euacde COUNCIL FOR DOCTORAL EDUCATION

SURVEY

Doctoral education in Europe: current developments and trends

By Alexander Hasgall and Ana-Maria Peneoasu

April 2022

This publication is licensed under the Creative Commons Attribution-NonCommercial CC BY-NC

This information may be freely used, copied and adapted for non-commercial purposes, provided that the source is acknowledged (European University Association).

European University Association

Rue du Rhône 114
Case postale 3174
1211 Geneva 3, Switzerland

+41 22 552 02 96

www.eua.eu · info@eua.eu

SURVEY

Doctoral education in Europe: current developments and trends

By Alexander Hasgall and Ana-Maria Peneoasu

April 2022

euacde COUNCIL FOR DOCTORAL EDUCATION

Table of contents

Preface 3
Acknowledgements 4
Executive summary 5

1. Introduction **6**
1.1 **About this survey** 6
1.2 **Methodology of the 2021 EUA-CDE survey on current developments in doctoral education** 6

2. Institutional data **8**
2.1 **Doctoral candidates registered at responding universities** 8
2.2 **Number of postdoctoral researchers** 9
2.3 **Staff employed in the management and administration of doctoral education** 9

3. Insights on doctoral training **10**
3.1 **Mandatory training for doctoral candidates** 10
3.2 **Optional training for doctoral candidates** 12
3.3 **Future training offer for doctoral candidates** 13

4. Profile of postdoctoral researchers **14**

5. Institutional priorities **18**

6. Impact of Covid-19 on doctoral education **21**

List of figures and tables

Figure 1: Number of respondents per country 7
Figure 2: Number of doctoral candidates 8
Figure 3: Number of postdoctoral researchers 9
Figure 4: Share of professional staff in doctoral education 9
Figure 5: Mandatory transversal skills training 11
Figure 6: Optional transversal skills training 12
Figure 7: Prospective transversal skills training 13
Figure 8: Average status duration of postdoctoral researchers 15
Figure 9: How postdoctoral researchers spend their time 15
Figure 10: Areas of training for postdoctoral researchers 17
Figure 11: Organisation of training for postdoctoral researchers 17
Figure 12: Institutional priorities 19
Figure 13: Top priorities 20
Figure 14: Impact of the Covid-19 pandemic on doctoral education 22

Table 1: Number of respondents per country 6

Preface

The landmark survey conducted in 2018 by the EUA Council for Doctoral Education (EUA-CDE) to mark our first decade emphasised the remarkable change that had taken place during that time in the scale and nature of doctoral education in Europe. It created a shared database to cast light on trends such as the widespread emergence of doctoral programmes and schools, the high premium placed by external stakeholders on completion rates and the growing recognition that doctoral education provides a preparation for multiple knowledge based and leadership roles.

For the EUA-CDE Steering Committee, the survey also provided us with valuable insights on the issues that members wished to pursue more deeply in our programme of activities. Of course, it did not foresee the disruption that the pandemic would impose. In particular, the new survey has highlighted the difficulties faced by early-career researchers without the cushion of financial security and the social capital provided by established networks. In turn, this created challenges for those seeking to support them.

By revisiting the voice of our community after four years we sought both to capture what has newly emerged and to provide a longitudinal perspective on the trends previously identified. Once more the doctoral education community has stepped up to the mark, providing a strong response on issues ranging from the core aspect of supervision, through to the high priority given to research ethics and integrity and the training needed to support them. Adequacy of financial support and the mental health of candidates were both pre-existing concerns that were highlighted as being exacerbated by the conditions of the pandemic. It is encouraging to see the overall success of universities in implementing the enforced pivot to digital provision.

In one respect this iteration of the survey broke new ground. By extending the scope to postdoctoral researchers a more complete picture has been built of the status and needs of this important, but as it turns out heterogeneous, part of the early career academic community.

I would like to thank all of those who have responded and thus helped to build this shared database. I am also grateful to the survey team for their hard work in bringing us this interesting report. It will provide an invaluable backdrop as we work with members to produce a forward-looking vision for doctoral education in Europe.

LUKE GEORGHIOU
UNIVERSITY OF MANCHESTER
CHAIR OF EUA-CDE STEERING COMMITTEE

Acknowledgements

This survey report would not have been possible without the contribution of many people and institutions. In particular, we would like to thank the colleagues from all the 138 universities that participated in the 2021 EUA-CDE survey on current developments in doctoral education.

We would also like to express our thanks to the current and former members of the EUA-CDE Steering Committee: Luke Georghiou (Chair), Paolo Biscari, Hans-Joachim Bungartz, Edwin Constable, Barbara Dooley, Irma Grdzelidze, Aleksandra Kanjuo-Mrčela, Pirjo Nikander, Murat Özgören, Martine Rahier, Mossadek Talby and Andrei Terian-Dan who launched and accompanied the development of the entire survey and of this report and provided key inputs and feedback during this process.

Also, many colleagues from the EUA Secretariat have contributed to this survey. First, we would like to thank Stephane Berghmans and Vinciane Gaillard for their critical input and feedback to the drafting of this report. We also thank Rita Morais for the support provided in implementing the questionnaire and data interpretation. Many thanks to Christel Vacelet, Inès Mezher, Jessica Carter and Katerina Topalidou for conducting the design and publication process. Finally, our thanks are also extended to Lily Philipose for editing this report.

THE AUTHORS

Executive summary

In 2021, the EUA Council for Doctoral Education launched a Europe-wide survey with the aim of discussing the current state of doctoral education. Based on the survey results, this report serves as a follow-up publication to the large-scale EUA-CDE study "Doctoral education in Europe today: approaches and institutional structures" conducted in 2017-2018, and addresses several topics, including the situation of postdoctoral researchers in Europe, current priorities of European universities and the effect of the pandemic on doctoral education. Based on responses from 138 institutions in 28 countries, the following conclusions can be drawn:

1. Doctoral education has to deal with a multitude of priorities at the same time, and this has not been changed by the pandemic. Here, there is a mix of issues related to topics of overall policy in doctoral education. This is reflected in the fact that research ethics and integrity (which is one of the key issues of research in general) and the quality of supervision (which is more directly aimed at doctoral education) continue to be the two main elements of doctoral education. In addition, both internationalisation and digitisation are important strategic priorities. In the case of Open Science, one can speak of a movement from a focus on open access to a more diverse approach that integrates topics such as data management. Setting priorities has thus become a priority itself and will lead to important debates in the years to come.

2. Skills training as a key element of structured doctoral education follows the priorities of the universities to a certain extent. Research integrity training and digital skills play an important role here as well, as does the improvement of doctoral candidates' capacity to communicate scientifically and to the society. The needs for certain skills differ significantly between different doctoral candidates but also differ according to disciplinary, institutional, and national contexts. At the same time, the doctorate focuses on the practice of research. In this sense, it is not surprising that skills training, except for research integrity, is voluntary. Identifying missing elements of skills training remains an important task, as does ensuring that at least a basic offer of key skills is available to all doctoral candidates.

3. For the first time in an EUA-CDE report, the situation of postdoctoral researchers was addressed through several questions. Initial figures indicate that postdoctoral researchers play an important role within European universities, both in research and in teaching. Postdoctoral researchers have also become an important target group for doctoral schools, often sharing training with doctoral candidates and dealing with similar content, but also focusing on a specific set of skills like leadership and management. While the average length of stay of postdocs within a university roughly corresponds to the profile of this career phase, it remains an open question what the individual situation of postdoctoral researchers is. In this sense, there is still a lot of research to be done and the availability of data needs to be improved.

4. As expected, the Covid pandemic had a relevant impact on doctoral education. Especially the doctoral candidates were strongly influenced by this development, be it because research or stays abroad could not be carried out as planned, or because the burden of the pandemic had an impact on mental health, but also on the economic situation. From the point of view of the respondents, the pandemic has significantly digitised doctoral education. Here, respondents see a long-term effect, while it is significantly less clear in other areas. The pandemic has clearly dominated doctoral education in the last two years, and this is now the time to tackle the effects of it, but also look into the future.

