The Research Council of Norway

Evaluation of Mathematics, ICT and Technology 2023-2024

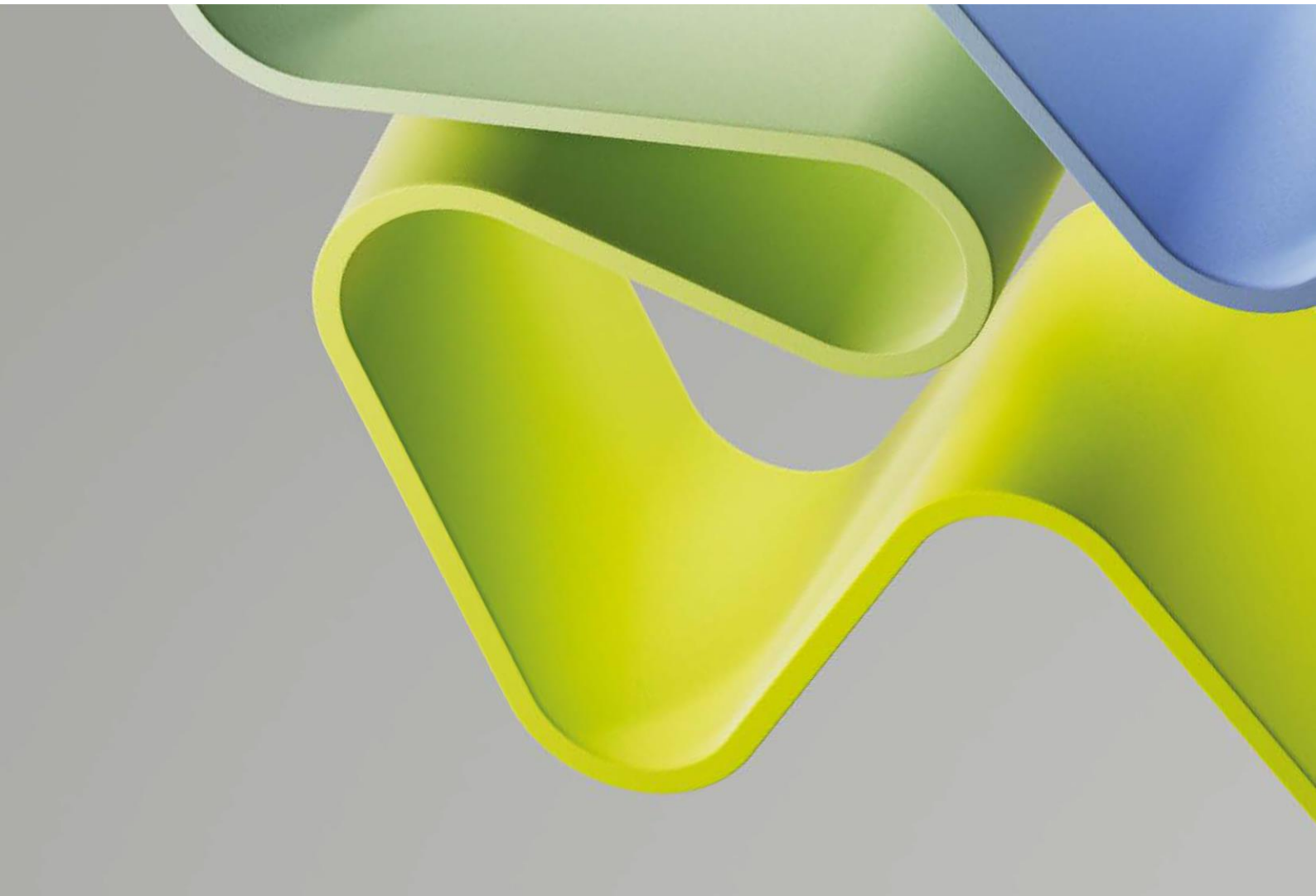
Evaluation Report for Administrative Unit

Administrative Unit: **Department for Technology and Safety**

Institution: **UiT The Arctic University of Norway**

Evaluation Committee Higher Education Institutions 3

December 2024



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Statement from Evaluation Committee Higher Education Institutions 3

