Norwegian Ministry
of Education and Research

Strategy

Strategy for the recruitment and career development of young researchers

This is an unofficial translation of the Norwegian version of the Strategy for recruitment and career development for researchers. In the event of any inconsistency, the Norwegian version shall take precedence. The translation is provided by the Ministry of Education and Research.

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Foreword by the Minister

The coronavirus pandemic has reminded us of how important research and researchers are. Without strong academic environments and dedicated researchers, it would not have been possible to develop several types of vaccines in less than a year.

The need for skilled researchers will not diminish in the coming years. Facing major challenges such as the green transition, renewal of the public and private sectors, technological transformations and increased international polarisation, there is a need to further develop Norway as knowledge society. Consequently, we must do more to attract and retain good researchers, across the private and public sectors as well as at universities and university colleges, research institutes and health authorities.

The government is therefore presenting a strategy that, for the first time, addresses its policies for recruitment and careers, with emphasis on young researchers, and more generally the objectives of the *Long-term plan for research and higher education*[1]: We are reliant on recruiting those with a talent for research if we are to enhance our competitiveness and innovation capacity, resolve major societal challenges, and nurture the growth of academic environments of outstanding quality.

The strategy is to be a resource for both young researchers and their leaders. My hope is that the strategy shows the diversity of opportunities and career paths that lie in a doctoral education and contributes to further elevating Norwegian research, our universities, university colleges, and other research institutions. The strategy highlights policies and instruments for which the Ministry of Education and Research is responsible, makes recommendations and sets expectations for the institutions in their work.

The strategy is a means to recruit and retain talents. I hope it contributes to more predictable and transparent career paths for young researchers and exposes the need and potential for employees with research skills across sectors in Norway.

Henrik Asheim

[1] Meld. St. 4 *Langtidsplanen for forskning og høyere utdanning 2019-2028*. English translation: Meld. St. 4 (2018–2019) *Report to the Storting (white paper).*

1 Ambitions and goals for the strategy

The academic staff is the most important resource in Norwegian higher education and research institutions.[2] We need a research and higher education system that manages this resource in the best possible way for society as a whole. Thus, it is important to facilitate for those who are able and want to embark on a career in research. The doctoral education is crucial in this regard and is to benefit the individual doctoral candidate, the higher education and research institutions, as well as working life in general. Discussions in the wake of, for example, the Underdal Committee's report on the academic career structure at Norwegian universities and university colleges[3] indicated that there is room for improvement, especially for young researchers. The strategy therefore aims to contribute to clearer and more stable career paths for researchers early in their careers.

The strategy is important for achieving the goals in the *Long-term plan for research and higher education*[4]: It is crucial that our higher education and research institutions are able to recruit and retain talents if we are to meet the objectives of enhancing competitiveness and innovative capacity, resolving major societal challenges and developing academic and research environments of outstanding quality.

However, recruitment policy is not just about achieving political goals in the short and long term. Research is above all a long-term investment for society. Good recruitment at higher education and research institutions is important for building preparedness for the future. Moreover, good recruitment and renewal is crucial for the development of fields of research and for ensuring research-based education.

The reports prepared ahead of the strategy showed that too many young researchers in Norway are on temporary contracts for too long without real opportunities for permanent positions at universities and university colleges, and without orienting themselves towards career opportunities in other sectors. This is also the case internationally.

Newly qualified PhDs find work in different sectors, and where they end up is dependent on their field of research: While the majority of PhDs from the humanities and social sciences continue to work in the university and university college sector, this applies to a minority of the PhDs in technology, mathematics and science, medicine and health sciences as well as agricultural and veterinary medicine.[5] Sector mobility post PhD also varies according to subject area. While encouraged across disciplines, the differing traditions for sector mobility mean that challenges related to the transition from doctoral education to working life will vary between subject area. The strategy's starting point is nevertheless the overall national picture: A smaller proportion of PhDs will work at universities and university colleges, while the majority will work in other sectors, as

[2] The term research and higher education institutions includes research institutes, universities, university colleges and health authorities.
[3] Underdal-utvalget 2018. *Stillingsstruktur ved universiteter og høyskoler. Rapport fra ekspertgruppe nedsatt av Kunnskapsdepartementet*.
[4] Meld. St. 4 (2018–2019) *Report to the Storting (white paper)*
[5] Reiling, R. B., A. Å. Madsen & M. E. S. Ulvestad 2020. *Doktorgradsundersøkelsen 2019. En spørreundersøkelse blant doktorer (ph.d.) som disputerte i 2013, 2014 eller 2015.* NIFU Rapport 2020: 19, p. 37.

researchers at research institutes and health authorities or in other types of positions in various industries.[6] Moreover, as the pace of change in society increases, so does the need for employees with doctoral qualifications across sectors.

- *The strategy establishes national objectives for doctoral education that more clearly reflect that the education serves both recruitment to research and to other sectors.*

Surveys have shown that the majority of PhDs and postdocs in Norway[7] and abroad[8] aspire to a career in research and higher education.

- *The strategy aims to give postdocs a good framework for developing an independent profile as a researcher and gaining relevant competences for an academic career.*

The Ministry of Education and Research and the higher education and research institutions have different roles and responsibilities with regards to recruitment and career policies. The Ministry of Education and Research's most important instruments are laws and regulations, steering dialogue (*styringsdialog*)[9] and financing. Universities and university colleges play the lead roles in the doctoral education, being responsible for the content of the education and for awarding the degrees. The measures in the strategy are therefore primarily aimed at universities and university colleges. Although the majority of doctoral candidates are employed as PhD research fellows at universities and university colleges, one in three doctoral candidates are not employed at the institution awarding the degree. Most of these external candidates are employed at health authorities or research institutes.[10] As such, the strategy is relevant for all research-performing institutions that have employees undertaking a doctoral degree.

The higher education and research institutions are responsible for the recruitment and assessment processes, human resource management and career development of the academic staff. Each institution must ensure that they have the overall competence needed to fulfil their mission.

- *The strategy aims to facilitate and enhance the interaction between the Ministry of Education and Research and the universities and university colleges by clarifying roles and responsibilities in recruitment and career policies.*

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[6] Reiling, R. B., A. Å. Madsen & M. E. S. Ulvestad 2020. *Doktorgradsundersøkelsen 2019. En spørreundersøkelse blant doktorer (ph.d.) som disputerte i 2013, 2014 eller 2015.* NIFU Rapport 2020: 19, p. 36.

[7] Reiling, R. B., A. Å. Madsen & M. E. S. Ulvestad 2020. *Doktorgradsundersøkelsen 2019. En spørreundersøkelse blant doktorer (ph.d.) som disputerte i 2013, 2014 eller 2015.* NIFU Rapport 2020: 19.; Reymert, I., K. Nesje & T. Thune 2017. *Doktorgradskandidater i Norge. Forskeropplæring, arbeidsvilkår og karriereforventninger*. NIFU Report 2017: 10.

[8] E.g. Woolston, C. 2019. "Ph.D. Poll reveals, fear and joy, contentment and anguish*". Nature* 575: 403-406; Woolston, C.2020. "The Precarity of Postdocs." *Nature* 587: 505-508.

[9] Steering dialogue is defined in the white paper *Meld. St. 19 (2020–2021) Styring av statlige universiteter og høyskoler* as all meetings and document exchanges of a governing character between the ministry and subordinate agencies (including universities and university colleges).

[10] Reymert, I., K. Nesje & T. Thune 2017. *Doktorgradskandidater i Norge. Forskeropplæring, arbeidsvilkår og karriereforventninger*. NIFU Report 2017: 10, p. 54.

2 Changes in the recruitment landscape in the period 2000–2020

In the last 20 years, the recruitment landscape in research and higher education has changed significantly: The PhD degree and the Norwegian variant of tenure track (*innstegsstillingen*) have been introduced. In addition, the *Regulations concerning appointment and promotion to teaching and research posts*[11] have been amended several times. Last but not least: 20 years of strategic increases in the number of recruitment positions[12] have provided new opportunities and challenges.