1 Introduction

Table 1: Number of respondents per country

Country	Number of valid responses
Austria	4
Belgium	8
Croatia	1
Czech Republic	7
Denmark	2
Finland	9
France	7
Georgia	4
Germany	15
Greece	1
Iceland	1
Ireland	6
Italy	5
Latvia	1
Lithuania	3
Malta	1
Netherlands	5
Norway	5
Poland	7
Portugal	3
Romania	5
Serbia	1
Slovakia	4
Slovenia	1
Spain	17
Sweden	5
Switzerland	4
United Kingdom	6
Total	**138**

1.1 About this survey

The following report by the EUA Council for Doctoral Education (EUA-CDE), a special membership service of the European University Association, comprising more than 260 universities from 36 countries, provides an overview of important developments in doctoral education in Europe, particularly in the context of the Covid-19 pandemic, and expanding coverage to include postdoctoral researchers. It serves as an update of the large-scale EUA-CDE survey on "Doctoral education in Europe today: approaches and institutional structures" conducted in 2017-2018 and it provides information on the current strategic priorities of European universities in doctoral education. The results will help shape the future activities and influence the work of the EUA-CDE, including contributing to a vision paper that EUA-CDE produces in 2022.

1.2 Methodology of the 2021 EUA-CDE survey on current developments in doctoral education

This report is based on the results of a survey distributed to all members of the European University Association. It ran from 23 March to 31 May 2021 and collected 138 valid responses from 28 European countries. Of the total number of respondents, 98 were members of the EUA Council for Doctoral Education.

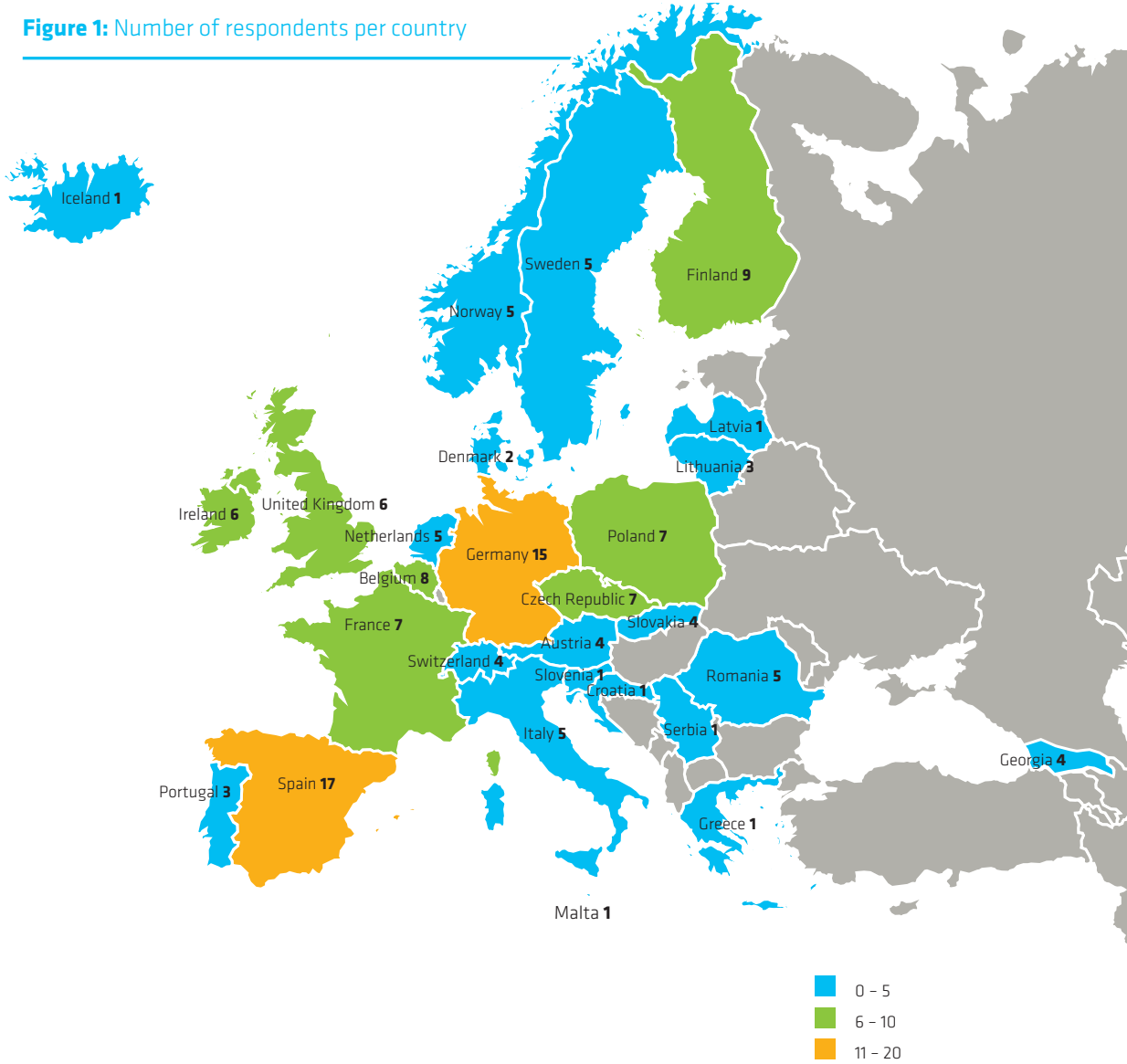
Respondents provided information on: i) institutional data; ii) insights on doctoral training; iii) profile of postdoctoral researchers; iv) institutional priorities and v) impact of Covid-19 on doctoral education.

The geographical distribution of survey participants is shown in Figure 1 and Table 1. In two countries, we find more than ten responses, seven countries have between six to ten responses, and 19 countries have one to five responses.

As mentioned in the introduction, some questions were adapted from the 2018 EUA-CDE survey[1] to ensure continuity with the previous study. Additional questions were included for this wave of data collection. The survey was completed on a Qualtrics platform.

In total, the survey included 15 key question areas, several on a five-point unipolar rating scale as well as multiple-option items. Furthermore, a number of open questions were included. The survey was disseminated through various communication channels: by email to members and national rectors' conferences, via the EUA and EUA-CDE newsletters, and on social media.

Figure 1: Number of respondents per country



1 Hasgall, A., Saenen, B., Borrell-Damian, L., et al. (2019), *Doctoral education in Europe today: approaches and institutional structures*, European University Association, https://eua.eu/resources/publications/809:doctoral-education-in-europe-today-approaches-and-institutional-structures.html.

2 Institutional data

2.1 **Doctoral candidates registered at responding universities**

Respondents were asked to indicate the number of doctoral candidates registered at their institution. Slightly more than half of the responding institutions (52%) indicated that their university has either up to 500 or 1000 doctoral candidates registered. Almost a third (29%) have between 1001 and 3000 doctoral candidates, while 11% of respondents indicated that they have 3001 to 5000 registered doctoral candidates.

Figure 2: Number of doctoral candidates
How many individual doctoral candidates are registered at your university?
Number of respondents: 138/138

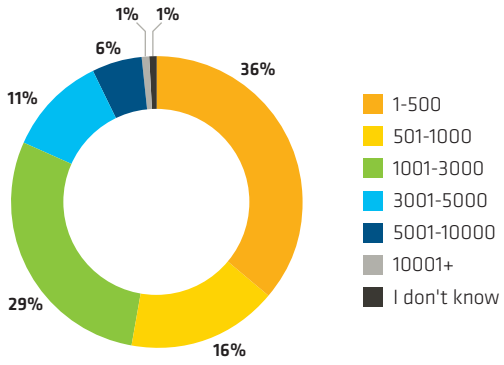


Figure 3: Number of postdoctoral researchers
How many postdoctoral researchers are working in your university?
Number of respondents: 138/138

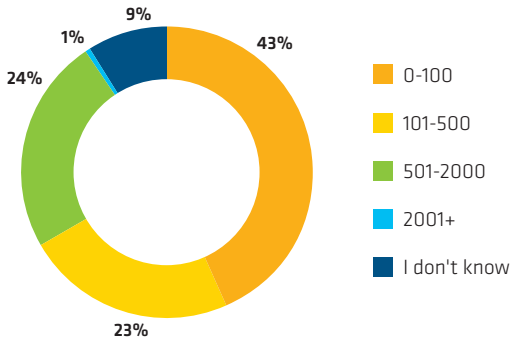
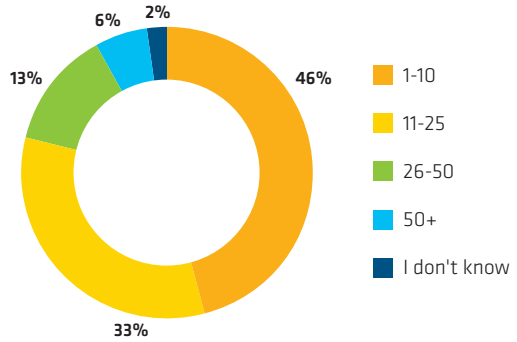


