for PhD graduates in Europe

*Eva Hnatkova, Iryna Degtyarova, Margaux Kersschot, Julia Boman*

European Journal of Education, *Volume 57, Issue 3*, 2022, 395-409.

<https://doi.org/10.1111/ejed.12514>



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# Main results

## DocEnhance survey of PhD holders

- Global evaluation
- UCT Prague data



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# Profile of PhD graduates

- Gender: 48% male, 51% female, 2% other  
**50% male, 50% female, 1% other (UCT)**
- Age: 68%, **89%** aged 30-39
- Field of study (%)
  - Natural sciences 27% **59%**
  - Engineering and technology 16% **40%**
  - Medical and health sciences 19 %
  - Agricultural sciences 3% **1%**
  - Social Sciences 23%
  - Humanities 12%



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# Sector of employment



All findings from DocEnhance Career-tracking survey at [www.docenhance.eu](http://www.docenhance.eu)

UCT Prague data

37%  
24%  
in universities

22%  
43%  
in private sector

12%  
30%  
in research organisations

10%  
in health care

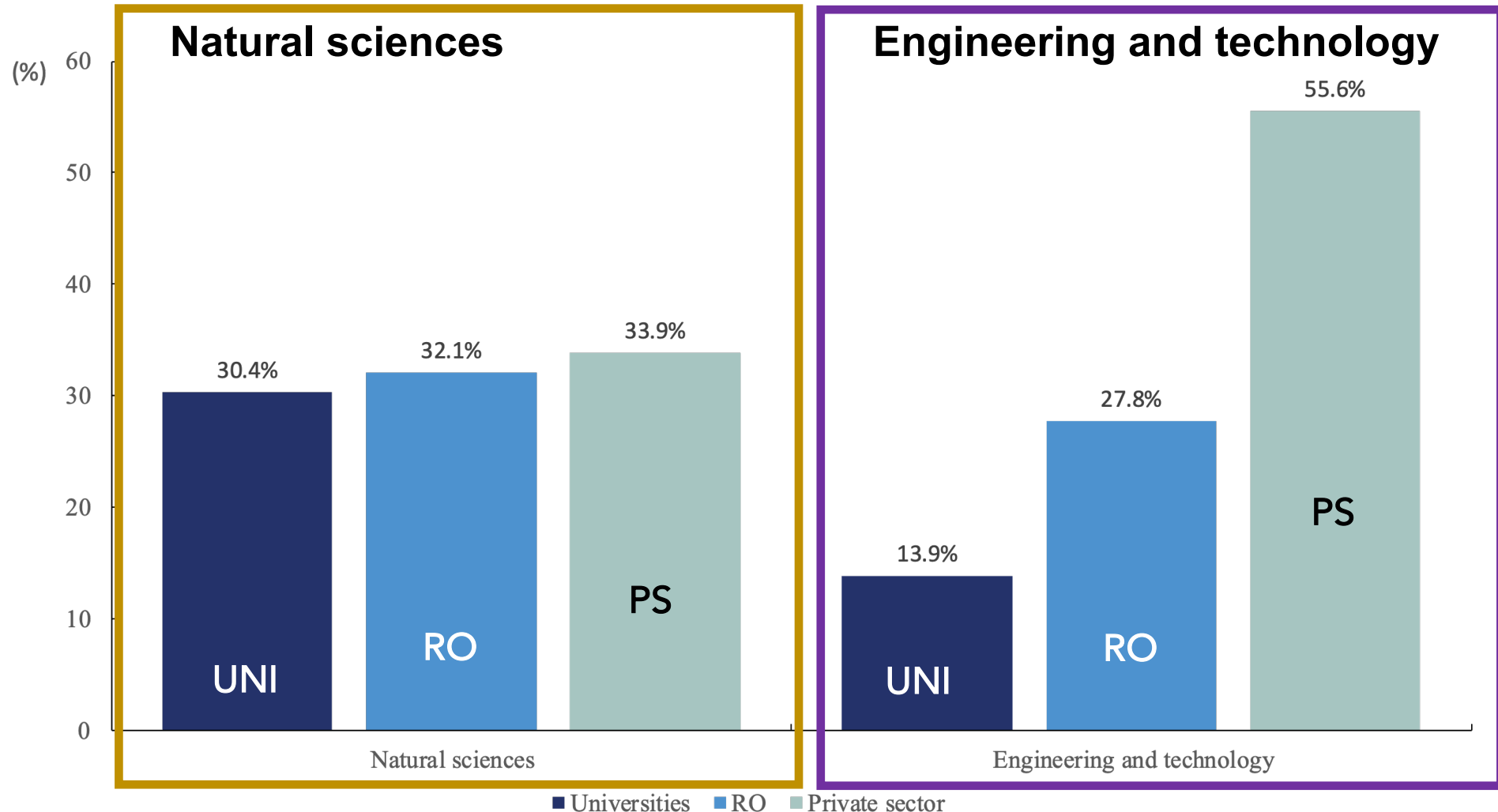
8%  
2%  
in the government

11%  
1%  
