Forskningsrådet

Evaluation of Life Sciences 2022-2024

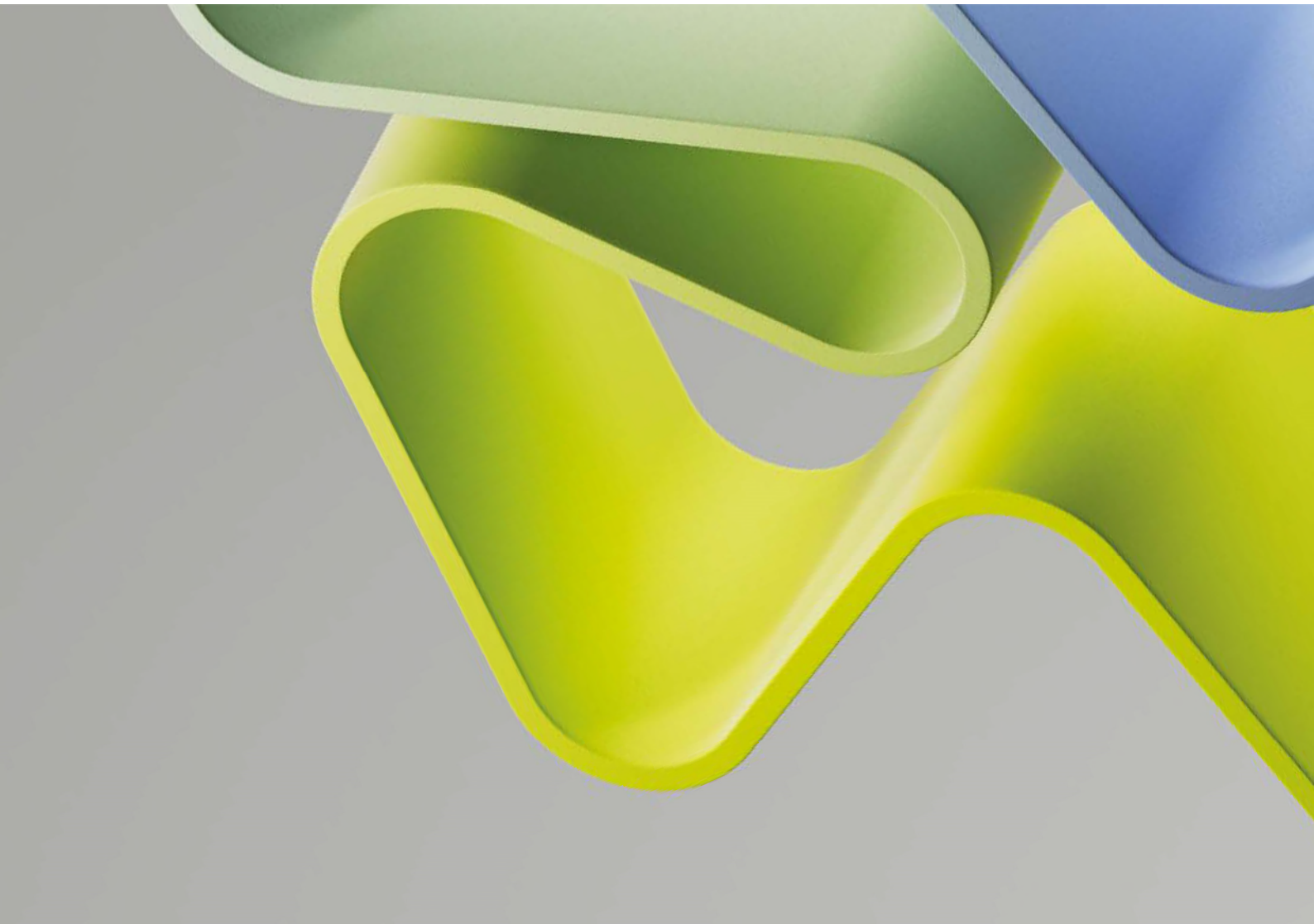
Evaluation of Biosciences 2022-2023

Evaluation report

Department of Biosciences (IBV)

University of Oslo (UiO)

December 2023



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Statement from Evaluation Committee 2

This report is from Evaluation Committee 2 which evaluated the following administrative units representing the higher education sector in the Evaluation of Biosciences 2022-2023:

- Faculty of Bioscience (BIOVIT), Norwegian University of Life Sciences (NMBU)
- Faculty of Chemistry, Biotechnology and Food Science (KBM), NMBU
- Faculty of Biosciences and Aquaculture (FBA), Nord University (Nord)
- Department of Biotechnology and Food Science (IBT), Norwegian University of Science and Technology (NTNU)
- Computational Biology Administrative unit (CBU), University of Bergen (UiB)
- Department of biological sciences (BIO), UiB
- Department of Biosciences (IBV), University of Oslo (UiO)
- Department of Chemistry, Bioscience and Environmental Engineering, University of Stavanger (UiS)
- Faculty of Biosciences, Fisheries and Economics (BFE), University of Tromsø – The Arctic University of Norway (UiT)

The conclusions and recommendations in this report are based on information from the administrative units (self-assessment), digital meetings with representatives from the administrative units, bibliometric analysis and personnel statistics from the Nordic Institute for Studies of Innovation, Research, and Education (NIFU) and Statistics Norway (SSB), and selected data from Studiebarometeret and the National Teacher Survey (Norwegian Agency for Quality Assurance in Education [NOKUT]). The digital interviews took place in Autumn 2023.

This report is the consensus view from committee 2. All members of the committee have agreed with the assessments, conclusions and recommendations presented here.

Evaluation committee 2 consisted of the following members:

Professor/Dean
Ivo Sbalzarini (chair),
TUD Dresden University of Technology
& Max Planck Institute of Molecular
Cell Biology and Genetics

Professor
Caroline Austin,
Newcastle University

Professor/Pro-Dean
Ade Whitehouse,
University of Leeds

Professor/Deputy Dean
Lena Mäler,
Stockholm University

EM. Professor/Director
Nico P.E. Vermeulen,
Vrije Universiteit Amsterdam

EM. Professor/Director
Lene Lange,
Technical University Denmark

Adjunct Professor, dr.
Pikka Jokelainen,
Statens Serum Institut

Dr Anoushka Davé, Principal Consultant, Technopolis Group, was the committee secretary.

Oslo, December 2023

Profile of the administrative unit

In 2021, the Department of Biosciences (IBV) had a total of 338 employees, out of which 53 were professors/associate professors, 91 postdocs/researchers, 65 PhD students, 38 technicians, 30 administrative staff and 61 emeriti/guest researchers. The share of women was high among PhD students (71%), but low among professors and associate professors (34%).

IBV is comprised of five research groups: Section for Aquatic Biology and Toxicology (AQUA), Section for Biochemistry and Molecular Biology (BMB), Section for Genetics and Evolutionary Biology (EVOGENE), Section for Physiology and Cell Biology (FYSCELL) and Centre for Ecological and Evolutionary Synthesis (CEES).

In its self-assessment, IBV states that it aims to strengthen its research position as a leading research department nationally and to increase the number of internationally leading research groups. IBV indicates that the internationally leading research groups will receive support to maintain their position, and research groups with a realistic chance, and ambition, to reach the top international level within 3-5 years will also be actively supported. IBV also has ambitions to attract candidates of international quality to permanent and temporary positions, including for prioritised recruitment to maintain the impact of internationally leading research groups that are highly successful in bringing external research funding. At the same time, IBV also plans to use internal resources to strengthen the ability of smaller research groups that currently attract comparatively less external funding to obtain more external grants and reach their scientific potential. In recent years, researchers at IBV have been very successful in obtaining European Research Council (ERC) starting grants and Research Council of Norway (RCN) young investigator grants and a desire to develop attractive support for these researchers to continue their work at IBV is articulated in the self-assessment.

As a higher education institution (HEI), IBV strives to follow the four overall goals for HEIs that receive public funding: high quality in research and education; research and education for welfare, value creation and innovation; access to education; and efficiency, diversity, and solidity of the higher education sector and research system. The self-assessment mentions that as a university department, IBV’s main sector-specific objectives are research, education, outreach, and to some extent, innovation. The administrative unit’s strategy is rooted in the view that the university sector has a particular responsibility for protecting and pursuing curiosity-driven basic research, thereby contributing to the knowledge base in general. The majority of IBV’s research activities fall in this category, and "impact" is measured in terms of the international status of its researchers, quality of publications and success in competitive national and international grant programmes.

Based on its self-assessment, in the future IBV might take advantage of its established infrastructure, including not only facilities for high-resolution imaging, long-read sequencing, and proteomics, but also the research vessels and alpine and marine research station which are important for the training of students. In addition, IBV sees opportunities in identifying basic research components as integral parts of applied research (with more funding available for applied research), pursuing lines of research related to sustainability and involving end users in research especially for calls focussing on innovation and societal impact.

Overall assessment

The Department of Biosciences at the University of Oslo (UiO-IBV) is performing high-quality research in a diverse range of areas to understand fundamental biological processes spanning the molecular and cellular level through to the population and ecosystem level. A clear ambition in the strategy is to strengthen the administrative unit's research position as a leading national research department and to increase the number of international leading research groups within the administrative unit.

The overall assessment considering the Terms of Reference provided by the Unit is therefore that the administrative unit has performed well overall. However, upon evaluation, it is clear some research groups are performing better than others in regard to productivity and attracting external funding. Some groups are clearly at the international research front and have the potential to be world leading. A clear vision is required to strengthen the less productive groups and develop more synergies between the research groups, as well as across the institution. This will provide critical mass for attracting larger interdisciplinary strategic grants and societal impact addressing grand challenges.

A particular strength of the administrative unit is its core facilities, which have been successful in obtaining substantial support to lead national infrastructures. These facilities are key in maintaining IBV's national and international profile and international recruitment policy. It clearly constitutes a strong advantage for the administrative unit, and ongoing research should capitalise on these infrastructures. However, a challenge will be to maintain, fund, and further develop these infrastructures in the future.

A key part of the IBV strategy is to pursue curiosity-driven fundamental research. However, a challenge for the administrative unit is to adapt to changes in external funding calls focussed more on applied research, whilst maintaining their excellent research base. Here, IBV needs to establish a clear impact and innovation strategy to take full advantage of the opportunities to strengthen the societal impact provided by the excellent fundamental research undertaken.

IBV has a strong reputation in teaching and offers both inspiring and occupationally relevant education. Moreover, IBV should be highly commended on its research culture and support programme for early career researchers. The professional development plan for postdoctoral researchers is highly effective to help in career progression. This sets the administrative unit apart from many other institutes.

Recommendations

The evaluation committee wishes to extend the following recommendations to the administrative unit, which are constructive suggestions from an outside view on the basis of the information available to the committee and considering the aspects on which recommendations were requested in the terms of reference.

- A clear strategic vision is required to organise research groupings to enhance communication and collaboration between groups. This should be aligned with a future recruitment policy to foster synergy between research groups and take advantage of institutional and cross-faculty initiatives.
- Install a scientific advisory board composed of international researchers from both academia and industry to enhance external perspective and provide vital input on strategic decisions.
- Develop a funding strategy to maintain infrastructures and facilities, which includes a pro-active strategy to future-proof cutting-edge technology.
- Given the movement to more applied research by funders, a strategic plan is required to maximise impact and the translational potential of the excellent fundamental research being undertaken at IBV. The goal is to enable the administrative unit to continue funding its basic research, which should by all means persist as an innovation advantage for any application.
- Establish an IBV-specific mentoring scheme providing advice and seed funding opportunities for academics who wish to explore translational opportunities. Install an industrial advisory board to provide feedback on strategic decisions.
- Develop a clear vision for societal impact for the administrative unit and research groups.
- Develop a strategy for future recruitment, seek guidance from the international scientific advisory board to formulate key areas.
- Maintain efforts and initiatives to further enhance diversity and equity.
- Maintain and promote approaches to enhance research culture and the support programmes for early career researchers, which is successful in enabling them to attract external funding.
- Maintain the current sabbatical system, where academics are granted one year research and educational leave after six years of service, or six months leave after three years of service.