Figure 4: Share of professional staff in doctoral education
How many staff are employed in the management and administration of doctoral education at your university (in full-time equivalents)? This includes all professional and support staff whose main activity is directly related to doctoral education. It does not include supervisors.
Number of respondents: 138/138



2.2 Number of postdoctoral researchers

In addition to the number of doctoral candidates, respondents were also asked about the number of postdoctoral researchers working at their institutions. Almost half of the respondents (43%) indicated that between 0 and 100 postdoctoral researchers are currently researching at their institution. About 23% of survey respondents estimated the number of postdoctoral researchers at their institution between 101 and 500, while 24% of respondents reported a higher number (between 501 and 2000). The survey results also show that 9% of responding institutions do not have a statistical overview of this population. This shows a considerable variety in the number of postdocs among European institutions. Another explanation relates to different definitions of the postdoctoral status, making it more difficult to compare between institutions. Another notable fact is that nearly all institutions provided information about the number of postdoctoral researchers enrolled at their institution, which indicates that many universities are in a position to provide these numbers.

2.3 Staff employed in the management and administration of doctoral education

In recent years, support structures for doctoral candidates have increased significantly, and a significant majority of universities have introduced structural doctoral education throughout doctoral schools and doctoral programmes. As a result of this development, universities have had to equip themselves with adequate specialist staff to respond to the growing needs of doctoral candidates.

To get a first picture of the number of professional staff in doctoral education in European universities, the survey identified the number of staff working on a daily basis in the administration and management of doctoral education. Around half of the respondents (46%) reported having between one and 10 staff members (full-time equivalent) who deal with doctoral education on a daily basis. This also includes institutions with a high number of doctoral candidates.

Another third (33%) reported between 11 and 25 staff members, and almost a quarter of institutions (13%) have developed larger support structures with up to fifty members. This shows that professionals in doctoral education have become a relevant group within the universities that gather together a significant amount of expertise.

3 Insights on doctoral training

An important part of structured doctoral education is aimed at training and supporting doctoral candidates. According to the previous EUA-CDE survey, research and research methodology are considered key skills where doctoral candidates are getting additional training[2]. However, as it will be subsequently shown, we can also find a significant number of transversal skills taught in doctoral training. This training is not linked to a specific researcher and professional profile but relates to very different areas and serves to prepare a variety of career steps within and outside of academia. This section describes the cross-cutting skills training provision that exists at the responding institutions and their plans for the future of doctoral training.

3.1 Mandatory training for doctoral candidates

Skills training for doctoral candidates can be mandatory and voluntary. While mandatory elements are required to pursue a doctorate at an institution, voluntary doctoral training is chosen by the candidates even when regulations and credit systems in some cases make it mandatory.

The survey asked institutions about the type of compulsory cross-cutting training offered to doctoral candidates at their university. Responses to this question indicate that research ethics and integrity, research methodology and dissertation writing are the top three mandatory components in doctoral skills training. All these areas map to specific expertise needed to complete a doctorate successfully.

2 Hasgall, A., Saenen, B., Borrell-Damian, L., et al. (2019), *Doctoral education in Europe today: approaches and institutional structures*, European University Association, https://eua.eu/resources/publications/809:doctoral-education-in-europe-today-approaches-and-institutional-structures.html, p. 15-16.

At the same time, some other areas such as research data management, proposal writing, or project management are mandatory in at least some doctoral programmes. This points to possible disciplinary differences and emerging needs of doctoral programmes.

Figure 5: Mandatory transversal skills training
What type of mandatory transversal skills training is offered to doctoral candidates at your institution?
Number of respondents: 124-133/138

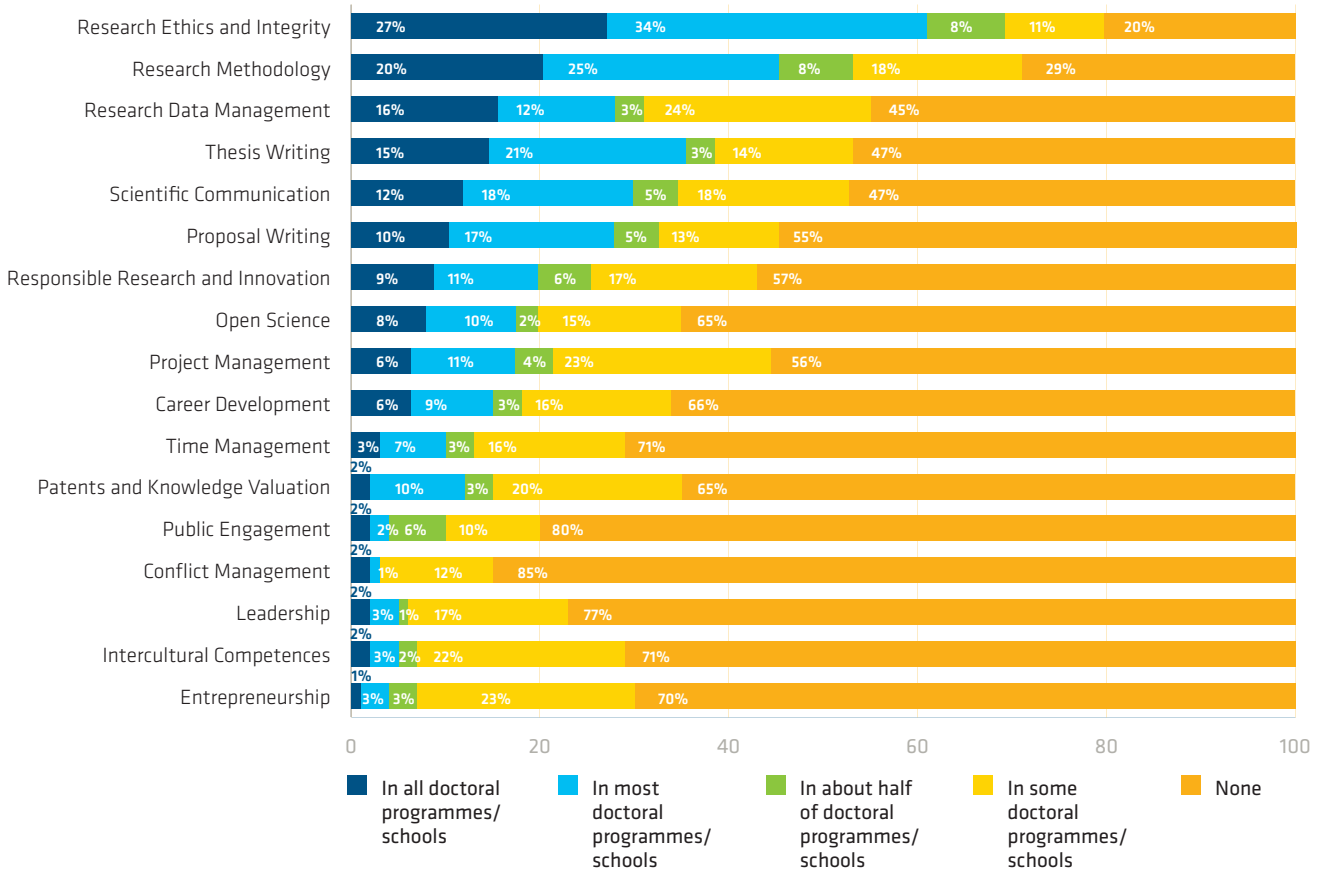
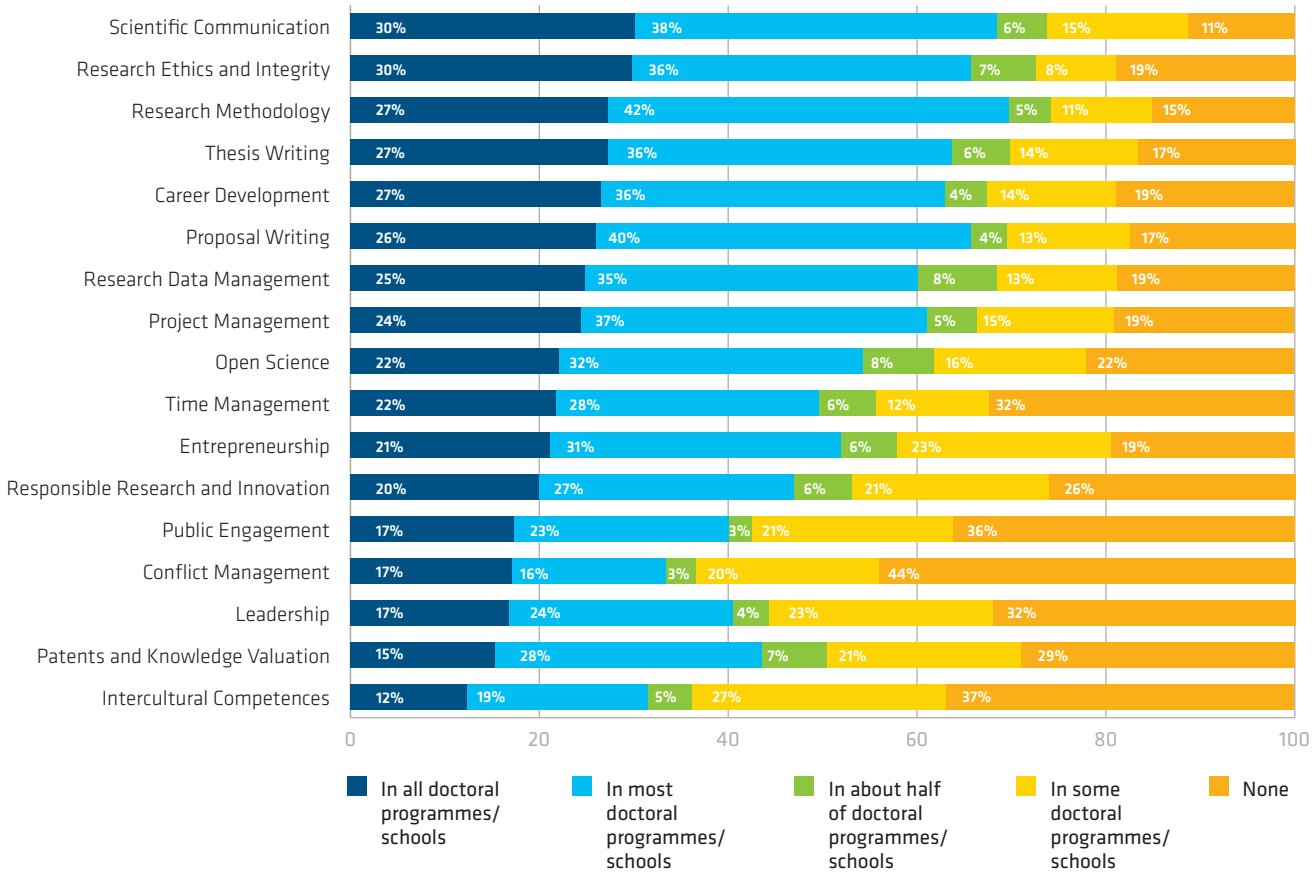


