

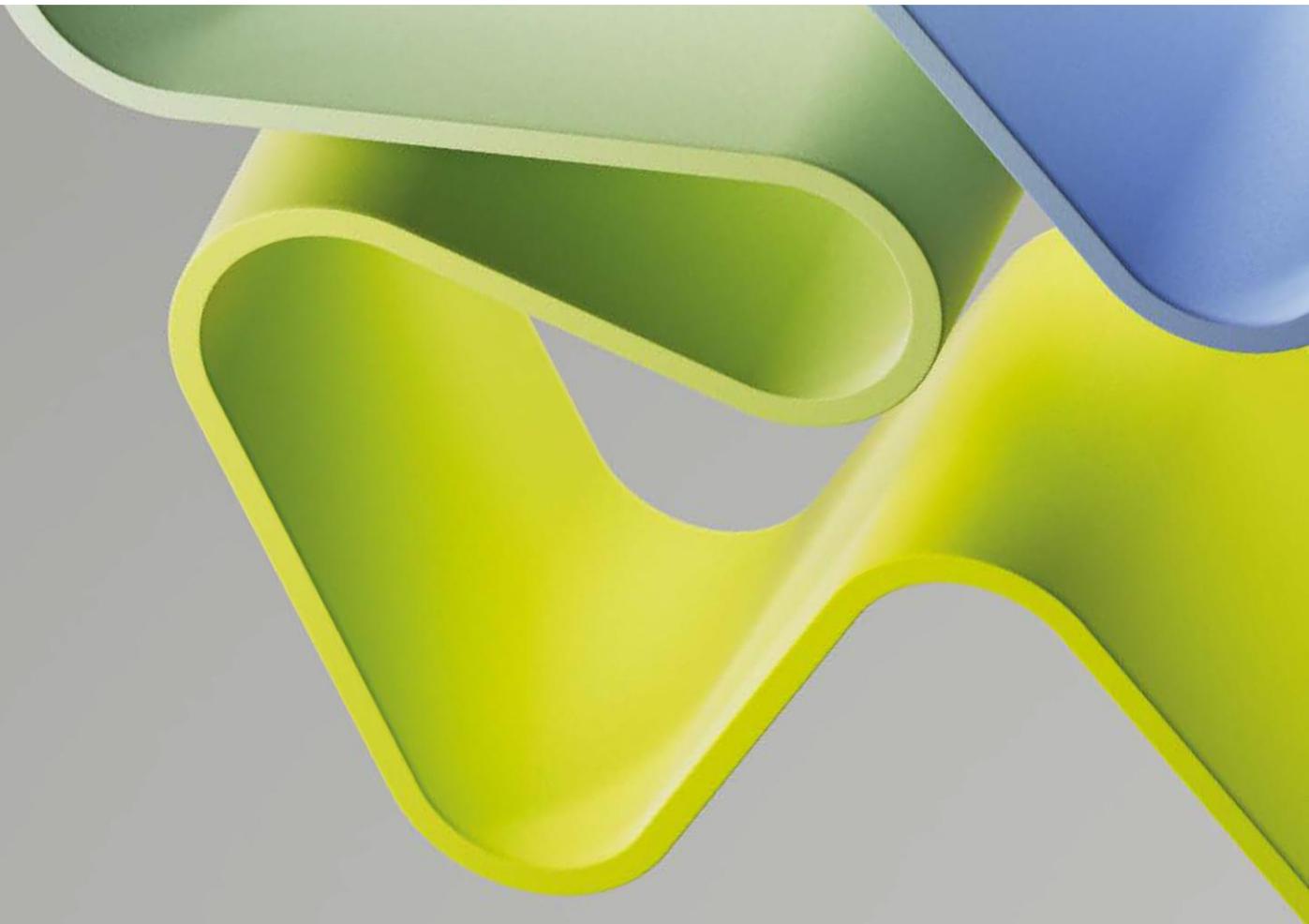
Evaluation of Medicine and Health 2023-2024

Evaluation report – Panel 4e

Research Group: Physical Health and Aging

Administrative Unit: Division of Mental and Physical Health

Institution: Norwegian institute of Public Health



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Preface

The Research Council of Norway (RCN) is given the task by the Ministry of Education and Research to perform subject-specific evaluations. The primary aim of the evaluation of medicine and health (EVALMEDHELSE) 2023-2024 is to reveal and confirm the quality and relevance of research performed at Norwegian Higher Education institutions, research institutions (the institute sector) and the health trusts, in an international perspective. Such knowledge is useful for the institutions that participate in the evaluation, for the Research Council who advise the authorities on how research should be developed further, and for the authorities, who set targets and frameworks for research and higher education. Research groups submitted by their administrative unit will be assessed by 18 expert panels organised by research subjects or themes. The expert panels will assess research groups across institutions and sectors based on research group's self-assessments and examples of scholarly output. These research reports will be part of the evaluation of their belonging administrative units.