in other sectors



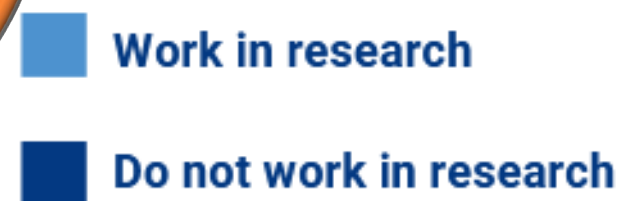
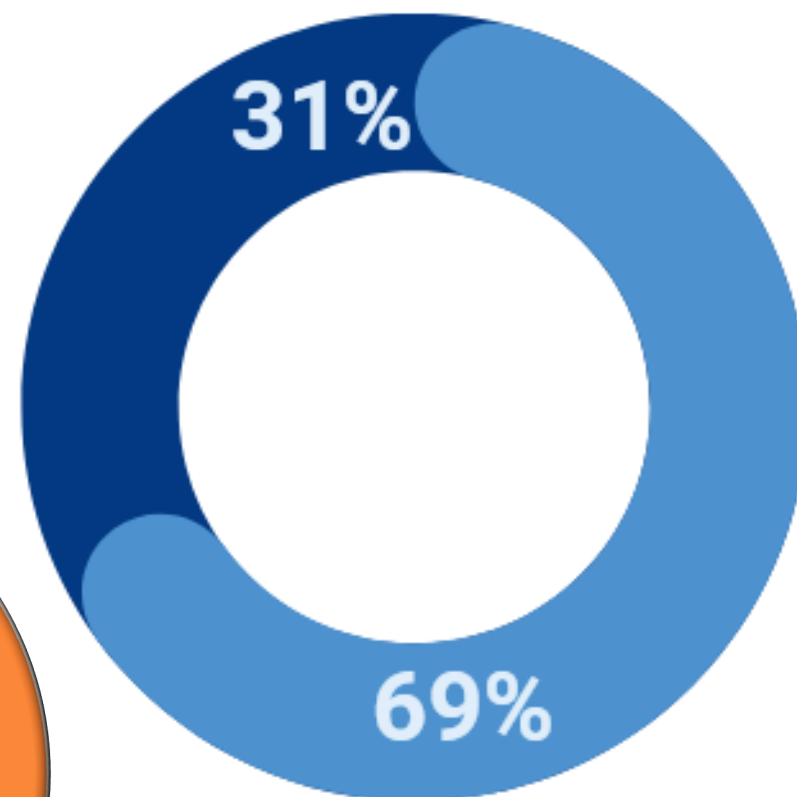
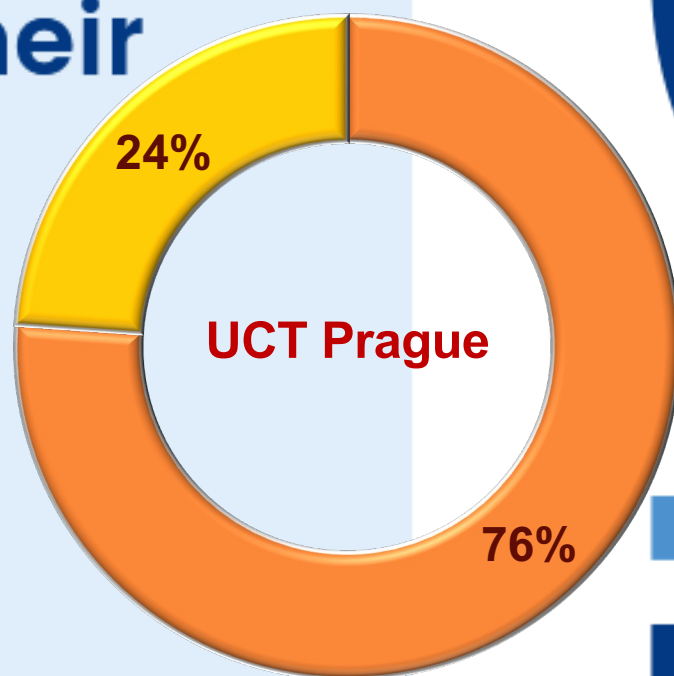
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# Sector of employment (UCT)



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# How many PhD holders are engaged in research in their current job?





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# Skills for survey

- Created a list of 24 skills clustered in 5 groups (Auriol et al., 2013; ESF, 2012,2017):
  - **Research skills and other academic/technical competences** (*Subject knowledge, Methodology, Research valorisation, Teaching...*)
  - **Personal skills** (*Critical-analytical thinking, Problem-solving, Creativity, Flexibility, Personal effectiveness...*)
  - **Professional skills** (*Team working, Entrepreneurship, Networking, Negotiation...*)
  - **Communication skills** (*Effective communication, Languages, Intercultural skills, Digital communication*)
  - **Management skills** (*Project management, Career management, Data stewardship*)
- Asked PhDs about their skills **at PhD completion** and skills needed in their jobs