The members of this Evaluation Committee have evaluated the following administrative units at the higher education institutions/research institutes within Mathematics, ICT and Technology 2023-2024 and has submitted a report for each administrative units:

- Department of Industrial Technology, UiT The Arctic University of Norway
- Department of Electric Energy (IEL), Norwegian University of Science and Technology (NTNU)
- Department of Marine Technology (IMT), Norwegian University of Science and Technology (NTNU)
- Department of Mechanical and Industrial Engineering (MTP), Norwegian University of Science and Technology (NTNU)
- Faculty of Engineering and Natural Sciences (FIN) / Faculty of Technology, Environmental and Social Sciences (FTMS), from 1.1.2026, Western Norway University of Applied Sciences (HVL)
- Department of Mechanical, Electronic and Chemical Engineering, Oslo Metropolitan University (OsloMet)
- Faculty of Computer Science, Engineering and Economics (IIØ), Østfold University College (ØUC)
- Department of Electrical Engineering (IET), UiT The Arctic University of Norway
- Department of Technology and Safety (ITS), UiT The Arctic University of Norway
- Department of Electrical Engineering (IT) and Cybernetics (EIK), University of South-Eastern Norway (USN)
- USN School of Business, University of South-Eastern Norway (USN)
- Department of Microsystems (IMS), University of South-Eastern Norway (USN)

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 the National survey for academic staff in Norwegian higher education and the National student survey (NOKUT). The digital interviews took place in the autumn 2024.

The members of the Evaluation Committee are in collective agreement with the assessments, conclusions and recommendations presented in this report. None of the committee members has declared any conflict of interest.

The Evaluation Committee has consisted of the following members:

Professor Lina Sarro,
Delft University of Technology (Chair)

Professor Stefania Bruschi,
University of Padova

Professor Khaled Ahmed,
University of Strathclyde

Professor Andreas Müller,
Johannes Kepler University Linz

Professor Maria Teresa Correia de Barros,
University of Lisbon

Professor Kostas J. Spyrou,
National Technical University of Athens

Description of the Administrative Unit

The administrative unit

ITS was a university college based in Tromsø until 2009, when it was merged into UiT. It works mainly on: ocean technology, sustainable technology, nautical science, aviation science, societal security and risk, and international preparedness, and emphasises the importance of working across the technical and social sciences in these areas.

The unit has 9 professors (1 woman), 14 associate professors (7), and 10 adjunct professors (3). There are 15 PhD Fellows (4), 5 post-docs (1) as well as 15 (9) assistant professors and 7 (male) lecturers.

The research groups of the administrative unit

The Department has five research groups, of which only the first two are considered in EVALMIT.

- Advanced maritime ship operations
- Sustainable Technology and Safety (STS)
- Research Group 'Risk, Crisis, and Societal Security' (RCSS)
- Climate Change Adaptation Research Group
- Human Factors in the Arctic

Faculty members themselves choose to which research groups they affiliate and may belong to more than one group.

The unit’s work and strategies

- Like other departments at UiT, ITS works to the overall university strategy but focuses on UiT’s top-level strategy to develop the High North:
- The Arctic and High North
- The major societal challenges
- Talent development and diversity

ITS has its own internal strategies, but these are available only in Norwegian and were not shared with the Committee.

The unit’s work in its sector

ITS has eight bachelor programmes and four master programmes. In addition, the department participates in two PhD programmes. Partly owing to its northern location, ITS has difficulties recruiting students and is looking for better ways to incorporate distance learning. While much of the unit’s work is practice-orientated, the research orientation towards innovation and industry work is limited, though increasing.

The future of the unit

Not explicitly discussed in the self-evaluation.

Overall Assessment

Since merging with the Arctic University of Norway, the administrative unit has refined its research strategy to align with the University's mission to "Develop the High North." Its primary fields—ocean technology, sustainable technology, nautical science, aviation, social security, and risk management—are particularly suited to the Arctic context. The unit excels in combining technology, safety, and human factors within engineering and social science disciplines, offering a multidisciplinary approach that strengthens the quality of research, especially in fields essential to Arctic operations.