Abstract

The strategic research areas of the Department of Physical Health and Ageing include dementia, healthy ageing, chronic pain, hearing loss, osteoporosis and fractures, diet and nutrition, and advanced epidemiological methods. The department has undergone some changes since 2016 and is now comprised 17 researchers. A high proportion of their research grant income is won through competitive research grants from the Research Council of Norway and international funding sources. There were no clear benchmarks establishing the level of academic performance that have been set for the group. There are well established and ongoing collaborations with academic institutions in Norway and international collaborations. This is a strong research group that produces rigorous research and related research impact with some degree of originality and significance.

Overall assessment

The Department of Physical Health and Ageing (NIPH) is a strong research group that supports the production of excellent research. The continued and growing success in attracting competitive research funding and the quality of the research outputs are indicators that the group is important nationally with some recognition internationally. The group is also achieving societal impacts at the national and international levels.

Grading:

| Dimensions | Score |
|---|-------|
| Organisational dimension (How adequate the organisational environment is in supporting the production of excellent research). | 4 |
| Quality dimension (Research and publication quality/Research group's contribution) | 3/3 |
| Societal impact dimension (Research group's societal contribution/User involvement) | 4/2 |

Recommendations

The group could consider the following suggestions:

- Establish a coherent vision of the research group that combines both physical health and ageing.
- Articulate more clearly how early career and junior researchers are supported in their careers and training.
- Publish one or two outputs in generalist medical or science journals.
- Publish more outputs that are led, designed and co-authored by all members of the research group.
- Develop some exemplar impact cases that outline the specific research impact claims, the pathways to the impact and describes who the beneficiaries of the research are and how they benefitted from the research.
- Detail how users are involved in all aspects of the research process.

1. Strategy, resources and organisation

1.1 Research group's organisation and strategy

The Department of Physical Health and Ageing of the Norwegian Institute of Public Health (NIPH-PHA) was originally established in 2016 as the Department of Ageing and underwent changes (merges and splits). The strategic research areas include dementia, healthy ageing, chronic pain, hearing loss, osteoporosis and fractures, diet and nutrition, and advanced epidemiological methods. The main goal is to conduct high-quality and high-impact research on these topics, with special attention on research on vulnerable groups and social inequality. There were no clear benchmarks establishing the level of academic performance that have been set for the group. As the group does not belong to a degree awarding educational institution, it contributes to PhD and master's level training at the University of Oslo, OsloMet, and the University of Agder. In the evaluation period, members from the groups supervised 24 PhD candidates, of whom 9 were employed at NIPH. The host institution provides general administrative support (financial support over budgets, legal, IT and communication support and library services) and some specific support for research projects (proposal writing and management). There are well established and ongoing collaborations with academic institutions in Norway and international collaborations.

The organisational changes in the group have led to quite a wide variety of research topics that are being examined. There is no specific vision that tries to unite "physical health" and "ageing" and the different research topics of investigation. The lack of clear benchmarks and clear research goals (apart from generic goals such as increased publications and funding) make it quite hard to see what the strategy should be for the group's research activities, recruitment, and internationalisation. There are relatively few PhD students as per the size of the group, but that is understandable given that the institution does not directly admit PhD students.

Recommendation

- Establish a coherent vision of the research group that combines both physical health and ageing. This could include some clear benchmarks that establish how the group defines success in terms of academic and non-academic (impact) outputs, as well as some ideas about who the major comparators and competitors are both nationally and internationally.

1.2 Research group's resources

There is one director with 17 researchers (including 9 Professors, 1 postdoc and 2 PhD candidates). There is a good gender balance in the group. The group is funded through a combination of core (around 8 MNOK/year) and external sources (also around 8 MNOK/year), with approximately 38% being funded through competitive research grants. There are weekly research seminars and weekly methods seminars.