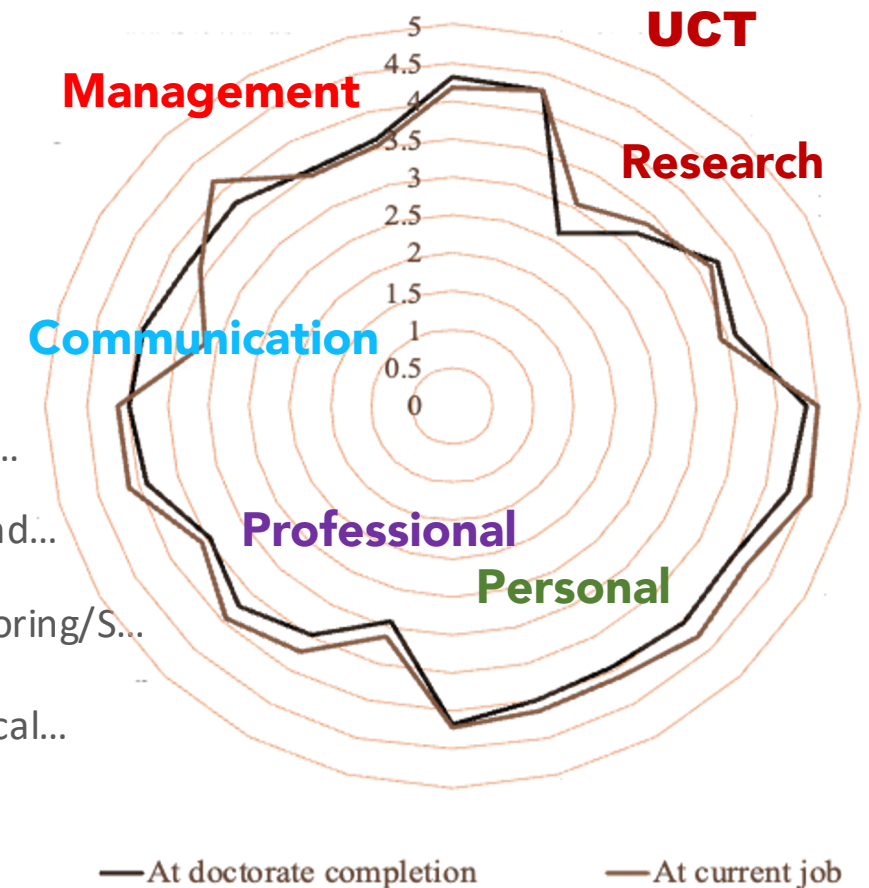
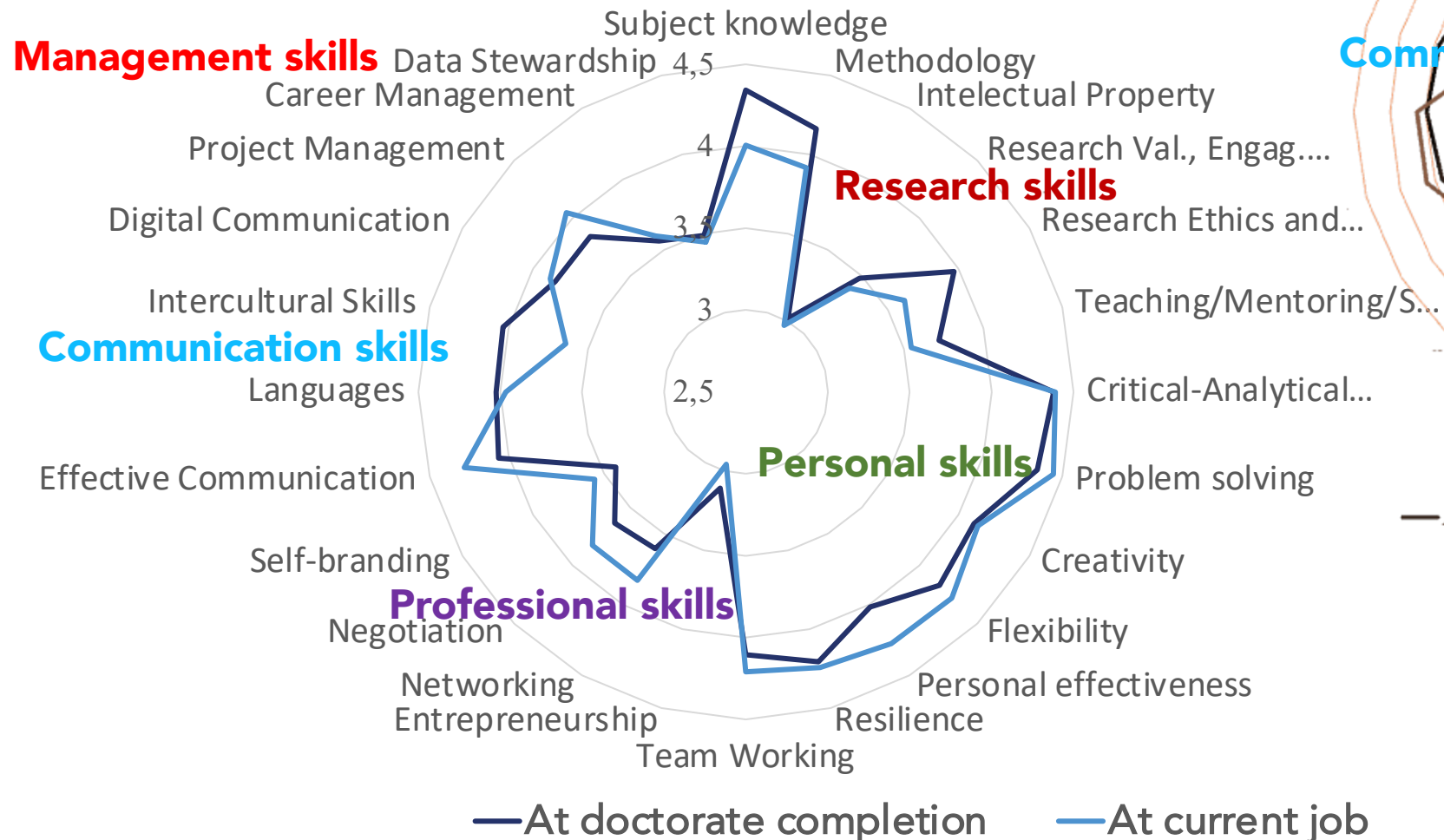