The administrative unit counts five research groups that vary widely in their research intensity due to imbalances in teaching duties, which limit research output and affect group performance. This is seen as a critical weakness, as it reduces overall productivity and may impede collaborative potential.

The recent expansion to four campuses may hinder collaboration and communication between research groups, creating logistical barriers that could slow down research initiatives and weaken inter-group cohesion.

While permanent staff has grown, the low number of postdocs and PhD fellows relative to the permanent faculty limits research capacity. Recruiting qualified PhD-holding faculty in niche fields (e.g., aviation, nautical science) remains a challenge, and the gender balance, particularly among professors, is an area needing improvement to foster diversity.

Funding from international grants, particularly from the EU, has grown significantly, with the unit serving as coordinator or work-package leader in a few Horizon Europe and Horizon 2020 projects, which witness a solid international reputation in select research areas. Funding from national and industrial sources remains low, signalling missed opportunities for partnerships with local industries. Despite its Arctic expertise, the unit has yet to establish robust industry collaborations that could enhance practical applications and funding diversity.

The administrative unit has cultivated substantial networks, particularly in maritime and European research contexts. It boasts advanced research infrastructure, including a maritime operations centre and a Boeing 737 simulator, supporting hands-on research and potential collaborations.

Despite consistent publication growth, the current output (about 50 publications annually) is low considering staff size, and the citation impact has fluctuated. No specific measures have been outlined to address the uneven performance across staff members, suggesting an area for development.

Two research groups out of the five in the unit are considered in EVALMIT. The Advanced Maritime Ship Operations (AMSO) group focuses on nautical science and ocean technology, aiming to develop sustainable and safe shipping through digital technologies and emissions control. With a strong team and infrastructure, they participate in high-quality, internationally recognised projects, contribute to a Centre of Excellence in maritime simulation, and have a high publication rate. However, they could improve by collaborating more with industry and offering industry-targeted courses. In contrast, the Sustainable Technology and Safety (STS) group, which specialises in operations management in cold climates, has unique resources but lacks international visibility, clear benchmarks, and a strong publication record. It also faces challenges with organisational structure and gender balance, limiting its potential impact and ambition.

The administrative unit aligns with Norway's long-term research and education goals, focusing on socially relevant topics like emission reduction and maritime digitalisation. It has a strong tradition of offering work-relevant education and is part of the Centre of Excellence in Maritime Simulator Training and Assessment. The impact cases presented are very relevant to society and perfectly aligned with the mission of the administrative unit.

The Terms of Reference for the administrative unit is attached to the report.

Recommendations

Based on the overall assessment of the Department of Industrial Engineering at the Arctic University of Norway, the Evaluation Committee recommends the following:

1. To build stronger links with local stakeholders, ensuring that the community and regional industry may benefit from the closeness with a multidisciplinary research institution whose research strategy is to “Develop the High North”.
2. To implement reasonable and sustainable strategies to balance teaching and research responsibilities across the research groups, ensuring uniform research engagement and productivity.
3. To pursue additional national and industrial funding, especially from local companies, to diversify and stabilise research funding sources.
4. To evaluate possible means to overcome the difficulty of having the administrative unit spread over four different campuses.
5. To strengthen recruitment efforts to attract PhD-qualified faculty in aviation and nautical fields.
6. To develop adequate initiatives to increase the percentage of female professors.
7. To establish internal incentives or support mechanisms to increase publication rates and improve citation impact, encouraging equitable contributions across the department.
8. To strengthen efforts to disseminate research findings to enhance the visibility of the administrative unit’s research groups and their contributions.

1. Strategy, Resources, and Organisation of Research

The administrative unit, previously a university college until its merger with the Arctic University of Norway in 2009, has evolved its research strategy to align with the University’s “Developing the High North” vision, focusing on ocean and sustainable technology, nautical and aviation science, social security, and international preparedness. This strategic alignment, tailored to the unit's Arctic location, leverages interdisciplinary strengths in technology, safety, and human factors, showing potential to drive research innovation and quality. The unit's five research groups, though unevenly active due to varied teaching loads, provide a diverse focus, including advanced maritime operations, risk management, and sustainable technology, relevant to Arctic challenges. However, these groups face logistical challenges from being spread across four campuses since 2024.