1. Strategy, resources and organisation of research

The administrative unit has five independent research groups covering a wide range of topics. An effective administration structure is in place, with each research group led by a section leader, responsible for coordinating and overseeing research activities and teaching. This structure has resulted in some research groups being highly effective and internationally competitive, while others may benefit from stronger interactions with other groups and across the institution. An integrated research vision will help drive more synergy between the research groups and provide the critical mass for addressing grand challenges, attracting large strategic grants and increasing the societal impact of IBV research as a whole. The administrative unit has a clear strategy to enhance research culture and the support programme for early career researchers is excellent. A strength of the administrative unit is the infrastructure and core facilities, enabling researchers to be highly integrated across Norway and internationally visible. Maintaining this infrastructure on solid financial basis, as well as investing in new technology will be a challenge, and a clear strategy for longevity is required. Going forward, the administrative unit faces challenges to maintain and increase internationally visibility, external funding and hiring talent of international quality given the movement to applied research by funders. Maximising impact and the translational potential of the excellent fundamental research being undertaken at IBV will be essential, while maintaining the basic research to make this strategy sustainable. The establishment of an international scientific advisory board, with academic and industrial representation, will help in the development of the research strategy and vision beyond the 2020-revisited document.

1.1 Research Strategy

The current research strategy for the administrative unit is a working document entitled “Department of Biosciences (IBV) – Strategy 2020 revisited. It has a strong focus on highlighting the current strengths of IBV in its diverse research activities, focussing on understanding the fundamental biological processes from molecular and cellular level to population and ecosystem level. The administrative unit understands the importance of strengthening collaborations across disciplines to deliver on the UN sustainable development goals that affect all sectors of society. This will also be aligned with a focussed recruitment policy and project development. This is essential going forward.

A clear aim in the strategy is to strengthen the administrative unit’s research position as a leading national research department and to increase the number of internationally leading research groups within the department. This will involve focussed support for research groups to maintain their international position and support research groups with a realistic chance, and ambition, to reach a high international standard within 3-5 years as well as recruiting international quality candidates.

The administrative unit provides an excellent research environment. An example of good practice is the planned use of internal resources to strengthen research groups’ ability to obtain external grants and reach their scientific potential. IBV should be commended on its research culture and support programme for early career researchers, which is clearly effective with young researchers successfully obtaining ERC starting grants and young investigator grants from RCN. The professional development plan developed for all postdocs at IBV is highly effective to help in career progression.

A key part of the IBV strategy is to protect and pursue curiosity-driven fundamental research, thereby contributing to the knowledge base. However, a key challenge and risk for the future research strategy is to adapt to changes in external funding calls focussed more on applied research. The administrative unit aims to maximise institutional and cross-faculty initiatives to instil a more innovative research culture which will provide future funding opportunities and increased impact of IBV research.

1.2 Organisation of research

IBV was formed in 2013 by merging the Department of Molecular Bioscience with the Department of Biology. The resulting administrative unit is organised in five research sections/groups: Aquatic biology and toxicology (AQUA), Biochemistry and Molecular Biology (BMB), Centre for Ecological and Evolutionary Synthesis (CEES), Genetics and Evolutionary Biology (EVOGENE), and Physiology and Cell Biology (FYSCELL).

The administrative unit is the only biological sciences department at the University of Oslo. This enables them to cover a diverse range of research topics from fundamental biochemistry to ecosystems, as well as ensuring education along the broad teaching remit.

Each research group is led by a section leader responsible for coordinating and overseeing research activities and teaching. The 50:50 research:teaching time split provides a good environment for research activity. Professors and associate professors are responsible for supervising MSc students and PhD candidates, as well as mentoring postdoctoral fellows and securing external funding.

IBV is considering how best to adapt to changes in the funding environment and it is recommended that the administrative unit develops a clear strategy for increasing funding from both university initiatives and external strategic priorities. The diverse research portfolio should allow the administrative unit to increase the share of external funding. To enable this, the administrative unit should enhance networking across the university and establish an international scientific advisory board, including industrial representation, that can inform and inspire a clear strategic vision and the corresponding organisational structure.

It is important to develop more synergies between the research groups to provide the critical mass for attracting large strategic grants. It is encouraging to see some plans are in place, exemplified by the current planned recruitment of a research leader to coordinate research activities between the groups and with other faculties. This is highly recommended and encouraged and should be expanded to other faculties to enhance interdisciplinary research areas to target various grand challenges.

It is also recommended that the administrative unit leverages its excellent reputation to become more visible internationally, which will help to attract talent at all career levels and identify key members for the advisory board.

1.3 Research funding

IBV currently has approximately 35% external funding. Of the 278 million NOK in the annual budget in 2021, approximately 99 million NOK were obtained from external competitive grants and 179 million from basic university funding. This documents a solid track record in attracting third-party funding from national and international sources, but it is still relatively low as per international comparison.

A key strength of IBV, as stated in the next section, is the core facilities hosted in the administrative unit, which have been successful in obtaining substantial support for instrumentation for national infrastructures. However, a solid financial basis for these facilities must be ensured to maintain their competitive advantage.

IBV sees it as a serious threat that both the ministry and RCN are moving from basic funding towards more applied research. A concern is that reducing funding for basic research will erode the educational and scientific basis for being able to perform applied research. Combined with the fact that core funding is predicted not to increase in the coming years, shifting the ratio towards more external funding is essential for the success of the administrative unit. It is encouraging to highlight that a number of young investigators have been successful in attracting significant external funding, such as ERC starting grants, and this should be encouraged more widely.

1.4 Use of infrastructures

Oslo provides excellent research infrastructure and facilities for IBV staff to undertake their research, several in a national perspective. These include:

(i) Norwegian Molecular imaging Consortium (NorMIC) facility, which is part of the Oslo BioImaging Hub developing advanced IT infrastructures for image processing and storage. NorMIC is also a partner in the national imaging initiative, as well as Euro-Bioimaging.
(ii) The proteomics facility is part of the National network of Advanced Proteomics Infrastructure (NAPI) and provides a service and also drives independent research on method development.
(iii) The Norwegian Sequencing Centre (NSC) is a national facility offering NextGen sequencing facilities. NSC is member of the national hub-node sequencing structure, NorSeq.

A strength of these facilities is that they are highly integrated across Oslo (including hospitals) and across Norway. This is enabling access to large integrated infrastructure calls. The administrative unit contributes substantially to the maintenance and running cost of several core facilities. However, not all of the infrastructures have external funding. The administrative unit will therefore need to prioritise where investment is made. It is clear the administrative unit is starting to develop a strategy for this, for example, closing down a small animal facility and enabling access to a larger facility at the medical site.

Overall, IBV is ideally situated and involved in the distributed research infrastructure in Norway, originally initiated by the FUGE (research in functional genomics) strategy and funding activities as a well-functioning system. It is clear the goal of the administrative unit is to build facility collaboration rather than compete, which is closely aligned with the national FUGE strategy and should be supported. It clearly constitutes a strong advantage for the administrative unit, and ongoing research should capitalise on these infrastructures. A key aim is to preserve and further develop these cutting-edge infrastructures in the future.

1.5 National and international collaboration

IBV aims to maintain its research position as an internationally leading research institution and as such is highly collaborative at the national and international level. This is clearly helped by the participation of IBV in several international infrastructures. For example, NorMIC is a part of the Euro-Bioimaging platform. Strong international links are evident, particularly with leading European centres. For example, with the European Molecular Biology Laboratory (EMBL). Several IBV Professors are associate investigators at the Centre for Molecular Medicine Norway (NCMM), an EMBL Outstation, and have ongoing collaborative activities. IBV researchers are also part of the European Molecular Biology Organization (EMBO) young investigator network and collaborations with the European Synchrotron Radiation Facility (ESRF). This clearly helps with international recruitment and should be pursued further.

On a national scale, IBV is an active partner in multiple initiatives. For example, IBV contributes to the Norwegian shared data storage facility that includes several Norwegian European Strategic Forum on Research Infrastructures (ESFRI) initiatives, including ELIXIR and E-infrastructure E-INFRA at UNINETT Sigma 2, a national e-Infrastructure for science, including large-scale sequencing storage and simulation of 3D models. The administrative unit is also an active partner of the Nansen Legacy, the initiative for Norwegian collaborative arctic research, which includes contributions to climate and ecosystem change research, future marine resources and understanding physical processes to living resources, as well as the Svalbard Integrated Arctic Earth Observing System.

Internationalisation is deeply rooted in IBV research culture, emphasised by successful grant applications and shared authorships with researchers from other institutions nationally (54% of publications in 2021 had national co-authors) and abroad (72% of publications in 2021 had international co-authors). It is highly recommended that IBV continues to develop large collaborative

networks, which benefits IBV's research and external profile. To this end, IBV should encourage and support research exchange visits for all categories of scientists. This could be supported through Marie Curie and ERASMUS initiatives, as well as internal travel grants.

In addition to collaborations with academic institutions, academics within IBV have ongoing collaborations with applied research institutes and industry; e.g. Norwegian Institute of Food, Fisheries and Aquaculture Research (NOFIMA), Institute of Marine Research, Simula Research Institute, the knowledge bank for natural diversity (Artsdatabanken), the Norwegian Institute of Bioeconomy Research (NIBIO), Graminor ASA (the Norwegian breeder for the agricultural and horticultural industry), MYCOTEAM AS (biological pest prevention) and the Norwegian Biotechnology Advisory Board.

1.6 Research staff

IBV has 53 full or associate professors. The official distribution of their working time is 47% research, 47% teaching and 6% administration. However, teaching duties vary between 20-40%. Group size for most research groups is between 3-6 members, while some are larger with substantial funding. However, it is recommended that smaller groups (less than 3) should integrate with larger, complementary research groups to fully reach their scientific potential. It is also recommended that IBV maintains its sabbatical system, where academics are granted one year's research and educational leave after six years of service, or six months' leave after three years of service.

IBV has a relatively large postdoctoral researcher cohort of 91. However, there are much fewer PhD candidates (65). This seems unusual and could be a sign of funding or hiring difficulties.

IBV should be highly commended on its research culture and support programme for early career researchers, providing appropriate career and generic skillsets. They are also supported by an effective EU team, which provides application guidance towards ERC and other external funding possibilities (e.g. RCN's Young Research Talents). This is excellent. In addition, there are multiple options for international research visits.

The professional development plan developed for all postdocs at IBV is highly effective to help in career progression.

2. Research production, quality and integrity

Each of the five research groups of the administrative unit have been evaluated by expert panels, whose evaluation summaries and performance scores are are reproduced below after a spelling and language check. Most groups rank highly and are very competitive. The number of scientific publications for IBV has remained fairly constant between 2016-2021. However, the mean normalised citation score has decreased in the last few years. Publications range from impactful multidisciplinary journals to more subject-specialised journals. They include a high percentage (72%) with international co-authors, which is excellent. The administrative unit is recommended to think of ways to increase the impact and quality of the scientific output from certain research groups, which in turn will enhance their international visibility and reputation.