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# Skills at PhD completion and in current job

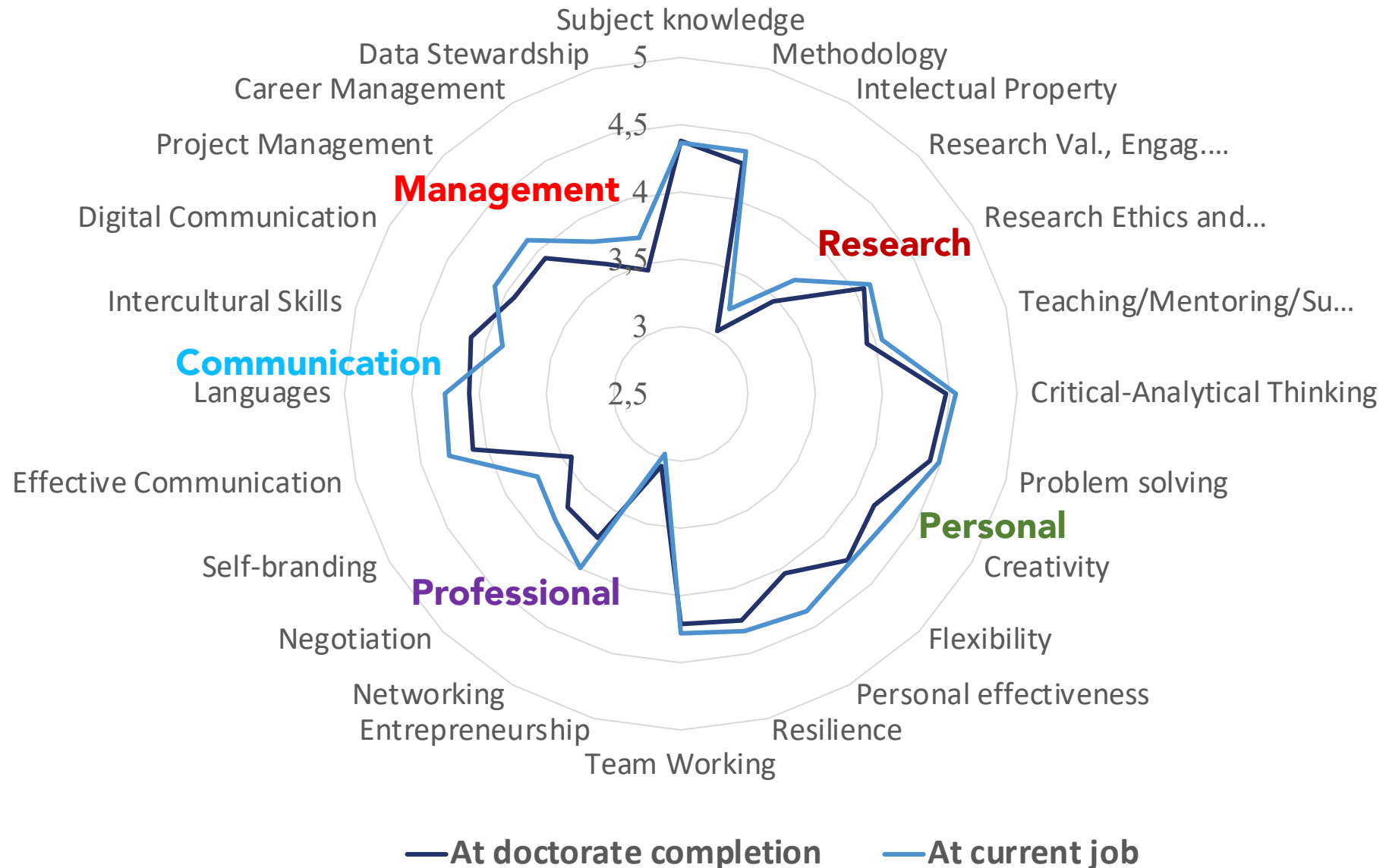


with and for Society programme



