

Report on the PhD funds at NTNU

following a survey conducted in 2023 by the interest organization for PhDs, PostDocs and temporary scientific staff at NTNU (DION)

DION board 2022/2023

Regina Paul** (president)

Wolf Ludwig Kuhn* (vice-president)

Alicia Vallejo-Olivares**

Anastasia Skarpeti

Anum Masood

Fereshteh Mirjalili

Raed Hlayhel

*main author

**revisor

Trondheim, 22.03.2023

Summary

In early 2023, a survey has been conducted among the PhD candidates at NTNU by DION in order to get an overview of the current status of PhD funds. The survey was answered by more than 10% of the PhD candidates at NTNU, and gives therefore a good indication of the availability and knowledge of PhD funds, their average sizes and the intended use.

Differences among the different faculties and departments of NTNU are visible. In addition, the resources available to the PhD candidates depend on the type of funding for the doctoral position.

Some fields of research and projects may require more funds, as e.g. additional equipment may be needed. This reduces the funds available for traveling, thus giving less room for mobility and internationalization. However, internationalization is one of the focus areas in NTNU's strategy for 2022-2025 (<https://www.ntnu.edu/international-development-plan>). Given the existing differences between the available funds at different faculties, this leads to inequality (or unequal opportunities) among the PhD candidates at NTNU.

DION proposes several steps to increase awareness of available PhD funds among doctoral candidates and to decrease the inequality among the PhD candidates at NTNU.

Introduction

PhD candidates at the Norwegian University of Science and Technology (NTNU) and other universities across are facing multiple tasks: They are appointed to invent, design and conduct experiments, simulations or surveys to answer challenging research questions, proof theories or concepts, or disseminate knowledge by teaching. As first stage researchers, they are also encouraged to engage in network building within their field of research, and by that have the opportunity to get in touch and discuss and exchange ideas and get or give input on their and other's results.

The Covid-19 pandemic, that started at the end of 2019 has brought dramatic changes in researcher's life. It restricted both local, national and international travel and enforced strict policies such as local lockdowns. This led to cancellation of various scientific meet-up platforms such as conferences, seminars, workshops and summer and winter schools. As a result, researcher exchanges have been challenging in Western countries from early 2020, throughout 2021 and parts of 2022. This has limited, if not eliminated, opportunities to network and connect with fellow researchers at national and international level. This and other pandemic related restrictions had a negative impact on the mental health of PhD candidates, which has been debated for some time. A survey on the impact of the pandemic on the mental health of PhDs in Norway was conducted by SiN (Stipendiatorganisasjonene i Norge), the umbrella organization of interest organizations for PhDs in Norway (<https://stipendiat.no/2023/01/covid-19-related-project-delays-contract-extension-applications-mental-health-and-well-being/>).

Due to the fast development of vaccines against the Covid-19 virus, most restrictions in Western countries were lifted throughout 2022, making it possible to have in-person meetings again. This was, among others, a relief for PhD candidates, as it gives them a chance to compensate for missed opportunities to attend conferences or have research stays abroad. Yet, the possibility to make meetings online (or hybrid, i.e. with partial in-person or online attendance) is a chance with regard to talking climate change. At NTNU, new travel guidelines were imposed in early 2023 (<https://backends.it.ntnu.no/syndicator-web/public/files/7b951934-01e5-31fe-b2b6-650bd244722a>), according to which it need be assessed for each business travel whether it is necessary.

This has resulted in many doctoral candidates having their funding for international travel cut or eliminated altogether. The interest organization for PhDs, PostDocs and temporary scientific employees at NTNU (DION) collected these cases and intends to act against the funding inequality of PhD candidates across NTNU. Therefore, a survey on the current status of PhD funds across different faculties was conducted. This report summarizes the findings of the survey, thus providing the latest information about the PhD funds at NTNU.

During the course of a PhD, (usually 3-4 contract basis account for various expenses. At the beginning of the PhD period personal technical equipment (e.g. notebook and/or PC, screens), have to be purchased, It might be already available at some departments, but more often this is not the case. If applicable, laboratory equipment may be bought for the PhD, such as safety equipment, instrumentation, or chemicals. Traveling for attending conferences, summer/winter schools or research stays abroad belong to major expenses. All these expenses are usually covered by a PhD fund (Norwegian: "driftsmidler"). There are a lot of differences between NTNUs departments when it comes to allocation and administration of the funds, and the amount of PhD funds differs across departments as well as between the funding type of the PhD position (by NTNU itself or through a project grant). This makes the individual PhD candidate highly dependent on the particular department and funding type, which creates a great inequality between all PhDs at NTNU.

The PhD regulations do not specify how expenses during the course of a PhD period are supposed to be covered. Similarly, the PhD handbook, a document with guidelines and recommendations for the different actors involved in a PhD program, provides only a vague statement, namely that “the department must ensure that the infrastructure and necessary working capital are in place”. Therefore, the departments and faculties have a free hand when it comes to budgeting money allocated for PhD funds.

Another problem is the different administration of PhD funds across NTNU. Some PhD candidates mention that they are lacking access to an overview of their expenses, or that they do not know what funds are available to them. Most PhD candidates have to keep track of their expenses themselves.

Methodology

To get data on the availability, size and change of the PhD funds at NTNU, a survey was conducted among NTNUs PhD candidates. It was made using “Nettskjema” and was open from February 10th to 23rd, 2023. The announcement of the survey was made on Innsida and was additionally spread out by the representatives of temporary employees at NTNU's faculties and departments. The survey consisted of 3 main parts, each including a number of questions:

Affiliation

- Which faculty are you employed at?
- Which department are you employed at?

Your PhD

- Which year of your PhD are you currently in?
- In which of NTNU's cities is your office located?
- Which type of funding does your PhD have?

Your PhD funds

- Do you have PhD funds?
- How much money is in your fund for the current year of your PhD?
- What do you have to cover from your PhD funds?
- If you have no funding, who pays/paid for your equipment?
- Have you applied yourself for extra funding to cover expenses related to your PhD (e.g. stipends, publication bonus)?
- Have the department, faculty or NTNU made changes to your PhD funds during your employment time at NTNU?

NTNU is organized into 8 faculties and the University Museum, with a total number of 55 departments. An overview of the organization of NTNU with the different departments under the respective faculties, including their abbreviations which are used in this report, is found in the Appendix.

In 2022, the number of PhD candidates employed at NTNU was approximately 3075 (<https://dbh.hkdir.no/tall-og-statistikk/statistikk-meny/doktorgrader/>). The number per faculty is listed in Table 1. For the University Museum, no number is given by the source. Numbers are rounded to the nearest 5.

Table 1: Number of PhD students per faculty at NTNU in 2022.

| Faculty | HF | AD | IE | IV | MH | NV | SF | OK | VM |
|--------------|-----|----|-----|-----|-----|-----|-----|-----|----|
| PhD students | 165 | 85 | 635 | 720 | 590 | 455 | 290 | 130 | ? |

Results

The survey was answered by 377 people in total. All faculties and the University Museum are represented, and the answerers are employed in 51 out of the 55 departments at NTNU. The number of answers per faculty and department is shown in Figure 1.