The administrative unit should find ways to strengthen aspects of certain groups' societal impact dimension scores (research group's societal contribution/user involvement). It is noticeable that these scores ranked lower than other categories for several groups. The group structure should include more interdisciplinary approaches required to address larger research topics and grand challenges. This could be through incentives for cross-group activities to leverage more synergy between groups and shared projects.

The administrative unit has guidelines in place for research integrity, in line with the university regulatory framework. It is encouraging that the University of Oslo has instigated recognised

standards for research ethics and research integrity, with courses available for academic staff and mandatory courses for PhD candidates.

2.1 Research quality and integrity

Aquatic biology and toxicology (AQUA) research group – overall assessment by expert panel 2

Based on the available information, the panel find the AQUA group to have an organisational environment that is adequate but not excellent and that it supports the production of very good research. The quality of the research is recognised nationally and internationally. This group performs some interesting, high-quality research and makes an excellent contribution to advanced training, both PhD and post-doctoral (although clearer career development measures would have strengthened this aspect). However, the societal impact dimension is limited.

Biochemistry and Molecular Biology (BMB) research group – overall assessment by expert panel 4b

The UiO-BIO BMB is a strong group with focus on scientific excellence and innovation. The group is a cluster of seven independent research groups: the principal investigators (PIs) are highly acknowledged internationally for their research, and their research groups are among the top laboratories in their fields. Governance, common strategy, and common identity of the group could be better formulated.

The scores across the dimensions are balanced and reflect a balanced overall performance and contributions of the group. The organisational environment is very strong for supporting the production of excellent research. The Proteomics Facility is a key asset. The group has been successful in securing external funding, however, most of the funding is national. The research and publication quality are internationally excellent in terms of originality, significance, and rigour. Several discoveries and scientific contributions are impressive at a global level. There is a strong focus on innovation and on producing outputs: publications, applications, and patents. Major societal contributions of the group include research-based teaching and research findings that are important to health.

Centre for Ecological and Evolutionary Synthesis (CEES) research group – overall assessment by expert panel 3

The CEES group has an outward facing world-leading contribution to ecology and evolution. Its strategic goals are well mapped to its outputs. The group has national and international significance and will continue to command research in ecology and evolution in Norway. However, the continued success of CEES will require (i) diversifying group structures with a better focus on equality/diversity inclusion criteria at all levels and (ii) diversifying the portfolio of funding.

Genetics and Evolutionary Biology (EVOGENE) research group – overall assessment by expert panel 4a

The organisational dimension of this group is exceptional, helping foster the above-standard range of outputs as well as mobility and career development. The group's aims are to be clearly situated on the international stage and this was evident in the report in terms of collaborations, papers, research projects and leading roles in international consortia. The basic scientific work is published in broad impact journals with quality that is recognised at the highest international standards in terms of originality, significance, and rigour. The research quality is outstanding, and the group was determined to have played an outstanding role in the research process.

While the funding is strong and also the success in attracting competitive funding at the national and EU level, the cooperation with the private sector / companies could however be strengthened. This would also increase the societal impact, which was noted to be very considerable, given what is expected from groups in the same research field, but where the societal partners have a lower than desirable degree of involvement in the research process. Determining a strategy to grow and develop greater impacts seems in line with the aims of the group and could be achieved.

Physiology and Cell Biology (FYSCELL) research group – overall assessment by expert panel 4b

This group stands out for their honesty and achievements. The group has produced a generally thorough and comprehensive research assessment, which speaks to their commitment to training, sharing, and engaging. They have also identified their weaknesses and opportunities for further development. The group comes across as balanced and collaborative. It has fostered a supportive research culture as well as a healthy symbiotic relationship with their institution. Multiple examples speak to their commitment to training and supporting early career scientists as a collective rather than within individual research groups. This maximises the international exposure and interdisciplinary training of early career scientists. Emphasis is placed on nurturing scientists who will not only become excellent scientists, but also responsible and sharing lab citizens.

The group's management and governance were less clearly articulated. Their funding portfolio is good, but there may be further opportunities to secure, for example, EU funding, particularly in light of their research output and international collaborations. Available infrastructure makes their research cutting edge and internationally competitive. Their research output is solid and diverse yet cohesive overall. The group is committed to engaging with the wider society and are approaching this in original ways, for example by seeking to break silos between life scientists, sociologists and philosophers.

2.2. Open Science

The administrative unit follows the University of Oslo's open access policies, making all research articles openly available through the institutional repository, which is mandatory for employed staff. This also applies to research data and data sharing which is in line with international standards. In 2021, only 8% of publications were not open access, 92% of publications were open access (51% gold open access and 41% green open access). It is encouraging to see institutional initiatives for data sharing such as European Open Science Cloud (EOSC) and compliance with FAIR principles (Findable, Accessible, Interoperable, and Reusable). The university has also developed a service for sensitive data (TSD) where researchers can collect, store and analyse sensitive research data in a secure environment. This is clearly state-of-the-art also in an international comparison.

3. Diversity and equality

The administrative unit follows active institutional policies and plans for diversity, gender equality and inclusion. It is encouraging to see that the Faculty has established its own basic values for gender equality and diversity in research, which are rooted in the institutional action plan. It is clear that gender balance and gender equality are being addressed through initiatives such as the RCN-funded FRONT project.

The highest gender imbalance (90% male) is among senior academics >50 years old. However, it is encouraging that IBV have recognised this issue over the last 10 years and recruitment initiatives have led to a small majority of female academics below 50 years of age. There is also a gender imbalance among PhD students, with 71% females, with a similar imbalance also among the BSc and MSc students.

IBV has invested in extensive career programmes for its female members – e.g. the "Pick a few and tell them" programme, where an impressive 8 out of 8 talented females now have permanent research

positions. These types of initiatives are key with the current recruitment freeze and challenging economic situation.

Progress is also being made in recruiting young researchers and students from many different types of talent and societal backgrounds, including varied domestic and international recruitment. 46% of IBV staff are from outside Norway, with 15% non-European. Most PhD candidates are international, whereas MSc students are mostly domestic.

4. Relevance to institutional and sectorial purposes

The administrative unit aims to strengthen its position as a leading research department in biosciences, both nationally and internationally. Its main sector-specific objectives are research, education, outreach and, to a limited extent, industrial innovation. A key part of the IBV strategy is to protect and pursue curiosity-driven fundamental research, thereby contributing to the knowledge base. As such, the majority of IBV research activity falls into this category. Impact is measured by prestige, quality of researchers, publications, and grant income. However, a real concern and risk for IBV is that funders move from basic towards more applied research.

A key recommendation is that IBV needs to evolve to close the gap between fundamental research and innovation, by establishing a clear impact and innovation strategy with the help of an external industrial advisory board. There are pockets of innovation within research groups, indicated by some strong impact cases. However, a clear strategy needs to be put in place for academics to maximise impact and applied research opportunities through industrial and commercialisation opportunities and small and medium-sized enterprise (SME) interactions. Stronger cross-faculty interactions with the Life Science Growth House (Growth House) are encouraged to instil a stronger innovation culture.

An IBV specific mentoring scheme should be instigated to provide advice for academics who wish to enter this innovation arena, as well as targeted seed funding to enhance potential industry interactions. It is encouraging to see these types of initiatives are being explored and there is institutional support for Technology Transfer opportunities, as well as a new Science Park adjacent to the University for new start-ups. IBV must take full advantage of these opportunities.

IBV has a strong reputation in teaching and offers both inspiring and occupationally relevant education. It is encouraging to see that educational programmes are incorporating knowledge and skills relevant for employers, and is also research-orientated. This ensures holistic and sustainable development of students. IBV provides training for a large cohort of students (about 600 divided into undergraduate and graduate levels in addition to 50-80 PhD students). IBV has established two BSc courses focusing on work and research experience. MSc students are fully integrated into research groups, providing excellent hands-on education, and some opportunities for BSc students to be involved too. This is innovative and should be extended. The overall number of PhD students relative to academics is fairly low, however.

IBV is strong in dissemination of bioscience, which is key for students and employee recruitment, career development as well as funding opportunities. It is encouraging to see active engagement from IBV staff in several different outreach and communication aspects from debates to writing children’s books. In addition, IBV interacts well with policy makers and has representation on research boards and government bodies in many areas of the biosciences. This is excellent and should be encouraged.

5. Relevance to society

IBV research has high societal relevance contributing to a wide range of topics covering management of natural resources, sustainable food production and future production of clean energy. Understanding of basic molecular mechanisms of diseases will also aid in the development of new therapeutic strategies and for the understanding of species variation and interaction. A future aim for

IBV is to position itself as a leader for climate change research and a recruitment drive in this area is ongoing. This is a good strategy.

IBV research directly contributes to addressing grand challenges, this is aligned with the institutional strategy to support projects addressing the UN sustainability goals. Of note, the administrative unit has developed an exciting collaboration with the Department of Geoscience and Chemistry to establish the Centre for Biogeochemistry. This is of high societal relevance given the pressing need to predict changes in global carbon cycling, a crucial requirement to develop strategies to counter anthropogenic climate change.

As mentioned in section 4, IBV is recommended to extend and drive ongoing plans to bridge the gap between well-founded fundamental research and translational/applied research. This will enhance the administrative unit's ambition to have a coherent approach to applied research and support more collaborative work with industry. More interactions with the Life Science Growth House (Growth House) will help establish more start-ups, which could provide an attractive alternative career path for researchers and graduates.

Comments on impact case 1 – Extending the serum half-life of IgG therapeutics and albumin-fused biologics

Most proteins in the blood degrade quickly – In contrast, IgG and albumin are highly stable. Underpinning research has led to elucidating the mechanisms of protein stability due to the binding of FcRn, which regulates serum half-life and biodistribution via cellular recycling or transcytosis.

These findings have been applied to the design of antibody and albumin molecules with tailored FcRn binding and transport properties for use as therapeutics. Underpinning work and applications are detailed in several high-impact papers; including Grevys et al., J Immunol 2015; Andersen et al., Nat Comms 2012 and Grevys et al., Nat Comms 2017.

These findings and their applications have potentially very high impact in drug development as exemplified by multiple industrial collaborations, including licensing by a large international drug development company, for use in therapy against inflammatory bowel disease. In addition, the research has resulted in launch of the Veltis® technology, which allows any drug to be genetically fused or conjugated to engineered albumin variants to extend their half-life. The administrative unit should make sure it gets its fair share of the return and not undersell its contribution.

Comments on impact case 2 – Chronic Wasting Disease (CWD) management

The discovery of chronic wasting disease (CWD) in reindeer in 2016 in Norway was the first case of the infection in Europe. CWD is a contagious and lethal prion disease in cervids and the geographic expansion of CWD into Europe represents a significant biodiversity and economic concern.

A PI from the administrative unit has played a key role in the flow of data, analysis and leading research and development of novel surveillance tools for CWD. This has also involved the instigation of a proactive hunting surveillance system with the aim of early disease detection that simultaneously avoids undesirable population decline by targeting demographic groups with a higher likelihood of being infected and a lower reproductive value (published in Nature Comms, 2020).

This proactive hunting surveillance reached 99% probability of freedom from infection (<4 reindeer infected) within 3–5 years, in comparison to around 10 years using ordinary harvest surveillance. As such, this is an important impact case study which could be relevant for other diseases and surveillance systems. Further applications should be explored to widen the remit of this approach.

