

Publishing Policy 2014–2020

Norwegian University of Science and Technology – NTNU



NTNU – Trondheim
Norwegian University of
Science and Technology

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Publishing Policy

for the Norwegian University of Science and Technology 2014–2020

KNOWLEDGE FOR A BETTER WORLD

NTNU's 2011–2020 strategy *Knowledge for a better world* is based on the global knowledge society and our participation in the global development of knowledge. A basic premise for enabling the knowledge developed at NTNU to contribute to a better world is that it is published and available.

NTNU's main profile is in science and technology; in addition it has a broad academic scope that includes the humanities, social sciences, education, teacher education, medicine, architecture and art. NTNU has a high proportion of programmes of professional study, extensive experimental activities across all its disciplines and in many subjects professional training through placements. NTNU's academic activities thus generate many different types of results. The publishing policy applies to academic publishing, artistic results and art.

Academic publishing is the most visible result of our R&D activities. Research-based education and innovation in the form of contributions to new or improved products, services or enterprises are other important results. Although the publication of research is not the only result of R&D, and it is not necessarily the most important result, academic publication is an essential medium for a university's dissemination of knowledge. Where and with whom it is published as well as the citation rates by peers are key indicators of research scope and quality. Academic publishing is also vital to the career of the individual researcher.

In the same way, art or artistic results are an expression of the academic activities in artistic disciplines, which demonstrate the quality of the activities and form the foundation for dissemination of results.

Open dissemination and the protection of intellectual property rights are important parts of the university's responsibilities, but are not addressed in this document. NTNU adopted its communication policy in 2012 and its policy for protection and management of intellectual property rights in 2010.

Knowledge is to be available



KNOWLEDGE IS TO BE AVAILABLE

Knowledge should be easily accessible to those who want to use it. We know that academic publications are a key source of innovation in the public and private sectors. Access to academic results can strengthen democracy and open debate, and help to spread research and knowledge to new groups.

Academic publishing at NTNU has increased considerably during the past decade – both in volume and production measured per academic work-year. This is an excellent trend, but there are still groups where more publishing activity and/or higher quality publishing are required.

Open Access enables knowledge to be shared regardless of financial resources. This type of publishing provides free access to research results on the Internet. This can be achieved either through the publication of research results in Open Access journals, which provide free user rights for all, or by uploading research work and making it available in Open Access repositories. The Research Council of Norway and the EU have set stringent requirements for open access to research results from projects that they have helped to fund. The Research Council of Norway requires open access to all academic articles resulting from research that is wholly or partially funded by them. All articles with such funding are to be self-archived in institutional repositories. The principle of Open Access to publications from funded projects also applies to the EU's innovation and research programme *Horizon 2020*. The EU imposes a requirement that it must be possible for interested parties to obtain rapid access (on the Internet) to full-text versions of peer-reviewed publications and use these for personal or academic purposes without any financial barriers. In principle, the requirement for self-archiving applies to all collaborative projects, but immediate publication in Open Access journals is the EU's preferred solution. Expenses for such publishing during the project period are eligible for reimbursement.

NTNU facilitates open publishing through its institutional repository and a fund for publishing in Open Access academic journals at levels 1 or 2 in the Norwegian research documentation system. The proportion of Open Access publications by NTNU staff is low and a greater proportion of Open Access publishing is important to realize our vision of knowledge for a better world.

Every year, NTNU creates a large and wide-ranging variety of artistic results. For this activity, it is necessary to provide systematic documentation and quality assurance, so that we can improve its visibility both within the university and outside. Conducting objective quality assurance of artistic merit is no easy task, but it is just as important to enable us to see whether we are achieving the goals we set for ourselves in this field as well, and for the academic development in the artistic-aesthetic disciplines.

Patenting is an important means of protecting intellectual property rights and can help to increase awareness of research findings. Applying for patent protection should be considered in the cases where this is feasible. Patenting does not impede academic

publication, but will result in the postponement of publication. There should still be potential for increasing the volume of patent applications.