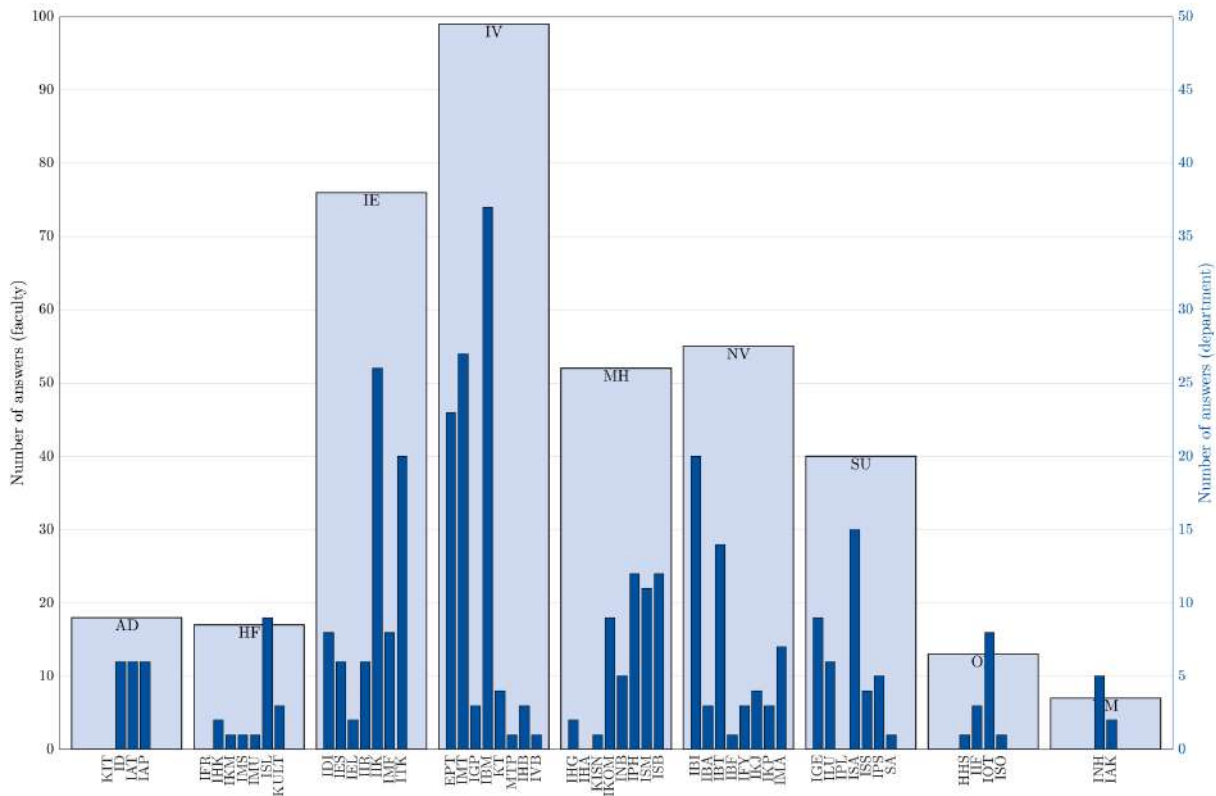


Figure 1: Affiliation of survey answerers.

The survey was answered mostly by first-, second- and third-year PhD candidates, with an almost equal distribution between them. Some fourth-year PhD candidates were also among the respondents, and 5.0 % of the answers were categorized as “other”. It is assumed that the latter answers were given by PostDocs. The distribution of how long the answerers have been working on their doctorate is shown in Figure 2.

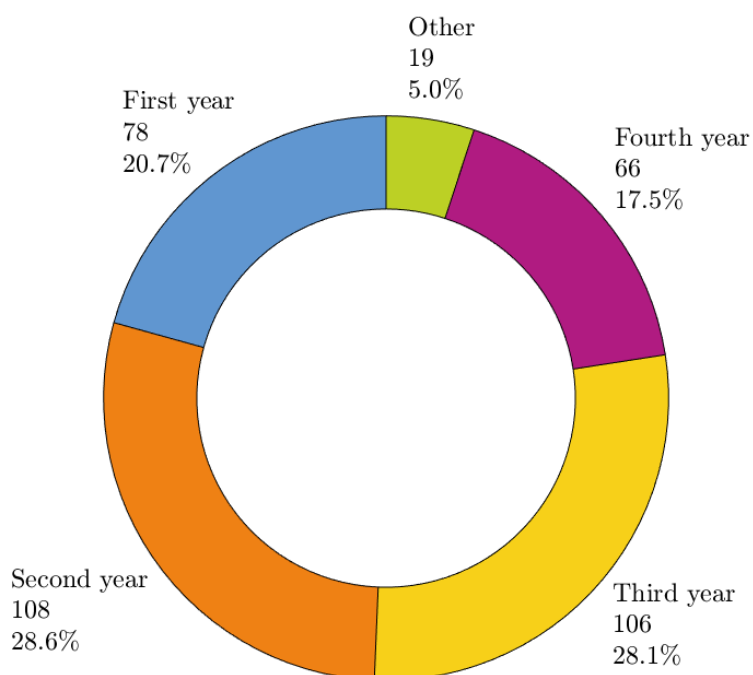


Figure 2: Distribution of PhD years.

Answers from all three NTNU cities were given, even though a large majority (almost 90%) of the respondents are located in Trondheim. Figure 3 gives an overview of the number of answers registered from each of the NTNU cities, including the share on the total number of answers.

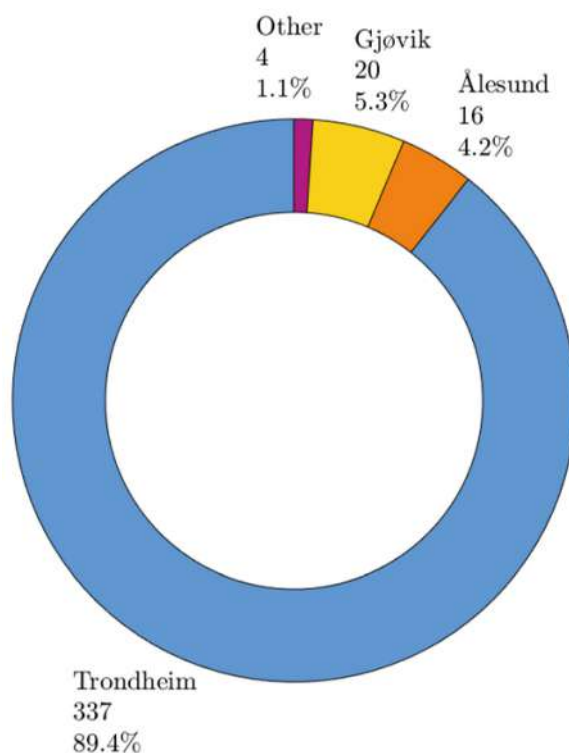


Figure 3: Distribution of NTNU cities.