The high proportion of success with competitive research grants (through the Research Council of Norway and international funding sources) and the quality of the research collaborations (both nationally and internationally) are indications of a research environment that is very strong in the production of excellent research. The regular methods seminars will help in the training of researchers at all levels in latest methods of analyses.

Recommendation

- Articulate more clearly how early career and junior researchers are supported in their careers and training.

1.3 Relevance to the institution

The group contributes strongly towards the aims of the NIPH by advancing public health research on dementia, healthy ageing, chronic pain, hearing loss, osteoporosis and fractures, and diet and nutrition that is relevant both nationally and internationally. There is some overlap with responsibilities with another department (Department of Chronic Diseases) for the monitoring of the nation's diet. The group contributes considerably to NIPH's Public Health Report.

Recommendation

- Articulate the overlaps in the contributions to the NIPH with the Department of Chronic Diseases more clearly.

2. Research quality

2.1 Research group's scientific quality

Nine funded research projects are listed. The research group has published more than 300 scientific papers, of which 37 percent were published in "level 2" journals. 10 publications were specifically listed, alongside 4 monographs- three books (one in English, two in Norwegian) and one book chapter.

The 10 listed publications include research that score high in terms of rigour, with some claims towards originality and significance. This is reflected in the types of journals that were listed which included some of the leading topic specialist international journals (such as in ageing), rather than generalist journals which may require a much higher degree of originality and significance.

The English language monograph is certainly original, presenting the original view that "...countries should accept – if not embrace – low fertility and focus on how to make the most of a world with fewer children". However, the relatively short chapters and a relatively lack of depth in the analyses and contexts suggested somewhat lower rigour and significance.

In terms of the journal publications, there are large authorship teams, as is standard in this discipline, with some (but not all) publications being led by members of the research group. Many of the listed outputs have only member of the research group. The author of the monograph "Decline and Prosper!" is actually based at Columbia University and the Centre for Fertility and Health at NIPH (as listed in the affiliations for the book), not at NIPH-PHA.

Recommendations

- Publish one or two outputs in generalist medical or science journals. This would require a much higher degree of originality and significance but could help put the contributions of this group much higher on the international map.
- Publish more outputs that are led, designed and co-authored by all members of the research group.

2.2 Research group's societal contribution

The research group has contributed to international guidelines such as for food safety (such as vitamin B supplementation) and hearing and noise standards. In addition, there has been contribution to clinical settings (e.g. in management) and chapters in the national public health report.

The very specific impacts that were claimed to arise from the research lack detail. For example, contributions to chapters in a national public health report are a standard output of an academic research group or department and do not actually detail how the beneficiaries of the research benefitted from the research. There was also no description of how user groups fed into the research process and were involved in all parts of the research process apart from dissemination.

Recommendations

- Develop some exemplar impact cases that outline the specific research impact claims, the pathways to the impact and describes who the beneficiaries of the research are and how they benefitted from the research.
- Detail how users are involved in all aspects of the research process.

Appendices

Evaluation of Life Sciences in Norway 2022-2024

Evaluation of Medicine and Health 2023-2024

Mandate Expert panels

The Research Council of Norway (RCN) is given the task by the Ministry of Education and Research to perform subject-specific evaluations. The Portfolio board for Life Sciences in the Research Council of Norway has decided to carry out an evaluation of medicine and health in 2023-2024 as the second of two evaluations within Life Sciences. The evaluation of biosciences takes place in 2022-2023.

1. The objective of the evaluation

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), by the institute sector and by health trusts.

The results of the evaluation will be used as recommendations to the institutions, the Research Council, and the ministries.

2. Tasks of the expert panels

The panels are requested to:

- evaluate the strategy, resources and organisation of/for the research groups.
- evaluate research production and quality of the research groups.
- grade and write a short evaluation text to the evaluated research groups.

Each of the expert panels will write a brief report with evaluations of the different research groups as well as specific recommendations.

3. Time schedule

Digital panel meetings will take place in the period March 15. - June 15. 2024.

Deadline for submitting panel report to the Research Council: June 15. 2024.

4. Miscellaneous

Other important aspects of Norwegian life sciences research that ought to be given consideration.