OBJECTIVES

- Research activity and artistic activities at NTNU are to give documented results in the form of academic publications or art/artistic products.
- NTNU's productivity is high in terms of the volume measured per academic work-year.
- The results of R&D activities and artistic activities are made available, and academic publications from NTNU's researchers are generally published through Open Access channels.

CHOICES OF DIRECTION/MEASURES

NTNU is to:

- ensure that all faculties, departments and research groups prepare their own publishing strategies and set themselves *specific goals* based on the unit's specific characteristics and prerequisites
- ensure that the results of artistic activities are documented and quality assured
- systematically document the extent of the university's academic publishing and citations and compare NTNU with similar institutions
- impose requirements for Open Access publishing by our staff and ensure that there is an infrastructure that makes easy self-archiving of academic publications in our institutional repository
- ensure that academic staff receive sound guidance on the possible patenting of research results



Sound career development



SOUND CAREER DEVELOPMENT

The publishing productivity of the academic staff at NTNU has doubled in ten years. This is based on the number of publication points per academic work-year as calculated in the research documentation system. This improvement is remarkable, and it is also important for the individual member of staff. Academic publishing is vital for a researcher's career in academia from the start of his/her doctoral degree programme. Academic publishing is a critical factor for throughput, quality and the internationalization of doctoral education.

Too little attention is given to the importance of academic publishing for the recognition of merit and strategic career development. Among other factors, we see that researchers at NTNU do not achieve as much as we would like them to when applying for national independent project funding from the Norwegian Research Council or from the international calls from the European Research Council (ERC). A contributory factor is low awareness of how and where their research is published.

Research groups characterized by a positive culture in which staff members inspire each other and build on each other's strengths and work result in a positive contribution to the quality of research and publishing activity. NTNU must assist the development of excellent research groups and sound research leadership.

Our academic staff have different strengths in terms of research, artistic development, teaching, and dissemination. NTNU is to enable the individual member of staff to make the best of their own strengths throughout their career. In a long career, many people will experience periods in which it is demanding to maintain productivity levels and fulfil expectations regarding the publication of academic work or artistic products. Then it is important that NTNU, as their employer, provides a sound foundation for each individual to continue experiencing success in his or her field.

Research time for academic staff is a considerable resource that must be used well. Academic staff at NTNU are expected to publish their results. A corresponding expectation is that artistic activities will generate documented artistic results.



Photo: Geri Møger/NTNU DNF

OBJECTIVES

- Employees who have resources allocated for research or artistic activities at NTNU are to have documented results in the form of academic publications or art/artistic products.
- Researchers at NTNU are to have sound knowledge about the importance of the channels in which they publish.
- NTNU is to enable each employee to realize their individual potential throughout their career.

CHOICES OF DIRECTION/MEASURES

NTNU is to :

- offer supervision/mentoring for newly appointed academic staff which emphasizes the importance of publishing for the recognition of merit and their career development
- emphasize the importance of conscious planning of publications during the doctoral degree programme
- ensure that knowledge about the extent of publishing/artistic results for the individual employee is to be the basis of a dialogue between the employee and his or her line manager
- implement targeted measures for the development of good research management and for the support of research groups that function well
- implement customized measures in the form of guidance or change of responsibilities, organizational affiliation etc., for academic staff without documented results from research or artistic activities

Internationally outstanding



INTERNATIONALLY OUTSTANDING

Citation rates can provide an indication of the quality of research and its relevance. In brief, they reflect the impact that the university has in the international research community. Citation rates for research from NTNU are generally higher than the global average, but vary greatly between disciplines. NTNU has relatively few publications that are among the most cited in the world in their field. Our ambition to be internationally outstanding means that we should have more publications at this level.

Researchers at NTNU should have high ambitions related to where they publish their research. Awareness about the timing of publication is also needed. In some cases, waiting to publish, for example by not publishing partial results, may result in greater impact. The university culture for publication in high impact journals is too modest.