The type of funding of the PhD position plays an important role in the budgeting for PhD funds, as projects are usually budgeted for the entire duration of the project, while the

internal budget of department and/or faculty may change from year to year. The survey responses show that the number of candidates with an internally funded PhD position is slightly higher than the number of candidates in positions funded via project grants. Some industrial PhDs (“nærings-PhD”) also participated in the survey, contributing to a minor share of candidates (11% of all answers) outside of the aforementioned two large funding types.

Figure 4.

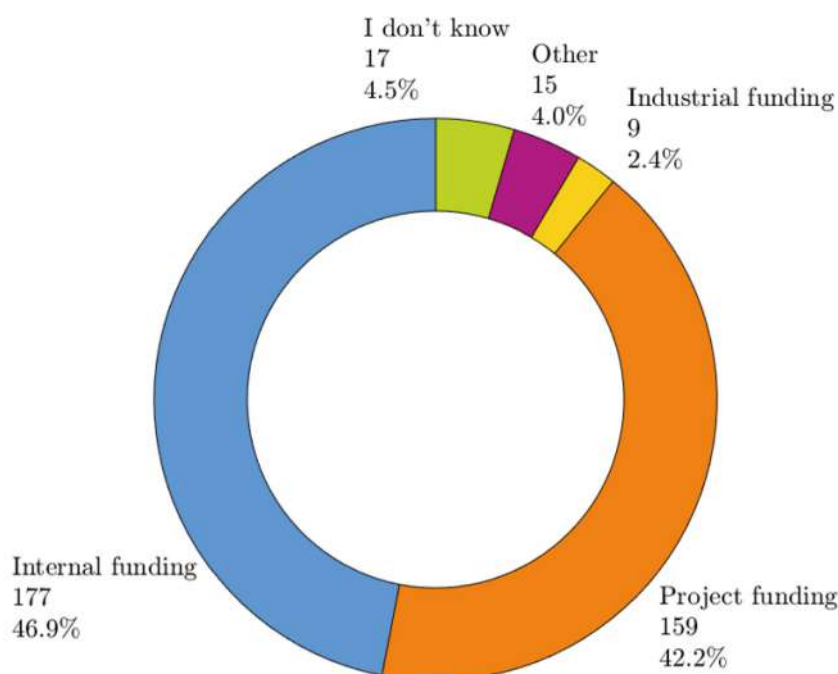


Figure 4: Distribution of PhD funding source.

Among the answerers, above two-thirds have PhD funds (“driftsmidler”) and know about them. Less than 4% say that they don’t have any PhD funds, while the rest states that they don’t know about the availability of PhD funds (Figure 5). Many respondents comment that accessing information about their PhD funds is difficult, as it often is unclear whom to contact at faculty or department level. Therefore, some respondents indicated that they tend to spend as little as possible to avoid overspending.

Knowledge of PhD funds is independent of the year the PhD candidate is in although there is a slight decrease in the number of candidates not knowing about their PhD funds at later stages of the PhD period (Figure 6). Among the faculties, IE and IV stand out having a larger share of candidates not knowing about their PhD funds, even though the share of people stating “yes” on knowledge about PhD funds at these faculties is still the highest (Figure 7). It is worth mentioning that the IE and IV faculties also have the highest number of candidates who responded to this survey (and the highest number of PhD candidates employed Table 2).

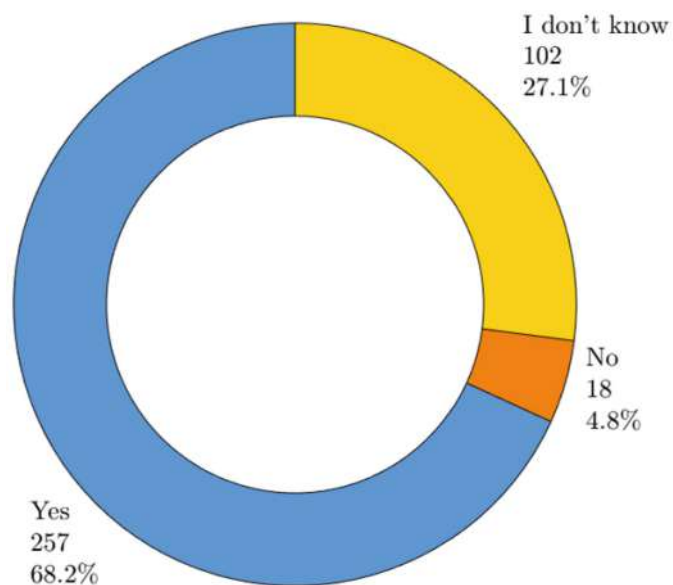


Figure 5: Do you have PhD funds?

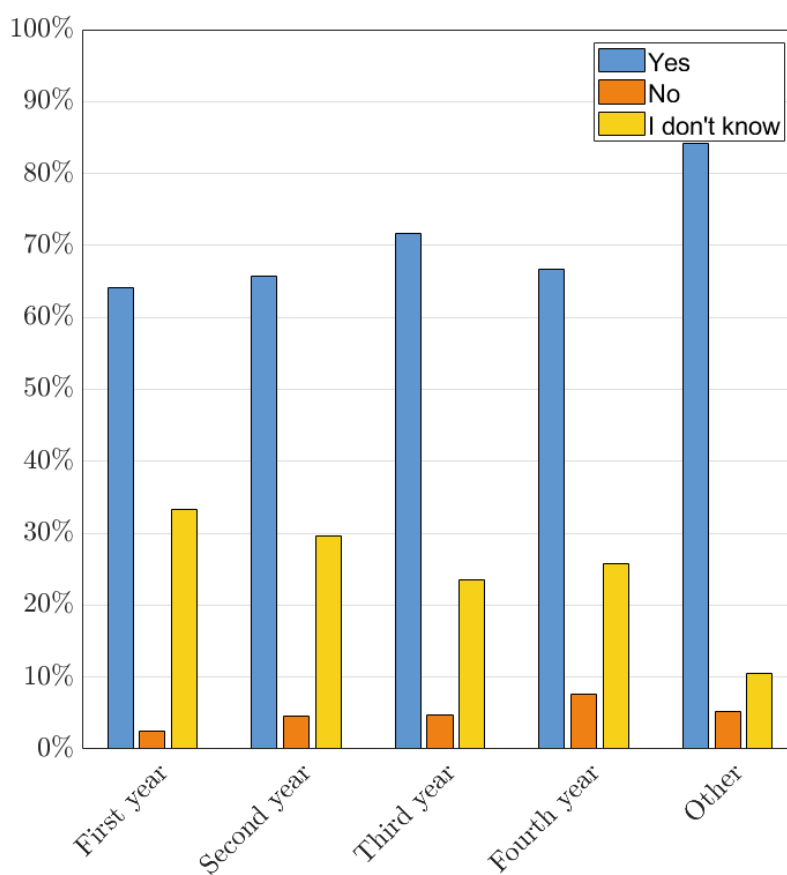


Figure 6: Knowledge of PhD funds by PhD year.