Figure 6: Optional transversal skills training
What type of optional transversal skills training is offered to doctoral candidates at your institution?
Number of respondents: 127-133/138



3.2 Optional training for doctoral candidates

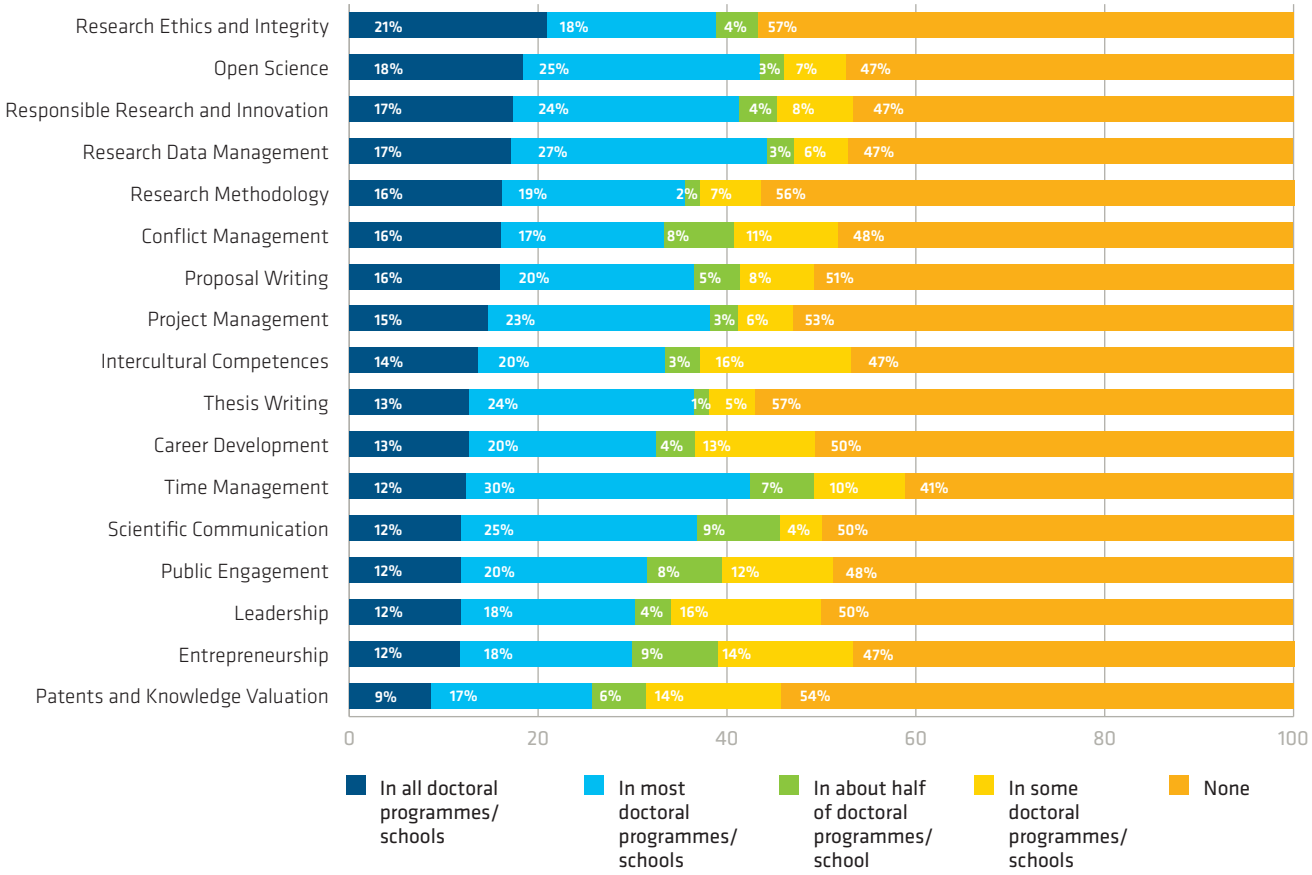
The amount of optional training is significantly higher compared to the mandatory ones. Doctoral programmes and schools nowadays offer a wide range of optional trainings for doctoral candidates (Figure 6).

Research ethics and integrity and research methodology is also widespread when it comes to optional training, indicating that mandatory and voluntary training sometimes complement each other. From the survey responses scholarly communication is becoming increasingly crucial for doctoral candidates. For example, 68% of respondents indicated that in most or all doctoral programmes/schools, doctoral candidates can be trained in this thematic area. This confirms that doctoral schools actively encourage and prepare doctoral candidates to interact with wider society by communicating their research.

Topics such as Open Science and research data management are also included in the optional doctoral trainings of most responding institutions. These results reflect the evolution of Open Science beyond Open Access and the need for additional skills in an open science context. This includes the capability to manage, store and share data.

Optional training in areas such as leadership or patents and knowledge valuation seems to be less widespread and scored lower than the above topics among the institutions surveyed. This may be because training in these areas is relatively new and not linked to the basic research that is the focus of doctoral training. They may also be linked to specific disciplines (e.g. patents in technical subjects) and less valued by doctoral candidates in other disciplines.