Pioneering results in research demand a strong commitment and concentrated resources. Such research will be cited more often and will help to improve NTNU's international standing. Gathering strong groups in centres and investing in world-class laboratories is a prioritized measure to promote such breakthroughs in research.

The artistic groups at NTNU have produced a number of highly ranked artists, performers and results, but again the quality and impact vary a lot as in other disciplines. Disciplines in the arts need to take a strategic approach in terms of the channels and forums in which art is communicated, and which international quality standards are relevant.

Cooperation with those who are international leaders promotes quality at NTNU. Some groups at NTNU have weak international networks and too little cooperation with good international groups. Many groups at NTNU have little joint publication with international researchers, and many have limited co-publishing with colleagues from the most recognized institutions and research groups abroad.

NTNU researchers participate too little in European research cooperation. Experience shows that EU projects result in international co-publication in consortia with good partners.

OBJECTIVES

- A substantial proportion of publishing at NTNU is to be in journals with high academic impact.
- Some of NTNU's research publications are to be among the most influential and most cited in their field.
- NTNU has artistic results in the top international league.
- Researchers at NTNU co-publish with excellent international researchers.

CHOICES OF DIRECTION/MEASURES

NTNU is to:

- pave the way for high quality research through concentrated commitments to individuals, academic groups and infrastructure
- consider strengthening internal incentives to publish in high-impact journals
- follow up its International Action Plan which gives priority to measures such as participation in EU research cooperation, institutional cooperation with outstanding institutions and mobility



NTNU has selected 17 young university researchers for its new Outstanding academic fellows programme.

APPENDICES: STATUS 2014

A) TREND IN THE NUMBER OF PUBLICATIONS AND POINTS

From a 10-year perspective, the growth in publishing at Norwegian universities and university colleges has been strong. The number of publication points was almost 89 per cent higher in 2013 than in 2004 for the sector as a whole. Growth at NTNU has been even higher than the average. At NTNU, the number of publication points was 150 per cent higher in 2013 than in 2004. NTNU's share of the total publication points in the sector was 15.7 per cent in 2004 and 20.9 per cent in 2013.

Table 1: Number of publication points per faculty at NTNU, the University of Oslo (UiO) and the University of Bergen (UiB) during the period 2004–2014. Source: DBH – NSDs Database for statistikk om høgre utdanning (Norwegian Social Science Data Services' Database for Statistics on Higher Education).

Unit	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	Growth 2014–2013 %	Authorship share at level 2 2013 %
AB	3,5	12,8	4	20,2	42,9	29,8	34,8	32,1	25,5	35,6	917,1	26,8
DMF	261,9	180,8	207	259	261,6	279,6	252	312,4	370,9	340,3	29,9	21,5
HF	123,4	225,8	215,4	298,3	288,5	291,7	297	335,8	315,6	317,2	157,1	27,4
IME	156,6	281,5	313,3	328,6	380,4	438,5	522,3	514,1	541,5	542,7	246,6	16,7
IVT	103,3	184,9	276	291,7	283,2	427,8	422,4	569,7	673	695,7	573,5	24,9
NT	313,4	383,7	437,8	461,6	463,7	534	527	522	628,3	644,6	105,7	33,8
SVT	247,9	349,8	257,8	308,5	379,9	406,6	356,7	369,7	486,8	434,1	75,1	16,2
VM	24,3	22,8	19,7	27,1	51,5	29,6	30,5	25,2	43	32,2	32,5	13,6
Other*	13,3	43,8	68,7	101,4	96,4	108,8	93,7	115,2	95,4	77	478,9	
NTNU	1247,6	1685,9	1799,7	2096,4	2248,1	2546,4	2536,4	2796,2	3180	3119,4	150,0	23,3
UiO	3012,1									3842,2	27,6	25,2
UiB	1496,9									2048,2	36,8	21,1

Table 2: The number of publications per faculty at NTNU. Source: DBH.