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# University

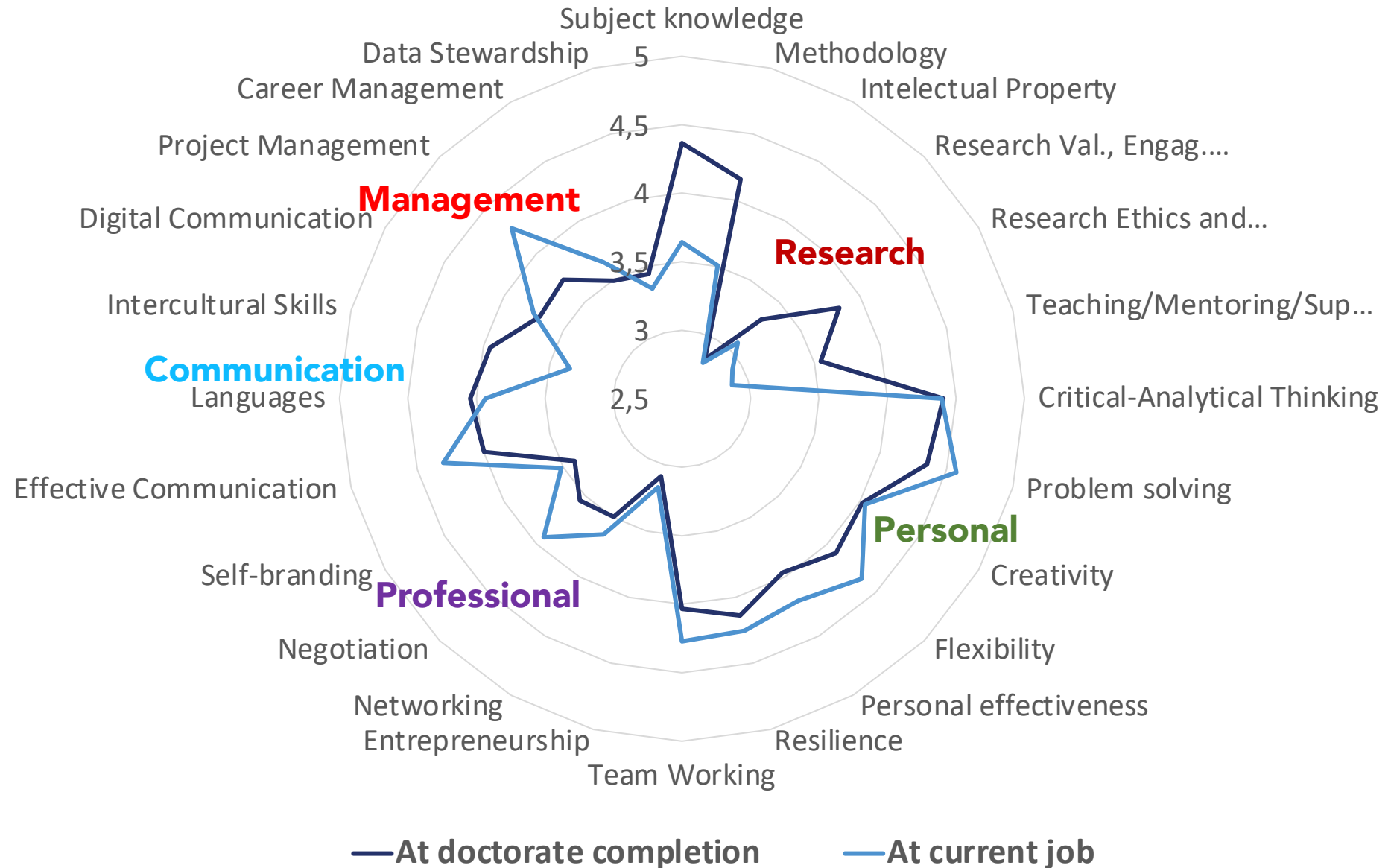


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# Private sector

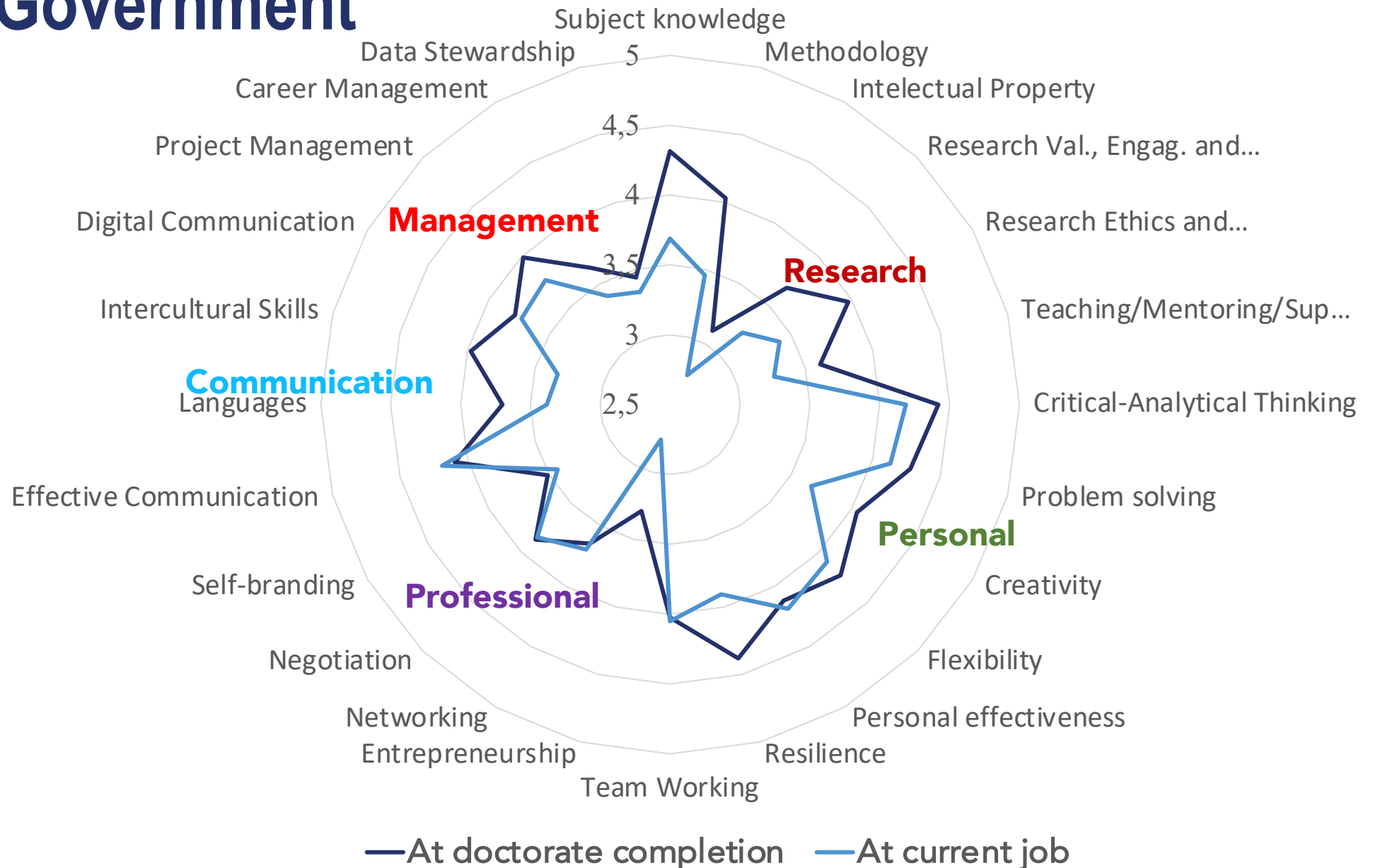