2000–2020: From almost 650 to just over 1600 completed doctoral degrees a year

- Nearly 50 percent of the PhD graduates are women, while foreign nationals account for about 40 percent of the PhD graduates today.
- The 2019 doctoral survey[13] revealed that almost all PhDs were employed four to six years after they defended their thesis. Two out of three PhDs worked at a higher education or research institution:
    - 35.7 per cent had their main position at a university or university college
    - 13.6 per cent had their main position at a research institute
    - 16 percent had their main position at a university hospital
    - 19.1 per cent had their main position in the private sector
    - 7.4 per cent had their main position in the public sector
    - The rest worked in the health and social sector, while 3.6 per cent were not employed
- The 2017 doctoral candidate survey[14] exposed that around 40 per cent of the candidates envisioned a career outside the higher education and research institutions.
- Both the doctoral candidates[15] and the PhDs[16] who either work outside the higher education institutions, or aspire to, are of the opinion that the doctoral education is less relevant.

[11] Regulations concerning appointment and promotion to teaching and research posts. Norwegian version: Forskrift om ansettelse og opprykk i undervisnings- og forskerstillinger.
[12] Recruitment positions refers the positions of PhD research fellow, postdoctoral and tenure track positions. The increase in these positions have been launched in several white papers, see St.meld. nr. 39 (1998-99) *Forskning ved et tidsskille*; St.meld. nr 35 (2000-2001) *Kvalitetsreformen. Om rekruttering til undervisnings- og forskerstillinger i universitets- og høyskolesektoren*. Meld. St. 7 (2014-2015) *Langtidsplan for forskning og høyere utdanning 2015-2024*.
[13] The survey was sent to everyone who defended their thesis in 2013, 2014 and 2015, amounting to just over 4,300 PhDs. 51.5 percent completed the survey. See Reiling, R. B., A. Å. Madsen & M. E. S. Ulvestad 2020. *Doktorgradsundersøkelsen 2019. En spørreundersøkelse blant doktorer (ph.d.) som disputerte i 2013, 2014 eller 2015.* NIFU Rapport 2020: 19.
[14] Reymert, I., K. Nesje & T. Thune 2017. *Doktorgradskandidater i Norge. Forskeropplæring, arbeidsvilkår og karriereforventninger*. NIFU Report 2017: 10, pp. 10, 66.
[15] Reymert, I., K. Nesje & T. Thune 2017. *Doktorgradskandidater i Norge. Forskeropplæring, arbeidsvilkår og karriereforventninger*. NIFU Report 2017: 10, pp. 70-71.
[16] Reiling, R. B., A. Å. Madsen & M. E. S. Ulvestad 2020. *Doktorgradsundersøkelsen 2019. En spørreundersøkelse blant doktorer (ph.d.) som disputerte i 2013, 2014 eller 2015.* NIFU Rapport 2020: 19, pp. 60-63.

PhD education

PHD DEGREES IN NORWAY

The PhD degree was introduced with the "Quality Reform" in 2003. A PhD degree can be obtained at all universities and most university colleges in Norway. The education is standardised at three (3) years and consists of a training part and an independent research project carried out under active supervision. Universities and university colleges are responsible for the content and organisation of the degree through their own programmes and research schools. PhD candidates can be employed as PhD research fellows at the institutions awarding the degree or as external candidates with another employer such as a research institute, health authority, a public institution or private company.

Within certain health sciences, there is also a possibility to obtain a dual competence with recruitment positions where candidates obtain both a PhD degree and specialist competence (resident). For doctors in specialisation (LIS) in permanent positions, one possibility may be to apply for periods set aside for research as a part of the specialisation. The goal of such an in-depth period is for LIS to start work that can result in a doctoral degree. At several university hospitals, it is normally necessary to have completed a doctoral degree in order to obtain a permanent chief physician position.

The PhD in artistic research was established in 2018, and replaced the former Candidate in artistic development work. A PhD in artistic research can be taken at several of the Norwegian universities and university colleges. The education is standardised at three (3) years and consists of a training part and an artistic doctoral project carried out under active supervision.

Regulations under the *University and University Colleges Act*[17] regulate the PhD research fellow position. According to the regulations, four (4) years with 25 per cent compulsory work is the normal fixed term for the position. The employment shall comprise three (3) years of doctoral education.

FINANCING OF PHD DEGREES

The most common forms of funding for PhD candidates are funding from the basic grants to universities and university colleges and externally funded research projects. The normal fixed term for PhD positions funded directly from the Ministry of Education and Research is four (4) years. Externally funded PhD positions tend to be three (3) years. In the latter cases, the institution where the PhD candidate is employed considers whether to add a fourth year.

In addition, a small number of PhD candidates are funded through schemes in the Research Council of Norway:

The Industrial PhD scheme was established in 2008 and finances doctoral projects carried out by an employee of a company. An industrial PhD project culminates in concrete research and development results that enhance the company's core activity, products and/or services. The support from the Research Council of Norway is about NOK 1.8 million, while the employer covers the rest. The scheme is funded by the Ministry of Education and Research and the Ministry of Trade, Industry and Fisheries. An industrial PhD project is a collaborative project between an applicant company and an institution awarding the PhD degree. At the end of 2020, just over 540 had been granted an industrial scheme PhD project.

The Public sector PhD scheme was established in 2014 and finances doctoral projects carried out by employees at public entities. From a public sector PhD project, a public entity obtains competence tailored to its own specific framework and needs and gets the opportunity to establish or further develop valuable collaboration with relevant academic research environments. The support from the Research Council of Norway is about NOK 1.8 million, while the employer covers the rest. The scheme is funded by the Ministry of Education and Research. A public sector PhD project is a collaboration between a public entity and an institution that awards the PhD. At the end of 2020, almost 180 had been granted a public sector PhD project.

The Institute PhD scheme refer to 45 earmarked PhD positions that were given to the institute sector in the annual state budgets for 2016 and 2017 as part of the first *Long-term plan for Research and Higher Education*. In 2020, the Ministry of Education and Research decided to continue the scheme at the same level as previous years. The PhD positions are awarded to institutes with significant activity in mathematics, science and technology, and only to institutes that receive their state basic funding through the Research Council of Norway. The PhD degree is awarded from a university or university college.

RESEARCH SCHOOLS

Universities and colleges are free to establish their own research schools or research schools across institutions. In addition, the Research Council of Norway funds national research schools. The Norwegian Artistic Research Programme under the Directorate for Higher Education and Skills is responsible for a research school for artistic research.

[17] Forskrift om ansettelsesvilkår for stillinger som postdoktor, stipendiat, vitenskapelig assistent og spesialistkandidat. There is no English translation available.

2001–2020: From around 500 to just over 2160 postdoctoral fellows

- In 2018, 75 per cent of the male postdoctoral fellows and 66 per cent of the female postdoctoral research fellows were from a country other than Norway.[18] About a third of the postdoctoral research fellows grew up in Norway, and the majority of those also had a PhD from Norway. 44 per cent of the postdoctoral fellows had grown up abroad and obtained a PhD abroad.[19]
- The postdoctoral survey[20] showed that:
    - 5 per cent of the postdoctoral fellows had become professors and 15 per cent had become associate professors four years after the end of the postdoctoral period. 45 per cent of the postdocs were no longer employed by a Norwegian higher education or research institution, but were either employed outside Norway or in other sectors in Norway.[21]
    - The institutions use the position of postdoctoral fellow far broader than it is regulated for, i.e. 'to qualify for work in top academic positions'. [22] The position is often used to provide competence and capacity in research projects. Furthermore, the position is used in connection with the promotion from researcher II to researcher I in the institute sector and to qualify for professional practice that requires a high level of research competence in the health sector.
    - Most postdoctoral fellows disagreed that the purpose of the position was made clear when they applied, and few had a career plan aimed at professorial competence.[23]
    - The diverse use of the postdoctoral fellows is also common internationally and reflects the fact that there is no international definition or unitary use of "postdoctoral fellow".[24]