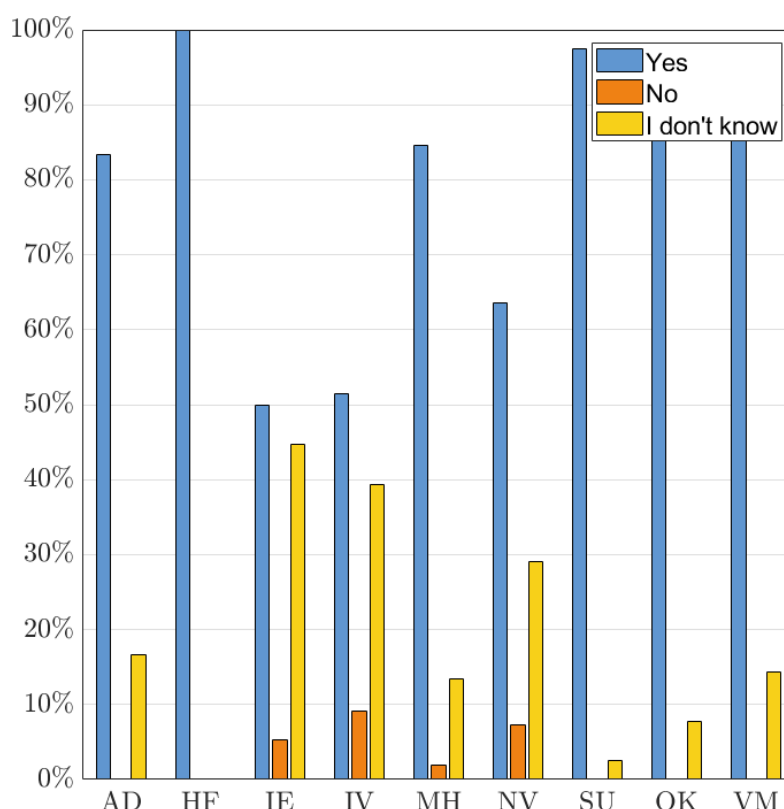


Figure 7: Knowledge of PhD funds by faculty.

The amount of annual PhD funding was the main question of the survey. PhD funds are in general handled differently from faculty to faculty, department to department and there is a difference between internally and project-funded PhD candidates. As concluded in the DION report on the PhD budget regulations at NTNU from 2016, “a variety of definitions and processes exists” regarding the regulations. PhD funds may be allocated for the entire duration of the PhD or defined as per-year budget and thus vary from year to year. To have uniform results, the question was formulated in such a way that respondents were asked to indicate the amount of annual funding available to them in form of PhD funds in 2023. Those who have a fixed amount for the entire duration of their PhD contract were asked to divide this amount by the total number of years on their PhD contract.

From all answerers, 111 candidates (29.4%) stated an annual budget below 50000 NOK, 117 candidates (31.0%) stated annual PhD funds between 50000 NOK and 100000 NOK, and 29 candidates (7.7%) have more than 100000 NOK available in 2023 (Figure 8). The average size of the annual PhD funds at NTNU in 2023 is about 58500 NOK. There is a slight discrepancy between the NTNU cities, but the small number of responses from PhD candidates working in Ålesund or Gjøvik introduces a large error, so that these results merely serve as an indication (Figure 9). The average annual PhD funds in 2023 differ between NTNU's faculties, with AD being at the lower end (~40500 NOK) and MH at the higher end (~72500 NOK). An even larger discrepancy is visible between NTNU's departments (Figure 10).

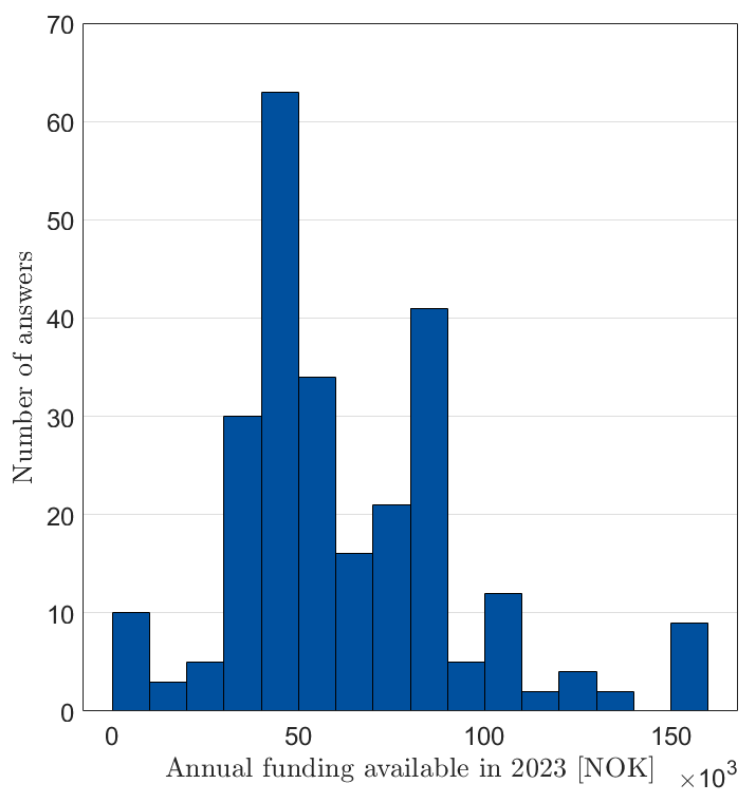


Figure 8: Histogram of annual PhD funds in 2023.