Figure 7: Prospective transversal skills training
If it is not available now, do you intend to offer any of the following training to doctoral candidates in the future?
Number of respondents: 62-77/138



However, these topics are offered in over 40% of institutions surveyed, indicating that doctoral candidates can choose nowadays from a wide array of different training offers.

3.3 Future training offer for doctoral candidates

The survey also asked about training that universities plan to offer in the future if it is not already available for doctoral candidates. Almost half of the respondents named research data management (44% intend to offer it in most or in all doctoral programmes) and open science (43% intend to offer it in most or in all doctoral programmes) as training to be provided in the future, but also time management and responsible research and innovation rank nearly as high (Figure 7).

However, these numbers need to be interpreted with caution. This question has a significantly lower response rate (62-77 respondents from a total of 138) compared to previous questions on doctoral training. This suggests that a significant proportion of universities do not intend to deliver previous trainings anew in case they haven't done so yet. This may also be due to the limited resources of doctoral schools and an already existing broad array of training offers (see the previous question), which force them to focus on existing offerings rather than expanding the offer.

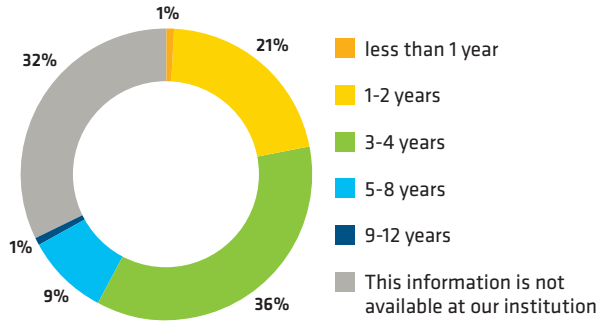
4 Profile of postdoctoral researchers

The postdocs are a very heterogeneous population within universities. Their roles, duties and status depend on different national, institutional and even disciplinary differences. So far, there is still a lack of knowledge about postdoctoral researchers. This may be related to the fact that their status is not always clearly defined, and in many cases there is no explicit and comprehensive staff category for this group of researchers. More information about this group and their professional development is helpful to better support them from the universities' side. Since postdoc careers do not necessarily result in a steady position in the academia, it has become part of an institutional responsibility (of universities and other research institutions) to take this into account and support their professional development also outside of academia.

In recent years, universities have paid more attention to postdoctoral researchers. This goes hand in hand with the increasing number of researchers at this career stage. While the status of postdoctoral researcher has originally been seen as a transition period towards a more sustainable and long-term career perspective, researchers increasingly remain in this position for many years, sometimes even in situations where there is just a small hope of long-term employment in academia. As a result, doctoral schools have stepped up their activities to address this problem and offer postdoctoral researchers training, which also aims at supporting doctoral candidates to follow different careers within and without academia.

Given the limited knowledge about the growing number of postdoctoral researchers, the following section examines several key aspects related to the situation of postdoctoral researchers at European higher education and research institutions. This includes questions about their number, the average duration of their employment and the nature of their work. In addition, this chapter provides an overview of training activities for postdocs.

Figure 8: Average status duration of postdoctoral researchers
What is the average duration a postdoctoral researcher remains with this status (may include multiple successive appointments/positions)?
Number of respondents: 137/138

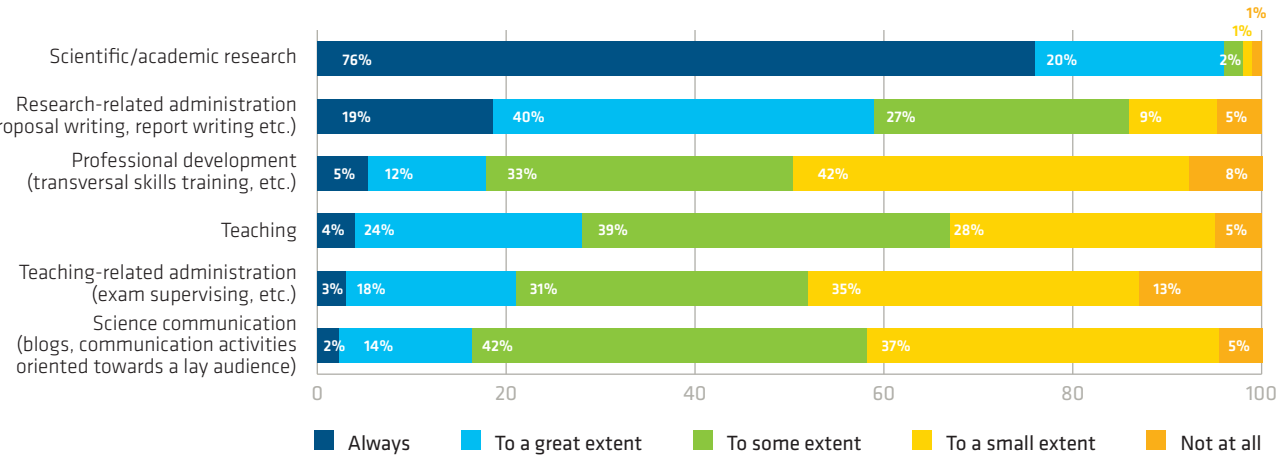


The universities were asked to indicate the average length of time a postdoctoral researcher remains in this status. Here, 57% of respondents indicated that this period lasts between one to four years at their institution (Figure 8).

The rest of the respondents stated that the time a postdoctoral researcher stays in an institution is between five to twelve years. Furthermore, more than a third of the respondents could not provide this information.
From these results, it appears that the majority of institutions do not keep postdoctoral researchers in this position for an overwhelmingly long period, and only a tenth of universities report an overall longer postdoc status. Nevertheless, it is necessary to examine more closely the extent to which these average figures reflect the situation of all postdocs. It would be worth investigating whether even in those institutions with a low average, a minority of postdocs remain in this position for a very long time. And there is still a need to know more about the considerable number of universities that do not have these numbers available.

Respondents were also asked about the type of activities this category of researchers spends most of their time on. While their duties vary greatly between institutions, disciplines and faculties there are still some helpful indications what their main focus is on.

Figure 9: How postdoctoral researchers spend their time
Please rate the extent to which postdoctoral researchers in your institution engage in the following activities.
Number of respondents: 128-132/138



Not surprisingly, postdoctoral researchers spend most of their time on scientific and academic research: 96% of responding universities reported that they either "always" (76%) or "to a great extent" (20%) engage in this activity, while 59% reported that they either "always" or "to a great extent" spend their time on research-related administration (Figure 9).

However, almost one-third of respondents (28%) indicated that postdocs "always" or "to a large extent" spend their time on teaching and 21% of respondents on teaching-related administrative tasks (e.g., exam invigilators). This confirms the important role of postdocs in teaching at European universities.

Compared to the other activities, slightly less time is spent on professional development (e.g., cross-cutting skills training to prepare for future employment): 50% indicated either 'not at all' or 'to a small extent', while 17% indicated "to a great extent" or "always". This shows that professional development of postdoctoral researchers is addressed in European universities to a very different degree.

Comparing the typical activities of postdoctoral researchers with those of doctoral candidates presented in the previous EUA-CDE survey[3], postdoctoral researchers have more responsibility and have to deal with a broader range of activities.
Teaching and teaching administration are an important part of the daily work of postdoctoral researchers.

Results of the 2021 EUA-CDE survey show that training during the postdoctoral phase focuses on developing research skills and applying for research funding, with many universities developing training on academic writing, applying for funding, or acquiring skills for cutting-edge research. Doctoral schools are also increasingly offering training in project management, research data management and career development to increase the opportunities of postdocs in the employment market, including outside academia. The training offered to postdoctoral researchers also includes training on academic teaching and science communication, which addresses the needs of postdocs to be prepared to deal with other faculty responsibilities such as teaching and communication.

This short overview shows that training for postdoctoral researchers does not just copy the training during the doctoral phase. There is an increased number of customised training and study offers, that are responding to specific needs which these – compared to doctoral candidates – more senior researchers bring with them.

3 Hasgall, A., Saenen, B., Borrell-Damian, L., et al. (2019), *Doctoral education in Europe today: approaches and institutional structures*, European University Association, https://eua.eu/resources/publications/809:doctoral-education-in-europe-today-approaches-and-institutional-structures.html, p. 16.

Figure 10: Areas of training for postdoctoral researchers
Please list the training activities designed for postdoctoral researchers at your institution.

