

NOR-CAM – A toolbox for recognition and rewards

In recent years, initiatives to further develop ways of assessing research quality and academic careers have increased in scope and strength. This guide proposes a more flexible and holistic framework for recognition and rewards that adopts core principles for assessment: more transparency, greater breadth, and comprehensive assessments as opposed to one-sided use of indicators.*

Open Science

There are strong indications that, in the time ahead, openness will be an integral part of all knowledge production and dissemination. Open research is about to become the new norm, and it will therefore be natural for all results, activities and competencies to be assessed in the light of the aims of open research. Open research will therefore affect how careers are assessed.

Assessing and recognising a greater breadth of competencies in research and teaching and interaction with society. Many of the activities that academic staff perform in line with the institution's goals and work are not systematically assessed or valued. Individual research achievements in the form of published research results are more strongly incentivised than other work, and individual achievements are given greater weight than collaborative efforts. A better balance in the assessment of the various key activities has been called for.

The need to reduce and modify the reliance on quantitative publication metrics in academic career assessment. The privileging of quantitative research results and the traditional, quantifiable indicators with which they are measured (e.g. number of publications, h-index and Journal Impact Factor) has become a challenge in many environments. These indicators do not always serve as valid proxies for research quality, they do not reflect the full extent of research activity, nor do they cover the other activities and competencies that are expected in an academic.

NOR-CAM (The Norwegian Career Assessment Matrix) can be combined for different purposes and needs. Such an expanded research assessment approach aims to incentivise and reward a broader range of

academic activities, and ultimately to improve academic culture and the quality of research.

The knowledge sector is global. Changing the framework for recognition and rewards in one country at a time would be difficult. Researcher mobility and international funding makes it challenging to implement practices that are at odds with international norms. NOR-CAM is therefore developed in close contact with partners in several other countries, as well as in the European University Association (EUA) and the EU.

An important goal of the guidance and framework is to make the assessment processes more transparent and predictable, both for the individual and for the institutions. What skills are needed for the position to be filled? How well does your own competence fit the position advertised? What are the requirements for promotion?

This will mean greater transparency about which assessment criteria are emphasised in the specific context, and will improve predictability, not least for applicants. It will also provide a better basis for career follow-up throughout the academic career path.

It is not enough just to agree on the need to modernise career assessment practices among academic leaders. Real change only happens when it becomes common practice within academic communities. Responsibility for implementing the new practice therefore must be rooted centrally in academic institutions and locally in departments and research centres. NOR-CAM and its principles will be a helpful tool for designing specific changes in routines for recruitment, evaluation committees and appointment committees.

Six principles

- 1. Measure quality and excellence through a better balance between quantitative and qualitative goals**
Bibliometric indicators should be used with caution and supplemented with other information
- 2. Recognise several competencies as merits but not in all areas at the same time or by each employee**
The individual academic is not expected to excel in all areas. It is the universities that must achieve the expected objectives given by the government regarding research, education and interaction with society, not the individual academic
- 3. Assess all results, activities and competencies in the light of Open Science principles**
Openness should be seen as an integrated part of the academic activity
- 4. Practice transparency in the assessment and visibility of what should be recognised as merit**
Individuals must know what criteria will be used to assess them and must be given insight into how the criteria are applied
- 5. Promote gender balance and diversity**
Changes in the assessment criteria must be sensitive to impact on gender balance and diversity
- 6. Assist in the concrete practice of job vacancy announcements and assessment processes locally**
The framework should be a helpful tool in the recruitment and appraisal processes in the institutions and within the academic communities

Four recommendations

- 1. To establish a comprehensive framework for the assessment of academic careers that:**
balances quantitative and qualitative goals and forms of documentation for academic standards and competencies

enables diverse career paths and promotes high standards in the three key areas: education, research and interaction with society

recognises the independent and individual competencies of academic staff as well as their achievements in groups and through collaboration
values Open Science principles (including open assessment systems)

values and encourages academic leadership and management

- 2. To engage internationally in developing a Norwegian assessment model because:**
changes in the assessment criteria cannot be made by one country alone
a Norwegian model can contribute to related processes internationally
- 3. To use NOR-CAM as a practical and flexible tool** for assessing academic results, competence and experience for academic personnel. NOR-CAM will highlight six areas of expertise through systematic documentation and reflection. *See the matrix on the next page.*
- 4. To develop an 'automagic CV system' that** enables academics to retrieve data that can be used to document competencies and results in their own career, including applications for positions, promotions and external funding

Who does what?