Comments on impact case 3 – The Norwegian Sequencing Centre (NSC) as a national resource in COVID-19 whole genome sequencing

The Norwegian Next Generation Sequencing (NGS) centre was established in 2009 with the Centre for Ecological and Evolutionary Synthesis (CEES, IBV, UiO) and the Ullevål Hospital (under the Oslo University Hospital (OUS) as the first sites in Norway. The centre was involved in multiple sequencing projects and development of applications. The centre has now been extended by the establishment of NorSeq, the national sequencing consortium. The centre has had a large impact on Norwegian science exemplified by >1000 publications based on data generated by NSC in the period 2009 – 2022.

The importance and impact of the NSC as a national resource was highlighted by its pivotal role in the COVID-19 pandemic. NSC has sequenced over 80,000 COVID-19 genomes (90% of all COVID sequencing in Norway), allowing Norwegian health authorities to monitor the evolution of the pandemic in terms of new virus variants. This resource needs to be maintained and is well placed to help if another pandemic arises.

Comments on impact case 4 – Discovery of a muscle memory altered the World Anti-Doping Agency (WADA) anti-doping code

Underpinning research is based on identifying a novel cellular memory mechanism residing in the muscle cells. Specifically, work shows that episodic treatment with steroids induced large fibres and more myonuclei. These extra myonuclei were not lost and when subjected to overload exercise at a later date, even after steroid use had been removed, they grow much faster than controls. These findings were published in a seminal paper – Egner et al., Journal of Physiology, 2013 – and reported more widely in scientific journals.

This is an excellent and highly important impact case, detailing long-lasting muscle memory after testosterone administration. It has high societal impact as the findings have led to international policy change by WADA, extending the maximum exclusion time from 2 to 4 years for anabolic androgen steroid (AAS) abuse.

Comments on impact case 5 – Coastal Marine Protected Areas (MPAs) and management of coastal resources

Coastal areas, in particular in the Skagerrak area, are heavily impacted by various human encroachments, including various developments, pollution, traffic and harvesting of species, which can cause population decline and collapse.

This impact case describes the collection and analysis of data on the effect of various management protocols for conserving populations of lobster and wrasses.

This research has had direct policy impact, having been implemented into management rules and regulations. The positive impact of these policies has been instrumental in establishing numerous protected areas along the Norwegian coast. This seems an exciting area for future research.

Appendices

List of research groups

Institution	Administrative unit	Research group
University of Oslo (UiO)	Department of Biosciences (IBV)	*Aquatic Biology and Toxicology (AQUA)*
		Biochemistry and Molecular Biology (BMB)
		Centre for Ecological and Evolutionary Synthesis (CEES)
		Genetics and Evolutionary Biology (EVOGENE)
		Physiology and Cell Biology (FYSCELL)

Methods and limitations

Methods

The evaluation is based on documentary evidence and online interviews with the representatives of Administrative unit.

The documentary inputs to the evaluation were:

- Evaluation Protocol Evaluation of life sciences in Norway 2022-2023
- Administrative unit´s Terms of Reference
- Administrative unit's self-assessment report
- Administrative unit's impact cases
- Administrative unit's research groups evaluation reports
- Panel reports from the Expert panels
- Bibliometric data (*NIFU Nordic Institute for Studies of innovation, research and education*)
- Personnel data (*Statistics Norway (SSB)*)
- Funding data – The Research Council´s contribution to biosciences research (*RCN*)
- Extract from the Survey for academic staff and the Student Survey (*Norwegian Agency for Quality Assurance in Education (NOKUT)*)

After the document review, the Committee met and conducted an initial assessment against the assessment criteria and defined questions for the interview with the Administrative unit. The Committee shared the interview questions with the Administrative unit three weeks before the interview.

The Committee interviewed the Administrative unit in an hour-long virtual meeting to validate the Committee's understanding and refine perceptions as well as fill any gaps in understanding and evidence. The Administrative unit answered the Committee's questions including any follow-up questions.

After the online interview, the Committee held a meeting to review the initial assessment in light of the interview and draft a report based on their assessment of the Administrative unit against the assessment criteria.

A one-page profile of the Administrative unit was drafted based on information from the self-assessment. The Administrative unit had the opportunity to fact-check this profile. Thereafter, the profile was included in the final draft of the report.

The final draft was reviewed by committee members and any comments were addressed. After a final copy-edit, the final report was approved by the Committee.

Limitations

The Committee judged the information received through documentary inputs and the interview with the Administrative unit sufficient to complete the evaluation

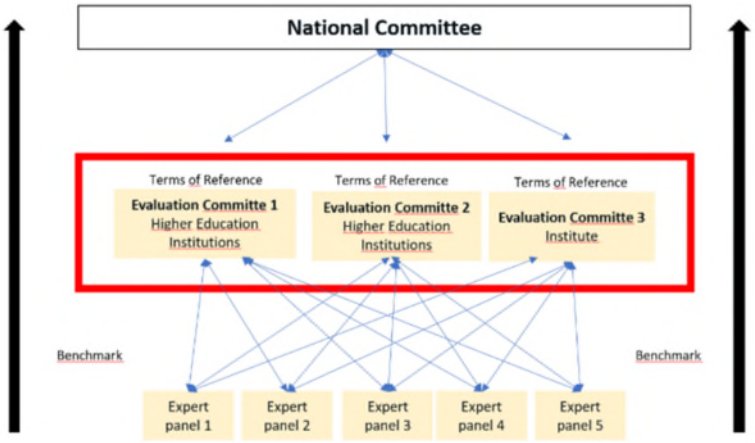
Evaluation of Biosciences 2022-2023

By evaluating Norwegian research and higher education we aim to enhance the quality, relevance, and efficiency. In accordance with the statutes of the Research Council of Norway (RCN), the RCN evaluates Norwegian professional environments to create a solid and up-to-date knowledge base about Norwegian research and higher education in an international perspective.

The evaluation of life sciences is conducted in 2022 - 2024. The evaluation of biosciences takes place in 2022 - 2023, and the evaluation of medicine and health is carried out in 2023-2024. The primary aim of the evaluation of life sciences is to reveal and confirm the quality and the relevance of research performed at Norwegian Higher Education Institutions (HEIs), the institute sector and the health trusts. The evaluation shall result in recommendations to the institutions, the RCN and the ministries.

Evaluation of biosciences (EVALBIOVIT) 2022-2023
The evaluation of biosciences includes twenty-two administrative units (e.g., faculty, department, institution) which are assessed by evaluation committees according to sectorial affiliation and/or other relevant similarities between the units. The administrative units enrolled their research groups (97) to five expert panels organised by research subjects or themes and assessed across institutions and sectors.

Organisation of evaluation of biosciences research 2022 - 2023



The institutions have been allowed to adapt the evaluation mandate (Terms of Reference) to their own strategic goals. This is to ensure that the results of the evaluation will be useful for the institution's own strategic development. The administrative unit together with the research group(s) selects an appropriate benchmark for each of the research group(s).

The Research Council of Norway has commissioned an external evaluation secretariat at Technopolis Group for the implementation of the evaluation process.

Each institution/administrative unit is responsible for following up the recommendations that apply to their own institution/administrative unit. The Research Council will use the results from the evaluation in the development of funding instruments and as a basis for advice to the Government.

The web page for the evaluation of biosciences 2022-2023:
https://www.forskningsradet.no/en/analysis-numbers/evaluations/subject-theme/biosciences/

Til innmeldte administrative enheter til
fagevaluering av biovitenskap (EVALBIOVIT)

Vår saksbehandler/tlf.	**Vår ref.**	**Oslo,**
Hilde D.G. Nielsen/4092 2260	21/10653	21.04.2022
	Deres ref.	

Fagevaluering av biovitenskap (EVALBIOVIT) 2022 – 2023

Vi viser til invitasjonsbrev om å delta i fagevaluering av biovitenskap (EVALBIOVIT) datert 11.11.2021 og til informasjonsmøte med innmeldte administrative enheter 15.12.2021.

Porteføljestyret for livsvitenskap vedtok evalueringsprotokollen for fagevaluering av biovitenskap 05.04.2022 (vedlegg 1). Protokollen beskriver roller, prosesser og ansvarsfordeling i evalueringsarbeidet og er i tråd med forslaget til nytt nasjonalt rammeverk for evaluering av forskning og høyere utdanning utarbeidet i regi av Kunnskapsdepartementet.

Forskningsrådet har mottatt innmelding av 37 administrative enheter til EVALBIOVIT. Disse vil bli fordelt på sektorspesifikke evalueringskomitéer: 1-2 evalueringskomité/er for administrative enheter som tilhører instituttsektoren og 1-2 evalueringskomité/er for administrative enheter som tilhører UH-sektor. Universitetsmuseene vil bli evaluert samlet i én evalueringskomité for UH-sektor.
Det skal i tillegg opprettes internasjonale fagekspertpaneler etter faglig eller tematisk likhet på tvers av sektorer. Ekspertpanelene skal evaluere forskergruppene som de administrative enhetene melder inn. Evalueringskomitéene og ekspertpanelene skal vurdere de innsamlede dataene og gi anbefalinger til den enkelte institusjon, til Forskningsrådet og til departementene.

Tilpasning av mandat (vedlegg 1)

Forskningsrådet ber med dette administrative enheter om å tilpasse mandatet (vedlegg 1) til de lokale forhold ved egen institusjon. Tilpasningen gjøres ved å fylle inn de åpne punktene i malen (Appendix A). Utfylt skjema sendes på epost til evalbiovit@forskningsradet.no *innen 30. september 2022.*

Innmelding av forskergrupper (vedlegg 2a og 2b)

Forskningsrådet ber administrative enheter om å melde inn forskergrupper i tråd med forskergruppedefinisjonen beskrevet i kapittel 1.2 i evalueringsprotokollen. Det bes også om at forskergruppene innplasseres i den tentative fagpanelinndelingen for EVALBIOVIT (vedlegg 2a). Utfylt regneark (vedlegg 2b) sendes til evalbiovit@forskningsradet.no *innen 31. mai 2022.*

Forskningsrådet vil ferdigstille panelstruktur og avgjøre den endelige fordelingen av forskergruppene på fagpaneler *etter* at alle forskergrupper er meldt inn.

Norges forskningsråd/
The Research Council of Norway
Drammensveien 288
Postboks 564
NO–1327 Lysaker

Telefon +47 22 03 70 00
post@forskningsradet.no
www.forskningsradet.no
Org.nr. 970141669

Invitasjon til å foreslå eksperter (vedlegg 3a og 3b)

Forskningsrådet inviterer administrative enheter til å spille inn forslag til eksperter som kan inngå i evalueringskomitéene og i ekspertpanelene (vedlegg 3a). Hver evalueringskomité skal bestå av 7-9 komitémedlemmer. Hvert ekspertpanel skal bestå av 5-7 eksperter. Utfylt regneark (vedlegg 3b, fane 1 og fane 2) sendes til evalbiovit@forskningsradet.no *innen 31. mai 2022.*

Forskningsrådet v/porteføljestyret for livsvitenskap vil oppnevne leder og medlemmer til evalueringskomitéene og til ekspertpanelene.

Data og datainnsamling

Forskningsrådet har nå ute et oppdrag for analyse av data om personal og forskningsproduksjon. Analysen skal i hovedsak baseres på data i DBH, NIFUs forskerpersonaleregister og Cristin. Analysene vil inkludere indikatorer som skal brukes for evaluering av alle institusjoner.