Funding primarily comes from the Ministry of Education and Research, particularly supporting aviation programmes. While international grants have increased significantly, especially through EU projects, national and industrial funding remains limited, suggesting potential for more local industry partnerships. The unit has developed international collaborations, particularly in maritime and Northern European research, though aviation collaborations are limited by Norway’s small aviation industry.

Staffing includes nine professors and fourteen associate professors, with a recent rise in staff holding PhDs in the nautical programme. Challenges in hiring qualified personnel with PhDs, especially in specialised areas like aviation, persist. Efforts are made to support mobility and research leave, though budget reductions have affected these opportunities. Gender diversity varies by role, with improvements seen among associate professors but a low representation of female professors still persists.

1.1 Research Strategy

The administrative unit was a university college until 2009 when it was merged with the Arctic University of Norway. Until 2022, the administrative unit had its specific strategy, besides being aligned with the overall strategy of the University and the High North strategy of the Norwegian Research Council. Then, since 2022, the research strategy of the administrative unit complies with that of the University, which is indicated as “Developing the High North”.

The main fields of research are ocean technology, sustainable technology, nautical science, aviation science, social security and risk, and international preparedness, which well-suites the peculiar geographical location of the administrative unit. The administrative unit exploits its interdisciplinary expertise in technology, safety, and human factors, in technological, engineering, and social science programmes and research, with a special focus on the Arctic.

Overall, the research strategy appears very reasonable considering the peculiar geographical location of the administrative unit, and may effectively contribute to promoting high-quality innovations in research and technology transfer.

The compliance of the research activities with the strategy is assured by the request to submit a two-page proposal that must align with the university's strategy when applying for a PhD position.

Recommendation:

- To enforce the research strategy at the local level, paying particular attention to what can be carried out effectively to promote the relationship between the administrative unit and the local stakeholders.

1.2 Organisation of Research

The administrative unit currently has five research groups, which have been mostly created in co-existence with the educational programmes. These research groups are active in the following main fields:

- Advanced maritime ship operations
- Risk, crisis, and social security
- Climate change adaption
- Human factors in the Arctic
- Sustainable technology and safety

Each employee is free to choose which research group to join.

Thanks to the above-listed research groups and their scientific interests, the administrative unit shows an adequate research strategy.

The research groups are very different in terms of activity and work format; e.g., some groups are more active in research, while others have heavy didactical loads, which reduce the time allocated for research. The administrative unit sees the latter situation as a weakness that needs to be improved.

Since 2024, the administrative unit has been located on four campuses: this physical distance may create challenges in interactions and barriers to effective research and collaboration between the different research groups.

The temporary staff includes five post-docs and fifteen PhD fellows; however, these numbers are quite low considering the number of permanent staff employees. The PhD students benefit from an allowance for traveling to attend scientific conferences.

The administrative unit has a reasonable strategy for the recruitment of permanent and temporary staff employees. The organisation of the research is suitable to contribute to the institutional strategies and objectives.

Recommendations:

- To strengthen the link between the administrative unit and the research groups by organising regular meetings during which the research groups can show and discuss their most recent research achievements.
- To identify possible means to balance the didactical workload between the research groups in the view of having more uniform research performance.
- To discuss with the university's central administration the possibility of consolidating the administrative unit across fewer campuses.

1.3 Research Funding

The administrative unit receives funding from the Ministry of Education and Research for its educational programmes; in particular, the aviation programme receives nearly half of the total funding from this Ministry.

External funding substantially increased from 2018 to 2022. Funds from international grants are significant, particularly from the European Union. It is worth noting that a few high-impact research projects funded in the framework of EU Horizon Europe and Horizon 2020 are listed: in almost half of these projects, the administrative unit is either coordinator or WP leader, which is a clear indicator of the high level of research quality being produced.

On the other hand, funding from national research contracts is rather low, especially from industrial contracts, even if the administrative unit has great potential to work with companies, given the specificity of its research themes and the number of research groups it represents.