EVALMEDHELSE 2023-2024 – Panel group description – January 2024

| Panel group | Description | Panel no. |
|--|--|--|
| Group 1 PHYSIOLOGY Physiology-related disciplines (human physiology), including corresponding translational research | Anatomy, physiology, embryology, nutritional physiology, pathology, basic odontological research, exercise physiology, neurobiology, toxicology, pharmacology, medicinal chemistry, chemistry, biology, pathology. | Panel 1a Panel 1b |
| Group 2 MOLECULAR BIOLOGY Molecular Biology, including corresponding translational research | Microbiology, bacteriology, inflammation and infection disease research, forensic medicine, genetics, immunology, vaccine development, microbiological diagnostics, pharmaceutical microbiology, cell biology, molecular medicine and -biophysics, medical biochemistry, omics, organoids, imaging, toxicology, pathology, drug development, cancer research, translational research, systems biology, personalized medicine, biomarkers, oncology, genetics, genomics, epigenetics, proteomics, bioinformatics-/statistics, computational science, AI, biology, virology, radiology, ionisation, molecular biology, microbiology, pharmacology, pharmacogenomics, regenerative medicine and related subjects. | Panel 2a Panel 2b Panel 2c |
| Group 3a CLINICAL RESEARCH | Clinical Research, including surgery and translational research within: paediatrics, women's health, gynaecology, otorhinolaryngology, head and neck surgery, oncology, haematology, radiology and medical imaging. | Panel 3a_1 Panel 3b_2 |
| Group 3b CLINICAL RESEARCH | Clinical Research, including surgery and translational research within: general medicine, emergency medicine, anaesthesiology, neurology, geriatric medicine, rehabilitation medicine, cardiology, nephrology/urology, endocrinology, pulmonary medicine, orthopaedics, rheumatology, Infection, gastroenterology. | Panel 3b_1 Panel 3b_2 Panel 3b_3 |
| Group 4 PUBLIC HEALTH Public Health and Health-related Research | Public health, community research, epidemiology, preventive medicine, mental health, behavioural research and ethics, medical statistics, environment, nutrition, preventive medicine, physiotherapy, sports medicine, implementation research, public health, health care services research, global health, nursing | Panel 4a Panel 4b Panel 4c |

| | | |
|--|---|----------------------------------|
| | sciences, rehabilitation sciences, public health systems, digital health care services, ICT, HTA, health competence, genetic and epigenetic epidemiology, non-communicable diseases, pharmacology, nursing research, professional research, occupational medicine. | Panel 4d Panel 4e Panel 4f |
| Group 5 PSYCHOLOGY Psychology and Psychiatry | Clinical psychology, personality psychology, developmental psychology, cognitive psychology, biological psychology and forensic psychology, psychiatry, including geriatric psychiatry, child and adolescent psychiatry and biological psychiatry, social-, community- and workplace psychology, organizational psychology, developmental psychology, behavioural and health psychology, health promotion and well-being. | Panel 5a Panel 5b |

Panel group 4 PUBLIC HEALTH

Expert panel 4e

| Name | Title | Institution |
|----------------------------|--------------------|---|
| Per-Olof Östergren (chair) | Professor | Lund University |
| Henrik Toft Sørensen* | Clinical professor | Aarhus University |
| Tarani Chandola | Professor | University of Hong Kong / Manchester University |
| Eva Morris | Professor | Big Data Institute, Oxford University |

Henrik Toft-Sørensen had a conflict of interest with the evaluation of multiple research groups, see the table below. This meant that for those evaluations he did not have access to the self assessments or survey data and he did not participate in the discussion of the research group, nor did he participate in the preparation and completion of the evaluation report.

| Institution | Administrative unit | Name of research group |
|-----------------|---|---|
| Cancer Registry | Cancer Registry of Norway | Cancer Registry |
| FHI | Division of Mental and Physical Health | Physical Health and Aging |
| FHI | Division of Mental and Physical Health | Department of Chronic Diseases |
| FHI | Division of Mental and Physical Health | Centre for Disease Burden |
| FHI | Centre for Fertility and Health | Centre for Fertility and Health |
| UiB | Dept of Global Public Health and Primary Care | Section for epidemiology and medical statistics |
| UiT | Department of Community Medicine | Epidemiology of Chronic disease |



Evaluation of Medicine and Health (EVALMEDHELSE) 2023-2024

Self-assessment for research groups

Date of dispatch: **15. September 2023**

Deadline for submission: **31. January 2024**

Updated: **13. October 2023**

Institution (name and short name): _____

Administrative unit (name and short name): _____

Research group (name and short name): _____

Date: _____

Contact person: _____

Contact details (email): _____

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Short version

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), the institute sector and the health trusts. 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 responsible and 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 a research group. The self-assessment contains questions regarding the group's research- and innovation related activities and developments over the years 2012-2022. All submitted data will be evaluated by expert panels.