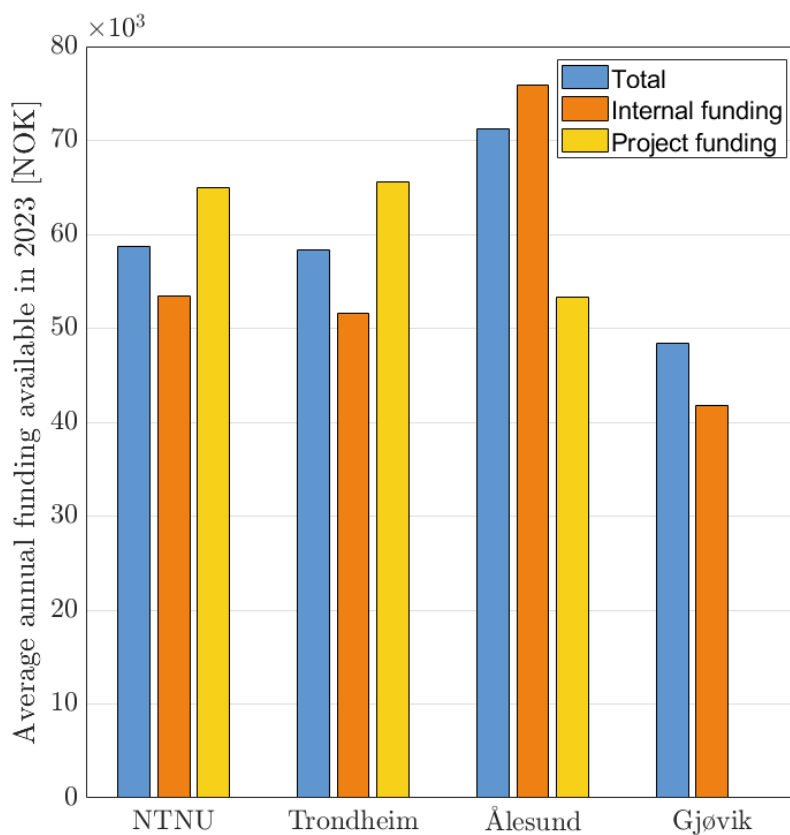


Figure 9: Average annual PhD fund available per NTNU city and funding type in 2023.

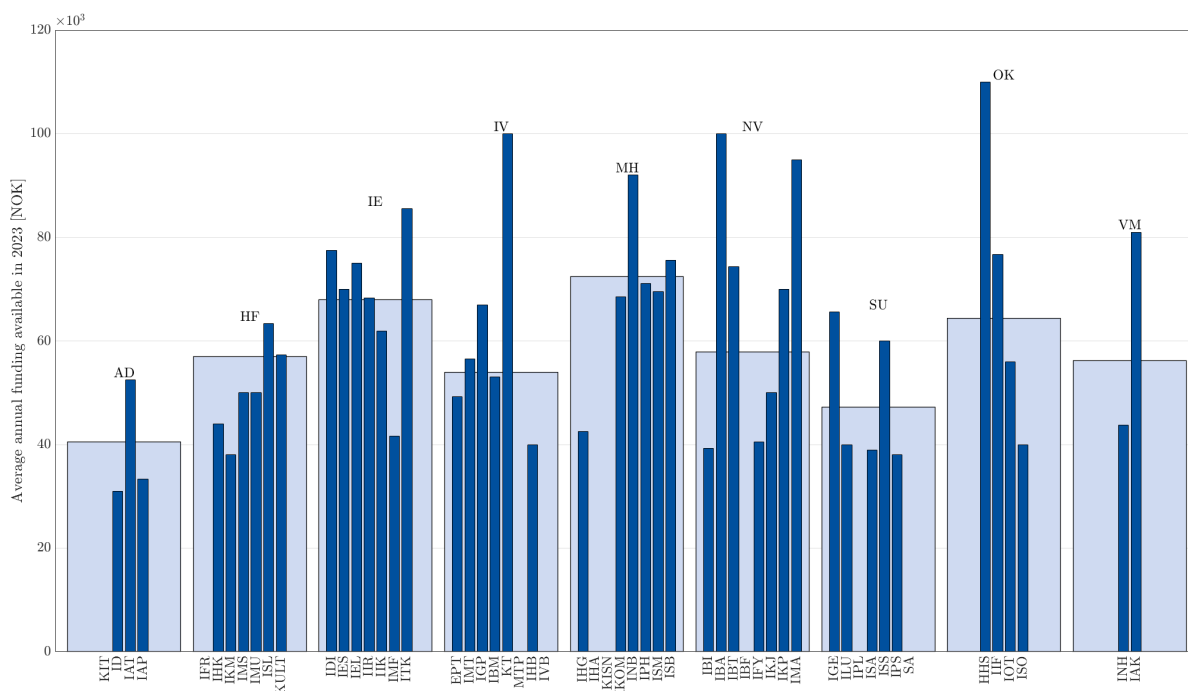


Figure 10: Average annual PhD funds per faculty and department in 2023.

Almost all respondents use their PhD funds to cover the costs of attending a conference. In addition, many answerers have to pay for literature, personal technical equipment, research stays and courses outside NTNU from their funds. Also, more than 50% of respondents report that the costs associated with submitting their articles to scientific journals are covered from their PhD funds (Figure 11).

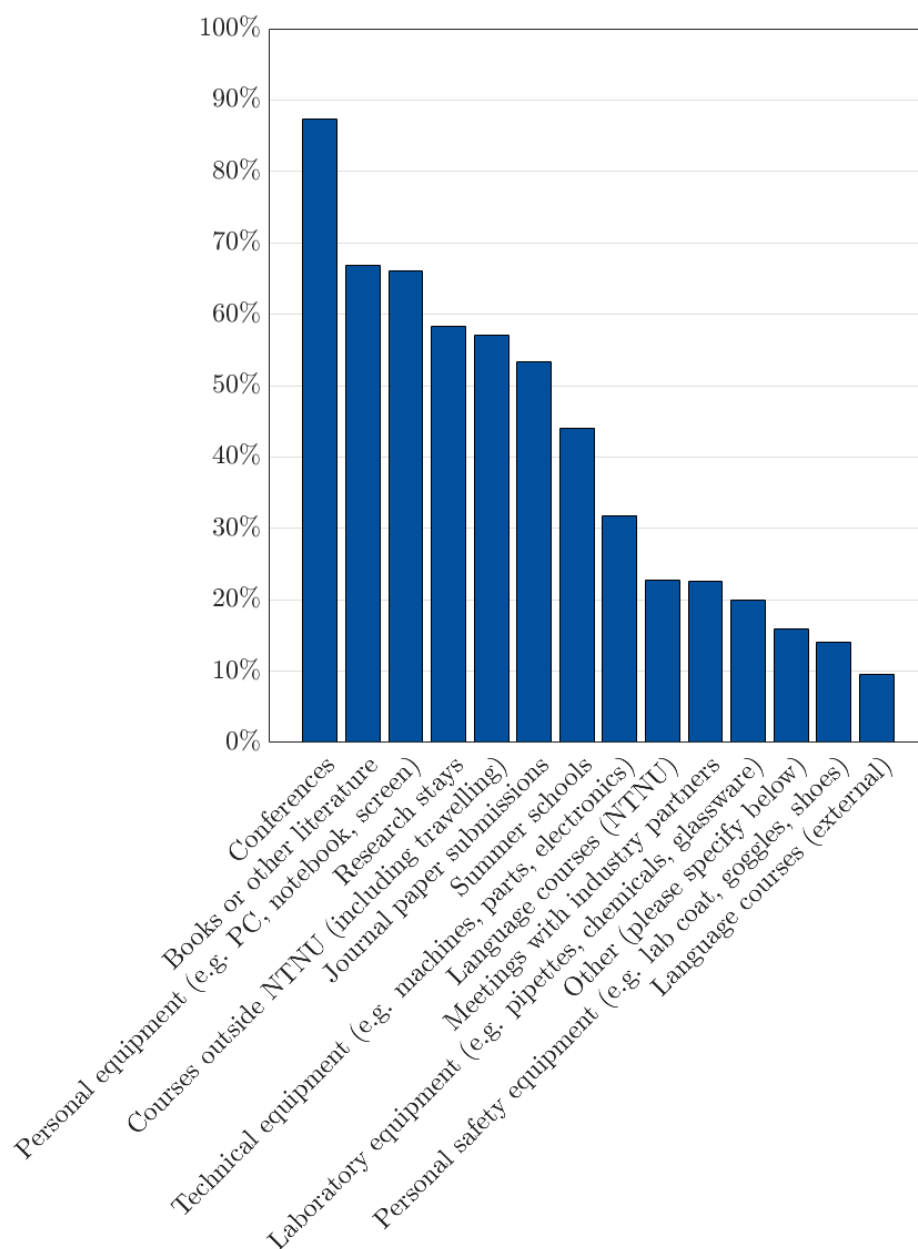


Figure 11: Usage of PhD funds.