Overall, the funding received by the administrative unit in the last five years is acceptable and reflects the level of research quality being produced, but substantial improvements could be obtained.

Recommendations:

- To increase the number of national research contracts, especially those coming from companies, trying to establish effective collaborations with local firms, which can benefit from closeness to an academic institution.
- To identify measures to help employees apply for external funding, especially at the EU level.

- To discuss a possible strategy at the national level to reduce the educational duties of those professors, associate professors, and assistant professors who are more engaged in R&D funding.

1.4 Research Infrastructures

The administrative unit does not participate (either accessing or using) in national or international infrastructures.

Nevertheless, the administrative unit has some relevant research infrastructures for maritime autonomous operations and an on-land command centre, as well as a Boing 737 simulator, which can be made available for use to other national and international research institutions.

The administrative unit complies with the FAIR principles as given by the Arctic University of Norway.

Recommendations:

- To evaluate the access/use of national infrastructures, especially the physical ones, to strengthen specific research themes that can benefit from experimental activities.
- To evaluate the access/use of international infrastructures, also to develop further international collaborations.
- To provide agreements to enable national and international research institutions to use the administrative unit's infrastructures, which can further help in establishing effective collaborations.

1.5 National and international collaboration

The administrative unit has enjoyed an increased number of national and international collaborations in the last years, with both research institutes and private companies.

Very strong networks have been developed in the maritime field, as witnessed by the list of national and international collaborations (shipping companies for example). A similar pattern can be followed in the domain of aviation, even if it is claimed that further steps have to be taken given the limited aviation industry presence in Norway.

The vast majority of the international collaborations are with research institutes, some of which are in the framework of projects funded by the European Community. There are also significant collaborations with institutes in North Europe on research themes that are well-aligned with those of the administrative unit and peculiar to its geographic location.

Recommendations:

- To increase industrial collaborations, especially at the international level.
- To provide more awareness, especially at the local level, for instance through the organisation of dedicated workshops where the research activities of the administrative units are shown together with its major industrial achievements,
- To increase international collaborations outside Europe.

1.6 Research staff

The permanent research staff now numbers nine full professors and fourteen associate professors. There has been a substantial increase compared to 2012 when only one professor and seven associate professors were employed. This increase in the permanent staff is indicative of a dynamic recruitment environment, which must have the capability of

withstanding the ever-increasing demand for research and educational activities. In addition, there are fifteen assistant professors and fourteen senior lecturers.

Due to the peculiarities of some educational programmes, such as the aviation and nautical ones, which require employees to have licences to operate aircraft and ships, hiring permanent staff members who hold a PhD degree is particularly challenging. Nevertheless, the administrative unit reports that, within the nautical educational program, the number of employees holding a PhD degree has recently risen.

The administrative unit encourages the use of research leaves for professors and associate professors by providing a mobility grant, even if internal funds for mobility were reduced in 2023 due to budget constraints. Besides research leaves, each employee can benefit from an allowance for traveling to attend scientific conferences.

The gender balance differs depending on the categories of employees. In 2022, only one professor out of nine was female, which is a very low figure and should be increased. On the other hand, when addressing associate professors, 50% were female in 2022 (this percentage will increase to 70% in 2023), which represents a quite high share given the industrial soul of the administrative unit. The female share of postdocs and PhD research fellows is 20% and 26.7%, respectively, which is acceptable.

It is worth noting the presence of seven teachers/instructors in the permanent staff and ten adjunct professors in temporary positions.

The administrative unit has a reasonable strategy for the recruitment of permanent and temporary staff employees.

Recommendations:

- To increase the share of female professors, through dedicated recruitment.
- To discuss possible strategies at the national level to increase the time allocated to research activities for assistant professors.
- To support staff members to pursue PhD studies.
- To develop strategies to make aviation and nautical programmes attractive for employees with a PhD degree.

1.7 Open Science

The administrative unit complies with the regulations of the Arctic University of Norway for open science, assuring that all academic publications are accessible in open-access journals or open repositories.