Videre vil institusjonene få et ansvar for innsamling av data til en egenevaluering som skal inngå i vurderingsgrunnlaget for evalueringskomiteene. For å sikre at evalueringen blir nyttig for forskningsinstitusjonenes utvikling, vil Forskningsrådet også invitere institusjonene til å delta i utvelgelse av relevante evalueringsdata og indikatorer som kan danne grunnlag for vurdering opp mot institusjonens egne strategiske mål og sektormål. På bakgrunn av dette har Forskningsrådet en forventning om at institusjonene som deltar i evalueringen stiller med nødvendige ressurser gjennom hele evalueringsprosessen.

Forskningsrådet har, etter en anbudskonkurranse om sekretariatstjenester, inngått en avtale med Technopolis Group som skal bistå Forskningsrådets administrasjon i arbeidet med EVALBIOVIT. Sekretariatet skal blant annet koordinere datainnsamlingen fra institusjonene og systematisere det innsamlede materialet for vurdering i ekspertpaneler og evalueringskomitéer.

Endring av administrativ enhet

For noen få tilfeller kan det være behov for å gjøre noen endringer i forhold til den administrative enheten[1] som allerede er innmeldt til EVALBIOVIT. For eksempel kan et fakultet som ble meldt inn samlet til EVALBIOVIT i desember 2021 finne det mer hensiktsmessig å heller melde inn fakultetets institutter som egne administrative enheter. Hvis man ønsker å endre på den administrative enheten må dette meldes Forskningsrådets administrasjon så fort som mulig, men ikke senere enn 31.05.2022. Melding om endring sendes på epost til: evalbiovit@forskningsradet.no.

Informasjonsmøte 9. mai 2022 og nettside for EVALBIOVIT

Forskningsrådet arrangerer 09.05.2022 kl. 12.00-12.45 et informasjonsmøte for alle som deltar i EVALBIOVIT. Møtet vil foregå digitalt (Zoom). Vi vil i møtet bl.a. gå gjennom evalueringsprotokollen samt at det vil være mulig å stille spørsmål. Påmelding til evalbiovit@forskningsradet.no *innen 07.05.2022.*

Forskningsrådet har opprette en egen nettside hvor informasjon om EVALBIOVIT vil bli publisert fortløpende. Lenke til nettsiden finner dere her: https://www.forskningsradet.no/statistikk-evalueringer/biovitenskap-2022-2023/.

[1] Med administrativ enhet menes en organisatorisk enhet på nivå 2 eller 3 i organisasjonsstrukturen til DBH for UH sektor eller NIFUs organisasjonsregister for institutt- og helsesektoren.

Spørsmål som gjelder fagevalueringen kan sendes på epost til evalbiovit@forskningsradet.no eller ved å kontakte Hilde Dorthea Grindvik Nielsen på epost hgn@forskningsradet.no /mobil 40 92 22 60.

Med vennlig hilsen
Norges forskningsråd

Ole Johan Borge
avdelingsdirektør
Avdeling for helseforskning og helseinnovasjon

Hilde G. Nielsen
spesialrådgiver
Avdeling for helseforskning og helseinnovasjon

Vedlegg

1. Evalueringsprotokoll for fagevaluering av biovitenskap 2022-2023
2a. Tentativ fagpanelinndeling for evaluering av forskergrupper
2b. Skjema for innmelding av forskergrupper
3a. Invitasjon til å foreslå eksperter og informasjon om evalueringskomitéer og ekspertpaneler
3b. Skjema for å foreslå eksperter til evalueringskomitéer og ekspertpaneler

The Research Council of Norway

Evaluation of life sciences in Norway 2022-2023

LIVSEVAL protocol version 1.0

By decision of the Portfolio board for life sciences April 5., 2022

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The report can be downloaded at
www.forskningsradet.no/publikasjoner

Oslo, 5 April 2022

ISBN 978-82-12-Klikk her for å fylle ut (xxxxx-x). (pdf)

1 Introduction

Research assessments based on this protocol serve different aims and have different target groups. The primary aim of the evaluation of life sciences is to reveal and confirm the quality and the relevance of research performed at Norwegian Higher Education Institutions (HEIs), and by the institute sector and regional health authorities and health trusts. These institutions will hereafter be collectively referred to as Research Performing Organisations (RPOs). The assessments should serve a formative purpose by contributing to the development of research quality and relevance at these institutions and at the national level.

1.1 Evaluation units

The assessment will comprise a number of *administrative units* submitted for evaluation by the host institution. By assessing these administrative units in light of the goals and strategies set for them by their host institution, it will be possible to learn more about how public funding is used at the institution(s) to facilitate high-quality research and how this research contributes to society. The administrative units will be assessed by evaluation committees according to sectoral affiliation and/or other relevant similarities between the units.

The administrative units will be invited to submit data on their *research groups* to be assessed by expert panels organised by research subject or theme. See Chapter 3 for details on organisation.

Administrative unit	An administrative unit is any part of an RPO that is recognised as a formal (administrative) unit of that RPO, with a designated budget, strategic goals and dedicated management. It may, for instance, be a university faculty or department, a department of an independent research institute or a hospital.
Research group	Designates groups of researchers within the administrative units that fulfil the minimum requirements set out in section 1.2. Research groups are identified and submitted for evaluation by the administrative unit, which may decide to consider itself a single research group.

1.2 Minimum requirements for research groups

1) The research group must be sufficiently large in size, i.e. at least five persons in full-time positions with research obligations. This merely indicates the minimum number, and larger units are preferable. In exceptional cases, the minimum number may include PhD students, postdoctoral fellows and/or non-tenured researchers. *In all cases, a research group must include at least three full-time tenured staff*. Adjunct professors, technical staff and other relevant personnel may be listed as group members but may not be included in the minimum number.

2) The research group subject to assessment must have been established for at least three years. Groups of more recent date may be accepted if they have come into existence as a consequence of major organisational changes within their host institution.
3) The research group should be known as such both within and outside the institution (e.g. have a separate website). It should be able to document common activities and results in the form of co-publications, research databases and infrastructure, software, or shared responsibilities for delivering education, health services or research-based solutions to designated markets.
4) In its self-assessment, the administrative unit should propose a suitable benchmark for the research group. The benchmark will be considered by the expert panels as a reference in their assessment of the performance of the group. The benchmark can be grounded in both academic and extra-academic standards and targets, depending on the purpose of the group and its host institution.

1.3 The evaluation in a nutshell

The assessment concerns:

- research that the administrative unit and its research groups have conducted in the previous 10 years
- the research strategy that the administrative units under evaluation intend to pursue going forward
- the capacity and quality of research in life sciences at the national level

The Research Council of Norway (RCN) will:

- provide a template for the Terms of Reference[1] for the assessment of RPOs and a national-level assessment in life sciences
- appoint members to evaluation committees and expert panels
- provide secretarial services
- commission reports on research personnel and publications based on data in national registries
- take responsibility for following up assessments and recommendations at the national level.

RPOs conducting research in life sciences are expected to take part in the evaluation. The board of each RPO under evaluation is responsible for tailoring the assessment to its own strategies and specific needs and for following them up within their own institution. Each participating RPO will carry out the following steps:

1) Identify the administrative unit(s) to be included as the main unit(s) of assessment
2) Specify the Terms of Reference by including information on specific tasks and/or strategic goals of relevance to the administrative unit(s)

[1] The terms of reference (ToR) document defines all aspects of how the evaluation committees and expert panels will conduct the [research area] evaluation. It defines the objectives and the scope of the evaluation, outlines the responsibilities of the involved parties, and provides a description of the resources available to carry out the evaluation.

3) The administrative unit will, in turn, be invited to register a set of research groups that fulfil the minimum criteria specified above (see section 1.2). The administrative unit may decide to consider itself a single research group.
4) For each research group, the administrative unit should select an appropriate benchmark in consultation with the group in question. This benchmark can be a reference to an academic level of performance or to the group's contributions to other institutional or sectoral purposes (see section 2.4). The benchmark will be used as a reference in the assessment of the unit by the expert panel.
5) The administrative units subject to assessment must provide information about each of their research groups, and about the administrative unit as a whole, by preparing self-assessments and by providing additional documentation in support of the self-assessment.

1.4 Target groups

- Administrative units represented by institutional management and boards
- Research groups represented by researchers and research group leaders
- Research funders
- Government

The evaluation will result in recommendations to the institutions, the RCN and the ministries. The results of the evaluation will also be disseminated for the benefit of potential students, users of research and society at large.

This protocol is intended for all participants in the evaluation. It provides the information required to organise and carry out the research assessments. Questions about the interpretation or implementation of the protocol should be addressed to the RCN.

2 Assessment criteria

The administrative units are to be assessed on the basis of five assessment criteria. The five criteria are applied in accordance with international standards. Finally, the evaluation committee passes judgement on the administrative units as a whole in qualitative terms. In this overall assessment, the committee should relate the assessment of the specific tasks to the strategic goals that the administrative unit has set for itself in the Terms of Reference.

When assessing administrative units, the committees will build on a separate assessment by expert panels of the research groups within the administrative units. See Chapter 3 'Evaluation process and organisation' for a description of the division of tasks.

2.1 Strategy, resources and organisation

The evaluation committee assesses the framework conditions for research in terms of funding, personnel, recruitment and research infrastructure in relation to the strategic aims set for the administrative unit. The administrative unit should address at least the following five specific aspects in its self-assessment: 1) funding sources, 2) national and international cooperation, 3) cross-sector and interdisciplinary cooperation, 4) research careers and mobility, and 5) Open Science. These five aspects relate to how the unit organises and actually performs its research, its composition in terms of leadership and personnel, and how the unit is run on a day-to-day basis.

To contribute to understanding what the administrative unit can or should change to improve its ability to perform, the evaluation committee is invited to focus on factors that may affect performance.

Further, the evaluation committee assesses the extent to which the administrative unit's goals for the future remain scientifically and societally relevant. It is also assessed whether its aims and strategy, as well as the foresight of its leadership and its overall management, are optimal in relation to attaining these goals. Finally, it is assessed whether the plans and resources are adequate to implement this strategy.

2.2 Research production, quality and integrity

The evaluation committee assesses the profile and quality of the administrative unit's research and the contribution the research makes to the body of scholarly knowledge and the knowledge base for other relevant sectors of society. The committee also assesses the scale of the unit's research results (scholarly publications, research infrastructure developed by the unit, and other contributions to the field) and its contribution to Open Science (early knowledge and sharing of data and other relevant digital objects, as well as science communication and collaboration with societal partners, where appropriate).

The evaluation committee considers the administrative unit's policy for research integrity and how violations of such integrity are prevented. It is interested in how the unit deals with research data, data management, confidentiality (GDPR) and integrity, and the extent to which independent and critical pursuit of research is made possible within the unit. Research integrity relates to both the scientific integrity of conducted research and the professional integrity of researchers.

2.3 Diversity and equality

The evaluation committee considers the diversity of the administrative unit, including gender equality. The presence of differences can be a powerful incentive for creativity and talent development in a diverse administrative unit. Diversity is not an end in itself in that regard, but a tool for bringing together different perspectives and opinions.

The evaluation committee considers the strategy and practices of the administrative unit to prevent discrimination on the grounds of gender, age, disability, ethnicity, religion, sexual orientation or other personal characteristics.

2.4 Relevance to institutional and sectoral purposes

The evaluation committee compares the relevance of the administrative unit's activities and results to the specific aspects detailed in the Terms of Reference for each institution and to the relevant sectoral goals (see below).