Unit	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	Growth 2004–2013 %
AB	5	12	7	20	25	30	39	48	38	47	840,0
DMF	459	360	422	563	618	631	631	745	868	801	74,5
HF	130	218	176	226	242	257	250	277	268	276	112,3
IME	162	393	449	471	499	620	657	719	719	751	363,6
IVT	131	281	333	350	369	527	533	688	857	852	550,4
NT	405	477	501	537	518	606	622	693	747	790	95,1
SVT	290	335	266	388	454	461	496	499	669	627	116,2
VM	29	33	34	35	79	39	53	47	69	57	96,6
Other*	29	98	101	148	176	173	165	174	164	98	237,9

B) PRODUCTIVITY

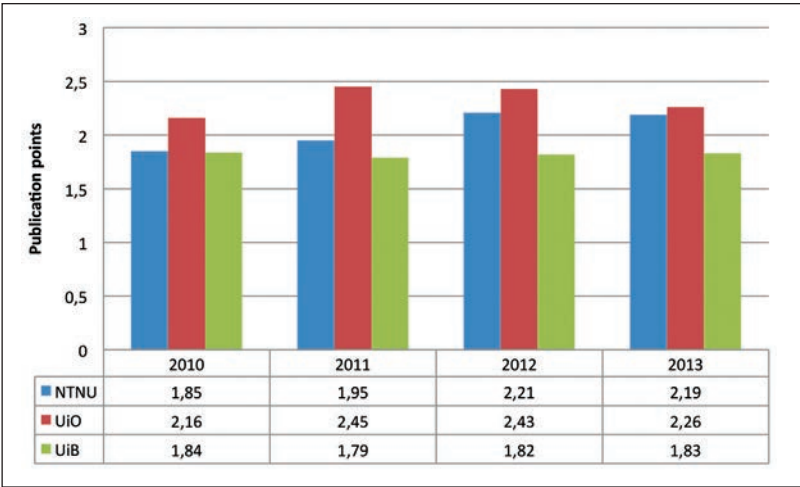


Figure 1: Publication points per academic position for NTNU, UiO and UiB 2010–2013. Source: DBH.

Productivity is generally difficult to calculate and it is difficult to compare productivity across disciplines and faculties. The differences in the publishing cultures between the disciplines are too large for such comparison. Figure 2 shows the trend in the number of publication points per academic position for each faculty at NTNU in the period 2004–2013. Productivity has improved during the period.

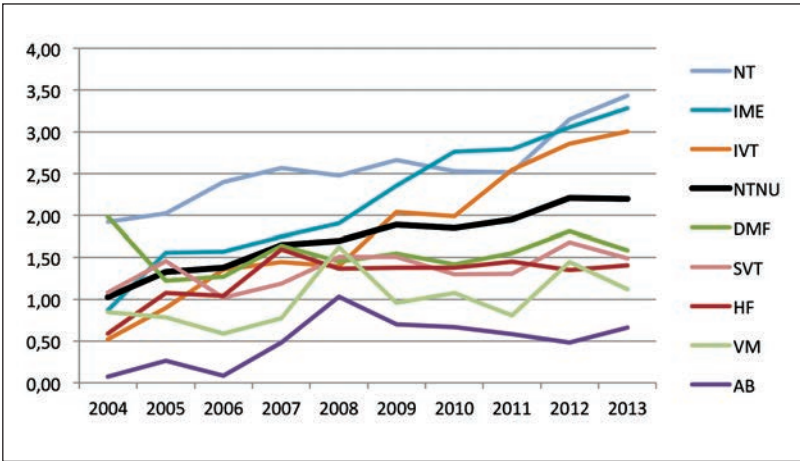


Figure 2: Publication points per academic position per Faculty at NTNU 2004–2013. Source: DBH.