Deadline for submitting the self- assessment to your administrative unit – 26 January 2024

The administrative unit will submit the research groups' completed self-assessments and the administrative unit's own completed self-assessment to the Research Council within 31 January 2024. Please submit completed self- assessment to the administrative unit no later than 26 January 2024.

Please use the following format when naming your document: [short name of the institution]_[short name of the administrative unit]_[short name of the research group], e.g. *UiT_DepPsy_Short name of the research group*.

For questions concerning the self-assessment or EVALMEDHELSE in general, please contact RCN at evalmedhelse@forskningsradet.no.

Thank you!

Guidelines for completing the self-assessment

- Please read the entire self-assessment document before answering.
- The evaluation language is English.
- Please link to websites/documents in the self-assessment where relevant.
- Please be sure that all documents linked to in the self- assessment are written in English and are accessible.
- The page format must be A4 with 2 cm margins, single spacing and Calibri and 11-point font.
- The self-assessment follows the same structure as the [evaluation protocol](#). In order to be evaluated on the two evaluation criteria described in the evaluation protocol, the research group must answer all questions.
 - ⇒ Provide information – provide documents and other relevant data or figures about the research group, 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 research group and inform the reader about the research group.
 - ⇒ Reflect – comment in a reflective and evaluative manner how the research group operates.
- Data on personnel should refer to data reported to DBH on 1 October 2022 for HEIs and to the yearly reporting for 2022 for the institute sector and the health authorities. Other data should refer to 31 December 2022 if not specified otherwise.
- It is possible to extend the textboxes when filling in the form. **NB!** A completed self- assessment form cannot exceed 25 pages (pdf file). Expert panels are not requested to read more than the maximum of 25 pages. Pages exceeding maximum limit of 25 pages **might not** be evaluated.
- Submit the self- assessment as a pdf (max 25 pages) to the administrative unit within **26 January 2024**. Before submission, please be sure that all text are readable after the conversion of the document to pdf. The self- assessment should be sent from the administrative unit to evalmedhelse@forskningsradet.no within **31 January 2024**.

Please note that information you write in the self assessment and the links to documents/websites in the self-assessment are the only available information for the expert panel.

In exceptional cases, documents/publications that are not openly available must be submitted as attachment(s) to the self- assessment (pdf file(s)).

1. Organisation and strategy

1.1 Research group's organisation

Describe the establishment and the development of the research group, including its leadership (e.g. centralised or distributed etc.), researcher roles (e.g. technical staff, PhD, post docs, junior positions, senior positions or other researcher positions), the group's role in researcher training, mobility and how research is organised (e.g. core funding organisation versus project based organisation etc.).

Table 1. List of number of personnel by categories

Instructions: Please provide number of your personnel by categories.

For institutions in the higher education sector, please use the categories used in DBH, <https://dbh.hkdir.no/datainnhold/kodeverk/stillingskoder>. Please add new lines or delete lines which are not in use.

| | Position by category | No. of researcher per category | Share of women per category (%) | No. of researchers who are part of multiple (other) research groups at the admin unit | No. of temporary positions |
|-------------------------------------|----------------------|--------------------------------|---------------------------------|---|----------------------------|
| No. of Personnel by position | Position A (Fill in) | | | | |
| | Position B (Fill in) | | | | |
| | Position C (Fill in) | | | | |
| | Position D (Fill in) | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

1.2 Research group's strategy

a) Describe the research group's main goals, objectives and strategies to obtain these (e.g. funding, plans for recruitment, internationalization etc.) within the period 2012-2022.

b) Please describe the benchmark of the research group. The benchmark for the research group should be written by the administrative unit in collaboration with the research group. The benchmark can be a reference to an academic level of performance (national or international) or to the group's contributions to other institutional or sectoral purposes.

Example: A benchmark for a research group is related to the research groups' aim which again is included in the strategy for the administrative unit. A guidance for the administrative unit to set a benchmark for the research group(s) can e.g. be: What do the administrative unit expect from the research group(s)?

c) Describe the research group's contribution to education (master's degree and/or PhD).

d) Describe the support the host institution provides to the research group (i.e., research infrastructure, access to databases, administrative support etc.).

1.3 Relevance to the institutions

Describe the role of the research group within the administrative unit. Consider the research group's contribution towards the institutional strategies and objectives, and relate the research group's benchmark to these.