A distinction was made between internally and project-funded PhDs to determine whether there are differences between those two categories.

Internally funded PhD candidates have a good knowledge of their PhD funds, especially in later years (Figure 12). Their average annual funding is with 53400 NOK about 5000 NOK lower than the average annual PhD funding at NTNU (see Figure 9). The average for NTNU's faculties is therefore mostly lower than the average including project funds, with an exception for AD and OK (Figure 13).

PhD candidates employed via a project are having less knowledge of their PhD funds (Figure 14), but report an average annual funding of 64900 NOK, which is about 6000 NOK higher than the average annual PhD funding at NTNU (see Figure 9). This applies to all faculties except AD and IV (Figure 15).

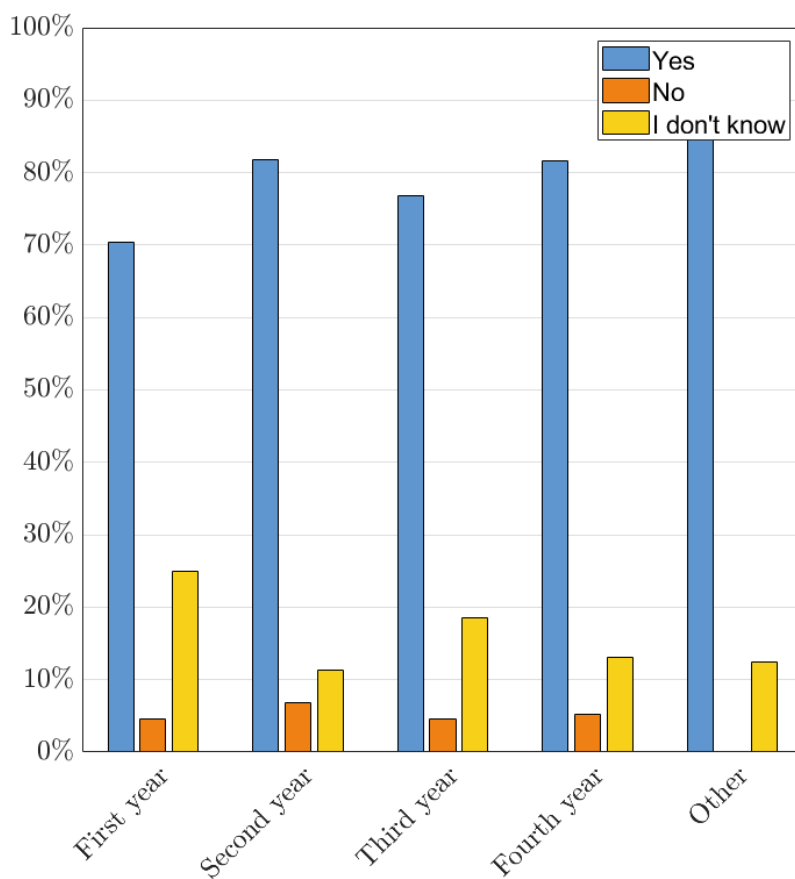


Figure 12: Knowledge of PhD funds by internally funded PhD candidates.

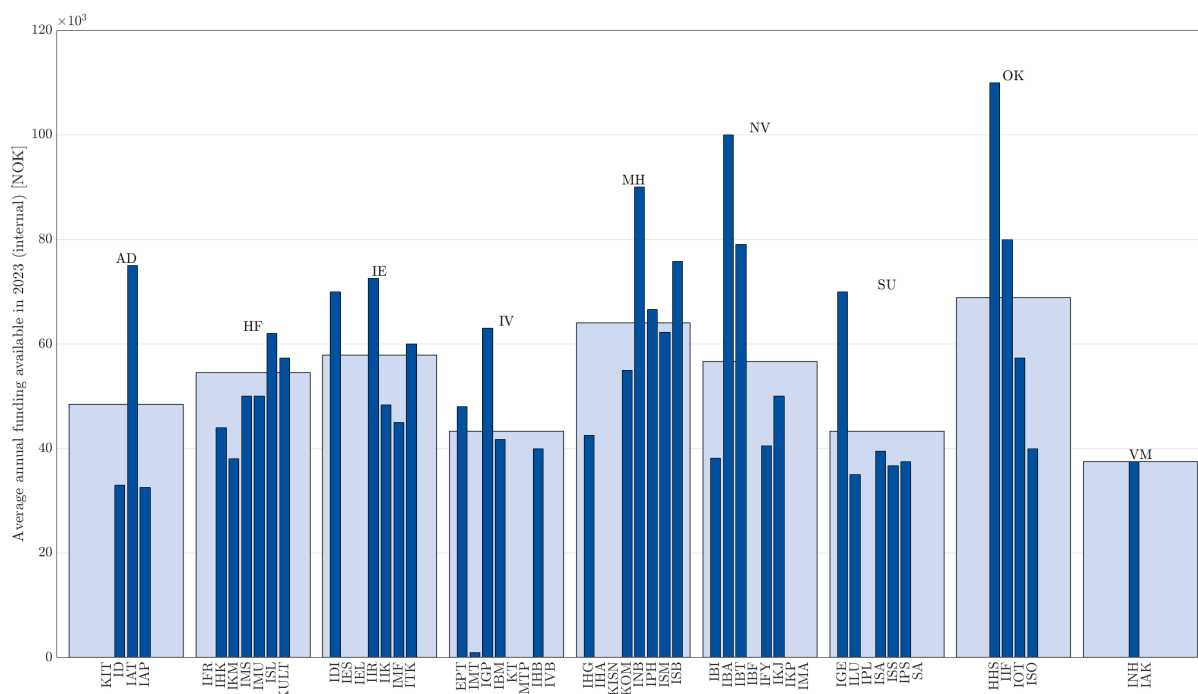


Figure 13: Average annual PhD funds per faculty and department in 2023 for internally funded PhD candidates.