Figure 3: Percentage of publication points (2010–2013) – cumulative distribution of employees in doctoral posts at NTNU in 2013
Reference: DBH¹

Figure 3 shows that 15 per cent of the staff are responsible for 50 per cent of the publication points. Skewed distribution in the productivity curve is not unique to NTNU. The figures are consistent with similar surveys from other Norwegian universities.

¹Underlying data: Employees at 1 October 2013 (DBH figures for full-time equivalents)

In the graphs, the following staff are included:

academic staff, permanent staff in doctoral posts: grade codes 1011,1013,1109,1110,1183,1404,1532

Employees in 20% positions or less are not included. Employees in administrative units are not included. Publication points are linked with the employee location in the organization (cf DBH figures for full-time equivalents); this is not necessary the same as the publication location in CRISTIN

Percentage not published / published per person (headcount) (that is, not per full-time equivalent).

In cases in which employees do not have publication points in CRISTIN, they are only included in the graphs if they:

- 1) have been employed (salaried position at NTNU) for at least 3 of the past 4 years
- 2) and have not had leave of absence for more than a total of 1 out of 4 years (for example, maternity/parental leave)

C) INTERNATIONAL CO-PUBLICATION

Table 3 gives international co-publication from researchers at NTNU with various countries and institutions in 2012, 2013 and both years combined. As the tables show, the countries and institutions with which we co-publish vary from one year to another. However, the USA and Karolinska Institutet were at the top of the list of countries and institutions for both years.

Table 3: International co-publishing at NTNU, 10 most frequent countries and institutions in 2012, 2013 and combined 2012 and 2013. Reference: Cristin.

2012			
Country	Number	Institution	Number
USA	289	Karolinska Institutet	39
Sweden	226	Imperial College	35
UK	214	Uppsala University	26
Germany	157	Lund University	24
France	112	University of Gothenburg	22
Italy	107	University of Copenhagen	21
Netherlands	104	Technical University of Denmark	20
Denmark	104	Russian Academy of Sciences	19
Canada	91	Royal Institute of Technology	19
China	82	Umeå University	16

2013			
Country	Number	Institution	Number
USA	290	Karolinska Institutet	33
UK	212	Technical University of Denmark	31
Sweden	198	Delft University of Technology	31
Germany	180	Imperial College	30
France	128	University of Copenhagen	26
Denmark	127	Lund University	26
the Netherlands	123	Uppsala University	26
Italy	106	Umeå University	24
China	95	King's College London	22
Spain	82	Stanford University	22

2012+2013			
Country	Number	Institution	Number
USA	579	Karolinska Institutet	72
United Kingdom	426	Imperial College	65
Sweden	424	Uppsala University	52
Germany	337	Technical University of Denmark	51
France	240	Lund University	50
Denmark	231	University of Copenhagen	47
the Netherlands	227	Umeå University	40
Italy	213	University of Gothenburg	39
China	177	Royal Institute of Technology	38
Canada	170	Stanford University	32

D) CITATIONS

The survey *Comparing Research at Nordic Universities using Bibliometric Indicators* compares Nordic universities and university colleges². Data have been retrieved from the *Science Citation Index Expanded*, *Arts and Humanities Citation Index* and *Social Science Citation Index*, (*Web of Science* – WoS). WoS has 257 subject categories, and these are collected in 8 subject fields: 1) Agriculture, fisheries and forestry, 2) biology, 3) biomedicine, 4) chemistry, 5) engineering and materials sciences, 6) geosciences, 7) health sciences and 8) physics and mathematics.

Social sciences and humanities are combined into one category, but are poorly covered in the database and are therefore not included in comparisons of citation rates below.

If one compares NTNU with the Nordic average in the period 2008–2011 as in Figure 3, it is clear that there is only one subject area in which NTNU is above average. This is in the area of physics/mathematics. In biomedicine, we are exactly at the Nordic average, while NTNU is below the Nordic average for the other subject areas, including engineering and materials sciences.