[18] Gunnes, H. & F. S. Steine 2020. *Mangfoldstatistikk. Stor vekst i antall forskere med innvandrerbakgrunn i norsk akademia*. NIFU Innsikt No. 17, p. 3.
[19] The figures here are taken from the survey that was sent to everyone who was a postdoctoral fellow in Norway in 2014, 2015 and 2018. There were just over 4,300. 54.6 percent completed the survey. The survey is part of Gunnes, H., A. Å. Madsen, M. Ulvestad, K. Wendt & L. Langfeldt 2020. *Kartlegging av postdoktorstillingen. Mål, praksis og erfaringer*. NIFU Report 2020: 31, pp. 64-65.
[20] The survey consisted of a register data survey, a survey among previous and current postdocs and interviews with managers in selected professional environments. See Gunnes, H., A. Å. Madsen, M. Ulvestad, K. Wendt & L. Langfeldt 2020. *Kartlegging av postdoktorstillingen. Mål, praksis og erfaringer*. NIFU Report 2020: 31.
[21] Gunnes, H., A. Å. Madsen, M. Ulvestad, K. Wendt & L. Langfeldt 2020. *Kartlegging av postdoktorstillingen. Mål, praksis og erfaringer*. NIFU Report 2020: 31, p. 8.
[22] Forskrift om ansettelsesvilkår for stillinger som postdoktor, stipendiat, vitenskapelig assistent og spesialistkandidat - Lovdata, §1-2 (1).
[23] Gunnes, H., A. Å. Madsen, M. Ulvestad, K. Wendt & L. Langfeldt 2020. *Kartlegging av postdoktorstillingen. Mål, praksis og erfaringer*. NIFU Report 2020: 31, pp. 8, 64-66, 76.
[24] E.g. Herschberg, C., Y. Benschop & M. van den Brink 2018. "Precarious postdocs: A comparative study on recruitment and selection of early-career researchers." *Scandinavian Journal of Management* 34: 303-310; OECD 2021. *Reducing the precarity of academic research careers* . OECD Science, Technology, and Industry Policy Papers No. 113, p.13.

2015–2020: The tenure track scheme has been taken into use

- The tenure track scheme was formally established by a new regulation under the *University and University Colleges Act* in 2015. The tenure track position was introduced to strengthen the recruitment of particularly talented researchers in mathematical-natural science, technology, medicine and dentistry. Moreover, it was to ensure a more predictable career path in order to attract young researchers internationally.[25]
- Tenure track positions are fixed term positions of six to seven years, where the one is employed either as a postdoctoral fellow or an associate professor. During the fixed-term contract, the employee has the opportunity to qualify for a tenured associate professor or professor position.[26]
- Six years after the tenure track position was introduced, it has been sparsely used by Norwegian universities and university colleges. Just over 90 people were employed in the tenure track positions in 2019.[27]

2020: Increased competitiveness for permanent positions

As Figure 1 shows, the number of researchers with doctoral degrees at the higher education and research institutions has increased in the last 20 years. This is largely the result of a deliberate policy: Over the last 20 years, the number of recruitment positions has been increased through dedicated plans for escalating appropriations: The first came with the white paper *St.meld. 29 (1998–1999) Forskning ved et tidsskille.*[28] The plan was proposed after a report indicated that if the number of recruitment positions was not increased, recruitment to Norwegian research would be insufficient. The next was launched in white paper *St.meld. No. 35 (2000–2001) Kvalitetsreformen. Om rekruttering til undervisnings- og forskerstillinger i universitets- og høyskolesektoren.*[29] The plan was aimed at increasing Norwegian research efforts so that Norway would reach the OECD average.[30] The latest plan was issued in *Meld. St. 7 (2014–2015) Langtidsplan for forskning og høyere utdanning 2015-2024*[31] and was based on the findings of a report estimating the recruitment needs both in and outside the university and university college sector.[32] In addition to the plans escalating appropriations in the white papers, the increase in externally funded projects has contributed to a further growth in the number of recruitment positions.

[25] Forskrift om ansettelse på innstegsvilkår - Lovdata
[26] Forskrift om ansettelse på innstegsvilkår - Lovdata
[27] Figures from DBH.
[28] St.meld. No. 39 (1998-99) *Forskning ved et tidsskille*, see 1.2. Summary.
[29] St.meld. No. 35 (2000-2001) *Kvalitetsreformen. Om rekruttering til undervisnings- og forskerstillinger i universitets- og høyskolesektoren,* see Chapters 5 and 6.
[30] Tevde, O., I. M. Larsen, P. Aasen (eds.) *Rekruttering til forskning og undervisning i UoH-sektoren. Behov og utfordringer*. NIFU skriftserie 25/2001, p. 13; St.meld. No. 35 (2000-2001) *Kvalitetsreformen. Om rekruttering til undervisnings- og forskerstillinger i universitets- og høyskolesektoren*, see Chapter 6.
[31] Meld. St. 7 (2014-2015) *Langtidsplan for forskning og høyere utdanning 2015-2024.*
[32] UHR & KD 2012. *Etterspørsel og tilbud av stipendiatstillinger i Norge frem mot 2020*.

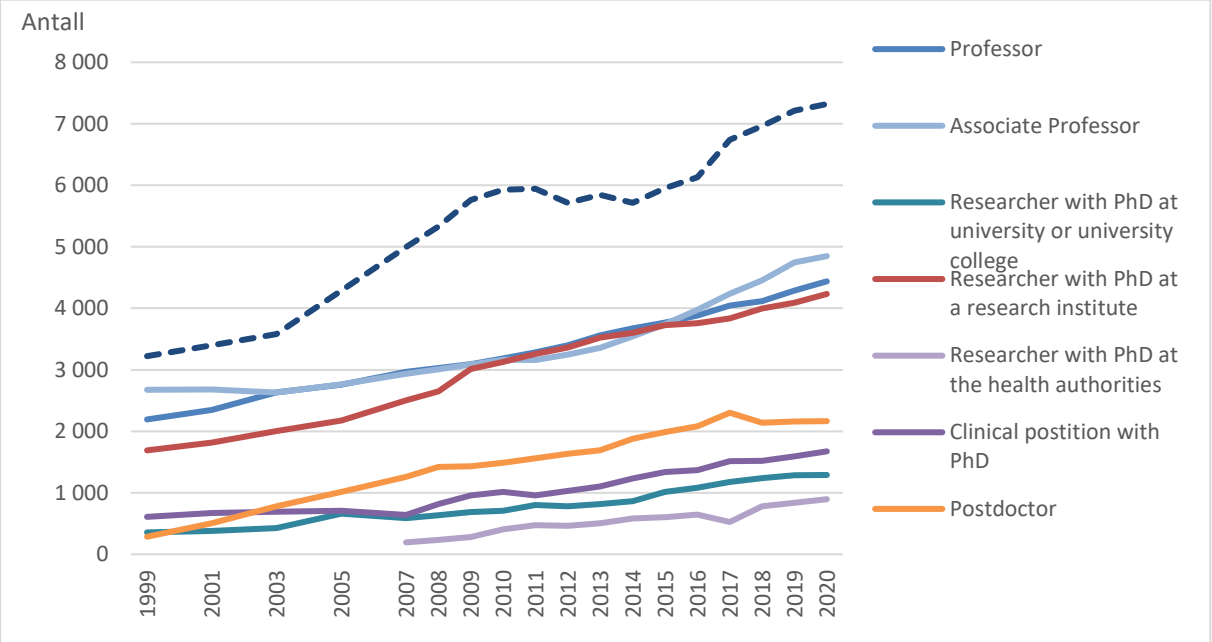

Figure 1 Number of persons in selected positions that require a doctoral degree, as well as in PhD research fellow positions, at Norwegian universities, university colleges, health authorities and research institutes.1999–2020. Source: NIFU, Research Staff Register [1] Preliminary figures for 2020.

The increase in PhDs is part of an international trend. Between 2000 and 2009, the number of doctoral degrees completed in OECD countries increased by 38 per cent. Today, the OECD average for people between the ages of 25 and 64 holding a doctoral degree is 1 per cent. If the current trends continue, 2.3 per cent of today's youths will obtain a doctorate during their lifetime.[33]

Research is international in nature and so is the recruitment of researchers. The growth of PhDs nationally and internationally means that the acquisition permanent positions at universities and university colleges has become more competitive, and an increasing proportion of PhDs continue in temporary positions for a long time.

[33] OECD 2021. *Reducing the precarity of academic research careers* . OECD Science, Technology, and Industry Policy Papers No. 113, p. 23.