Academic writing
Scientific communication
Proposal writing
Project management
Professional development
Leadership
Research funding
Academic teaching

Respondents also mentioned the following more specific activities in addition.

Coaching
Conflict management
Data protection
Entrepreneurship
Ethics in research
Intercultural communication
Intellectual property and patents
IT courses
Negotiating skills
Open Science
Publication strategies
Research data management
Resilience and agility
Time management

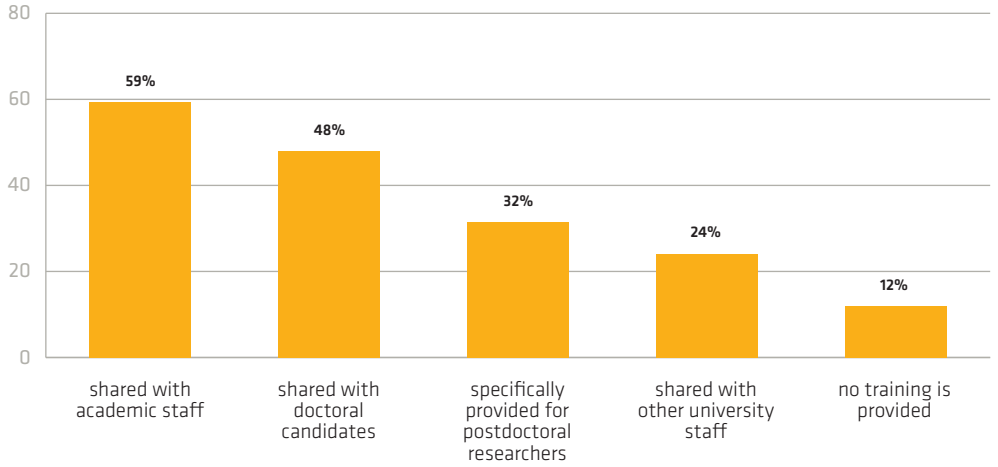
In a following open question, respondents were also asked to mention training activities that were specifically designed for postdoctoral researchers. Several items were mentioned repeatedly or could be found in several institutional websites, expressing the current focus of training of postdoctoral researchers (Figure 10).

These answers show that universities provide a multiplicity of training for postdoctoral researchers on a variety of topics, which prepares them for employment in academia but also to follow career opportunities beyond this sector.

The survey looked not only at the different types of training offered to postdoctoral researchers at European universities, but also whether this is exclusive to this group or whether it also applies to other university staff (Figure 11).

About one-third of the institutions surveyed (32%) provide training that is exclusively aimed at postdocs. The remaining universities offer a catalogue of training that they have to share either with academic staff (59%), doctoral candidates (48%) or other staff (24%). This suggests that postdocs may be located at the interface between, and share commonalities with, different groups within the university. As these different groups have similar activities in areas such as management, teaching or research, universities can design a common training offer to improve or develop their skills in these areas. These results show that it is important for postdoctoral researchers to be aware of potential trainings in their institution. Trainings offers are organised in the framework of different services and context, and postdoctoral researchers may need to actively look for the appropriate and useful offers. Doctoral schools can have a relevant role, guiding researchers through the multiplicity of offers available to this group.

Figure 11: Organisation of training for postdoctoral researchers
If training is provided for postdoctoral researchers, is it normally:
Number of respondents: 133/138



5 Institutional priorities

Doctoral education is an area that is constantly evolving and where universities' strategic priorities need to be adapted to the current needs and requirements of doctoral candidates. In this section we describe the key strategic priorities for the sector as reported by responding institutions. Some of these elements have already been discussed in previous surveys, allowing us to better understand how these topics are evolving.

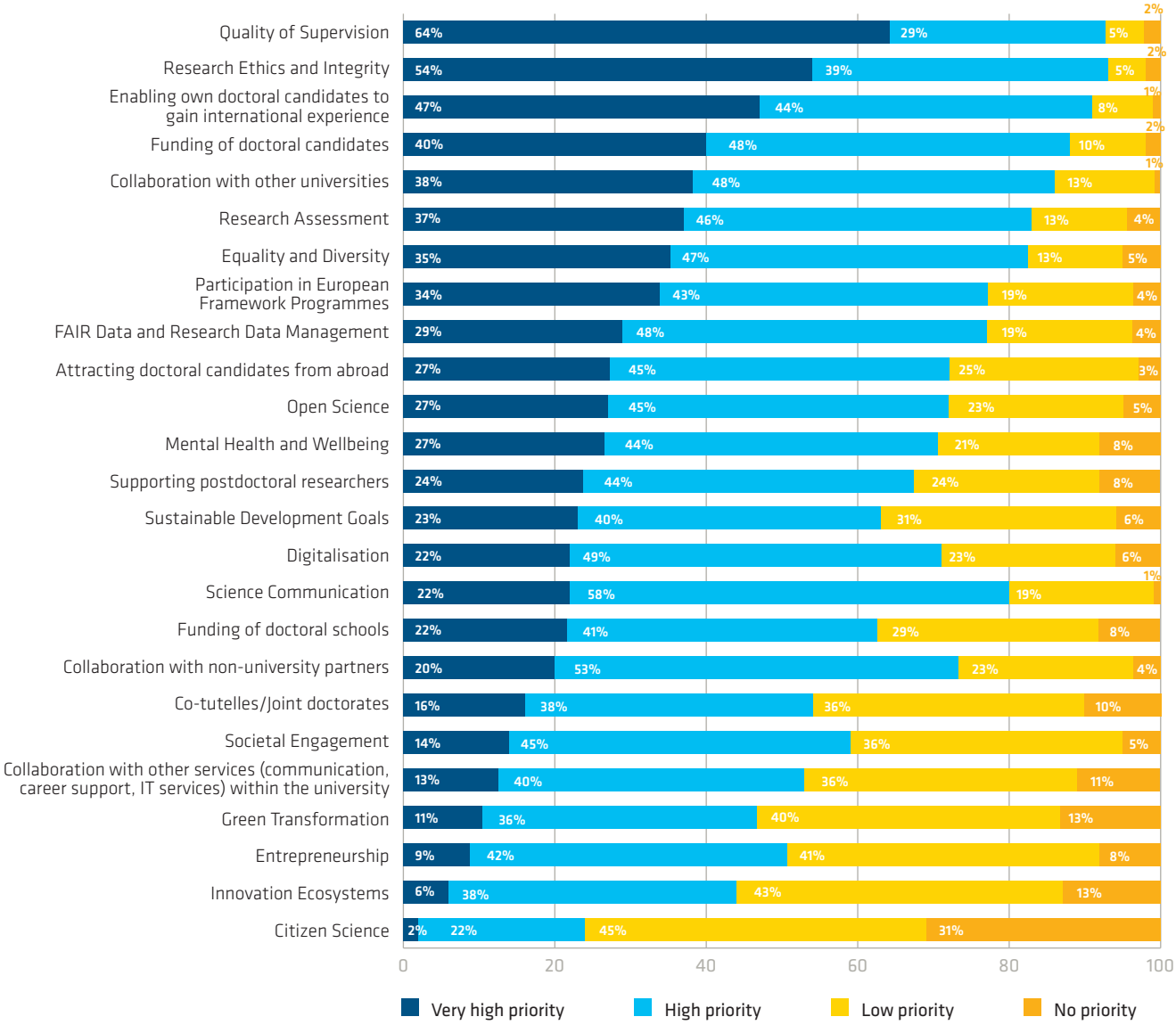
Research ethics and integrity was rated among the highest strategic priorities with 93% of respondents indicating it be of high or very high importance (Figure 12). This compared to 95% in the previous EUA-CDE survey[4], where this topic was considered to be a strategic priority to some and to a great extent, showing a continuity in this regards despite the different group of respondents.

The top position of research ethics and integrity as an institutional priority coincides with the fact that research ethics and integrity is also the most widespread mandatory and voluntary training in responded universities (See figures 5 and 6). Neither is surprising, as this topic is central to academic work as it supports the credibility of research. Recently, universities have become very active in this area through various initiatives, such as promoting research integrity measures or improving training, to name just a few examples.

The quality of supervision was seen as equally important to research ethics. Building a solid relationship between the doctoral candidate and the supervisor is an important part of all doctoral projects, as the supervisor undoubtedly plays an important role in preparing doctoral candidates for a rapidly changing and demanding world. However, universities also monitor various aspects of supervision to help improve it and provide doctoral candidates with a remarkable experience during their doctoral journey.