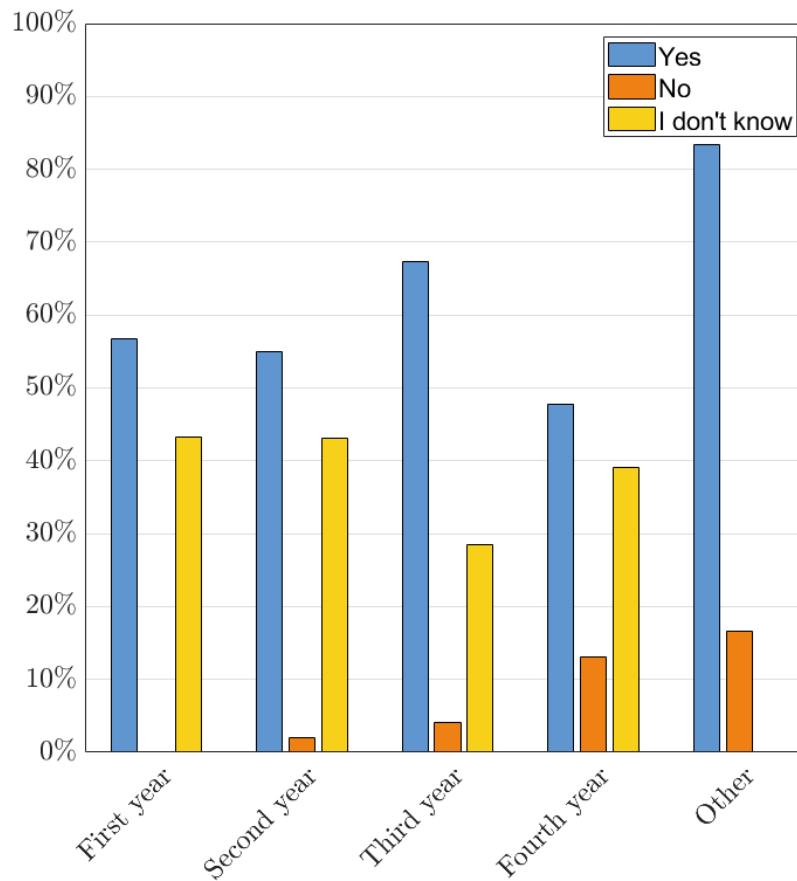


Figure 14: Knowledge of PhD funds by project-funded PhD candidates.

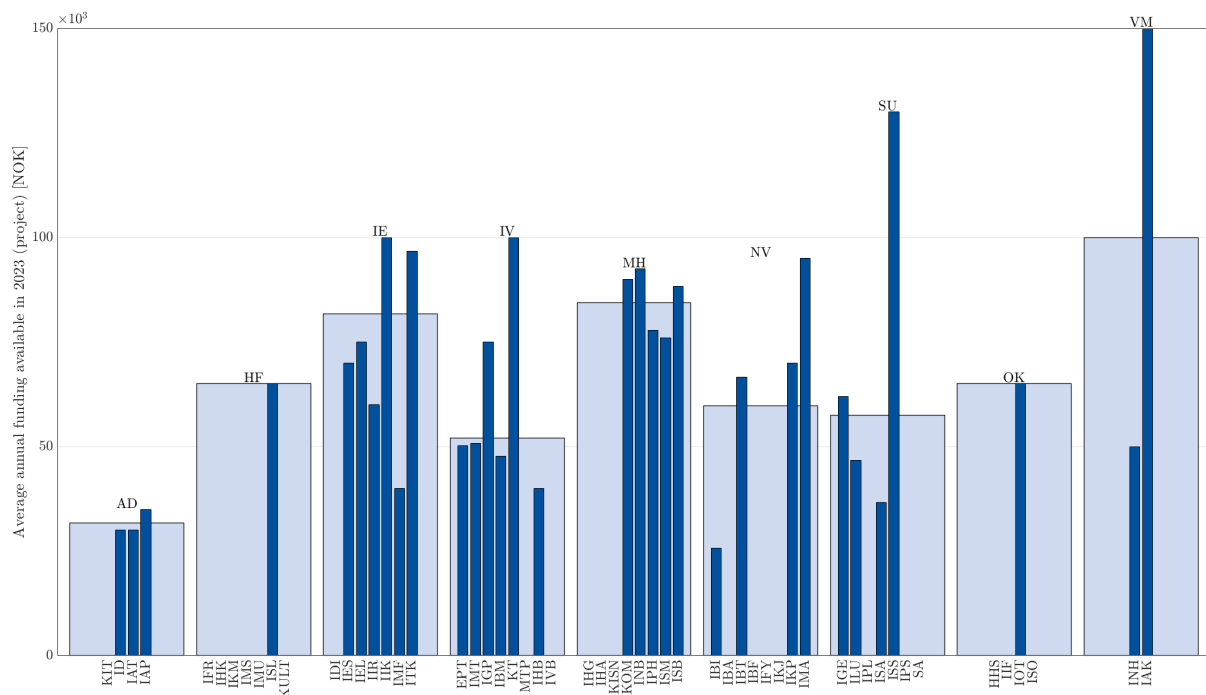


Figure 15: Average annual PhD funds per faculty and department in 2023 for project-funded PhD candidates.

Only 8.0% of answerers stated that changes had been made to their doctoral funds during their time as a doctoral candidate at NTNU, although almost half said they did not know.

Figure 16).

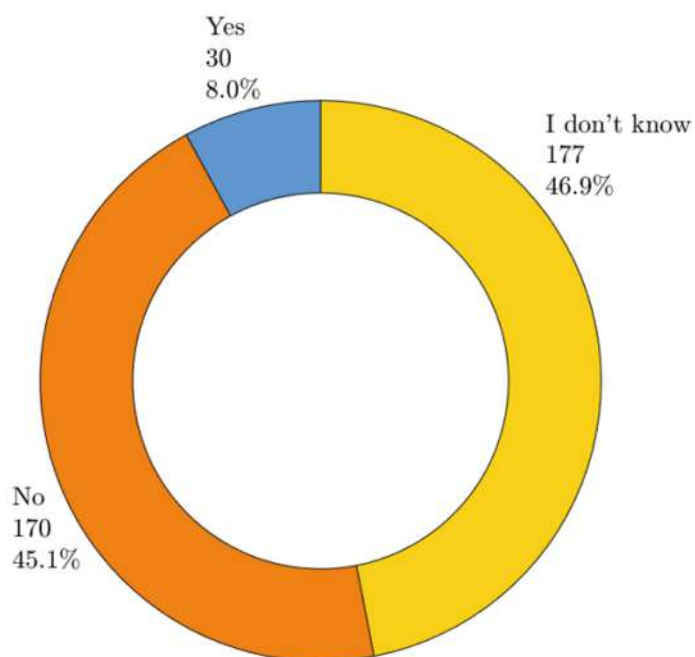


Figure 16: Have there been changes to your PhD funds?