²Comparing research at Nordic Universities using Bibliometric Indicators, Second report covering the years 2000–2012, ed. Fredrik Niclas Pirlo, Nordic Institute for Studies in Innovation, Research and Education.

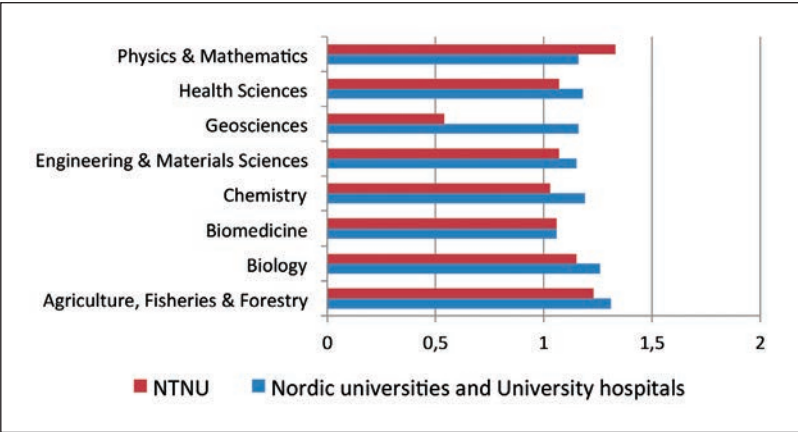


Figure 4: Field-normalized citation rates for NTNU and Nordic universities and university hospitals (2008–2011).
Reference: Comparing research at Nordic Universities using Bibliometric Indicators.

Table 4: Field-normalized citation rates and top 10 publications fractionalized for each subject area. 1.00 is the world average.
Reference: Comparing research at Nordic Universities using Bibliometric Indicators.

	Citation Rate			Proportion of top 10 publications			Proportion of field-normalized citations
	2000–2003	2004–2007	2008–2011	2000–2003	2004–2007	2008–2011	2008–2011
Technical University of Denmark	1.52	1.40	1.55	1.66	1.59	1.64	6205
Aalto	1.15	1.09	1.07	1.10	1.08	1.04	2329
Chalmers	1.14	1.08	1.12	1.12	0.95	1.16	2300
Royal Institute of Technology	1.21	1.07	1.08	1.15	1.02	1.11	3593
NTNU	1.05	1.05	1.10	0.95	0.96	1.07	3387
University of Bergen (UiB)	1.00	1.07	1.08	0.94	1.07	1.05	2757
University of Oslo	1.05	1.11	1.12	1.00	1.05	1.11	4790

The Technical University of Denmark (DTU) performs well in terms of both field-normalized citation rates and the proportion of top 10 publications. Note the growth in NTNU’s citations between periods 2 and 3, in line with the increase in the proportion of top 10 publications during the same period.

Table 5: Proportion of frequently cited publications, top 10 % in the world, 2008–2011. 1.00 is the world average.
Source: Comparing research at Nordic Universities using Bibliometric Indicators.

University	Agriculture, fisheries and forestry	Biology	Biomedicine	Chemistry	Engineering and Materials Sciences	Geosciences	Health sciences	Physics and mathematics
Technical University of Denmark	1.95	1.70	1.34	1.79	1.60	1.33	1.41	1.71
Aalto	1.11		0.77	1.26	0.96		0.57	1.16
Chalmers	2.04		0.90	1.39	1.10			1.15
Royal Institute of Technology	0.96		1.18	1.58	1.05	0.37	0.99	1.01
NTNU	1.29	1.12	1.02	1.10	0.99	0.47	1.01	1.42
University of Bergen (UiB)	1.33	0.98	0.99	0.62	0.98	1.26	1.14	0.53
University of Oslo	1.76	1.37	0.77	1.05	1.18	1.46	1.16	0.98
Nordic countries	1.37	1.32	1.02	1.22	1.12	1.22	1.20	1.19