While in 2012 no publications were open access, since 2020 the administrative unit has only had open-access publications, which witnesses a significant effort in complying with the internal regulations for open science.

All data have to be managed through the FAIR guidelines given by the Arctic University of Norway, but the observance of these guidelines is not monitored at the administrative unit level.

Recommendation:

- To set internal guidelines and related monitoring to ensure data management is done according to the university guidelines.

2. Research production, quality and integrity

The administrative unit counts 5 research groups with their main focus indicated below:

- Advanced Maritime Ship Operations: improving safety, reducing environmental impact, and increasing efficiency in maritime operations.
- Risk, Crisis, and Societal Security: managing the risk and providing solutions to ensure society's safety and security.
- Climate Change Adaption: natural and social science perspectives, including flash flooding, natural hazards, and ocean temperature changes.
- Human Factors in the Arctic: measuring human skills and capabilities, human-technology interaction.
- Sustainable Technology and Safety: different technologies and their management, such as renewable energy and power industry, marine industry

The number of publications has increased consistently from 2013 to 2022, reaching 50 publications in the last four years (except in 2020, whose lower value may be ascribed to the pandemic). Nevertheless, given the number of permanent and temporary staff employees, 50 publications is quite a low number, and should be expected to increase somewhat. The self-assessment report states that some researchers perform better than others in terms of published research, but possible improvement measures to overcome this are not specified.

The publishing venues are rather good, mostly being peer-reviewed journals with an acceptable impact factor. Very few works are published in conference proceedings. The citation indicators show that, except in 2013, 2015, and 2019, there were publications belonging to the 10% most cited ones, even if, in the period between 2019 and 2021, the mean normalised citation score was quite low.

The administrative unit complies with the regulations of the Arctic University of Norway in terms of research integrity and ethics. PhD candidates are exposed to these regulations through dedicated training, while new researchers are introduced during the onboarding process. If integrity is violated or at risk, the administrative unit follows the procedures of the University, relying also on the possibility of self-reporting.

2.1 Research quality and integrity

Research group Advanced maritime ship operations (AMSO) overall assessment The main research areas of the group are in the fields of nautical science and ocean technology, aiming at developing digital technologies, emission control rules, and regulations for the sustainability of oceans and safe shipping operations. These research topics are well-aligned with the educational programmes, at the bachelor, master, and PhD levels.

The group comprises 2 professors, 3 associate professors, and 4 senior lecturers/lecturers, together with 6 PhD research fellows. It possesses good research infrastructures, used in several projects. They have balanced research group. They have a good infrastructure, and it has been utilised for several research projects enabling them to be also part of the Centre of Excellence in Maritime Simulator Training and Assessment. The OOC has data storage and analysis capabilities, which can communicate with the UiT research vessel, this a quite unique worldwide. A futuristic onshore operation centre that can be utilised for autonomous shipping is in the development stage and that will be used to train future navigators in the future. The publication record is very good, which, together with the internationally funded project record, proves the reputation of the group and its engagement at the international level. The overall performance across the evaluation criteria and the overall contribution of

the Research Group can be rated as very good. The publication activity is on a high level with good number of citations. The group is reasonably strong internationally. The listed projects are at the forefront and have high international quality. All their projects involve national and/or international industry partners.

One major weakness is the absence of consideration in the framework of the Arctic University of Norway strategic funding, even if the topics addressed by the research group are of unquestionable interest to the University. To increase the collaboration with industrial partners and accelerate the societal impact of its researchers, the group should consider offering courses to industry.

Research group Sustainable Technology and Safety (STS) overall assessment

The research area of the group is operations management in cold climates, using an interdisciplinary approach. The group has 3 full professors, 2 associate professors, and 6 PhD research fellows, however characterised by an unbalanced gender profile, being only 1 female professor.

The group has a unique angle on a well-established research field as Operations Management (although this is not the angle the group is taking on the research). This could be a strong basis for using the cold climate niche to generate some extraordinary research. However, the benchmarks the group sets for itself are blurry and ill-defined. At best the benchmarks may see as being weak, as they are very easy to fulfil. Based on the limited material made available one gets a picture of a research group lacking the drive to lead the research generation in its own niche even when defined very narrowly. Some papers have been published in lecture notes and proceedings, but only a few are in top-ranked journals.