4 Hasgall, A., Saenen, B., Borrell-Damian, L., et al. (2019), *Doctoral education in Europe today: approaches and institutional structures*, European University Association, https://eua.eu/resources/publications/809:doctoral-education-in-europe-today-approaches-and-institutional-structures.html, p. 30.

Figure 12: Institutional priorities
Which of the following topics are a priority in the area of doctoral education at your institution?
Number of respondents: 134-137/138



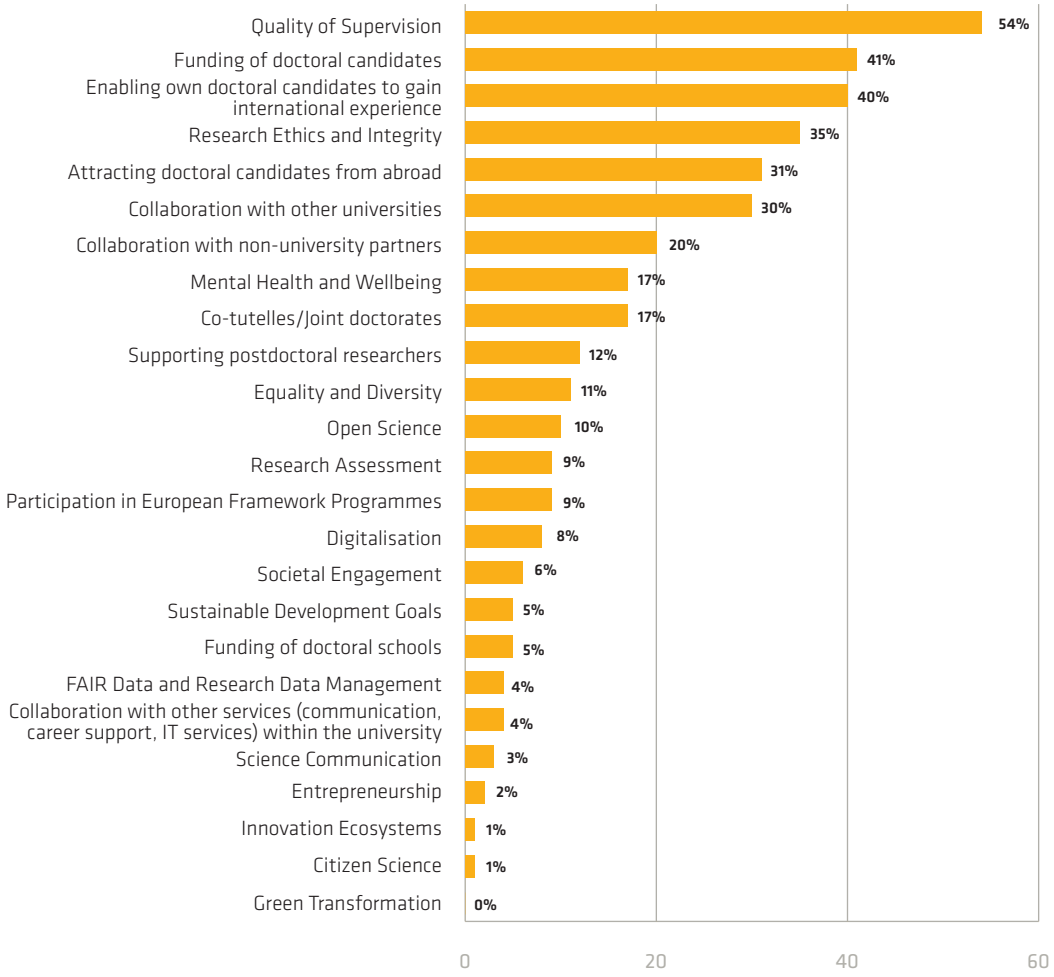
It is also noticeable that several priorities that received a high rating in terms of importance are closely linked to the topic of internationalisation. This applies to priorities such as the opportunity for doctoral candidates to gain international experience, cooperation with other universities or the recruitment of doctoral candidates from abroad. Also this is in line with the previous EUA-CDE survey, where attracting doctoral candidates from abroad was considered an important strategic priority in doctoral education by 61% of the respondents. The focus on internationalisation is not surprising, as this topic is often part of the institutional strategy of universities and strengthens the research capacity of academic institutions. As doctoral candidates are the most mobile group within universities[5], they enjoy an important role when it comes to internationalisation efforts of an institution.

By looking at these results, it is noticeable that issues such as science communication, FAIR data, Open Science, mental health, and postdoctoral support were rated similarly by the respondents in terms of high or very high priorities, and there is not much discrepancy in importance between them and the previous priorities. This shows that there is a multitude of topics and aspects that doctoral education is facing nowadays.

5 Organisation for Economic Co-operation and Development (2017), *Education at a Glance 2017: OECD Indicators*, Paris: OECD Publishing, https://doi.org/10.1787/eag-2017-en, p. 288.

Figure 13: Top priorities

Please identify which of the following topics you consider most important for doctoral education at your institution. Please indicate max. 3-4.



When asked to rank the above issues and only mention the most important ones, respondents confirmed the results of the previous question (54% chose the quality of supervision, 41% the funding of doctoral candidates and 40% the opportunity for doctoral candidates to gain international experience). (Figure 13) The responses also mention that ensuring adequate financial support for doctoral candidates is a top priority in doctoral education, which shows how this has become one key concern in certain university systems and a reason for worry. This is particularly relevant in situations where doctoral candidates are facing the loss of part-time earning opportunities and are concerned about their future employment opportunities.

6 Impact of Covid-19 on doctoral education

The Covid-19 pandemic has completely impacted many sectors of the economy, from healthcare to business and tourism and also the universities.

When universities had to close on-site facilities due to the lockdown measures, doctoral schools and programmes were forced to react within a very short time and change the organisation of doctoral education. Although they quickly introduced digital teaching and learning, reconsidered the defence of dissertations, offered some psychological support for doctoral candidates, and ensured adequate emergency funding, the Covid-19 pandemic brought many challenges that universities still have to overcome.

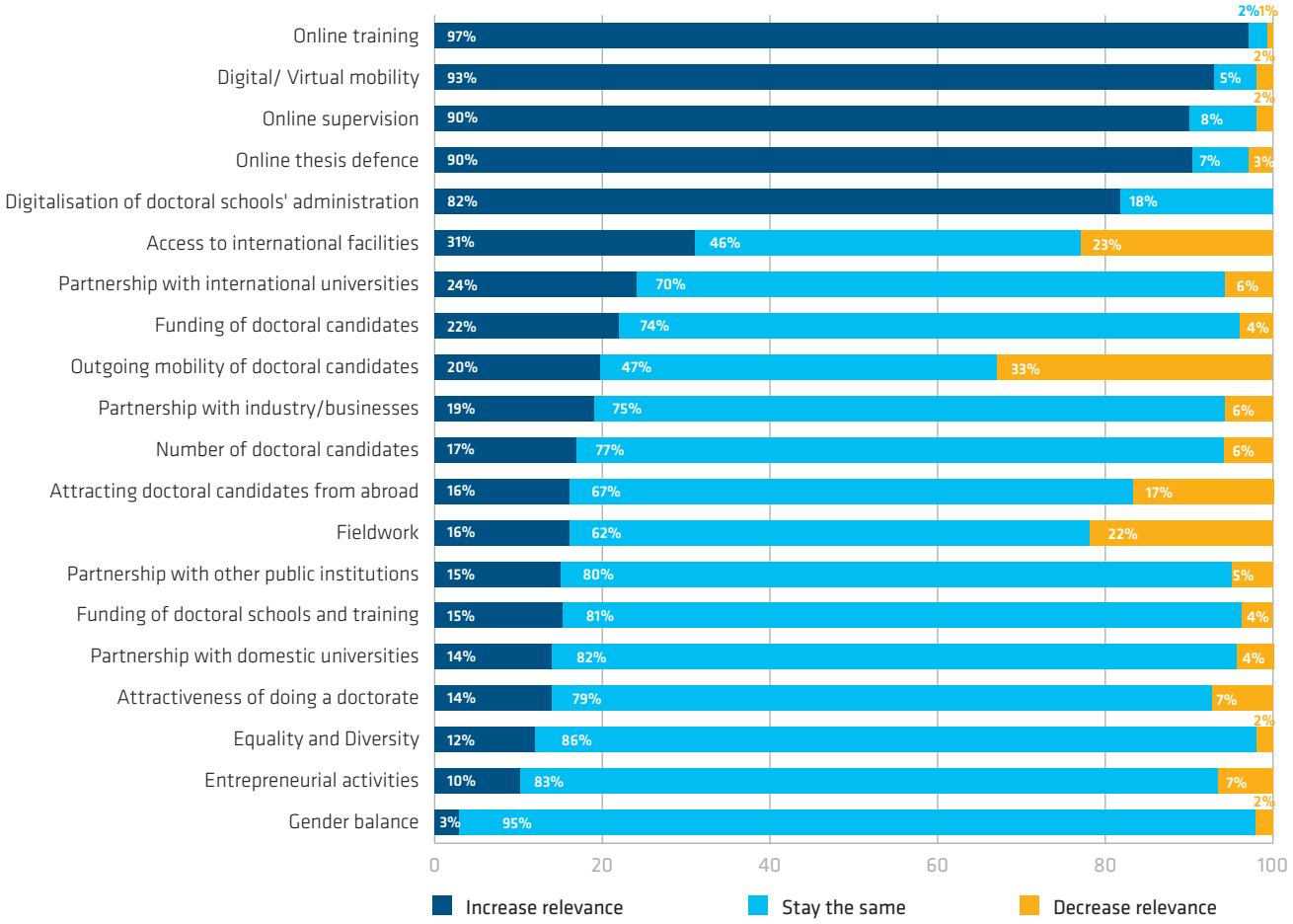
From the results of the survey, it appears that universities have managed to adapt quickly to this situation and have moved all teaching and training activities, as well as the assessment and supervision of doctoral candidates, to a virtual environment.