1.4 Research group's resources

Describe the funding portfolio of the research group for the last five years (2018-2022).

Table 2. Describe the sources of R&D funding for the research group in the period 2018-2022.

| | 2018 (NOK) | 2019 (NOK) | 2020 (NOK) | 2021 (NOK) | 2022 (NOK) |
|---|------------|------------|------------|------------|------------|
| Basic funding | | | | | |
| Funding from industry and other private sector sources | | | | | |
| Commissioned research for public sector | | | | | |
| Research Council of Norway | | | | | |
| Grant funding from other national sources | | | | | |
| International funding e.g. NIH, NSF, EU framework programmes | | | | | |
| Other | | | | | |

1.5 Research group's infrastructures

Research infrastructures are facilities that provide resources and services for the research communities to conduct research and foster innovation in their fields. [These](#) include major equipment or sets of instruments, knowledge-related facilities such as collections, archives or scientific data infrastructures, computing systems communication networks. Include both internal and external infrastructures.

- a) Describe which national infrastructures the research group manages or co-manages.
- b) Describe the most important research infrastructures used by the research group.

1.6 Research group´s cooperations

Table 3. Reflect on the current interactions of the research group with other disciplines, non-academic stakeholders and the potential importance of these for the research (e.g. informing research questions, access to competence, data and infrastructure, broadening the perspectives, short/long-term relations).

| | |
|---|-----------------------|
| <p>Interdisciplinary (within and beyond the group)</p> | <p>About 1/3 page</p> |
| <p>Collaboration with other research sectors e.g. higher education, research institutes, health trusts and industry.</p> | <p>About 1/3 page</p> |
| <p><u>Transdisciplinary</u> (including non academic stakeholders)</p> <p><i>Transdisciplinary research involves the integration of knowledge from different science disciplines and (non-academic) stakeholder communities with the aim to help address complex societal challenges.</i></p> | <p>About 1/3 page</p> |

2. Research quality

2.1 Research group's scientific quality

Describe the research profile of the research group and the activities that contribute to the research group's scientific quality. Consider how the research group's work contributes to the wider research within the research group's field nationally and internationally.

Please add a link to the research group's website:

Short version

Table 4. List of projects

Instructions: Please select 5-10 projects you consider to be representative/the best of the work in the period 1 January 2012 – 31 December 2022. The list may include projects lead by other institutions nationally or internationally. Please delete tables that are not used.

| | | |
|--|---|--|
| Project 1 -10: <i>Project title/Project period (year from – year to)</i> | Project owner(s) (project leaders organisation) | |
| | Total budget and share allocated to research group | |
| | Objectives and outcomes (planned or actual) and link to website | |
| | | |
| | | |
| | | |
| | | |
| | | |

Table 5. Research group's contribution to publications

Instructions: Please select 5-15 publications from the last 5 years (2018-2022) with emphasis on recent publications where group members have a significant role. **If the publication is not openly available, it should be submitted as a pdf file attached to the self-assessment.** We invite you to refer to the Contributor Roles Taxonomy in your description: <https://credit.niso.org/>.

Cf. Table 1. List of personell by categories: Research groups up to 15 group members: 5 publications. Research groups up to 30 group members: 10 publications. Research groups above 30 group members: 15 publications.

Please delete tables that are not used.

| | | |
|--|---|--|
| Publication 1 -15: <i>Project title/Journal/Year/DOI/URL</i> | Authors (Please highlight group members) | |
| | Short description | |
| | Research group's contribution | |
| | | |

Table 6. Please add a list with the research group's monographs/scientific books.

Please delete lines which are not used.

| | |
|---|---|
| 1 | Title - Authors (Please highlight group members)- link to webpage (if possible) |
| 2 | |

2.2 Research group's societal contribution

Describe the societal impact of the research group's research. Consider contribution to education, economic, societal and cultural development in Norway and internationally.

Table 7. The research group's societal contribution, including user-oriented publications, products (including patents, software or process innovations

Instructions: Please select 5–10 of your most important user-oriented publications or other products from the last 5–10 years with emphasis on recent publications/products. For each item, please use the following formatting. Please delete lines which are not used.

3. Challenges and opportunities

Information about the strengths and weaknesses of the research group is obtained through the questions above. In this chapter, please reflect on what might be the challenges and opportunities for developing and strengthening the research and the position of the research group.

Short version



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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Foto/ill. omslagsside: [fotokreditt]