The list of projects only counts six projects, and one dates all the way back to 2014. This illustrates a lack of participation in the research generation of the community. The group is above the critical size albeit the gender profile is not positive, and it has some unique resources, such as the cold lab and the ship simulator. Therefore, there is a foundation to be able to develop a more ambitious research agenda than the set up currently executed. The group lacks organisational structure. The group does not seem to lift any significant responsibility around the societal agenda apart from contributing to the study programmes of the university. Further, the group does not have an international profile or what might be even worse does not seem to have any international ambitions.

3. Diversity and equality

The administrative unit complies with the regulations of the Arctic University of Norway in terms of scientific equality, diversity, and inclusion and all employees are made aware of them. The management of the administrative unit organises monthly meetings with the elected health and safety representative to address any issue that may arise.

One employee of the administrative unit is active in the project called Prestige funded by the Balanse programme, the Research Council of Norway, and the Arctic University of Norway. The project deals with gendered quality assessments and implicit biases, and research-driven organisational changes at the university level to promote gender balance in leadership positions.

4. Relevance to institutional and sectoral purposes

The administrative unit has several sector-specific objectives, of which the main ones are listed below:

- *(i) In high-quality research and education: to conduct research tightly coupled with the educational programmes. To do this, the administrative unit is certified by DNV and the bachelor programme in aviation is subject to frequent audits by the Norwegian civil aviation authorities. In addition, all lecturers must participate in a pedagogic course for higher education, and the PhD supervisors must complete the PhD supervision course.*
- *(ii) In research and education for welfare, value creation, and innovation: to educate prominent candidates for the maritime and aviation industries. In this context, the administrative unit is part of the Centre of Excellence in Maritime Simulation Training and Assessment financed by the Norwegian Directorate for Higher Education and Skills. In addition, several courses have been developed to address climate change adaptation and sustainable technologies.*
- *(iii) In access to education: to have more students enrolled in the administrative unit's educational programmes, two flexible bachelor courses and one master's have been introduced.*
- *(iv) In efficiency, diversity, and solidity of the higher education sector and research: to put efforts in hiring female employees and attract women in the aviation and maritime programmes The administrative unit participates in the initia*tive "Women in aviation" and has established a similar one in the maritime field.

The administrative unit has limited traditions and practices in the field of innovation and commercialisation, even if some outcomes from European-funded projects can lead to commercial products. More effort should be put into increasing the engagement of the researchers in innovation and commercialisation.

The administrative unit together with the University has an agreement with Norinnova for assistance in preparing project proposals, submission of patents, commercialisation of products, etc.

Both master's and PhD students are exposed to research projects, albeit not in a systematic way. Master students frequently publish their results in collaboration with their supervisors.

5. Relevance to society

The administrative unit claims to address the overall objectives and the six thematic priorities of the Norwegian long-term plan for research and education.

Several past and ongoing research projects deal with society-relevant topics, for example, the administrative unit has been engaged in projects focusing on reducing emissions in transportation and communities (e.g. the Northern Homes project), improving digitalisation in the maritime industry.

The administrative unit has a long-lasting tradition of providing work-relevant educational programmes: for example, it is a member of the Centre of Excellence in Maritime Simulator Training and Assessment.

5.1 Impact cases

Comments on impact case 1: Building autonomous sea-spray collector and flux measurement equipment for spray icing modelling and icing-risk decision support in the Norwegian maritime sector

The case study aims at designing, developing, and deploying autonomous devices that can conduct real-time spray-flux field measurements to predict icing phenomena and their severity in Arctic waters.

The key societal impact is very clear, namely, to help seafarers and maritime stakeholders to have accurate information about icing on their structures. Several dissemination activities have been carried out, comprising presentations to international conferences and dedicated national workshops. In addition, 2 papers were published in peer-reviewed journals. The impact case is highly relevant to the region where the administrative unit is located, besides Northern Europe in general. It can represent a viable means to collaborate more intensively with local stakeholders, both in the public and private sectors.