When asked to what extent the pandemic will affect doctoral education in the coming years, not surprisingly 97% of responding universities said that online doctoral training will become increasingly important (Figure 14). Hereby, the majority of institutions consider the digital provision of doctoral training as successful. The advantages of this approach in terms of good acceptance by doctoral candidates and access to a wider range of trainers internationally suggest that online training could continue to be organised in the near future.

A virtual training offer could become attractive for many universities as it allows for a better integration of doctoral candidates from all over the world or candidates with family care responsibilities.

A significant number of respondents (90%) also indicated that they expect online supervision to grow in importance in the coming years. With the outbreak of the pandemic, virtual supervision became common practice at European universities. However, the results of the survey also indicate that online supervision will stay also after the Covid-19 pandemic.

Figure 14: Impact of the Covid-19 pandemic on doctoral education
What effects on doctoral education do you anticipate from the pandemic in the coming years?
Number of respondents: 136-137/138



Of the institutions surveyed, 90% believe that online thesis defence will become more important in the future. Universities faced many challenges in moving to online defence almost overnight, but the experience also highlighted positive aspects that could be explored further.

Digitalisation of the administration of doctoral schools follows quite closely, being considered increasingly important by 82% of respondents. A significant number of universities indicated that administrative processes within doctoral schools were digitised during the Covid-19 pandemic, which made it possible to reduce the time and space previously spent on this, as well as to simplify and optimise administrative work.

In some other items, there seem to be contradictory views within the universities. Some believe that outgoing mobility will decrease in importance (33%) while others believe it will increase (20%). About half (47%) consider it will stay the same.

Impact of the pandemic on doctoral candidates

In an open question designed to further explore the impact of the pandemic on doctoral education, respondents were asked to indicate their institution's experience during this period and the challenges they faced in this context. Some exemplary answers of universities are quoted below.

Several respondents indicated that the international mobility of doctoral candidates was severely affected by the pandemic, which caused the closure of university campuses and severe travel restrictions. During lockdowns doctoral candidates were also unable to organise research stays abroad, participate in international conferences or assemble project teams, which limited their opportunities to establish international collaborations and to develop their networking.

In some cases, these international activities were also part of the doctoral programme, causing many doctoral candidates to reconsider their plans to conduct research abroad or to postpone this experience to a later stage. The mobility of newcomers to European universities was also severely affected by the pandemic, resulting in a lower number of international doctoral candidates.

In addition, the results of this survey indicate that digitalisation in doctoral education has greatly increased as many activities such as doctoral supervision, dissertation defence, doctoral training or administrative procedures are handled via virtual tools.

While experience has shown that certain activities cannot be permanently transferred to digital platforms, respondents also stressed that doctoral schools should consider the potential of digital tools as they can be a valuable complement to more traditional ways of conducting certain activities and can help to enhance the doctoral candidate experience.

Universities also pointed out that this period had negative consequences for mental health, which became a serious problem for many doctoral candidates.

> *"In general, our experience is that we have the tools and skills to organise online training, theses defence, supervision etc., but we cannot compensate for the loss of everyday contacts at the campus, which creates issues related to mental health and well-being of doctoral candidates."* **(University, Finland)**

> *"First indications show that the pandemic is influencing the mental health of young researchers due to the lack of social interaction. Especially international researchers bear a higher risk of feeling left out and alone."* **(University, Germany)**

Another challenge that universities faced during the pandemic was the increasing number of requests to extend the deadline for submission of doctoral theses. The lockdown put doctoral candidates in a difficult situation as it was impossible to conduct field research, access laboratories or other research facilities on campus, leading to delays in thesis submission. Doctoral schools are now addressing the significant financial implications of these extensions while seeking solutions to avoid putting the next generation of doctoral candidates at risk from this situation.

> *"The possibly worst effect of the pandemic is related to the increased difficulty in accessing labs and libraries, which caused delays in the completion of the PhD courses."* **(University, Italy)**

When asked in another open question about the main obstacles for the optimal development of doctoral education in 2020 at their university, respondents emphasised the difficulty of providing networking opportunities for doctoral candidates.

> *"Networking is crucial for researchers to exchange ideas and form new project groups to innovate together. Especially for doctoral candidates, getting to know other researchers from all disciplines is very important in order to improve their research as well as to enhance their future career in science. Making this possible even to a small extent has been one of the greatest challenges for doctoral management during the last year."* **(University, Germany)**

Although universities have taken a number of initiatives to support candidates in this regard, it became immediately clear that none of these initiatives could replace informal contacts with peers. During this period, the lack of networking opportunities was difficult to overcome, as it is not possible for doctoral candidates to meet other researchers in person in order to advance their research and improve their future career opportunities by exchanging ideas or establishing new collaborations.

Many respondents also identified the issue of reduced funding for doctoral candidates as a major obstacle to the development of doctoral education.

> *"Funding was sometimes too inflexible to find solutions. The corresponding funding programs for our institution did not offer any additional funds for bridging the Covid-19-gap."* **(University, Germany)**

Respondents were worried this could ultimately lead to doctoral candidates being underfunded and unable to complete their doctorate or being forced to leave the academic sector. This has been identified as a challenge independently of the pandemic.

Digitalisation has become one of the notable developments of the last year, and the pandemic has often been considered not the reason but the facilitator of such a development.

> *"The most important development has been the digital transformation. The pandemic itself has also caused doctoral education to open up to technological solutions."* **(University, Italy)**

This has been related not only to the online training and supervision, but also to the functioning of doctoral schools themselves, which have been digitalised. It can be expected, that, with the end of the pandemic, this digitalisation of doctoral education will stay or even further develop, as has been mentioned by several of the responding institutions.

EUA Council for
Doctoral Education
(EUA-CDE)

Rue du Rhône 114
Case postale 3174
1211 Geneva 3, Switzerland
+41 22 552 02 96

www.eua-cde.org

The EUA Council for Doctoral Education (EUA-CDE) was launched in 2008 at the initiative of the European University Association, responding to a growing interest in doctoral education and research training in Europe. An integral part of the European University Association, it is now the largest European network in this field, covering more than 260 universities and institutions working on issues related to doctoral education and research training in 36 countries.

Since its creation, EUA-CDE has been leading the transformation and strengthening of doctoral education in Europe. Building on the outcomes of EUA's work on doctoral programmes and research careers, EUA-CDE has been the driving force behind the implementation of the Salzburg Principles and Recommendations and the promotion of doctoral education as the main intersection between the European higher education and research.