The institutions

NOR-CAM and the principles behind it should be supported by the institution's management and be incorporated into the institution's career and HR policy.

The institutions should update their guidelines for the announcement of academic positions and for assessment in connection with employment and promotion.

Scientific assessment committees should be followed up to ensure that the new system is implemented in practice.

Academic staff

Use NOR-CAM to document achievements and competencies with components from the entire range of academic activities.

Funders

Use NOR-CAM as a basis for assessing applicants and project participants' competencies when assessing research projects.

Authorities

Ministry of Education and Research: incorporate the principles of NOR-CAM into the new national framework for the evaluation of Norwegian research and higher education.

Directorate for ICT and joint services in higher education and research: Develop a module that makes it easy to import, register and retrieve documentation of results and competence ('automagic CV system').

*A working group appointed by Universities Norway (UHR) was mandated to recommend guiding principles for the assessment and evaluation of research(ers) in light of the transition to Open Science. The full text report can be found here: <https://www.uhr.no/en/front-page-carousel/nor-cam-a-toolbox-for-recognition-and-rewards-in-academic-careers.5780.asp>

NOR-CAM - A flexible toolbox

NOR-CAM - The Norwegian Career Assessment Matrix (NOR-CAM) serve as a framework for assessing general academic activity (results and competencies). One of the main aims of NOR-CAM is for multiple areas of expertise to be assessed more systematically than is currently the case.

1. Area of competence	2. Results and competencies (examples)	3. Documentation	4. Reflection
A. Research output	<ul style="list-style-type: none"> -Published works -Datasets -Software -Methodologies -Artistic results -Research reports 	CRIS systems (e.g. Cristin) and other databases	Reflection on the relevance and quality of the results. Emphasis is placed on open access to published works and other results, as well as whether the data adhere to the FAIR principles.
B. Research process	<ul style="list-style-type: none"> - Leadership and participation in research groups -Working across disciplines - Research integrity/RR1 - Editorial activity - Peer reviews - Building consortia - External funding - Development of research infrastructure -Leadership and participation in clinical trials 	CRIS systems and other databases. Narrative CV system with links to source data.	Reflection on roles and relevance. How and why various actors within and outside academia have been involved in the research process. Emphasis is placed on transparency in the research process.
C. Pedagogical competence	<ul style="list-style-type: none"> - Planning, execution, evaluation and development of lectures and supervision of students - Participation in the development of educational standards in academic communities - Mentoring - Devising and sharing learning materials 	CV system with links to source data. Institutional registration of lecturing activity. Pedagogical portfolio.	Reflection on formal and informal competence and experience. Emphasis is placed on open education and the sharing of educational resources.

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D. Impact and innovation	<ul style="list-style-type: none"> -Innovation -Entrepreneurship and commercialisation -Social innovation -Innovation in the public sector -Citizen science -Textbooks -Publishing activity -Research reports and studies -Application of research in public administration and industry 	CRIS systems and other databases. Altmetrics. Narratives and impact stories. Patents and licences.	Reflection on the relevance and effects of activities for society, as well as external contributions to research. Sharing of research and educational results with the general public and others.
E. Leadership	<ul style="list-style-type: none"> -Institutional and departmental leadership -Leadership in academic networks and projects -Leadership outside academia -Leadership in panels and other committee work 	CV system with links to source data, CRIS systems and other databases, narratives.	Formal and informal leadership, reflection on roles, processes and effects. Contribution to strategies and policy development in relation to open science.
F. Other experience	<ul style="list-style-type: none"> -Experience and competence from sectors outside academia. -Courses and discipline-related development work. 	CV system with links to source data.	Reflection on how these experiences contribute to the competence in general.