3 Five recruitment and career challenges in 2021

3.1 Culture for temporariness

Today's organisation of research is characterised by temporariness. It creates challenges for young researchers as well as the long-term development of academic environments.

For the vast majority, the research career begins with a fixed-term contract as a PhD research fellow. A fixed term position is a time-limited and ends without notice when the agreed period expires. But as *Doktorgradsundersøkelsen 2019* shows, a significant proportion of the PhDs are temporarily employed four to six years after their defence. This is to a certain extent due to the fact that many continue as postdoctoral fellows.[34] At the same time, the postdoctoral survey shows that the proportion of employees in temporary positions does not decrease after the end of the postdoctoral period (see Table 1 in the appendix).[35] Internationally, this is referred to as the emergence of a postdoctoral precariat.[36] Long periods of temporary employment or unwanted unemployment is demanding for young researchers both professionally, mentally and financially.[37]

Excessive use of temporary contracts is due to a combination of cultural, financial and organisational conditions. It has become increasingly common to organise research as time-limited projects, regardless of how the research is funded. The project organisation has many positive aspects: Receiving funding for projects can enable international recognition for research groups and subject areas more broadly. For principal investigators, the projects can be of great importance for their own career development. For both researchers and institutions, it is important to preserve the opportunities for applying for external funding.

At the same time, project organisation also presents some challenges: The Aune Committee pointed out that '[the *University and University Colleges] Act*'s exemption rules on temporary employment are used to a greater extent than what there is need for and legal access to.'[38] In addition, research projects are staffed based on the need for cutting-edge expertise essential to solve specific project tasks, which does not necessarily reflect the institutions' long-term competence and recruitment needs. Many of those hired to carry out project tasks that require cutting-edge expertise are postdoctoral fellows, often recruited internationally. This is one of the reasons why some postdoctoral fellows become so professionally specialised that they struggle to find work in other sectors and end up moving from one temporary contract to another.

[34] Reiling, R. B., A. Å. Madsen & M. E. S. Ulvestad 2020. *Doktorgradsundersøkelsen 2019. En spørreundersøkelse blant doktorer (ph.d.) som disputerte i 2013, 2014 eller 2015.* NIFU Rapport 2020: 19, pp. 9, 25, 78.
[35] Gunnes, H., A. Å. Madsen, M. Ulvestad, K. Wendt & L. Langfeldt 2020. *Kartlegging av postdoktorstillingen. Mål, praksis og erfaringer*. NIFU Report 2020: 31, p. 105.
[36] The OECD defines proletariat as 'postdoctoral researchers holding fixed-term positions without permanent or continuous employment prospects'. See OECD 2021. *Reducing the precarity of academic research careers* . OECD Science, Technology, and Industry Policy Papers No. 113, p. 3.
[37] Akademiet for yngre forskere 2018. *Unge forskere i Norge. Karriereveier og ambisjoner*. Oslo: Akademiet for yngre forskere, p. 26.
[38] Our translation from Norwegian, see NOU 2020: 3 *Ny lov om Universiteter og høyskoler*, p. 283.

The Young Academy of Norway's report on young researchers in Norway[39] also illustrates how being a temporary employee after completing a doctorate affects both the career choices and the research itself. Temporary employment makes it demanding to develop an independent researcher profile, enter into binding collaborations and thus invest in long-term and pioneering research projects. In the hunt for the next position, it is perceived as 'smarter' to work on projects that result in publications, rather than to develop complex and innovative projects where publishing is far in the future.

Balancing between the institutions' priorities and the individual researchers' working conditions can often be a challenge. Yet it is a challenge that is particularly important to address if we are to achieve the policy goals of high quality in education and research, and to develop more outstanding and internationally recognised academic environments.

3.2 Imbalance in the recruitment basis

International recruitment is important for Norwegian research. However, the recruitment patterns for the PhD and postdoctoral fellows warrants further attention on gender balance and recruitment of candidates from Norwegian institutions.

Women seek out a research career to a lesser extent than men. In the period 2016–2018, around 30 per cent of the applicants for the PhD research and postdoctoral fellow positions at Norwegian universities and university colleges were women. Even in subject areas such as medicine, the humanities and the social sciences where the majority of the PhD and postdoctoral fellows are women, women are in the minority among the applicants.[40] The inequalities level out in the recruitment processes,[41] but the applicant pattern calls for continued efforts in order to maintain gender balance among employees in recruitment positions and ensure balance also in top academic positions.

Nearly 80 per cent of the applicants for the PhD and postdoctoral fellow positions in Norway apply from abroad. Even if there are variations from subject area to subject area, those applying from abroad make up the majority of the applicants in all subject areas.[42] Norway is a small country and recruitment positions are part of an international labour market. As such it is natural that there is a large degree of international applicants. At the same time, it is desirable that more students and employees from Norwegian institutions seek out a research career. This applies not least to descendants of immigrants, who despite being well represented in higher education, are underrepresented in the research

[39] The report is based on a survey conducted in 2016 with just over 800 younger researchers in Norway under the age of 38. Akademiet for yngre forskere 2018. *Unge forskere i Norge. Karriereveier og ambisjoner*. Oslo: Akademiet for yngre forskere. See also OECD 2021. *Reducing the precarity of academic research careers* . OECD Science, Technology, and Industry Policy Papers No. 113.

[40] Frølich, N., K. Wendt, I. Reymert, S. M. Tellmann, M. Elken, S. Kyvik, A. Vabø, E. Larsen 2018. *Academic career structures in Europe Perspectives from Norway, Denmark, Sweden, Finland, the Netherlands, Austria and the UK*. NIFU Report 2018: 4, pp. 26-27.

[41] Women accounted for 53.9 per cent of the PhD person-years and 45.6 per cent of the postdoctoral person-years in 2020. Source: DBH.

[42] Frølich, N., K. Wendt, I. Reymert, S. M. Tellmann, M. Elken, S. Kyvik, A. Vabø, E. Larsen 2018. *Academic career structures in Europe Perspectives from Norway, Denmark, Sweden, Finland, the Netherlands, Austria and the UK*. NIFU Report 2018: 4, pp. 28-29.

sector.[43]

Recruitment challenges can have several causes - from a lack of knowledge about the opportunities that lie in a research career to uncertain career prospects, long periods of temporary work and low competitive salaries compared to Norwegian working life in general. The challenges vary from subject area to subject area and from industry to industry. Going forward, increased efforts are required to ensure the recruitment of candidates from Norwegian universities and university colleges and working life.

3.3 Lack of career guidance

Lack of career guidance contributes to underutilisation of the competences researchers hold in society.

The majority of the doctoral candidates[44], PhDs[45] and current postdocs[46] in Norway envisage a career at a higher education or research institution. Although the great interest in research careers is positive, it can become a challenge if too many remain too long in research without orienting themselves towards the other sectors when the reality may be that the prospect for academic positions in one's field of research is poor. As the pace of change in the private and the public sectors is increasing, there is a growing the need for PhDs across sectors, and this breadth of opportunity must be better reflected in the career guidance provided, both at the master's and doctoral level.