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# Government



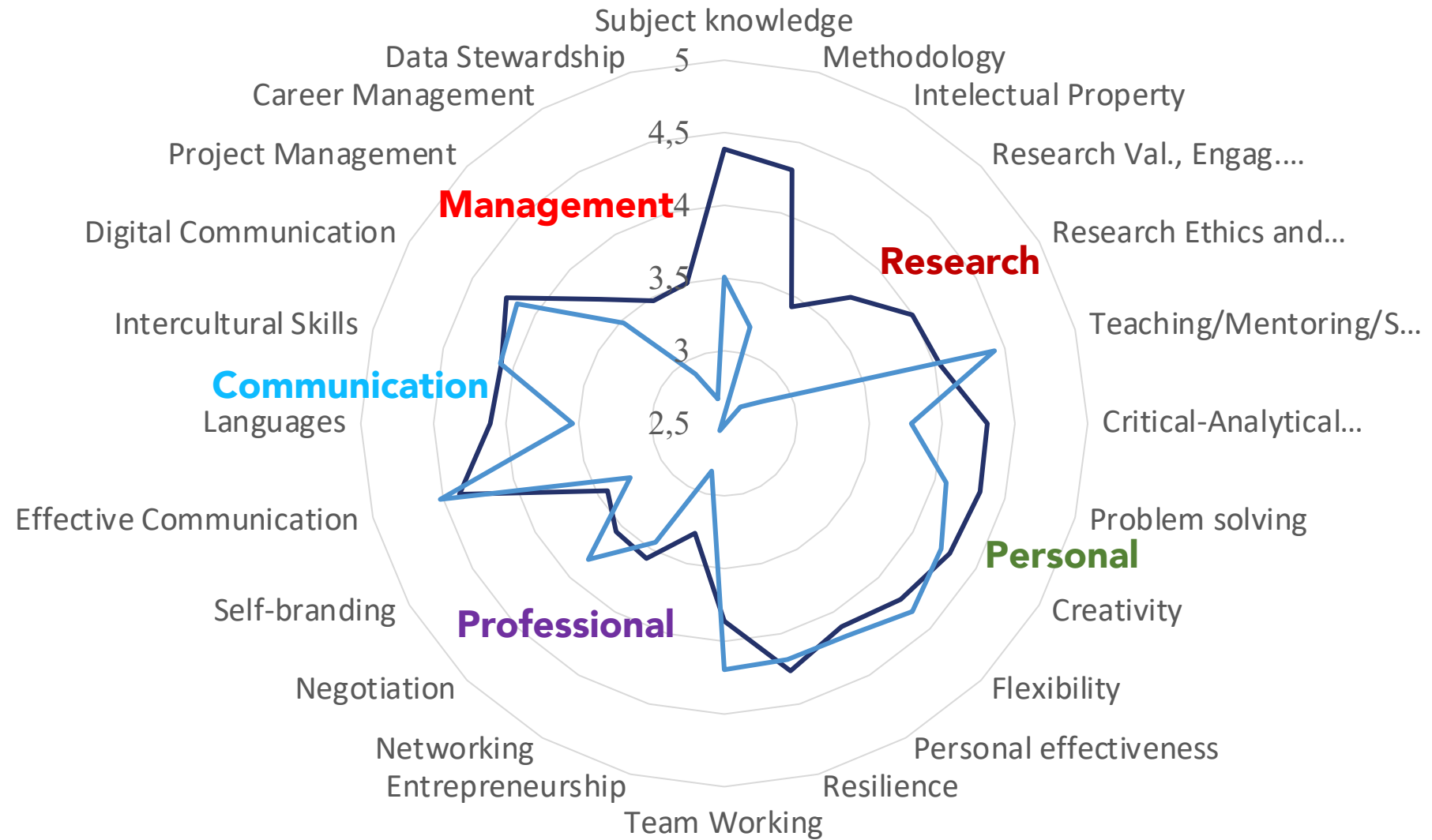
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# Non-higher education