Higher Education Institutions

There are 36 Higher Education Institutions in Norway that receive public funding from the Ministry for Education and Research. Twenty-one of the 36 institutions are owned by the ministry, whereas the last 15 are privately owned. The HEIs are regulated under the Act relating to universities and university colleges of 1 August 2005.

The purposes of Norwegian HEIs are defined as follows in the Act relating to universities and university colleges[2]

- provide higher education at a high international level;
- conduct research and academic and artistic development work at a high international level;
- disseminate knowledge of the institution's activities and promote an understanding of the principle of academic freedom and application of scientific and artistic methods and results in the teaching of students, in the institution's own general activity as well as in public administration, in cultural life and in business and industry.

In line with these purposes, the Ministry for Research and Education has defined four overall goals for HEIs that receive public funding. These goals have been applied since 2015:

1) High quality in research and education
2) Research and education for welfare, value creation and innovation
3) Access to education (esp. capacity in health and teacher education)
4) Efficiency, diversity and solidity of the higher education sector and research system

The committee is invited to assess to what extent the research activities and results of each administrative unit have contributed to sectoral purposes as defined above. In particular, the committee is invited to take the share of resources spent on education at the administrative units into account and to assess the relevance and contributions of research to education, focusing on the master's and PhD levels. This assessment should be distinguished from an

[2] https://lovdata.no/dokument/NLE/lov/2005-04-01-15?q=universities

assessment of the quality of education in itself, and it is limited to the role of research in fostering high-quality education.

Research institutes (the institute sector)

Norway's large institute sector reflects a practical orientation of state R&D funding that has long historical roots. The Government's strategy for the institute sector[3] applies to the 33 independent research institutes that receive public basic funding through the RCN, in addition to 12 institutes outside the public basic funding system.

The institute sector plays an important and specific role in attaining the overall goal of the national research system, i.e. to increase competitiveness and innovation power to address major societal challenges. The research institutes' contributions to achieving these objectives should therefore form the basis for the evaluation. The main purpose of the sector is to conduct independent applied research for present and future use in the private and public sector. However, some institutes primarily focus on developing a research platform for public policy decisions, others on fulfilling their public responsibilities.

The institutes should:

- maintain a sound academic level, documented through scientific publications in recognised journals
- obtain competitive national and/or international research funding grants
- conduct contract research for private and/or public clients
- demonstrate robustness by having a reasonable number of researchers allocated to each research field

The committee is invited to assess the extent to which the research activities and results of each administrative unit contribute to sectoral purposes and overall goals as defined above. In particular, the committee is invited to assess the level of collaboration between the administrative unit(s) and partners in their own or other sectors.

The hospital sector

There are four regional health authorities (RHFs) in Norway. They are responsible for the specialist health service in their respective regions. The RHFs are regulated through the Health Enterprises Act of 15 June 2001 and are bound by requirements that apply to specialist and other health services, the Health Personnel Act and the Patient Rights Act. Under each of the regional health authorities, there are several health trusts (HFs), which can consist of one or more hospitals. A health trust (HF) is wholly owned by an RHF.

Research is one of the four main tasks of hospital trusts.[4] The three other mains tasks are to ensure good treatment, education and training of patients and relatives. Research is important if the health service is to keep abreast of stay up-to-date with medical developments and carry out critical assessments of established and new diagnostic methods,

[3] Strategy for a holistic institute policy (Kunnskapsdepartementet 2020)

[4] Cf. the Specialist Health Services Act § 3-8 and the Health Enterprises Act §§ 1 and 2

treatment options and technology, and work on quality development and patient safety while caring for and guiding patients.

The committee is invited to assess the extent to which the research activities and results of each administrative unit have contributed to sectoral purposes as described above. The assessment does not include an evaluation of the health services performed by the services.

2.5 Relevance to society

The committee assesses the quality, scale and relevance of contributions targeting specific economic, social or cultural target groups, of advisory reports on policy, of contributions to public debates, and so on. The documentation provided as the basis for the assessment of societal relevance should make it possible to assess relevance to various sectors of society (i.e. business, the public sector, non-governmental organisations and civil society).

When relevant, the administrative units will be asked to link their contributions to national and international goals set for research, including the Norwegian Long-term Plan for Research and Higher Education and the UN Sustainable Development Goals. Sector-specific objectives, e.g. those described in the Development Agreements for the HEIs and other national guidelines for the different sectors, will be assessed as part of criterion 2.4.

The committee is also invited to assess the societal impact of research based on case studies submitted by the administrative units and/or other relevant data presented to the committee. Academic impact will be assessed as part of criterion 2.2.

3 Evaluation process and organisation

The RCN will organise the assessment process as follows:

- Commission a professional secretariat to support the assessment process in the committees and panels, as well as the production of self-assessments within each RPO
- Commission reports on research personnel and publications within life sciences based on data in national registries
- Appoint one or more evaluation committees for the assessment of administrative units.
- Divide the administrative units between the appointed evaluation committees according to sectoral affiliation and/or other relevant similarities between the units.
- Appoint a number of expert panels for the assessment of research groups submitted by the administrative units.
- Divide research groups between expert panels according to similarity of research subjects or themes.
- Task the chairs of the evaluation committees with producing a national-level report building on the assessments of administrative units and a national-level assessments produced by the expert panels.

Committee members and members of the expert panels will be international, have sufficient competence and be able, as a body, to pass judgement based on all relevant assessment criteria. The RCN will facilitate the connection between the assessment levels of panels and committees by appointing committee members as panel chairs.

3.1 Division of tasks between the committee and panel levels

The expert panels will assess research groups across institutions and sectors, focusing on the first two criteria specified in Chapter 2: 'Strategy, resources and organisation' and 'Research production and quality' The assessments from the expert panels will also be used as part of the evidence base for a report on Norwegian research within life sciences (see section 3.3).

The evaluation committees will assess the administrative units based on all the criteria specified in Chapter 2. The assessment of research groups delivered by the expert panels will be a part of the evidence base for the committees' assessments of administrative units. See figure 1 below.

The evaluation committee has sole responsibility for the assessments and any recommendations in the report. The evaluation committee reaches a judgement on the research based on the administrative units and research groups' self-assessments provided by the RPOs, any additional documents provided by the RCN, and interviews with representatives of the administrative units. The additional documents will include a standardised analysis of research personnel and publications provided by the RCN.

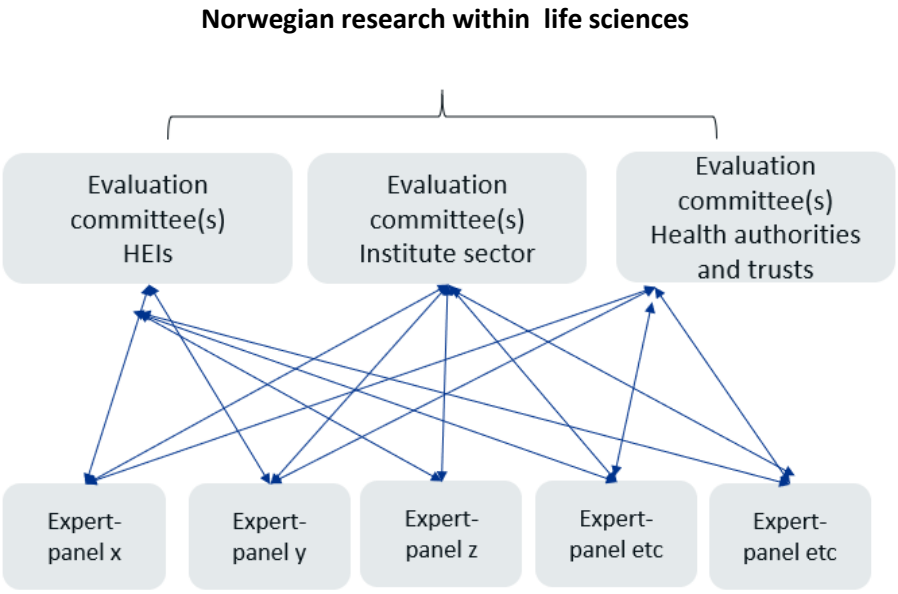

Figure 1. Evaluation committees and expert panels

The evaluation committee takes international trends and developments in science and society into account when forming its judgement. When judging the quality and relevance of the research, the committees shall bear in mind the specific tasks and/or strategic goals that the administrative unit has set for itself including sectoral purposes (see section 2.4 above).

3.2 Accuracy of factual information

The administrative unit under evaluation should be consulted to check the factual information before the final report is delivered to the RCN and the board of the institution hosting the administrative unit.

3.3 National level report

Finally, the RCN will ask the chairs of the evaluation committees to produce a national-level report that builds on the assessments of administrative units and the national-level assessments produced by the expert panels. The committee chairs will present their assessment of Norwegian research in life sciences at the national level in a separate report that pays specific attention to:

- Strengths and weaknesses of the research area in the international context
- The general resource situation regarding funding, personnel and infrastructure
- PhD training, recruitment, mobility and diversity
- Research cooperation nationally and internationally
- Societal impact and the role of research in society, including Open Science

This national-level assessment should be presented to the RCN.

Appendix A: Terms of References (ToR)

[Text in red to be filled in by the Research-performing organisations (RPOs)]

The board of [RPO] mandates the evaluation committee appointed by the Research Council of Norway (RCN) to assess [administrative unit] based on the following Terms of Reference.

Assessment
You are asked to assess the organisation, quality and diversity of research conducted by [administrative unit] as well as its relevance to institutional and sectoral purposes, and to society at large. You should do so by judging the unit's performance based on the following five assessment criteria (a. to e.). Be sure to take current international trends and developments in science and society into account in your analysis.

a) Strategy, resources and organisation
b) Research production, quality and integrity
c) Diversity and equality
d) Relevance to institutional and sectoral purposes
e) Relevance to society

For a description of these criteria, see Chapter 2 of the life sciences evaluation protocol. Please provide a written assessment for each of the five criteria. Please also provide recommendations for improvement. We ask you to pay special attention to the following [n] aspects in your assessment:

1. …
2. …
3. …
4. …

…

[To be completed by the board: specific aspects that the evaluation committee should focus on – they may be related to a) strategic issues, or b) an administrative unit's specific tasks.]

In addition, we would like your report to provide a qualitative assessment of [administrative unit] as a whole in relation to its strategic targets. The committee assesses the strategy that the administrative unit intends to pursue in the years ahead and the extent to which it will be capable of meeting its targets for research and society during this period based on available resources and competence. The committee is also invited to make recommendations concerning these two subjects.

Documentation
The necessary documentation will be made available by the life sciences secretariat at Technopolis Group.

The documents will include the following:

- a report on research personnel and publications within life sciences commissioned by RCN
- a self-assessment based on a template provided by the life sciences secretariat
- [to be completed by the board]

Interviews with representatives from the evaluated units
Interviews with the [administrative unit] will be organised by the evaluation secretariat. Such interviews can be organised as a site visit, in another specified location in Norway or as a video conference.

Statement on impartiality and confidence
The assessment should be carried out in accordance with the *Regulations on Impartiality and Confidence in the Research Council of Norway*. A statement on the impartiality of the committee members has been recorded by the RCN as a part of the appointment process. The impartiality and confidence of committee and panel members should be confirmed when evaluation data from [the administrative unit] are made available to the committee and the panels, and before any assessments are made based on these data. The RCN should be notified if questions concerning impartiality and confidence are raised by committee members during the evaluation process.