There is no strong tradition for career guidance for researchers in Norway. Studies have shown that eight out of ten young researchers[47] and doctoral candidates[48] had not received career guidance. In recent years, however, interest in career guidance has increased. In 2015, Universities Norway published a briefing note outlining career policies for academic staff[49], the Research Council of Norway has since 2017 required a development plan for postdoctoral fellows[50], universities have developed their own policy for younger researchers where career guidance is discussed[51], and certain subject areas have launched their own postdoctoral programs.[52] At the same time, there is limited awareness among young researchers and supervisors of the career opportunities that exist outside the higher education institutions. As such, a culture where a future in

[43] Gunnes, H. & F. S. Steine 2020. *Mangfoldstatistikk. Stor vekst i antall forskere med innvandrerbakgrunn i norsk akademia*. NIFU Innsikt No. 17.
[44] Reymert, I., K. Nesje & T. Thune 2017. *Doktorgradskandidater i Norge. Forskeropplæring, arbeidsvilkår og karriereforventninger*. NIFU Report 2017: 10, p. 10.
[45] Reiling, R. B., A. Å. Madsen & M. E. S. Ulvestad 2020. *Doktorgradsundersøkelsen 2019. En spørreundersøkelse blant doktorer (ph.d.) som disputerte i 2013, 2014 eller 2015.* NIFU Rapport 2020: 19, p. 71.
[46] Gunnes, H., A. Å. Madsen, M. Ulvestad, K. Wendt & L. Langfeldt 2020. *Kartlegging av postdoktorstillingen. Mål, praksis og erfaringer*. NIFU Report 2020: 31, p. 88.
[47] Akademiet for yngre forskere 2018. *Unge forskere i Norge. Karriereveier og ambisjoner*. Oslo: Akademiet for yngre forskere, p. 44.
[48] Reymert, I., K. Nesje & T. Thune 2017. *Doktorgradskandidater i Norge. Forskeropplæring, arbeidsvilkår og karriereforventninger*. NIFU Report 2017: 10, p. 72.
[49] UHR 2015. *Bedre karrierepolitikk for vitenskapelig personale i UH-sektoren.*
[50] Forskningsrådet 2017. *Krav om utviklingsplan for postdoktorer*.
[51] UiB 2020. *Karrierepolitikk for yngre forskere ved UiB*.; UiO 2020. *Karrierepolitisk tiltaksplan: Standarder for karrierestøttende tiltak*.
[52] See for example UiO 2021. *Postdoktorprogrammet. Et karriereutviklingsprogram for forskere i etableringsfasen ved medfak*.

academia appears to be the ultimate career path is sustained.[53] The Directorate for Higher Education and Skills has a national responsibility for career guidance and has considerable competence that must be used in the development of better career guidance.

3.4 Changes in the assessment and reward systems for scientific staff

The assessment and reward systems for academic staff are changing both nationally and internationally. While a positive trend, making informed career choices when the system is in flux is demanding for young researchers.

In the last decade, several international actors have identified a need to reform the assessment systems for researchers. The San Francisco Declaration on Research Assessment (DORA) was launched in 2012. The declaration sets out recommendations on good practice for assessments, with a general call 'to eliminate the use of journal-based metrics… in project funding, appointment, and promotion considerations' and assess research on its own merits.[54] Since then, several Norwegian higher education and research institutions as well as the Research Council of Norway have signed the DORA.

The European Commission[55], the European University Alliance[56], an association of Dutch knowledge institutions and funders of research[57] and Universities Norway[58] have followed up with similar initiatives. Their common denominator is the desire to increase awareness that academic staff are assessed and recognised for a greater breadth of competencies: They note that teaching, project management, open publishing and data sharing are activities that should be more fully recognised in the assessment and reward systems. In addition, they call for a better balance between the individual and the collective and the need to create funding mechanisms that better reflect team-oriented science and collaborations. More versatile assessment and reward systems are also seen as a contribution to increasing diversity and strengthening gender equality among academic staff. Such a shift may reduce excessive focus on competition. These initiatives can also be read as an attempt to address the lack of transparency of the academic recruitment culture and unfortunate power structures in work environments characterised by strong competition.

[53] OECD 2021. *Science, Technology and Innovation Outlook 2021. Times of crisis and opportunity*. Paris, OECD Publishing, pp. 90-91.
[54] Read the Declaration | DORA (sfdora.org)
[55] EU 2017. Evaluation of research careers fully acknowledging Open Science practices - Publications Office of the EU.
[56] EUA, DORA, Sparch Europe 2021. Reimagining Academic Career Assessment: Stories of innovation and change.
[57] VSNU 2019. Position-paper-Room-for-everyone's-talent.
[58] Universities Norway 2021. NOR-CAM – A toolbox for recognition and rewards in academic careers.

3.5 Unclear roles, responsibilities and management in recruitment, personnel, and career policy

Recruitment, HR and career policies are designed and implemented by actors at multiple levels. The multi-scale nature of the policies contributes to a system that can be confusing and difficult for young researchers to navigate and equally demanding for leaders to find a good balance between different individual and institutional expectations and needs.

National authorities regulate the overall framework for HR and career policy through national legislation, regulations and agreements; through obligations and signals that follow from European co-operation; and through political signals in white papers, strategies and in the so-called steering dialogue. This is a complex regulatory landscape where further harmonisation of regulations, in particular within subject areas (e.g. health sciences) with a high degree of sector mobility, is crucial.

The higher education and research institutions are responsible for recruitment, facilitation of career guidance and following-up of the employees. It is the employers' and leaders' responsibility to ensure good conditions for the employees in the sector. There is a fair deal of variations between institutions, both in terms of the number of temporary staff, use of salary ranges and following-up of employees. This highlights the institutional room for manoeuvring when strategically assessing how to build solid academic environments and enhancing working conditions. Good recruitment and following-up of employees require both an overview and in-depth knowledge of national regulations, higher education and research institutions' own regulations and routines for those who have HR and supervisor responsibilities. Not all institutions have the skills and competences needed among those responsible for recruitment and the daily HRM of young researchers. This lack of competence may affect young researchers' everyday work and career opportunities.

At the same time, it is important to note that young researchers themselves need to be aware of the rights and responsibilities their positions entail and take responsibility for their own career development. Yet if we are to retain talented researchers at the higher education and research institutions, it is crucial to increase competences and dialogue related to recruitment, HRM and career policies.

4 Five focus areas

The focus areas aim to

- increase the interest in doctoral education
- ensure good and stable career paths for young researchers to further their talents
- strengthen professionalised career guidance for young researchers
- develop a stronger culture for research and HR management
- clarify and develop the Ministry of Education and Research's governance and regulatory tools for recruitment and careers in the university and university college sector

4.1 Increase the interest in doctoral education

More people must take an interest in research, in doctoral graduates and their skills and competences if we are to ensure a good recruitment basis for the higher education and research institutions and sufficient research skills and competences in Norwegian working life. This requires that:

The interest in research is aroused early at undergraduate level

The academic environments at universities and university colleges must work to arouse undergraduate students' interest in research. This can be done by following up previous white papers' measures to strengthen 'active learning' and by introducing students to research and research methods already at undergraduate level.[59] Students must also receive sufficient information about what a doctoral degree entails and what career opportunities the degree offers. An important step in making the doctoral education attractive and ensuring more diversity in recruitment among students is to make students aware of the opportunities the doctoral education provides across sectors.

The interest in doctoral education in working life in general increases

Employers in public and private sectors should facilitate opportunities for their employees to undertake doctoral education and in addition employ newly qualified PhDs. Both actions can contribute to increasing companies and public offices' research competence. The Research Council of Norway's industrial and public sector PhD schemes are particularly suitable for increasing research collaborations across sectors.

More strategic cross-sectorial collaborations in doctoral education are established

As the majority of PhDs will work outside universities and university colleges, collaboration with other research performing institutions and working life in general has become more important. Such collaborations contribute to making the doctoral education more relevant for those aspiring to work in other sectors and can provide foreign candidates insights into Norwegian working life. In a recent white paper, the government

[59] Meld. St. 16 (2016 –2017) *Kultur for kvalitet i høyere utdanning;* Meld. St. 16 (2020 –2021) *Utdanning for omstilling. Økt arbeidslivsrelevans i høyere utdanning*.

clarified the possibility of diversifying the use of so-called required work *(pliktarbeid[60])* in the current regulations.[61] The Research Council of Norway has also established a pilot scheme, where the purpose is to support projects that strengthen the relevance of doctoral education across sectors.[62] In addition, the industrial and public sector PhD schemes are good tools for building collaborative relationships.

Furthermore, if the Norwegian society is to get the most out of its investment in doctoral education, it is important that employers facilitate language training for foreign PhD research fellows,[63] especially for those who want to continue working in Norway.

The completion pace and rate among PhDs improve

As the doctoral education must be relevant for both new graduates and well-established employees using the doctoral degree as part of their own skills development, the age range of those who complete a doctoral degree will remain relatively high and vary between subject areas. Regardless of the candidates' age, it is crucial that the following up of candidates is sufficient so that more complete their degree on time. Completion closer to the estimated time frame of the degree, is important in order for PhDs to be attractive applicants both for positions in research and in working life in general.