Comments on impact case 2: SeaTech Horizon2020 project – Next generation short-sea ship dual-fuel engine and propulsion retrofit technology

The SeaTech consortium aims at developing two symbiotic ship engine and propulsion innovations, which, if combined, can increase fuel efficiency and reduce emissions. In this framework, the administrative unit is active in developing an advanced data analytics framework to consider the large-scale data sets collected for both innovations. PhD research fellows and postdocs are actively participating, which represents a major strength also from the educational point of view**.** Details of the impact of the overall project are evidenced, but the specific impact of the administrative unit is less clear from the given description. In terms of dissemination of results, only the submission of one paper is indicated.

Overall, the case can have a significant scientific and societal impact, but much effort must be put to fully exploit it.

Methods and limitations

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 that guided the process
- Terms of Reference
- Administrative Unit’s self-assessment report
- Administrative Unit’s impact cases
- Administrative Unit’s research groups evaluation reports
- Bibliometric data
- Personnel and funding data
- Data from Norwegian student and teacher surveys (only for HEI’s)

After the documentary review, the Committee held a meeting and discussed 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 at least two weeks before the interview.

Following the documentary review, the Committee interviewed the Administrative Unit in an hour-long virtual meeting to fact-check the Committee’s understanding and refine perceptions. The Administrative Unit presented answers to the Committee's questions and addressed other follow-up questions.

After the online interview, the Committee attended the final meeting to review the initial assessment in light of the interview and make any final adjustments.

A one-page summary of the Administrative Unit was developed based on the information from the self-assessment, the research group’s evaluation reports, and the interview. The Administrative Unit had the opportunity to fact-check this summary. The Administrative Unit approved the summary with one adjustment.

Limitations

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

List of administrative unit's research groups

Institution	Administrative Unit	Research Groups
UiT The Arctic University of Norway	Department for Technology and Safety	Sustainable Technology and Safety (STS)
		Advanced maritime ship operations (AMSO)

Terms of Reference (ToR) for the administrative unit

The board of UiT The Arctic University of Norway, Faculty of Science and Technology mandates the evaluation committee appointed by the Research Council of Norway (RCN) to assess Department of Technology and Safety based on the following Terms of Reference.

Assessment

You are asked to assess the organisation, quality and diversity of research conducted by Department of Technology and Safety 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 mathematics, ICT and technology 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 4 aspects in your assessment:

1. How the Department of Technology and Safety manage to collaborate internally between technological and societal science projects when aligning with strategy of UiT and the Faculty of Science and Technology.
2. How the administrative unit utilize the RPOs established system ensuring diversity and equality.
3. How the Department of Technology and Safety operationalize the RPOs strategy, establishing research projects within their field of expertise.
4. How the Department of Technology and Safety ensure that high-quality research-based education for professional studies (nautical science, marine technology, sustainable technology).

In addition, we would like your report to provide a qualitative assessment of Department of Technology and Safety 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 2

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 mathematics, ICT and technology secretariat at Technopolis Group.

The documents will include the following:

- a report on research personnel and publications within mathematics, ICT and technology commissioned by RCN
- a self-assessment based on a template provided by the mathematics, ICT and technology secretariat

Interviews with representatives from the evaluated units

Interviews with the Department of Technology and Safety 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 Department of Technology and Safety 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 mathematics, ICT and technology secretariat. The committee may suggest adjustments to this format at its first meeting. A draft report should be sent to the Department of Technology and Safety and RCT]. The Department of Technology and Safety should be allowed to check the report for factual inaccuracies; if such inaccuracies are found, they should be reported to the mathematics, ICT and technology secretariat within the deadline given by the secretariat. After the committee has made the amendments judged necessary, a corrected version of the assessment report should be sent to the board of UiT The Arctic University of Norway, Faculty of Science and Technology and the RCN no later than two weeks after all feedback on inaccuracies has been received from Department of Technology and Safety.

Appendices

1. Description of the evaluation of EVALMIT
2. Invitation letter to the administrative unit including address list
3. Evaluation protocol
4. Template of self-assessment for administrative unit (short-version)

The Research Council of Norway

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