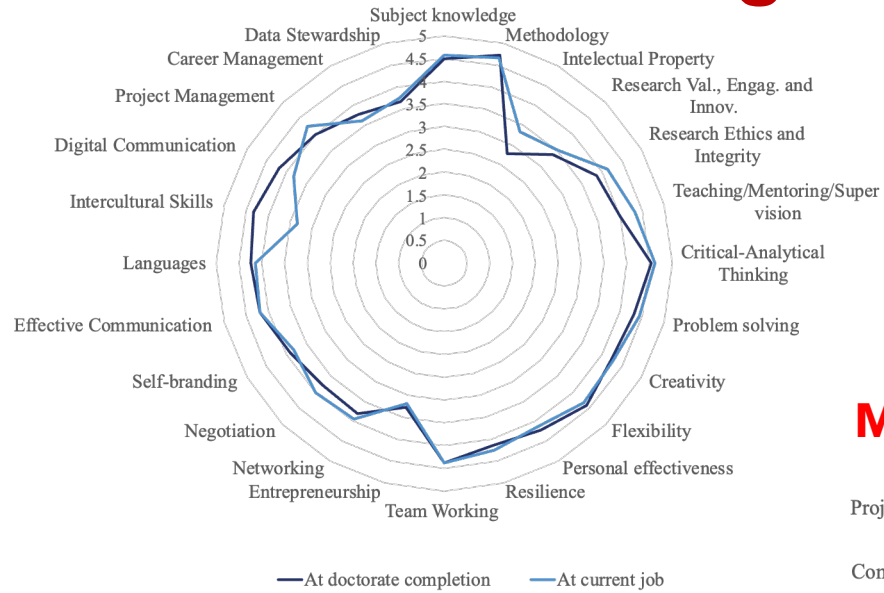


—At doctorate completion —At current job



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# UCT Prague data



University

Communication

Management

Research

Personal

Professional

Private Sector



Research Organizations



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# According to PhDs...

- Good overall match between skills at PhD completion and those needed at the job
- Critical-analytical thinking and problem-solving + other personal competencies are most important **acquired** and **needed** for PhDs
- Importance of **team working**, **communication**, and **project management** for work
- The closest skills match in academia, different gaps in different sectors
  - private sector: **project management**, **negotiation**, **communication** and **flexibility**
  - non-HE: **teaching**
  - non-governmental and healthcare: **networking**
  - government: most skills at completion are scored higher than skills needed at work



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## Other skills PhDs lack most (open question)

- “understanding about how businesses operate”
- “adaptation to reality outside academy” and “ability to work on topics outside their speciality”
- “ability to connect theory and practice”
- “team/budget management”
- “public relations”
- “ability to get to the point instead of long research”
- “practical side of things”