The standard time for the doctoral degree is three years of full-time education, often spread over four years if the candidate is employed as a PhD research fellow. The average time from embarking on a PhD program to the submission of the thesis was 4.9 years between 2013–2020. The average is higher than the standard time for all subject areas.[64] The completion time for doctoral education has not decreased significantly over time. Thus, there is a need to gain more systematic knowledge about the reasons for this.

Dimensioning of the doctoral education is further developed

The dimensioning of the doctoral education has previously been based on national calculations of needs and on what universities and university colleges themselves have decided over time. It is difficult to assess how well this has worked with regards to meeting the needs of society. In order to realise the government's ambitions for a knowledge-based societal development, it is important that the doctoral education is dimensioned in line with the need for competences and skills in relevant sectors. Universities and university colleges have a clear responsibility to ensure that the dimensioning is in line with the needs of society.[65] Moving forward, it may also be necessary for central authorities to supplement the institutions' dimensioning to compensate for under-coverage in the labour market or on the basis of political priorities.

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[60] Pliktarbeid refers to the duties PhD research fellows carry out for the institution. The most common duty carried out is teaching.

[61] According to the regulations, the compulsory work should 'as far as possible be relevant to the doctoral education', see Forskrift om ansettelsesvilkår for stillinger som postdoktor, stipendiat, vitenskapelig assistent og spesialistkandidat - Lovdata

[62] Nasjonal forskerskole for arbeidslivsrelevans (forskningsradet.no)

[63] DIKU 2021. *Språkstrategiar i høgare utdanning*. Rapportserie Nr. 3 2021, pp. 19-20.

[64] Sparebakken, B. & F. S. Steine 2021. *Ny årsrekord – over 1 600 tok doktorgrad i 2020*. NIFU Innsikt No. 5 2021.

[65] Cf. *Meld. St. 19 (2020–2021) Styring av statlige universiteter og høyskoler*.

In order to contribute to a good basis for decision-making, the doctoral education is to be included in the comprehensive analysis and information system on the national and regional needs for a highly educated workforce, which the Directorate for Higher Education and Skills will be responsible for. With regard to the dimensioning of doctoral education, the analysis and information work should take place in collaboration with the Research Council of Norway, and other relevant actors. In this way, central authorities will also have a good national overview of future needs.

The purpose of the doctoral education in Norway

The doctoral education shall provide the PhDs with solid research competences and skills in addition to in-depth knowledge within a specific subject area.

The doctoral program will provide PhDs with generic skills that are relevant and in demand by employers across sectors.

The Ministry of Education and Research's intention is that the normal fixed term for the PhD research fellow position continues to be standardised at four (4) years. Three (3) of the years shall be dedicated to research education, while 25 per cent shall be used for career enhancing work. This can, for example, include teaching, or internships in a relevant professional environment at a public institution or a private company.

The doctoral education has a twofold recruitment purpose:
- The doctoral education is the most important gateway into academic careers at the higher education and research institutions.
- The doctoral education shall contribute to a workforce with research competences and skills across sectors.

Measures and follow-up:

- The Ministry of Education and Research recommends that the academic environments diversify the required work (*pliktarbeid)* and increase interaction with other sectors of society through the doctoral education.
- The Research Council of Norway will evaluate the pilot scheme for research options (*forskerlinje*) and the public sector PhD scheme to further develop the schemes.
- The Research Council of Norway will establish a monitoring system for research recruitment that provides insight into the career development of doctoral candidates throughout their professional careers, both in and outside higher education and research institutions.
- The Ministry of Education and Research will gather more information about recruitment challenges among descendants of immigrants and their experience of choosing a research career.
- The Ministry of Education and Research will review and revise the regulations regarding the positions of postdoctoral and PhD research fellows.
- The Ministry of Education and Research will investigate the reasons why the completion time for doctoral education remains high, in order to further assess targeted measures to improve the completion pace and rate.
- The Ministry of Education and Research, through the Directorate for Higher Education and Skills and the Research Council of Norway, will provide the knowledge base needed for the dimensioning of the doctoral education in the future.

4.2 Ensure good and stable career paths for young researchers to further their talents

We need more stable career paths for young researchers if they are further their talents further and we are to retain talented researchers at the higher education and research institutions. The regulation of academic positions is a central means to ensure this.

The position of postdoctoral fellow

The position of postdoctoral fellow is not a protected title. However, in Norway the practice has been that research-performing institutions that use the position and its position code on the Ministry of Education and Research's salary plan do so in accordance with its regulations. The postdoctoral survey[66] has shown that the postdoctoral position is used differently between institutions and within academic environments, often depending on the source of funding. In many cases, the position is not used in accordance with current regulations. Yet there is broad agreement that the position of postdoctoral fellow is an important stepping-stone in young researchers' careers and for the implementation of research projects.

The Ministry of Education and Research believes there is a need for further qualifications after the doctoral degree and that the position of postdoctoral fellow to a large extent covers this need. However, it is necessary to amend the regulations to ensure that the position is regulated in order to better meet today's requirements for teaching and research positions. The required teaching competences for full professors have been further formalised in regulations. Moreover, the general expectations for publications and the ability to obtain external funding have risen. This means that it is no longer realistic to assume that a postdoctoral position can lead to a 'top academic position' as set out in the current regulations. The position of postdoctoral fellow should therefore primarily be aimed at qualifying for so-called *førstestillinger*[67] within the higher education and research institutions. In addition, the position of postdoctoral fellow can be useful as a qualification for a variety of jobs that require a high level of research competence.

The term postdoctoral fellow is common internationally without there being any unitary definition or use of the term. This is reflected in international debates: In the United States, national academies have called for a clearer definition of what the postdoctoral title and role should entail.[68] The OECD has pointed out the need to improve working conditions and career prospects for postdocs.[69] The topic has also been high on the agenda in the EU, with the Commission stressing that:

[66] Gunnes, H., A. Å. Madsen, M. Ulvestad, K. Wendt & L. Langfeldt 2020. *Kartlegging av postdoktorstillingen. Mål, praksis og erfaringer*. NIFU Report 2020: 31.

[67] Førstestillinger is translated as "positions which entails doctoral competence or equivalent". The term is used broadly here to refer to positions such as associate professor and researcher II that require a minimum doctoral degree, but where today you usually have to have more experience to reach the competition for the positions.

[68] e.g. Institute of Medicine 2014. *The Postdoctoral Experience Revisited*. Washington, DC: The National Academies Press. *https://doi.org/10.17226/18982,* p. 4.

[69] OECD 2021. *Reducing the precarity of academic research careers* . OECD Science, Technology, and Industry Policy Papers No. 113.

the increasing trend towards precariousness of employment in academia, loss of talent and reduction of job security in many countries, aggravated by the COVID-19 pandemic; NOTES that suboptimal balance between institutional and project-based funding leads to short-term, project-based contracts that do not provide a long-term perspective for researchers, as shown by the fact that temporary grant-based contracts dominate the early-career path in academia; RECOGNISES that the number of academic positions is limited and that researchers are increasingly likely to find a job outside academia or to reach a permanent position in academia at a later stage in their professional careers; and ASKS Member States and the Commission for appropriate instruments and tools promoting attractive working conditions within and beyond academia.[70]

The Ministry of Education and Research considers it important to capture these signals in the upcoming revision of its regulations.[71]

The regulation of the postdoctoral fellow was also discussed by the Aune Committee. The Committee proposed that it should not be permitted to provide employment for more than one fixed term contract as a postdoctoral fellow in Norway.[72] The proposal received little support during the public consultation of the Aune Committee's Official Norwegian Report. Several institutions pointed out that such a change will break with how the position is used internationally and may have the unintentional effect that postdoctoral fellows from Norwegian institutions are outcompeted by others with multiple postdoctoral fellowships when applying for tenured positions. Thus, the Ministry of Education and Research will not go further with the proposal in the revision of the regulations.