Assessment report
We ask you to report your findings in an assessment report drawn up in accordance with a format specified by the life sciences secretariat. The committee may suggest adjustments to this format at its first meeting. A draft report should be sent to the [administrative unit] and RCN by [date]. The [administrative unit] should be allowed to check the report for factual inaccuracies; if such inaccuracies are found, they should be reported to the life sciences secretariat no later than two weeks after receipt of the draft report. After the committee has made the amendments judged necessary, a corrected version of the assessment report should be sent to the board of [the RPO] and the RCN no later than two weeks after all feedback on inaccuracies has been received from [administrative unit].

Appendix B: Data sources

The lists below shows the most relevant data providers and types of data to be included in the evaluation. Data are categorised in two broad categories according to the data source: National registers and self-assessments prepared by the RFOs. The RCN will commission an analysis of data in national registers (R&D-expenditure, personnel, publications etc.) to be used as support for the committees' assessment of administrative units. The analysis will include a set of indicators related to research personnel and publications.

- **National directorates and data providers**
- Norwegian Directorate for Higher Education and Skills (HK-dir)
- Norwegian Agency for Quality Assurance in Education (NOKUT)
- Norwegian Agency for Shared Services in Education and Research (SIKT)
- Research Council of Norway (RCN)
- Statistics Norway (SSB)

National registers

1) R&D-expenditure
    a. SSB: R&D statistics
    b. SSB: Key figures for research institutes
    c. HK-dir: Database for Statistics on Higher Education (DBH)
    d. RCN: Project funding database (DVH)
    e. EU-funding: eCorda
2) Research personnel
    a. SSB: The Register of Research personnel
    b. SSB: The Doctoral Degree Register
    c. RCN: Key figures for research institutes
    d. HK-dir: Database for Statistics on Higher Education (DBH)
3) Research publications
    a. SIKT: Cristin - Current research information system in Norway
    b. SIKT: Norwegian Infrastructure for Bibliometrics
    (full bibliometric data incl. citations and co-authors)
4) Education
    a. HK-dir/DBH: Students and study points
    b. NOKUT: Study barometer
    c. NOKUT: National Teacher Survey
5) Sector-oriented research
    a. RCN: Key figures for research institutes
6) Patient treatments and health care services
    a. Research & Innovation expenditure in the health trusts
    b. Measurement of research and innovation activity in the health trusts
    c. Collaboration between health trusts and HEIs
    d. Funding of research and innovation in the health trusts
    e. Classification of medical and health research using HRCS (HO21 monitor)

Self-assessments

1) Administrative units
    a. *Self-assessment covering all assessment criteria*
    b. Administrative data on funding sources
    c. Administrative data on personnel
    d. Administrative data on the division of staff resources between research and other activities (teaching, dissemination etc.)
    e. Administrative data on research infrastructure and other support structures
    f. SWOT analysis
    g. Any supplementary data needed to assess performance related to the strategic goals and specific tasks of the unit

2) Research groups
    a. *Self-assessment covering the first two assessment criteria (see Table 1)*
    b. Administrative data on funding sources
    c. Administrative data on personnel
    d. Administrative data on contribution to sectoral purposes: teaching, commissioned work, clinical work [will be assessed at committee level]
    e. Publication profiles
    f. Example publications and other research results (databases, software etc.) The examples should be accompanied by an explanation of the groups' specific contributions to the result
    g. Any supplementary data needed to assess performance related to the benchmark defined by the administrative unit

The table below shows how different types of evaluation data may be relevant to different evaluation criteria. Please note that the self-assessment produced by the administrative units in the form of a written account of management, activities, results etc. should cover all criteria. A template for the self-assessment of research groups and administrative units will be commissioned by the RCN from the life sciences secretariat for the evaluation.

Table 1. Types of evaluation data per criterion

Evaluation units / Criteria	Research groups	Administrative units
Strategy, resources and organisation	Self-assessment Administrative data	Self-assessment National registers Administrative data SWOT analysis
Research production and quality	Self-assessment Example publications (and other research results)	Self-assessment National registers
Diversity, equality and integrity		Self-assessment National registers Administrative data
Relevance to institutional and sectoral purposes		Self-assessment Administrative data
Relevance to society		Self-assessment National registers Impact cases
Overall assessment	*Data related to:* *Benchmark defined by administrative unit*	*Data related to:* *Strategic goals and specific tasks of the admin. unit*

The Research Council of Norway

EVALBIOVIT

Self-assessment for administrative units

Version 1.2

Overview

Institution (name and short name):
Administrative unit (name and short name):
Date:
Contact person:
Contact details (email):

1 Introduction

The primary aim of the evaluation is to reveal and confirm the quality and the relevance of research performed at Norwegian Higher Education Institutions (HEIs), and by the institute sector. For the life sciences area, research undertaken by regional health authorities and health trusts is also included. These institutions will henceforth be collectively referred to as research performing organisations (RPOs). The evaluation report(s) will provide a set of recommendations to the RPOs, the Research Council of Norway (RCN) and the concerned ministries. The results of the evaluation will also be disseminated for the benefit of potential students, users of research, and society at large.

You have been invited to complete this self-assessment as an administrative unit. The self-assessment contains questions regarding the unit's research- and innovation related activities and developments over the past 10 years. All the submitted data will be evaluated by evaluation committees (for administrative units) and expert panels (for research groups). Please read through the whole document including all instructions before answering the questions to avoid overlaps.

As an administrative unit, you are also responsible for collecting the completed self-assessment for each of the research groups that belong to the unit. The research groups need to submit their completed self- assessment to the unit no later than the 1st of December 2022. The unit will submit the research groups' completed self-assessments and the unit's own completed self-assessment no later than the 5th of December 2022.

The whole self-assessment shall be written in English.

Please use the following format when naming your document: name of the institution, and name of the administrative unit, e.g. UiO_FacBiosci. Send it to evalbiovit@technopolis-group.com no later than 5th of December 2022.

For questions concerning the self-assessment or EVALBIOVIT in general, please contact RCN's evaluation secretariat at Technopolis Group: evalbiovit.questions@technopolis-group.com.

Many thanks in advance![1]

[1] Personal information will be deleted when evaluation reports are published and no later than 30 April 2024

For more information on how Technopolis Group handles data processing, see: http://www.technopolis-group.com/privacy-policy/

For more information on how the Research Council of Norway handles data processing, see: https://www.forskningsradet.no/en/privacy-policy/

2 Self-assessment for administrative units

Self-assessment guidelines:

- Data on personnel should refer to reporting to DBH on 1 October 2021 for HEIs and to the yearly reporting for 2021 for the institute sector
- Other data should refer to 31 December 2021 if not specified otherwise
- Please read the entire self-assessment document before answering
- Provide information – provide documents and other relevant data or figures about the administrative unit, for example strategy and other planning documents, as well as data on R&D expenditure, sources of income and results and outcomes of research
- Describe – explain and present using contextual information about the administrative unit (most often this includes filling out specific forms) and inform the reader about the administrative unit
- Reflect – comment in a reflective and evaluative manner how the administrative unit operates
- 4000 characters including spaces equals one page

2.1 Strategy, resources and organisation of research

2.1.1 Research strategy

2.1.1.1 Describe the main strategic goals for research and innovation of the administrative unit (1000–4000 characters). How are these goals related to institutional strategies?

- Describe the main fields and focus of research and innovation in the unit
- Describe how you work to maximise synergies between the different purposes of the unit
- Describe the planned research-field impact; planned policy impact and planned societal impact
- Describe how the strategy is followed-up in the allocation of resources and other measures
- Describe the most important occasions where priorities are made (i.e., announcement of new positions, applying for external funding, following up on evaluations)
- If there is no long-term research strategy – explain why

Form 1 *Administrative unit's strategic planning documents*

Instructions: For each category (Research strategy, Research funding, Cooperation policy, Open science policy) present up to 5 documents that according to you are the most relevant. If the administrative unit uses the strategies, policies, etc. of a larger institution, then present these documents. Please use the following formatting: Name of document, Years active, Link to the document.

Example: Norwegian University of Science and Technology Strategy, 2021–2025, hyperlink to the document

2.1.2 Organisation of research

2.1.2.1 Describe the organisation of research and innovation activities at the unit, including how responsibilities for research and other purposes (education, knowledge exchange, patient treatment, training etc) are distributed and delegated (500–1500 characters).

Form 2 *SWOT analysis for administrative units*

Instructions: Please complete a SWOT analysis for your administrative unit. Reflect on what are the major internal Strengths and Weaknesses as well as external Threats and Opportunities for your research and innovation activities and research environment. Assess what the present Strengths enable in the future and what kinds of Threats are related to the Weaknesses. Consider your scientific expertise and achievements, funding, facilities, organisation and management (500–2000 characters per cell).

2.1.3 Research funding

2.1.3.1 Describe the funding sources of the unit and indicate the share of the unit's budget (NOK) dedicated to research compared to other purposes. Shares may be calculated based on full time equivalents (FTE) allocated to research compared to total FTE in unit (500–1500 characters).

2.1.3.2 Describe how successful the administrative unit has been in obtaining competitive regional, national and/or international research funding grants (200–1000 characters).

Form 3 *Funding levels for the administrative unit for 2021*

Instructions: For administrative units in the institute sector receiving basic funding via RCN, funding levels should be provided for 2021 in the funding categories used in the yearly reporting:

a) National grants (NOK) (post 1.1 og 1.2)):

   i) from the Research Council of Norway (NOK) – excluding basic funding

   ii) from the ministries and underlying directorates (NOK)

   iii) from industry (NOK)

   iv) other national grants including third sector, private associations and foundations (NOK)

b) National contract research (post 1.3)

c) International grants (post 1.4)

d) Funding related to public management (forvaltningsoppgaver post 1.5)

For Higher Education Institutions costs covered by external funding sources should be reported according to the same categories as far as possible. Costs may be classified as Other if they cannot be placed in one of the specified categories. Reporting should be based on incurred costs (regnskapstall) for 2021.

2.1.4 Participation in national infrastructures

2.1.4.1 Describe the most important participation in the national infrastructures listed in the Norwegian roadmap for research infrastructures (Nasjonalt veikart for forskningsinfrastruktur) including as host institution(s) (200–1000 characters).

Form 4 *Infrastructures listed in the Norwegian roadmap for research infrastructures (Nasjonalt veikart for forskningsinfrastruktur)*

Instructions: Please present up to 5 participations in the national infrastructures listed in the Norwegian roadmap for research infrastructures (Nasjonalt veikart for forskningsinfrastruktur) for each area that were the most important to your administrative unit. For each category area, please use the following formatting:

Name of research infrastructure, Years when used, Description (100–500 characters) of the engagement with the research infrastructure (reasoning, objectives, expected/actual outcomes).

[2] Excluding basic funding.

[3] For research institutes only research activities should be included from section 1.3 in the yearly reporting

2.1.4.2 Describe the most important participation in the international infrastructures funded by the ministries (Norsk deltakelse i internasjonale forskningsorganisasjoner finansiert av departementene) (200–1000 characters).

Form 5 *Participation in international research organisations*

Instructions: Please describe up to 5 participations in international and European infrastructures (ESFRI) for each area that have been most important to your research unit. When presenting your participation, please use the following formatting:

Name of research infrastructure, Years when used, Description (100–500 characters) of the participation in the research infrastructure (reasoning, objectives, expected/actual outcomes).