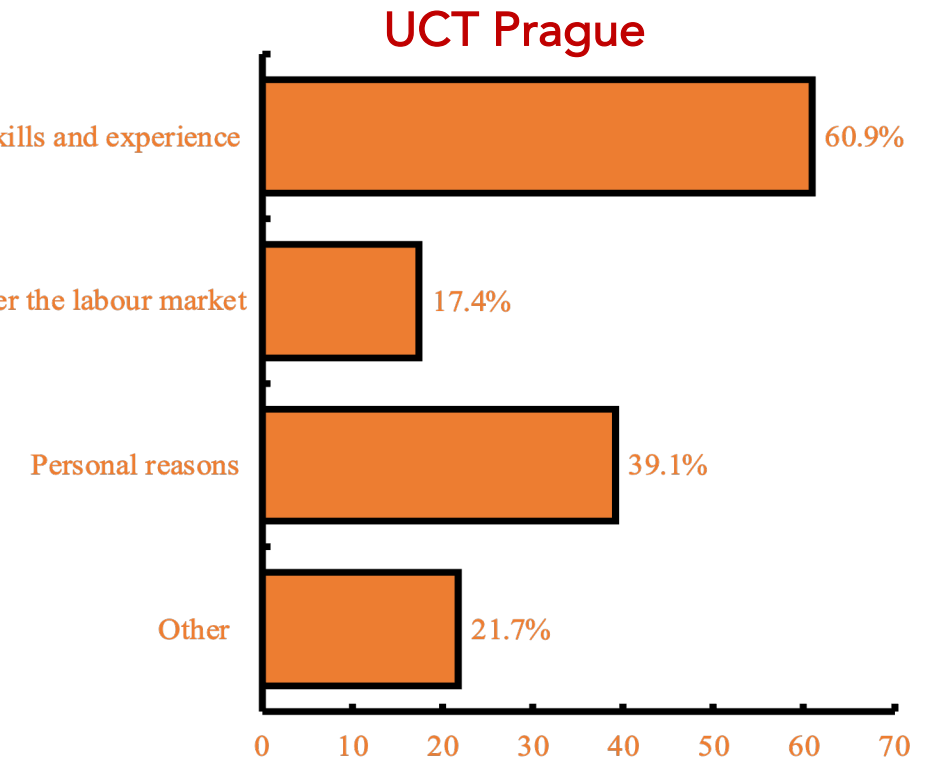
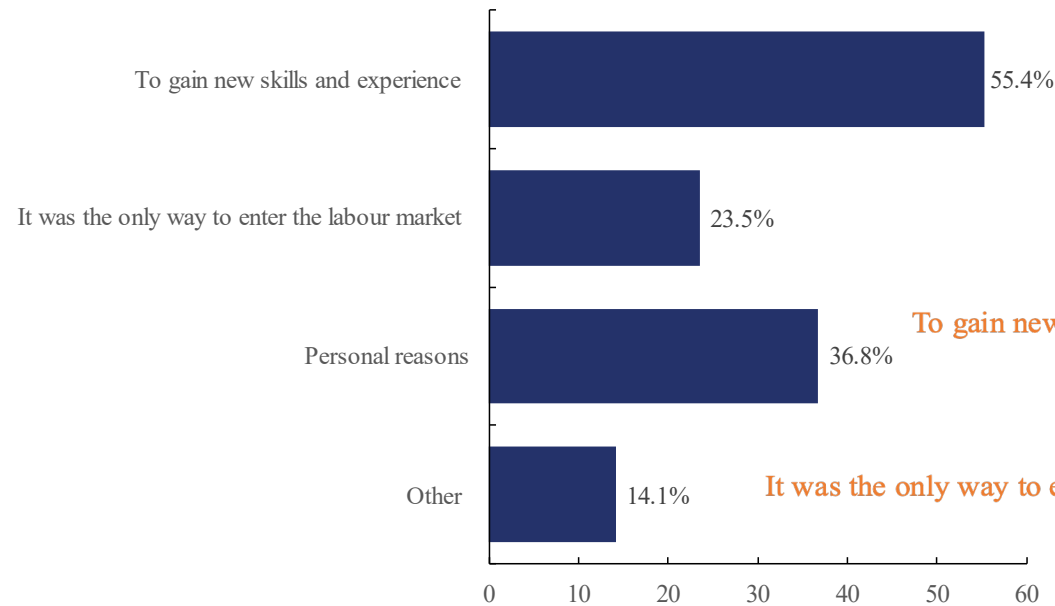
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# Intersectoral mobility

Figure 333. Reasons to change sectors  
(n=366)



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# Satisfaction with doctoral training

(1 = very dissatisfied, 5 = very satisfied)

UCT



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# Recommendations

- Offering training for a broader set of skills - esp. team working, project management, communication (also Bebiroglu et al., 2022)
- For the business sector – entrepreneurship, IP and research valorisation are also important to develop
- Learning-by-doing: collaborations during PhD, internships, project-based learning to be encouraged - choice of organisation can impact subsequent career path (also Mortier et al., 2022)
- Offer evidence on career pathways to PhD candidates
- Engage with non-academic partner networks to understand what skills are needed by employers
- Offer career guidance and support for PhDs, and for non-academic careers in particular

<https://docenhance.eu>



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Register now!

# DocEnhance Final Event **Transferable Skills in Doctoral Education**

13. December, Lisbon

<https://docenhance.eu>