Clearer use of the position of postdoctoral fellow

The Ministry of Education and Research believes that the position of postdoctoral fellow should present a real possibility for further qualification aimed at *førstestillinger*. In the regulatory review the Ministry of Education and Research envisions that the position of postdoctoral fellow

- enables the holder to build an independent researcher profile, and that research is the main focus of the position.
- provides the holder with educational or other relevant competences such as dissemination, innovation, sector collaboration, project management and clinical work.
- ensures the holder has a written development plan with the employer in place when the fixed term starts which is then followed up throughout the employment period. The plan shall include information about the supervisor and the following up conversations during the employment period. As part of the development plan, an assessment of current career paths both within and possibly outside of research should be undertaken.
- should have a tenure of 3-4 years. Regardless of the length of the employment period, the position must include time for research and time to develop relevant competences.

For postdoctoral fellows with a doctorate from a Norwegian institution there shall, when relevant, be arranged stays outside the fellow's own institution, preferably at an international research or higher educational institution or another relevant company.

For postdoctoral fellows with a doctorate from abroad, arrangements shall, where relevant, be made for the fellow to learn Norwegian and collaborate with relevant companies and other research environments in Norway.

[70] Council of the European Union 28 May 2021. Council conclusions on "Deepening the European Research Area: Providing researchers with attractive and sustainable careers and working conditions and making brain circulation a reality", see in particular point 14.
[71] Cf. Ministry of Education and Research 2021. *Strategi for norsk deltakelse i Horisont Europa og Det europeiske forskningsområdet*, p. 20.
[72] NOU 2020: 3 *Ny lov om Universiteter og høyskoler*, p. 31.

The tenure track scheme

To respond to recruitment challenges at universities and university colleges and provide young researchers with a more stable career path, the tenure track position was introduced as a pilot scheme in 2015. Relatively few academic environments have used the position, and few have yet to be evaluated for tenure. The academic environments that have experience using the scheme are generally satisfied. At the same time, there appears to be challenges related to gender balance. An evaluation of the tenure track scheme will be conducted once a sufficient number of holders have been evaluated for tenure. Such an evaluation will assess the effect and future potential of the scheme. The position is currently aimed at international recruitment but given the need for increased stability for young researchers in Norway, the position can also be thought of as a general alternative to the postdoctoral fellow. It should also be considered whether there will be a need for regulatory changes if the scheme is made permanent.

The positions of researchers

Unlike the tenure track scheme and the positions of PhD research and postdoctoral fellows, the positions of 'researchers' are not authorised in regulations under the *University and University Colleges Act*. The positions of researchers are regulated through The Basic Collective Agreement for the Civil Service. The researcher positions constitute a ladder where one can advance in terms of salary and competence from Researcher III to Researcher I. The positions are primarily used in the institute sector but have also become more common at universities and university colleges: In 2000, researchers accounted for just under 400 person-years whereas more than 1570 person-years were undertaken by researchers in the university and university college sector in 2020. In the institute sector, researchers are primarily permanently employed, while researchers at universities and university colleges to a greater extent have been employed on fixed-term contracts. The role and use of researchers at the universities and university colleges are somewhat unclear, and the Ministry of Education and Research considers that there is a need to further investigate the use of the positions of researchers.

External funders' instruments aimed at career development for young researchers

Today, the Research Council of Norway has several instruments aimed at career development for young researchers, including Researcher Projects for Young Talents and Research Stays Abroad. Through Horizon Europe, young researchers in Norway have access to apply for funding from the European Research Council (ERC) and Marie Skłodowska-Curie Actions, which have schemes aimed at young researchers. The opportunity to apply for such funding is crucial for young researchers' career prospects. Young researchers employed at Norwegian higher education and research institutions shall have the opportunity to apply for these schemes where they meet the criteria. Exceptions from the Norwegian regulations may be made in cases where the scholarship period granted is shorter than the norm stipulated in the regulations, such as in the case of Postdoctoral Fellowships in Marie Skłodowska-Curie Actions.

International work to improve working conditions for young researchers

The research sector is, and should be, an internationally oriented sector. A crucial factor for succeeding in improving the working conditions of young researchers in Norway is to improve the working conditions internationally. Under the European Research Area (ERA), the European Commission, the Member States and the Associated Countries are actively working to improve the working conditions for researchers, for instance through the revision of the Charter for Researchers and the Code of Conduct for Researchers (Charter & Code), the Human Resources Strategy for Researchers (HRS4R) and the portal Euraxess which provides information for mobile researchers. Through participation in various working groups linked to the ERA, the Ministry of Education and Research, the Research Council of Norway and the Committee for Gender Balance and Diversity in Research collaborate with EU countries to improve the conditions for young researchers nationally and internationally.

Instruments aimed at career development for young researchers

THE NORWEGIAN RESEARCH COUNCIL'S INSTRUMENTS

Research Stays Abroad: Scholarship scheme aimed at increasing the proportion of young researchers who take a research stay abroad.

Research Project for Young Talents: Scheme aimed at giving young researchers experience as project managers early in their careers.

Three-year Researcher Project with International Mobility: Scheme aimed at increasing the proportion of researchers who gain international research experience over a longer period early in their careers.

OTHER SCHEMES IN NORWAY

Young CAS Fellow: Scholarship scheme aimed at young researchers under the age of 40 at the Centre for Advanced Study (CAS) at The Norwegian Academy of Science and Letters. The scheme is a collaboration with the Young Academy of Norway.

The Young Academy of Norway: A national academy for young researchers established in 2015 on the initiative of The Norwegian Academy of Science and Letters with support from the Ministry of Education and Research.

EUROPEAN SCHEMES YOUNG RESEARCHERS IN NORWAY CAN APPLY FOR

European Research Council: The application type *Starting Grants* is aimed at talented researchers early in their careers (2-7 years after doctoral degree).

Marie Skłodowska-Curie Actions: The instrument includes several scholarship schemes aimed at young researchers from doctoral degree networks to Postdoctoral Fellowships.

Measures and follow-up:

- The Ministry of Education and Research will take the initiative to evaluate the tenure track scheme.
- The Ministry of Education and Research will undertake a study on the use of researchers' positions in the university and university college sector.
- The Ministry of Education and Research will review and revise the regulations regulating the position of postdoctoral fellow and PhD research fellow.
- The Research Council of Norway's instruments aimed at young researchers will be continued and be further developed.
- The Ministry of Education and Research will continue and strengthen its participation on international arenas aiming to better the working conditions for young researchers.
- The Ministry of Education and Research and the Research Council of Norway encourage all higher education and research institutions, and companies that employ researchers, to implement EU measures to improve researchers'

conditions, especially Charter & Code and HRS4R, and use of the Euraxess portal.

4.3 Strengthen professionalised career guidance for young researchers

It is crucial that we work more systematically with career guidance for academic staff in all phases of the career if our society is to get the most out of the resources we invest in research and higher education.

Active participation in career guidance will

- help clarify career expectations of PhDs and postdoctoral fellows and enable them to make informed career choices
- enable the institutions to develop good academic environments and create awareness about how to further competences they need

Through the revisions of its regulations, the Ministry of Education and Research aims to clarify the requirements for career guidance for PhD research and postdoctoral fellows. While the requirements for career guidance will be general, the career guidance itself should be individually tailored. For the institutions, career guidance should be used systematically as a strategic tool to develop academic environments and implement strategic priorities.

Principles for good career guidance

- Career guidance and information about career opportunities is a long-term task that should start at undergraduate level to make students aware of the career opportunities they have inside and outside higher education and research institutions.
- For employees in recruitment positions, career guidance should be introduced at the very beginning of a PhD research and postdoctoral fellowship and followed up systematically during the period of employment.
- Career guidance should not only be given by the supervisors. People from the institute sector, health authorities, businesses and public enterprises can be good supporters in career guidance and contribute with useful and clarifying perspectives on employment in other sectors.
- Those who are to guide others should receive courses or training in career guidance. They should have knowledge of the potential obstacles to career development for under-represented groups of young researchers in various disciplines.
- Career centres can play an important role in career guidance.
- The use of role models or alumni networks may contribute positively to career guidance.

Measures and follow-up:

- The Ministry of Education and Research will set up a project to develop a framework for career guidance for employees in recruitment positions. These should be in line with the European Commission's toolbox to be developed by 2025.
- The Ministry of Education and Research expects the institutions to work purposefully to ensure that the principles for career guidance are followed up locally.
- The Ministry of Education and Research will use the Directorate for Higher Education and Skills in the work with career guidance for students.