2.1.4.3 Describe the most important participation in European (ESFRI) infrastructures (Norske medlemskap i infrastrukturer i ESFRI roadmap) including as host institution(s) (200–1000 characters).

Form 6 *Participation in infrastructures on the ESFRI Roadmap*

Instructions: For each area, please give a description of up to 5 engagements that have been most important to your research unit. When presenting your participation, please use the following formatting: Name of research infrastructure, Years when used, Description (100–500 characters) of the engagement with the research infrastructure (reasoning, objectives, expected/actual outcomes)."

2.1.5 Accessibility to research infrastructures

2.1.5.1 Describe the accessibility to research infrastructures for your researchers. Considering both physical and electronic infrastructure (200–1000 characters).

2.1.5.2 Describe what is done at the unit to fulfil the FAIR-principles[4] (200–1000 characters).

2.1.6 Research staff

2.1.6.1 Describe the profile of research personnel at the unit in terms of position and gender (200–1000 characters).

Form 7 *Administrative data on the division of staff resources for 2021*

2.1.6.2 Describe the structures and practices to foster researcher careers and help early-career researchers to make their way into the profession (200–1000 characters).

2.1.6.3 Describe how research time is distributed among staff including criteria for research leave (forskningsfri) (200–1000 characters).

2.1.6.4 Describe research mobility options (200–1000 characters).

2.2 Research production, quality, and integrity

2.2.1 Research quality and integrity

2.2.1.1 Describe the scientific focus areas of the research conducted at the administrative unit, including the unit's contribution to these areas (500–2000 characters).

2.2.1.2 Describe the unit's policy for research integrity, including preventative measures when integrity is at risk, or violated (200–1000 characters).[5]

2.2.2 Open Science policies at the administrative unit

2.2.2.1 Describe the institutional policies, approaches, and activities to the following Open Science areas (consider each area separately, 500–1000 characters in total):

- Open access to publications
- Open access to research data and implementation of FAIR data principles
- Open-source software/tools
- Open access to educational resources
- Open peer review
- Skills and training for Open Science
- Citizen science and/or involvement of stakeholders / user groups

2.2.2.2 Describe the most important contributions and impact of the unit's researchers towards the different Open Science areas (consider each area separately, 500–1000 characters in total):

- Open access to publications
- Open access to research data and implementation of FAIR data principles
- Open-source software/tools
- Open access to educational resources
- Open peer review
- Skills and training for Open Science
- Citizen science and/or involvement of stakeholders/user groups

2.2.2.3 Describe the institutional policy regarding ownership of research data, data management, and confidentiality (200–1000 characters). Is the use of data management plans implemented at the unit?

2.3 *Diversity and equality*

2.3.1 Diversity and equality practices

2.3.1.1 Describe the policy and practices to protect against any form of discrimination in the administrative unit (200–1000 characters).

Form 8 *Administrative unit's policies against discrimination*

Instructions: Give a description of up to 5 documents that are the most relevant. If the administrative unit uses the strategies, policies, etc. of a larger institution, then these documents should be referred to. For each document use the following formatting: Name of document, Years active, Link to the document

Example: Norwegian University of Science and Technology Strategy, 2021–2025, hyperlink to the document

2.4 Relevance to institutional and sectorial purposes

2.4.1 Sector specific impact

2.4.1.1 Describe whether the administrative unit has activities aimed at achieving sector-specific objectives[6] or focused on contributing to the knowledge base in general. Describe activities connected to sector-specific objectives, the rationale for participation and achieved and/or expected impacts (500–3000 characters).

- Alternatively, describe whether the activities of the unit are aimed at contribution to the knowledge base in general. Describe the rationale for this approach and the impacts of the unit's work to the knowledge base.

2.4.2 Research innovation and commercialisation

2.4.2.1 Describe the administrative unit's practices for innovation and commercialisation (500–1500 characters).

- Describe the interest among the research staff in doing innovation and commercialisation activities
- Describe how innovation and commercialisation is supported at the unit

Form 9 *Administrative unit's policies for research innovation*

Instructions: Describe up to 5 documents of the administrative unit's policies for research innovation, including IP policies, new patents, licenses, start-up/spin-off guidelines, etc., that are the most relevant. If the administrative unit uses the strategies, policies, etc. of a larger institution, then present these documents. For each document use the following formatting: Name of document, Years active, Link to the document

Example: Norwegian University of Science and Technology Strategy, 2021–2025, hyperlink to the document

2.4.2.2 Provide examples of successful innovation and commercialisation results, such as new patents, licenses, etc (500–1500 characters).

Form 10 *Administrative description of successful innovation and commercialisation results*

Instructions: Please describe up 10 successful innovation and commercialisation results at your administrative unit. For each result, please use the following formatting: Name of innovation and commercial results, Year, Links to relevant documents, articles, etc. that present the result, Description (100–500 characters) of successful innovation and commercialisation result.

2.4.3 Collaboration

2.4.3.1 Describe the unit's policy towards regional, national and international collaboration, as well as how cross-sectorial collaboration and interdisciplinary collaboration is approached at the administrative unit (500–1500 characters). Please fill out the forms that match your institution: the institute sector fills out Form 11a and Form 11b; HEIs fill out Form 12.

- Reflect on how successful the unit have been in meeting its aspirations for collaborations

Form 11a (institute sector) *Administrative unit's partnerships ('faktisk samarbeid')*

Instructions: For each of the administrative unit's tender and project-based cooperation (which are not tax deducted) please present up to 5 examples under each category (Collaboration with national public institutions; Collaboration with national private institutions; Collaboration with international public institutions; Collaboration with international private institutions). Please use 100– 500 characters to describe the impacts and relevance of collaboration.

Form 11b (institute sector) *Administrative unit's collaboration*

Instructions: For each of the administrative unit's tender and project-based cooperation please present up to 5 examples under each category (Collaboration with academic partners nationally; Collaboration with non-academic partners nationally; Collaboration with academic partners internationally; Collaboration with non-academic partners internationally). Please use 100–500 characters to describe the impacts and relevance of collaboration.

2.4.3.2 Reflect on the importance of different types of collaboration for the administrative unit (200–1000 characters).

- Regional, national and international collaborations

Collaborations with different sectors, including public, private and third sector

Form 12 (HEIs) *Administrative unit's partnerships" ('faktisk samarbeid')*

Instructions: For each of the administrative unit's tender and project-based cooperation (which are not tax deducted) please present up to 5 examples under each category (Collaboration with national public institutions; Collaboration with national private institutions; Collaboration with international public institutions; Collaboration with international private institutions). Please use 100– 500 characters to describe the impacts and relevance of collaboration.

2.4.3.3 Reflect on the importance of different types of collaboration for the administrative unit, the added value of these collaborations to the administrative unit and Norwegian research system (500–1500 characters).

2.4.4 ONLY for higher education institutions

2.4.4.1 Reflect on how research at the unit contributes towards master and PhD-level education provision, at your institutions and beyond (200–1000 characters).7

2.4.4.2 Describe the opportunities for master and bachelor students to become involved in research activities at the unit (200–1000 characters).

2.4.5 ONLY for research institutes

2.4.5.1 Describe how the research activities at the administrative unit contribute to the knowledge base for policy development, sustainable development, and societal and industrial transformations more generally (500–1500 characters).8

2.4.5.2 Describe the most important research activities including those with partners outside of research organisations (500–1500 characters).

2.5 Relevance to society

2.5.1 Administrative unit's societal impact

2.5.1.1 Reflect on the unit's contribution towards the Norwegian Long-term plan for research and higher education, societal challenges more widely, and the UN Sustainable Development Goals (500–1500 characters).

2.5.1.2 Describe how the administrative unit's research and innovation has contributed to economic, societal and cultural development by submitting one to five impact cases depending on the size of the unit. For up to 10 researchers: one case; for 10 to 30 researchers: two cases; for 30-50 researchers: three cases; for 50-100 researchers: four cases, and up to five cases for units exceeding 100 researchers. Please use the attached template for impact cases. Each impact case will be submitted as an attachment to the self-evaluation. Institutions that submit impact cases do not have to fill in the box below.

Case no. 1

Thank you for completing the self-assessment.

[7] Please note: RCN will provide data from the national student survey (Studiebarometeret) on students' experience with research methods and exposure to research activities. The data will most probably be on an aggregate level but including the unit under assessment.

[8] Strategi for helhetlig instituttpolitikk, Kunnskapsdepartementet, p.4): «Instituttsektoren skal utvikle kunnskapsgrunnlag for politikkutforming og bidra til bærekraftig utvikling og omstilling, gjennom forskning av høy kvalitet og relevans.» (The government's strategy for an independent institute sector).

Scales for research group assessment

Organisational dimension

Score	Organisational environment
5	An organisational environment that is outstanding for supporting the production of excellent research.
4	An organisational environment that is very strong for supporting the production of excellent research.
3	An organisational environment that is adequate for supporting the production of excellent research.
2	An organisational environment that is modest for supporting the production of excellent research.
1	An organisational environment that is not supportive for the production of excellent research.

Quality dimension

Score	Research and publication quality	Score	Research group's contribution Groups were invited to refer to the Contributor Roles Taxonomy in their description https://credit.niso.org/
5	Quality that is outstanding in terms of originality, significance and rigour.	5	The group has played an outstanding role in the research process from the formulation of overarching research goals and aims via research activities to the preparation of the publication.
4	Quality that is internationally excellent in terms of originality, significance and rigour but which falls short of the highest standards of excellence.	4	The group has played a very considerable role in the research process from the formulation of overarching research goals and aims via research activities to the preparation of the publication.
3	Quality that is recognised internationally in terms of originality, significance and rigour.	3	The group has a considerable role in the research process from the formulation of overarching research goals and aims via research activities to the preparation of the publication.
2	Quality that meets the published definition of research for the purposes of this assessment.	2	The group has modest contributions to the research process from the formulation of overarching research goals and aims via research activities to the preparation of the publication.
1	Quality that falls below the published definition of research for the purposes of this assessment.	1	The group or a group member is credited in the publication, but there is little or no evidence of contributions to the research process from the formulation of overarching research goals and aims via research activities to the preparation of the publication.

Societal impact dimension

Score	Research group's societal contribution, taking into consideration the resources available to the group	Score	User involvement
5	The group has contributed extensively to economic, societal and/or cultural development in Norway and/or internationally.	5	Societal partner involvement is outstanding – partners have had an important role in all parts of the research process, from problem formulation to the publication and/or process or product innovation.
4	The group's contribution to economic, societal and/or cultural development in Norway and/or internationally is very considerable given what is expected from groups in the same research field.	4	Societal partners have very considerable involvement in all parts of the research process, from problem formulation to the publication and/or process or product innovation.
3	The group's contribution to economic, societal and/or cultural development in Norway and/or internationally is on par with what is expected from groups in the same research field.	3	Societal partners have considerable involvement in the research process, from problem formulation to the publication and/or process or product innovation.
2	The group's contribution to economic, societal and/or cultural development in Norway and/or internationally is modest given what is expected from groups in the same research field.	2	Societal partners have a modest part in the research process, from problem formulation to the publication and/or process or product innovation.
1	There is little documentation of contributions from the group to economic, societal and/or cultural development in Norway and/or internationally.	1	There is little documentation of societal partners' participation in the research process, from problem formulation to the publication and/or process or product innovation.

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Publikasjonen kan lastes ned fra
www.forskningsradet.no/publikasjoner

Design: [design]
Foto/ill. omslagsside: [fotokreditt]

ISBN 978-82-12-03975-9 (pdf)