Each PhD candidate has a possibility to apply for extra funding provided by different funds. About 25% of the survey's respondents stated that they have ever applied for extra funding before. These additional funds were used to cover costs of e.g. research stays or conferences.

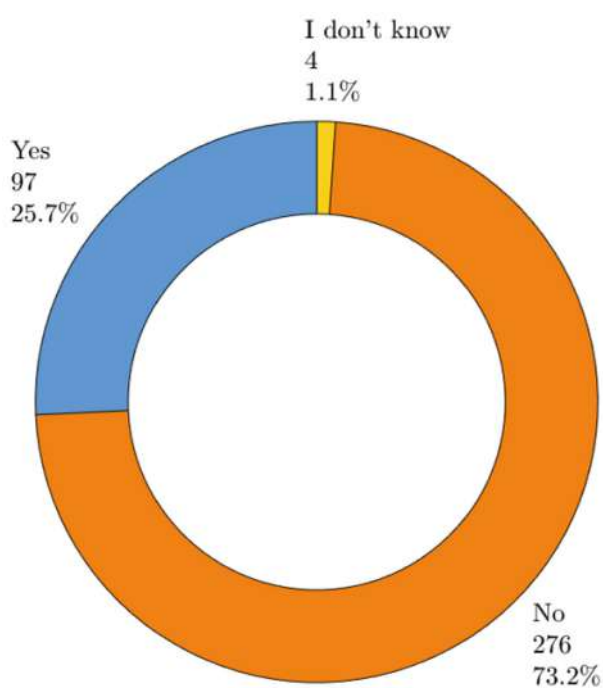


Figure 17: Have you applied for extra funding?

Discussion

In general, PhD candidates at NTNU have PhD funds (“driftsmidler”) to cover work-related expenses. The annual average funding in 2023 is about 58500 NOK. Larger differences are visible between the annual average funding at faculty and department level, and between PhD candidates which are funded internally versus project-funded PhD students. The gap between the latter two is about 11500 NOK. The gap between the faculties is even higher, with differences of more than 30000 NOK. Between departments in general, but also between departments at the same faculty, the differences are even higher. This may be due to the low sample size for some of the departments in this survey. Also, PhD students within different fields may have the need of higher PhD funds due to the nature of their PhD project and field of research. Nevertheless, having restricted funding possibilities gives rise to inequalities in the performance of the individual PhD project as well as the individual networking and career development possibilities.

Knowledge about PhD funds is a problem for more than a quarter of the answerers. Comments indicate that both communicating the availability and size of the PhD funds and accessing information about the current status of the PhD funds is problematic. For the latter, most candidates do not know whom to contact. A few comments also point to inconsistencies between personal accounting and official accounting at department or faculty level.

The results of the survey are based on individual answers of PhD candidates employed at NTNU. The number of employed PhD candidates in 2022 was used to calculate the percentage of the participants. Thus, approximately 12% of all PhD candidates at NTNU participated in the survey. This results in a margin of error of 4.7% with a 95% confidence level. For the individual faculties and departments, the sampling sizes may be insufficiently small, so that the results at these levels only provide indications of the PhD fund sizes.

Conclusion

At NTNU, funds are available to doctoral candidates to cover work-related expenses such as conference attendance or technical equipment. The annual amount of funds differs from faculty to faculty and department to department. A difference was also found between the amount of PhD fund of the PhDs who are funded internally and those working in project-funded positions. In general, PhD candidates have knowledge of their PhD funds, but the communication and accessibility of information about the individual PhD funds need to be improved.

DION proposes the following steps to decrease inequality in the PhD education in terms of PhD funds:

- Guidelines for information, accessibility and communication about PhD funds should be implemented. This will provide PhD candidates an opportunity to plan and budget their studies in a better way.
- A minimum PhD fund size across all NTNU PhD programs should be enforced, regardless of how the individual doctoral position is funded. This will allow for greater internationalization, both in terms of mobility and networking opportunities.
- An overview of the current amount of available PhD funds should be part of the new digital PhD platform. This will make the information easily accessible to the individual PhD candidate.

Appendix

NTNU's faculties and departments including their respective abbreviations.

Faculty of Architecture and Design (AD)

- Trondheim Academy of Fine Art (KIT)
- Department of Design (ID)
- Department of Architecture and Technology (IAT)
- Department of Architecture and Planning (IAP)

Faculty of Humanities (HF)

- Department of Philosophy and Religious Studies (IFR)
- Department of Historical and Classical Studies (IHK)
- Department of Art and Media Studies (IKM)
- Department of Modern History and Society (IMS)
- Department of Music (IMU)
- Department of Language and Literature (ISL)
- Department of Interdisciplinary Studies of Culture (KULT)

Faculty of Information Technology and Electrical Engineering (IE)

- Department of Computer Science (IDI)
- Department of Electronic Systems (IES)
- Department of Electric Energy (IEL)
- Department of ICT and Natural Sciences (IIR)
- Department of Information Security and Communication Technology (IIK)
- Department of Mathematical Sciences (IMF)
- Department of Engineering Cybernetics (ITK)

Faculty of Engineering (IV)

- Department of Energy and Process Engineering (EPT)
- Department of Marine Technology (IMT)
- Department of Geoscience and Petroleum (IGP)
- Department of Civil and Environmental Engineering (IBM)
- Department of Structural Engineering (KT)
- Department of Mechanical and Industrial Engineering (MTP)
- Department of Ocean Operations and Civil Engineering (IHB)
- Department of Manufacturing and Civil Engineering (IVB)

Faculty of Medicine and Health Sciences (MH)

- Department of Health Sciences in Gjøvik (IHG)
- Department of Health Sciences in Ålesund (IHA)
- Kavli Institute for Systems Neuroscience (KISN)
- Department of Clinical and Molecular Medicine (IKOM)
- Department of Neuromedicine and Movement Science (INB)
- Department of Mental Health (IPH)
- Department of Public Health and Nursing (ISM)
- Department of Circulation and Medical Imaging (ISB)

Faculty of Natural Sciences (NV)

- Department of Biology (IBI)
- Department of Biological Sciences Ålesund (IBA)
- Department of Biotechnology and Food Science (IBT)
- Department of Biomedical Laboratory Science (IBF)
- Department of Physics (IFY)
- Department of Chemistry (IKJ)
- Department of Chemical Engineering (IKP)
- Department of Materials Science and Engineering (IMA)

Faculty of Social and Educational Sciences (SU)

- Department of Geography (IGE)
- Department of Teacher Education (ILU)
- Department of Education and Lifelong Learning (IPL)
- Department of Social Work (ISA)
- Department of Sociology and Political Science (ISS)
- Department of Psychology (IPS)
- Department of Social Anthropology (SA)

Faculty of Economics and Management (OK)

- NTNU Business School (HHS)
- Department of International Business (IIF)
- Department of Industrial Economics and Technology Management (IOT)
- Department of Economics (ISO)

NTNU University Museum (VM)

- Department of Natural History (INH)
- Department of Archaeology and Cultural History (IAK)