4.4 Develop a stronger culture for research and HR management

Research and HR management is crucial if we are to ensure good conditions for research itself and the academic staff undertaking the research.

Compared to other countries, the basic funding of Norwegian universities and university colleges is high[73] and the prerequisites for systematically developing competences, academic environments and employees are better than in many countries. Finding a good balance between intuitional and individual needs is demanding when research is increasingly project-organised, following-up on employees' careers increases and the assessment and reward systems are in transition. What is more, this also needs to coincide well with the profile and strategic priorities of the higher education and research institutions.

The proposed amendments to regulations of the position of postdoctoral fellow illustrate this: Postdoctoral fellows currently carry out research tasks that are important for the research projects and that will continue to be crucial for the design, progress and implementation of projects. At the same time, it is not a given that a postdoctoral fellow should do these tasks. This requires that academic leaders and principal investigators assess the use of the position of postdoctoral fellow against other positions. If a project employee is primarily needed to, for example, carry out data collection or analysis, other positions, such as researchers or engineers, can be used.

Assessing the needs of research projects and research groups more generally requires a more holistic approach to assessing the overall skills and competences needed and the strategic planning of research activities. Each individual academic employee does not have to cover all needs, but as a whole the given academic environments must hold the skills and competences that enable the institutions to deliver on their societal mission. This requires a strategic approach to designing job adverts and a willingness to specify the competences and requirements needed in calls for applicants and ensure that the criteria of the call are in fact the basis for the assessment and hiring processes. Moreover, moving away from excessive use of fixed-term contracts makes it necessary to establish a more unitary practice for how to handle the lapse of funding and multiple streams of funding.

A strategic and targeted recruitment policy

The higher education and research institutions have the important responsibility of facilitating good recruitment and retaining their employees. This presupposes active, targeted and conscious HR policies and strategies for achieving the institution's goals as well as national research and higher education policy goals. Universities and university colleges have room to manoeuvre within current regulations and agreements, and this room must be utilised. The Ministry of Education and Research will draw attention to this in the steering dialogue with the 21 state universities and university colleges subordinate to the ministry.

[73] Frølich, N., K. Wendt, I. Reymert, S. M. Tellmann, M. Elken, S. Kyvik, A. Vabø, E. Larsen 2018. *Academic career structures in Europe Perspectives from Norway, Denmark, Sweden, Finland, the Netherlands, Austria and the UK*. NIFU Report 2018: 4.

Measures and follow-up:

- Universities and university colleges are expected to have expertise in the use of temporary employment and a strategy to reduce unwanted temporary employment.
- Universities and university colleges are expected to make greater use of the entire academic job structure when staffing both internally and externally funded research projects.
- Universities and university colleges are expected to use the job advertisements to meet the competence needs of the academic environments and ensure potential needs for balancing between Norwegian and foreign employees, especially within certain subject areas.

4.5 Clarify and develop the Ministry of Education and Research's governance and regulatory tools for recruitment and careers at universities and university colleges

Updated and agreed upon regulations where the recruitment positions are seen in relation to the competences and skills required for tenured research and teaching positions is needed if we are to ensure more stable career paths for young researchers and maintain flexibility and room for manoeuvre for the institutions.

The strategy expresses the government's ambitions of contributing to clearer and more stable career paths for young researchers. Today there are three regulations regulating the academic positions under the *University and University Colleges Act*.[74] The regulations are from 2006 and 2015 and are in need of updating. The Ministry of Education and Research will carry out a comprehensive review and revision of these. The review and adoption of new regulations will follow the normal procedure of further research where required, good dialogue with the sector and a public hearing. For example, there may be a need for further surveying the practice of using the fourth year for the PhD research fellow positions, the challenges PhD candidates face with regard to completing the degree, as well as more insights into the funding streams and contracts of postdoctoral fellows. Furthermore, the consequences for an extended minimum period for the postdoctoral position must be considered in more detail. The review of regulations will also involve a review of requirements related to all positions, including senior lecturer, lecturer and specialist candidate.

The Aune Committee[75] discussed the possibility to be employed on temporary contracts in accordance with the *Civil Service Act*[76] § 9, first paragraph, letter a, which authorises temporary employment 'when the work is of a temporary nature'. At universities and university colleges there is a culture for using this provision as a basis for temporary employment when the work is externally funded.[77] The provision seems to be used to a

[74] *Forskrift om ansettelse og opprykk i undervisnings- og forskerstillinger; Forskrift om ansettelse på innstegsvilkår; Forskrift om ansettelsesvilkår for stillinger som postdoktor, stipendiat, vitenskapelig assistent og spesialistkandidat*.
[75] NOU 2020: 3 *Ny lov om Universiteter og høyskoler*, p 281.
[76] Act relating to working environment, working hours and employment protection, etc. (Working Environment Act) - Lovdata
[77] Prop. 111 L *Endringer i universitets- og høyskoleloven, utdanningsstøtteloven, fagskoleloven og yrkeskvalifikasjonsloven mv. (samleproposisjon)*, p. 68.

greater extent than it actually allows for. A recent report has laid out principles for best practice to help the institutions reduce temporary employment.[78]

The Ministry of Education and Research believes it is important to follow recruitment challenges and career barriers that men, women, foreign nationals and descendants of immigrants face, and create awareness about these challenges. In order to further develop the competence in this field, the Ministry of Education and Research will continue the Committee for Gender Balance and Diversity in Research (Kif).

The Ministry of Education's instruments for HR and career policy
The regulations under the *Universities and University Colleges Act* set the overall national framework for recruitment, teaching and research positions. Today's regulations are

Forskrift om ansettelse og opprykk i undervisnings- og forskerstillinger;
Forskrift om ansettelse på innstegsvilkår;
Forskrift om ansettelse for stillinger som postdoktor, stipendiat, vitenskapelig assistent og spesialistkandidat.

Reporting to the Database for Statistics on Higher Education (DBH) on, among other things, person-years of academic staff and doctoral education.

Steering dialogue in the form of all meetings and document exchange of governance character between the Ministry of Education and Research and its underlying entities.

The Committee for Gender Balance and Diversity in Research has been appointed by the Ministry of Education and Research to promote gender balance and diversity at Norwegian universities, university colleges and research institutes. An important part of the work is to support and give recommendations on career-promoting measures and be in close dialogue with the institutions about this work to promote greater diversity.

Measures and follow-up:

- The Ministry of Education and Research will conduct a comprehensive review and revision of the regulations for employment in academic positions.
- The Ministry of Education and Research will take the initiative to develop a guide that compiles information on the interpretation of regulations and employment protection.
- In the steering dialogue with the 21 state universities and universities colleges under the Ministry of Education and Research, the ministry will continue to monitor the development of temporary positions and the recruitment and competence policy at the institutions.
- The Ministry of Education and Research will continue the Committee on Gender Balance and Diversity in Research (Kif) with a revision of the mandate and appointment of a new committee in line with challenges identified in the strategy and new requirements internationally.

[78] *Tiltak for reduksjon av midlertidigheten i UH-sektoren*. Rapport fra arbeidsgruppe nedsatt av Kunnskapsdepartementet. 31.12.2019

Attachments

	Temporarily employed PhDs four to six years after viva (2019)	Temporary employees among the postdoctoral fellows of the 2014-2015 cohorts in 2020
University and university college sector	24,3 percent	24, 3 percent
University Hospitals (PhDs)/hospital authorities (postdoctoral fellows)	18,1 percent	22,1 percent
Research institutes	8 percent	13,1 percent
Public sector (other)	7,1 percent	7,5 percent
Private sector/business	4,2 percent	8,7 percent

Table 1 Overview of temporarily-employed doctors and postdocs in 2019–2020. The figures are taken from the *Doktorgradsundersøkelsen 2019* and the postdoctoral survey 2020 which were based on responses from about 2300 PhDs from the 2013, 2014 and 2015 cohorts and around 1500 postdocs from the 2014–2015 cohorts. In both surveys, just over 50 per cent of all doctors and postdocs from the cohorts responded to the surveys. In comparison, temporary employment was generally 7.7 per cent in 2020.

For a full overview of the attachments, see the Norwegian version of the strategy.